

# Chapter 4

## Issues and Concerns



## Development

---

### A “Bundle of Rights”

When you own land, you are said to have a “fee simple” interest. This interest is like a bundle of sticks, each of which represents a right associated



with the property. These rights include the right to farm, to extract minerals, to cut timber, to develop, and to do anything else with the property unless prohibited by law. These rights can be separated and transferred to other parties as “less-than-fee interest.”

An easement is one such less-than-fee interest. In granting an easement, an owner gives up some of the rights in a property, as specified in the deed of easement. For example, an owner can give a neighbor the right to cross his property (a right-of-way). Under a conservation easement, the owner may give up all or most rights associated with construction on the property, often referred to as the “development rights.”

---

**Cluster Development:** Haphazard spread of residential and commercial development throughout an area can lead to loss of important farmland and forestland, degradation of scenic vistas, adverse impacts on fragile natural resources, traffic congestion, decreased emergency response time, and costly and inefficient provision of government services. Directing growth towards designated growth areas which are carefully selected based on existing development patterns, transportation links, soil suitability, and location of fragile resources and environmental hazards, will result in safe, pleasant, and efficient development while protecting resources that are important to the county as a whole.

Clustering development within specified growth areas allows development to capitalize on existing infrastructure investments and more efficiently and cost effectively provide infrastructure improvements in the future. Roads, drainage, schools, police protection, and emergency services can all be provided more efficiently when development is clustered.

In order to ensure effective use of the areas outside of development clusters for agricultural, forestry, habitat, and recreational use, development outside of designated growth areas should be low density in nature. This density can be achieved through large minimum lot sizes, open space requirements for subdivisions and conservation area zoning.

**Waterfront Development:** A good amount of waterfront development has occurred in Accomack County over the last ten to fifteen years. This development has been significant enough to warrant some concern about the impact it may have on the environment and personal safety. High density waterfront development can pose a significant threat to property and the environment. Forty-four percent of Accomack County is located in the 100 year floodplain, bordering the county’s creeks and marshland. Structures in this area are prone to repeated damage from flood events. The coastal fringes are also most susceptible to saltwater intrusion in the groundwater aquifer from excessive pumping. Concentration of septic systems in close proximity to creeks and bays could lead to water pollution via contaminated groundwater leaching into surface waters. A proliferation of private piers on closely spaced waterfront lots also pose a threat to surface water quality.

Currently, Accomack County’s Zoning Ordinance does not include any specific requirements for waterfront development, except the 100 foot setback requirement of the Chesapeake Bay Preservation Overlay District. The 100 foot setback requirement should be implemented county-wide to provide the same level of water quality protection to seaside and bayside watersheds. Increased minimum lots sizes and water frontage requirements would limit the density of waterfront development and decrease the likelihood of impacts on water quality.

Town map “O”

Village map “P”

**Substandard Housing:** Lack of complete plumbing facilities, complete kitchen facilities, and adequate, safe heating are problems for many Accomack County residents. According to the 1990 Census, 7.5% of the county's housing stock is substandard. Accomack County should continue to support the efforts of the Accomack-Northampton Housing Corporation, VESEEHHC, and other organizations that are addressing this problem. In order to provide adequate plumbing to more houses, the use of alternative septic systems should be pursued in cooperation with the Health Department. Enforcement of the building and fire safety codes will ensure that new housing stock meets minimum standards.

The county has made use of Community Development Block Grant Program funds for rehabilitation work in communities with concentrations of substandard housing. The Board of Supervisors has prioritized the communities of Savagetown, Locust Mount, Metompkin, and Graysville for rehabilitation assistance. The Board of Supervisors has stated that these communities should receive priority in consideration for Community Development Block Grant Program funding and that other sources of funding should also be sought to address the needs of these communities.

A Housing Plan was developed for Accomack County by the Accomack-Northampton Planning District Commission in 1977. The implementation of this plan led to the creation of the Accomack-Northampton Housing and Redevelopment Corporation and has driven housing assistance and rehabilitation programs over the last twenty years. The county should consider creating an updated housing plan which includes an accurate survey of existing housing conditions, identification of housing needs, and a plan of action to address those needs. The county should seek assistance from the Accomack-Northampton Housing and Redevelopment Corporation in developing this plan and should assist in providing necessary funding.

**Manufactured Housing:** The Code of Virginia grants localities the authority to adopt and enforce building codes, safety standards, and land use ordinances to promote the public health, safety, convenience, and welfare. Section 15.1-489 of the Code of Virginia authorizes the county to provide for the health, safety and general welfare of the public through zoning regulations. Senate Bill 641 effectively removed these authorities for matters involving manufactured housing in agriculturally zoned areas.

Senate Bill 641, effective since July 1, 1995, limits the county's ability to regulate the placement of manufactured housing and thus limits the ability to provide for safe and orderly development of the county. A change of text in section 15.1-486.4 of the Code of Virginia, resulting from Senate Bill 641, requires all local governments to allow all manufactured homes built to the HUD code to be allowed by right in areas zoned as agricultural. HUD developed standards for manufactured homes in 1976 and homes built ac-

---

**Manufactured Housing**

The following table lists the number of permits issued for new housing units each year (conventional and manufactured) and the number of those permits that were issued for single-wide and double-wide manufactured housing.

Year	Housing		%
	Units	Man. Units	
1990 ...	253 .....	166 .....	66%
1991 ...	265 .....	132 .....	50%
1992 ...	316 .....	170 .....	54%
1993 ...	275 .....	123 .....	45%
1994 ...	316 .....	157 .....	50%
1995 ...	335 .....	223 .....	67%
1996 ...	292 .....	191 .....	66%

*Source: Accomack County Building Permits*

---

ording to those standards carry a HUD approval sticker. The new legislation states that manufactured homes bearing the HUD label shall be acceptable in all localities as meeting the requirements of the Virginia Manufactured Housing Construction and Safety Standards Law, and supersedes the building codes of counties, municipalities, and state agencies. Thus, any manufactured home bearing a HUD sticker is now allowed by right in agriculturally zoned areas. This change went into effect on July 1, 1995. In 1995 and 1996, the percentage of new home permits that were issued for single-wide or double-wide manufactured housing jumped by 16% to 17%.

A number of older manufactured housing units have appeared in Accomack County which, due to age, deterioration, and general wear, provide living conditions which would generally be considered substandard. Some of these units are in condition which would not be approved as acceptable for conventionally built structures. Yet, because these units bear a HUD approval label, they must be allowed in agricultural zoning districts. The inability to regulate minimum standards for manufactured homes thus creates a significant safety hazard to citizens who reside in these units.

Ninety-three percent (93%) of Accomack County is zoned as agricultural, reflecting the rural nature of the county. The county's zoning ordinance states that the agricultural zoning district, "is established for the specific purpose of facilitating existing and future farming operations, conservation of land and other natural resources, reducing soil erosion, protecting shellfish waters from pollution and reducing hazards from flood, fire and storm." Prior to the effective date of this legislation, Accomack County allowed double-wide manufactured homes and single-wide manufactured homes with A-frame roofs, house type siding, and a masonry foundation, by right in agricultural and residential zoning districts. Older manufactured homes were allowed in manufactured home parks or in agricultural and residential districts by special use permit from the Board of Zoning Appeals. Senate Bill 641 has taken away the county's authority to regulate the placement of these units in agricultural zoning districts and the county should request that State Legislators reconsider this law.

**Septic System Use:** Due to the lack of central waste water treatment facilities, most new development in the county, whether residential, commercial, industrial, or institutional, requires individual wastewater treatment facilities, i.e. septic systems or package plants. Septic systems are an efficient and effective waste disposal method, if properly designed, installed, and maintained. Key aspects of good septic system design and maintenance include location in relation to wells and surface water, separation from the groundwater table and soil surface, soil suitability, and regular septic tank pump-out.

It is important to understand the general suitability of soils for septic tank filter fields. The requirement of well drained soils, those that will effec-

Map Q  
Soil Suitability for Septic Systems

tively filter wastewater, is an influential factor to the development of the county. Either the soil on which development is to take place effectively filters wastewater or the waste must be pumped to a soil that will. In general, the Health Department's Division of Environmental Health finds the following soils acceptable: Bojac Loamy Sand (BhB), Bojac Sandy Loam (BkA), and Bojac Fine Sandy Loam (BoA). These are soils which will drain, allowing septage to properly filter through the soil.

Failing septic systems create potential health and water quality problems. When a septic system stops working properly, untreated effluent can make its way to the surface, into shallow wells or into nearby surface waters. Septic systems can fail due to poor design or improper maintenance. Some of the most common causes of system failure are age of drainfield, lack of maintenance and shallow or seasonally high water tables. The hazards of septic system failure are addressed in the Chesapeake Bay Preservation Overlay District of the county's zoning ordinance through requirements for a reserve drainfield area and regular septic tank pump-out. Development in the Overlay District that uses a septic system must have a reserve drainfield area, equal in capacity to the installed system, set aside for future use in case the installed system fails. Septic systems located within the Overlay District must also be pumped out at least once every five years. Pumping the sludge out of the bottom of a septic tank reduces that amount of suspended solids in the wastewater that goes into the drainfield, thus extending the life of the septic system by reducing the suspended solids that can clog the pores in the soil and cause the system to fail.

The pumping of septage effluent to a remotely located drainfield is a fairly common practice in Accomack County. This practice often results in effluent from multiple structures within a residential development being pumped to a small area of the development that has acceptable soils. The use of remotely located drainfields results in septic systems being more densely concentrated than they would be if the systems were located on individual lots. Very dense concentrations of septic systems limit the effectiveness of the soil in that area to absorb and filter septic waste. The location of these remote drainfield areas can be poorly marked and are often allowed to become overgrown in tall grass, shrubs and trees, making it difficult to locate and clear the area for drainfield placement.

Problems associated with remotely located drainfields could be addressed in the county's subdivision ordinance. Options available to address the potential impact of densely concentrated drainfields on water quality include requiring that drainfields be located on the parcel being served, limiting the percentage of lots in a development that may be served by remotely located drainfields, or regulating the density of remote drainfields through minimum separation distances or minimum lot size requirements. Currently, due to the Chesapeake Bay Overlay District reserve drainfield area requirement, the allowable density within a remote drainfield area on the Bayside is

half the allowable density on the Seaside. Drainfield density should be limited county-wide through adoption of the reserve drainfield area requirement throughout the county.

**Central Water and Sewer Systems:** Due to the need to use individual sewage disposal systems, development is currently dependent on good soils. This places development in competition with agriculture for the best land in the county. Provision of sewage treatment plants would allow development to occur in previously undevelopable areas, leaving the prime soils for agricultural use. However, the development of sewage treatment systems can be costly, may have adverse environmental impacts and, if not properly planned, can lead to uncontrolled growth within the service area.

Centralized water and sewer systems could be beneficial to certain areas of the county, but such systems should be considered only in the county's designated growth areas. Also, any proposals for centralized water or sewer should be carefully analyzed to ensure that the demand for the system justifies construction costs and any environmental impacts. If demand justifies a system and the system would help development in designated growth areas, steps should be taken to ensure that environmental impacts are minimized and the service area should be carefully planned to prevent sprawl and hazardous development.

## The Local Economy

**The Challenge:** A strategic plan for economic development on Virginia's Eastern Shore was developed by a local economic development advisory council in 1994. That plan defined the challenge to successful economic development on the Shore as holding on to the area's history, heritage, and fragile unique natural assets, while attempting to capture new concepts and opportunities for economic growth. According to the plan, the keys to economic growth are; revitalizing and diversifying the economic base, promoting homegrown entrepreneurship, investing in the work force and, investing in infrastructure.

Revitalizing and Diversifying the Economic Base: In revitalizing and diversifying our economic base, we must overcome a significant apprehensiveness toward economic development that arises from the misguided belief that economic development and environmental protection are mutually exclusive. This can be accomplished by conducting comprehensive regional strategic planning which seeks broad based input; employs a consensus building process; develops a vision for the region; and produces an action plan for implementation which targets economic development that is consistent with, and capitalizes on, the existence and preservation of our fragile ecological environment and unique Eastern Shore culture.

Promoting Home Grown Entrepreneurship: By promoting home grown entrepreneurship, we can create new opportunities for businesses and jobs for people who already have a strong commitment to the region; who are already knowledgeable of the area's strengths and weaknesses; and who will not require special inducements to locate here. This approach has the added benefit of retaining a greater percentage of business profits locally - enhancing capital formation for further regional growth. Emphasizing this approach does not preclude attempting to attract suitable businesses to locate in the region. In fact, it will enhance the attractiveness of the region to prospective firms.

Investing in the work force and infrastructure: Success in accomplishing economic development is highly dependent on the public sector's long-term commitment of resources for work force and infrastructure development. We must have the political will and leadership necessary to acquire the capital to improve the quality of our public school system; provide relevant training opportunities that will improve the quality of our labor pool; optimize those facets of our transportation system which support the economic activity envisioned by our strategic planning; develop regional solutions to water, waste water, and solid waste issues; and increase the supply and quality of housing for our citizens. Since the region is one of the poorest in the Commonwealth, financial assistance from the State is essential. We must, however, also examine our regional sources and uses of revenues to assure

they are consistent with the priorities which emerge from our strategic planning.

**Recommendations:** The following discussion includes information and recommendations from the *Strategic Plan for Economic Development on the Eastern Shore*, the Countryside Stewardship Exchange Report, and the Eastern Shore Economic Development Commission's Plan of Action.

Business and Industrial Development: Exciting opportunities exist for the Eastern Shore to attract and develop new businesses and industries, retain existing companies, and encourage expansion. Business and industry development can provide well paying jobs, a diversified tax base, improved quality of life, retention of our young people as they enter the work force, and a stable economy. To be successful in recruiting, developing and sustaining new industry, the Eastern Shore must pursue an economic development strategy that balances the needs of growth against those of protection of our ecological resources and rural character.

Industrial Park: The Shore's industrial parks and properties marketed by the Eastern Shore of Virginia Economic Development Commission are superb development assets. The Accomack County Airport Industrial Park is served by water, sewer, and paved streets and is strategically located adjacent to the County's airport, the Eastern Shore Community College, and U.S. Route 13.

Foreign Trade Zone Designation: NASA's Wallops Flight Facility, the Cape Charles Port area in Northampton County, and the Accomack County Airport Industrial Park have great potential as a Foreign Trade Zone (FTZ). A FTZ designation by the U.S. Department of Commerce would serve existing and future companies as an economic development incentive through the elimination or deferral of import duties. A Foreign Trade Zone application is currently being prepared by the Eastern Shore of Virginia Economic Development Commission.

Small Business Development: The development of micro-business enterprises would provide opportunities for the establishment of resident owned and operated or employee owned businesses. An Incubator/Business Center would provide the facilities, services, equipment, and expertise required by new and expanding local enterprises at a single location and at a cost that would increase the chances of those businesses succeeding. Such a center could be a partnership of local business service providers such as banks, chambers of commerce, local enterprise agencies, and local governments. The benefit of such a center lies in both the combined expertise gained from the partnership which would benefit regional economic development and individual gains for service providers through referrals.

Artisans and small production companies are a growing sector of the county's economy. Many producers of local arts, crafts, and food products would benefit from a marketplace which would sell and promote their products. A marketplace, located on Route 13, could provide this central outlet and encourage highway travelers to stop and shop in Accomack County. This concept has been developed successfully in North Carolina and West Virginia.

Federal and Local Enterprise Zone Incentives: In 1994, parts of Accomack County were designated as a Federal Enterprise Community and State Enterprise Zone. The state provides an incentive package for business in the Enterprise Zone but the federal government provides no incentives. The addition of a federal incentive package would be beneficial to promoting growth in the zone and Accomack County should support any efforts to have such incentives developed. In addition to the tax incentives provided by the state to businesses that locate in the Enterprise Zone, localities are encouraged to adopt local incentives. Although these incentives will not be of the same monetary impact as those provided by the state, they advertise the county's pro-business attitude. Examples of local incentives initiated by other localities include accelerated permit processing, crime prevention programs and education, waiver or reduction of certain permitting fees, real property rehabilitation tax abatement (i.e. five year, tax credit on the increased assessed real property value resulting from rehabilitation work completed on commercial or industrial property), and machinery and tools tax credit (i.e. five year exemption from machinery and tools tax to qualified businesses). Some localities that give tax rebates base those rebates on the number of jobs that a business creates.

***Commercial Space Activity:*** Virginia is uniquely positioned to capture a portion of the emerging market for commercial space activity. The existing infrastructure at NASA's Wallops Flight Facility provides maximum leverage for any new capital investment which targets this market. Advantages include (1) Satellite orbits, which provide coverage of the majority of the earth's populated land mass, can be launched from Wallops Flight Facility with less energy (i.e. less cost) than from any existing launch site in the U.S. (2) The Eastern Shore is a "radio frequency quiet" area making it an ideal location for ground stations supporting satellite operations (3) Wallops Flight Facility's mission and tempo of operations provide the launch schedule flexibility needed to profitably conduct commercial activity (4) Wallops Flight Facility has earned the reputation as a low cost/quick response utility - attributes compatible with commercial activity.

Development of the Space Port at Wallops Island is currently underway. The Space Port will handle commercial rocket and satellite launches. If successful, this project could have a significant impact on Accomack County's economy. In addition to revenue generated by Space Port activities, it is expected that additional support industries will locate in the vicinity of the facility. The county should actively seek to capture a major sector of the

emerging market for commercial space activity by supporting development of the Space Port.

**Tourism:** Virginia's Eastern Shore is a peaceful peninsula nestled between the Atlantic Ocean and the Chesapeake Bay. There is an abundance of natural scenic, recreational, and multi-cultural assets which offer saltwater fishing, beaches, bird watching, hunting, boating, antique shops, a unique style of architecture, and historic old homes. Tourism development must be carefully planned to create a diversity of attractions, have a low impact on the environment and link the interests and assets of existing businesses, communities, and individuals with the county's environmental and cultural assets for the benefit of the county as a whole.



The county's unique heritage and natural resources present opportunities for increased tourism activity. Tourism could be encouraged through extension of the heritage trail into Accomack County and development of museums and information points which would interpret Eastern Shore history and direct visitors to local points of interest. Signs on Route 13 could be used to entice travelers to venture off the highway and direct them towards towns, harbors, beaches, and points of interest. The Eastern Shore should have representation at the Virginia visitor center on Route 13 to encourage travelers entering the state the explore the area. Special events such as the Seafood Festival, Harvest Festival, Garden Tour, and Birding Festival and attractions such as beaches and parks should be actively promoted.

**Infrastructure:** Businesses investigate the quality of infrastructure, such as available facilities, utilities and the transportation network, when selecting locations for operation. These items must be given attention in order to be competitive with other areas also trying to attract new industry.

**Facilities:** The availability of quality business facilities is important to recruitment efforts. There is a lack of existing modern industrial and office buildings in Accomack County for new business to move into. A prospective location is more attractive to a business if that business knows that either a building is ready for them to move into or that they will face few obstacles in obtaining the land and necessary permits to build. In order to stay competitive, some localities construct shell buildings to attract new business. Construction of these buildings can be funded through a revolving building fund. With a revolving fund, the Industrial Development Authority constructs industrial buildings, and when the first buildings are sold or leased, the proceeds are used to build more buildings. Another, less desirable, option is to establish a "ready-to-build" program which provides cleared and pre-permitted sites with building plans drawn, building costs estimated and sources of financing identified. With this option, prospective businesses can be assured that an approved building site is available. The county should research, and possibly establish a revolving fund for, the construction of speculative industrial buildings and consider the establishment of a "ready-to-build" program for new businesses.

Sewage Disposal: One town in Accomack County, Onancock, has central sewage collection and tertiary treatment facilities. The Accomack County Industrial Park has its own water supply and water tower and is connected to Onancock's sewage treatment plant. All other areas, including the incorporated towns, use various septic systems. Properly designed septic systems provide an effective and efficient method of waste disposal. Placement of septic systems, however, are dependent on the availability of suitable soils. Approximately 35% of Accomack County has soils that are suitable for septic system installation. Traditionally, the distribution of suitable soil has directed the distribution of residential and commercial development. As Accomack County continues to grow, it may be desirable to investigate alternatives to individual septic systems. Any sewage treatment systems proposed should be designed to minimize impact on the environment and should serve compact development areas around villages and towns.

Transportation: The Eastern Shore has several major components of an effective and complete transportation system to support business activity and development. Accomack County Airport, with a 7,000 foot runway (5,000 feet lighted), is strategically located on the coastal North-South air routes and offers a low-activity destination, interim rest and refuel, and a possible training location for various sized commercial aircraft. Its location, adjacent to the Accomack Airport Industrial Park, gives added advantages for businesses requiring on or near airport locations and operations.

U.S. Route 13, a major four-lane highway, connects Virginia to Maryland, and the Eastern Shore to the Virginia mainland via the Chesapeake Bay Bridge-Tunnel, an 18 mile long structure of multiple bridges and tunnels. U.S. Route 13 is the major transportation link for all commercial, industrial, and tourism activities on the Eastern Shore. Eleven interstate commercial carriers, primarily engaged in furnishing "over-the-road" trucking and common carrier services to the Eastern United States, are in operation on the Eastern Shore. The Eastern Shore Railroad (ESRR) provides rail service from Norfolk through the Port of Cape Charles to Pocomoke, Maryland and offers interline transport of products and material that is critical to many local businesses. Onancock and Chincoteague harbors and waterways also offer additional locations for barge transport operations.

Education: Job training is closely linked to the creation of jobs. Residents must have the opportunity to pursue training for available jobs and new industry needs assurance that a trained work force will be available to fill necessary positions. The county is served by a public school system and the Eastern Shore Community College. Both offer significant services to business and industry. Enrollments suggest stable high school graduation numbers with college enrollment at 1,200. Of that number, 730 are at the Community College and 470 at other institutions. Literacy/GED classes enroll 375 adults. The public school test scores and the percent of adults with high

school diplomas are below state averages. High schools offer varied vocational programs and work closely with the college. In order to develop a work force that is well trained to fill the needs of local industry, business, education and community representatives should work together to identify local training needs and facilitate solutions. The public schools should also work to improve student performance and graduation rates, and pursue tech-prep, school-to-work transition, dual enrollment, technology utilization, and other options to increase student preparedness for the work force.

**Regional Cooperation:** The success of regional economic development efforts on the Eastern Shore requires an effective working relationship between various public and private organizations and individuals. The broad range of programs and projects being pursued by these interests represents a major commitment of valuable Eastern Shore resources. Since the success of these separate efforts depends upon a sustained commitment of resources over a long period of time, a high degree of cooperation is needed to jointly agree on regional priorities.

An essential feature of this cooperation is the process for determining and assuring an equitable and adequate allocation of these limited resources to projects and programs that have the greatest potential to benefit the most people in our region. Accomack and Northampton County and town governments must play a leadership role in encouraging inter-county cooperation. Bi-county organizations such as the Eastern Shore of Virginia Economic Development Commission, Accomack-Northampton Planning District Commission, and the Accomack-Northampton Transportation District Commission can provide an effective framework for accomplishing projects which impact the whole Eastern Shore. Significant economies can be realized by combining resources and finding shore-wide solutions to critical infrastructure needs.

**Growth Trends:** Current trends show significant growth in service industries while the manufacturing and agriculture/seafood sectors are declining. Aquaculture and shellfish farming, however, are showing new growth potential and offer new business opportunities with intensive management and farming techniques. Tourism offers many opportunities to support development efforts. Eastern Shore tourism is primarily based on the area's natural, ecological, cultural and historical assets. Two new festivals have emerged on the Shore; one focused on the harvest season and its bounty and the other on nature and bird watching.

**Labor Pool:** The county's labor pool includes a large, under-utilized, low-wage and unskilled labor force. Many workers are caught in a low skills/low wage economic trap. The most visible trends affecting the labor pool today are (1) college educated and skilled labor is relocating elsewhere for better paying, quality jobs off the Shore and (2) employment opportunities are declining. It is believed that those workers "out-migrating" would stay

on the Shore if a broader range of employment were available. The Eastern Shore Community College provides vocational training programs which serve many of the community's needs but continues to produce graduates that must leave the Shore to find work in their field.

## The Seafood Industry

Seafood production is an industry that holds important ties to Accomack County's past and future. For years, watermen have made their living harvesting fish, crabs, oyster, and clams and many others were employed by seafood processing plants. Today, crab, oysters and clam quantities have declined and most of the seafood processing plants have gone out of business. Aquaculture, the farming of fish and shellfish, has become the seafood industry of the future.

**Seafood Harvest:** Seafood catches continue to steadily decline. To compensate for decreased catch, watermen have tried extending their season and switching to species that are more abundant.

**Seafood Processing:** Many of the Shore's seafood processing plants have closed. Closure was brought on by both declining seafood harvests and the state's adoption of more stringent water quality standards. Some of the plants, faced with decreased profits were unable to afford to upgrade their plants to meet the new standards. The DEQ is now working on general permits for seafood processing plants which save the applicant money and streamline the application process. For these general permits, DEQ develops requirements for category-specific permits with EPA and adopts the permits through the regulatory process. Individual facilities in Virginia are then able to apply for and be covered by the umbrella of a general permit. This should relieve some of the burden placed on processors that are required to obtain a permit.

**Water Access:** Currently, watermen have little trouble gaining access to the Bay and Ocean to make their living. However, as waterfront development continues to increase and areas traditionally used by the public change hands, access could become more scarce. In recognition of the seafood industry's importance to Accomack County, effort should be made to ensure that adequate waterfront access is maintained for boat access and water dependent uses such as crab shedding.

**Aquaculture:** Fin and shellfish populations are declining while the demand for seafood continues to grow. Virginia's Eastern Shore has the reputation for good seafood, there is a large labor force, and markets are established. The area is bordered on the east by the Atlantic Ocean with a coast of pristine bays and creeks, and on the west by the nutrient rich Chesapeake Bay. The traditional seafood industry is in serious decline, but Virginia's Eastern Shore remains an ideal location for major shellfish and finfish aquaculture. Taking advantage of the location, reputation, work force and markets, aquaculture could revitalize the seafood industry. The county should work to identify the level of water quality necessary for viable aquaculture operations and establish standards to be maintained in waters supporting aquaculture.

---

### Growing Clams

Growing clams is the basis of a million dollar aquaculture industry on the Shore. Hard clam operations hatch and feed clams in holding tanks until they are large enough (about 4 millimeters) to move outdoors. The small clams are placed in long sloughs of fresh, unprocessed seawater, to prepare them for planting in the shallows of coastal bays. The "grow-out" stage of the process is often handled by independents who work on a cooperative basis with the hatcheries. The entire process, from spawning tank to market, takes two and a half years. Producing high enough spawn rates from broodstock is essential to success. The Shore's aquaculture industry has experienced lower than usual spawn rates over the last several years.



**Water Quality:** In the shellfish aquaculture industry, water quality is important because seawater from tidal creeks is used in raising young shellfish that are very sensitive to water conditions. In recent years, several aquaculture operations have suffered clam larvae mortalities attributed to water quality problems. At times these problems have been related to large-scale runoff in the greater Chesapeake Bay basin which reduced salinities and at others to blooms of toxic dinoflagellates. In 1996, controversy arose between aquaculture operators and farmers accused of creating a pollution problem. The water quality problems were occurring in creeks downstream from agricultural fields in plasticulture production. Plasticulture is a method of farming that uses plastic ground covers to control soil moisture, reduce pesticide requirements and increase yields. Problems observed in shellfish hatcheries included chronic feeding inhibition and shell deformation in larvae and acute toxicity to larvae and juveniles. These occurrences are consistent with both heavy metal and organic toxicant contamination.

A study conducted by the Virginia Institute of Marine Science evaluated water quality in seaside creeks in relation to the presence or absence of vegetable cultivation using plastic ground cover within the watershed. Eleven sites in six watersheds were tested. Sites were selected to represent a variety of surrounding land use. Since problems witnessed at the hatcheries indicated heavy metal toxicity, water at each site was tested for the presence of heavy metals. Each site was also tested for toxicity from insecticides. Insecticide toxicity was tested using grass shrimp, a common inhabitant of tidal marshes and creeks that is sensitive to insecticides.

Water quality test sites	marsh &		urban/		
	open water	woodland	res.	cropland	plasticulture
Phillips .....	11% .....	32% .....	4% .....	53% .....	0%
Nickawampus .....	5% .....	38% .....	5% .....	51% .....	<1%
Indiantown .....	1% .....	35% .....	4% .....	47% .....	13%
Gargathy .....	7% .....	33% .....	4% .....	51% .....	5%
Finney .....	2% .....	40% .....	3% .....	46% .....	9%
Folly .....	6% .....	32% .....	7% .....	48% .....	7%

Evidence of metals toxicity was observed in filtered water samples collected from the upstream site at Gargathy Creek. Less toxicity was observed in the midstream site at Gargathy Creek. Metals toxicity was also observed in filtered samples from Finney and Nickawampus Creeks. A trace of toxicity was observed in unfiltered water samples from Wachapreague Channel and Indiantown Creek. At the upstream location on Gargathy Creek, complete mortality of the shrimp was observed after virtually every rainfall event. Available data indicates that this mortality was not associated with low salinity or dissolved oxygen levels. Coupled with observations of direct runoff from an adjacent tomato field, the implication of this finding is that agricultural practices in the immediate watershed are impacting living resources at this site. A similar, but less severe, pattern of mortality in relation to

Map H  
A&F Districts

Map S  
Prime Ag. Land

rainfall was observed at the downstream site at Gargathy Creek. Mortality of shrimp was also observed at Indiantown Creek, but generally only after rainfall events in excess of 50 mm / 48 hr. The Finney Creek site experienced approximately 70% mortality after a large rainfall, but over 30% mortality was observed in Nickawampus Creek, which has almost no vegetable cultivation, following the same rainfall. Upstream stations at Folly Creek and Phillips Creek, along with downstream stations at Folly Creek and Wachapreague, experienced only minimal mortalities.

**Information Needs:** Additional information is needed on the role water quality and surrounding land use has on the seafood industry in order to effectively manage impacts. The recent controversy between the agriculture and aquaculture industries has lead to a good deal of research and study. The county should carefully monitor the results of these studies and take action to correct problems that are defined.

## Agriculture

**Viability:** Conditions which affect the viability of commercial farming include soils, farm size, land ownership, surrounding development patterns, taxes, and market conditions.

**Soils:** Soil factors such as permeability, depth, natural fertility, and drainage are important when considering the agricultural potential of a piece of land. In general, loamy soils are best suited for crop production, being of medium porosity they can hold enough water and air to support good crop growth. In Accomack County, bojac and munden are the soils best suited to crop production. Bojac soils are also the prime soils for residential and commercial development because they are the soils most suitable for septic systems. This creates competition between farmers and developers for the best soils.

**Farm size:** The geography of the Eastern Shore does not allow for large, contiguous farm tracts. The peninsula is narrow and land is bisected frequently by creeks. Efficient, large scale farming often requires the use of large high-speed equipment which requires large areas in which to maneuver. The USDA conducted a study in 1981 which determined that the most efficient corn-producing farms in the Midwest were about 640 acres. The study also found that efficiencies of 90% could be achieved on farms as small as 300 acres. The average farm size in Accomack County is 328 acres. It is important that viable farmland be protected from fragmentation by residential and commercial development.

**Land ownership:** Population increases and the resultant competition for land leads to higher land values. As land values increase, it becomes difficult for a farmer to purchase land for a new operation or expansion. Instead, farmers are forced to lease land. Non-farmer land owners are often reluctant to tie up the potential development value of their property with long term agricultural leases. When the land owner decides to sell or develop the land for another use, the farmer must find other land to farm. A side effect of non-farmer ownership of agricultural land is that, without a commitment to a long-term lease from the property owner, the farmer leasing the land may not be willing to invest in long-term soil improvement measures and soil quality can be adversely impacted over the long term.

**Taxes:** Real Estate taxes are usually based on fair market value which is derived from the “highest and best use” of that piece of property. As development pressures increase in a rural area, increasing property taxes can have a real impact on agricultural land owners. If farm land is in an area with development potential, that property may be taxed based on it’s potential as residential or commercial property rather than its current agricultural use. Agricultural use of the land may not produce enough income to offset in-

---

### Farm Ownership

The following table list Accomack County farm acreage by ownership for 1987 and 1992.

	Acreage	
	1987	1992
<b>Full owners</b> ....	10,740 .....	10,425
<b>Part owners</b> ...	66,621 .....	63,758
<b>Tenants</b> .....	12,414 .....	17,385

*Source: 1992 Census of Agriculture.*

---

creased taxes and may force property owners to pursue other uses for their land.

Accomack County currently offers land use taxation for property in agriculture or forestry use. Under land use taxation, property is assessed at its agricultural or current use value instead of fair market value. The savings to owners of agricultural property can be significant. The land use taxation option affords relieve from pressures to remove land from agriculture and develop it to its “highest and best use.” When land that has been in land use taxation is developed for more intensive use, roll back taxes must be paid by the property owner.

***Surrounding land use:*** Farming and residential development seldom successfully mix. As rural development increases and residential developments spring up in formerly agricultural areas, conflicts between the newcomers and surrounding farmers often occur. Agricultural practices which occur in once wide-open areas now pose nuisance problems for homeowners who have moved to the country. People who move to the country with bucolic visions of rural life are soon confronted with the realities of manure spreading, pesticide spraying and noisy farm equipment operating at all hours of the day. The result is an increase in complaints and nuisance lawsuits against farmers. When a farm is creating a nuisance that threatens neighboring property owners, the farmer is usually forced to modify or cease the offensive agricultural practices, regardless of whether the farm was there first.

Accomack County currently requires that a statement be recorded on the plat of any subdivision created in an Agricultural zoning district, stating that, “These residential building lots are located in an area and zoning district specifically designated for agricultural activities, including horticulture and the raising of animals. Residents may expect the use of herbicides, pesticides, and fertilizers on adjacent agricultural fields, as well as other general agricultural activities, including plowing, spraying, pruning, and harvesting, which may occasionally generate dust, smoke, noise, and odor, and may also include changes from one specific agricultural activity to another.” In spite of this notice, conflicts still arise and it is best to keep these uses segregated.

The conflict that arises from uses incompatible with agricultural operations illustrates the need for agricultural zoning that minimizes those conflicts. Currently, Accomack County’s zoning ordinance allows uses such as single family housing, schools, churches, and post offices by right in an Agricultural district. In addition to those uses, all other uses are allowed by special use permit; specifically: camping facilities, light industry, retail stores, restaurants, office buildings, health care facilities, mobile home parks, duplexes, apartment buildings, banks, hotels, motels, and “any use of land and/or any permanent or temporary location of any type of building or facility thereon which is not specifically permitted within this ordinance.” Many of the uses

specified are not compatible with the use of land for agricultural production and should be excluded from a district that takes the goal of agricultural production seriously.

**Agricultural and Forestal Districts:** In 1983, the Accomack County Board of Supervisors created 22 Agricultural and Forestal Districts which contain 82,560 acres of land. Property owners made application for inclusion of their land in an Agricultural and Forestal District and those applications were considered by an Agricultural and Forestal District Advisory Committee, the Planning Commission, and the Board of Supervisors. In considering land for inclusion, the County reviewed the agricultural and forestal significance of land within the district (significance is evaluated based on soils, extent and nature of farm improvements, present status of farming and forestry, anticipated trends in economic conditions and technology, etc.), the nature and extent of land uses other than active farming or forestry, and local development trends and needs. The ordinances creating these districts state that land in the districts is “land which requires conservation and protection for the production of food and other agricultural and forestal products and as such is a valuable natural and ecological resource, providing open spaces for clean air and adequate and safe water supplies and other aesthetic purposes and is therefore valuable to the public interest.” Land in these districts qualified for land use taxation, under which land is taxed based its current, rather than “highest and best” use. In 1994, the Board of Supervisors approved amendment to each of the Agricultural and Forestal Districts in include a paragraph stating that, “In order to further the intent and purpose of this Ordinance, in accordance with provisions in Section 15.1-1511, Code of Virginia, (1) any lands currently included, or subsequently added to, this District shall not be developed to any more intensive uses, other than for more intensive agricultural and/or forestal production, (2) nor shall any rezoning request for more intensive uses, nor any subdivision of lands be permitted within a District for other than agricultural and/or forestal uses, unless such lands are first approved for removal from the District, in accordance with Section 15.1-1513, Code of Virginia.

The state enabling legislation which allows for the creation of Agricultural and Forestal Districts has a stated purpose of providing “a means for a mutual undertaking by landowners and local governments to protect and enhance agricultural and forestal land as a viable segment of the Commonwealth’s economy and an economic and environmental resource of major importance.” The enabling legislation provides insurance that agricultural uses may continue unimpeded by local regulation by stating that, “No government shall exercise any of its powers to enact local laws or ordinances within a district in a manner which would unreasonably restrict or regulate farm structures or farming and forestry practices in contravention of the purposes of this chapter unless such restriction or regulation bear a direct relationship to public health and safety.” The legislation goes on to state that, “Local ordinances, comprehensive plans, land use planning deci-

sions, administrative decision and procedures affecting parcels of land adjacent to any district shall take into account the existence of such district and the purposes of this chapter,” ensuring that local plans and regulations are consistent with the purpose of the Agricultural and Forestal Districts created.

## Pollution Control

Much of Accomack County's economy is based on the wise use of natural resources. The key to continued utilization of these resources lies in promoting economic development that is compatible with the county's goal of protecting the natural resource base. Adverse environmental impacts can be minimized through the use of performance standards and Best Management Practices (BMPs) for all land uses. BMPs are conservation measures that can be used to lessen the impact a land use has on environmental resources. Effective BMPs have been developed for agricultural, industrial, commercial, and residential land uses.

---

### Nutrients in Water

Fertilizer and nutrients from farmland, household detergents and sewage stimulate excess algae growth in waterways. The algae die, respire and decay. If water has too much organic waste, such as dead algae, bacteria, which break down the waste, use more dissolved oxygen than usual, leaving reducing dissolved oxygen levels. Most aquatic life does well in water with oxygen concentrations of nine parts per million. Concentrations less than five parts per million will asphyxiate some species.

---

Traditionally, land use regulation and environmental protection have been achieved through specification standards with which allowable land uses and development activities are specified by zoning, subdivision ordinances and building codes. Specification standards indicate what one can or cannot do. Performance standards are increasingly being used for environmental regulation. Performance standards are concerned with results. Standards are set and the method of achieving those standards is left up to the developer. The difference between specification standards and performance standards can be illustrated through the example of a building code that mandates what materials can be used for a wall versus a code that states how the wall should perform, in terms of fire resistance and other factors. The specification code tends to stifle innovation while the performance code tends to encourage it. A performance code eliminates the need for the drafters of the code to know about and test all available materials and processes. Instead, the proponents of the new materials or process must prove that it performs as required. Performance standards work particularly well for environmental regulations where the goal, such as a particular water quality standard, is known and there is an ever evolving number of options available for achieving that goal.

**Erosion and Sediment Control:** Sedimentation is a source of nonpoint source pollution which impacts the quality of surface water. As sediment increases, it reduces the amount of light and oxygen available for living organisms in the water. As it settles, sediment covers and inhibits the respiratory functions of immobile bottom dwelling organisms such as oysters, clams and submerged aquatic vegetation. Sediment also acts as a carrier of other forms of pollution such as nutrients and toxic compounds.

Erosion and sediment control regulations are principally concerned with the process of construction. Agriculture and forestry operations are exempt from the regulations. Accomack County has an erosion and sediment control ordinance which requires that construction activity be managed in a way that minimizes the potential for soil to leave the site. Projects in Accomack County must conform to the state's established minimum standards for erosion control.

**Stormwater Management:** Impervious surfaces created by development prevent the natural infiltration of rain water into the soil. Rain flows off these surfaces in sheets, carrying with it pollutants that have collected on these surfaces, and concentrates and collects in low areas, often causing erosion and flooding. The first inch of rain carries away most of the pollutants which have accumulated on surfaces. Certain techniques can be used to control stormwater and reduce the likelihood of flooding, erosion and water pollution.

Stormwater management regulations regulate the effects of development after construction by requiring that post construction water runoff quantity not exceed what would occur if the site was left in a natural condition and/or limiting the level of pollutants that leave the site. There are many options available to developers to meet these standards. Infiltration trenches are probably the most common devices used. They typically consist of a shallow trench two to ten feet deep, filled with coarse stone aggregate permitting water storage and gradual infiltration into the soil. Vegetated or grass swales are also commonly used. These are depressions in the ground which slow and trap runoff permitting infiltration. Filter strips and roof drainage systems that runoff to grass areas are similar approaches, though they may require more space and hold less capacity than trenches. Porous pavement, concrete grids and lattice blocks represent alternatives to the conventional impervious material used to build roads and parking areas. Recharge or percolation basins are another infiltration strategy and are usually built around stormwater collection outflows.

Detention devices such as ponds or basins are very effective in collecting stormwater runoff and removing pollutants through the settling of sediment. Wetlands, both natural and man-made, are quite effective at absorbing rainwater and filtering out pollutants. It may not be desirable, however, to expose pristine natural wetlands to stormwater pollutants. To effectively use wetlands as filters or detention areas it may be necessary to incorporate pre-treatment lakes to reduce sediment loads and remove certain types of pollutants (i.e. oil and grease).

Accomack County's erosion and sediment control ordinance regulates the quantity of stormwater runoff for any project over 10,000 square feet in size. Developers are required to show that increases in the volume, velocity, and peak flow rate of stormwater runoff will not create erosion of properties or waterways downstream. The stormwater management regulations require that increased volumes of sheet flow that may cause erosion or sedimentation on adjacent property be diverted to a stable outlet, adequate channel or detention facility and that concentrated stormwater runoff leaving a development site must be discharged directly into an adequate natural or man-made receiving channel, pipe or storm sewer system.

Stormwater *quality* is regulated within the county's Chesapeake Bay Preservation Overlay District. These regulations require that stormwater runoff be controlled by the use of best management practices that achieve, for new construction, post-development nonpoint source pollution runoff load that does not exceed the pre-developed load and for re-development, post-development non-point source pollution loading that is ten percent less than the existing level. These stormwater quality standards are important in that, while stormwater quantity standards protect from flooding and erosion by requiring that runoff be diverted to an adequate receiving channel, no consideration is given to the quality of water entering that channel. The Bay Overlay District's nonpoint source pollution loading standards provide an additional level of water quality protection within the Chesapeake Bay watershed. No comparable protection is provided for Seaside water quality protection.

**Contamination from Septic Systems:** Researchers at Virginia Tech conducted an extensive literature search for the Virginia Health Department regarding the cause and effect relationship between on site wastewater disposal systems and ground and surface water pollution. The study identified nitrates, bacteria, and viruses as the principle pollutants generated from on-site wastewater disposal systems (septic systems). It was found that groundwater has the greatest potential for pollution where septic systems occur in high density or are placed in soils with high water tables and/or coarse sand. The extent to which Virginia groundwaters are being polluted by septic systems is currently unknown.

The study calls for further research to document the extent of groundwater pollution attributable to septic systems in Virginia, identify the areas within the state most susceptible to pollution, evaluate the maximum density of septic systems a recharge basin can safely support in terms of groundwater pollution, and establish standards for separation distances between septic systems and high water tables. The report also recommends that alternate systems be developed to reduce the level of nitrates leaving the system.

The Virginia Department of Health is currently considering changes to their sewage handling and disposal regulations that would lessen potential for groundwater pollution from on-site sewage treatment systems. The pro-

posed changes are in response to a task force report and the issuance of federal regulatory guidelines for the siting and operation of on site waste disposal systems. The Task Force on Septic Tank Regulations was charged with examining the adequacy of Virginia's regulations relative to groundwater contamination and consisted of representatives from the development community, environmental interests, private sector soil scientists, industry, academia, and affected regulatory agencies. The federal guidelines were issued by the Environmental Protection Agency (EPA) under Section 6217 of the Coastal Zone Management Act and requires "...states with coastal zone management programs to develop coastal non point pollution programs to control sources of non point pollution which degrade coastal water quality or face the loss of federal grant funds."

The proposed revisions include; increasing the separation distance to a water table below a drainfield from 2 to 20 inches to 18 to 24 inches, wording to encourage the use of new and innovative on-site wastewater technologies by granting provisional approval to promising new systems, increasing groundwater protection standards for large on-site systems (mass drainfields), reducing the installation depth for conventional systems from 18 inches to 6 to 12 inches, adding provision that will make it easier for homeowners to know when to pump their septic tank, and making administrative changes designed to revise cumbersome portions of the regulations and make it easier for the public to comply with the regulations. The increased water table separation distance is expected to cause a slight increase in the rate of septic system permit denials that occur in areas having coarse sandy soil, such as Accomack County. The Department expects an increase of about 12 permit denials a year in Accomack County, out of approximately 440 applications processed annually. A committee is evaluating the use of sand-on-sand fill to address the separation distance problem. Some sites that cannot be developed under the current regulations may be developable under the revised regulations which allow for the use of innovative technology. It may therefore be possible that a net increase in the number of sites the Department can approve will occur.

Although properly functioning septic systems are an effective means of treating biodegradable waste, septic systems are not designed to treat chemical waste. Engine oil, gasoline, paints, solvents, pesticides, and other chemicals disposed of in septic systems, exit the system untreated and pose a threat to the groundwater supply. An effort should be made to educate county citizens about this matter and safe, alternative disposal methods should be made available. Some counties hold an occasional household clean-up day to help citizens safely dispose of chemical waste.

**Agricultural "Bad Actors":** Significant progress has been made towards the control of agricultural runoff through the voluntary use of Best Management Practices, responsible use of chemicals and fertilizers, and good land stewardship practices. There continue to be, however, certain "bad actors,"

people who fail to manage their land responsibly to prevent pollution and degradation of resources. In 1996, the Virginia Legislature passed the Agricultural Stewardship Act, effective April of 1997, that holds these “bad actors” responsible for their actions.

The Agricultural Stewardship Act allows citizens to make a complaint to the Virginia Department of Agriculture and Consumer Services against any agricultural activities that creates pollution. Pollution is defined by the Act as, “any alteration of the physical, chemical or biological properties of any state waters resulting from sedimentation, nutrients, or toxins.” The complaint is to be investigated by the local Soil and Water Conservation District and, if it is found that the activity does or will create pollution, the operator of that activity has sixty days to develop an agricultural stewardship plan that includes measures to prevent or cease the pollution.

The Accomack County Planning Commission supports the intent behind the Agricultural Stewardship Act but is concerned that the impact of this legislation, as written, will extend beyond the “bad actors,” to farm operators who are acting in good faith to control pollution runoff. Due to the Eastern Shore’s extensive shoreline and pattern of creeks and bays, most agricultural operations on the Shore, even with Best Management Practices in place, are going to produce some runoff to state waters at some point in operation. Care should be taken by the State and the local Soil and Water Conservation District to ensure that enforcement actions are directed towards the true “bad actors,” those who have not implemented pollution control measures, rather than farmers who manage their operations to control pollution but experience occasional runoff events.

**Air Quality Monitoring:** The state currently has no air quality monitoring stations on Virginia’s Eastern Shore. It is unlikely that ambient air quality standards are being exceeded on the Shore, but monitoring equipment to confirm compliance is not available on the Shore. An air quality monitoring station would allow for the detection of air quality deterioration and the study of long term trends. The county should look into the possibility of having the state establish a monitoring station on the Shore or the possibility of establishing a monitoring station in cooperation with a university research station.

## Groundwater Management

**Ground Water Supply Protection and Management Plan for the Eastern Shore of Virginia:** *The Ground Water Supply Protection and Management Plan for the Eastern Shore of Virginia* was initiated in 1990 at the request of Accomack and Northampton Counties. A bi-county Ground Water Study Committee was formed to oversee the development of the plan. This study committee consists of two members from each county's Board of Supervisors, one citizen appointee by each Board, the County Administrator from each county, and the Executive Director of the Accomack-Northampton Planning District Commission. The consulting firm of Horlsey Witten and Hegemann (HWH) assisted with preparation of the plan. The plan, which was adopted in 1992, summarizes information on groundwater hydrology, water withdrawals, land use threats, and current control mechanisms on the Eastern Shore. The Ground Water Plan recognizes the importance of understanding the water system as a whole in order to make future land use and development decisions designed to protect water supplies. An understanding of the flow patterns and locations of the recharge areas on the peninsula was seen as crucial, so a conceptual model was developed which took a three-dimensional approach. The key element of the model with respect to protecting the long term quality and quantity of groundwater in the Eastern Shore is the role played by the central spine of the peninsula. The center portion functions as the primary recharge source for the heavily used confined Yorktown-Eastover aquifer, and its protection is of utmost importance to the continued viability of the aquifer as a source of water. Recommendations were proposed to develop a comprehensive groundwater protection and supply management strategy which will maintain an adequate supply of high quality water for the future needs of the region. The study proposed the following actions:

### Recommendations for Water Quality Protection:

- ***Pursue water conservation measures with major industrial users:*** The Ground Water Study Committee should pursue with major industrial users, freshwater conservation possibilities. These possibilities might include the use of lower quality water for effluent dilution, and the reduction in wastewater flows from treatment plants.
- ***Create an overlay protection zoning district to protect the spine recharge area to the Yorktown-Eastover aquifer:*** Based upon the Wellhead Protection Area Map prepared by HWH, and the delineation of wellhead protection areas and recharge areas to the Yorktown-Eastover aquifer, the counties should adopt a zoning overlay groundwater protection district. This action would apply only to future activities and not have any effect on existing facilities and development. The delineated protection zones should be dealt with in a progressively more relaxed fashion in terms of land use restrictions. Zone 1 is a 200 foot radius around pumping public supply wells, Zone 2 is the spine recharge area

---

### Underground Storage Tanks

Underground storage tanks (USTs) pose a threat to groundwater in that older steel tanks that are not of double wall construction can corrode and leak contaminants into the soil. These leakages can continue undetected for a considerable amount of time.

USTs are used primarily for fuel storage, either at retail establishments such as gas stations or home fuel oil supplies. The concentration of gas stations along Route 13, which runs along much of the groundwater recharge spine is a reason for concern.

---

to the Yorktown-Eastover aquifer, and Zone 3 is the delineated wellhead protection areas.

- The area encompassing Zone 1 (200 foot radius around pumping public water supply wells) should have strict prohibitions, excluding all future potentially harmful activities with the 200 foot radius. The only activities that should be permitted within Zone 1 are passive recreation and maintenance of the wellhead itself. All pesticides, insecticides, herbicides, all storage of potentially dangerous material (salt, chemicals, petroleum products) should be prohibited in Zone 1.
  - Zone 2 (spine recharge area) should have land use restrictions commensurate with the delicate role its plays in recharging the Yorktown-Eastover aquifer. Such restrictions would be less onerous than those of Zone 1, but would include prohibiting the future siting of major polluting activities (landfills, septage lagoons, etc.) and requiring special permits based on performance standards for others (underground storage tanks, toxic and hazardous materials, etc.).
  - Zone 3 (well head protection areas) should have the least restrictive land use regulations, relying heavily on public awareness to avoid contamination of the aquifers on the Eastern Shore. It should be remembered that this area also recharges the Yorktown-Eastover aquifer and all land use activities should be managed with protection of groundwater quality in mind. The groundwater resources are a sole source of supply to the residents of the Eastern Shore and as such should be protected and managed.
- **Review and revise county zoning and subdivision regulations:** Accomack County should revise their current zoning and subdivision regulations to incorporate groundwater quality and quantity protection. Most of the assessment of land use threats conducted during this study point to the need to control density, location and the pattern of development. As zoning and subdivision regulations are revised, any of the suggested recommendations can be incorporated into the formal process of revisions.

---

**Land Use in the Groundwater Recharge Spine**

Source: Accomack County  
Dept. of Building, Planning &  
Zoning

---

<u>Land Use</u>	<u>Acreage</u>	<u>Percent of Total</u>
Agricultural/Vacant .....	8,832	43.27%
Agricultural/Forested .....	8,673	43.39%
Agricultural/Poultry .....	46	.23%
Residential/General .....	828	4.05%
Residential/Mobile Home .....	42	0.20%
Commercial .....	129	0.63%
Industrial .....	495	2.42%
Public/Institutional .....	52	0.25%
Incorporated Town .....	1,129	5.51%
Route 13 right-of-way .....	214	1.04%

- ***Require the registration of currently unregulated underground storage tanks:*** The Virginia Water Control Board currently regulates tanks which store more than 1,100 gallons of product. In order to adequately assess the threat from existing tanks, the counties should establish a registration program for all tanks storing less than 1,100 gallons. At this point, only registration of tanks is recommended. Also, whenever possible, above-ground storage tanks should be used in place of underground tanks.
- ***Incorporate groundwater protection requirements into site plan review:*** Both counties should revise their zoning ordinances to require that groundwater protection be considered in all major site plan reviews. This will require developers of commercial and industrial sites to identify and mitigate potential negative impacts to groundwater quality and quantity from their development.
- ***Develop a private well ordinance to control the siting and construction of new wells:*** Both counties should develop a health ordinance or revise subdivision regulation to require a minimum 300 foot separation distance in a downgradient groundwater flow direction for private wells finished in the Columbia aquifer from septic systems. Private on-site wells will continue to be a major water user on the Eastern Shore. Approximately 2 million gallons per day are withdrawn by private wells. In addition, where ever possible, new private wells should be finished in the Yorktown-Eastover aquifer to eliminate the threat of nitrate contamination in the shallow aquifer. Water quality testing for nitrates for all new wells should be required prior to approval for use.
- ***Support the implementation of agricultural nutrient management plans:*** The Soil Conservation Service, County Extension Agents, and the Eastern Shore Soil and Water Conservation District should continue their program of assisting farmers in developing nutrient management plans. These plans should incorporate: soil nutrient testing; crop productivity recommendations; animal waste management; and fertilizer use record keeping. Especially important in Accomack County is the control of chicken waste products and the disposal of dead chickens to minimize impacts on surface water and groundwater resources. Government programs are in general developed to assure the general population adequate surplus of food at minimum cost. As a result farmers cannot pass along increased costs of production. It is therefore recommended that, in view of preliminary data concerning the submitted soil samples, cost-share assistance be considered, with time by the two counties and/or state, for soil testing throughout the Eastern Shore Soil and Water Conservation District.

### **Recommendations for Water Quantity Management:**

- ***Revise State Ground Water Act and Regulation to allow for reevaluation of existing permits:*** A revision to the State Ground Water Act (Chapter 3.4 of the State Water Control Board Statutes) which would allow reauthorization of groundwater withdrawals on the Eastern Shore is necessary to ensure that overuse of the confined aquifer does not result in saltwater intrusion, well interference, or create major drawdowns. The current permitted volumes may exceed the recharge rates to the Yorktown-Eastover aquifer as modeled by HWH.
  
- ***Develop an Eastern Shore Water Management District to manage water withdrawals:*** Accomack County should explore the possibility of forming a water supply district or water authority to centralize public and industrial water uses under one regulatory agency. There are currently several dozen active water withdrawal permits on the Eastern Shore. This promotes incomplete data bases, complicated administrative tracking and management and poor utilization of the groundwater resource. The purpose of this recommendation is to encourage the consideration of a single water supply and management authority, especially to cover the geographic area of the spine recharge zone. The Water Management District would be authorized to: plan for future water supply needs; obtain necessary state and federal permits; install and operate new public water supply systems that could service new areas; provide for the consolidation of the many systems that are currently in operation; and promote proper utilization of the groundwater resource.
  
- ***Control the siting and development of new water supply wells to prevent well interference and reduce the threat of saltwater intrusion:***
  - New water supply sources should be screened in the upper and middle Yorktown-Eastover, avoiding the lower Yorktown-Eastover: Screening only the higher layers minimizes many of the problems of upconing of high chloride content water.
  - Well fields rather than single wells to produce large volumes of water should be encouraged: A series of wells, each pumping a moderate amount of water, will create less upconing, less well interference and less lateral intrusion than one or two high volume wells.
  - New and existing water supply users should be encouraged to pump at moderate volumes on an extended basis and to use surface storage (tanks, lined ponds) rather than pumping hard for short intervals to meet peak demands: The continual pumping of moderate volumes will allow a smaller upcone to develop and to stabilize, eliminating much of the problem of salt and freshwater mixing that occurs with intermittent pumping. A progressively enlarged mixing zone between fresh and saltwater will promote the intrusion of high chloride water into the freshwater zone.

- The use of water supplies from the unconfined Columbia aquifer should be encouraged in situations where water quality is of less concern: The Columbia receives considerably more recharge than the Yorktown-Eastover aquifer, and while its water quality is sometimes marginal as a potable water supply, the quality is perfectly adequate for a number of industrial, agricultural and even domestic uses. High volume users of water that do not need water of drinking quality standards should be urged to use the Columbia as a source where adequate flows can be achieved.
- **Continue the accurate reporting of agricultural water withdrawals, by well location and depth:** Agricultural water withdrawals have been identified as the largest single source of water use on the Eastern Shore. Yet very little is known about how this water is used and from which aquifer it is obtained. State Water Control Board Regulations currently require that irrigators which withdraw more than 1 million gallons/day on the average for any month report this use to the VSWCB. The Ground Water Committee should develop public educational materials to inform irrigators of the need to collect accurate information on their water use.
- **Continue the consideration of mandatory permitting of agricultural withdrawals after review of reporting data:** If, after review of the reporting of large agricultural water withdrawals, it becomes apparent that these withdrawals are significant contributors to the total withdrawal from the Yorktown-Eastover aquifer, the Virginia State Water Control Board should be encouraged to regulate the amounts and locations of existing and future agricultural withdrawals. This will provide for better management and control of withdrawals from the aquifer.
- **Protect open space and undeveloped land in the spine recharge area:** Local governments on the Eastern Shore should seek to acquire public open space in the Zone 2 Recharge Area. This can be accomplished with the assistance of public and private conservation groups. Public land ownership will ensure the protection of water quality and allow for the control and development of prime water supply development sites.

---

**Acreage of  
Irrigated Land**

Year	Acreage
1974 .....	4,097
1978 .....	5,388
1982 .....	6,345
1987 .....	9,132
1992 .....	7,889

*Source: 1992 Census of  
Agriculture*

---

**General Recommendations:**

- **Implement a land use/water quality data base:** The A-NPDC should consider the establishment of a centralized water quality data base for all water use on the Eastern Shore. Experience from the study identifies the need for centralized data to continue the planning and management of the groundwater resource. Data collection and synthesis was very time consuming and could greatly reduce future planning and analysis costs with the development of a central repository of water quality information. In addition, land use information could also be centralized and managed by the A-NPDC to allow the agency to assist the counties in implementing land use controls for water resource protection.

- ***Develop a public education program on groundwater:*** the Eastern Shore of Virginia Ground Water Study Committee should continue to develop materials and provide information to the public on the importance of the groundwater resource on the Eastern Shore. Additional publications, meetings, forums, etc., should be planned to encourage support for groundwater protection and management. Continued support for research conducted by the US Geological Survey should be a primary activity for the Committee. This research will form the basis for many future decisions regarding groundwater management.

#### **Continued Research and Investigation:**

- ***Investigate the nature of recharge to the Yorktown-Eastover aquifer:*** The rate, volume, timing and distribution of recharge from the unconfined Columbia aquifer to the Yorktown-Eastover aquifer remains a focal point to the water supply problems on the Eastern Shore. If the rate of recharge is as low or lower than has been modeled analytically in this study, and if the area over which recharge occurs is smaller than the 200 to 300 square miles used, the issue of water quality in the Yorktown-Eastover aquifer becomes even more important than has been argued here. Because this is a key issue, additional work should be considered to attempt to better quantify the recharge component of the hydrologic cycle. It may be possible, for example, to employ the USGS finite difference model designed to simulate saltwater intrusion, currently in review (Richardson, in press), using that database to design a means to better quantify the rate, volume and distribution of recharge to the confined system. Results from the Richardson report should be incorporated into the Protection and Management Plan when this report is available.
- ***Research dilute saltwater issues:*** Saltwater movement into both the Columbia and Yorktown-Eastover aquifers is a very important and real threat on the Eastern Shore. Additional study is needed to quantify the limits of saltwater in the 250 milligrams per liter range. This information is necessary to determine the limitations that may need to be set on individual water withdrawals.
- ***Investigate the Character of Pleistocene Paleochannels on the Eastern Shore:*** A major focus of continued research should focus on the paleochannels that cross the Eastern Shore. These could prove to be major sources of supply to the two counties, but their use would have to be coupled with a solid understanding of the geometry and flow patterns involved. It is likely that the deep central portions of the channels possess sands and gravels from the depositing stream that formed the channel, deposits that probably would have good permeability and would make excellent aquifers. However, development of such materials would have to be done carefully to avoid further upconing and vertical intru-

sion of saltwater. Since the permeable deposits would be at the bottom of the channels, they would be closest to underlying saltwater and subject to upconing problems that could ruin an otherwise good well. Since the channels are documented as connecting to the mainland, passing beneath Chesapeake Bay (Coleman and other, 1990), a substantial portion of the channels lie beneath saltwater. Excessive pumping of a well located in a paleochannel on the Eastern Shore peninsula could result in contamination from saltwater intruding vertically in response to the gradients created by pumping.

- ***Evaluate pesticide use on the Eastern Shore:*** The impact of pesticide use on groundwater quality on the Eastern Shore should be studied. Currently, information is not available to accurately assess this potential source of contamination. The Virginia Department of Agriculture and Consumer Services, Office of Pesticide Management should be contacted to provide assistance in this effort. Since agriculture is planned as the predominant land use in the future, this effort should be a priority for future investigations.
- ***Support additional agricultural nutrient management research:*** Additional research should be conducted on the specific nature of agricultural nutrient use and the impacts on the water resources of the Eastern Shore. This study utilized general information regarding nitrogen application rates, leaching potential, chicken litter disposal and use, and dead chicken disposal. More specific information is necessary on: actual nitrogen application rates and amounts used by crop types; nitrogen leaching rates by soil types found on the Shore; accurate assessment of chicken litter use and disposal of dead chickens; quantification of the success of nutrient management plans in reducing nitrogen use and loss; fate and transport of nitrogen in the groundwater system (Columbia and Yorktown-Eastover aquifers). There was a soil scientist position at the Virginia Tech Agricultural Experimentation Station in Painter available to assist with such research, but that position is no longer funded by the state. The county should request that state legislators re-fund the soil scientist position to assist with nutrient management research.
- ***Revise the nitrogen model used in the study over time:*** Nitrogen is a very good indicator of overall groundwater quality. The nitrogen model used in this study to assess land use impacts should be revised as more detailed information becomes available. Virginia Tech is currently conducting a study of nitrogen contamination in the groundwater of the Eastern Shore. This new data can be used to update and verify the results of the model. The model is designed to allow for easy revisions and scenario testing. The model can be used in planning new development and in the assessment of zoning changes.

## Waste Disposal

**Recycling:** The county is required by the state to meet certain recycling levels. In addition to those mandated levels, increasing the amount of the waste stream that is recycled helps to extend the life expectancy of our landfills. The county currently has two full recycling centers that collect paper, glass, and plastic. Additional centers of this type should be created to provide access for all county residents. A bottle deposit would further encourage residents to recycle glass bottles and reduce the amount of trash in the landfill. For this reason, the county should support any efforts to adopt bottle deposit legislation in Virginia.

**Litter:** Many of Accomack County's roadsides are cluttered with litter. This litter creates a bad image of the Shore for visitors, degrades the visual quality of the county for residents, and can pose a threat to water quality. The Virginia Department of Transportation conducts an adopt-a-road program in Accomack County in addition to general spring and fall clean-ups. Accomack County could cooperate with VDOT in organizing and providing support for two county-wide litter clean-up efforts annually. County support could be provided in the form of providing bags, providing trucks to pick up trash collected, assigning areas most in need of cleaning, and reducing tipping charges on clean-up days.

**Trash Collection:** Accomack County's should re-evaluate its greenbox collection system to ensure that the distribution of boxes is efficient and cost effective. Improvements may need to be made to some locations to make dumpster access safer and easier for elderly or handicapped citizens.

**Septage Lagoons:** All septic system waste pumped in Accomack and Northampton Counties by Bundick Well & Pump and Boggs Water and Sewage is currently being disposed of in three anaerobic lagoons located in Accomack County. Anaerobic stabilization of biodegradable organisms is a slow process characterized by bad odors and the possibility of contamination to groundwater and nearby surface water. Concentration of bacterial organisms in these ponds is close to that found in primary sewage sludge. Contamination threats lie in potential breaching of the earthen berms that contain the septage and leaching of pollutants through the bottom of the lagoon into the groundwater system. Health Department records indicate that lagoon berms have been breached on occasion, allowing contents to discharge onto the ground surface and drain into nearby streams.

There were no comprehensive septage disposal regulations in Virginia until 1982. Accomack County's facilities were constructed prior to that time and consist of unlined ponds that are permitted for continued operation through "grandfathered" permits. The septage lagoons are regulated by the Virginia Department of Health, which will allow the facilities to continue operation as long as they do not threaten public health. The Health Department in-

spects the facilities quarterly and monitoring wells located around each of the septage lagoons are sampled annually for groundwater quality. As of this time, water samples do not indicate any impact on groundwater quality. The *Ground Water Management Plan* recommends that groundwater flow direction be modelled to ensure that monitoring wells are capturing recharge from the lagoons.

The three facilities are located in fairly remote wooded areas, where there are few surrounding residents to be disturbed by odors associated with the lagoons. The Boggs lagoon is located northeast of the town of Wachapreague, in the Finney and Folly Creeks watershed. The closest stream to that site is an unnamed stream that drains to the headwaters of Nickawampus Creek. The southern Bundick lagoon is located just east of Coal Kiln, in the Machipongo River watershed. The closest stream to that site is an unnamed stream that drains to the Machipongo River. The northern Bundick lagoon is located near Atlantic, in the Chincoteague Bay watershed. The closest stream to this lagoon is an unnamed stream that drains to Wallops Mill Pond, which drains to Mosquito Creek. According to the Groundwater Management Plan, the northern Bundick lagoon lies within the groundwater recharge spine area, posing a serious threat to groundwater quality as deep as the lower confined aquifer.

Use of the lagoons varies seasonally. The daily amount of septage received at Bundick's northern lagoon increases three to four fold during the summer months. Both Accomack and Northampton County require that septic systems in Chesapeake Bay Resource Management Areas be pumped out once every five years. This requirement is expected to significantly increase the amount of effluent placed in the lagoons. If the existing facilities exceed their capacity, the local companies will be faced with the challenge of finding other means of disposal.

Concerns about groundwater protection, odor, structural stability, and capacity for increased use; and the fact that septage waste from both Accomack and Northampton County is being disposed of in facilities that do not meet current standards, suggest that the county should pursue other options for septage disposal. The current state on-site sewage handling and disposal regulations require that septage be taken to approved facilities. Approved facilities include municipal sewage treatment plants or state-approved (lined) lagoons. As long as the existing facilities are allowed to remain in operation, there is little incentive for the haulers on the Eastern Shore to

build lined lagoons. The only readily available alternative to disposal in lagoons would be use of the Shore's two municipal sewage treatment facilities, located in the towns of Onancock (Accomack County) and Cape Charles (Northampton County). The Onancock plant could be modified to handle septage. Funding assistance is available from the state for these kind of improvements and the town could recoup costs through fees charged to haulers for disposal. An alternative to expansion of the Onancock facility would be the development of a separate treatment system that could serve as a regional sewage treatment plant and septage disposal facility. Accomack County could require that septage be disposed of at a sewage treatment facility.

**Toxic Waste Disposal:** Industrial, agricultural and household chemicals are a special waste disposal problem. If disposed of improperly, they can cause health and environmental problems. The county should work with the Virginia Department of Agriculture and Consumer Affairs to develop a safe system for the disposal of pesticides and pesticide containers. The county could also hold annual household chemical clean-up days during which residents could bring paints, oil, yard and garden and household chemicals to collection centers for safe disposal.

## Transportation

**The U.S. Route 13 Corridor:** Proper management of the Route 13 corridor is vital to the future of Accomack County. Route 13 is a gateway to Accomack County. The highway is part of a major east coast north-south transportation route, carrying people and goods to areas beyond Accomack County, bringing travelers who spend money at local gas stations, restaurants and hotels. Route 13 is also a local transportation link, connecting residents to stores, services, homes, and jobs.

Measures must be taken to maintain the road's capacity to safely and efficiently carry through traffic while providing for the safety of local traffic entering and exiting the highway. It is important that Route 13's capacity to handle through traffic be maintained in order to avoid future construction of bypasses or a limited access highway, which would further dissect the county's countryside and isolate businesses on existing sections of the highway.

***The Route 13 Corridor Plan:*** Accomack County, Northampton County, VDOT, and the Accomack-Northampton Planning District Commission are currently developing a Route 13 Corridor Study. This study will address traffic capacity, safety, land use conflicts, pollution potential, and visual quality. The Planning Commission should consider the results of this study in developing criteria for management of the highway corridor.

**Setbacks:** Minimum setbacks for all uses need to be expanded along Route 13. Greater setbacks promote safety by improving sight lines, reducing curb cuts, by allowing room for shared entrances, reducing traffic noise, and insuring the availability of vacant land for future access roads in the more congested portions of the corridor. Accomack County's zoning ordinance currently requires a minimum setback of 50 feet in agricultural, residential, and industrial zones and 20 feet in commercial zones. A minimum setback of 200 feet from Route 13 would provide enough space for future access roads with a standard 50 foot right-of-way.

**Clustering:** The current high speed sections of Route 13 can be preserved if new commercial uses are grouped in existing commercial clusters. Examples of existing clusters along Route 13 are T's Corner, Nelsonia, Four Corners, Melfa, Painter, and Belle Haven. These areas already have traffic lights and reduced speed limits to manage local traffic.

**Site Plan Review:** Site plan review, as provided for in the zoning ordinance, should give attention to alternatives that minimize curb cuts, encourage joint entrances, and direct traffic to alternative entrances on smaller collector roads when possible. Conditional use permits are required for certain large development projects in Accomack County (over 5 acres in business districts and over 2 acres in agricultural districts), and can be used to require traffic management measures.

**Sign Ordinance:** The county's sign regulations should be reviewed to determine if there is a need to improve management of sign location, size and appearance. Any regulations pertaining to signs should seek a balance between marketing needs of local businesses and enhancing the appearance of Route 13. Off premise signs on Route 13 are regulated by the Virginia Department of Transportation. County regulation of signs should be consistent with VDOT's standards and requirements.

**Public Transportation:** The Accomack-Northampton Transportation District Commission is currently conducting a pilot public transportation program. This is a regional public transit system known as Shore Transit and Rideshare (STAR) that connects Eastern Shore towns and provides north-south transit on the Shore. The pilot program is grant funded. If the pilot program proves that there is a need for public transportation and a means of efficiently providing the service can be established, sources of continuing funding for the system should be sought. According to the U.S. Census Department, there are approximately 1,600 households in Accomack County with no vehicle present. A public transportation system will provide increased mobility for these residents.

**Heritage Trail:** Northampton County acquired grant funding for the Northampton County Heritage Trail in 1994. The funding came from the Department of Transportation's Intermodal Surface Transportation Enhancement (ISTEA) program. Accomack County made application in 1995 for grant funding to establish a heritage trail, but the project was not funded. The county should seek the cooperation of the Eastern Shore Historical Society and the Accomack-Northampton Planning District Commission to further the concept of a regional, Eastern Shore, heritage trail and identify funding sources.

The Accomack County Heritage Trail would be a self-guided tour of Accomack County's cultural resources. The concept of the trail is to recognize and celebrate Accomack County's unique heritage while encouraging travelers to get off of Route 13 and visit some of the county's towns, restaurants and shops. Signage and a trail guide would direct visitors to sites of historic and cultural interest in the county. The trail would be designed for motorized and non-motorized travel.

**Non-Motorized Transportation:** Walking, jogging, bicycling, and horseback riding are all popular activities with residents and visitors. The nature of much of the county's road system, however, sometimes makes these activities dangerous. Most roads in Accomack County are characterized by a crowned surface, minimal width and deep ditches on either side. Few of the roads in the county have paved shoulders. The establishment of a system of trails providing safe areas for walking, jogging, bicycling, and horseback riding would improve recreational opportunities.

## Cultural Resources

**Historic Preservation:** It is important that historic preservation planning be integrated with the community's broader planning efforts. The Virginia Department of Historic Resources encourages localities to engage in historic preservation planning and to take a comprehensive approach that integrates planning into broader development plans including, land use and regulation, capital improvements, transportation, economic development, housing, open space, and recreation. The Department suggests a five step planning process that includes: identification of local historic properties; evaluation of current trends and influences on historic properties; community consensus on goals and priorities; identification of appropriate tools, strategies and action needed to achieve those community goals; and an action plan for implementation.

**Current Planning Efforts:** Currently, the county has made no effort to identify or protect historic resources. Application was made in 1995 to the Department of Historic Resources for grant funds to conduct a survey of historic architecture and to the Department of Transportation for grant funds to develop the Accomack County portion of the Heritage Trail. The Department of Transportation grant was not funded and the Department of Historic Resources grant was dependent on that grant for match funds, so no action was taken that year.

**Interpretive Opportunities:** In addition to recording and preserving the county's history, it is important that resources and information be accessible to citizens and visitors. Giving residents and visitors the opportunity to learn about the area's history and providing access to significant resources is important to creating and maintaining a strong identity for Accomack County.

The county currently has several museums that do a good job of interpreting the area's natural resources; several that deal with specific aspects of history, such as transportation; and several building museums such as Kerr Place, Locustville Academy, and the Debtors Prison. However, there is no interpretive center or readily available materials that comprehensively teach the history of Eastern Shore culture. A museum or series of museums that told the visitor about the area's unique culture, including history of agricultural production, the barrier islands, the seafood industry, nautical traditions, and architectural styles would be beneficial to the county. Both the Countryside Stewardship Exchange and the Regional Economic Development Council suggested the development of such facilities.

**Level of Concern:** The citizen's advisory committee on development recommended that a historic resources survey be conducted, and 90% of newspaper survey respondents said that it was either important (35%) or very important (55%) to protect historic buildings. The Eastern Shore Historical Society has expressed interest in development of an architectural survey and

the Heritage Trail and the county's application for funding of the Heritage Trail received letters of support from the towns of Accomac, Chincoteague, Onancock, Parksley and Wachapreague, the Accomack County Taxpayers Association, Citizens for a Better Eastern Shore, and the Nature Conservancy.

## Recreation

**Recreational Facilities:** The 1996 Virginia Outdoors Plan evaluates the recreational needs of each planning district in the state. This evaluation is based on the 1992 Virginia Outdoors Survey and 1995 Outdoor Recreation Areas and Facilities Inventory. The 1992 survey was a questionnaire mailed to a random selection of addresses in four regions of the state (Chesapeake Region, Urban Corridor, Piedmont Region, and Mountain Region). Responses were weighted according to 1990 census data to correspond with population data such as race, income, and property ownership. The table below lists the facility inventory and needs assessment for Accomack County. Activity clusters were developed for some activities, such water based recreation, which share the same resources.

---

**Recreational Needs  
Assessment from 1996  
Virginia Outdoors Plan**

---

<u>Activity</u>	<u>Est. 1992</u> <u>Activity Days</u>	<u>1992</u> <u>Demand</u>	<u>Units</u>	<u>Total</u> <u>Supply</u>	<u>Private</u> <u>Supply</u>	<u>Need</u>
Lake, River, and Bay Use (combined)	387,891	6924	water acres	216,904	0	-209,980
jet skiing	946	15	water acres	s	s	
lake fishing	20,624	116	water acres	s	s	
power boating	201,634	4,860	water acres	s	s	
sailboarding	818	7	water acres	s	s	
sailing	50,448	873	water acres	s	s	
salt water fishing	97,260	547	water acres	s	s	
water skiing	16,162	506	water acres	s	s	
Outdoor Beach Use and Swimming	304,400	22	beach acres	879	30	-857
Outdoor Pool Swimming	99,329	4	pools	4	3	0
Swimming Indoors	4,873	0	pools	0	0	0
All Camping (combined)	39,722	234	sites	4,743	4,693	-4,509
tent camping	13,595	80	sites	1,885	1,885	-1,805
developed camping	26,127	154	sites	2,858	2,808	-2,704
Picnicking Away	27,710	72	tables	803	750	-731
Hunting	68,950	11,172	acres	14,373	25	-3,201
Football and Soccer (combined)	17,511	4	fields	2	0	2
football	9,184	1	fields	n.s	n.s	
soccer	8,327	2	fields	n.s	n.s	
Baseball	64,402	13	fields	1	0	12
Softball	36,256	6	fields	8	1	-2
Basketball	65,377	15	goals	5	0	10
Tennis	30,827	20	courts	9	3	11
Golf	40,578	3	courses	2	2	1
Playground Use	112,780	16	sites	5	1	11
Bicycling for Pleasure	232,689	17	miles	7	0	10
Hiking, Backpacking	4,730	3	trail miles	21	0	-18
Horseback Riding	4,060	1	miles	4	0	-3
Fitness Trail Use and Jogging	32,465	2	mile trails	1	0	1
Motorcycle/A.T.V (combined)	7,467	2	trail miles	6	0	-4
off-road motorcycle	3,946	1	trail miles	n.s	n.s	
all-terrain vehicle	3,521	1	trail miles	n.s	n.s	

s: same as combined    n.s: not inventoried separately    "-" indicates surplus

The 1992 activity days figure is a conservative estimate of the total number of days spent at each activity. The activity days figure is based on the number of individual persons in each survey household reported as participating, multiplied by the weight factor described above, multiplied by the median number of days spent by each participant within the survey region. Demand for facilities and recreation areas to support each activity was estimated using capacity standards developed by the Department of Conservation and Recreation. Supply estimates were taken from the statewide inventory of recreational areas and facilities that is maintained by the Department of Conservation and Recreation. Need was determined by subtracting the current supply from the current and projected demand for each activity or activity cluster. The figures on need apply only to the local level (i.e. Accomack County) and therefore, does not take into account imported demand such as tourism from outside the state or local area. A local surplus of capacity, such as water or beach resources in Accomack County, is reduced by visitors from outside. Also, the inventory includes private facilities, such as picnic tables and swimming pools located on campgrounds, that are not available for use by the general public. These discrepancies should be considered when planning for recreational facilities.

The Outdoor Plan points to a local need for sports fields (football/soccer and baseball), basketball courts, tennis courts, playgrounds, bike and fitness trails, and a golf course. The Plan suggests meeting recreational needs through development of a number of small community parks and one larger county park. The community parks would be 20 to 50 acres in size and serve a 3 to 7 mile area and be located close to community population centers. A County Park would be between 50 and 150 acres in size, serve a large portion of the population and be located near the center of the county. Potential facilities at these parks include playgrounds, picnic facilities, tennis courts, ball diamonds, horseshoe courts, shuffleboard courts, basketball courts, volleyball courts, football/soccer fields, walking, hiking, biking, and fitness trails, natural areas, fishing lake access, beach and swimming access, swimming pool, parking area, and a recreation center. The county should consider creating additional parks and/or expanding existing parks to meet the needs of the citizenry.

The advisory committee recommendations and the newspaper survey results both supported the development of recreational facilities. The advisory committee recommendation was that the county should encourage the development of privately funded recreational facilities such as a YMCA which provide monitored youth activities. Response from the newspaper survey was similar with sixty-seven percent (67%) of respondents saying that there is a need for public recreational facilities in Accomack County. When asked what type of facilities are most needed, a majority of the respondents said a YMCA type establishment that would provide structured youth activities. An organizing group is currently collecting funds to study the feasibility of

building a YMCA on the Eastern Shore. The Accomack County Department of Parks and Recreation is also trying to develop community recreation facilities. An option being considered is the conversion of school buildings and grounds that are no longer in use into recreation centers. Gymnasiums, ball fields, auditoriums, food preparation facilities, and classroom space in former school buildings could be utilized by the Parks and Recreation Department to provide increased recreational opportunities to county residents. As the county replaces older school facilities, their use as recreational facilities should be seriously considered.

Kiptopeake State Park, located between Cape Charles and the Chesapeake Bay Bridge Tunnel, was developed in response to earlier studies which identified the need for passive recreational areas (parks, trails, picnic areas, etc.), as well as increased bay and ocean access. The 1996 Outdoors Plan identifies the potential for an additional state park in the area between Occahannock and Onancock Creeks in southern Accomack County. The plan states that, “this site would offer abundant shoreline on the Chesapeake Bay and several large creeks. The excellent marshes and beaches found here could contribute greatly to the Eastern Shore’s supply of accessible water-oriented recreational opportunities.”

The Outdoors Plan encourages the development of recreational opportunities through the private sector. Privately developed campgrounds, golf courses, tennis courts, swimming pools, marinas, and indoor recreation facilities can help meet the demand for facilities. The Plan also points out that, of 38 favored leisure activities ranked in the 1992 Virginia Outdoors Survey, Virginians ranked visiting historic sites number 5, visiting natural areas number 11, and visiting gardens number 16. The Plan recommends an analysis of these resources by the private sector to determine if any could be made available to the public and suggests that these could be linked to bed and breakfast opportunities, farming, the seafood industry, nursery and garden center operations, historic restorations, and other land-use developments. The concept could be expanded to include farmers markets, pick-your-own operations, and craft and collectibles fairs or markets.

**Beach Access:** Public beach access in Accomack County is limited for people who do not have access to a boat. There are several sandy beaches on the Chesapeake Bay that are used by the public, but are actually in private ownership. In the past, owners have denied access to beaches that have traditionally been used by the public. Mason’s Beach, on the Chesapeake Bay, was used by locals for years until the property changed hands and a gate was constructed across the road leading to the beach. Because this beach had been used by the public for so long, most people assumed it would always be available and many were shocked when access was denied.

The Department of Environmental Quality’s Coastal Zone Management Program has funding available for the acquisition of public access areas. The

county should consider trying to use these funds to ensure that the public continues to have access to waterfront and beach areas.

**Boat Ramps:** The county has a large system of public boat ramps that vary greatly in quality and condition. The newer harbors and boat launching facilities have authorities appointed for their maintenance. There is no maintenance plan or management system in place for the majority of the ramps. Some disputes have arisen over ownership of the ramps and adjacent parking areas.

The county should consider conducting an inventory of the boat access system, noting the ownership, condition and level of use of each and use that data to develop a plan for their repair and regular maintenance.

**Trails and Greenways:** The Virginia Outdoors Plan recommends the development of a trail and greenways plan that links existing and proposed trails and greenways into a regional network connecting existing and proposed recreational, natural, cultural, water, business/commercial, and other resources. The proposed Heritage Trail should be a component of this system. Appropriate roads for bicycle routes should be determined and assistance from the Virginia Department of Transportation should be sought to develop these routes. A scenic bike route system could connect the county's major attractions including wildlife areas, parks, historic sites and cultural resources.

## Information Needs

Any discussion of land use management seems to center around the need for more and better information. As mentioned in various sections of this plan, only imperfect information is available on the topics of groundwater, water quality, causes of water degradation, etc... Lack of information makes it difficult for the governing body to make, and the public to accept, important land use management decisions. As long as the facts of an issue are debatable, it will be difficult to reach agreement on solutions.

It is important that the county never stops collecting the best information available pertaining to the issues that will effect our future. Many federal, state and academic institutions are conducting research on the Shore which is relevant to the issues addressed in this plan. The county should actively seek partnerships to share and apply this information.

Good information is key to sound decision making, but it is important not to let the search for the perfect data set be immobilizing. There will never be enough information to satisfy everyone. Although it may be tempting to put off making decisions due to lack of information, it can paralyze a locality's ability to act on issues. At times, the governing body will need to take action based on the best available information.

The Comprehensive Plan has identified the following needs for further information:

- Scientific research should be conducted to establish safe standards for separation distances between septic systems and the groundwater table.
- Establish a system for the continuous monitoring of land use change by watershed.
- Conduct research to answer questions about the rate, volume, timing and distribution of recharge from the Columbia aquifer to the Yorktown-Eastover aquifer, saltwater movement into the Columbia and Yorktown-Eastover aquifers, suitability of paleochannels for water supply use, impact of pesticides of groundwater, and impact of agricultural nitrogen use on groundwater.
- Research the impact of runoff from land uses on water quality and aquatic life.
- Conduct a comprehensive shoreline situation report, updating erosion data and inventorying shoreline erosion control structures, docks, piers, and marinas.

- Identify most unique and sensitive habitats, i.e. those that are most in need of protection.
- Conduct a survey of Accomack County's historic resources.
- Work towards the further development of Best Management Practices for all land use.

## Citizen Involvement

One of the items for which there was general consensus at the public forums was that citizens throughout the county continue to work together cooperatively to reach decisions about land use and natural resource policies and regulations. Most forum participants were pleased with the level of involvement afforded by the forum process and expressed interest in continued participation in the planning process. The question of “what’s next?” was often asked. Citizens wanted to know that a system had been established by which they could continue to participate in the decision making process.

**Communication:** Communication is important on all levels; between citizens and the governing body, between industries and interest groups, between industries and the governing body, between interest groups and the governing body, and amongst the general public. Improved communication can lead to improved understanding and cooperation among various stakeholders in the county.

**Opportunities for Involvement:** The Planning Commission’s meetings are always open to the public and a public participation section is included during each meeting. Public Hearings are held in advance of the adoption of any new ordinances or ordinance amendments.

In addition to these opportunities for public participation, the Planning Commission has held public forums, created citizen advisory committees, and conducted a newspaper survey. Public participation through the planning process for the Comprehensive Plan revision has been good, but there is room for improvement. The Planning Commission and the Board of Supervisors should make every effort to allow and encourage citizen involvement in the decision making process. Possible options include additional forums and workshops, placement of information on the internet, the televising of meetings, and announcement of and the provision of background materials on issues up for discussion.

## Implementation

Those who participated in the planning process emphasized that the county should regularly update and closely follow its Comprehensive Plan and that the plan should be implemented through fair and effective zoning practices and well planned public facilities and services. Throughout the planning process, concern was expressed that plans would not be followed through and properly implemented. Those concerns are founded on the difficulties experienced with implementing previous local and regional plans, limited funding and staff availability for plan implementation and enforcement of regulations, and failure to get the plans approved by the Board of Supervisors.

**Regulatory Enforcement:** Enforcement of new and existing land use regulations at the local, state and federal level are important to the success of the Comprehensive Plan. Any land use regulation considered for adoption should be evaluated regarding the level of enforcement required. If the governing body is unable to provide the financial resources for effective long-term enforcement of the regulation, the measure should not be adopted. The failure to enforce adopted regulations sends out a message that the need for the regulation is not important enough to provide resources for and causes a great deal of frustration for citizens who believe that protective measures are being implemented. Therefore, caution should be used at the local level to ensure necessary resources for enforcement of locally adopted regulations and agencies at the state and federal level should be pressured to adequately enforce their regulatory programs.

**Inter-Governmental Cooperation:** Virginia's Eastern Shore consists of two counties and 19 incorporated towns. Each of the counties and towns have their own governing body and a certain amount of responsibility for activities within their boundaries. Yet, due to the physical, cultural and economic nature of the Shore, it would be unreasonable to think that the actions of one does not effect the other. Each county and each town derives its identity from being a part of Virginia's Eastern Shore, together making a region of significance. It is therefore important to recognize the individuality of each of the counties and towns, but cooperate on regional issues, making the best use of limited resources and protecting the value of the region as a whole. It can be expected that governing bodies will continue to make differing decisions, based on their individual perceptions of what is best for their locality, yet the counties and towns should cooperate and pool resources to gather data and evaluate alternative solutions so that those decisions are based on the same level of information.