1973

REPORT OF THE

COUNCIL ON THE ENVIRONMENT'S LAND USE TASK FORCE

To

THE GOVERNOR

And

THE GENERAL ASSEMBLY OF VIRGINIA

Senate Document No. 3

COMMONWEALTH OF VIRGINIA
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SUMMARY

Senate Bill 436, enacted by the General Assembly during its 1972 session, directed the Division of State Planning and Community Affairs to conduct a study of Virginia's critical environmental areas. The legislation was a result of a report prepared by the Governor's Council on the Environment's Land Use Task Force.

The Division solicited the assistance of fourteen state agencies with selected responsibilities involving environmental issues, and the nineteen organized planning district commissions to help develop criteria and nominate critical environmental areas. In addition, input was invited from local governments, groups and organizations, institutions of higher learning and individual citizens during the entire course of the study. After receiving information from these various sources and conducting five public hearings, the Division delineated 134 different critical environmental areas throughout the Commonwealth.

These areas included such natural and cultural categories as wetlands, flood plains, watersheds, shorelands, and historic and scenic places. Critical areas were delineated in both urban and rural regions.

To protect those areas delineated by the Critical Environmental Areas study, the Division of State Planning and Community Affairs makes the following recommendations:

1/The General Assembly should endorse the areas delineated by the report as the Commonwealth's "official" list of critical environmental areas.
2/The Division of State Planning and Community Affairs should be authorized, by an amendment to Virginia Planning Legislation, to be responsible for the continued evaluation and designation of critical environmental areas.

3/The Virginia Area Development Act should be amended to authorize the Commonwealth's twenty-two planning district commissions to undertake a two year study of those critical environmental areas designated by this report. These studies would investigate, evaluate, and delineate in detail all those areas already designated by the Division, as well as other areas which may warrant inclusion in the program, and offer means for their protection.

4/These studies, known as a district's Critical Environmental Areas Plan, should be an integral part of the Land Use Element of its overall comprehensive plan. The Division of State Planning and Community Affairs should have first review and approval authority, followed by final approval by the planning district commissions. Local governments within a planning district should be given one year to adopt the Critical Environmental Areas Plan, together with accompanying implementing ordinances.

5/A Critical Areas Review Board should be created by the General Assembly. The Board would consist of citizen members appointed by the Governor and approved by the General Assembly. The Board's membership would also include the Director of the Division of State Planning and Community Affairs. The Critical Areas Review Board would ultimately have authority for enforcing a critical environmental areas program in those areas where no adequate regional Critical Environmental Areas Plan was prepared, or where a locality failed to take the necessary action to implement approved protective measures.

6/During the initial three year period that regional plans are being prepared and adopted, the Board would review proposals and issue permits

for development within critical environmental areas which encompass ten acres or more, or have a gross floor area within all structures of 40,000 square feet or more, or require another permit from the State or federal government. The Board would have the authority to accept a development proposal as presented, approve it contingent upon specified modifications, or disapprove it.

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CHAPTER 1

Introduction

Man shapes his communities and structures his habitat through the use of the land. Land use activities determine the nature and vitality of man's environment. The entire spectrum of our human society depends upon development practices which alter the natural state. Land is thus the base upon which must exist the man-made environment as well as the natural environment which supports all life on earth. Our man-made environment, however, is often incompatible with nature. As man's use of the land increases in scope and intensity, the threat to the natural environment is greatly increased. The future success or failure to reduce this threat will determine the ultimate quality of contemporary life.

The Governor's recognition of this fact and his subsequent desire to investigate a possible state land resource policy for Virginia resulted in the formation of the Land Use Task Force of the Governor's Council on the Environment in May, 1971. The mandate given the Task Force called for a study to determine the need for and development of a state land use policy along with appropriate mechanisms for implementing such a policy. Upon completion of its work, the Task Force initially concluded that "the existing policies for land use in the Commonwealth are grossly inadequate to fulfill the State's constitutional mandate for assuring a qualitative environment." As a result three alternative measures were outlined in the Land Use Task Force Report which could be enacted by the General Assembly.

1/Pass legislation which established a land use policy that gives guidelines for statewide land use planning and assigns responsibilities for seeing that the policy and guidelines are executed.

2/Pass legislation requiring regional land use planning and control for specified areas where environmental quality is already critically impaired or challenged.

3/Establish a legislative study commission to develop more detailed legislation for policy criteria and procedures within two years.

The Task Force recommended the first alternative to the Governor and the General Assembly in the belief that it offered the greatest leadership initiative. The resultant Senate Bill 436, embodying the principles enunciate in alternative 1, failed in committee; subsequently, an amendment in the nature of a substitute for Senate Bill 436 was introduced during the 1972 session of the General Assembly and enacted. This amended Senate Bill 436 embodied many of the recommendations of alternative 2.

Senate Bill 436 directed the Division of State Planning and Community Affairs to develop criteria to be used in the identification and delineation of the State's critical environmental areas. Critical environmental areas were legislatively defined as "areas of natural, scenic and historic value, including, but not limited to wetlands, marshlands, shorelands and flood plains of rivers, lakes and streams, wilderness and wildlife habitats, historic buildings and areas." A more basic definition may be expressed as follows:

A critical environmental area is any portion of land, regardless of size, which because of location, physical features, historical character, natural productive capability, scenic significance, or unique flora or fauna, contributes to the economic, aesthetic, or cultural well-being of individuals or society, and which because of these peculiar qualities is in limited supply.

In addition to identifying and delineating such "critical" areas, the Divi-

sion was directed to define and delineate protective zones around each area, develop and recommend standards for the use and development of land within each protective zone, and finally, to develop and recommend means by which the standards shall be applied and development in these areas shall be controlled.

The following study initially discusses and identifies critical environmental areas throughout the Commonwealth and establishes a manner by which they may be further evaluated. A program to protect these critical land resources is recommended that will balance the equally important interests of the general public and the private property owner. The results and expressed conclusions were reached after input was solicited from sources representing a wide range of opinion and experience. They included state agencies, regional planning districts, local governments, chambers of commerce, conservation groups, and institutions of higher learning.

CHAPTER 2

Background

For most of man's recorded history, he has had a relatively small effect upon the natural balance which exists on earth. In terms of numbers and impact he was not a threat to the natural environment, even though his intellect made him both superior and unique within the complex arrangement of life forms on this planet. With the advent of man's knowledge in the fields of science and technology, the natural balance which existed was upset. In a period measured in several hundreds of years, a microscopic amount of time in terms of life on earth, man is becoming more aware of what he has done, and what he can do to despoil the host upon which he is ultimately dependent.

The expansion of man's knowledge has enabled him to conquer many natural occurrences, allowed him to alter the natural environment to suit his needs, and to increase his longevity, resulting in ever increasing numbers of people. This continuing increase in population will have enormous implications for the management of all natural resources. Man's absolute growth, however, constitutes one of the more conservative rates of increase when compared to the demand that social change and technology have placed on the earth's productive capacity. Food production has doubled within the last 30 years; the output of electrical power and the use of commercial fertilizers has doubled in the last 10 years; and the use of pesticides has doubled in the last 7 years.[1] The words "environment" and "ecology" now occur in our vocabulary with ever increasing frequency because the rate of man's productivity is beginning to be measured in terms of the ecological demand that is placed upon the natural environment. Recently, this demand has been doubling every 14 years.[2]

More people and economic growth create additional requirements for food, water, power and land for development. People must be employed and more employment means greater industrial expansion. Industry must have raw materials which increase the demand placed upon our natural resources, both those that are renewable and those that are non-renewable. Any creation of energy causes waste products. In fact, all life creates waste products which within natural systems are normally recycled and used again; however, man is now creating waste products so rapidly that they often accumulate faster than they can be handled or rendered harmless, to say nothing of being reused. Thus, the ability of the soil, water and air to recuperate is being greatly compromised.

Future projections indicate that man will require even more power, more food, more water, and more land for a growing variety of uses. A rising population and standard of living implies a national demand for almost 50 percent more food, 50 percent more housing, 100 percent more domestic water and 300 percent more recreational area by the year 2000. The result will be even more waste products and more pollution unless corrective measures are quickly and judiciously applied.

The most important consideration for our future environmental quality lies in the broad concept of how man makes use of the land. Our supply is not limitless, but finite; its proper use and management is essential to the well being of all citizens. Virginia, in particular, is blessed with a great variety of natural land and water areas which are both beautiful and productive; but this condition is neither inexhaustible nor indestructible.

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1. Frederick E. Smith, December 1970, "Ecological Demand and Environmental Response", *Journal of Forestry*
2. Ibid

As man occupies or "uses" the land, he is in one sense consuming it, for he removes most of the future options for that area. In addition, he often strips it, reshapes it, and pollutes it during his process of utilization. If the indiscriminate use of land is left to continue unabated, it will not be long before those characteristics which make particular areas beautiful, unique, productive, life supporting and culturally significant, are destroyed.

The severe environmental problems associated with development and population growth have been, for the most part, limited to the major metropolitan areas of the State. A trend toward greater urbanization has already been established, and forecasts continue to predict an increasing population. In the past 20 years Virginia has been transformed from a State that was classified as being predominately rural to one which is now predominately urban. In 1950 the total population was 3,318,680 with 53 percent of the people living in rural areas. By 1960 the proportion of the population classified as urban [3] had surpassed that classified as rural. Figures based upon the last Census in 1970, indicate Virginia's population has risen to 4,651,487 and that the urban population has increased to 2,935,051 or 63 percent of the total.[4]

A further breakdown of 1970 Census information indicates that the most highly urbanized planning district in the State is the Southeastern Virginia Planning District, consisting of Norfolk, Portsmouth, Virginia Beach, Chesapeake, Nansemond, Suffolk, and the Counties of Southampton and Isle of Wight. Nearly 90 percent of that District's total population was classified as urban, with the largest portion of these people living in the Cities of Norfolk, Virginia Beach, Portsmouth and Chesapeake.

The Northern Virginia Planning District, consisting of the Virginia portion of the Washington, D. C. Metropolitan Area, had the greatest absolute number of urban people, a total of 811,971 in 1970; however, as a proportion of the Planning District's total population figure it amounted to 88 percent, slightly less than the comparable figure for the Southeastern Virginia Planning District. All of the governmental jurisdictions in the Northern Virginia Planning District can be considered to be highly urbanized except Loudoun County which continues to have a larger rural to total ratio. Future projections indicate that it too will be predominately urban by 1980 unless growth pressures are actively combated.

Other highly urbanized planning districts, both in terms of absolute numbers and percent of urban population, are the Peninsula Planning District (Newport News-Hampton Metropolitan Area) with 87 percent of its population urban and 277,332 urban residents; the Richmond Regional Planning District with 78 percent of its population urban and 429,048 urban residents; Planning District Five (Roanoke Metropolitan Area) with 75 percent of its population urban and 172,182 urban residents; and the Crater Planning District (Petersburg-Colonial Heights-Hopewell Metropolitan Area) with 63 percent of its population urban and 101,922 urban residents.

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3. Based upon the definition adopted for use in the 1970 Census, an urban population comprises all persons living in urbanized areas and in places of 2,500 inhabitants or more outside urbanized areas. More specifically, an urban population consists of all persons living in (a) incorporated places of 2,500 inhabitants or more, but excluding those persons living in the rural portions of extended cities; (b) unincorporated places of 2,500 inhabitants or more; and (c) other territory, incorporated or unincorporated, included in urbanized areas. An urbanized area consists of a central city, or cities, and surrounding densely settled territory.
4. Bureau of the Census 1970 figures adjusted as of April 25, 1972.

Only two of the State's twenty-two planning districts had no urban population in 1970. The Northern Neck and the Accomack-Northampton Planning Districts were classified as being completely rural. Other primarily rural planning districts included the Middle Peninsula District with only 5.5 percent of its population urban; the Piedmont Planning District with 10 percent of its population urban; and in Southwest Virginia, the LENOWISCO and Cumberland Plateau Planning Districts, each with approximately 13 percent of their total population urban. These districts represent six of the more undeveloped areas of the Commonwealth.

Projections [5] indicate that by the year 2000 the State's urban to total population ratio will increase to 75 percent. The anticipated number of people at that time should approximate 5,385,000. Also, by the end of the century the most urbanized planning district, both in terms of absolute numbers and percentage of total population, is projected to be the Northern Virginia Planning District. Approximately 98 percent of the District's population and nearly 1,973,000 persons are expected to be classified as urban by the year 2000. During the same period, the Southeastern Virginia Planning District is anticipated to increase its urban population to 1,063,000 persons, representing more than 96 percent of its total population. The remaining urban districts, in order of their extent of urbanization in the year 2000, are projected to be the Peninsula Planning District with 93 percent of its population urban; the Richmond Regional Planning District with nearly 85 percent of its population urban; the Crater Planning District with 71 percent of its population urban; and the Central Virginia Planning District with slightly more than 50 percent of its population urban.

This trend toward greater urbanization will result in the continued expansion of our man-made environment. To support this development, additional land will be utilized for buildings, highways, parking areas, community facilities, and numerous other land use activities, thereby altering the natural conditions which now exist. In a period of half a century the Commonwealth is expected to almost double its population, with all of the anticipated growth represented by urban expansion. During the same 50 year period from 1950 to 2000, the number of rural persons is expected to decline by 400,000.

Although much of the impact of this growth will take place in the seven planning districts encompassing Virginia's present metropolitan areas, no area will be left unaffected. A single development decision of sufficient magnitude in even a rural area can do extensive harm to an environmentally critical area. By recognizing the nature and extent of the development that can reasonably be expected to take place, the Commonwealth can begin to identify its significant land resources, establish the mechanism to refine and increase its knowledge about these resources, and plan for a program to effectively protect them. To accomplish this task the following goals and objectives for the Critical Environmental Areas Program have been established:

Goal/To safeguard the natural and cultural heritage unique to the Commonwealth.

objective/to identify those areas in need of immediate protection, as well as setting forth a method by which selected areas throughout Virginia may be objectively evaluated to determine their suitabilty for inclusion in a program of protection.

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5. Projections made by the Research Service of the Division of State Planning and Community Affairs.

objective/to suggest development or performance standards, and a process for applying these standards to afford adequate protection and yet not usurp the right of local determination where appropriate.

objective/to establish, in conjunction with identification and implementation, a procedure which will encourage the coordination of critical area protection with land use policies formulated at the local, regional, and State levels.

objective/to initiate a program which can be continued and expanded to offer a wider application of environmental protection when necessary.

Goal/To create an atmosphere which will encourage Virginia to take the initiative in making policy pertinent to land use and the environment.

objective/to inform the Governor and General Assembly about issues which will assist them in making policy determinations.

objective/to develop a critical areas plan and the necessary legal and administrative processes, which will complement and/or support a more comprehensive land use policies plan that goes beyond the study of critical environmental areas.

objective/to make recommendations which will permit a coordinated approach among State agencies concerned with the environment in the formulation and implementation of any comprehensive land use policies plan.

objective/in the formulation process, to be cognizant of ensuing federal land use legislation to coordinate action, thereby making it probable that a suitable relationship will exist between federal and State programs.

objective/to keep informed of federal activity in this and related areas of land use and development as a part of the continuing program that is suggested.

The goals and objectives set forth go beyond this initial study. They recognize that environmental concerns include more than critical areas and should be ultimately considered in their broad context. The delineations and recommendations which follow are important to the creation of a program designed to provide selected area protection, but they also may be ultimately responsible for an overall environmental policy. If this is understood, the study of Virginia's critical environmental areas will realize its greatest potential.

CHAPTER 3

Natural and Historic Categories

The selection of Critical Environmental Areas requires careful investigation of a myriad of natural features and their many different relationships. The basic considerations which form a part of all the critical areas we wish to delineate are land, water, vegetation and animal life; either singly or in combination, they exist everywhere on earth. The particular characteristics of each of these four basic features and the relationship of each feature to each other feature and to man's existing and potential use of the land will determine the relative uniqueness of a selected area.

In common terminology, there exist further refined categorical types to describe particular natural areas which possess certain recurring characteristics of one or more of the four basic considerations. These categories of natural land and water areas in Virginia include: shore areas, flood plains, scenic areas, watersheds, wetlands, wilderness areas, and wildlife habitats. In addition, recreation and historic areas categorize the cultural aspects to be considered within the natural area framework set forth in the legislation.

To establish an understanding of the nature and importance of the various categories which, either singly or in combination, can constitute a critical environmental area, some comment about each category will be made.

Shore Areas

Shore areas are those land areas which come into contact with, and are adjacent to, an ocean, bay, lake, or river and provide an opportunity to carry on water oriented activities. The terrain is generally flat at some point to permit easy access to the water.

The very nature of shore areas and their uniqueness among the vast amount of other types of land make them particularly vulnerable to development. The recreational opportunities which exist for swimming, boating, fishing, and other related water sports encourage man to alter these areas through intensive use. Arbitrary and haphazard development can despoil a coastline and its beaches and ultimately destroy both the scenic and recreational opportunities that are available to an expanding population.

Besides the threat to the future quality of the scenic environment and to places suitable for recreation, improper land use activities can increase erosion, disturb wildlife, and disrupt the vegetation essential to the maintenance of certain shore areas. The dunes which exist behind coastal beaches are important in maintaining and protecting shoreland areas from the sea. The dunes, however, are usually stabilized by dune grass, and other adapted vegetation which are fragile and will not survive heavy travel by people on foot and in dune buggies or other vehicles. The intensity of human activity which sometimes occurs in these ecologically significant and often fragile areas should be effectively managed.

Shore areas in Virginia are quite varied in their location and character. They are an important part of the natural and scenic environment and should be recognized as such to insure that they are used efficiently while being effectively protected.

Flood Plains

Flood plains are nearly flat land areas adjacent to a river, stream, lake, ocean or bay that are subject to periodic inundation. They are of two types,

riverine and coastal. The riverine flood plain is made up of floodway areas and floodway fringe areas. The floodway areas are closest to the natural channel of a watercourse and act to convey flood discharges. The stream channels and overbank lands that are a part of a floodway tend to transmit flood waters from upstream to downstream areas. The frequency, height and duration of flooding are usually greatest in the floodway. The floodway fringe lies adjacent to the floodway and is inundated less frequently with lower velocities and for shorter periods of time than the floodway; consequently, property damage and danger to human life is much less than that which usually occurs in floodway areas.

The riverine flood plains are characterized by relatively level topography, deep alluvial soils and forested areas that consist primarily of hardwood tree species including elm, ash, cottonwood, gum, sycamore, maple, hackberry, box elder, birch, and oak. They lend themselves to use for agriculture, forestry, recreation and open space. More intensive uses which are often dependent on these areas include water related and water using industry.

The danger created by development that often exists in flood plain areas is obvious to many Virginians who are familiar with the devastation brought on by the flooding caused by recent tropical storms. The loss of human life and other damage to property worth millions of dollars is the price that must be paid by both individuals and the Commonwealth when serious flooding occurs in built-up locations. To combat such tragedies in the future, a program should be initiated that will accurately identify flood plains and discourage further development within their established limits. Where intense development already exists, flood control projects should be considered; however, man-made alterations to flood plain areas in the form of dams, dikes, levees, reservoirs, landfills, and channel modifications can also affect important ecological relationships making it necessary to carefully consider the extent of these projects.

Besides being vulnerable to extensive damage, it should be understood that the numerous structures which are often present in a flood plain can occupy space that would normally be available to accommodate flood water; this can increase flood heights on upstream and adjacent lands by causing "backwater" effects. Stream velocities are also increased causing scouring and erosion damage to downstream properties.

In coastal areas, flooding is caused by wind driven water rather than precipitation; however, coastal areas have no flood hazard area comparable to the riverine floodways. Coastal land may be subject to severe erosion damage, and the destruction of the protecting dunes or other natural barriers can greatly increase the property damage caused by storms.

Scenic Areas

Scenic areas are those natural settings possessing unusual aesthetic values exemplified by beautiful vistas or panoramas. The landscape is itself a natural resource that can be easily destroyed by man and his activities. Scenic areas, once inventoried as any other natural resource, should be protected and preserved.

The landscape is diverse and made up of many patterns and impressions. In Virginia, these range in countless numbers, from the ocean beaches to the high mountains. They are made up of varieties of forest types and lower vegetation, topography, geologic formations, watercourses, wildlife, soil appearance, and man-made features. Any of these can be the dominant feature of a scene, but it is more likely that a combination of features, as

well as the framing created by surrounding physical characteristics, will complete and make a visual impression unique.

All natural settings and all categories of land being considered for inclusion as "critical environmental areas" possess certain scenic values. The relative weight of these more subjective values, in terms of what scenic qualities exist in the entire State, must be determined. One must then relate this definitional category to the more objective definitional categories which may constitute a "critical environmental area."

Watersheds

A watershed is a concave or trough shaped land area in which the runoff from rain and snow eventually drains into a single channel. A watershed area may be as small as one acre and at the same time may be considered to be many watersheds; consequently, our entire land surface is made up of drainage units on which we depend for water.

The proper management of even small watersheds is necessary for effective flood control, conservation of fresh water, enhancement of water quality, and the control of soil erosion and sedimentation. Major rivers originate in the small watersheds making land use practices in these areas almost as important as land use practices in the flood plains of major tributaries. Rivers flowing to the estuaries can carry ever increasing amounts of sediment, sewage, and industrial wastes to be deposited in downstream locations.

The trees and other vegetation which are a natural part of a watershed catch precipitation and hold part of it before it reaches the soil. Plants and natural debris on the ground protect the soil from the direct impact of raindrops and keep surface water spread out and moving at low velocities. This encourages the absorption of precipitation into the soil and porous rock and yields water as seepage instead of as overland or surface runoff. Vegetation, however, can also lower the air temperature and wind velocity near the ground surface, thus decreasing rapid evaporation and slowing the melting of accumulated snow. The additional runoff caused by this situation can cause frequent flooding on the smaller tributaries of larger streams. These floods are usually not spectacular, but resultant soil erosion, sedimentation and loss of water storage capacity in the ponds, lakes and reservoirs take an ever increasing toll of a quality water supply.

The surface water runoff in streams and rivers that flow into lakes, impoundments, and the ocean has been estimated to be 25 billion gallons a day in Virginia. This total figure is adequate for the water needs of the Commonwealth as a whole, but the supply is often not distributed to meet the needs of concentrated population centers. Southeastern Virginia is most deficient in this respect. Engineering reports indicate that a deficit of 10.5 million gallons per day could exist in this area by 1980.[6]

When surface water is insufficient to supply a population's water needs, communities are then greatly dependent upon ground water supplies from both water table and artesian aquifers. The deep artesian system often becomes a principal source of water. Pumping from this source has increased in some areas of the Commonwealth to a level where withdrawal now exceeds natural replenishment. A continuing overdraft may result in a serious groundwater deficiency; consequently, studies should be made to identify all deep aquifers, determine required water quality protection

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6. *The State of Virginia's Environment:* An analysis and recommendation by the Governor's Council on the Environment.

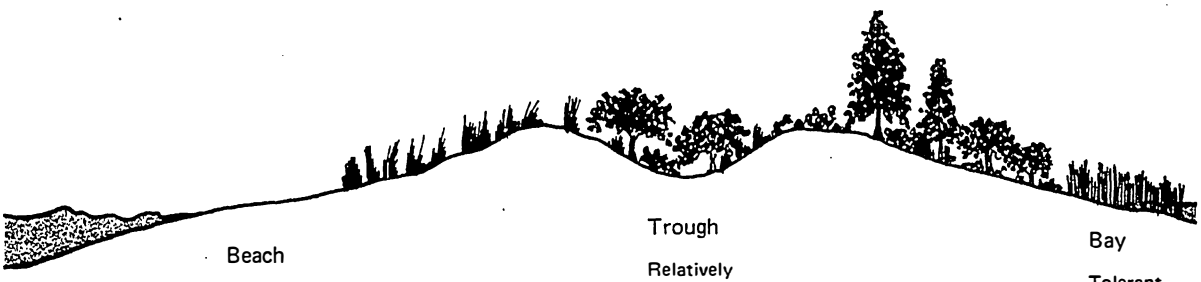
measures, formulate necessary regulations for ground water withdrawal, and identify and preserve aquifer recharge areas.

It will also be important to ultimately identify those watersheds that are responsible for the water supply of existing and projected population concentrations or growth centers and to establish measures to insure their proper use and protection. It is essential that sites suitable for water impoundments necessary to meet future needs for water be identified and preserved against conflicting land uses.

Wetlands

The Virginia wetlands legislation (Chapter 2.1, Section 62.1-13.2) defines wetlands as all land lying between and contiguous to mean low water and an elevation above mean low water equal to the factor of 1.5 times the mean tide range at any given site and upon which is growing any one or more of certain listed grasses, shrubs and tree species. Any purely technical definition of these lands cannot fully describe the importance of this environmental category to the marine and inland wildlife which it supports.

In these areas, more than seventy-five different marine species including menhaden and striped bass, and 95 percent of native saltwater fishes spend part of their lives. The economic value to Virginia, in one sense, can be measured by the annual catch of the commercial fisheries industry which is worth approximately $22,000,000 at dockside. In addition, one-half to one-third of the crab commerce of the East Coast depends upon the Chesapeake Bay area and its wetlands. The monetary yield to bay area crabbers is approximately $6,000,000 a year. Oysters, clams, and shrimp all depend upon the largess of the wetlands as do ducks, geese, shore birds, muskrats, mink, otter, raccoon, and other wildlife.



Ocean

Tolerant
Intensive recreation
Subject to pollution controls

Beach

Tolerant
Intensive recreation
No building

Primary Dune

Intolerant
No passage, breaching or building

Trough

Relatively
Tolerant
Limited recreation
Limited structures

Bayshore

Intolerant
No filling

Bay

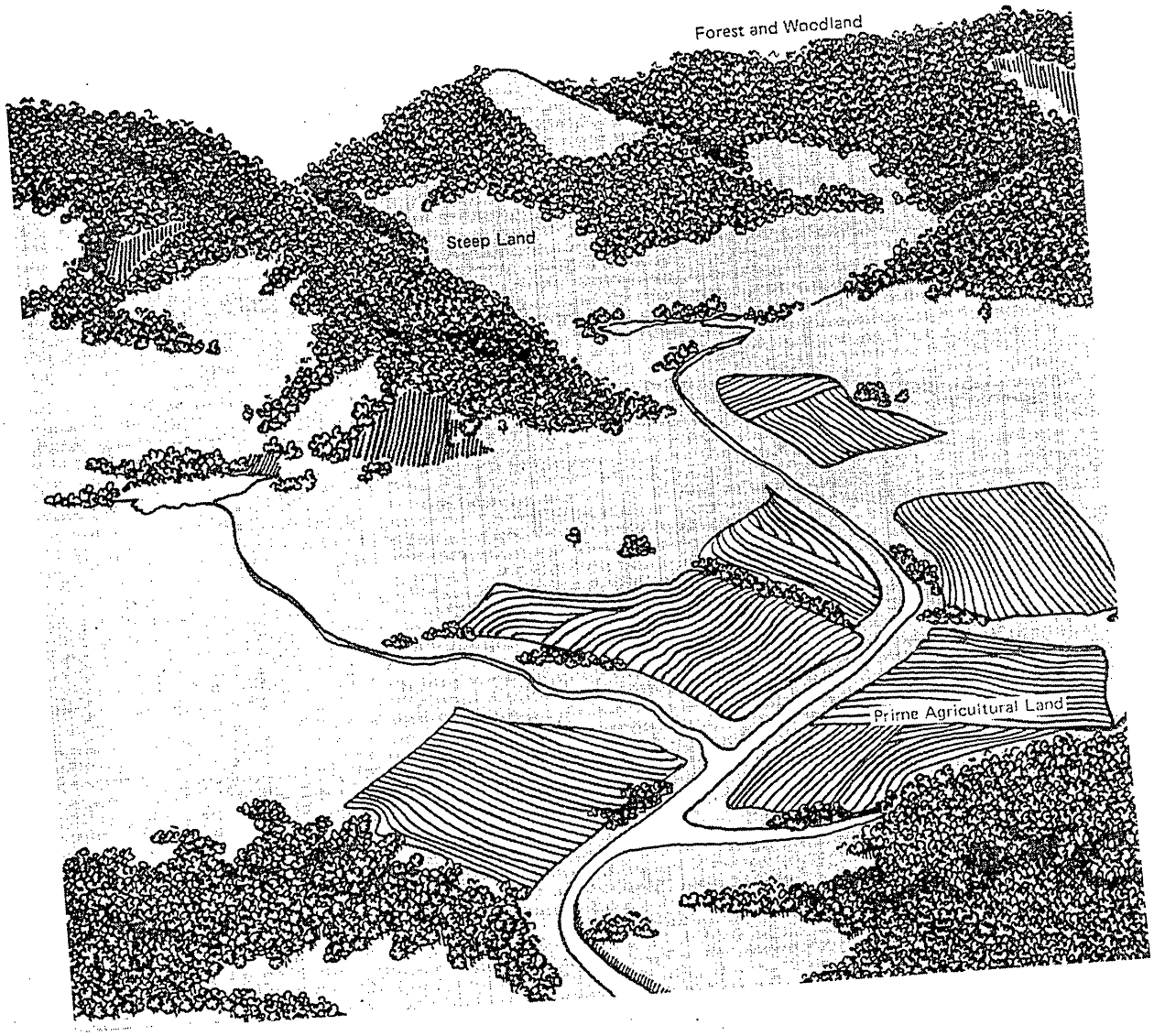
Tolerant
Intensive
recreatior

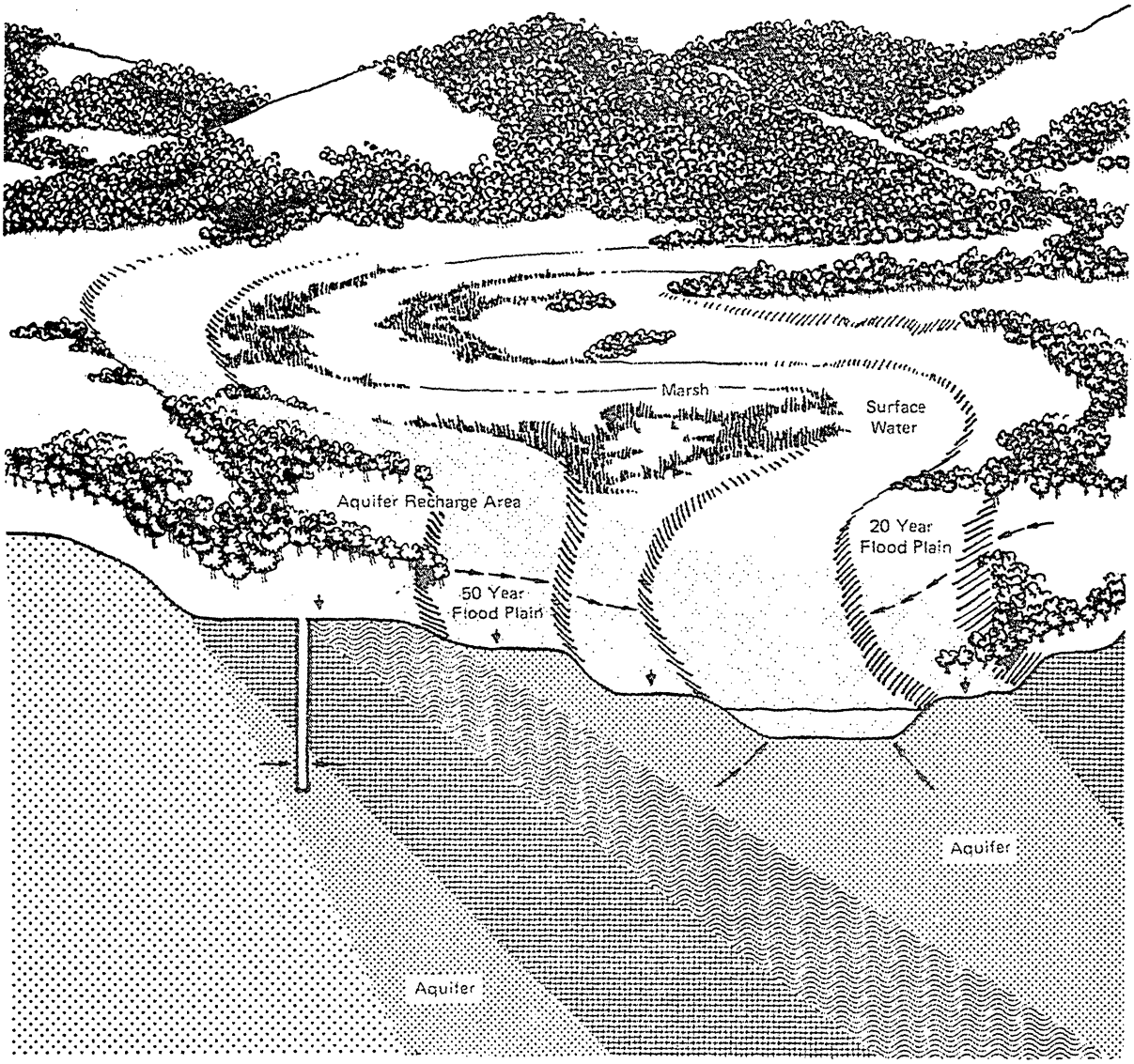
Backdune

Tolerant
Most suitable for development

Secondary Dune

Intolerant
No passage, breaching or building


Forest and Woodland
Steep Land
Prime Agricultural Land


Marsh
Surface
Water
Aquifer Recharge Area
20 Year
Flood Plain
50 Year
Flood Plain
Aquifer
Aquifer

Wetland areas are dominated by saltmarsh cordgrass (Spartina alterniflora) or various comparable freshwater plants, are necessarily low-lying and, as a rule, are regularly inundated at high tide. These areas are of primary value to the aquatic ecosystem due to the food energy requirements of marine organisms. Many marsh animals depend upon cordgrass for food; very few graze on it, most feed on the products of its decay, and others feed directly on the feeders. These grasses die annually, fall on the marsh and are broken down by wind, waves and the action of bacteria and fungi. The annual organic waste material so produced has been estimated to amount to approximately three tons per acre from Virginia's wetlands. The vegetation on the wetlands uses energy from sunlight to photosynthesize substance, sugar and carbohydrates, which support all life, and the resultant waste material acts as an essential link in the food chain for nearly all marine life.

The wetlands also function as natural protective areas against wind and wave action. The sea, having risen as much as thirty feet in the last 5000 years, continually tends to erode beaches and shore areas; however, the roots of the cordgrass and other marsh plants that inhabit the mud flats above the reach of the ocean at low tide anchor the shifting mud, and their stems catch the drifting silt. By intensifying sedimentation, the wetlands improve overall water quality and at the same time build the surface of the mud flats to keep pace with the rise of the sea.

These marsh areas cannot grow unprotected on the open coast. They need sand dunes or beaches to break the force of wind and storm. The wetlands tend to act as defense works to protect inland areas from the direct erosive power of storm waves, as do the Barrier islands serve to protect more than half of Virginia's coastline. Nevertheless, erosion is still great. When the sea breaks through these islands, it changes the flow in the lagoons and smothers the mud flats. Since 1852, at least seventeen square miles of marshes along Virginia's shore have been lost.

The wetlands are continually being modified by a variety of activities, both natural and man-made. Measures must be constantly taken to conserve and protect the wetlands against uses not compatible with the ecology of these areas and to help protect them from the dangers caused by natural processes.

Wilderness

Wilderness areas are primitive natural areas which show little evidence of man and his activities. To be judged suitable for classification as a federal wilderness area, criteria must be met covering uniqueness, topography, timber types and associated vegetation, wildlife habitat, accessibility, scenic values, geologic features, and minimum evidence of man's activities. The Wilderness Act of 1964 requires that Congress shall decide whether or not an area qualifies under this legislation.

Presently, there are no declared wilderness areas in Virginia. Some locations within the almost two million acres of national forest land in the State may yet be so designated. The National Park Service has proposed that over 70,000 acres within the Shenandoah National Park be given wilderness area status and several pieces of legislation have been introduced requesting similar action for the Laurel Fork Unit in the George Washington National Forest.

The Forest Service has been attempting to develop criteria for an alternate "wildland" classification to be applied in eastern national forests. It appears, from material now available, that the major distinction between the

two categories would be the management prerogatives available to the administering agency.

Wilderness areas are significant because of their almost "unspoiled" state. These places would be protected against any alteration by man. They would be available for selected hiking and camping. Access would be limited and the occurrence of natural events would be left to take place with little intervention. Where such places exist, it is important to maintain their unique state to allow man to experience an environment as it existed before he made his presence known.

Management of "wildland" areas would be specifically concerned with the adequate protection of special areas, the preservation of wildlife habitats, erosion control, and the protection of endangered plant and wildlife species. These areas would be protected against any development not compatible with the natural state. Roads for access, trails, shelters, and other facilities would be limited since they could turn wildlands into an intensive use recreation area and destroy any initial uniqueness.

The opportunities for preserving, maintaining, or restoring primitive values in Virginia are not abundant. Every effort should be made to support the attempts to have "wilderness" and "wildland" areas designated by Congress.

Wildlife Habitats

Wildlife habitats are land areas which possess special natural characteristics that are vital to the support of certain species of animals and birds. The existence and extent of a habitat is determined by the vegetative cover, food, and water necessary to sustain wildlife. A habitat must usually meet the minimum life cycle requirements of many different species; therefore, it is not easy to precisely delineate the particular area which may support a single species.

The ability of land to support wildlife is dependent upon the fertility of the soil and the quality and amount of water which is present. The best soils and the water which drains from them provide the most productive habitat. As an example, a definite relationship exists between the mineral content of the soil and the mineral content of the plant it produces. A poor soil usually produces plants with low mineral and nutritional values which in turn limit the production of wildlife in such areas.

Besides the fertility of soils and the quality of water, the individual space requirements of members of many species are major factors in determining the maximum fish and animal populations that can be sustained by any segment of a geographic area. There is no practical way to maintain greater wildlife population densities in selected places to compensate for other habitats which may have been lost or degraded. Generally, as habitats are destroyed, certain animal species are diminished in number, for they often cannot be adequately sustained in an overpopulated environment.

Virginia contains a wide variety of topography, cover, food, and water areas. From numerous estuarine waters with their associated swamps to the mountainous areas of the western part of the State, many habitats exist which support a great variety of birds, animals, fish, and reptiles. The protection and maintenance of the environmental characteristics that comprise these habitats are an important factor in wildlife management.

Land use practices can often determine both the quality and abundance of both fish and wildlife. Environmental change brought on by development can alter a habitat by substituting man's values for natural conditions. Physical changes may be so intense that they literally destroy habitats. When wetlands and river bottom swamps are filled; when dams are built

and large productive land areas are inundated; and when industry seriously changes the quality of water; the alteration of the natural state can be significant enough to negate its use by any but the most adaptive wildlife species. A careful understanding of these conditions is important to the future protection of wildlife habitats.

Recreation and Historic Areas

A common definition of recreation is "the refreshment of strength and spirit after toil." [7] The Commonwealth abounds with natural and cultural resources which are basic to the provision of outdoor recreational opportunities necessary to satisfy this need.

Outdoor-oriented recreation is associated with forest lands, wetlands, floodplains, watersheds, shorelands, wilderness areas, free flowing streams and natural lakes, and large impoundments. Proper management of these natural resources with their associated vegetation and wildlife safeguards the variety of environments necessary for quality outdoor recreational experiences. Virginia's natural areas provide the opportunity for people to enjoy both fresh and saltwater fishing, boating, canoeing, swimming, hiking, camping, nature study, hunting, and a variety of other land and water-related leisure time activities.

The State is fortunate in having a variety of publicly owned land which is managed to preserve natural values and to promote recreational opportunities. These public lands include national forests and parks, State forests and parks, wildlife management areas, natural areas, wildlife refuges and other areas set aside to preserve special values.

The Commonwealth also possesses a large number of important historic landmarks that are also part of the national heritage. Visitors may combine trips to such historic places as Williamsburg, Appomattox, and Monticello, with enjoyment of natural and scenic areas, and participation in the many forms of outdoor recreation provided by its parks and recreation areas. History is a valuable part of Virginia's natural recreational resources and is so indicated in the Virginia Outdoors Plan which recommends the coordination of historic landmarks with a whole recreation system wherever possible.

Even with many existing facilities, the Commonwealth is presently deficient in its rate of acquisition and development of state park areas necessary to meet both present and projected demands. The same is often true of park systems at the local and regional levels where recreation areas and open space within easy reach of population centers are, or will be, a major need in many urbanizing areas. Suitable places are rapidly decreasing, and land acquisition and development costs are continually rising. If select land in certain areas is not acquired soon, it will no longer be available due to rising costs and diminishing supply.

Important elements of the critical environmental areas study are recreational needs as expressed in the Virginia Outdoors Plan and significant historic landmarks as identified by the Historic Landmarks Commission. The recommendations already formulated by these agencies should be recognized as the recreational and historic input to the critical environmental areas study.

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7. *Webster's Seventh New Collegiate Dictionary* by G. & C. Merriam Company.

Areas Having Special Physical Features

Besides the categorical definitions presented to explain those characteristics that could constitute an area of critical environmental significance, there are additional areas which may also be categorized, or at least recognized for their natural importance. These include areas of natural productivity that are important for man's use, areas that possess unique vegetation or tree species, and areas that have unusual geologic characteristics that may offer a rare example of a natural formation.

Within high production areas, it will be important to recognize and protect agricultural lands that contain the soil classes necessary for the production of good crops. It will also be important to maintain healthy forested areas. Both agricultural and forest lands which are highly productive exist where man's development activities have not yet become intense and where certain soil and topographic conditions are present. In addition, minerals are another natural resource worthy of recognition. Areas which contain ore deposits that are considered to be significant should be delineated to insure that they may be utilized and yet be removed without destroying the natural surface qualities of the land. Development should not be allowed to alter the natural state to an extent that would greatly reduce the capacity of the land to yield the products important to our society.

Unique species of vegetation, including tree types, also constitute important areas of the natural environment. These places are usually limited in scope and form a part of a wider categorical definition; however, in special instances certain examples of plant life are important enough to warrant protection as a critical area.

Finally, places exist that have unusual geologic features. Sometimes they are part of a scenic or recreation area and at other times they are significant merely because they do not exist in nature very often and should be protected from destruction as would a unique animal or plant species. Such places could include mountain peaks, caverns, gorges, high elevation lakes and other instances of a unique physical occurrence.

Summary

The categorical explanations of natural, scenic or historic areas of environmental significance usually exist in various combinations and are widely distributed throughout the Commonwealth. Even though they have been expressed as rather singularly defined entities, each possesses characteristics that can often be suitably applied to more than just one category. By itself, a single category may not be especially unique, may not be easily quantifiable, may not be important to a total ecological system, or may not be in obvious danger from man's activities. It is, therefore, probable that a delineation representing several of the categories would actually constitute a critical environmental area. One category, if significant, could be also designated, but it would be rare for a category to exist in complete exclusion of any other category.

The discussion of categories sets a basis upon which to understand the application of criteria and the eventual designation of areas. It does not suggest that each of these categories constitutes a critical area. Additional categories or further breakdowns of categories could be readily considered.

The delineation of productive agricultural land and forest areas as a part of the natural environment that is worthy of protection should also be considered. The extent and difficulty of their definitive delineation war-

ranted their exclusion from this initial effort. During an ongoing program and after the accumulation of the detailed soils information necessary for making such delineations, additions to the present list of critical environmental areas might be made.

By being aware of the types of issues which exist within each category, it will be easier to recognize the important aspects of our natural, scenic, and historic environment and to apply the criteria to assist in the selection of areas. Through a subsequent process of evaluation, certain places in Virginia have been delineated as "critical environmental areas."

CHAPTER 4

Application of Criteria

The actual process by which Critical Environmental Areas are delineated can take two basic approaches. The first, a blanket inventory method, involves making an inventory of the entire State in terms of a detailed set of environmental features or criteria and then screening the State for places that meet those criteria established for critical area designation. The other, a sample area method, involves a careful investigation of selected areas after they have been nominated for critical environmental area designation based upon more general criteria. The former method is the more comprehensive but presents an extremely difficult task. The physiographic, economic and social information necessary to conduct a blanket inventory survey is not readily available to analyze the entire State within the time allotted for this study. The second method, though far easier to carry out, has two major drawbacks in that an area has to be suggested before it can be delineated, and once delineated it should be further evaluated based on detailed criteria. It is also likely that some appropriate critical areas could be omitted from an initial designation because no one suggested them or they were not recognized from the general criteria. This particular deficiency was minimized in this study by the care taken to promote input from as many sources as possible. The need is still apparent, though, for continuing study and more detailed evaluation.

The general criteria established for the selection of critical environmental areas were developed with the aid of State agencies and the planning district commissions. The Division of State Planning and Community Affairs employed these criteria whenever possible in accepting suggestions for the initial list of critical environmental areas.

1/Criterion/A critical environmental area is an area which has unusual natural or man-made features which are worthy of protection by State or local governments. These natural or man-made features might consist of:

a/Groupings of historic buildings located within relatively undisturbed contiguous natural areas.

b/Roads through undisturbed countryside containing scenery and buildings uniquely historic and representative of Virginia.

c/Natural wildlife habitats supporting unique fish or wildlife populations, species whose range in the State is restricted or whose numbers are so limited as to warrant special consideration.

d/Natural areas possessing unique physical characteristics as:

1/Beaches having unusually white sand, exceptional width, good water quality, or dune development.

2/Bluffs having unusual exposed geologic strata, or beautiful vistas.

3/Inland river banks having wild character, profuse blooming flora, unusual flora communities, unusual crystalline beauty, or exceptional water quality.

4/Rivers with churning action, having visual interest, waterfalls or sinking streams.

5/High altitude lakes or elevated lakes in poquosins.

6/Unaltered mountain coves, significant peaks, natural arches, caves or tunnels.

7/Monadnocks, karst outcrops, and other unusual geological formations.

8/Spectacular gorges.

9/Climax forest communities of mature individuals.

10/Forest communities at range limits such as balsam fir, red spruce and arbor vitae.

11/Endangered forest species such as native chestnut and elm.

e/Areas possessing qualities suitable for future park development such as:

1/Being accessible from population centers and well-traveled tourist routes.

2/Having good scenic qualities, yet relatively level terrain to permit the construction of any necessary facilities.

3/Possessing bodies of water or potential pond and lake sites.

4/Being a relatively large and undeveloped tract.

2/Criterion/A critical environmental area is a natural area which is crucial to an ecological system and should be protected from inappropriate development. Such areas will not readily support intense development or may be hazardous to the public health and safety. Areas within this category might include:

a/Flood plain areas with special flood hazards and those which are located within the one hundred year flood level.

b/Areas of severe topography where it is difficult to locate structures. Steep slopes with shallow soil profiles making it impractical to install sub-surface sewage disposal facilities, to find adequate soil for cut and fill, and to find sufficient water of adequate quality for a domestic water supply. Areas where underlying rock formations make it possible for rock or earth slides to take place after heavy precipitation.

c/Low wetlands which are regularly inundated at high tide. These areas are critical to the production of detritus, an important link in the food chain for nearly all marine life, and serve as spawning, breeding, or feeding grounds for many marine species.

3/Criterion/A critical environmental area includes certain natural, scenic, or historic areas which are presently endangered, or in obvious danger of destruction, alteration, or loss because of the activities of man. Activities which might create a danger to the natural environment include:

a/Existing or potential urbanization whose rate or intensity of growth exceeds the capacity of an area to support it without itself being substantially despoiled.

b/A major public or private facility or improvement which would significantly alter the natural or historic environment.

c/Power generation and transmission facilities or any facility which might pollute the water or air, or despoil the natural, scenic, or historic qualities of an area.

4/Criterion/A critical environmental area is an area appropriate for public use through future acquisition by State or local agencies. Many types of natural areas could qualify for public acquisition. Uses to which this land might be put include:

a/Parks

b/Historic preserves

c/Game and fish management areas

d/Trails

e/Public forests
f/Scenic areas
g/Highways and parkways
h/Water impoundment sites

5/Criterion/A critical environmental area is an area which can be considered to contain a primary State resource. These could include wildlife, mineral, or agricultural production. Types of primary resource areas might include:

a/Natural wildlife habitats of high productivity for use by man

b/Primary agricultural production areas [8]

c/Primary forest production areas [9]

d/Mineral resource areas to include ore deposits and major quarries [10]

The initial list of critical environmental areas based on these criteria was compiled from input received from the many different sources indicated throughout this report. The information obtained from these sources was analyzed as to ownership status, natural features, relationship to existing and future growth areas, and potential for public use. The Division of State Planning and Community Affairs emphasized areas, not isolated sites. Whenever possible, an attempt was made to group natural, scenic, and historic places so as to strengthen the relationship between one site and another and establish an "area" where a program of comprehensive protection can be employed. Thus, locations designated for critical environmental area status include not only the natural, scenic or historic site itself, but also a protective zone which could ultimately act to exclude adverse surrounding development from the area (zone). Individual sites were included only when it was felt they had sufficient value to the Commonwealth to warrant special consideration.

Many of the designated areas have been identified in the Virginia Outdoors Plan or the Scenic Rivers Study, two reports dealing with Virginia's environmental assets. Scenic highways were included when they were nominated by a local, regional or state agency; by a private organization, and if they were within a larger delineated area. Agricultural areas as a single category were not shown since the extent of coverage, if not selectively mapped and investigated, would usually encompass large multi-use areas. Should specific places of important agricultural productivity be determined to be worthy of inclusion, they could be readily nominated and then evaluated as to their ultimate critical area status.

In addition, the selected critical environmental areas are generally privately owned properties with inadequate protection against adverse development. Areas which are in Federal, State or local Government ownership, or those already owned by environmentally conscious groups or foundations were recognized for their environmental importance but were not included in this initial list of areas. The exclusion of publicly owned or already protected lands at this time does not mean, however, that these areas will not be included in a program of protection. Publicly owned lands can often be threatened by adverse adjoining uses which may often encroach upon or despoil the natural vitality of a natural or historic site. Intensive use or other incompatible visual intrusions can compromise a "protected" environmental area almost as easily as an unprotected pri-

8. Not delineated in this initial list of critical environmental areas.
9. Ibid.
10. Ibid.

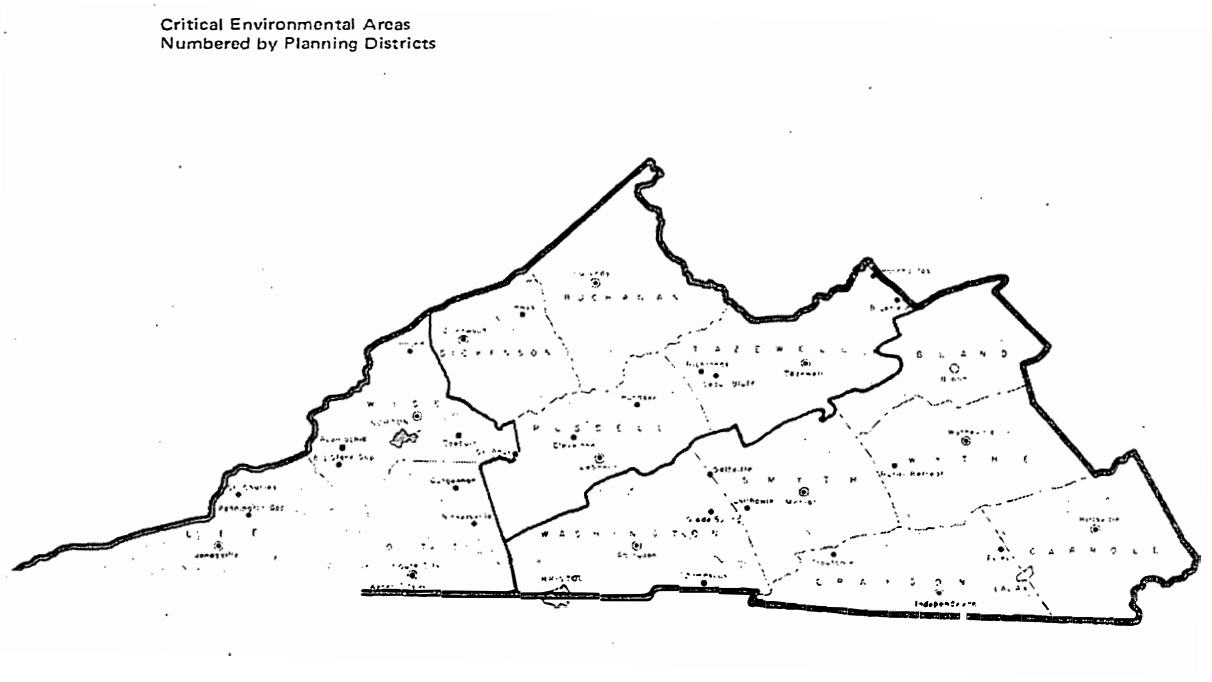
vately owned one. Thus, while the following list largely recognizes privately owned lands, all publicly owned recreation sites and natural areas, as well as significant places in private protective ownership should be evaluated to determine if action is needed to insure their safety or to improve them.

CHAPTER 5

Delineation of Critical Environmental Areas

The following delineation of Critical Environmental Areas has been listed by planning districts and similarly coded. For example, sites in District 1 are listed as 1 followed by a letter to designate the particular area. By looking at the list and the map which follow, one may locate and identify each critical environmental area. This initial identification of critical environmental areas establishes the broadest priority for further evaluation during subsequent periods of study.

APPALACHIAN REGION



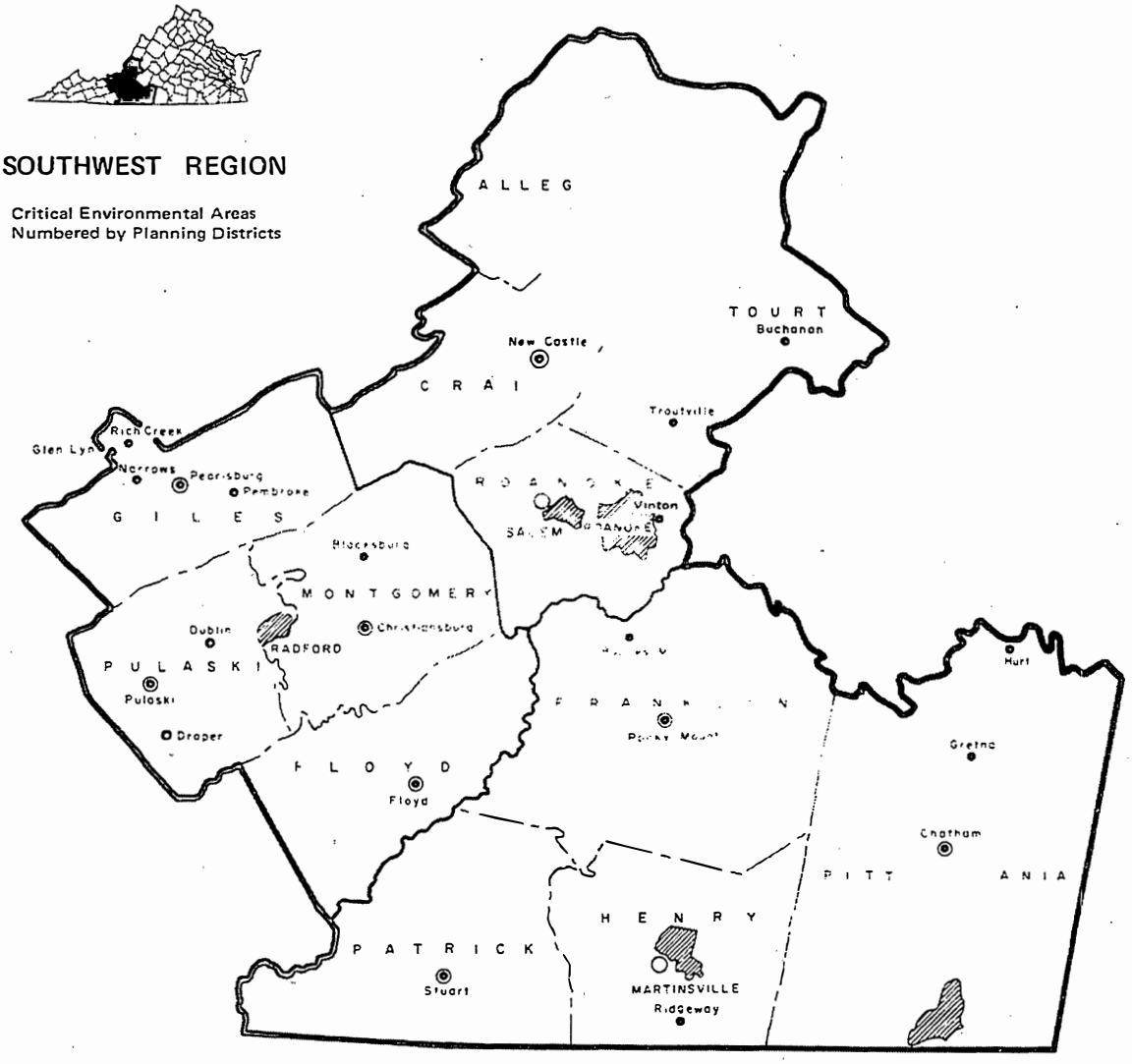
Site No.	Site	Description
1-A	Clinch River Area	Remote natural and scenic area-free of highways and development. Outstanding feature is a spectacular double gorge formed where the Clinch River meets the Guest River. The Clinch River possesses great canoeing, fishing, and scenic potential. Route 65 scenic highway is located adjacent to the river. Criteria 1, 2, 3, 4, 5
1-B	Powell River Valley—Dryden to Tennessee line	Unique meandering gorge set in a wide limestone valley. Scenic vistas give the impression that the valley is actually a plateau. Criteria 1, 2, 3, 4, 5
1-C	Big Moccasin Creek Area—near Gate City	Natural area possessing many unique geologic features. The Creek has high cliffs and waterfalls and outstanding white-water canoeing potential. Criteria 1, 2, 3, 4, 5
1-D	North Fork, Holston River Area	Stream valley possessing unique historic and scenic qualities. River is critical flood plain area and Clinch Mountain is unsuitable for intense development. Route 614 is scenic highway, and area contains Holston River blockhouse historic site. Criteria 1, 2, 3, 4, 5
1-E	Stone Mountain — Rose Hill to Pennington Gap	Natural area, unsuitable for development. Located near Cumberland Gap National Park, on West Virginia line. Criteria 1, 2, 3
1-F	Guest River — Coeburn to Norton	Natural and critical flood plain area, unsuitable for development. Criteria 1, 2, 3, 4, 5
1-G	Wallen Ridge—Route 23 to Tennessee line	Wildlife habitat, unsuitable for intense development. Recreational potential. Criteria 1, 2, 3

Site No.	Site	Description
2-A	Russell Fork Area	Natural area on the Virginia-Kentucky line with wild and spectacular scenery. Views include the Breaks of the Cumberland. Criteria 1, 2, 3
2-B	Clinch River Gorge Area	Unique sandstone gorge and scenic area. Clinch River has excellent canoeing, fishing, and scenic potential. Important adjacent sites include Big Falls on Cedar Creek, and Pinnacle Rock formations. Criteria 1, 2, 3
2-C	Cove Creek Area	Natural area in relatively untouched condition, recreational potential. Criteria 1, 2, 3
2-D	Elk Garden	Small settlement centering on an early 19th Century mill overlooked by the classical revival mansion of Governor Stuart. Criteria 1, 3
2-E	Burkes Garden	Historic and scenic community in rich agricultural area — relatively isolated. Critical area includes Garden Mountain, unspoiled natural and scenic area — unsuitable for intense development. Criteria 1, 2, 3, 5
2-F	Knob Mountain — Paint Lick Mountain —Cove Area	Undisturbed scenic and natural area. Mountains are wildlife habitats of great recreational value. Site of historic Indian battle, and prehistoric Indian paintings. Cove area is rich agricultural and cattle-raising area. Criteria 1, 2, 3, 4, 5
2-G	Birch Knob	Unspoiled mountain area, wildlife and botanical habitat. Rugged geologic formation, near Blowing Knob, of recreational value. Criteria 1, 2, 3, 4, 5

Site No.	Site	Description
3-A	New River Valley Area	Unique scenic and natural area which features lightly settled, wooded shorelands and a beautiful fast-water river. Rapids occur at Foster's Falls. Nearby historic sites include Boom Furnace (old iron foundry and ghost town). Important adjacent areas include proposed Blue Ridge Reservoir site. Criteria 1, 2, 3, 4, 5
3-B	Big Reed Island Creek Area	Natural area, possessing rugged terrain with sheer cliffs near month of the stream. Sections contain unique botanical and ecological communities. Criteria 1, 2, 3, 4, 5
3-C	Cripple Creek Area	Unique natural area largely in a pastoral state adjoining Jefferson National Forest. Cripple Creek possesses excellent trout fishing conditions. Criteria 1, 2, 3, 4, 5
3-D	Appalachian National Scenic Trail	Buffer needed in privately owned portions to prevent encroachment and provide connecting links. Criteria 3, 4
3-E	Clinch Crevasses	Scenic rock formations, recreational potential. Criteria 1, 3
3-F	Abrams Falls	Scenic falls, glen and mountains. Criteria 1, 3
3-G	Middle and South Forks, Holston River Area	Stream valley possessing unique historic and scenic qualities. Flood plain is unsuitable for intense development, yet is encroached upon in numerous areas. Criteria 1, 2, 3, 4, 5
3-H	Beaver Creek	Natural and scenic area, flood plain unsuitable for development. Criteria 1, 2, 3
3-I	Reed Creek	Natural and scenic area, flood plain unsuitable for development. Criteria 1, 2, 3
3-J	Blue Ridge Parkway Area	Scenic highway, exceptional recreational and tourist value. Vicinity unsuitable for intense development. Criteria 3, 4

SOUTHWEST REGION

Critical Environmental Areas
Numbered by Planning Districts



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Planning District 4 New River Valley

Site No.	Site	Description
4-A	Twin Falls	A potential natural area, a privately owned unique geologic formation. Criteria 1, 3
4-B	New River Valley Area	Relatively unspoiled natural area in midst of rapidly growing urbanizing area. River has excellent recreational potential — especially for canoeing. Adjoining historic sites include Ingles Ferry, location of ferry important to early settlers moving into western Virginia, Kentucky and Tennessee. Site contains old ferry landings and structures. Area between McCoy and Narrows contains a wild river gorge surrounded by high, untouched bluffs, in midst of developing industrial area. Criteria 1, 2, 3, 4, 5
4-C	Little Stony Creek and Mountain Lake	Densely forested natural area above Cascades waterfall, location of one of Virginia's few natural lakes. Criteria 1, 2, 3
4-D	Appalachian National Scenic Trail	Buffer needed in privately owned portions to prevent encroachment and provide connecting links. Criteria 3, 4
4-E	Blue Ridge Parkway Area	Scenic highway, exceptional recreational and tourist value. Vicinity unsuitable for intense development. Criteria 3, 4
4-F	Big Reed Island Creek Area	Unique natural area with rugged terrain and recreational potential. Criteria 1, 2, 3, 4, 5

Site No.	Site	Description
5-A	James River Area	Natural area of great value. Excellent watershed area and potential reservoir site. River and vicinity have recreational and open space quality, and portions are relatively undisturbed by development. Criteria 1, 2, 3, 4, 5
5-B	Cowpasture River Area	Unique natural area largely in a pastoral state. River has been designated as a Scenic River. Surrounding region has recreational potential and is undisturbed by development. Criteria 1, 2, 3, 4, 5
5-C	Craig Creek Area — Newcastle to Strom	Pastoral and forest area set in an undisturbed limestone valley. Site of proposed Hipes Reservoir. Stream is of exceptional clarity. Criteria 1, 2, 3, 4, 5
5-D	Appalachian National Scenic Trail	Buffer needed in privately owned portions to prevent encroachment and provide connecting links. Criteria 3, 4
5-E	Rainbow Rocks and Iron Gate Gorge	Arch cut by river—unique geologic formation. Criteria 1, 3
5-F	Indian Valley—Blue Springs Area	Area of scenic rock formations and bluffs. Criteria 1, 3
5-G	Falling Spring Falls	Scenic waterfall, unique geologic formation. Criteria 1, 3
5-H	Looney Valley—New Castle to Sinking Creek	Scenic valley, historic caves, and mountains. Criteria 1, 3
5-I	Roanoke River Area	Adjoining this river are both intensely urbanized and undisturbed natural areas. Valley has critical importance as a wildlife habitat and a watershed. Criteria 1, 2, 3, 4, 5
5-J	Tinker Creek Area	Natural area in rapidly urbanizing metropolitan region. Has recreational potential, and is of value as watershed area and wildlife habitat. Criteria 1, 2, 3, 4, 5
5-K	Fincastle	Unique 19th Century historic village in relatively unspoiled rural countryside. Criteria 1, 3

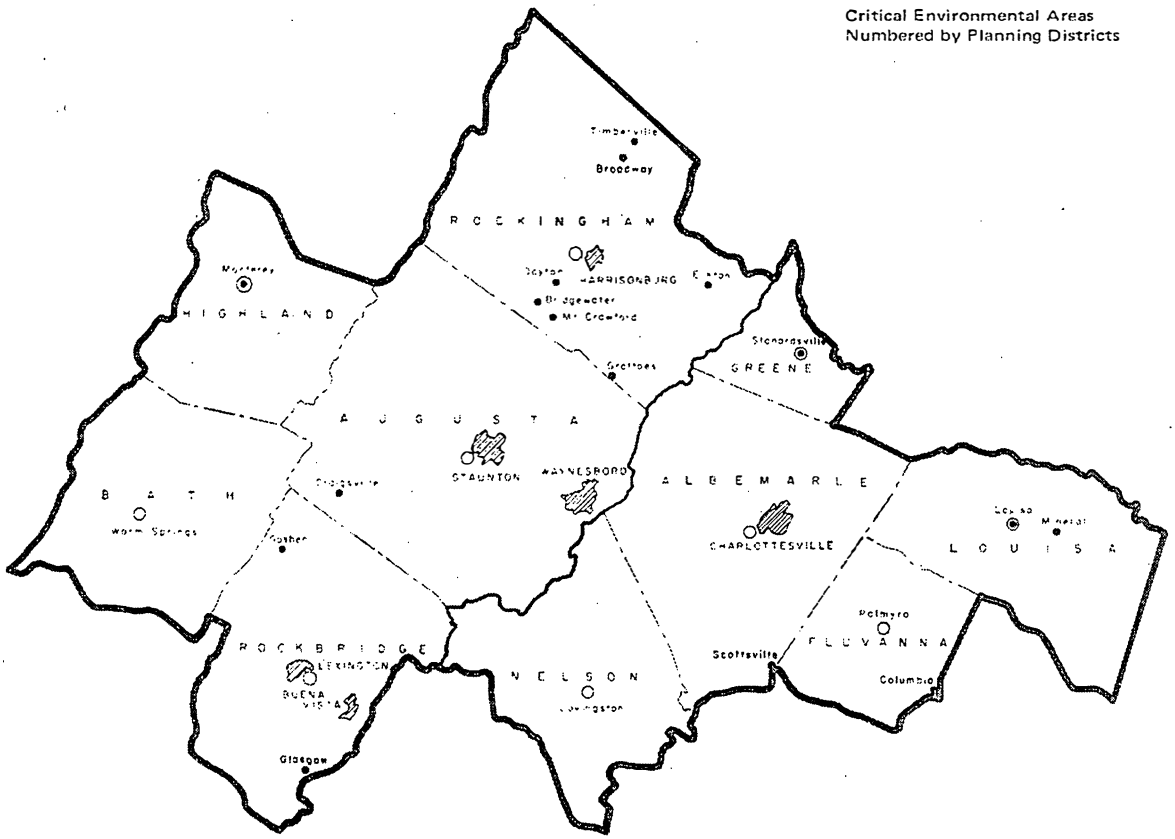
5-L	Sweet Chalybeate	Small scenic village, site of mineral spring. Popular in early 20th Century as resort. Criteria 1, 3
5-M	Fort Lewis	Site of fort, important during 18th Century. Criteria 1, 3
5-N	Fort Young	Site of 18th Century fort, part of outer defenses of the Allegheny Mountains. Criteria 1, 3
5-O	Blue Ridge Parkway Area	Scenic highway, exceptional recreational and tourist value. Vicinity unsuitable for intense development. Criteria 3, 4
5-P	Jackson River Area	Important natural area and wildlife habitat. Beautiful, rugged terrain. Criteria 1, 2, 3, 4, 5

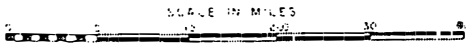
Planning District 12 West Piedmont

Site No.	Site	Description
12-A	Roanoke River Area	Natural area with great recreational potential. Critical watershed and wildlife habitat. Criteria 1, 2, 3, 4, 5
12-B	Dan River Area	Valuable watershed area, and potential reservoir site. Shorelands have recreational value. Criteria 1, 2, 3, 4, 5
12-C	Philpott Reservoir	Wildlife habitat and undisturbed natural area with immense recreational potential. Critical watershed value to surrounding region. Criteria 1, 2, 4, 5
12-D	Busted Rock — Smith River Falls	A natural and scenic area dominated by a unique geologic formation. Criteria 1, 3
12-E	Elkhorn Lake Area	Lake with great recreational potential. Surrounding vicinity contains sites such as Woodlawn, Elkhorn, and the Rachel Jackson birthplace. Criteria 1, 3
12-F	Stanleytown — Basset Area	Area of small industrial villages — home of Virginia's furniture industry. Important sites nearby include Claremont, Governor Stanley's home, Hordsville, Hillcroft, Basset Home and Fort Trial. Criteria 1, 3
12-G	Blue Ridge Parkway Area	Scenic highway, exceptional recreational and tourist value. Vicinity unsuitable for intense development. Criteria 3, 4

CENTRAL VIRGINIA REGION

Critical Environmental Areas
Numbered by Planning Districts

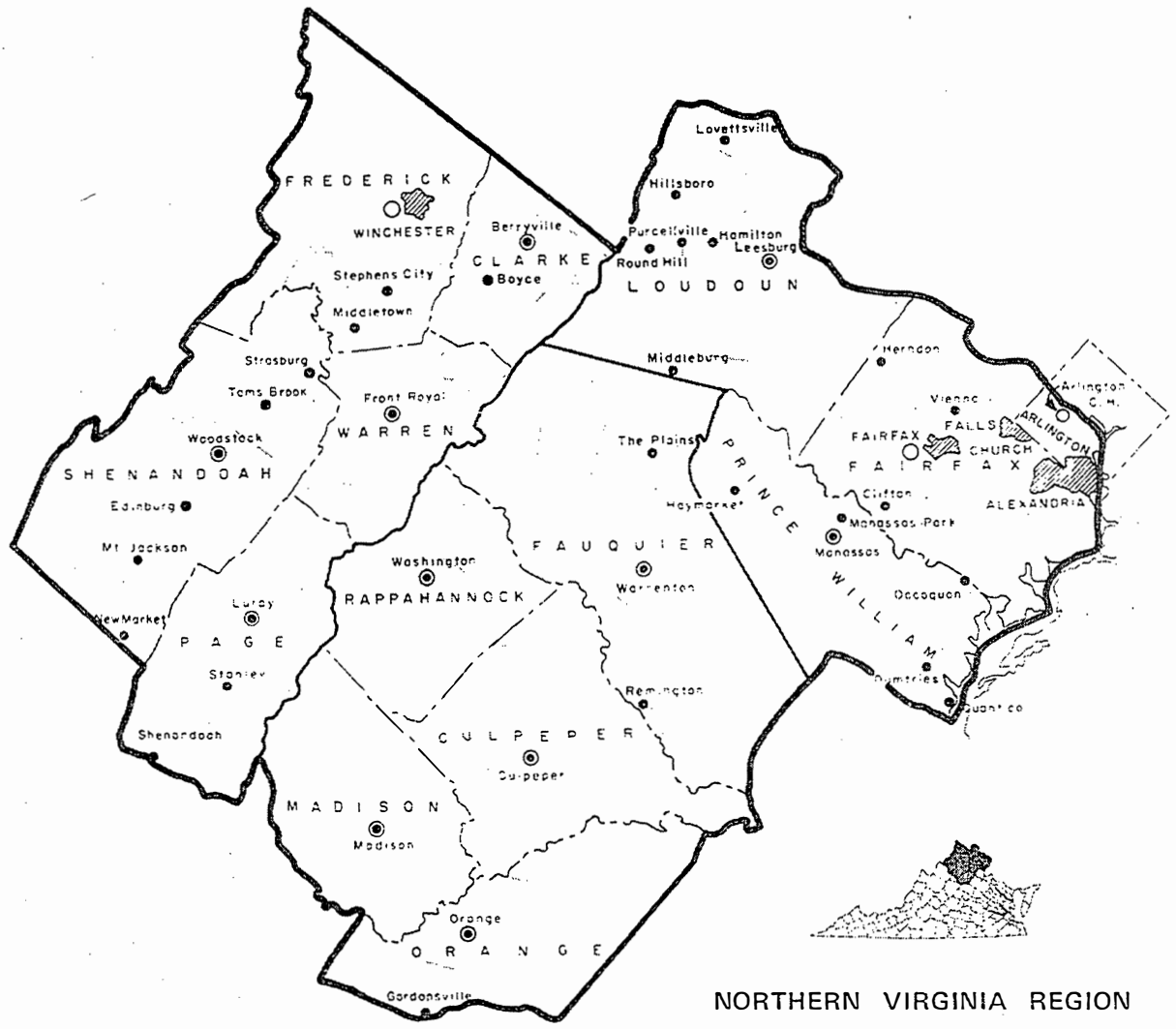




Site No.	Site	Description
6-A	James River Area	Natural area of great value. Excellent watershed area of immense recreational and open space potential. Portions still remain undisturbed by development. Criteria 1, 2, 3, 4, 5
6-B	Cowpasture River Area	Unique natural area. Surrounding region has recreational potential and remains undisturbed by development. Criteria 1, 2, 3, 4, 5
6-C	Bullpasture River	Area of rolling farmland adjoining Bullpasture Gorge—a rugged and scenic natural area of undisturbed character. Criteria 1, 2, 3, 4, 5
6-D	Sinking Creek Caves	Largest cave system in Virginia — mostly unexplored. Criteria 1, 3
6-E	Devil's Backbone	Unique geologic formation in relatively undisturbed natural state. Criteria 1, 3
6-F	Massanutten Mountain	Unique geologic formation, under intense pressure for development — partially government owned. Criteria 1, 2, 3, 4
6-G	Back Creek Area	Important natural area and wildlife habitat adjacent to partially government-owned, scenic Hidden Valley. Criteria 1, 2, 3, 4, 5
6-H	Jackson River Area	Important natural area and wildlife habitat. Stream is site of proposed Gathright Dam. Criteria 1, 2, 3, 4, 5
6-I	Maury — Calfpasture River Area	Natural area of unusual rugged beauty. The area is largely pastoral, and remains of canals and locks are present along the river. Adjoining is Goshen Pass, a unique scenic recreational area. Criteria 1, 2, 3, 4, 5
6-J	South Fork, Shenandoah River	The Shenandoah winds between Shenandoah National Park and the George Washington National Forest. Pastoral scenery alternates with forests and cliffs. Extraordinary recreational potential. Wildlife habitat. Criteria 1, 2, 3, 4, 5
6-K	North Fork—Shenandoah River	Critical watershed area, fish and wildlife habitat, also unusual scenic area. Criteria 1, 2, 3, 4, 5

Site No.	Site	Description
6-L	Brownsburg — Raphine — Middlebrook District	One of the most scenic stretches within the Shenandoah Valley. Contains several historic villages and numerous early Valley farmhouses. Criteria 1, 3
6-M	Central Rockingham County	Unspoiled rural area with numerous Mennonite farms and stone farmhouses of unique German story construction. Criteria 1, 3
6-N	Natural Bridge Area	Unique geologic formation, privately owned, used as tourist center. Criteria 1, 3
6-O	Blue Ridge Parkway Area	Scenic highway, exceptional recreational and tourist value. Vicinity unsuitable for intense development. Criteria 3, 4

Site No.	Site	Description
10-A	Appalachian National Scenic Trail	Buffer needed in privately owned portions to prevent encroachment and provide connecting links. Criteria 3, 4
10-B	Rapidan River Area	A largely undisturbed natural area of pastoral character. Criteria 1, 2, 3, 4, 5
10-C	Rivanna River Area	A natural area in a pastoral setting, with 19th Century canal locks, aqueducts, and mill ruins. Accessible to both Charlottesville and Richmond. Criteria 1, 2, 3, 4, 5
10-D	James River Area	Natural area of great value. Excellent watershed area of immense recreational and open space potential. Portions still remain undisturbed by development. Criteria 1, 2, 3, 4, 5
10-E	Point of Fork	A significant Civil War arsenal adjacent to the Rivanna River, important archeological site. Criteria 1, 3
10-F	Rockfish River Area near Martin's Store	Scenic road, river, and valley. Pastoral, largely undisturbed countryside with recreational potential. Criteria 1, 3
10-G	North Garden — Esmont — Keene Area	Area of late 18th and early 19th Century plantations such as Estouteville, Enniscorthy, Edgemont, Plain Dealing and Redlands. Criteria 1, 3
10-H	Keswick — Cismont —Cobham Area	Along scenic stretches of Virginia Routes 231 and 22 are located Castle Hill, Cloverfields, and Grace Church. Criteria 1, 3
10-I	Green Springs	18th and 19th Century rural community containing five registered Virginia landmarks. Route 15 in area is scenic highway. Criteria 1, 3
10-J	Charlottesville Critical Areas	Critical areas in region include Meadow Creek and Moore's Creek flood plains, and environs of City's three water supply reservoirs. Court Square is critical 18th and 19th Century historic area. Criteria 1, 2, 3, 4, 5



NORTHERN VIRGINIA REGION

Critical Environmental Areas
Numbered by Planning Districts

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Planning District 7 Lord Fairfax

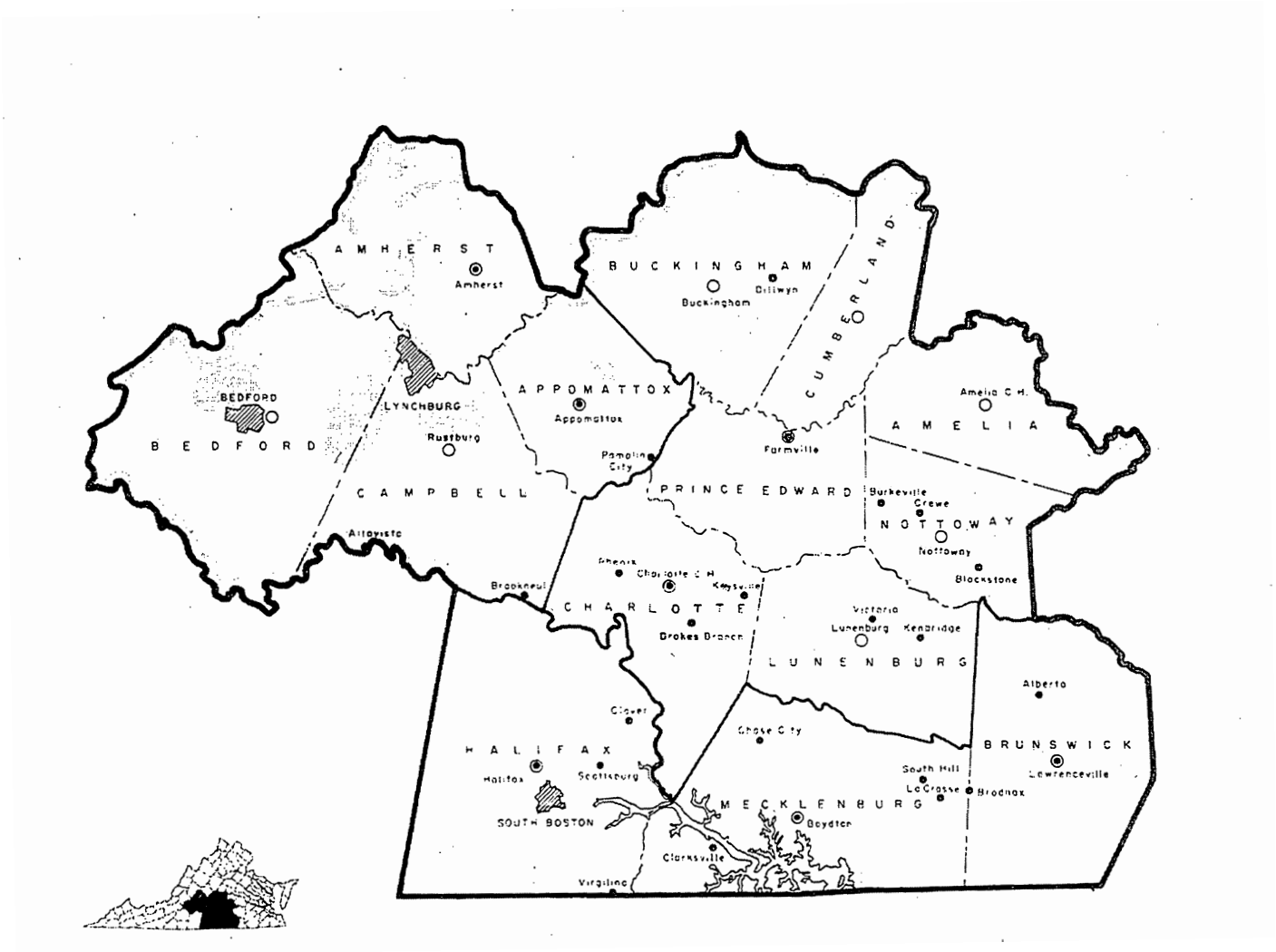
Site No.	Site	Description
7-A	Calmeas Neck	Scenic area on Shenandoah River adjoining Blue Ridge — suitable for large-scale recreational use. Criteria 1, 3, 4
7-B	Cedar Creek Area	Natural area of rugged beauty. Scenic features include a waterfall near Marlboro and a rocky ravine with cliffs and caves. Adjoining historic sites include Van Buren Furnace, Fort Stephens, Cedar Creek Battlefield, and Belle Grove Mansion. Criteria 1, 2, 3, 4, 5
7-C	South Fork—Shenandoah River Area	Scenic and natural area containing pastoral scenery, forests and cliffs. Extraordinary recreational potential. Wildlife habitat. Criteria 1, 2, 3, 4, 5
7-D	Massanutten Mountain	Unique geologic formation; under intense pressure for development—partially government owned. Criteria 1, 2, 3, 4
7-E	Appalachian National Scenic Trail	Buffer needed in privately owned portions to prevent encroachment and provide connecting links. Criteria 3, 4
7-F	Millwood District	Collection of 18th and 19th Century plantations, including Saratoga, Mount Zion, Long Branch, Carter Hall, and The Tuleyries. Centers around the village of Millwood and its historic Burwell-Morgan Mill. Criteria 1, 3
7-G	North Fork—Shenandoah River Area	Critical watershed area, fish and wildlife habitat—also unusual scenic area. Criteria 1, 2, 3, 4, 5

Site No.	Site	Description
8-A	Appalachian National Scenic Trail	Buffer needed in privately owned portions to prevent encroachment and provide connecting links. Criteria 3, 4
8-B	Bull Run Mountain	Historic and natural area — recreational potential. Site of Beverly Mill historic area. Criteria 1, 2, 3, 4
8-C	Bull Run — Occoquan Creek Area	Important watershed source in midst of rapidly growing metropolitan area. Adjoining areas include Bull Run Battlefield Park and Bull Run Mountain. Criteria 1, 2, 3, 4, 5
8-D	Potomac Shorelands	Critical watershed, scenic, natural and recreational area. Upper Potomac is the site of River Bend Bluffs, Balls Bluff proposed George Washington Country National Parkway Potomac Heritage Trails. Also location of Short Hill area and Potomac Overlook Bluffs. Lower Potomac is location of endangered wetlands, (Featherstone Marsh and Possum Point), wildlife habitats and Mason Neck recreational area (including Belmont Bay wildlife area). Small wetlands along the Potomac shore from the southern corporate limits of Alexandria to the northern limits of Quantico Marine Corps Base are critical areas. Criteria 1, 2, 3, 4, 5
8-E	Goose Creek Area	Unpolluted stream near Washington metropolitan area. Contains remains of canal and lock system from 1850's. Critical watershed area, with great recreational potential. Criteria 1, 2, 3, 4, 5
8-F	Waterford Area	Well preserved Quaker village in rural farmland near Washington metropolitan area. Criteria 1, 3
8-G	Upper Goose Creek Watershed	Rural area of beautiful farms and villages, including Quaker community of Lincoln, milling village of Aldie, and Middleburg. Criteria 1, 3
8-H	Hungry Run	Scenic stream near metropolitan area. Relatively undisturbed, valuable watershed. Criteria 1, 2, 3

Site No.	Site	Description
8-I	Old and Historic District—Alexandria	One of the State's most historic urban areas. This area is the modern heart of the city and contains the largest concentration of late 18th and early 19th Century urban architecture in the State. Criteria 1, 3
8-J	Short Hill Area	Scenic, recreational, and wildlife area adjacent to Upper Potomac shore. Unsuitable for intense development, possible "greenbelt" area for metropolitan Washington. Adjoining sites include Hillsboro and Catoctin watershed area. Criteria 1, 2, 3, 4
8-K	Difficult Run Stream Valley Area	Scenic stream in midst of rapidly growing portion of Washington metropolitan area. Watershed value, recreational potential. Criteria 1, 2, 3

Site No.	Site	Description
9-A	Kelly's Ford Area	Located on the Rappahannock River, above the site of the proposed Salem Church Dam. Wooded river frontage with gorges and rapids, good white-water canoeing area. Region has excellent recreational potential. Criteria 1, 3, 4
9-B	Appalachian National Scenic Trail	Buffer needed in privately owned lands to prevent encroachment and provide connecting links. Criteria 3, 4
9-C	Bull Run Mountain	Historic and natural area of great recreational potential. Adjoins site of Beverly Mill historic area. Criteria 1, 2, 3, 4
9-D	Goose Creek Area	Unpolluted stream near metropolitan area. Contains remains of canal and lock system from 1850's. Critical watershed area with good recreational potential. Criteria 1, 2, 3, 4, 5
9-E	Rappahannock River Area	Natural area of both pastoral and wooded character. The river contains numerous rapids, producing excellent canoeing conditions. Criteria 1, 2, 3, 4, 5
9-F	Rapidan River Area	A largely undisturbed natural area of pastoral character. Criteria 1, 2, 3, 4, 5
9-G	Thornton River Area —Sperryville to Monument Mills	Natural area featuring a small stream (in places 10 feet wide), flowing past many mill sites, rapids, and rock outcrops. Criteria 1, 2, 3, 4, 5
9-H	Upper Fauquier	The heart of Virginia's hunt country, which includes the villages of Upperville, Delaplane, Rectortown and The Plains, as well as numerous farms and estates. Criteria 1, 3
9-I	Central and Upper Rappahannock County	Unspoiled Piedmont countryside near the Blue Ridge, centering on Route 522 from Woodville to Sperryville, continuing north beyond Washington, Virginia and Route 211. Criteria 1, 3
9-J	Fauquier Springs Area	Area of scenic farmlands and handsome estates, bordering on the south side of Warrenton. Criteria 1, 3

Site No.	Site	Description
9-K	Somerset Area	Centering on the historic villages of Orange, Barboursville, and Gordonsville, this area is the location of James Madison's Montpelier. Criteria 1, 3
9-L	Rapidan — Madison Mills Area	A scenic and historic area of woodlands and historic homes along the Rapidan River. The quaint settlement of Rapidan with its wooden Gothic churches is here. Criteria 1, 3



SOUTHSIDE REGION

Critical Environmental Areas
Numbered by Planning Districts

SCALE IN MILES
0 10 20 30

Site No.	Site	Description
11-A	Roanoke River Area	Relatively inaccessible area, with excellent recreational qualities. Critical watershed and wildlife habitat. Important adjoining sites include Smith Mountain Lake, Leesville Lake, Johnson Mountain, Hell's Bend, White Hall, and Green Hill. Criteria 1, 2, 3, 4, 5
11-B	James River Area	The river is a critical watershed, fish habitat, and recreational area. Adjoining sites include Pettyjohn Island, Stone Archway, Holcomb Rock, James River Valley, and North Creek. Criteria 1, 2, 3, 4, 5
11-C	Appalachian National Scenic Trail	Buffer needed in privately owned portions to prevent encroachment and provide connecting links. Criteria 3, 4
11-D	Poplar Forest Area	A region of rolling countryside including the villages of Forest and New London as well as Thomas Jefferson's Poplar Forest. Historic sites include Elk Hill, St. Stephens Church, Liberty Hall, Woodburne, Ashwood, and Berkeley. Criteria 1, 3
11-E	Tobacco Row Mountain	Unique Piedmont landmark, which features many flora and fauna common to the Blue Ridge Mountains to the west. Densely forested, of scenic value. Criteria 1, 2, 3
11-F	Candler's Mountain—Long Mountain Area	Scenic and natural area containing features such as Candler's Mountain, Plantation Gardens, Long Mountain, and Oxford Furnace, a potential "greenbelt" for the Lynchburg metropolitan area. Criteria 1, 3
11-G	Staton's Creek Gorge and Lacy Falls	Habitat of two rare plant species as well as a unique scenic waterfall and gorge. Criteria 1, 2
11-H	College Lake—Blackwater Creek Basin	Polluted lake in the center of the Lynchburg College campus, a potential natural area. Blackwater Creek Basin adjoins the lake, and connects it to the James River. Creek has watershed value, recreational potential. Criteria 1, 2, 3, 4

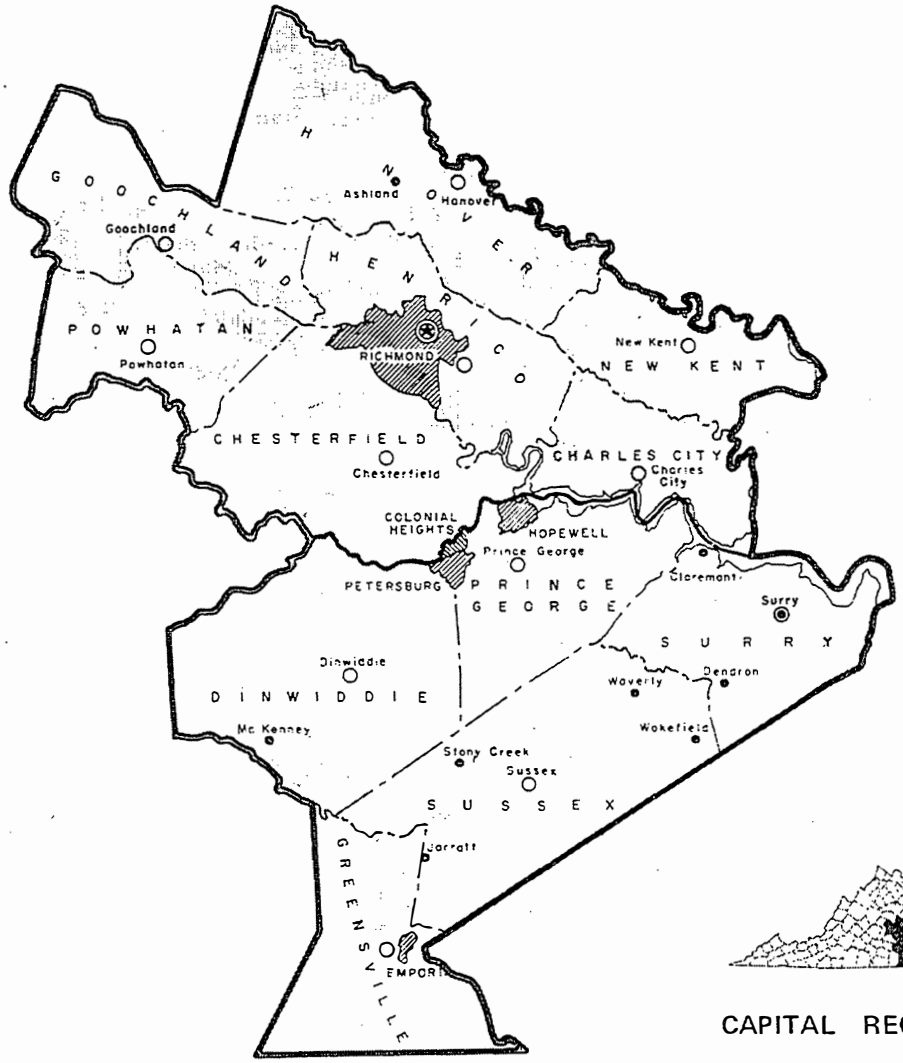
Site No.	Site	Description
11-I	Peaks of Otter Area	Scenic and historic area in undisturbed rural surroundings. 18th and 19th Century sites include Mount Prospect, Thomas Chapel, and Fancy Farm. Wildlife habitat, rugged topography. Criteria 1, 3, 4
11-J	Appomattox Court House Environs	Privately owned portions of rural area, under development pressure. Adjacent to nationally important historic site. Criteria 1, 3, 4
11-K	Blue Ridge Parkway Area	Scenic highway, exceptional recreational and tourist value. Vicinity unsuitable for intense development. Criteria 3, 4

Planning District 13 Southside

Site No.	Site	Description
13-A	Nottoway River Area	Natural area of uniquely varied characteristics. Nottoway bottomlands are important fish and wildlife habitats, as well as valuable non-tidal wetlands. Portions are of coastal, swampy character, other sections have Piedmont features. Criteria 1, 2, 3, 4, 5
13-B	Roanoke River Area	Natural area of great recreational potential. Critical watershed and wildlife habitat. Criteria 1, 2, 3, 4, 5
13-C	Fort Christanna	Important historic and archaeological site, established as a frontier garrison in 1714. Criteria 1, 3
13-D	Buggs Island Lake	Important fish and wildlife habitat, of critical watershed value and possessing unusual recreational potential. Criteria 1, 2, 4, 5
13-E	Prestwould	Undisturbed 18th Century plantation, built in 1795. Criteria 1, 3
13-F	Dan River Area	Valuable watershed area, wildlife habitat. Shorelands have recreational value. Criteria 1, 2, 3, 4, 5
13-G	Meherrin River Area	Critical wildlife and watershed habitat, immense recreational potential. Criteria 1, 2, 3

Planning District 14 Piedmont

Site No.	Site	Description
14-A	Roanoke River Area	Natural area of great recreational potential. Has value as a watershed area and wildlife habitat. Criteria 1, 2, 3, 4, 5
14-B	Nottoway Bottomlands	Important non-tidal wetlands serving as valuable fish and wildlife habitat. Criteria 1, 2, 3, 4, 5
14-C	James River Area	Critical watershed, fish and wildlife habitats, and recreational area. Important adjoining sites include Hatton and Warren ferries—last of the old cable ferries, operated by Virginia Department of Highways. Criteria 1, 2, 3, 4, 5
14-D	Willis Mountain	Prominent Piedmont landmark, monodnock-like geologic formation. Severely quarried. Criteria 1, 3
14-E	Cartersville — Howard's Neck District	Compact village area with early farm village, frame houses, Howard's Creek Plantation, and the Muddy Creek Mill complex. Criteria 1, 3
14-F	Drake's Branch Area	Area of 18th and 19th Century plantations, including John Randolph's Roanoke. Criteria 1, 3
14-G	Appomattox River Area	Critical watershed, scenic, and wildlife area. Criteria 1, 2, 3, 4, 5



CAPITAL REGION

Critical Environmental Areas
Numbered by Planning Districts

SCALE IN MILES

0 10 20 30

Site No.	Site	Description
15-A	James River Area	Critical watershed and fish habitat, scenic and natural area, immense recreational potential. Site of James River Park-Meadowville Site, James River West has unique bluffs and canoeing—Four Mile Creek Park site located here, also Tree Hill Farm. Wetlands along the north shore of the river from the Richmond-Petersburg Turnpike to James City County are critical areas. Kanawha Canal and Falls of the James are critical areas within the City of Richmond. Criteria 1, 2, 3, 4, 5
15-B	Appomattox River Area	Critical watershed and wildlife habitat, location of Lake Chesdin park site, and Appomattox River Gorge. Criteria 1, 2, 3, 4, 5
15-C	Chickahominy River Area	Highly scenic wildlife and fishing estuary under pressure for development. Chickahominy Swamp is important water storage and flood area. Adjoining sites include Ethelwood (park site) and Upham Brook. Bottomlands are important wildlife habitat and wetlands area. Criteria 1, 2, 3, 4, 5
15-D	Tuckahoe Creek Area	Natural area, swamps, and historic sites in midst of urbanizing area. Criteria 1, 2, 3, 4, 5
15-E	White Oak Swamp	Swamp and wooded upland area, important historically and ecologically. Criteria 1, 2, 3, 4, 5
15-F	Swift Creek Reservoir and Otterdale Branch Park Site	Natural area in midst of urbanizing area—recreational potential. Criteria 1, 2, 3, 4, 5
15-G	Pamunkey River Bottomlands	Critical wildlife and fish habitats, unsuitable for intense development. The southern shores of the river from Montile Creek to the York River, including Lilly Point Marsh, Chamberlayne Point, West Island, Cousiac Marsh, and Eltham Marsh are critical wetlands areas. Criteria 1, 2, 3, 4, 5
15-H	North and South Anna Rivers — Little River Area	Scenic river area, with gorge, falls, historic sites, good canoeing and recreational potential, important wildlife habitat. Criteria 1, 2, 3, 4

Site No.	Site	Description
15-I	Cartersville — Howard's Neck District	Compact village area, featuring an early farm village, frame houses, Howard's Creek Plantation, and the Muddy Creek Mill complex. Criteria 1, 3
15-J	Rock Castle—Crozier Area	Along State Route 6 and County Route 600 exists an area of rolling fields and fertile bottomlands. Historic sites include Rock Castle, Bolling Hall, Goochland County Courthouse, and Sabot—Tuckahoe area. Criteria 1, 3
15-K	Plantation Road	Along County Route 711 and the upper James exist early farm houses and plantations such as Keswick and Norwood, Bellona Arsenal historic site, and James River West area. Criteria 1, 3, 4
15-L	Route 5 — Richmond to James City County	This route (especially from Curles Neck to the Chickahominy) passes through a uniquely historic area. Historic sites include Shirley, Berkeley, Westover, and Sherwood Forest. Criteria 1, 3, 4
15-M	Old Church District	Along U. S. 360 and Virginia Route 606, this area centers on Broaddus Flats and contains the Edmund Ruffin Plantation and other early farms. Criteria 1, 3
15-N	Lower Pamunkey River Area	Historic area containing numerous important 18th and 19th Century plantations. Criteria 1, 3

Site No.	Site	Description
19-A	Appomattox River Area	Critical watershed and wildlife habitat, portions remain in relatively undisturbed condition. Immense recreational potential. Important adjoining sites include Lake Chesdin park site and Appomattox River Gorge. Criteria 1, 2, 3, 4, 5
19-B	James River Area	Critical watershed and fish habitat, scenic and natural area—of immense recreational value. Critical wetlands area occur along Powell Creek, Wards Creek, Chippokes Creek, Meadow Creek, and Dark Group Creek. Criteria 1, 2, 3, 4, 5
19-C	Blackwater River and Bottomlands Area	Swamp-like natural area, relatively inaccessible. Cypress swamp is critical watershed, scenic, and wildlife area. Unsuitable for intense development. Criteria 1, 2, 3, 4, 5
19-D	Nottoway River and Bottomlands Area	Natural area of uniquely varied characteristics. Bottomlands are important fish and wildlife habitats, as well as non-tidal wetlands. Criteria 1, 2, 3, 4, 5
19-E	Meherrin River Area	Critical watershed, scenic, and wildlife area. Of recreational potential. Flood plains unsuitable for intense development. Criteria 1, 2, 3
19-F	Brandon	Historic plantation site, a Palladian-styled villa built in the 18th Century. Criteria 1, 3
19-G	Merchants Hope Church Area	Erected in 1657, one of the two oldest Anglican Churches in America. Criteria 1, 3
19-H	Chippokes Plantation —Scotland Area	Developing area with conflicts between Chippokes State Park, Hog Island Wildlife Refuge, and Surry Nuclear Power Plant. The area along Route 10 to the James River contains early buildings and archaeological sites, including Bacon's Castle. Criteria 4, 5

POTOMAC REGION

Critical Environmental Areas
Numbered by Planning Districts

SCALE IN MILES
0 10 20 30

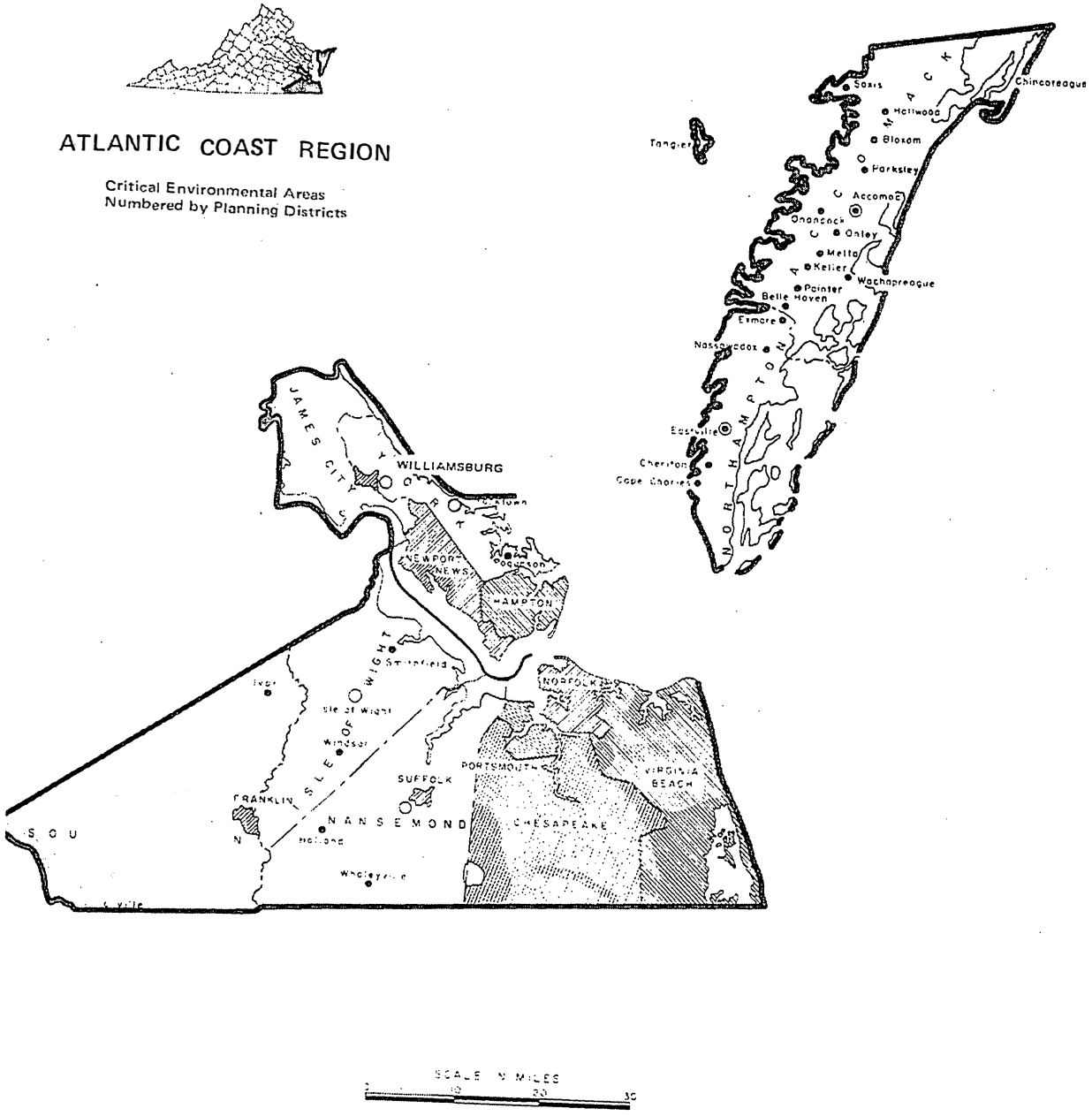
Site No.	Site	Description
16-A	Potomac Shorelands	Critical watershed, scenic, natural, and recreational area. One feature is Widewater area proposed recreational site. Area south of Quantico is characterized by narrow shore and marshlands, under pressure for development. Portion in King George County is the least developed stretch of Potomac River shoreline, and is suitable for a park site. Criteria 1, 2, 3, 4, 5
16-B	North Anna River Area	Scenic river area, with gorge, falls, historic sites, good canoeing, and recreational potential. Criteria 1, 2, 3, 4
16-C	Rappahannock River Area	Natural area of both pastoral and wooded character. Scattered marshes along the Rappahannock in Caroline and King George Counties are critical wetlands areas. Criteria 1, 2, 3, 4, 5
16-D	Lake Anna Reservoir Area	Important watershed, site of proposed reservoir, recreational potential. Potential wildlife habitat. Criteria 1, 2, 4, 5
16-E	Falmouth	Collection 18th and 19th Century buildings illustrating the character of an old port town. Criteria 1, 3
16-F	Marlborough Point — Crows Nest Point Area	Early 18th Century port town located between Potomac Creek and Aquia Creek. Areas around Chopowamsic Creek, Aquia Creek, Potomac Creek and Upper Machodoc Creek are critical wetlands areas. Crows Nest Point area is important wildlife habitat and recreational area. Criteria 1, 3
16-G	Matta, Po, Ni, and Mattaponi Bottomlands	Fish and wildlife habitats, watershed area. Unsuitable for intense development. Criteria 1, 2, 3, 4, 5
16-H	Lower Rappahannock River Valley	The Rappahannock River is the most unspoiled of Virginia's tidal rivers and its banks are lined with innumerable historic sites and structures including several Registered Virginia Historic Landmarks. This area includes Port Royal, a colonial town contained within its original boundaries. Criteria 1, 3

Site No.	Site	Description
17-A	Chesapeake Bay Shoreland	Critical marsh and wetlands areas—important as fish and wildlife habitats. Topography varies from wooded bluffs to beaches. Smith Point and Bluff Point marshes are valuable scenic wetlands areas. Criteria 1, 2, 3, 4, 5
17-B	Rappahannock River Shore	Natural area featuring excellent fishing and boating conditions. Scattered wetlands areas along the north shore of the Rappahannock southwest of Leedstown are critical marshes. Criteria 1, 2, 3, 4, 5
17-C	Lower Rappahannock River Valley	The Rappahannock River is the most unspoiled of Virginia's tidal rivers and its banks are lined with innumerable historic sites and structures including several Registered Virginia Historic Landmarks. Criteria 1, 3
17-D	Potomac Shorelands	Critical watershed, scenic, natural, and recreational area. Wetlands areas scattered along the Potomac shore and Chesapeake Bay are critical natural areas and wildlife habitats. Criteria 1, 2, 3, 4, 5

Site No.	Site	Description
18-A	Dragon Run Bottomlands.	Critical fish and wildlife habitats, valuable nontidal wetlands and flood plains. Unsuitable for intense development. Criteria 1, 2, 3, 4, 5
18-B	Pamunkey River Bottomlands	Valuable non-tidal wetlands and wildlife habitats—unsuitable for intense development. Wetlands include Cohoke Marsh, Sweet Hall Marsh, and Lee Marsh. Criteria 1, 2, 3, 4, 5
18-C	Lower Pamunkey River Area	Historic area containing seven important 18th and 19th Century plantations including Elsing Green, Sweet Hall, Hampstead, Chericoke, as well as the Pamunkey Indian Reservation. Criteria 1, 3
18-D	Chesapeake Bay Shorelands	Critical marsh and wetlands areas — important as fish and wildlife habitats. Varied topography, immense recreational potential. Important adjacent sites include New Point Lighthouse, and Piankatank River area. Criteria 1, 2, 3, 4, 5
18-E	Mattaponi River Area	Natural area in one of the Commonwealth's most historic regions. Relatively undisturbed by man, unsuitable for intense development. Criteria 1, 2, 3, 4, 5
18-F	Lower Rappahannock River Valley	The Rappahannock River is one of the most unspoiled of Virginia's tidal rivers and its banks are lined with innumerable historic sites and structures including several Registered Virginia Landmarks. Criteria 1, 3
18-G	Rappahannock River Area	Natural area of both pastoral and wooded character. Shorelands along major creeks from Payne's Island to Ware's Wharf are critical wetlands. Criteria 1, 2, 3, 4, 5
18-H	York River	Critical natural area of watershed, scenic, and recreational value. Important wetlands exist from West Point ten miles downstream, and on Mobjack Bay. Important adjacent sites include Poropotank Marshes and Rosewell Plantation. Criteria 1, 2, 3, 4, 5

ATLANTIC COAST REGION

Critical Environmental Areas
Numbered by Planning Districts



Site No.	Site	Description
20-A	Blackwater River and Bottomlands Area	Swamp-like natural area, relatively inaccessible. Cypress swamp is critical watershed, scenic, and wildlife area. Unsuitable for intense development. Criteria 1, 2, 3, 4, 5
20-B	Nottoway River and Bottomlands Area	Natural area of uniquely varied character. Bottomlands are important fish and wildlife habitats, as well as nontidal wetlands. Criteria 1, 2, 3, 4, 5
20-C	Back Bay — North Landing River Area	Unique freshwater bay area adjoining the Atlantic Ocean in a rapidly urbanizing area. Critical fish and wildlife habitat, under pressure for development. Critical wetland and marsh area. Criteria 1, 2, 3, 4, 5
20-D	Great Dismal Swamp and Lake Drummond (also George Washington Canal)	Unique natural area—acid lake (one of the few natural lakes in the State) within a subtropical swamp, containing critical peat islands and wildlife areas. Criteria 1, 2, 3, 4, 5
20-E	Northwest River and Swamp Area	Both a swamp-like and stream-like river, changing from an arm of Currituck Sound to a narrow, dark, twisting stream. Area has value as a critical wildlife habitat area and watershed. Unsuitable for intense development. Criteria 1, 2, 3, 4, 5
20-F	Great Bridge Battlefield	Historic site in midst of relatively unspoiled marsh area. Plans are underway to restore the village to its original appearance. Criteria 1, 3, 4
20-G	Nansemond River Area	Critical watershed, scenic, and wildlife area, of recreational potential. Wetlands are unsuitable for intense development. Criteria 1, 2, 3, 4, 5
20-H	James River Area	Critical watershed and fish habitat, scenic and natural area. Of immense recreational value. Critical wetlands exist along Pagon Creek, Cypress Creek Swamp, Batten Bay, and Ballard Marsh. Criteria 1, 2, 3, 4, 5

Site No.	Site	Description
20-I	Lynnhaven Basin Area	Important watershed, scenic, and recreational area in heart of developing metropolitan area. Criteria 1, 3, 4
20-J	Meherrin River Area	Critical watershed, scenic, and wildlife habitat. Flood plains unsuitable for intense development. Criteria 1, 2, 3

Site No.	Site	Description
21-A	Chickahominy River Area	Highly scenic wildlife and fishing estuary under pressure for development. Chickahominy Swamp is important water storage and flood area. Northern Shore from Edwards Swamp to Route 5 crossing is critical wetland area. Criteria 1, 2, 3, 4, 5
21-B	Route 5 Area	Historic and scenic route. Nearby is Green Spring Road, oldest continuously used road in America, connecting Green Spring Plantation site and Jamestown Island. Also adjacent is the famous Jamestown Ferry. Criteria 1, 3, 4
21-C	James River Area	Critical watershed and fish habitat, scenic and natural area — immense recreational potential. Especially endangered from development in this area. Wetlands occur near Jamestown Island and Warwick River Area. Criteria 1, 2, 3, 4, 5
21-D	Yorktown Waterfront	Historic area, site of climactic battle of the Revolutionary War. Privately developed. Immense recreational potential. Criteria 1, 3, 4
21-E	Williamsburg Natural Environs	Unique urban and historic area — under intense development pressure from both Richmond and the Peninsula. Of national importance, Newport News Reservoir and Anheuser Busch Kingsmill sites are critical adjoining areas. Criteria 1, 3, 4
21-F	Lake Matoaka — College Woods Area	Natural area under pressure for development in heart of urbanizing area. Criteria 1, 3
21-G	York River Area	Critical natural area of watershed, scenic, and recreational value. Critical wetlands occur along the southern shore of the York River from Bird Swamp to Indian Field Trail. Criteria 1, 2, 3, 4, 5
21-H	Chesapeake Bay Shorelands	Critical marsh and wetlands areas— important as fish and wildlife areas. Valuable sites include Harwoods Mill Reservoir, and Poquoson area. Criteria 1, 2, 3, 4, 5
21-I	Lake Maury Area	Scenic, recreational, and watershed area within a metropolitan urban setting. Criteria 1, 3, 4

Site No.	Site	Description
22-A	Barrier Islands — Maryland State Line to Fisherman Island	Essential bird and wildlife habitat—nesting grounds for waterfowl, recreational beaches and protective dunes. Wetland areas occur throughout. Criteria 1, 2, 3, 4, 5
22-B	Chesapeake Bay Wetlands and Bluffs	Coastline and numerous bay islands including Tangier Island, Watts Island, Great Fox Island, Little Fox Island, and the Smith Islands are critical as wetland areas. Butler's Bluff is the only bluff area overlooking Chesapeake Bay on the Eastern Shore. Criteria 1, 2, 3, 4, 5

The delineation of critical environmental areas is only part of the overall task established by Senate Bill 436. The mere recognition of specific places does not solve the many problems associated with land use and the environment. Ultimately the critical environmental areas that have been delineated based upon the criteria established for the sample area method should undergo a more detailed evaluation both through on-site analysis and in the context of a comprehensive planning process. In addition, certain action should be taken at the State level to offer immediate protection to designated critical areas, while establishing a role for State government in resolving certain land use issues. The recognition of critical areas and the underlying importance of how man makes use of the land, leads to a program of protection which must examine long standing traditions related to individuals, society and government.

CHAPTER 6

Legal Philosophy of Land Use Controls

In recent years a gradual change has been taking place in the concept of the term "land", a change incapable of precise definition. The change can be attributed to an awakening of the populace to the fact that land is a finite resource. Industries that in an earlier day seemed to have their choice of an unlimited supply of land and its products now see them as a limiting factor. As an example, this recognition came early for the forest products industry, while for agriculture, it came only recently in such states as California and Hawaii and is becoming more apparent in other areas.

Economically productive users of land are not the only ones who are increasingly recognizing its scarcity. Conservationists have been aware of this for some time. Now the large segment of Americans, who just want to live in the country and who once seemed to have a wide range of choice, now find their supply of land limited. The new transport systems and particularly the interstate highway network have permitted millions of Americans to achieve their goal of "country living" on either a permanent or temporary basis, but they are finding that there is not as much "country" as there used to be.

This changing attitude toward land can be described by saying that land should be considered a resource rather than a commodity. Such an attitude correctly indicates the direction of the change, but it can disregard the constitutional right to own land and buy and sell it freely. Land therefore, must be treated as both a resource and a commodity. The right to move throughout the country and buy and sell land in the process is an essential element in the mobility and flexibility our society needs to adjust to the rapid changes of our times. Conservationists who view land only as a resource are ignoring the social and economic impact that would come with any massive restrictions on the free transfer of ownership. On the other hand, land speculators who view land only as a commodity are ignoring the growing public realization that a finite supply of land can no longer be dealt with in the free-wheeling ways of America's frontier heritage.

Historically, land has been considered a commodity, either for sale or settlement. The Constitution further nurtured this idea by replacing the "socage" system of land tenure which required an oath and a small tribute to an original owner with a system of "allodial" tenure in fee simple. Allodial tenure vests a property owner with considerably more rights to the land than under earlier systems although these rights have continually been modified to accommodate the economic and social needs of the general public. The adoption of allodial tenure in fee simple conferred on the individual owner a virtually unrestricted right of use and abuse, limited in practice only by the legal doctrine of nuisance, the tenuous application of the police power, and the power of taxation subject to the constitutional principle of "due process."

Philosophically, the nation is drawing away from the 19th Century idea that land exists solely as a money making commodity to be exchanged in a free market. One example of this change is our attitude toward wetlands. They were once characterized as "useless" and are now thought of as having significant ecological "value." As people begin to understand the many relationships between use of any particular piece of land and the impact on the environment as a whole, we will increasingly see the need to protect not only wetlands but other "critical" areas that were formerly ignored.

The prevailing concept that private property is sacrosanct has evolved as part of our political history. Indeed, our present day common law and even

our statutory law relating to land use and property rights is very much a product of that history. The political structure chosen for America's frontier society was one of maximum diffusion of land ownership among the citizenry and maximum opportunity for individual exploitation of the opportunities provided by that ownership. The Homestead Acts typify the policy followed in opening up new lands for development. It is fair to say that government controls of land use in this country have been adopted in each instance only as absolutely necessary exceptions in order to meet specific urgent problems, and even then, only after bitter resistance.

The Federal Constitution, under the Fifth Amendment, forbids government to take private property unless just compensation is provided. Except for this broad stricture, all zoning power legally emanates from the State, which in turn has been traditionally granted to a municipality or to all localities through established general state enabling legislation. Implicit in this relationship is the power of the State itself to exercise the police power and the power of eminent domain. The police power allows the State to exercise control by preventing uses of property that are inconsistent with the health, safety or welfare of the public. In protecting the general welfare, diminution of property values is not considered to be a taking compensable under the Fifth Amendment. The power of eminent domain deals with compensable takings and outlines the purposes for which private property may be taken by the State.

Zoning is by far the most widely used method of land use control. In Virginia, enabling legislation permits local jurisdictions (counties, towns, and cities) to adopt a zoning ordinance for the regulation under the police power of land use within that jurisdiction. This form of regulation is permitted for the purpose of advancing the "public health, safety, morals and welfare." Generally, this means in practice that zoning must protect the value of the property affected, encourage commerce, and provide general homogeneity of use within a particular definable area.

Zoning is now administered by local governing bodies who receive recommendations from a planning commission as to the type of use—residential, commercial, and industrial—allowed in certain areas of the locality. By statute, non-conforming uses already existing before a designation is given an area are allowed to continue so long as they are not expanded or changed. New non-conforming uses may be established in either of two ways: first, the proponent might seek a change in classification of the area; and second, he might seek a use permit to establish a use not generally permitted but allowed under certain conditions which are usually stipulated in the ordinance. Use variances often granted by a Board of Zoning Appeals, are sometimes utilized, but are technically illegal.

The basic weakness of zoning standards lies in the narrowness of the traditional interpretation given the basically ambiguous goal of protecting the public health, morals, safety and welfare. A more flexible use of zoning is needed; a use which recognizes that a broader range of tactics is within the public interest objectives of an enabling act. The standards are written broadly enough to permit the courts to expand the traditional uses of zoning. In addition, planners and social scientists should be heeded when local zoning ordinances are designed and applied.

Zoning for aesthetic purposes is an outgrowth of traditional zoning practices. It is seen as an attempt to incorporate certain intangible values (usually visual) into the public health, safety and welfare concept. Only two states, New York and Oregon, have upheld zoning ordinances based solely on intangible aesthetic considerations. Aesthetic zoning has been generally applied as a negative tool in that an ordinance will prohibit bill-

boards or utility wires. Some forms of aesthetic zoning are carried out in historic districts through the use of an architectural review board to insure that the "character" of an area is maintained.

Eminent domain power is granted to a local governing body and to utility franchises for the purpose of taking private property for public use. Such uses may include streets, plants, parks, and transmission lines. This power can be exercised only if the dictates of the Fifth Amendment are obeyed; adequate compensation must be paid to the property owner.

Building codes and subdivision ordinances also have great potential value as land use management tools. Historically, their use has been limited to requiring the minimum in structural integrity, utilities, streets and sanitary facilities; however, effectively utilized they can provide higher than minimum construction standards as well as good circulation patterns.

Other means of control which are relatively recent tools, or new applications of old techniques, deserve consideration. Scenic easements are probably the most familiar of these techniques. Through a scenic easement, the state, community, or individual can acquire through purchase, condemnation, donation, or trade a legal property interest in the owner's land which limits the uses of that land. It functions primarily as a means of preserving open-space, or maintaining the status quo.

Three principal advantages accrue from this type of device. Favorable real estate tax treatment for the land subject to the easement provides some initiative to the landowner to grant the easement. Also, the degree of permanence is greater when the restriction is based on an acquired property interest rather than a zoning type regulation. Third, and perhaps most important, it allows the state or community to ensure the desired land use without purchase or condemnation of the entire fee interest.

In order for an easement to be a particularly useful device, it should not place a significant burden on the landowner. This generally occurs, except when easements are donated for conservation or tax benefit purposes, when the land under easement is prime agricultural, forest, or recreation land, and then the restriction does not significantly alter the owner's prior profitable use of the land. Acquisition of an easement over land that cannot be profitably developed or used with such an easement would likely be as costly as acquiring the fee.

Several other land use control techniques may also be employed. Compensable regulation, mandatory dedication by developers, exclusive use zoning, restrictive covenants and equitable servitudes, and development rights offer interesting possibilities for innovative application; none are without some disadvantages. Compensable regulation is primarily designed for preserving open space. An area would be designated for preservation with all parcels of land in the area valued in their present state with the appraised values guaranteed by the appropriate government authority. The same authority would place restrictions on the use and development of the land. If the restrictions impair the value of the land in its present use, then the authority must compensate the landowners immediately to the extent of the impairment; however, if the restrictions impair the value of the land for potential development, the landowner will be compensated only when he decides to sell, and then the amount of compensation shall not exceed the fair market value of the land at the time of selection for preservation.

Advantages would include flexibility since restrictions may be changed and the initial expenditure would be small. A major disadvantage exists in the possibility that landowners could make a demand on the public funds

whenever they wished to sell, creating difficulties in governments' financial planning.

Some states have passed legislation which permits communities to require subdividers and developers to dedicate a certain portion of land to be developed for parks and open-space. Generally, the courts have upheld these requirements as a reasonable means of promoting the public health, morals, safety and welfare. This does not appear to be a reasonable means of preserving large open-space areas for public use. The courts will likely find that where the use is intended primarily for the general public rather than development residents the requirement is unreasonable.

Exclusive use zoning is only moderately effective, because, as with other zoning, it is subject to variances and amendment and must be reasonable to be enforceable—i.e., the land must be peculiarly suited to the permitted use. If it is not, the zoning is unreasonable and constitutes an uncompensated taking.

Restrictive covenants and equitable servitudes were long the only land use controls utilized in the United States. Both were and still are, for the most part, instituted on a private basis between individual landowners. States and municipalities were not involved. Government authorities are now viewing them with interest as a means of implementing land use controls. Two methods are open to use: the government authority may acquire the interest or it may encourage landowners to convey to each other restrictive covenants running with the land which effectuate the desired use limitation. In theory, restrictive covenants are private contracts rather than an exercise of the police power. For this reason, greater flexibility and more specific limitations on property use are possible.

Virginia probably has a sufficient basis for the State and its subdivisions to acquire such an interest in land through the Open-Space Land Act passed in 1966. The language of the statute is general in speaking of the kinds of interests that may be acquired. The statute specifically states that "any interests or rights in real property" may be acquired which "will provide a means for the preservation or provision of permanent open-space land." Problems arise with the use of these devices because the nature of the rights conveyed or retained by the landowner is determined by a state's common law of real property and estates rather than by precise detailed statutes. Since the common law may not have contemplated the particular use of the interest desired by the governmental authority, the legal effect and duration may be uncertain in some cases. This possibility necessitates the exercise of great care in obtaining restrictive covenants and easements in order to accommodate the state's common law.

Development rights acquisition is currently used primarily to preserve open-space land not suitable for imminent development, although the broader concept of government-established development rights, covering all aspects of land use within a community or region, has been mentioned as an alternative regulatory land use measure. The wide application of purchasing "rights" rather than only land prior to initiating development would require major new state legislation. The limited nature of development rights as now conceived could be exercised under the Virginia Open-Space Land Act. Public bodies could conceivably acquire the exclusive right to develop a particular parcel beyond its present use. The landowner, after surrendering the development rights, would continue to use and enjoy the land subject to the public body's right to keep it undeveloped. This right presumably runs with the land and binds all subsequent purchasers.

While this method is attractive on its face, there is some doubt as to whether courts would enforce such a right by enjoining a breach of restric-

tions prior to its occurrence, and once development has begun, damages for the breach would probably not be satisfactory relief. Additionally, the broad scale exercise of this mechanism would undoubtedly be administratively complex and consequently expensive.

Each of these land use control mechanisms can be effective in certain situations. Their extensive application should remain essentially the purview of local government. Some of these legal concepts, however, may also be employed by the State to ensure that in situations of more than local concern, some effective control over free-wheeling development can be established. New theories about how land may be managed are emerging with the current awakening of ecological principles and the realization that land is a finite resource. Accompanying this "awakening" has been a trend for States to become more directly involved in matters of land use management in response to a clear public need.

An example of the emerging awareness shown by states in land use matters is the language set forth in the 1970 Virginia Constitution dealing with environmental protection. The Constitution states that, "it shall be the Commonwealth's policy to protect its atmosphere, lands, and waters from impairment, or destruction, for the benefit, enjoyment, and general welfare of the people of the Commonwealth." To accomplish this end, the State is empowered to conserve, develop, or utilize its natural resources, which ultimately establishes a role for Virginia in the area of land use.

CHAPTER 7

State Programs for Land Use Management

State concern and the subsequent involvement of state government in land use matters has been referred to as a "quiet revolution." Increasing numbers of states have implemented various versions of land use laws regulating shoreline areas, major development projects, and places of environmental significance. Land use controls no longer rest solely with local government, to be used or not used as they deem appropriate. Expanding concern about the protection of the environment, management of large scale developments that are beyond the effective control of local jurisdictions, and problems related to continuing urbanization have motivated at least ten states to enact major forms of state land use management. In the process of investigating the Commonwealth's critical areas and formulating concepts about a suitable program for their protection, the activities of some of these states have been reviewed. A brief description of the approaches used to manage development in other areas may provide a background of knowledge which will allow a suitable program for protection of critical environmental areas to be presented for consideration by the General Assembly of Virginia.

California

In 1970, the California Assembly enacted Assembly Bill No. 2070 which established the Office of Planning and Research in the Governor's Office with specified powers and duties related to planning. Included in this statute is a declaration of state policy and legislative intent that the future growth of the state should be guided by an effective planning process and should proceed within the framework of officially approved statewide goals directed to land use, population growth and distribution, urban expansion, and other relevant physical, social, and economic development factors. The Governor is directed to prepare and maintain a Comprehensive State Environmental Goals and Policy Report. The report will ultimately contain a 20 to 30 year future review and a description of state policies and programs, including a graphic presentation of land resources related to development patterns.

The Office of Planning and Research must give immediate priority to the development of a state land use policy. The first component is a statewide plan and implementation program for protecting land and water resources which are of statewide significance and are threatened by urban expansion, incompatible public or private use or development, or other circumstances. This report was transmitted to the Governor on March 1, 1972.

The report is divided into four sections:

1/Environmental Pollution

2/Environmental Resources

3/Environmental Resources Planning

4/Maps

The environmental pollution section deals with the basic causes of specific areas of concern and contains detailed goals and specific policies designed to achieve the stated goals. Areas of concern include air, land use, noise, pesticides, population, solid waste, transportation and water.

Identified in the environmental resources section are the following areas of critical concern: scientific, scenic, and educational resources; wildlife

habitats, forest and agriculture; open space surrounding metropolitan areas; beaches, lakes and riverbank access; connecting links for recreation; historic, archeological and cultural resources; lands of hazardous concern.

In rather general terms, the report presents the criteria used to identify these areas. Areas of statewide significance are defined as those places which have one or all of the following characteristics:

1/They provide an essential resource base for the State's economy (changes in their use may be irreversible or might adversely affect the health, safety, or well-being of the total citizenry of the State) ;

2/They provide a rare or unique environment with resources attractive to people from various parts of the State such as scenic and recreational; and

3/They provide unique cultural or scientific assets that are characteristic of the State.

In addition, the report defines areas of regional or local significance. These are areas which are unique to or have an impact upon a region or a locality.

Areas of critical concern are defined as areas which have been identified because of their limited nature, because of a threat posed by a change in land use which would affect them, or because of their unique importance to the welfare of the people of the State. They are areas that are given emphasis and priority within or separate from the general framework of those identified as significant. These would be areas having rare or unique natural or historic character, such as a place containing indigenous flora and fauna found in limited numbers in the State and where a change in land use is planned or proposed for the immediate future. It would also include areas that would require special development regulations to protect them against the hazardous nature of a threatened change in use or development. The list of *potential* significant areas or areas of critical concern was compiled from previously completed resource inventories conducted by other state agencies.

A Department of Environmental Protection is proposed for creation within the California Resources Agency. This department would have full responsibility for developing an Environmental Resources Protection Plan which would protect the significant areas and areas of critical concern. Delineation of the areas would be accomplished with the aid of other state agencies; the development guidelines, outlining incompatible uses and development practices, would be formulated by the department.

State policy indicates that the local governments will be given primary responsibility for protecting the areas. In significant areas the locality will only have to study the state guidelines when applications for development are considered. In protecting areas of critical concern, the state government would have greater input. When the proposed use of land is identified as incompatible with the guidelines, the state must respond in one of the following ways:

1/Take no action

2/Prepare a report to assist the unit of local government in reaching their decision

3/Encourage zoning regulation

4/Initiate action to purchase the property in full fee, or at less than full fee for partial rights such as scenic or development rights

5/Seek such legal action as may be appropriate

In any event, local government would not be bound by the state's recom-

mendations. The state would be given the responsibility of approving applications for development only when a significant area or area of critical concern extends beyond the jurisdictional boundaries of one locality. The Report is currently before the California Assembly awaiting approval.

Colorado

Burgeoning recreational and second home development has caused Colorado to review the state's land management situation and, consequently, resulted in the Colorado Land Use Act of 1970. As concern mounted, three additional bills were passed in 1971, which are collectively called the Colorado Land Use Act of 1971.

In order to increase planning effectiveness in Colorado, the Act increased the membership of the Land Use Commission, created in 1970, from seven to nine, and an advisory committee made up of representatives from commerce, industry, agriculture, conservation and natural resources, together with four members of the General Assembly, was established; second, the Commission was directed to develop Interim and Final Plans for State Development Policy by September 1, 1972 and December 1, 1973, respectively; and third, the Commission was required to develop a system for monitoring growth and change in the state. For counties, the Commission must develop model subdivision regulations, and for all levels of government, the Commission must develop a system for identifying environmental concerns and relating them to development; must create a system for monitoring growth and change in the state; must develop a means for evaluating its impact on proposed development; and it must establish a system for documenting the state's existing land use control policies and planning. Generally, the Commission is also required to develop flood plain control standards and criteria, and identify critical conservation and recreation areas.

The overall plan will essentially consist of a series of guidelines and standards for growth and development within the state. Local governments will have the responsibility for enforcing the standards and would set policy within the broad range of guidelines. This will assist the Governor in carrying out his powers, under the Land Use Act, to restrain any land development activity which constitutes a danger, or potential danger, of irreparable injury, loss, or damage of serious and major proportions to the public health, safety and welfare.

The Commission published its first report in February, 1972. Termed a Progress Report, it analyzed those growth and development issues brought to the Commission's attention. The progress report also summarizes the status of current planning efforts in the state and surveys the adequacy of current state legislation in relation to planning. Included is a numerical survey of counties which have a comprehensive plan, a planning staff, zoning, subdivision regulations, performance guarantees, proof of availability of water or sewer and other planning information.

Critical flood plain areas were identified in accordance with a charge given the Commission by the 1971 Colorado General Assembly. Local soil conservation personnel delineated the flood plains as follows:

1/Reaches of streams where flooding has occurred with damage to developed areas.

2/Reaches of streams along which substantial development is encroaching upon flood plains.

3/Reaches of streams where flood plain information is available or a 100 year flood line has been determined.

The interim land use plan is scheduled for completion at the end of 1972. The final plan, scheduled for completion in December, 1973, will set planning policy for ground transportation, water allocation, and airport facilities. In addition, the state will provide land use plans to localities which lack adequate policy-making capabilities of their own.

Florida

The Florida legislature recently passed a comprehensive land use bill. The Florida Environmental Land and Water Management Act of 1972 puts the state government in a position to exercise a limited degree of control over growth and development in the state, while preserving the processes of local government agencies and rights of private landowners.

The new law empowers the Governor and his cabinet to designate specific geographical areas as "areas of critical state concern" and to establish principles to guide the development of each of these areas. To be an area of critical state concern, there must be environmental, historical, natural or archeological resources of regional or statewide importance; an existing or proposed major public facility or major public investment; or a proposed area of major development potential, such as a new community.

The statute is not merely a negative form of land use control; it is also an attempt by the state to use its influence in giving positive direction to development. The state planning division is directed to initiate development when it is needed—as in the establishment of new towns in areas seeking economic growth.

In the event the state decides to completely ban development on lands it considers ecologically endangered, it must purchase them. This provision carried with it a 240 million dollar bond issue, which was put to a November referendum and accepted by the voters. The bond program will serve to take ecologically threatened land off the market as well as to acquire public recreation sites.

Local government maintains its dominance in the area of control. After an area is designated an area of critical state concern, the local governmental agency having jurisdiction is given an opportunity to write land development regulations for the area, to implement the established principles and, after the regulations have been submitted and approved, administer the regulations.

The Governor and the cabinet are empowered to adopt guidelines and standards subject to review and approval by the state legislature in 1973, to be used in deciding whether certain land developments are "developments of regional impact." In general, these developments of regional impact will be those which, because of their character, magnitude or location, would have a substantial effect upon the health, safety or welfare of citizens of more than one county. When development permits, such as for recording plats or for rezoning, are requested for a project of regional impact, the local government must consider the conformity of the project to the state land development plan. In addition, the regional effect must be determined by a report prepared by the regional planning agency designated for the area in which the project is located.

The Division of State Planning is the administering agency of this act. The Division is responsible for making recommendations to the Governor and the cabinet regarding areas of critical state concern and the principles

for determining developments of regional impact. Also, the Division will approve local land development regulations in areas of critical state concern, give technical assistance to local government agencies in the preparation of their regulations, and write the development regulations in the event the local government fails to respond with suitable regulations.

The Governor and the cabinet are designated as the land and water adjudicatory commission and, as such, will hear and rule on administrative appeals from development orders by local governments relative to both areas of critical state concern and developments of regional impact. The right of judicial review of all rules and final administrative determinations is guaranteed.

A further provision of this sweeping legislation is the creation of an environmental land management study committee, consisting of 15 members, to be appointed by the Governor, the speaker of the house and the president of the senate. This committee is charged with studying all facets of land resource management and land development regulation and may recommend new legislation to achieve environmental protection and a sound and economic pattern of well-planned development. Florida is the first state to adopt the American Law Institute's recommended approach to a state land use program.

Maine

Maine entered the land use field from essentially two directions. The Maine Land Use Regulation Commission was created to deal with the large unorganized areas of the state which have no local government. The Commission was given the responsibility to determine the boundaries of land use guidance districts within unorganized and disorganized areas. These areas are largely vacant timber lands owned by large corporations. All unorganized areas are to be divided into either Protection, Management, Development or Holding districts and development guidance standards will be established for each district.

The duties of the Commission were recently initiated and a date of July 1, 1973 has been set for the adoption and enforcement of interim land use guidance standards for temporary districts shown on interim land use guidance maps. In conjunction with the establishment of interim districts and standards, an official comprehensive land use guidance plan for the unorganized townships of the State must be adopted by the same date of July 1, 1973. The plan will guide the Commission in developing specific land use guidance standards and delineating final district boundaries.

To enforce its powers, the Commission must issue a permit for any new or altered structure, any new subdivision, or any new development within these unorganized areas.

The second approach to state land use activities in Maine came about because of the threat of major oil terminal development in areas where local governments had not adopted land use regulations. The Environmental Improvement Commission [11] was given the power to issue permits to commercial and industrial development which:

1/Needs some additional type of license from the EIC relating to air or water pollution, health, etc.

2/Occupies 20 or more acres of land (regardless of the time frame of construction).

11. As of July 1, 1972, the Environmental Improvement Commission became a part of a Department of Environmental Protection.

3/Has a ground floor area of 60,000 square feet or more.

4/Requires "drilling for or excavating natural resources."

5/Requires the use of a borrow pit for sand or gravel (larger than 5 acres).

A further interpretation of the law included subdivisions of more than 20 acres within the category of commercial development.

Upon the submission of an Application for Site Approval, a developer's proposal is approved according to the following guidelines:

1/The proposed development has the financial capacity and technical ability to meet state air and water pollution control standards, has made adequate provisions for solid waste disposal, the control of offensive odors, and the securing and maintenance of sufficient and healthful water supplies.

2/The proposed development has made adequate provision for loading, parking and traffic movement from the development onto public roads.

3/The proposed development has made adequate provision for fitting itself harmoniously into the existing uses, scenic character, natural resources or property values in the municipality or in adjoining municipalities.

4/The proposed development will be built on soil types which are suitable to the nature of the undertaking.

Massachusetts

The Commonwealth of Massachusetts began protection of its coastal wetlands in 1963 with the enactment of the Jones Act, which requires developers who seek to alter the natural characteristics of coastal wetlands by dredging, filling, or removing, to apply to the Massachusetts Department of Natural Resources for a permit. The Department is not authorized to prohibit development.

The limited protection of the Jones Act is gradually being replaced by "protective orders" issued under the Coastal Wetlands Act of 1965. Broad powers are granted to the Commissioner of Natural Resources under the Coastal Wetlands Act. He can designate both coastal and inland wetlands and, in the case of coastal wetlands, he can control the use of such contiguous lands as he deems reasonably necessary.

The rationale behind the Coastal Wetlands Act is centered on the promotion of public safety, health, welfare and the protection of public and private property, and wildlife and marine fisheries. With this justification, the Commissioner, with the approval of the Board of Natural Resources, has the authority to control any alteration or pollution of coastal wetlands. The coastal wetlands are defined as "any bank, marsh, swamp, meadow, flat or other low land subject to tidal action or coastal storm flowage and such contiguous land as the commissioner reasonably deems necessary to affect by any such orders in carrying out the purposes of this section."

The Act provides for a public hearing in the municipality in which the coastal wetlands to be affected are located. Notice is given to each recorded owner of such wetlands at least twenty-one days prior to the hearing. Upon adoption of an order, a copy of it together with a plan of the lands affected and a list of the assessed landowners is sent to the registry of deeds and to the assessed landowners.

The judicial review procedure is perhaps the most interesting feature of the Act. Within a ninety day period after receiving notice, any person with

a recorded interest in the land may petition the Superior Court to determine whether such order so restricts the use of his property as to constitute a taking without compensation. The court rules only on the validity of the order as it applies to the petitioner's land; no other land is thereby affected. Should no petition be filed within the ninety day period, the order is presumed valid and further legal action is precluded.

Two other steps may be taken by the Commonwealth should the court find the order to be an unreasonable exercise of the police power. The Commonwealth, through the Department of Natural Resources, may take the fee or any lesser interest in such land by eminent domain. Also, the permit requirements of the Jones Act still apply to any developer seeking to dredge, fill, remove or otherwise alter the wetlands.

Inland wetlands are protected under the Hatch Act and the Inland Wetlands Act. Several distinct differences emerge between the requirements of the Coastal Wetlands Act and the Inland Wetlands Act. An order issued under the Inland Wetlands Act requires approval by the selectmen or city council of the town or city in which the wetlands are located. Even if the order is disapproved, the commissioner may, after the expiration of one year from the date of disapproval, adopt the order. Agricultural lands are exempt from the provisions of the Act.

Another distinct difference is the procedure required to vacate a protective order. Under the Inland Wetlands Act, the only objection necessary to vacate a protective order is a letter to the commissioner from any person with a recorded interest in such land within the statutory ninety day period. No court action is required by law. There is a bill before the General Court to change this and require the landowners to go before the Superior Court and allege a taking.

Due to the slow progress in implementing the Inland Wetlands Act, the State has instituted a self-help program whereby the locality or Conservation Commission can be reimbursed up to 75% of the cost of acquiring the wetlands. The State puts up 25-50% of the cost, depending upon Federal participation, and the locality or Commission pays the remainder. Despite apparent weaknesses in the laws, there is general satisfaction with the protective orders. Two-thirds of the coastal wetlands are under protective orders and orders are pending against most of the rest. In 1972, the Department has processed 1,300 coastal and inland permits, while 470 were processed in 1972, an indication of general compliance.

Vermont

Vermont is a leader in adopting a state-wide land use planning and control program. Faced with a boom in second home and ski resort development along with increased interstate highway construction which threatened the essentially rural character of Vermont, the 1970 Vermont Legislature approved the Land Use and Development Act (Act No. 250). Act 250 requires a statewide land use plan to govern all essential aspects of growth in order to promote environmental objectives as well as social and economic aims.

An Environmental Board and nine district commissions were created to pass on all major development proposals in the state. Any residential subdivision involving lots of less than 10 acres, any commercial and industrial developments over 1 acre in municipalities without zoning and subdivision laws, and any development above the elevation of 2,500 feet requires a permit from the Environmental Board.

All applications are subject to state review through the Agency 250 Review Committee. This review is composed of the Agency of Environmental Conservation along with all other agencies with environmental interests. These agencies meet every two weeks to prepare a statement on each of the applications for permits; this becomes the state's position and it is admitted as evidence at the hearing by the district commissions. Quite often it is the most important evidence brought before the Commission and is often the determining factor in granting or denying a permit.

Public hearings are held at the district level, and it is the district commission which grants or denies the permit. Decisions are based on rather general environmental criteria spelled out in the statute.

Permits are issued after reviewing the effects on the following:

Pollution

Water Supply

Soils

Highways

Schools

Public Services

Aesthetics and Historical Areas

State Plans

Local and Regional Plans

Decisions of a district commission may be appealed to the Board. Act 250 also requires the preparation of three plans to manage the State's land resources and guide growth. The Interim Land Capability Plan was completed in June of 1971. It inventoried the State's present land uses and available natural resources. A second plan, the Capability and Development Plan, was scheduled for completion in July, 1972. This plan was to reflect basic planning decisions governing the future location of industry and second home development. The Land Use Plan, scheduled for completion in 1973, is to consist of a series of maps showing present and proposed uses of land.

Wisconsin

Wisconsin's 8,800 inland lakes and ponds, 1,500 trout streams, numerous recreational rivers, and more than 700 miles of Lake Michigan and Lake Superior shoreline are its most important resources.

Improved transportation systems, increasing leisure time, and the resultant demand for water-based recreation have put great pressure on Wisconsin's water resources and shoreland areas. These pressures have resulted in development in flood prone areas, overcrowding of shorelands and destruction of shorelands and natural beauty. The problem comes not so much from the use of these areas as from the character and intensity of development. Wetlands are filled, vegetation is stripped from shorelands, sewage disposal systems are inadequately installed.

Recognition of the destruction wrought by over-development prompted passage of the Wisconsin Water Resources Act of 1965. One of the cornerstones of this multi-faceted approach is the requirement of establishing statewide land use controls along lakes and navigable streams.

The legislation makes a distinction between "shorelands" and "flood plains." Shorelands are defined as lands within 1,000 feet of a lake, pond

or flowage and lands within 300 feet of a river or stream or to the landward side of the flood plain, whichever distance is greater. Flood plain regulations, on the other hand, are applicable for those lands where appreciable damage from floods is likely to occur.

The primary responsibility for enacting and administering shoreland regulations rests with the counties. A unique feature of the program is the overall and direct supervision given by the State. The model shoreland protection ordinance provides for three zoning districts, subdivision regulations, and a sanitary code. The three districts for counties without comprehensive planning programs are: 1) a recreational-residential district for most lake shorelands and the shorelands of certain recreational rivers, 2) a conservancy district for adjacent wetlands where groundwater is at or near the surface much of the year, and 3) a limited general purpose district.

Regulations applicable to all three districts include minimum standards for private water supply and waste disposal, tree-cutting regulations, setbacks for structures from the road and from the water, minimum lot sizes and widths, filling and grading controls, lagooning and dredging regulations, and subdivision requirements.

Within each of the three shoreland zoning districts county shoreland protection ordinances provide for permitted uses and special exceptions. An application for a special exception permit must be filed with the zoning Board of Adjustment. The Board will investigate the effects of the proposed use and, after public hearing, decide whether to refuse, grant, or conditionally grant the special exception permit.

All 71 of Wisconsin's counties have now enacted shoreland zoning regulations. In addition, all 71 counties have established an administrative program to enforce these regulations. The components of an enforcement program include: 1) an executive office (the zoning administrator) to advise persons of the permitted uses of their properties, issue permits, make inspections, and report violations; 2) an agency of the county board (the County Planning and Zoning Committee) to oversee the administration of the ordinances and to conduct hearings and make reports on proposed amendments; and 3) a semi-judicial body (the Body of Adjustment) to interpret the ordinance, where necessary and to grant variances and special exceptions.

Flood plain zoning ordinances are also the responsibility of local units of government. Ordinances must be enacted, administered and enforced in a reasonable and effective way. State responsibilities include establishing and upgrading minimum standards for flood plain regulations, surveillance over the enforcement of local regulations, and coordinating flood plain management with programs of other federal, state, local, and private organizations.

Management standards for flood plain and floodway delineation and associated flood plain regulations are based on the "regional" flood. This flood has an average frequency of occurrence in the order of once in 100 years.

The Wisconsin Scientific Areas Program also deserves mention. In operation since the early 1950's, 86 areas have been preserved by the State. These natural areas are defined as: "tracts of land or water in a natural or nearly undisturbed state which have been so little modified by man's activity that they contain nearly intact native plan and animal communities."

The goal of the Council is to acquire and place under public control sufficient natural areas to insure that the educational institutions at all levels

of instruction will have available to them for research and class instruction all of the biotic types native to their region. Toward this end, a classification system has been developed consisting of 32 terrestrial and 29 aquatic types.

Identification of these areas is accomplished through onsite inspection. Evaluation also takes place at the site. The Council makes the final determination as to designation as a scientific area. Once designated, the area is either purchased by the State or the state seeks acquisition of an easement on the property. Dedication of private property to public use has been an effective means of preserving these areas in Wisconsin.

Management plans are drawn up by the Council for each of the areas. These plans establish the uses to which the area may be put and also outlines any special conditions for use. The program recently acquired more recognition and impetus through funding from the Governor's office.

Summary

The activities in other states were briefly outlined and do not attempt to deal with all the issues surrounding a state's land use program. The states that were chosen for review were thought to provide a wide cross section of attempted approaches to solving an expanding problem centered around the growing pressure for new development. The relatively short amount of time these programs have been in existence does not allow for a valid appraisal of their effectiveness. It is, therefore, anticipated that the most suitable features and thoughts expressed in each conceptual approach will help Virginia to develop a course of action which will attempt to assure the protection of its critical environmental areas.

Recommendations

The Division of State Planning and Community Affairs has developed general criteria to identify "critical" areas, has designated such areas on a statewide basis, and has delineated these places in a manner sufficient to provide an adequate buffer zone around the singular element or elements which constitute a "critical" area. To provide protection for these areas a comprehensive program is recommended which is based upon an awareness of the need to:

1/Foster man's proper use and not abuse of a basic natural resource

2/Conduct further study and analysis of critical environmental areas

3/Carry out such studies on a regional basis within the context of the land use element of an overall planning process

4/Place first responsibility for administering adopted regulations at the local level

5/Create the mechanism that will afford a degree of protection *now* while establishing the role of the Commonwealth in the area of land use

Recognition of Delineated Critical Environmental Areas

The first step towards protection would involve recognition of those areas delineated by this study. Even though existing legislation places the responsibility for designating critical areas with the Division of State Planning and Community Affairs, a further endorsement by the General Assembly would place the Commonwealth on record as recognizing the unique importance of these selected locations. Such "official" recognition would create an added awareness among developers; aid land use decisions which presently must be made at the local, regional, and state levels; and indicate the concern that Virginia has for its natural, scenic, and historic heritage. Therefore, *The General Assembly should endorse the areas delineated by this report as the Commonwealth's critical environmental areas.*

Role of the Division of State Planning and Community Affairs

The Division of State Planning and Community Affairs should be authorized, by an amendment to its enabling legislation, to be responsible for the continued evaluation and delineation of critical environmental areas.

The Division's function in this area would include the continued study of originally designated areas, the preparation of suitable state ordinances related to land use and critical areas, and the drafting of appropriate guidelines to be used in connection with the critical environmental areas program. One of its more important roles would be to direct planning district commissions to undertake critical environmental areas plans and to have review authority over these plans. The Division would have initial approval authority followed by final approval by the regional commission. If changes or amendments are made to the plan by the regional commission, they in turn must be presented to the Division for acceptance. In addition, the Division would be responsible for the preparation of a district critical environmental areas plan in the absence of one carried out by a planning district commission.

Planning District Responsibility for Critical Environmental Areas Planning

The Virginia Area Development Act should be amended to authorize the Commonwealth's twenty-two Planning District Commissions to undertake a study of those critical environmental areas designated by this report.

Each of Virginia's planning districts would have two years to prepare an approved critical areas plan.

A Critical Environmental Areas Plan would be a part of the land use element of a District's Comprehensive Plan. This effort by the planning districts would study, evaluate, and delineate in detail all those areas already designated by the Division in its initial study and may also address other areas which warrant inclusion in the program. As a part of the regional planning process the plan would be prepared in the context of an overall land use element. This recognizes the fact that issues and needs will differ from district to district and that individual areas should not be viewed in isolation but in connection with existing or planned development goals. An implementation segment of the critical environmental areas plan prepared by each district would present an appropriate course of action to protect and utilize these areas properly. Included in this segment would be suggested performance standards, suitable ordinances, and purchase mechanisms that together would adequately safeguard critical environmental areas.

Local Responsibility for Critical Environmental Areas Planning

Once approved by a planning district commission *each locality within the district would have one year to adopt the Regional Critical Environmental Areas Plan, as well as any ordinances that may be a part of that plan and related to critical areas situated in that locality.*

The locality would then be responsible for administering and enforcing the protective measures in the plan as they would any local ordinances. Applications for variances and use permits made in conjunction with zoning in a critical environmental area would be submitted to a Critical Areas Review Board for review and approval. All amendments to a locally adopted critical environmental area plan and its ordinances will initiate at the district level and be approved by the Division of State Planning and Community Affairs.

Critical Areas Review Board

Should a district fail to produce an adequate critical environmental areas study, a locality not be a participant in a planning district, or a locality fail to adopt the ordinances recommended as a part of the regional plan all within the established time period, the responsibility for land use planning and enforcement in those critical areas would fall to the State. *It is recommended that a Critical Areas Review Board be created to assume this responsibility.*

The Critical Areas Review Board would be composed of six (6) citizens of the State in addition to the Director of the Division of State Planning and Community Affairs. The six citizen members would be appointed by the Governor and be approved by the General Assembly and shall serve staggered terms of four years each. The Board may develop rules, regulations, and administrative procedures to assist in carrying out its responsibilities under the critical environmental areas program.

This authority would include the responsibility to adopt ordinances and issue permits at the state level. The Division would act as staff to the

Board, prepare guidelines for the filing of applications to the Board, and make recommendations related to land use decisions within critical areas. It would also evaluate the effectiveness of programs being administered at the local level.

The establishment of the Critical Areas Review Board is recommended to the 1973 session of the General Assembly, along with the requirement for regional planning of critical areas. *In the absence of an adopted Critical Environmental Areas Plan, the Board would administer a review process over development that encompasses ten acres or more, or development that has a gross floor area within all structures of 40,000 square feet or more, or development that requires another permit from a State or Federal agency, if such planned development is to be located within a designated critical area.* This process would establish state responsibility for certain land use decisions while affording a measure of environmental protection during a period when more comprehensive regional plans and programs are being prepared and implemented. The Critical Areas Review Board would then be ready to assume responsibility for the administration of programs in places where local governments failed to act and to provide continuing review of locally adopted and administered programs.

The Board, in implementing its review process, would distribute upon request, appropriate application forms to be filed by developers subject to state evaluation of their projects. It shall be the responsibility of a developer when submitting his application to provide information as to the impact of his project upon a designated critical area. In cases where doubt exists as to the need to file an application for a permit, the Board would be responsible for making the final determination to review or not review a project. A developer may seek the assistance of the Division of State Planning and Community Affairs in determining the extent of a designated critical area.

Upon receipt of an application, the Board will submit a copy to the Division of State Planning and Community Affairs, to each state agency having relevant responsibility in land use or environmental matters which could be affected by the proposal, and to the planning district and local government within which the project is located. Each recipient of the application will respond to the Board, stating their evaluation of the environmental impact of the proposed project. Within thirty (30) days from the date of an application, the Board would schedule a public hearing to consider applications on its review agenda. In cases where the Critical Areas Review Board deems it appropriate, more than one public hearing may be scheduled. Hearings would be advertised in accordance with Section 15.1-431 of the Code of Virginia as amended, in newspapers having general circulation in the planning district within which the project is located. At the hearing, the responses received from the Division of State Planning and Community Affairs, the other state agencies, the planning district, and local government would be made part of the record along with any other responses received. The Board would hold its public hearings and review all material to prepare an answer within 90 days of the receipt of an application for a permit. Additional information may be requested from the developer to aid the Board in making its decision. The Board may issue a permit for the project to proceed, issue a permit contingent upon certain modifications to the project, or deny a request for a permit. Failure of the Board to respond in the 90 day period would constitute acceptance by the Board and the applicant would be entitled to a permit. The decisions of the Board under the review process would be based upon the following issues:

1/Relationship to and impact upon designated critical environmental areas

2/Relationship to areas subject to flooding

3/Suitability of soil types upon which the proposed development is planned

4/Effect upon air, water, and aesthetic qualities of the environment

5/Economic and social needs of the region

6/Impact upon existing and proposed transportation facilities

7/Relationship to any existing local, regional, or state plans

8/Financial and technical capacity of the developer to meet the established development standards

9/Likelihood that additional or subsidiary development would be generated, and the total potential impact on a delineated critical environmental area.

After the period when regional plans and ordinances are prepared and adopted at the local level, the Critical Areas Review Board would continue to have responsibility to review variances and use permits applied for under a critical areas ordinance. The Board would also adopt the regulations of a regional critical areas plan and have them administered locally if a city, town, or county failed to take official action. In addition, the Board would be available to assume related land use responsibilities should the General Assembly assign them.

To provide another means to protect critical areas, the Board would have the power to purchase, in the name of the Commonwealth, certain lands which could not be protected by other regulatory devises. This property could be then transferred to another state agency, governmental unit, or public body to be used or maintained in the best interests of protecting critical environmental areas. If use of private property is limited to such a degree that it would constitute a taking, some form of acquisition, either in fee simple or less than fee simple, is necessary. To enable the Board to utilize this alternative to protect selected areas, it is recommended that a fund be established to be used solely for the purchase of land in the critical environmental areas program.

Environmental Check List

To aid the planning districts and the Division of State Planning and Community Affairs in their further review of critical environmental areas, a model environmental check list has been prepared and is included with these recommendations. The use of a check list procedure would allow many individuals to conduct field evaluations. The types ofsurveys made in conjunction with environmental area studies involve many different technical observations as well as many subjective opinions and judgments. Since the analysis of an area is essentially subjective, the decisions that are reached during the planning process would be aided by a variety of reports submitted by individuals having different interests and backgrounds.

Very often, individuals familiar with an area may not be trained in environmental science or may not have any formal education. One requirement of an evaluation procedure, therefore, is simplicity. In addition, the variety of the evaluations which must be made for each critical environmental area should all be of a standard format and content to facilitate the compilation of like data. The procedure also should be as complete and comprehensive as possible. It must include all of the environmental criteria that may contribute to an area's uniqueness or importance and then be applicable to all types of natural situations. Finally, the procedure should

be relatively sophisticated. It must allow areas to be evaluated on the basis of a single feature where appropriate as well as allow evaluation based on a various combination of features, any one of which may not be critical alone. Of great significance is the fact that of the many combinations of features, some may be added, some may be multiplied, and others may even cancel each other out or be subtracted from each other. Any environmental evaluation procedure must be able to account for these differences.

To satisfy these requirements, a check list or scorecard type of evaluation procedure was prepared using questions concerning a variety of detailed environmental criteria. Answers are given in terms of graduated numerical scores, percentage values assigned, or simple numerical scores for positive responses. This question-answer approach keeps the procedure simple and understandable to the layman; and, at the same time, the questions allow truly expert opinions to be utilized. The scoring system also allows both objective data and subjective opinions to be quantified into an overall score measuring the relative environmental importance of an area.

Natural Characteristics are listed on the check list under selected category headings. A General heading covers overall area uniqueness and typical ecological systems. Landforms cover types of typical features, unique formations, rugged topography, and soils. Water deals with fresh water supply, drainage, as well as flood control aspects of the environment. It also includes fresh and salt water inputs as critical elements in estuarine systems.

A Wildlife section uses a matrix format to compare a constant set of wildlife classes against a series of measurements showing to what degree an area supports them. The highest value score in the matrix, for example, (i.e. the most critical) is for an endangered species of large mammals that is totally supported by a habitat in an area. A section on vegetation does the same thing with plant life (including forestation) though not in a matrix format. In addition to Natural Characteristics, the check list covers Scenic Characteristics, including beautiful vistas and settings, and Historic Characteristics, including examples of period architecture as well as historic buildings and sites. Proximity to centers of population and the threat of adverse effects from development are also considered.

As the recommended state level agency responsible for critical environmental area designation, the Division of State Planning and Community Affairs would print and distribute the check list in quantity. At the regional level it could be given to various state agency field agents as needed and to the planning district commissions for use during their environmental planning effort.

As a field tool, the check list could be used for state, local or even federal agencies who have some knowledge of an area as well as by individuals, interested citizens, and citizen groups. It would be in the best interest of the Commonwealth that critical areas be evaluated by as many different sources as possible; however, an important feature of the check list is the identification of the user and his statement about how he perceives an area to be environmentally important. This information acts to eliminate any possible exaggeration and bias by individuals whose special interests in certain areas may not be matched by training in objective evaluation. It also indicates those areas in which the evaluator may be especially competent.

The check list provides for quantitative measurement where possible and allows for subjective judgments where necessary. It attempts to quantify

both the objective and subjective factors into a single format and tries to view each area as a unique combination of environmental features. This could enable the State and the planning districts to make decisions based upon at least one common evaluation procedure. The results secured through the use of these check lists would merely be one factor, although an important one, that would be used in developing and reviewing a regional program of protection.

Recommended Appropriations

Finally, to enable the planning districts and the State to adequately carry out the program set forth, it is recommended that the General Assembly make an appropriation of $600,000 during each of the two years when the planning work is being performed. In addition, a one million dollar appropriation is recommended as the Commonwealth's initial contribution to a newly established fund created to purchase selected portions of designated critical environmental areas. The fund could be expanded as the results from the detailed studies become available and the need for purchasing certain areas is made apparent.

Chapter 690

An Act to provide for the planning of critical environmental areas and land use and the development of controls in such areas; duties and responsibilities of the Division of State Planning and Community Affairs; and to appropriate funds therefor.

[S 436]

Approved April 8, 1972

Be it enacted by the General Assembly of Virginia:

§ 1. The General Assembly of Virginia finds that:

(a) the Constitution of Virginia sets forth that it shall be the policy of the Commonwealth to protect its atmosphere, lands and waters from pollution, impairment or destruction, for the benefit, enjoyment, and general welfare of the people of the Commonwealth;

(b) particular land areas and uses should be singled out for immediate and special concern;

(c) these critical areas include the coastal zone and estuary, flood plains, shorelands and other lands which possess special, natural, historic and scenic characteristics;

(d) in controlling the development of these and adjoining areas the observance of existing air and water quality standards and land use controls do not sufficiently guarantee the character of these lands; and

(e) The boundaries of these areas of critical environmental concern should be identified and delineated and a means of protecting and preserving them should be developed.

§ 2. In consideration of the findings in § 1, the General Assembly hereby declares that it is the policy of the Commonwealth to preserve and protect those irreplaceable areas of natural, scenic and historic value for the benefit, use and enjoyment of the citizens of the Commonwealth, and to insure the protection and preservation of these critical environmental areas by limiting the development and use of land of areas surrounding and such places of natural, scenic and historic value.

§ 3. As used in this act, unless the context clearly indicates otherwise:

(a) "Division" means the Division of State Planning and Community Affairs.

(b) "Critical environmental area" means an area of natural, scenic and historic value including but not limited to wetlands, marsh lands, shore lands and flood plains of rivers, lakes and streams, wilderness and wildlife habitats, historic buildings and areas.

§ 4. The Division shall develop criteria, both qualitative and quantitative, which shall be used in the identification and delineation of the State's critical environmental areas. In the development of such criteria the Division shall give consideration to a minimum size of such areas necessary for their protection and preservation, the types of usage to which these critical environmental areas are to be put, the extent to which they are of Statewide or areawide significance, and any other matters which the Division feels should be considered. In the development of these criteria, the Division shall consult with various State departments, planning district commissions and local governmental agencies, in addition to other interested public and private groups. In particular, the Division shall consult with

State agencies having environmental expertise including, but not limited to, the Commission of Outdoor Recreation, the Virginia Institute of Marine Science, the Commission of Game and Inland Fisheries, the Soil and Water Conservation Commission, the Department of Conservation and Economic Development, the Department of Agriculture and Commerce, the Water Control and Air Pollution Control Boards, the Marine Resources Commission and the State Health Department.

§ 5. After it has identified specific criteria in accordance with § 4, the Division shall delineate critical environmental areas within the Commonwealth. The Division shall also define and delineate an area around each critical environmental area so identified that will insure the preservation of those critical areas.

§ 6. After it has delineated critical environmental areas the Division shall develop and recommend standards for the use and development of land within each protective zone around a critical environmental area. Such standards may include, but shall not be limited to, types of permitted uses, density or intensity of development, air and water quality standards or other performance standards. To the degree possible such standards should be stated in performance terms.

§ 7. The Division shall develop and recommend means by which the standards shall be applied and the development and use of land around such critical environmental areas be controlled. Consideration shall be given to the existing system of land use control in the Commonwealth. It should recognize both State interests and local prerogatives.

§ 8. No later than November one, nineteen hundred seventy-two, the Division shall hold public hearings to permit the submission of comments by any person or agency on the criteria to be established under § 4 hereof and on the delineation of critical environmental areas. The Division shall hold as many public hearings as it deems necessary. A copy of the proposed criteria and a map indicating the areas to be delineated under § 5 hereof shall be deposited within each planning district in the Commonwealth, and the Division shall provide to any person or governmental agency who so requests a copy of the criteria and map. The criteria shall be open for public inspection and comment for a period of thirty days before any public hearing is held.

§ 9. The Division shall complete its study of critical environmental areas and present its findings and recommendations to the Governor and the General Assembly not later than December one, nineteen hundred seventy-two.

§ 10. The Division shall not put into effect any standards developed and recommended for the use and development of land within each protective zone around a critical environmental area without the prior approval of the General Assembly.

Recommended Legislation

Be it enacted by the General Assembly of Virginia:

1. § 1. The General Assembly of Virginia finds that:

(a) the Constitution of Virginia set forth that it shall be the policy of the Commonwealth to protect its atmosphere, lands and waters from pollution, impairment or destruction, for the benefit, enjoyment, and general welfare of the people of the Commonwealth;

(b) particular land areas and uses should be singled out for immediate and special concern;

(c) these critical land areas include the coastal zone and estuary, flood plains, shorelands and other lands which possess special, natural, historic and scenic characteristics; uses may include, but are not limited to major public facilities, highway interchanges, and utility corridors;

(d) in controlling the development of these and adjoining areas, the observance of existing air and water quality standards and land use controls do not sufficiently guarantee the character of these lands; and

(e) The boundaries of these areas of critical environmental concern should be identified and delineated and a means of protecting and preserving them should be developed.

§ 2. In consideration of the findings in § 1, the General Assembly hereby declares that it is the policy of the Commonwealth to treat the land of the Commonwealth as a valuable natural resource worthy of protection by the Commonwealth, and to preserve and protect those irreplaceable areas of natural, scenic and historic value for the benefit, use and enjoyment of the citizens of the Commonwealth and to insure the protection and preservation of these critical environmental areas by limiting the development and use of land in areas within and surrounding such places of natural, scenic and historic value.

§ 3. As used in this act, unless the context clearly indicates otherwise:

(a) "Division" means the Division of State Planning and Community Affairs.

(b) "Critical Environmental Area" means an area of natural, scenic and historic value including but not limited to wetlands, marsh lands, shore lands and flood plains of rivers, lakes and streams, wilderness and wildlife habitats, historic buildings and areas, places imperiled by major development projects, as delineated by the Division of State Planning and Community Affairs.

(c) "Board" shall mean the Critical Areas Review Board.

(d) "Planning District Commission" refers to the Planning or Service District Commission as described in Chapter 34 of Title 15.1 of the Virginia Code.

(e) "Local Government" refers to the governing body of an individual county or an individual incorporated city or town of the Commonwealth.

(f) "Development" shall refer to any construction or alteration of land which takes place on a parcel or parcels of ten (10) or more acres; or to the construction of any building or buildings with a gross floor area of 40,000 square feet or more; or to any construction requiring another permit from a state or federal agency; or to the subdividing of land into three or more parcels with two or more of the parcels being less than five (5) acres.

(g) "Permit" refers to the authority of the Critical Areas Review

Board to grant permission for development to take place in a critical environmental area in the absence of an adopted critical environmental areas plan.

(h) "Critical Environmental Areas Plan" refers to that portion of the land use element of a comprehensive plan prepared by a planning district commission which among other features, must delineate in detail critical environmental areas and set forth protective ordinances and measures for their preservation. Such a plan may also be prepared by the Division in the absence of one developed at the district level.

(i) "Adverse development" refers to any development which will significantly alter the visual character, the natural qualities, or the productive capacity of a critical environmental area and that may be detrimental to the public health, safety and welfare.

§ 4. There is hereby created a Critical Areas Review Board. It shall be assisted and served by the Division, but in all matters of authority it shall function independent of any state agency.

§ 5. Number, appointment and terms of members. The Board shall consist of seven members. Six members shall be appointed by the Governor subject to confirmation by the General Assembly. The seventh member shall be the Director of the Division of State Planning and Community Affairs. Effective July one, nineteen hundred and seventy three, two members shall be appointed for a term of two years, two members shall be appointed for a term of three years, and two members shall be appointed for a term of four years. Thereafter, the successors of all citizen members shall be appointed for the term of four years each. Vacancies other than by expiration of a term shall be filled by the Governor by appointment for the unexpired term.

§ 6. Qualifications of members. Members of the Board shall be citizens of the State; shall be selected from the State at large for merit without regard to political affiliation; and shall, by character and reputation, reasonably be expected to inspire the highest degree of cooperation and confidence in the work of the Board. No officer, employee or representative of any permit-holder or of any industry, municipal corporation or governmental unit which may become a permit-holder shall be appointed to the Board.

§ 7. Compensation and expenses of members. No salary or compensation shall be allowed any member of the Board for services thereon, but each member shall receive twenty-five dollars a day for attendance upon its meetings and his actual and necessary traveling and other expenses incurred in the discharge of his official duties as a member or by direction or request of the Board.

§ 8. The Board shall have the following duties and authorities:

(a) To issue permits for development within critical environmental areas as set forth in Section 15.

(b) To take such actions as herein described to protect critical areas where the local government or planning district commission has failed to fulfill their responsibility of protecting critical areas.

(c) To develop and adopt rules, regulations and administrative procedures with respect to: (a) hearings, (b) the filing of reports, (c) the issuance of permits, (d) all other matters relating to procedure and to amend or cancel any rule adopted. Public notice of every rule adopted or repealed under this section shall be by such means as the Board may prescribe.

(d) To receive gifts, grants, bequests, and devises of land and of

money which shall be taken and held for the uses prescribed by the donor, grantor, or testator so long as it is in accord with the policy of this chapter. The Board shall have the power to purchase land in fee simple or to purchase scenic easements or any other interest in land less than a fee and may contract with or transfer such interest in land to another state agency, governmental unit, or public body when such action shall provide the most suitable method of protecting critical environmental areas.

(e) After the adoption of a critical environmental areas plan by a local government, to review applications for variances and use permits made in conjunction with any accompanying protective ordinance prior to final disposition and to modify or reverse a local decision if it is not in keeping with the intent of the plan. Failure of the Board to respond within a period of 30 days from the receipt of an application shall constitute approval.

§ 9. Meetings; Record of proceedings. The Board shall meet at least four times a year, and other meetings may be held at any time or place determined by the Board or call of the chairman or upon written request of any two members. All members shall be duly notified of the time and place of any regular or other meeting at least five days in advance of such meeting. The Board shall keep a complete and accurate record of the proceedings at all its meetings, a copy of which shall be kept on file in the office of the Division and open to public inspection. Any standards, policies, rules or regulations adopted by the Board to have general effect in part or all of the State shall be filed with the Secretary of the Commonwealth at least thirty days before they are to take effect.

§ 10. Inspections and Investigations. The Board shall make such inspections, conduct such investigations and do such other things as necessary to carry out the provisions of this chapter, within the limits of appropriation, funds, or personnel which are, or become, available from any source for this purpose.

§ 11. The Division of State Planning and Community Affairs shall have a continuing role in the critical environmental areas program.

§ 12. The Division shall have the following responsibilities:

(a) to consider and delineate places in the Commonwealth as critical environmental areas. Such action may be initiated by the Division or by a planning district commission through its critical environmental areas plan.

(b) to develop guidelines to aid the planning districts in the preparation of a critical environmental areas plan.

(c) to request that a planning district commission undertake a critical environmental areas plan.

(d) to review and approve the critical environmental areas plan prepared by a district and any subsequent amendments considered to that plan.

(e) to prepare a critical environmental areas plan for a planning district when no plan is being developed at the district level.

(f) to aid and provide staff assistance to the Critical Areas Review Board.

(g) to administer under the direction of the Board, state, federal, or other funds to be used to carry out the intent of the critical environmental areas program.

(h) to develop rules, regulations and administrative procedures to assist in carrying out its responsibilities.

§ 13. Critical Environmental Areas and Planning Districts:

(a) All Planning District Commissions shall include in their comprehensive plan a study of critical environmental areas found within their district. Upon request of the Division, planning district commissions shall prepare a critical environmental areas plan in accordance with its established guidelines.

(b) Before any planning district commission may approve any critical environmental areas plan, the proposed plan shall first be approved by the Division. Within 60 days following receipt from any planning district, the Division shall either approve, approve with modification or return for further action the proposed plan. In considering such recommendations the Division shall consider among other things, (1) whether or not the Division's guidelines had been followed, (2) whether or not the recommended delineations in the plan are of sufficient size to insure protection of the critical aspects of the area and, (3) whether or not the suggested ordinances will be sufficient to protect the critical environmental areas from adverse development.

(c) Once the plan has been approved by the Division, it shall be submitted for final approval to the planning district commission, except that the planning district commission may not modify the plan as approved by the Division without first receiving the written approval of that agency.

(d) If, within two years after being requested to undertake a critical environmental areas plan, any planning district commission does not prepare such a plan, the Division may submit to the Board a recommended plan with final delineations and suggested ordinances. The Division shall request comments from any planning district or local government affected by the recommendations. The Division may hold a public hearing to gather further information. Within 60 days, the Board shall adopt, modify or reject the Division's plan. Upon adoption of the plan and suggested ordinances by the Board, the planning district commissions involved shall consider it as if approved by themselves and they shall not amend, change or eliminate the plan without prior written approval of the Board.

§ 14. Local government responsibility. Within one year after approval of a critical environmental areas plan by a planning district, a local government located in that district, having a critical environmental area in its jurisdiction, must adopt the plan and the suggested ordinances to protect critical areas. Failure to meet this responsibility shall mean that the Division shall recommend such ordinances to the Board, who shall adopt or adopt with modifications such recommendations. In any conflict between existing local plans and ordinances and those adopted by the Board, the Board's shall prevail, unless the local ordinance is stricter. The local government shall enforce the Board's adopted delineation and ordinances, granting them the same force and effect as their own maps and ordinances. No local government shall be able to amend or change or eliminate such delineation or ordinance without prior permission of the Board. Local governments shall furnish the Board with copies of any proposed amendments and any applications for variances or use permits requested for development within a critical environmental area.

§ 15. Land Use Development Permits.

(a) There shall be no development without a permit in a critical environmental area or an area under consideration for such designation by the Division or any planning district unless protective ordinances have been adopted by the local government, or by the Board for the local government, for such critical area.

(b) If any developer is in doubt as to whether or not his development is within a designated critical environmental area or whether or not a permit will be necessary, he must submit a written request for a ruling by the Board on the necessity of a permit. The Board will seek the advice and assistance of the Division in making a decision. The Board shall make its determination as to the necessity of a permit within 30 days of receipt of such request. In making a determination, the Board shall require a permit when the development may, with reasonable certainty, have a direct effect upon or be located, whole or in part, within a designated critical environmental area. Failure of the Board to respond within a period of 30 days from the receipt of a request shall constitute a decision not to require a permit.

(c) To obtain a permit a developer must apply in writing to the Board. The request will be made on a standard application form, following guidelines prepared by the Division. Upon receipt of an application, the Board will submit a copy to the Division, to each state agency having relevant responsibility and interest which may be affected by the proposed development, and to the planning district and local government in which the proposed development would be located. Each recipient of a copy of an application shall respond to the Board concerning the impact the proposed development would have upon the critical environmental area. Within 30 days of receipt of the application there (may) be a public hearing scheduled to consider the application; more than one hearing may be scheduled. Hearings will be advertised in accordance with Section 15.1-431 of the Virginia Code, in newspapers having general circulation in the planning district within which the proposed project is located. All comments at the hearings plus any responses by state agencies, planning district commissions, and local governments shall be made part of the record.

(d) Within 90 days of the receipt of an application for a permit, the Board shall approve, approve with restrictions or modifications, or deny the application. Failure of the Board to respond within a period of 90 days from the receipt of an application shall constitute approval.

(e) Before making its final determination, additional information may be requested from the developer which would aid the Board in making its decision. In considering an application, the Board shall be guided in its deliberations by, but not limited to, the following factors:

1/The relationship to and impact upon delineated critical environmental areas,

2/The relationship to areas subject to flooding.

3/The suitability of soil types upon which the proposed development is planned.

4/The effect upon air, water, and aesthetic qualities of the environment.

5/The economic and social needs of the region.

6/The impact upon existing and proposed transportation facilities.

7/The relationship to any existing local, regional, or state plans.

8/The financial and technical capacity of the developer to meet the established development standards.

9/The likelihood that additional or subsidiary development would be generated and the total potential impact on the delineated critical environmental area.

(f) The Attorney General or the local Commonwealth Attorney shall have the power to seek an injunction to stop any development which they reasonably believe requires a permit. Injunctive relief may be granted pending a determination by the Board as to whether or not such permit will be necessary. Any developer operating without a required permit, or

in violation of an issued permit, shall be guilty of a misdemeanor punishable by a fine of not less than ten dollars nor more than two-hundred fifty dollars. Each day in violation shall constitute a separate offense and, in addition, the violator shall be directed to restore, to the extent possible, the natural conditions which existed prior to the violation.

§ 16. Judicial Review.

(a) Any individual aggrieved by a final decision of the Board, whether such decision is affirmative or negative in form, is entitled to judicial review thereof under this chapter either in the Circuit Court of the City of Richmond or in any court of record having jurisdiction in the city or county in which such individual resides or in which is located the principal office of his business, or in which is located the property affected by the decision complained of.

(b) Proceedings for review shall be instituted by filing a notice of appeal with the Board within thirty days after the date of the order and giving a copy thereof to all other parties.

(c) With his notice of appeal, or within thirty days thereafter, the appellant shall deliver to the Board a transcript of the testimony if it was taken down in writing, or, if it was not taken down in writing, a statement of it in narrative form.

(d) Within thirty days thereafter, the Board shall transmit to the clerk of the court to which the appeal is taken:

1/A copy of the request, if any, for, or notice of, the formal hearing;

2/A copy of the order appealed from;

3/A copy of the notice of appeal;

4/The transcript or statement of the testimony filed by appellant together with a certificate that it is correct except in specified particulars;

5/The exhibits.

(e) The failure of the Board to transmit the record within the time allowed shall not prejudice the rights of the appellant. The court, on motion of the appellant, may issue a writ of certiorari requiring the Board to transmit the record on or before a certain date.

(f) The court, sitting without a jury, shall hear the appeal on the record transmitted by the Board and such additional evidence as may be necessary to resolve any controversy as to the correctness of the record. And the court, in its discretion, may receive such other evidence as the ends of justice require.

(g) The court may affirm the decision of the Board or remand the case for further proceedings; or it may reverse or modify the decision if the substantial rights of the appellant have been prejudiced because the findings, conclusions or decisions are (a) in violation of constitutional provisions; or (b) in excess of statutory authority or jurisdiction of the Board; or (c) made upon unlawful procedure; or (d) effected by other error of law; or (e) unsupported by the evidence on the record considered as a whole; or (i) arbitrary, capricious, or an abuse of discretion.

(h) The filing of a notice of appeal shall not operate to stay the enforcement of the order. The appellant, at any time after the filing of his notice of appeal, may apply to the court to which he has appealed for a stay.

§ 17. Amendments.

(a) Virginia Code § 15.-1406 is hereby amended by adding these to a subsection (d); "(d) Included within the comprehensive plan shall be a critical environmental areas plan that would investigate, evaluate, and delineate in detail all critical environmental areas within the district."

(b) Virginia Code § 2.1-63.3 is hereby amended by adding these to

a subsection (e); "(e) Activities related to the delineation of critical environmental areas:

1/evaluating and delineating "critical" areas on a continuing basis.

2/developing guidelines to aid the planning district commissions in the determinations as to what constitutes a critical environmental area and what is necessary to protect it.

3/considering and then approving, modifying or disapproving critical environmental areas plans as prepared by the planning district commissions.

4/preparing a critical environmental areas plan when it determines that no such plan is being prepared by a planning district commission.

5/aiding and assisting the Critical Areas Review Board in carrying out its legislated responsibilities."

§ 18. Appropriations:

(a) To help carry out the intent of the legislation and to aid the planning district commissions and the Division in conducting critical environmental areas plans, six hundred thousand dollars shall be appropriated during each of the next two fiscal years. These funds shall be administered and distributed to the planning district commissions by the Division of State Planning and Community Affairs under the direction of the Board.

(b) To establish a continuing fund to be available to the Critical Areas Review Board for the sole purpose of purchasing fee simple or less than fee simple interest in selected portions of designated critical environmental areas, one million dollars shall be appropriated.

§ 2. Severability. If any provision of this Act is held invalid, such invalidity shall not affect any other provision in this Act.

(d) Within thirty days thereafter, the Board shall transmit to the clerk of the court to which the appeal is taken:

1/A copy of the request, if any, for, or notice of, the formal hearing;

2/A copy of the order appealed from;

3/A copy of the notice of appeal;

4/The transcript or statement of the testimony filed by appellant, together with a certificate that it is correct except in specified particulars;

5/The exhibits.

(e) The failure of the Board to transmit the record within the time allowed shall not prejudice the rights of the appellant. The court, on motion of the appellant, may issue a writ of certiorari requiring the Board to transmit the record on or before a certain date.

(f) The court, sitting without a jury, shall hear the appeal on the record transmitted by the Board and such additional evidence as may be necessary to resolve any controversy as to the correctness of the record. And the court, in its discretion, may receive such other evidence as the ends of justice require.

(g) The court may affirm the decision of the Board or remand the case for further proceedings; or it may reverse or modify the decision if the substantial rights of the appellant have been prejudiced because the findings, conclusions or decisions are (a) in violation of constitutional provisions; or (b) in excess of statutory authority or jurisdiction of the Board; or (c) made upon unlawful procedure; or (d) effected by other error of law; or (e) unsupported by the evidence on the record considered as a whole; or (i) arbitrary, capricious, or an abuse of discretion.

(h) The filing of a notice of appeal shall not operate to stay the

enforcement of the order. The appellant, at any time after the filing of his notice of appeal, may apply to the court to which he has appealed for a stay.

§ 17. Amendments.

(a) Virginia Code § 15.-1406 is hereby amended by adding these to a subsection (d); "(d) Included within the comprehensive plan shall be a critical environmental areas plan that would investigate, evaluate, and delineate in detail all critical environmental areas within the district."

(b) Virginia Code § 2.1-63.3 is hereby amended by adding these to a subsection (e); "(e) Activities related to the delineation of critical environmental areas:

1/evaluating and delineating "critical" areas on a continuing basis.

2/developing guidelines to aid the planning district commissions in the determinations as to what constitutes a critical environmental area and what is necessary to protect it.

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ENVIRONMENTAL CHECKLIST

Natural, Scenic, and Historic Value
Criteria for Evaluating A Critical Environmental Area

Instructions: Fill in "scores" for the area being considered for evaluation as a critical environmental area based on the series of questions that follow. Answer those sections that are appropriate to the area, but carefully consider all sections before leaving them blank. Use margins and explain if extra space is needed. Scoring information is found in the parentheses after each question. A score may be a simple positive response (e.g.—yes=10, no=0) or a range of percentage (e.g.—100%=10, 90%=9, 80%=8, etc.). Enter all scores in boxes in the left hand columns. When completed, enter scores in the "summary" below.

Summary

I. (Name of area) .....

[ ] **II. Analysis (A+B+C)**

- [ ] A. Natural=(1×2+3+4+5)
  - [ ] 1. General uniqueness
  - [ ] 2. Land forms
  - [ ] 3. Water
  - [ ] 4. Wildlife
  - [ ] 5. Vegetation
- [ ] B. Scenic
- [ ] C. Historic

[ ] **III. Urban Proximity Factor**

[ ] **IV. Threat Factor**

I. Area Description

Name of area (if any) : .....

County(ies) and/or City(ies): .....

.....

Location (include access routes, mileage and direction from landmarks, intersections, etc.) : .....

.....

.....

.....

Boundaries (use physical features such as roads, streams, etc. wherever possible) : .....

.....

.....

.....

Sketch map:

Property owner(s) (if known) : .....

.....

.....

Local people with knowledge of the area who may be contacted for information (include address and/or telephone number if known) : .....

.....

.....

Description (before completing the remainder of this Critical Area evaluation, please give a brief description of the natural, scenic, and/or historic features of the area that *you* feel make it critical or not critical. Why do *you* feel it should or should not be protected.) : .....

.....

.....

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.....

.....

Name of person(s) completing this evaluation: .....

.....

.....

.....

How long have you been familiar with this area? .....

.....

What training, education, experiences or interests helped you in your evaluation? .....

.....

.....

.....

.....

.....

.....

.....

II. Environmental Analysis

A. Natural Characteristics

1. General

Are any individual features or combinations of features in this area unique? If so, are these features unique: (check one)

..... Nationally? [10]
..... Regionally? [8]
..... Statewide? [5]
..... Locally? [1]

- OR -

Does this area provide an outstanding example of a more typical type of natural occurrence?

1. [ ] ..... [5]

2. Landforms

Is the area unique in its landforms or contain outstanding examples of topographic or geologic features?

..... Bluffs, cliffs, etc. with exposed geologic strata or features that illustrate geologic processes.
..... Fossil evidence of earlier life forms.
..... Beaches having unusually white or clean sand, exceptional width or dune development.
..... Significant peaks.
..... Rivers with rapids, rivers or streams with falls, sinking streams.
..... Natural arches, caves, tunnels, potholes, or large sinkholes.
..... High altitude lakes, lakes in poquosins.
..... Wind or water gaps in ridges.
..... Other unusual features such as monadnocks, karst outcroppings, chimneys.

2a. [ ] (Score 10 for each item checked above. Please briefly describe each feature.) .....
.....
.....
.....
.....
.....
.....

[ ] What percent of the area is in each of the following categories?

[ ] Steep slopes (15% or greater) or in soil types unsuitable for development due to instability, erosion danger, or inability to support on-lot septic systems?

[ ] "Prime agricultural land" (U.S. Soil Conservation Service Classes I and II?

[ ] Minerals or ores worthy of extraction?

[ ] Flood plain?

[ ] Fresh water shorelands, swamps or river bottoms?
[ ] Beaches or tidal coastlands?
2b [ ] Total

2. [ ] = 2a [ ] × 2b [ ]

3. Water

Is the quality of water in the area's water bodies or water courses better than the minimum standard set by the State Water Control Board? [5]

- OR -

If fresh, could you drink the water:

..... without treatment? [10]
..... with minimum treatment (settling)? [7]
..... only with extensive treatment? [0]

3a [ ] If saline, could you swim without fear of sickness, infection of open cuts, etc. and could you eat shellfish found there? [5]

Does any population center depend, in whole or in part, on the area for its fresh water supply (either surface or ground) in terms of natural catchment, purification, and/or
[ ] storage? [5]
For population centers of 5,000 or more, the area accounts
[ ] for what percent of the total water source? [%]
The area contains what percent of the total watershed above the source of fresh water for a population cen-
[ ] ter? [%]
[ ] Does the area provide ground water (aquifer) recharge area for the (ground) water table upon which any population center depends for its fresh water supply? [5]
[ ] For population centers of 5,000 or more, the area accounts for what percent of the total ground water (aquifer) recharge area? [%]
[ ] Does the area provide natural ground or surface water flow that is critical in maintaining a delicate salinity gradient or provide for circulation in an estuarine system either within the area or downstream from it? [10]
[ ] What percent of the area is tidal surface water or salt marshes? [%]
[ ] Does the area provide salt water input or currents critical to an estuarine system? [10]
3b [ ] Total

3 [ ] = 3a [ ] × 3b [ ]

4. Wildlife

List five species of animals found in this area in the blanks below. Then, for the first name, check one blank in part (a) and (b) and one or more in part (c). Enter the "score" from each of these in the three spaces to the left of the species name in blank no. 1. Then, multiply these scores

(a) × (b) × (c) = to get the total for species no. 1. Repeat this procedure for species 2-5 and add these five totals to get a grand total for Section 4, Wildlife.

Totals	(a)	(b)	(c)	
[ ] =	[ ] ×	[ ] ×	[ ]	1. .....
[ ] =	[ ] ×	[ ] ×	[ ]	2. .....
[ ] =	[ ] ×	[ ] ×	[ ]	3. .....
[ ] =	[ ] ×	[ ] ×	[ ]	4. .....
[ ] =	[ ] ×	[ ] ×	[ ]	5. .....

(a) This animal is: (check one and enter "score" in column (a) to the left of the species you named above)
- .....large mammal [6]
- .....small mammal [5]
- .....large bird [5]
- .....small bird [4]
- .....fish, reptile, amphibian [4]
- .....invertebrate (incl. shellfish, insects) [3]

(b) This species is: (repeat in column (b) as above)
- .....rare or "endangered" [1 0]
- .....at its range limits or not normally found regionally [8]
- .....relatively common [4]

(c) This species is: (same as above except that you may check two—enter total in column (c)
- .....a year-round (fulltime) inhabitant [3]
- .....a migratory (part-time) inhabitant [2]
- .....economically valuable [3]

4 [ ] = 1 [ ] + 2 [ ] + 3 [ ] + 4 [ ] + 5 [ ]

5. Vegetation

(a) Does the area contain any rare or endangered species of vegetation? [1 0]

[ ] What species? .....

[ ] (b) What percent of the area is covered by the rare species? [%]

[ ] (c) What percent of the total population of each rare species is contained in the area? [%]

[ ] = [ ] a × [ ] b × [ ] c

(a) Does the area contain any species of vegetation that are unique to this region or location or are at their range limits? [5]

[ ] What species? .....

[ ] (b) What percent of the area is covered by these species? [%]

[ ] (c) What percent of the unique species local population is contained in the area? [%]

[ ] = [ ] a × [ ] b × [ ] c

[ ] Does the area contain outstanding examples of typical climax forest communities or outstanding examples of mature individuals of local species? yes = 10—no = 0

Describe: .....

.....

.....

.....

.....

.....

5 [ ] .....

A [ ] = 1 [ ] × 2 [ ] + 3 [ ] + 4 [ ] + 5 [ ]

B. Scenic Characteristics

1. Vistas

Does the area provide natural scenic vistas of any of the following types? (score as indicated for each type checked below)

..... Rugged topography [10]

..... Rolling forest land [10]

..... Varied farmland (patchwork) [10]

..... Lakes or rivers [10]

..... Coastlines and tidal water [10]

[ ] ..... Varied and colorful vegetation [10]

Other: .....

.....

2. Settings

Does the area provide scenic settings of natural beauty such

[ ] as sylvan glades, meadows, streams, etc.? [10]

What type? .....

.....

.....

B [ ] .....

C. Historic Characteristics

[ ] 1. Features—(total of a. and b. below)

(a) Does the area contain any of the following historic features? (check one):

Groupings of historic buildings located within relatively undisturbed contiguous natural

..... areas. [10]

..... Buildings or relics of historic significance. [5]

..... Historic sites. [4]

..... A generally historically significant area. [2]

(b) Does the area contain outstanding and well preserved examples of period architecture? .....[5]

(Please describe: .....

.....

.....

.....)

[ ] 2. Significance

Are the above features of historic interest nationally, statewide, or locally? (check one) :

..... National significance [20]
..... Statewide significance [10]
..... Local significance [5]

C [ ] = [ ] (1 Features) × [ ] (2 Significance)

II [ ] = A [ ] + B [ ] + C [ ]

III. Urban Proximity Factor

This section deals with the location of the Critical Environmental Area in relation to centers of human population. The term "population center" refers to any city, town, or other urbanized area either in or adjoining the Commonwealth of Virginia. Please be as accurate as possible while filling in all parts below. Exact figures, however, are not required—thoughtful estimates are sufficient.

In the following section, please fill in the names of four population centers as indicated below. Then check the box that indicates its distance from this Critical Environmental Area. Then, multiply the number [ ] at the top of the column in which the check appears by the number [ ] that appears after the name of the population center. Enter this result in the blank to the left of the question.

[ ] 1. The nearest population center of 100,000 or more is ..... [12] It is how far from here? (check one)

[ ] 2. The nearest center of 50,000—100,000 is .... [10] How far?

[ ] 3. The nearest center of 10,000—50,000 is .... [8] How far?

[ ] 4. The nearest center of 5,000—10,000 is .... [5] How far?

Within the Population Center [12]	0-20 Miles [10]	20-50 Miles [5]	50-100 Miles [2]	Over 100 Miles [1]

II [ ]

IV. Threat Factor

Are the critical features of this area in danger of destruction or damaging alteration from present or proposed development? On the scale below please check the degree of threat you feel exists for this area. Also, please briefly explain why and describe any development plans you know of.

IV [ ] Threat very great and immediate — 10 — 5 — 0 — No Threat

Explain: .....

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