



OPEN SPACE HANDBOOK

Virginia Tech Community Design Assistance Center ◦ Virginia Cooperative Extension ◦ Publication 305-771 ◦ Revised March 1994

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OPEN SPACE HANDBOOK

A DECISIONMAKER'S GUIDE FOR VIRGINIA

Virginia Cooperative Extension ◦ Publication 305-771 ◦ Revised March 1994



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INTRODUCTION

This report provides guidelines to those who influence land use decisions in Virginia. Managing Virginia's open spaces is an opportunity to enhance the future. This document defines open space, its benefits, and planning steps to protect open space. To maintain open lands, the process must be a joint effort between private and public groups: citizens, land owners, private organizations, developers, farmers, planners, elected officials, and government agencies.

This handbook, which grew out of Montgomery County's effort to protect open space, is the result of a dialogue between Montgomery County citizens and their county officials. When the County in 1991 revised its comprehensive plan, which is a general planning document used to set priorities every five years, citizen and local officials planted the seeds for protecting open space. A grant from the Virginia Environmental Endowment (VEE) augmented the project's costs. Copies of the Montgomery County/Town of Blacksburg Open Space Plan are available through the New River Valley Planning District Commission. This handbook is available from your local extension agent or the Virginia Tech Community Design Assistance Center.

The Montgomery County planning effort involved many: the New River Planning District Commission, Montgomery County, the Town of Blacksburg, the Virginia Tech Community Design Assistance Center, several classes of Virginia Tech students, the Montgomery County Open Space Citizens' Advisory Committee, the Montgomery County Citizens Environmental Committee, and citizen participants in the Montgomery County Open Space workshops. A Technical Advisory Committee offered their special expertise. Special thanks are extended to Dick Gibbons, Elizabeth Gilboy, Bill Gladden, Paul Hagenmuller, Dave Hirschman, Duane Hyde, Randi Lemmon, Paxton Marshall, Shep Moon, Joe Powers, Will Shepherd, and Steve Via. The section on information gathering was adapted from "*The Can Do*

Book of Local Water Resources Management in Virginia". The description of open space management techniques and tools was adapted from *Montgomery County/Town of Blacksburg Open Space Plan*.



WHAT IS OPEN SPACE?

Open space is a general category of land use. Other examples of general land use categories are industrial, agricultural, commercial and residential. Within a category there may occur a wide range of activities. Just as industrial land use can be as diverse as mines, quarries, ship yards and pulp mills, open space land use may include many various activities. Parks, forests, farms, rivers, and beaches are usually thought of as open space, but other types of places such as wild life habitats, groundwater recharge areas, mountains and ridges, historic sites, scenic roads, trails, and even golf courses are also considered open space. The activities that occur in these settings are usually of low impact, but open space should not be looked upon as areas only to be conserved and preserved. They are places to be managed and used. The Jefferson and George Washington National Forests are examples of open space in our state that are managed for wildlife, hunters, hikers, bikers, and loggers.

Open space is as diverse as the communities across Virginia, and can be found in both the countryside and urban areas, as well as in wealthy and low income neighborhoods. It can be enjoyed by all ages in many different ways. It is our legacy of the past, the places we value, our favorite swimming hole, the old church and cemetery up the road, and that beautiful farm on the way to grandma's. A community's sense of identity is directly associated with trees, water, grass, flowers, smells, birds, a place to sit, a nice view, an old building, or a running trail. Open space in Virginia includes Monticello, the Blue Ridge Parkway, the Appalachian Trail, the seascape of Virginia Beach. There are also economic benefits to many types of open lands; recreation-related business, increased tourism, protecting natural resources, and steering growth to areas most efficiently served by local services and utilities.

Perhaps of greater urgency than economic benefits or maintaining our scenic landscapes is preserving the basic environmental functions that sustain our health, safety, and welfare. Forested watersheds

surrounding our water supplies can help insure safe, clean drinking water. Carefully planned trails can be developed to keep our children away from busy roads. Farm land can be conserved, and the costs of urban infrastructure kept low by encouraging clustered building. As a locality grows and changes, a community's quality of life can be upheld and strengthened by incorporating protected open space throughout the area's land-use mosaic.

The federal and state government, largely due to their social mandate to protect health, safety and welfare, encourage enhancement of open lands in appropriate locations. They participate in open space protection by: ownership of forests and park lands; regulating wetlands, and soil and erosion control; and by offering tax breaks for significant open space lands. Beyond federal and state government, local jurisdictions can take a prominent roll. Local governments can facilitate decisions about what and where open space should be developed. Municipalities have the power and prerogative to designate open space, just as they can plan and create industrial parks.

Usually, government actions are directed by citizen initiatives, such as designation of a wild and scenic river, or registering an old bridge as a historic landmark. Private interests working with the local government can define what open space means to your city, town, or region, and can set the pace for open space development and policy. Communities who choose to plan for open space decide for themselves which natural and cultural features within their locality are special and how to maintain them. People working together to steward Virginia's open lands can protect our outdoors. A well thought out open space plan is a bold first step toward preserving your communities future landscape.



OPEN SPACE AND GROWTH

Historically with ample open land, intensive development was usually confined to stable soils, flat lands, areas with access to water, and lands not threatened by flooding or other natural hazards. Remote, inaccessible, and environmentally less-suitable lands were left undeveloped. The post-World War II population, transportation, and urbanization boom has drawn large areas of the rural landscape into the urban sphere. Presently, Virginia is experiencing rapid growth and expansion. From 1980 to 1991, the population skyrocketed 17.6 percent compared to the 10.7 percent growth for the nation. The Commonwealth's growth rate during this period was the fourth fastest among the states east of the Mississippi River. Almost 95 percent of the total population increase occurred in the 44 localities of the "golden crescent", ranging from Fairfax County in the north to Virginia Beach in the southeast. The eastern Virginia landscape is especially affected by this growth. As the baby boomers populate Virginia and migration to the region increases, urban sprawl is reaching lands best suited for recreation, agriculture, conservation, and other open space uses. These vulnerable areas include lands of cultural, natural, and visual significance (historic sites, wetlands, steep slopes, prime farm land, scenic landmarks, etc.). These threatened areas are part of the fabric of our cities, as well as, our countryside.

There are many benefits to growth, such as expanded job opportunities, better community facilities, and more cultural attractions. However, growth can create costly problems. Landowners, taxpayers, and employers all suffer when growth creates unforeseen consequences: excessive erosion, pollution, destruction of treasured views, loss of productive farmland, and high costs of expanded public utilities. When little consideration is given for where and how development occurs, damage may result, harming natural systems which in turn may affect our health and well being. With rampant development, open space often assumes a structure of remnant patches of the pre-existing landscape that do not adequately represent the original landscape's physical and aesthetic structure.

The Chesapeake Bay is an example of a regional watershed that has supported fishing, swimming, boating, supplied drinking water, and added great beauty to Virginia. This water system is now threatened by intensive land use that has diverted tributaries, interrupted wetlands that filter recharge waters, and overloaded streams with excess pollution and sediment. Fortunately, the Chesapeake Bay is now recognized as an important regional system and special constraints have been placed upon it. The constraints directly and indirectly protect open space throughout the watershed, both in urban and rural settings.

Foresight and planning can help avoid the negative economic consequences that can arise from unmanaged growth. Economic problems can arise when municipalities are faced with the expense of providing new developments with transportation, water, sewer, police, and fire protection. For example in 1991, in City of Virginia Beach, a new single family house provided \$4,331 of new tax revenue annually, but cost the city \$5,334 each year in expanded services, a deficit to the city and its taxpayers of over \$1000. This type of deficit can be minimized if developers, planners, and the community all participate in planning how growth is to be managed. Establishing designated open space areas can be an effective way to direct urban growth away from lands that are more appropriately employed for low-impact activities, at the same time, promoting growth in areas that are suitable. Instead of giving up all land adjacent to primary roads, all areas close to market centers, and our most beautiful spots, natural splendor and value can be added to our landscape. Development in clustered centers with open space as a complementary frame can help ensure a healthy, pleasing environment.



PLANNING FOR OPEN SPACE

Planning should be one of the first actions individual citizens, government agencies, and private groups undertake when directing land-use change. A publicly supported planning effort is usually a community-wide conversation about the past and present to envision the future. It can charter the path for protecting local open space. The conversation is most effective when it is an interactive dialogue between the community and those responsible for land planning. Community values can direct planning and planning can keep citizens informed and aid them in decision making.

Figure 1 shows the cyclical planning-process steps with community values as the central foundation. Often, the process is initiated when a problem or issue is identified. A change is sought by redefining local priorities, gathering information about the situation, proposing objectives to answer the problem, choosing appropriate action strategies to guide the process toward tangible results, and defining anticipate maintenance and administration requirements. A location and land-use plan can be an effective guidepost for directing change in accordance with the objectives of an open space planning effort. Periodically, the planning cycle begins anew as the community's perspective shifts, and institutions and their programs adjust to reflect evolving values. The planning process does not always flow in a clear-cut linear direction; steps may be skipped, repeated, or as is often the case, happen all at once. Be creative about the process, and involve your local planning agencies, politicians, and other resource people. Think about the appropriate time to include outside expertise, and consider what approach is best suited your situation.

The seven planning steps described can guide you and your community through the open space planning process. The boxes located throughout this section are options, examples, and suggestions posed to explain some of the responses that can be expected. At the end of each step under the headings "**ASK:**", question yourself and your community about the relevant issues for that step.

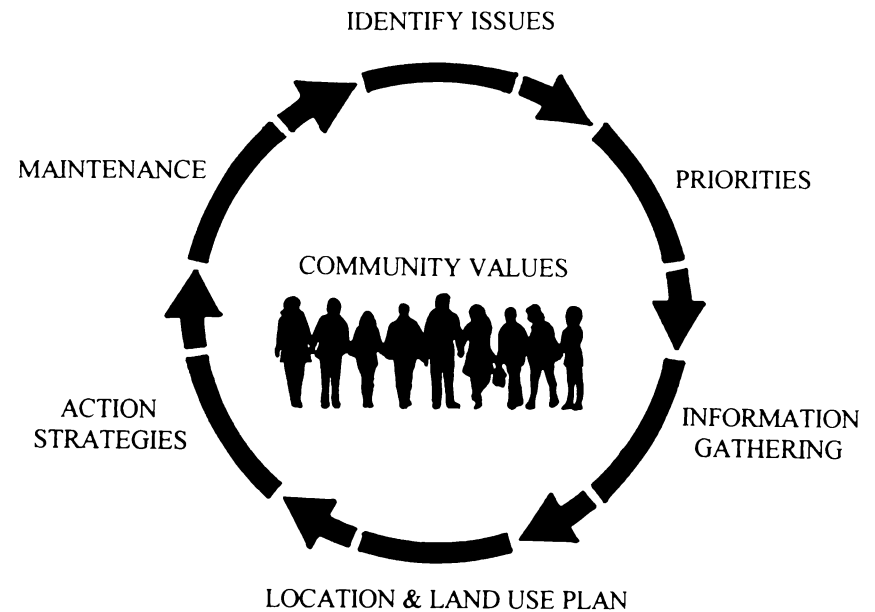
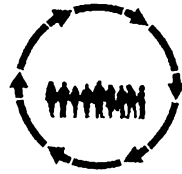


FIGURE ONE

STEP 1.....



COMMUNITY VALUES

People generally take pride in the place they live. A community's unique appreciation of their landscape is a part of their collective community values. These values are based on people's perceptions of what they view as important. As depicted in the Planning Process Diagram, community values are central to the entire process. Every stride and decision needs to reflect a community's consensus of which places are special and what activities are most desirable.



COMMUNITY INVOLVEMENT WORKSHOP

The intent of community involvement programs is to identify community values. The broader the cross-section of individuals participating in shaping open space protection, the wider the range of creative alternatives, and the more the community will view an open space plan as relevant to their needs. Getting people involved can help influence the success of a planning effort.

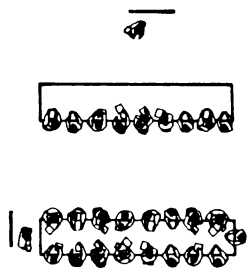
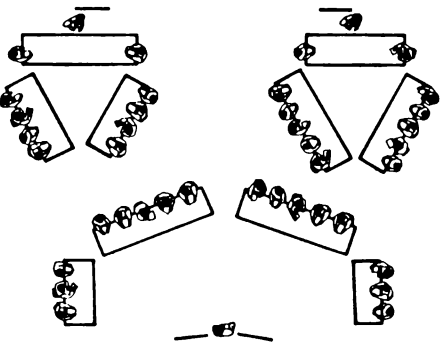
Community involvement can be used throughout the planning process. The questions at the end of "Step 1" are appropriate to ask at each step in the process. Choosing the right approach to involve citizens will assist in obtaining quality information and making good decisions. There are many community participation techniques and different techniques are appropriate in different situations. The following are just a few techniques that can be used to elicit community involvement.

TECHNIQUES:

An **advisory committee** can oversee the development of an open space planning effort. An advisory committee can help make decisions, offer technical skills, and help elicit support. The group should include individuals with diverse interests. Some controversy may arise; but addressing all views early can help to identify issues, provide direction, and avoid the risk of appearing to ignore the range of concerns.

Workshops are typically the principal vehicle for community participation. By having several rounds of workshops throughout the planning process, you can keep awareness high. Workshops can serve several purposes: education, development of ideas, collecting information, reporting results, and demonstrating alternative solutions. They can be held at different locations in the community in order to make it easier for people to attend. The following graphic "Setting

SETTING UP A PUBLIC MEETING

 <p>Conventional Layout</p> <ul style="list-style-type: none"> Standard meeting formats create an atmosphere of intimidation. Participants are less likely to participate at large, crowded tables. Format fosters domination by an individual rather than allowing for group discussion. Standard formats do not allow all participants to view presented material. 	 <p>Innovative Layout</p> <ul style="list-style-type: none"> Innovative formats create a relaxed, spacious atmosphere, with small discussion groups of no more than 6-8 participants per table. This setup is less intimidating since it encourages all to participate within smaller, informal groups. Format fosters group discussion rather than allowing the domination by any one individual. Innovative formats incorporate many easels and groups of tables, angled toward the presented material, so all can view the presentation.
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"Up a Public Meeting" suggests creating a comfortable atmosphere for holding a productive meeting.

Surveys are an effective way to get a general overview of your community's values. They also offer an opportunity to alert more people to the open space planning effort. Usually, surveying the entire community is not feasible, but a representative sample can be easily reached by phone, mail, or door-to-door surveys. Questions comparing types of open space can indicate the preferences of the community.

Educational Events are fun and can peak interest. Entertainment, laughter, and enjoying the outdoors can go a long way toward developing an appreciation of open space. Lectures, slide shows, field trips, festivals, and activities for children centered around the theme of open space can increase awareness.

Listening is a fundamental aspect of any dialogue. It is also a new technique used to explore public opinion, encourage consideration of key issues, and rouse support. Listening empowers those who often are not given a voice in decision making. When using this technique and setting up a one-on-one dialogue, the more personal contact the better. Go to peoples' homes, to their clubs, their schools. Present the concept of open space without judgement and ask for people's ideas. This technique is labor intensive. People must be recruited to go out and talk, listen, and record comments. Recording and reporting tabulated results back to the community is an important part of listening. Ideas should be publicly acknowledged to inform people of their collective priorities. Listening can be used throughout the entire planning process, but it is especially useful at the beginning of new phases to get direction from citizens. Box 1 is an example of a listening session.

BOX 1
EXAMPLE OF A LISTENING SESSION

Fact: Open space needs to be defined by each unique community. It can be...(explain range of types of open space).

Ask & Listen: What do you think open space in our community is? How and where would open space be appropriate? Different people have different definition of open space so listen carefully.

Record: (Participant's ideas)

Fact: Our community is having problems with water and air pollution.

Ask & Listen: What should we do?

Record: (Participant's ideas)

Fact: Did you know that our drinking water comes from the river. The watershed could be managed as open space.

Ask & Listen: What do you think?

Record: (Participant's ideas)

Fact: Agricultural enterprises play a significant role in our community's economy and rural character.

Ask & Listen: What should we be doing, if anything, to preserve our farms?

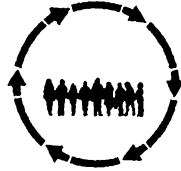
Record: (Participant's ideas)

Getting input from people from diverse backgrounds rounds out the open space picture. Different age groups, professions, religions, sexes, and cultural traditions, often have different values and needs. Economic condition, ability to move around, and special interests, all influence how people perceive the landscape. Documenting people's opinions, thoughts, and ideas is essential. Later in the process, recorded comments can be used to communicate and understand the community consensus.

ASK:

- * **Define your community? What social groups make up the community? How can you reach them?**
- * **Within the context of a community involvement event, what do you want from the community?**
- * **Are there existing organizations that can be tapped to help with the community involvement events (students, public agencies, non-profits, etc.)?**
- * **When is public involvement appropriate and effective?**
- * **When is it timely to schedule workshops and meetings?**
- * **What is the time frame for each step and how does community involvement fit?**
- * **How much financial and personnel effort is available to implement the program?**
- * **What sort of activities will get the community excited about participating in decisions about open space?**
- * **Present clear, concise ideas?**
- * **Slides, photographs, and drawings can be invaluable in any presentation - a picture is worth a thousand words.**
- * **Has your public involvement event been well advertised?**

STEP 2.....



IDENTIFY ISSUES

Identifying issues is the beginning of community-wide dialogue to protect open space. Understanding local concerns will greatly assist anyone who makes decisions that effect land. Community involvement techniques described in "Step 1" can be invaluable for identifying issues. Workshops and surveys are especially appropriate because they can efficiently elicit reactions from a large percentage of the community.

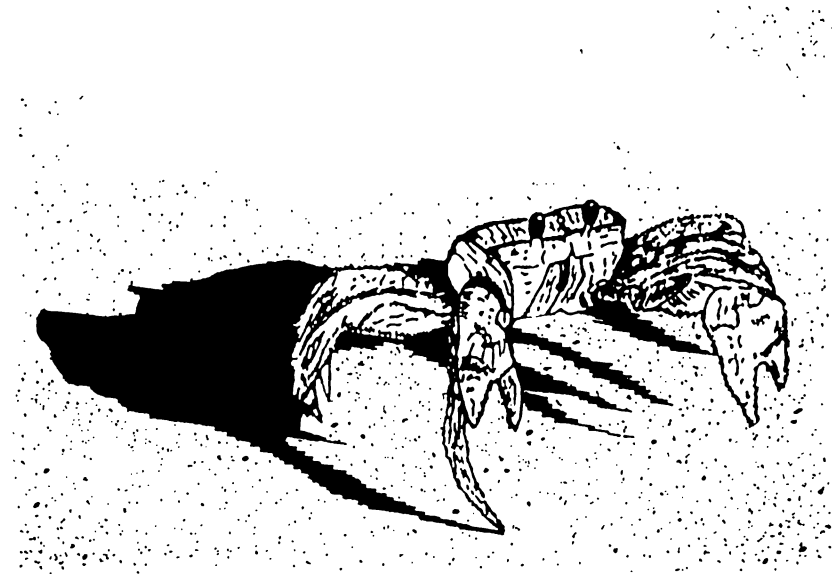
Legal, political, and technical information can be used to introduce discussions. Government identified issues (such as wetlands and publicly-owned lands) and preliminary resource information can be presented as a framework in which the community can begin to work. Ask citizens about perceived problems and opportunities that influence open lands. Explore the background and intricacies of those situations. Real or perceived issues can motivate protection of open space. For example, the perceived threat of a proposed power line or highway can motivate Virginians to pass zoning ordinances and to study local rivers for eligibility as wild and scenic. Box 2 gives a sample list of issues that your community may identify as important. There will be many complaints but the goal is to take issues and turn them into priorities and solutions.

Before open space is understood and appreciated, a great deal of community discussion and education must occur. The issues identified and knowledge gained about local open space need to be shared. Take opportunities to explain open space issues through radio talk shows, newspaper articles, and news spots on television.

BOX 2 SAMPLE LIST OF OPEN- SPACE ISSUES

- jobs
- litter
- trails
- tourism
- traffic
- wildlife
- wetlands
- flooding
- pollution
- recreation
- busy roads
- growth areas
- soil erosion
- urban sprawl
- water quality
- public services
- attractive views
- landowner rights
- loss of farm land
- sense of community
- mineral extraction
- endangered species
- quiet neighborhoods
- economic development
- historic preservation
- game animal populations
- recreational opportunity
- government-identified issues
- places for children to play
- natural resource management

Find names and addresses of those responsible for all aspects of managing, developing or converting\destroying open space. Call or write them and ask for their opinions. Ask them for legal, political, or resource information. Ask them to get involved. Some opportunities for presenting open space issues include: public hearings, zoning review, board of director's meetings, supervisors' meetings, political campaigns, and updates of your county or town comprehensive plan (get open space designated in your local plan). The following are some of those who may take on responsibility for open space: the planning commission, the county board of supervisors, city or town council, lawmakers, private agencies, business organizations, chamber of commerce, civic organizations, special interest groups, environmental groups, homeowners, and farmers.

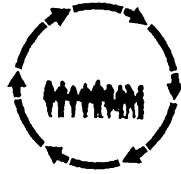


ENDANGERED CRAB

ASK:

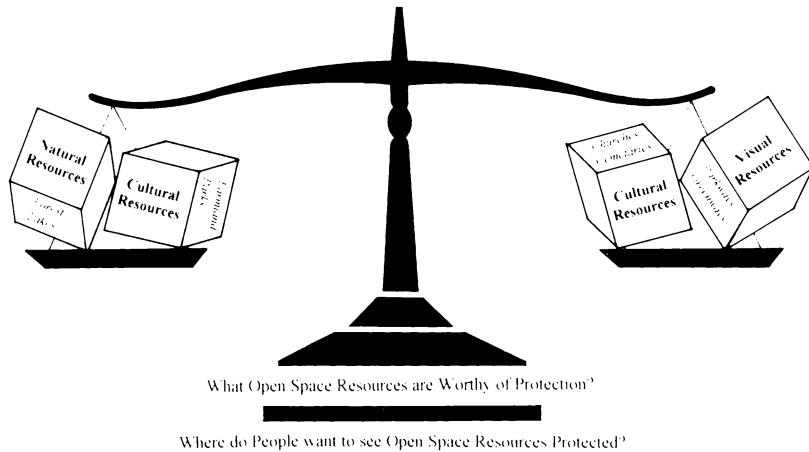
- * **What open spaces do people value? What places do they want to see protected?**
- * **Are there secondary priorities that should be considered?**
- * **What special places does the community consider sacred?**
- * **Are there outdoor recreational activities that people would like to see promoted?**
- * **How much, if any, are people willing to spend?**
- * **Which natural, cultural, and visual resources would the community like to see protected over others?**
- * **What concerns do people have about designating areas as open space?**
- * **Does the public perceive a threat to existing open lands?**
- * **What locations are preferred for high-intensity land uses (industrial, commercial, residential)?**
- * **Will an open space plan be a growth management tool and/or a way to protect resources?**
- * **What are your specific local environmental problems? How do they affect your community's open space?**
- * **Who is responsible for making changes to solve land-use problems? Who manages open space?**
- * **Where are the locations in the community affected by existing or proposed open space?**
- * **Is local government interested in the orderly development of open space?**
- * **Can developers, governments and landowners be convinced to work together to preserve open areas?**
- * **Identify circumstances that could influence open space. When will the issue be coming to a climax? Is there opportunity to have ideas about open space presented?**

STEP 3.....



PRIORITIES

"Step 3 - Priorities", further defines open space issues and pulls the most important to the forefront. If your community identifies farmland as a critical issue, find out if the real priority is the local farming economy, pastoral views of farmland, or the availability of fresh produce, or another issue. These concerns all underline preserving farmland, but their approaches would be very different. Using community involvement techniques, such as workshops, ask people



BALANCING OPEN SPACE PRIORITIES

to specifically name places and resources worthy of protecting, and why they are significant. Public health, welfare, and safety are always of foremost importance when setting priorities.

Protecting and managing land can be approached in different ways depending on the acreage of open space in which a community is interested. A small town may be concerned with the town green, public gardens, and the oldest house in town. A city may want to encourage open space building set backs, parks, and the beautification of a river that flows through downtown. The priorities of a county or region may include managing larger open space areas, such as: watersheds, agricultural lands, wildlife migration routes, forest management areas, or an historic-regional tour. The size of the community and the types of resources protected will determine the land area and your planning effort's level of detail.

The amount of land your community is concerned with will also guide your information gathering. For small areas and site specific situations, the accuracy of data is critical, while for larger areas information collected may be more general. The Department of Conservation and Recreation's Natural Heritage Program considers the exact location of endangered species sensitive and releases only the location of species within one minute blocks (approximately 950 acres). An endangered species is easier to manage within a regional land planning context (for example a watershed), than a small area. Site development projects, such as grading and building, may require more specific habitat details, such as: the exact location of a species, the type habitat critical to the species' survival, and other relevant information.

BOX 3
A LIST OF POSSIBLE PRIORITY RESOURCES

CULTURAL RESOURCES:

- Archeological Sites
- Farmland
- Historic Sites and Districts
- Parks
- Recreational Areas
- Farms
- Churches
- Cemeteries

NATURAL RESOURCES:

- Coastal Areas and Beaches
- Bird Sanctuaries
- Forest
- Lakes and Shores
- Rivers and Floodways
- Steep Slopes
- Watersheds
- Wetlands
- Wildlife and Botanical Areas
- Public Hunting and Fishing Areas
- Wilderness

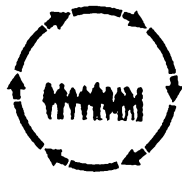
VISUAL RESOURCES:

- Byways and Parkways
- Greenways
- Significant Scenic Areas
- Viewsheds
- Ridgelines
- Points of Interests

ASK:

- * Of the issues identified as important in "Step 2", which ones do people rank the most important?
- * What specific resources do people value?
- * Why are the resources valued?
- * What is it about those resources that makes them significant?
- * Beyond special resources, what places are important?
- * Where do people want to see open space protected--a neighborhood, a watershed, a county, a region, the state?
- * How can open space help protect your community's health, safety, and welfare (for example, protecting a watershed above a drinking water reservoir would help maintain a clean drinking water supply)?

STEP 4.....



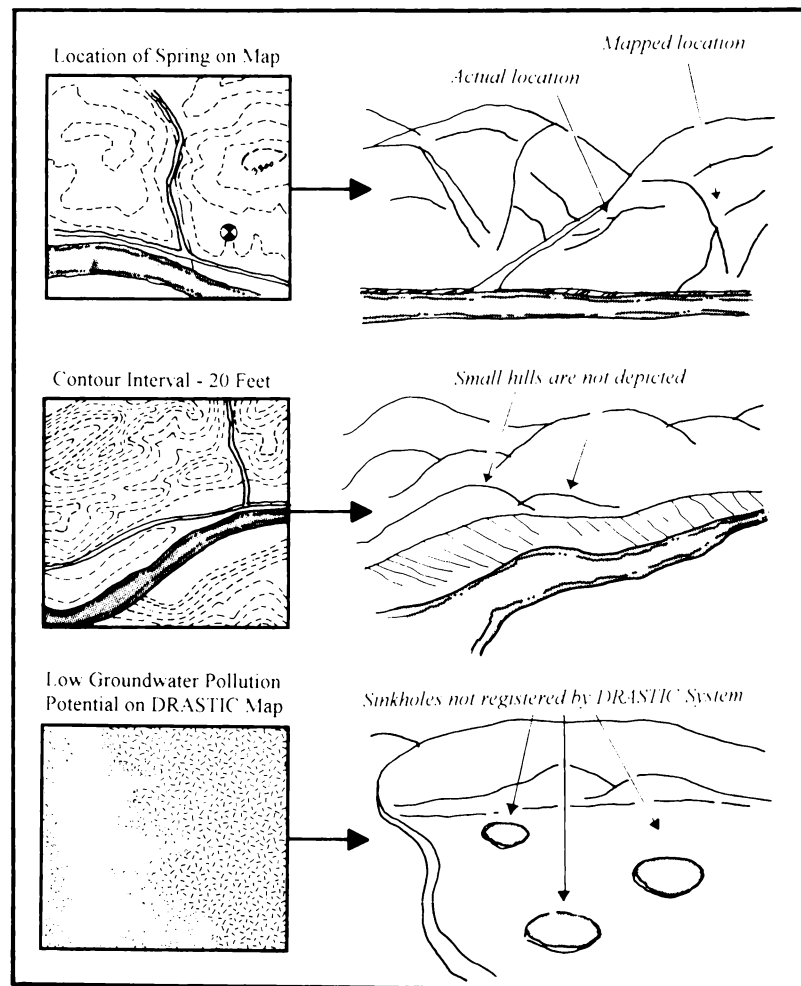
INFORMATION GATHERING

There are several phases of data gathering throughout the planning process. Each successive phase is more detailed than the last. A preliminary data gathering effort can be useful when kicking off the "Identify Issues Step" to publicly introduce local open space amenities and threats. In the setting "Priorities Step", specific detailed information about local resources and growth potential can help clarify where to place local priorities. When evaluating proposed open space locations, a data analysis can help guide decisions. Even in "Step 7 - Maintenance", gathering information about how well open space is meeting the community's expectations can improve the management and administration of open space lands.

Data-related activities need to be well thought out or the results could be costly and misrepresent the resources. Before starting an information gathering effort it is useful to seek professional planning help. County, state, and federal planning offices, universities, and private firms can offer assistance. Data can be handled in many different ways, before delving into data collection and analysis a review of several issues fundamental to the use of data will help avoid many common pitfalls.

COLLECTING DATA:

Methods for collecting data include: (1) gathering data from existing published and unpublished sources: and (2) making field observations.



ISSUES OF MAP ACCURACY

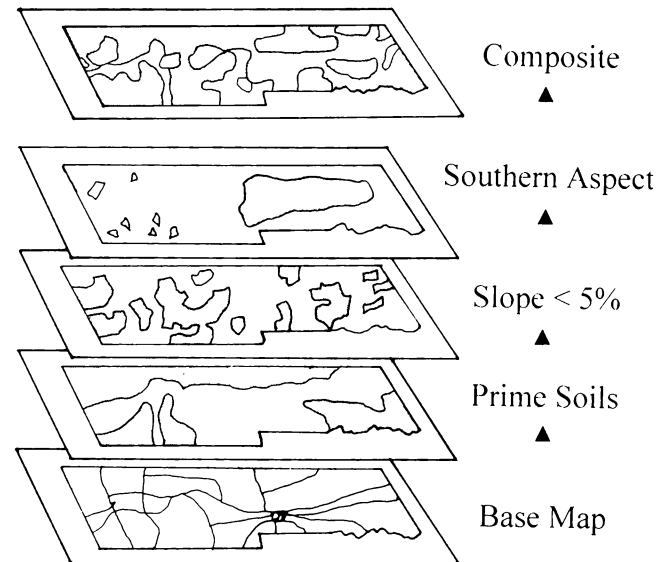
Common wisdom dictates that utilizing existing sources should precede and guide field work in order to minimize the time, costs, and expertise required. Field observations can enhance the quality of data collected by checking the accuracy of existing sources and adding more detailed features that these sources may not include.

Check with your local planning commission, planning district commissions, planning departments, extension agents, county foresters, local agencies, historians, and others with special knowledge of your area. They may know further sources of published and unpublished information. Universities and other research institutions often conduct local studies on many various resources. Make a few phone calls and check their libraries. In Box 4a and 4b, examples are given of published data and the agency to contact to obtain the information. Some data are available for a fee while other information are free. Some data are available in digital form to be used in conjunction with a computer data base.

It is important to realize that however data are gathered, they will not produce an exact description of reality. Collecting data is an activity that aims to simplify the real world. The investigator is selectively gathering pieces of information that describe, in an inexact way, what "really exists". For example, topographic maps represent the contour of the land, but provide only the level of detail afforded by their contour interval (the vertical distance represented by the space between contour lines). The US Geologic Service 7.5 minute topographic maps may have inherent error up to 20 feet. In like fashion, soils, geology, and other types of information have inherent limitations. Their interpretations are based on limited sampling points and the need to classify an infinite spectrum of types of data (e.g., soil, rock) into distinct categories (e.g., Berks soil series, Tuscarora sandstone). These limitations are not so much commentaries on the quality of data as they are on the expectations of data users.

ANALYZING DATA:

Limitations associated with data amplify as data is used, combined, and overlaid--the activities that constitute data analysis. For instance, if a group is concerned about an endangered plant's habitat, they may overlay soils information, vegetation types, and land-use data, all with their attendant accuracies. However, the resulting delineation's maximum accuracy would be that of the least accurate data layer. The DRASTIC system of groundwater vulnerability mapping provides a good example of how data analysis can dilute the accuracy of original information. DRASTIC is an acronym: D is depth to groundwater, R is (net) recharge, A is aquifer media, S is soil media, T is topographic (slope), I is impact of the vadose zone, and C is conductivity (hydraulic) of the aquifer. DRASTIC is a method of



THE OVERLAY PROCESS

mapping potential areas of groundwater contamination. With DRASTIC, seven data categories are overlaid, combined and weighed to produce a final ranking. The resultant mapped categories, however, can only be generalized to areas 100 acres or more in size. Again, this does not detract from DRASTIC, or any other data analysis technique, but addresses the need for data user expectations to be brought in line with the capabilities of various data tools. The applications of data use (e.g., overlay zones) must be coordinated with data gathering and analysis strategies at the inception of program design. Data should be a tool and not the master of the planning process.

DOCUMENTING AND MAPPING DATA:

Once the information is collected it needs to be documented so that others can easily understand it. The information may be written or mapped. Presenting the data and analysis clearly will help those in the community make good decisions about how they want their community to look. Place written material and maps in public locations, such as libraries and schools, so the community can follow the open space planning process. It is important that the community be kept informed throughout the planning process.

Albemarle County has recently undertaken an in-depth information gathering effort. They have consolidated all currently available information regarding locally significant resources in order to identify the most important lands to preserve or conserve as open space. Their Open Space Concept Map, drawn as a county resource reference map, is intended to serve two functions: to guide decision making by identifying significant resources; and to provide a starting point for their identification and conservation of "Rural Area"¹. Albemarle County's documentation is an example of how to compile and display gathered data.

BOX 4a INFORMATION AND ITS SOURCES

DATA AGENCY

- **Archeology**
 - VA Dept of Historic Resources
- **Caves**
 - National Speleological Society
 - VA Cave Board
- **Digital Geographic Data**
 - Council on the Environment, Ecomaps
 - Information Support Systems Laboratory
- **Endangered Species**
 - VA Dept of Game and Inland Fisheries
 - VA Dept of Conservation and Recreation, Division of Natural Heritage
- **Flood Plain**
 - Federal Emergency Management Agency (FEMA)
 - VA Dept of Conservation and Recreation, Bureau of Flood Protection
- **Geology**
 - VA DMME*, Division of Mineral Resources
- **Historic Resource**
 - VA Dept of Historic Resources
- **Karst Topography**
 - VA DMME*, Division of Mineral Resources
- **Land Use**
 - Information Support Systems Laboratory*
- **National Wetlands Inventory**
 - Council on the Environment
 - Information Support Systems Laboratory*

* Department of Mines Minerals and Energy

BOX 4b
INFORMATION AND ITS SOURCES

DATA AGENCY

- **Prime Farmland**
 - U.S. Soil Conservation Service
 - VA Dept of Agricultural and Consumer Service
 - VA Dept of Conservation and Recreation, Division of Soil and Water Conservation
- **Roads and Byways**
 - Local government planning agencies
 - Virginia Dept of Transportation (VDOT)
- **Shoreline Feature**
 - VA Institute of Marine Sciences
- **Sinkholes**
 - VA DMME*
- **Soil Surveys**
 - U.S. Soil Conservation Service
- **State Scenic Rivers and Byways**
 - VA Dept of Conservation and Recreation
- **Topography**
 - VA DMME*, Division of Mineral Resources
 - U.S. Geological Survey
- **Utilities (Water, Sewer, Gas)**
 - Local government planning agencies/Public Works
 - Local Utility Companies
- **Water Resources**
 - VA Dept of Environmental Quality, Water Regional Office
- **Zoning Areas**
 - Local government planning agencies

* The Information Support Systems Laboratory is part of the Virginia Tech Dept of Agricultural Engineering, College of Agriculture.

COMPUTERS:

In the data collection and analysis phase, computer data base systems and geographic information systems (GIS) can be used to organize and store information. Their potential is far reaching but their limitations should also be noted. As computers become more widely used for resource planning, it is crucial for computer users to become sensitive to issues of accuracy inherent in source data and in the data manipulation process. Before investing time and money in a computer system, make sure you understand the advantages and disadvantages of computer manipulated data.

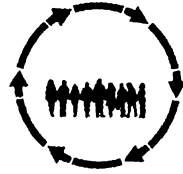
Investment in computer systems appropriate for open space planning can effectively be coordinated with other local objectives, like Emergency-911 implementation, upgrading tax parcel maps, and utility mapping. Use automated mapping or true GIS software that is available locally. Computers make tasks simpler, but they require motivated people, an up-front investment of ten to one hundred thousand dollars, and data acquisition and input (which is the most expensive component of the system). In Virginia several sources of data and management guidance are available: Geography Departments of local universities, the Virginia Tech Agricultural Engineering Information Support Systems Lab (ISSL), the Council on the Environment, local vendors (i.e. engineering firms), and local planning district commissions. Coordinate efforts. Your local government or others may already have computer capabilities.

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- What information do you need?
- How will the data be used?
- Is there published information available?
- What field observations need to be made?
- Who is going to collect the needed information and how much will it cost?
- Who has special knowledge that can be tapped? (Old citizens, historians, academic people?)
- How will the information gathering be documented?
- Could local schools, universities or local specialist (historians) be of assistance?



STEP 5.....



OBJECTIVES

Open space objectives usually address location and use of special open space lands. Your community may want to preserve a specific place, such as a river corridor, or a field on the edge of town. The community may identify certain uses as important: protecting a river corridor could ensure a clean drinking water supply, keep development out of the flood plain, or promote canoeing and fishing. Fields on the edge of town may be set aside for sports fields, to preserve agricultural land, or to enhance the locality's primary town entrance. In an open space protection effort, clearly defining where and how open space will be used is a definitive step that your community can rally behind.

Open space objectives should be supported by the ideas generated through the rest of the planning process. Draw from conclusions of the previously completed planning steps: "Community Values", "Identify Issues", "Priorities", and "Information Gathering". Further details can be added to a plan when action strategies and a maintenance scheme are determined. "Action Strategies" and "Maintenance" are discussed in the following two planning steps.

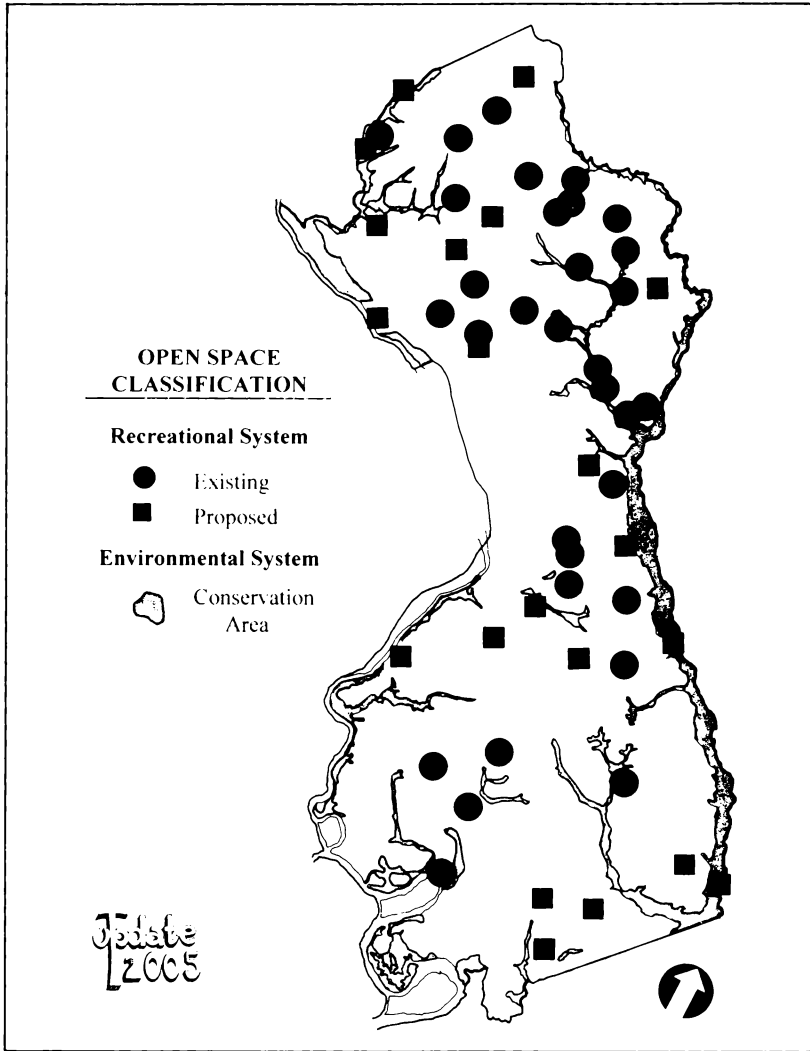
To develop location objectives, the land proposed for dedication to open space should agree with the factors your community has defined as important. The process of developing data maps described in "Step 4 - Information Gathering", can be invaluable as you identify open spaces worthy of special protection. A good backbone of a location plan is existing open lands (such as parks, town greens,

federal lands, and college and school grounds). These lands have already been identified as valuable and set aside for special uses. Proposed open space lands can be added to your existing open space network to fulfill your community's objectives.

When specifying land-use objectives, consider that open lands can supported a variety of activities: agriculture, recreation, resource protection, etc. Think specifically about who and what will occupy the area. There are different groups that take advantage of various activities and different open space uses are not always complementary. For example, the smell and noisy machinery associated with a dairy farm may clash with golfers on a golf course, or tourist at a farm museum.

Open space objectives are often culminate in a plan that is a combination of written descriptions and graphic maps representing existing or proposed open space sites and activities. When developing plans for your neighborhood, town, or region, realize that you are creating a framework to set aside open space over time. When explaining open space objectives, through written descriptions and maps, keep your readers in mind. Use crisp, clear language and graphics as you describe open space goals and designs.

Plans are often outlined in phases, and connections between areas can be emphasized. Henrico County in 1989 adopted an open space plan to their county comprehensive plan. Their plan outlined existing and proposed open space locations and recreational land use. Their objective was to promote recreation, protect water resources, and encouraging wildlife habitat. They designed a map, of important stream corridors connecting existing open space, that guides long range planning toward meeting their objectives.

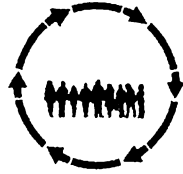


**HENRICO COUNTY
PARKS, RECREATION AND OPEN SPACE MAP**

ASK:

- * What locations are appropriate for open space?
- * What resources or valued places can guide decisions about which areas are appropriate for designation?
- * What activities are valued by the community?
- * Will adjacent land uses be compatible?
- * Are there lands that should be converted to open space?
- * Are there existing, unprotected open space lands that need to be maintained?
- * How will the information collected be used to identify and map location of open space?
- * Will a location map show existing and/or proposed open space?
- * What open space activities has the community identified as important?

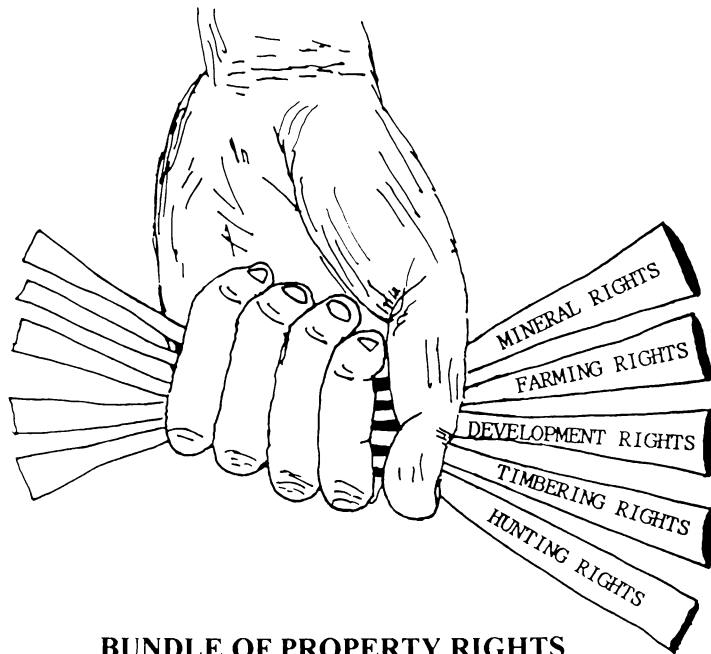
STEP 6.....



ACTION STRATEGIES

An action strategy outlines how to procure open space within your community. Often the defined strategies become part of the supporting documents of an open space plan.

To understand the various mechanisms used to acquire and manage property, land interests will be explained. Fee-simple or less-than-fee interests in land may be purchased, donated, leased, or exchanged.



BUNDLE OF PROPERTY RIGHTS

Land interests can be referred to as a "bundle of rights". This bundle usually includes the right to farm, cut timber, build structures, extract minerals, post property, and otherwise develop land. Separation of these rights from property is called less-than-fee interest. In a fee-simple land acquisition the buyer purchases full title to all land rights. This type of purchase provides the owner with the greatest control over a site. One disadvantage of a fee-simple purchase is the expense. Obtaining a less-than-fee interest is a way of acquiring control of the land without paying for the entire "bundle of rights". Less-than-fee ownership, usually referred to as an easement, is a few sticks of a property's "bundle of rights."

All land management tools have government sanction and are intended to serve the public's interest. The tools vary in their extent of government participation and bite, strength of protection, degree of permanence, and cost. Figure 2 is an overview of the tools to be discussed. This is by no means a comprehensive list, yet this listing provides a look at the various planning techniques used in Virginia and some that are not yet acceptable in the State. When choosing which tools are most appropriate for your unique situation, consider the resources to be protected, the growth pressure in your area, and the location and use of open space. The various open space management strategies cover a spectrum of attributes; some set open space as a permanent land use, some protect open lands for a limited time period, some protect land with a "handshake", and some agreements are legally binding. It is not one particular management tool but a combination of mechanisms that pulls an all-encompassing open space planning effort together.

Strategies will be discussed starting with those that employ the largest degree of government involvement, and moving to those that have the least government involvement and the highest citizen participation. The tools with the most government involvement are grouped under the categories of "Government Acquisition", "Regulation", and

"Taxation". The management tools with the least government involvement are grouped under the categories of "Private Acquisition and Conservation", and "Recognition and Non-binding Agreements". Several types of private partnerships and corporations exist which may own property for the protection of open space: land trusts, homeowners associations, and special purpose conservation organizations, like The Nature Conservancy.

Figure 2 is a matrix of open space tools comparing their extent of government involvement, strength of protection, degree of permanence, and initial costs. Fee-simple interests and conservation easements are discussed in both sections, "Tools with the Greatest Extent of Government Involvement" and "Tools with the Least Extent of Government Involvement", but have been consolidated as one entry within the matrix.



TOOLS WITH THE GREATEST EXTENT OF GOVERNMENT INVOLVEMENT


GOVERNMENT ACQUISITION


Local, state, and federal government may acquire land as fee-simple interest or less-than-fee easements. There are several avenues for government acquisition: purchase, donation, withdrawal from the public domain, exchange and condemnation. Government agencies acquiring open space should consider that the land will be taken out of the tax base; consequently, the obtained parcel should be of high open space quality and clearly for the community's benefit.

Fee-simple interest is defined as holding all the rights to a piece of land. Fee-simple interests may be purchased by public or private groups or individuals. See the section "Tools with the Least Extent of Government Involvement" for a description of how private individuals or groups may use this tool to their advantage. When government agencies acquire fee-simple interest in property often the property is set aside as park land. The advantage of fee-simple ownership for both public and private property owners is that it allows a large degree of control. The disadvantage is permanent management responsibility and, if purchased, cost.

Fee-simple interests and lease back involves purchasing or receiving donated land that is then managed by another party. The objective of this technique is to buy land and rent it with certain restrictive measures attached that protect the open quality of the property. Lease back usually keeps land in the use it was before government purchasing. The Blue Ridge Parkway in the 1930's and 40's bought land in western Virginia. They often lease the right-of-way as farmland, with restrictions to ensure that the land be managed for compatibility with the quality of the parkway.

**FIGURE 2
ACTION STRATEGIES**

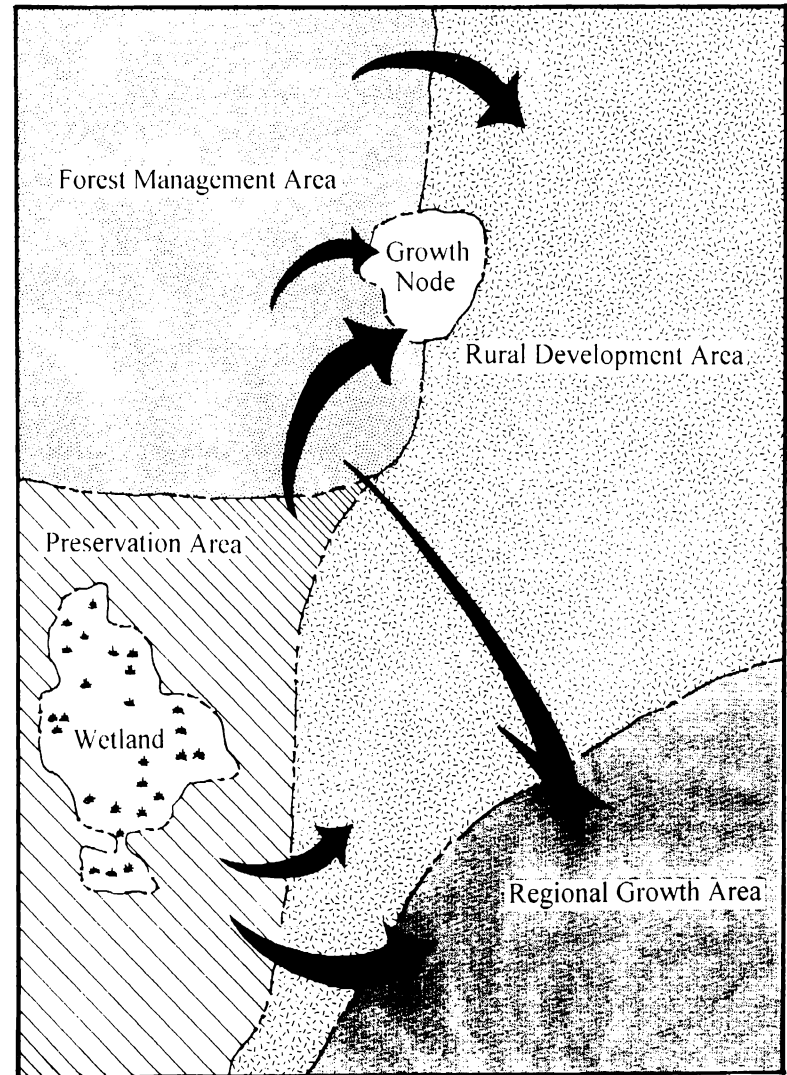
 HIGH MEDIUM LOW	GOVERNMENT INVOLVEMENT	STRENGTH	PERMANENCE	COSTS
	High-Low	Strong-Weak	Long-Short	High-Low
TOOLS				
Fee-simple Interests	●	●	●	●
Fee-simple Interests & Lease Back	●	●	●	●
Land Exchange	●	●	●	○
Transfer of Development Rights	●	●	●	◐
Conservation Easement	◐	●	●	◐
Urban Growth Boundaries	●	◐	◐	◐
Right-to-Farm Laws	◐	◐	◐	◐
Condemnation	●	●	●	●
Comprehensive Plans	●	◐	◐	◐
Capital Improvement Program	●	●	◐	○
Zoning	●	◐	◐	◐
Overlay Zoning	●	◐	◐	◐
Agricultural Zoning	●	◐	◐	◐
Large Lot Zoning	●	◐	◐	◐
Cluster or Density Zoning	●	◐	◐	◐
Sliding Scale Zoning	●	◐	◐	◐

 HIGH MEDIUM LOW	GOVERNMENT INVOLVEMENT	STRENGTH	PERMANENCE	COSTS
	High-Low	Strong-Weak	Long-Short	High-Low
TOOLS				
Performance Zoning	●	◐	◐	○
Steep-Slope Provisions	●	◐	◐	◐
Planned Unit Developments	◐	◐	◐	●
Subdivision Ordinances	●	◐	◐	○
Setbacks and Buffer Provisions	●	◐	○	◐
Water Resource Regulations	●	◐	◐	◐
Greenway Corridor	◐	◐	●	○
Land-Use Taxation Incentives	◐	●	○	○
Agricultural and Forestal Districts	◐	●	○	◐
Bargain Sales	○	●	●	◐
Purchase of Development Rights	◐	●	●	◐
Remainder Interest	○	●	●	○
Deed Restrictions	○	○	●	○
VA Scenic Highways and Byways	○	○	◐	○
VA Scenic Rivers Program	○	○	●	○
Management Agreements	○	○	○	○
Build Coalitions	○	●	●	○

Land exchange is another fee-simple acquisition tool. Public agencies (and non-profit organizations) may exchange land that is appropriate for development for high quality open space land. For a land exchange to work, property owners must be willing to accept exchange and the properties must be of comparable value. Land exchanges can also be arranged as a swap of less-than-fee interests often called transfer of development rights. The U.S. Forest Service will use land exchanges to obtain fee-simple ownership of privately held parcels of land within their congressionally-approved boundaries. They will often swap excess land they own these privately held properties.

Transfer of Development Rights (TDRs) are a relatively recent planning device that separate property interests and manipulate those interests, specifically restricting the right to develop land. They are designed to protect sensitive areas. In TDR systems, "sending zones" are established where development is discouraged, and "receiving zones" where high-density developments are encouraged and accommodated. The state of Maryland has used TDRs extensively and successfully.

A **conservation easement** may be purchased by or donated to a government agency. Five state agencies hold conservation easements: the Division of Historic Landmarks, the Natural Heritage Program, the Department of Game and Inland Fisheries, the Marine Resources Commission, and the Virginia Outdoors Foundation (VOF). All, but the VOF, hold easements to protect specific resources. The VOF has an encompassing legislative mandate to address preservation of the natural, scenic, historic, scientific, and recreational areas of the state. The VOF holds land easements with a variety of associated resources. See Box 6 for two examples of easements held by the state. See "Tools with the Least Extent of Government Involvement" for an explanation of how land owners and private organizations may use conservation easements.



TRANSFER OF DEVELOPMENT RIGHTS

BOX 6
EXAMPLES OF CONSERVATION EASEMENTS

The following are two examples of conservation easements held by government agencies in Virginia. The 1854 Bayne-Fowler House in Alexandria is protected by an easement held by the Virginia Division of Historic Landmarks. The award winning Piedmont Vineyards, located on a 600 acre conservation easement in Middlebury, was donated to the Virginia Outdoors Foundation in 1976. Easements may also be held by non-governmental organizations. See the description of tools described under the LEAST EXTENT OF GOVERNMENT INVOLVEMENT.



PIEDMONT VINEYARDS

Urban Growth Boundaries (UGBs) consist of a perimeter drawn around an urbanized area, within which urban development is strongly encouraged, and outside of which development activities are limited. Within the UGB, urban services and facilities are provided. Typically the boundaries are designed to accommodate projected growth for a 10 to 20 year period. Oregon currently has stringent UGBs that allow localities to prevent almost all development outside the boundaries. Most Virginia localities designate urban-growth districts, but do not rigidly direct development. One example of a UGB is Virginia Beach's "Green Line," which limits infrastructure and places strong development requirements on the city's southern section. The northern portion of the city is designated as a growth area within which all infrastructure is provided. Virginia Beach's Green-Line is still in effect, but because of political pressure the location of the line has been altered. By changing the line and reduced the size of the area to be protected, it has been suggested that Virginia Beach has set a precedent that will ultimately weaken their use of the UGB concept.

Right-to-Farm Law are intended to protect and encourage farming. These laws or ordinances protect farmers and ranchers against certain legal actions associated with farming impacts, such as odors, noise, flies, dust, and other annoyances. Forty-seven states including Virginia have enacted these laws. Virginia's Right to Farm Act prevents established farms from being charged with nuisance suits by adjacent landowners. The Act does not completely close the door on nuisance suits, but the plaintiff is required to provide evidence of improper farm operation, or that a farm has changed its operations significantly.

Condemnation is an acquisition tool used when the government employs its power of eminent domain and obtains a desired property. Eminent domain is implemented when a property owner is an unwilling seller, or when there is a title discrepancy. Withdrawal

from the public domain to preserve open space is usually done through an act of Congress or the state legislature. Condemnation is not often used and is usually employed only as a last resort. In 1988 a legislative taking was used to protect the Manassas National Battlefield in Prince William County from rampant development that threatened the historic open site.

REGULATION

Over the last fifteen years land use control and management has received increasing attention from federal, state and regional authorities as local governments have often failed to aggressively address local land-use problems. While the state has the authority to regulate local land-use practices, for the most part land-use control is delegated to local governments. The following regulatory tools are considered a manipulation-of-property-rights that can be used by local governments. For a locality to employ some of these tools, the State must be petitioned to grant enabling legislation. Ask your local government planning staff about the Dillon Rule (the enabling legislation) and if ordinances need to be passed to implement the following management tools.

Comprehensive plans are required for all Virginia cities and counties and are required to be updated every five years. It is a planning device, rather than a regulatory tool. It officially guides the local governing body in developing regulations. In a local comprehensive plan, by outlining the location of open space land, local governments can be authorized to encourage and support the donation of conservation easements to qualified organizations or government agencies. By defining only high quality open space in your comprehensive plan, assures the community that properties that are best suited for potential development will not be designated open space.

Montgomery County, in an update of their comprehensive plan in 1990, included a statement about protecting open space. The New River Planning District Commission, the Montgomery County Planning Commission, and the Blacksburg Planning Commission have development of an open space plan for the County that has not yet been adopted. Virginia Beach and the counties of Albemarle and Fauquier have adopted open space elements in their respective comprehensive plans. Virginia Beach has had many legal and community problems implementing their open space plan; Albemarle has only recently added an open space provision, and Fauquier has had tremendous success implementing their open space protection strategies. The Isle of White County's Comprehensive Plan has a section that addresses agricultural preservation. Their award winning comprehensive plan helps to protect the county's open space.

Capital Improvements Program (CIP) affect open lands when facilities and other public investments (such as roads, sewer, and public water) are built in areas previously undeveloped. A CIP identifies specific projects, their priority, timing, and financing. A CIP plans expenditures for a five year period and is typically revised on a yearly basis. If required to be consistent with your open space plan and/or comprehensive plan, a CIP can be beneficial to an open space planning effort by looking at all public investments for the future and projecting how they may affect your county's natural, cultural, and recreational resources.

Zoning has long been Virginia's regulatory tool of choice as a means of preserving open lands. Zoning regulations usually direct the zones or pockets where types of buildings and land use can be developed. Traditional development zoning is most often applied in more urban areas. Controls such as density, building height, bulk, allowable use, etc. are imposed according to zone types which have been adopted at either the state or local level. Box 7 describes the negotiation process that is often used within the context of zoning review.

Overlay zoning can protect a defined resources (such as wetlands, scenic areas, historic districts, or stream corridors). This tool is often used in conjunction with existing zoning and lays on top of the traditional zoning categories (commercial, residential, agricultural, etc). For example, suppose that upon investigation a wetland is found to be in a commercial zone. The wetland can be protected within the commercial zone by overlaying a designated protection area that provides additional specific regulations that govern the use and development of the critical area within the commercial zone. This method of zoning, however, cannot be relied upon to permanently preserve open space. It is most effective when used in conjunction with other tools, such as conservation easements.

**BOX 7
PROFFER SYSTEM**

In Virginia, local governments often use a "proffer system" in light of the fact that they are working under a local-governmental system of proposal review in which developers are only required to meet the "standards" for development. In this proposal review process localities use the "proffer system" in which rezoning applicants agree to provide certain amenities in their design, such as environmental consideration, which exceed the normal zoning ordinance requirements. These legally binding agreements are not required but add a certain flexibility to local authority's power to enable certain environmental considerations to be met (Randolph 1991). Your local zoning review board may use this "proffer system" process to protect land. Before a zoning review board will use their power to protect open lands, they must be become sensitive to the issues of open space.

Agricultural Zoning is intended to preserve agriculture as a permanent land use. Agricultural zoning ordinances limit the intrusion of new, non-agricultural uses (usually non-farm buildings) and requires a large minimum lot size (50-160 acres). The minimum lot size is based on the minimum acreage necessary for a productive commercial full-time farm to be viable. Agricultural zoning differs from large-lot zoning in that agricultural uses are favored and encouraged while land consumptive large-lot developments are discouraged. Implementing agricultural zoning depends upon farmers and other rural residents being supportive. Fauquier County has 85%-15% zoning where 15% of the parcel can be developed while 85% remains in agricultural or open space use for a period of 25 years. In this way some development is permitted, but the overriding goal of the ordinance is the preservation of farming.

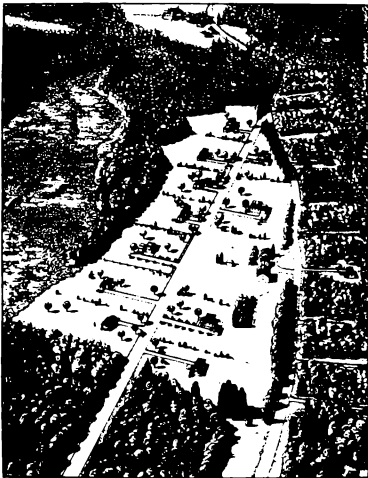
Large lot zoning limits the size of lots from 1 to 50 acres, within a specified zone (limiting the density of development). Large lot zoning can help retain open space, but this tool has been criticized for excluding lower income groups from enjoying the landscape. When large lot zoning is used to maintain open space character, it should be used in conjunction with other tools that provide for permanent protection. Cluster zoning and planned unit developments (PUDs) can answer the problems of large lot zoning. They can effectively provide open space which serves recreation and conservation needs, and enhances the character of a community or neighborhood.

In **cluster or density zoning** a maximum residential density for an area is established. The developer is allowed to alter the lot size for each house as long as the set limit is not exceeded. Residential developments can be designed with all homes placed in a small area leaving the remainder of the land open to be owned and managed by the residents. Clustered developments cost less for both the builder and the taxpayer because the amount of infrastructure (streets, water, sewer, etc.) and public services (trash, emergency services, school-bus

pick up) required for these developments are less than those required for traditional developments which may sprawl for acres and acres. See the graphic below which demonstrates the results of traditional zoning verses cluster zoning. Several Virginia counties and towns have adopted special cluster ordinances, including the town of Leesburg, and the counties of Clark, Albemarle, Fauquier, Fairfax, and Stafford.

Sliding scale zoning is an attempt to protect agricultural land from high density development by imposing a limit on the number of dwelling units allowed per acre. Clark and Fauquier Counties have implemented sliding scale zoning. Fauquier opted for this zoning after exploring cluster zoning, and the county now requires up to 85% open space on any tract approved for new development in the

DEVELOPMENT RESPONDING TO TRADITIONAL VERSES CLUSTER ZONING



*Conventional Development
Consumes Many Lots of Land*



*Cluster Development can
be Grouped in the Forest*

rural area zone. In 1981, Highland County adopted a sliding scale approach to single-family homes built in their agriculture zoning district. The purpose of their single-family district is to promote the rural, agricultural, forestal, and open space character of the land within the zone. The Highland sliding-scale limits the number of single family units to one on every 14.99 acres, and 11 units are permitted on tracts of 500 acres.

Performance Zoning is designed to evaluate proposed developments on a project-by-project basis weighing standards established by the community. The process involves a detailed analysis of existing conditions, a project evaluation with points assigned, and the approval or disapproval of the proposed development. One of the goals of performance zoning is to not allow development that cost the community more than it will produce in taxes and income. Communities in New York, New Jersey, and Pennsylvania have had mixed success with performance zoning. Bedford County uses the Land Use Guidance System (LUGS), which is very similar to performance zoning in that it relies heavily on public workshops to formulate point totals for a proposed development, and has no previously assigned zoning districts.

Steep-Slope Provisions limit certain building activities on steep slopes (generally slopes greater than 25%). These provisions are concerned with construction on steep slopes that may cause severe soil erosion, sedimentation, water pollution, and negative impacts on views of ridgelines. Factors such as soil type, geology, and vegetation are used to determine the amount and intensity of development that a slope can handle. Some communities have an outright ban on development of slopes greater than 25%; others limit the amount of land allowed to be disturbed; and still others restrict the amount of development based on additional factors such as soil type, geology, and vegetative cover. Albemarle County has a steep-slope ordinance.

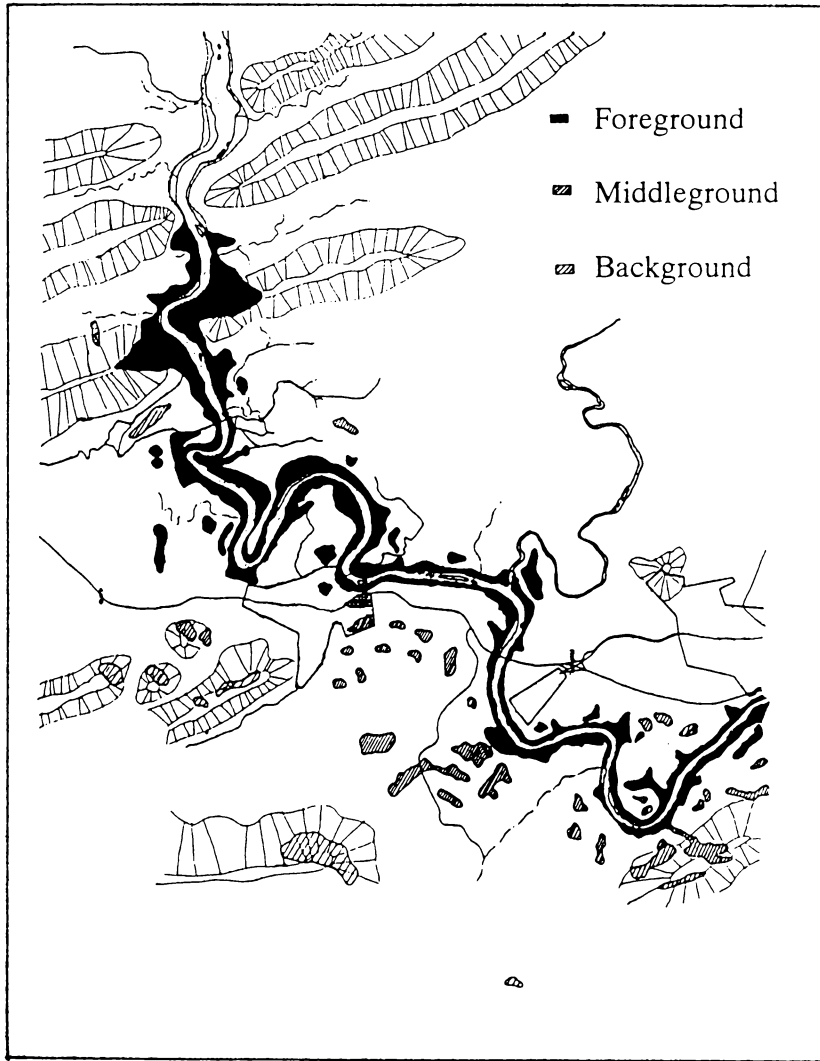
Planned unit developments (PUD) are gaining in popularity in Virginia. A PUD is a type of development pre-planned in its entirety with subdivision and zoning controls applied to the project as a whole rather than on a lot-by-lot basis as is done with a standard development. These developments do not rely on specific regulations but on negotiations between planners and developers during the project review process. Imaginative design alternatives can evolve which incorporate mixed land uses, including residential use (homes and apartments) and commercial use (stores and restaurants). PUDs usually involve parcels of 100 acres or more.

Subdivision ordinances can affect open space preservation by controlling how a development is laid out and what percentage of the property will remain as open space. These regulations guide subdivision design standards, such as lot size, water and sewer service, width and location of streets, etc. One way to address open space is to require that all new subdivision developments include a certain percentage of open space.

During the subdivision-proposal review, opportunities exist for shaping the design and environmental impact of a development. Conditional zoning, such as density bonuses or other benefits, may be negotiated in exchange for greater open space inclusions in the proposal's design. This negotiation has been especially effective in areas such as Washington State where developers are required by the state to furnish an environmental impact statement along with their subdivision proposals. Your local planning staff can ask developers to protect environmentally sensitive areas. This is a discretionary proposal review process, in that it goes beyond merely approving the standard development requirements (Randolph 1991)². The state legislature must pass enabling legislation for localities to require environmental impact statements with development proposals.

Setbacks and Buffers Provisions address small areas of open space, most often within an urban setting. These regulations require a strip of open space to separate two land uses. Setbacks usually require structures to be located a specified distance from a resource (for example all buildings must be at least fifty feet from a stream), or they may set a variable distance depending on the resource and its surrounding features (for example setbacks from a stream may be based on adjacent slope, soil type, or size of the stream). Buffers differ slightly from setbacks because they imply that something (typically vegetation) must be within the buffer area to physically screen the resource (for example plants are left uncut within 50 yards of a stream to filter a non-point source pollutants). The details of setbacks and buffers (size and distance, etc.) are often addressed in zoning and subdivision ordinances, and in formal documents describing design guidelines.

Water resource regulations are generally concerned with health and safety and may be enacted within your locality to protect open space. Septic tank regulations and local wellhead protection programs ensure that adequate space is allocated near sensitive sewage and water supplies. Local soil erosion and sediment control regulations may be passed to support the existing state and Federal laws. Stormwater management standards regulate the quantity and quality of runoff allowed from development. Stormwater management standards are optional for small localities and are required for cities with populations exceeding 100,000 and large state institutions such as universities. Watershed regulations may be enacted. The Chesapeake Bay Act made great strides in protecting water resources within that watershed and may be used as a model for other areas. The difficulty of enforcement is one of the largest disadvantages of many of these regulations.



Chesapeake Bay Preservation Act requires that within the Chesapeake Bay watershed a one hundred foot buffer around all perennial water bodies, including streams and wetlands, must be maintained. Albemarle County, though not in the defined Chesapeake Bay watershed, has adopted an ordinance modeled after the Chesapeake Bay Preservation Act.

A **Greenway Corridor** is a linear section of undeveloped land that generally follows a defined resource, such as a stream corridor, ridgeline, or an abandoned rail line. Greenway planning attempts to identify resource corridors and then creates a linkage pattern that develops a network of interconnecting greenway corridors. A good example of greenway planning in Virginia is the Loudon County/Leesburg Greenway. The Metropolitan Richmond Greenways Project is a multi-jurisdictional effort to protect the James River.

Another example of an open space stream corridor project, that is in its initial planning phase, is the greenway-planning endeavor for Giles County. The Visual Assessment Map of the New River is one of the data layers that will help guide decisions about the greenway.

VISUAL ASSESSMENT OF NEW RIVER, GILES COUNTY

Analyzed as part of the Giles County Greenway Corridor Study

TAXATION

In Virginia, a land owner who makes a commitment to preserve his or her land as open space may be eligible to receive tax deductions offered by federal, state, and local governments. Federal tax laws allow both corporations and individuals to take deductions on income, estate, and property taxes for property donations (including easements) to government agencies or qualified non-profit organizations. See the description of conservation easements and fee-simple interests for a brief explanations of how to qualify for tax deductions for charitable contributions of property. When donating property for the purpose of open space preservation, consult a tax attorney or an accountant.

Land-use tax (special valuation) incentives are available to certain properties to be taxed according to their current use value rather than their highest fair market value. The principle objective of this differential assessment is to decrease the tax burden on landowners using the land for agriculture, horticulture, forestry, or open space along the rural-urban fringe. Box 8 explains the unique opportunities for certain properties to qualify for special-tax valuation. Property taxes in some areas may be reduced up to 70% thereby reducing pressures on landowners to sell out under duress to developers or speculators. A rollback tax penalty is often coupled with land-use tax incentives to increase the strength of the special-valuation tax tool and to discourage landowners enrolled in such programs from changing their property to more intensive uses. This rollback tax generally is based on the difference between the taxes paid and the taxes that would have been paid according to the fair market value of the land for a specified number of past years, plus an interest penalty. Currently, fifty-three localities in Virginia have established land-use tax ordinances (which allow creation of Open Space, Agricultural or Forestal Districts).

The following documents explain special valuation of open space property, and how the state may enable counties, cities, and towns to adopt ordinances that allow for tax breaks: *Code of Virginia, Manual of the State Land Evaluation Advisory Council, Standards for Classification of Real Estate Devoted to Open Space Use under the Land-Use Assessment Law*, and *The Virginia Outdoors Plan*. At least six Virginia counties have employed special open space tax incentives: Albemarle, Chesterfield, Hanover, Henrico, Loudon, and Prince William. The general consensus is that, before adopting a local open space tax assessment ordinance, the criteria for qualified properties should be rigorously defined and limited.

Designated **Agricultural and Forestal Districts** (defined by the *Agricultural and Forestal Districts Act*) are an example of land that is assessed and taxed by special valuation. Agricultural and Forestal Districts (AFDs) are established to protect the Commonwealth's farms and forests. AFDs provide the landowner with certain tax

BOX 8 OPPORTUNITIES FOR CERTAIN PROPERTIES TO QUALIFY FOR SPECIAL-TAX VALUATION

There are unique opportunities for certain properties to qualify for special-tax valuation. Beyond the properties that are used for agriculture, horticulture, forestry, and open space, a parcel may qualify for special valuation if adjacent to a scenic river, a scenic highway, a Virginia Byway, or if identified in the Virginia Outdoors Plan. There must be a property assessment conducted by a qualified appraiser before land can be given special tax valuation. There are standards defined by federal and state taxation agencies that guide appraisers in identifying open space.

benefits and places restrictions on local public utilities and local governments. The restrictions on government actions include requirements that the locality consider the existence of an AFD whenever administrative and planning decisions are made concerning parcels adjacent to an AFD. Districts may only be initiated by landowners, but must be approved by the locality. In Virginia, this method has proven to be weak in permanently preserving open space because the landowner agrees to only temporarily limit development on their property (usually for a four to ten year period).

TOOLS WITH THE LEAST EXTENT OF GOVERNMENT INVOLVEMENT

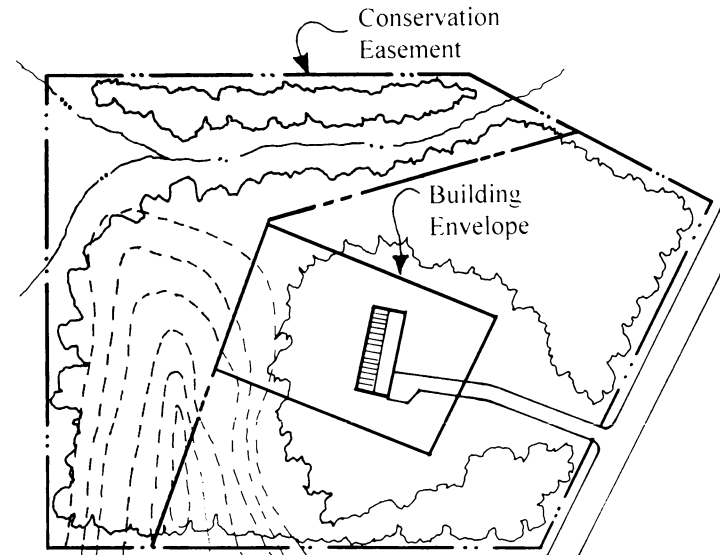
PRIVATE ACQUISITION AND CONSERVATION

Private groups and citizens may sell or purchase land, receive property donations, and obtain easements. The degree of protection and permanence of privately acquired open space lands depends in part on the conditions placed on the acquired property.

Fee-simple interest have been introduced in "Tools with the Greatest Extent of Government Involvement", but because land transfers may be initiated by private land owners or private organizations this tool is also addressed here. A property owner who donates property to a government agency or a qualified non-profit organization may receive a deduction on their income tax. Fee-simple donations may also be presented as a bequest made in a will. Gifts of property to tax-exempt organizations can reduce estate taxes. Arrangements should be made ahead of time. Less-than-fee interests in property in the form of easements may be donated in a similar manner.

Bargain Sales are a type of sale of fee-simple interest in which the owner sells property for less than its fair market value. If the organization buying the property is tax-exempt, the owner may be able to take a tax deduction for the difference between the actual sale price and the fair market value. The tax deduction may help compensate for the lost lower sales price.

Conservation Easements is a less-than fee simple interest used to protect open space by dividing and manipulating the property rights in some way to protect the open quality of the land. Conservation easements may be bought, sold, given or received by government agencies or by private organizations. (For a description of how government agencies may use this tool see "conservation easements" under "Tools with the Greatest Extent of Government Involvement".



CONSERVATION EASEMENT

Non-profits who meet the IRS criteria, have had an office in Virginia for five years, and which provide public access to their lands may hold easements. (The public access may be either physical or visual access.) When private organizations receive donated easements, the tax advantages are structured in the same way as if a government agencies were receiving the donation. Conservation easements are one of the most permanent privately-orchestrated land protection tools.

Open space easements set permanent restrictions on special land resources within a property's deed. These restrictions stay with the parcel of land regardless of the owner. To promote open space easements, also referred to as conservation and scenic easements, several Virginia laws have been passed. The *Virginia Conservation Easement Act* allows a public body or charitable organization to acquire a property easement. The *Open Space Land Act* ties open space easements to the plans of local governments. This act states that "use of the real property for open space land shall conform to the official, comprehensive plan for the area in which the property is located." The IRS code and the *Code of Virginia* set guidelines that ensure that easement gifts: are of high quality, are for the scenic enjoyment of the general public, are held in perpetuity, and comply with the local comprehensive plan. The state legislature created the Virginia Outdoors Foundation to hold property easements with special open space qualities. Any citizen who wishes to donate an easement should make sure that their local comprehensive plan has a section addressing open space because, if their is no open space plan and the property owner's land is not locally-designated as open space, then they cannot take advantage of the IRS deduction for open space easement. Federal and local governmental agencies may hold easements but they rarely choose to do so. Non-profits which meet the IRS criteria and provide public access to their lands may also may hold easements. Like the government agencies, they hold easements for a variety of reasons.

Purchase of development rights (PDR) is a relatively new tool. The purchase of conservation easements is sometimes referred to as a PDR, but PDRs involve purchasing just the development rights associated with a property, while conservation easements can be used to purchase development rights, mining rights, grazing rights, or a whole host of other rights tied to the ownership of property. PDRs are generally employed by a willing-seller, who wishes to retain ownership and control of the property and at the same time wishes to "cash in" on the principal value of the property-its development value. PDRs are typically used to preserve significant agricultural or natural/cultural resource areas. See the figure demonstrating a PDR's exchange.

BOX 9 LAND TRUSTS

A special note needs to be made about land trusts. They are private, tax-exempt organizations dedicated to land conservation, generally through land planning, land acquisition and conservation easement acquisition. Land trust may use a variety of the tools described in this document, easements being implemented most often. To qualify as a land trust which may hold easements in Virginia, a non-profit must have had an office in Virginia for at least five years. The following national and state land trusts are eligible to hold easements in Virginia: the Nature Conservancy, the National Trust for Historic Preservation, the Chesapeake Bay Foundation, the Potomac Appalachian Trail Club, and the Waterford Foundation, Inc.

A **remainder interest** is another type of less-than-fee interest. To protect open space, a remainder interest can be donated to a private conservation group. This legal property-title transfer includes a provision that gives the owner, or specified persons, the right to live on the property or to use it during their lifetime. Income tax deductions are also possible with this arrangement. The owner of Falls Ridge Preserve in Montgomery County gave The Nature Conservancy 640 acres and set up a remainder interest on an life estate of his home. At the owner's death the Nature Conservancy took on the management of his home and the six-acre remainder interest.

Deed restrictions can be placed on property by a land owner and become the sole protection mechanism once the property title is transferred. Theoretically, deed restrictions are one of the most binding forms of protection, but are hard to enforce. Legally little short of government condemnation will extinguish a deed's reversion clause that protects open space.

RECOGNITION AND NON-BINDING AGREEMENTS

Virginia has several programs that encourage local communities and citizens to steward their lands. Each landowner who preserves open space acts voluntarily to restrain certain activities on their land for a specific period. The restraints are agreed upon in an implementation action taken by a local governing body, state, or federal agency. Some examples show: only a local government can establish an agricultural and forestal district; the General Assembly acts, usually with the concurrence of local government, to establish a scenic river; and, depending upon the situation, a local government, a state agency, or a federal agency must accept a scenic easement granted in perpetuity by a private land owner (Marshall, 1990)³. The major limitation of these protection methods is that there are few

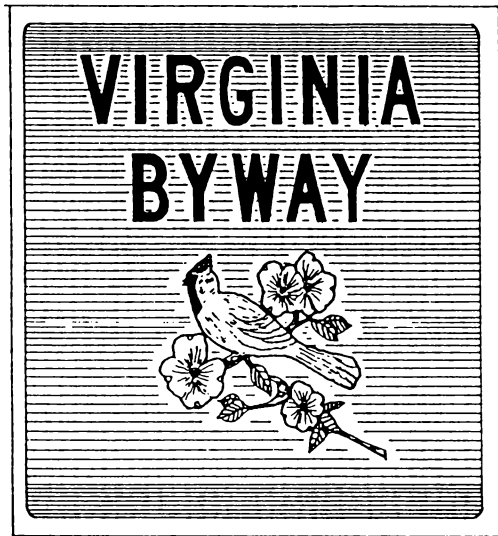
requirements for designated properties and no assurance that the open space quality of the land will be maintained. Below are a few examples of Recognition and Non-binding Agreement programs that a land owner can voluntarily implement.

- **Adopt-A-Highway**
- **Agricultural and Forestal Districts**
- **Bicentennial Farm**
- **National Register of Historic Places**
- **Soil Conservation Service Earth Teams**
- **Virginia Landmark Register**
- **Virginia Natural Areas Registry**



BICENTENNIAL FARM

The Virginia Scenic Highways and Byways Program is a citizens initiated designation. In 1966 the Virginia General Assembly passed the Scenic Highway and Virginia Byway Act authorizing the Commonwealth Transportation Board to designate certain outstanding roads as Virginia Byways or Scenic Highways. Virginia Byways are defined as existing roads with relatively significant aesthetic and cultural values, leading to or lying within an area of historical, natural, or recreational significance. A Virginia Byway designation does not place any restrictions or regulations upon land within a Byway corridor. The State obtains no land-use controls, implied or otherwise, through the process of designating state roads as Virginia Byways. Maintenance and operating procedures of the Department of Transportation remain unchanged.



The **Virginia Scenic Rivers Program** was passed by the Scenic Rivers Act in 1970. This Act authorized the establishment of a scenic-river system to protect rivers that possess natural or pastoral beauty. The designation provides certain protection for these rivers and gives riparian (river front) landowners and other local citizens greater voice in any government actions that might adversely affect their river. The State has so far designated 17 river segments totalling 346 miles.

Management agreements can also be set up between government entries and major landowners. Such an agreement may be negotiated between a timber company and a local government to cooperate and manage lands for recreation access to certain of the property owner's lands. The Nature Conservancy, Potomac Appalachian Trail Club, the Department of Forestry, the Division of Natural Heritage, and the Commissions of Game and Inland Fisheries all use management agreements in Virginia to assist in the management of resources on special private properties.

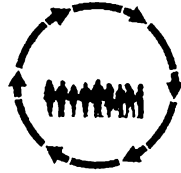
Build coalitions by communicating and bring together individuals and groups who are dedicated to open space and the various aspects of open space. Form new groups where none exist. Remember to communicate with others who have similar interests. Regional

groups can help address open space issues that go beyond political boundaries. Rivers are a good example of an open space resource that may can involve the effort of more than a town, county or even a state. There is incredible strength in numbers. The Friends of the Staunton River, the National Committee of the New River, and the Friends of the Rivers of Virginia, are a few of the Virginia organizations making great strides to work to protect open space that encompasses many jurisdictions.

ASK:

- * **How much government involvement is needed to establish open space?**
- * **Will land be managed as open space permanently or temporarily?**
- * **Do land owners wish to retain ownership or transfer all or part of their interests.**
- * **Is compensation or tax deductions for gifts of land desired by landowners?**
- * **Who will take responsibility for promoting and managing open lands?**
- * **Is there a local private group or individual who can acquire land to protect open space?**
- * **Will money be spent to acquire open space lands?**
- * **Where will the money come from?**
- * **How will the cost be paid?**
- * **Does a long-range open space plan make sense or are there threats that require immediate attention?**
- * **Are private landowners willing to volunteer open space easements?**

STEP 7.....



MAINTENANCE

The open space eligible for tax deductions are limited to lands that a community has indicated a willingness to care for. Open space maintenance and administration are important considerations for assuring that your community will have a healthy, safe, beautiful landscape. Designating open space is not enough; there needs to be a land management plan. Management means people-power and usually money to ensure open space that adds to the quality of an area. The list in Box 10 are government options and private options of organizations who can take responsibility. Consider who can most adequately protect open space resources before choosing a responsible organization.



BOX 10 OPEN-SPACE MANAGERS

GOVERNMENT OPTIONS

Local:

- County
- City
- Town

State:

- Department of Game and Inland Fisheries
- Department of Forestry
- Department of Conservation and Recreation

Federal:

- National Park Service and National Forest Service
- U.S. Fish and Wildlife Service
- U.S. Army Corp of Engineers
- Tennessee Valley Authority

PRIVATE OPTIONS

Private non-profit:

- Appalachian Trail Conference
- Land trust
- Nature Conservancy

Private citizens/organizations:

- Garden club
- Ruritans
- Lions
- Little League Associations
- Homeowners associations
- Landowner stewardship

Monitoring of environmental quality:

- Septic tank monitoring
- Stream monitoring
- Wildlife biodiversity indices

ASK:

- * **What are the advantages and disadvantages to having different groups manage open space land?**
- * **Where will the money and the labor come from to police, clean, and care for your open space network?**
- * **Has your management plan outlined how to limit use to only appropriate activities. (i.e., limited building)?**
- * **Will there be periodic evaluations of the effectiveness of your maintenance program?**



CONCLUSION

The Commonwealth of Virginia is a magnificent state with mountains, piedmont, miles of coastline, and attractive urban centers. Our open lands, if carefully managed, can continue to enhance our enchantingly diverse landscape. Open space provides recreational opportunities, protects resources, directs growth, and can encourage economic development. With your help, Virginia and her open space can grow and expand with dignity and grace.

The open space planning process, which can protect both sites of cultural significance and the great outdoors, is driven by the efforts of concerned citizens. Most of the initiative for protecting open space comes from the local level. It is important for communities to decide how they want to approach local and regional open space planning. Time and patience are necessary to follow the process through its various twists and turns to find the best avenue for each particular community.

Localities initiating this process should get people involved, and think about their local situation and their current open space issues. Consider what resources your community values? What are your community's goals and what growth are you experiencing? Where could open space be located and what activities will happen there? What management tools are citizens and local government officials likely to embrace? Consider a management plan and who will take responsibility for open space to ensure that the maintenance and administration is structured and orderly. Where will the money come from to pay for expenses? Documenting the open space planning process will give you ideas to fall back on. Draw a diagram of the process and plug in your local situation. Flow charts can be fun and will inform others about the status of the project. Remember to spend time enjoying your open space!

RESOURCE AGENCIES:

These organizations all contributed technical assistance to making this publication possible.

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Development Responding to Cluster Verses Conventional Zoning adapted from *Dealing with Change in the Connecticut River Valley: A Design Manual for Conservation and Development*, page 42 and 43, prepared by the Massachusetts Department of Environmental Management and the Center for Rural Massachusetts, published by the Lincoln Institute of Land Policy and the Environmental Law Foundation, 1989.

Piedmont Vineyards adapted from *Virginia's Heritage* page 9. See the Bibliography for reference.

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3. Marshall, Paxton, February 1990. Virginia Cooperative Extension Service Publication 72#, *Land; Issues and Problems*, "The Framework for Protecting Open Space".

APPENDIX

For further assistance in your region, contact your local Planning District Commission:

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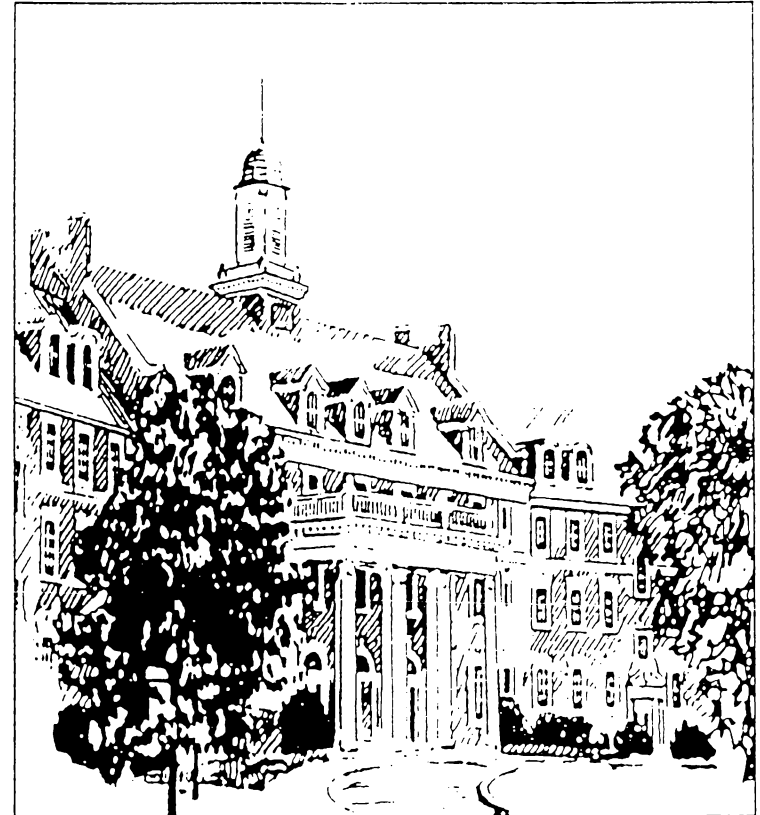
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