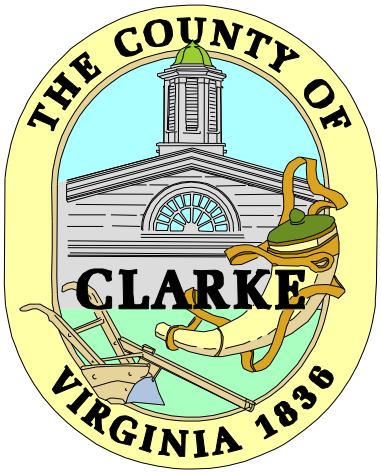
2013 Clarke County Comprehensive Plan



Adopted by
the Board of Supervisors
March 18, 2014

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2013 CLARKE COUNTY COMPREHENSIVE PLAN
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"A plan serves a public body much as a promise serves an individual. If we make a promise, others expect that we will honor it with our actions."[1]

FOREWORD

The Comprehensive Plan maps the future of land use in Clarke County. This long-range Plan captures the County's vision, projects the necessary resources to make this vision happen, and develops the planning tools (guidelines and strategies) to make the vision a successful reality. Such long-range planning, as set out in the Comprehensive Plan, anticipates future impacts of land use choices, and guides all present and future decisions regarding land use.

Clarke County has many cultural, historical, and natural attributes that make it an attractive place in which to live. This Comprehensive Plan is designed to protect and enhance attributes that contribute to the rural and agricultural character of the County, while it accommodates additional people and businesses primarily in the designated growth areas.

The purpose of this plan is to guide land-use decisions, both public and private, as they relate to the specific goals of the County. The Plan is for the citizens of the County and, for this reason, considers many diverse interests. It cannot satisfy every citizen's particular interest but does provide a mechanism for the protection of the health, safety, and welfare of all County citizens. Most importantly, it provides an outline for future decisions on land use, natural resource protection, capital improvements, and economic growth while attempting to balance the community's diverse interests.

Clarke County adopted its initial Comprehensive Plan on June 15, 1974. The Plan was updated in August 1974, September 1980, March 1988, August 1994**,** March 2001, and March 2007. The guiding principles of the 2007 Plan were managing residential growth, protecting agricultural land, protecting environmental and cultural resources, and encouraging business activity to broaden the tax base, particularly businesses related to agriculture. These principles remain the focus of this updated Plan and its Implementing Component Plans.

This Comprehensive Plan is a document first and foremost for the citizens of Clarke County. It is designed to protect and enhance the quality of life and sense of community valued by the people who have chosen to live and work here.

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[1] ***Charles Hoch, Linda C. Dalton, and Frank So, eds.***
The Practice of Local Government Planning, 3rd Edition
Washington, DC: International City/County Management Association, 2000, p. 32.

SUMMARY STATEMENT OF PURPOSE

Clarke County places tremendous value on its unique natural and historic resources and its agrarian economy. This rural character makes the County an exceptional place to live, work, and play. This Comprehensive Plan contains goals, objectives, and policy statements that are designed to ensure that these elements are maintained and protected. Furthermore, the Plan is drafted and organized to help citizens, business owners, appointed and elected officials, and other stakeholders clearly understand the path that the County has chosen in planning for its future.

This approach is summarized in the points below:

- The County's conservation easement program, land use taxation, and various planning and zoning tools shall continue to be used to protect rural areas, to aid in the vitality of our agricultural industries, and to preserve our natural and historic resources.

- Land use decision-making shall emphasize directed, controlled growth on a rural, small-town scale in designated areas where public infrastructure can be efficiently provided. These areas include the Towns of Berryville and Boyce as well as other villages and business intersections described in this Plan and its Implementing Component Plans.

- The County will focus its resources on infrastructure and economic development projects to serve the designated growth areas. Residents and businesses in rural areas should continue to expect rural levels of service.

- To ensure community vitality into the future, the County will explore and consider implementing new and innovative concepts, programs, projects, and regulations that provide diverse housing options, context-sensitive economic development, and efficient public infrastructure in designated growth areas.

- The County shall strive to support concepts, programs, projects, and regulations that ensure environmental sustainability. Clarke County's fundamental goal is to protect our natural resources so that we may pass them on to future generations. We seek to accomplish this through efforts that manage surface water and groundwater, protect and restore stream and river corridors, and preserve the integrity of our natural environment.

- The County shall also strive to support concepts, programs, projects, and regulations that ensure economic sustainability. Public and private sector investments in business, housing, and infrastructure should be economically viable, environmentally sound, and socially responsible to the community's objectives as set forth in this Plan. Achieving this goal requires participation from all sectors of the community, both to determine community needs and to identify and implement innovative and appropriate solutions.

INTRODUCTION

Comprehensive Plans Generally

The Comprehensive Plan combines long-range planning with guidelines for making tomorrow's decisions. It is for the citizens of the County and thus considers many diverse interests. Most important, it provides an outline for future land-use decisions that balance diverse interests and are based upon the goals, objectives, and policies of the County.

The Comprehensive Plan provides a vision for how a community should grow in the future. It is typically long-range and forward-looking, addressing a wide range of issues and questions relating to land use, community facilities, infrastructure, preservation, community character, and economic development among other topics. It is important to understand that the Comprehensive Plan is an adopted guideline and not a law or regulatory tool. The Plan provides specific recommendations on land use tools that should be implemented to further the Plan's Goals, Objectives, and Policies. These tools can come in the form of regulations, such as changes to the County Code or Zoning and Subdivision Ordinances. They can also come in the form of more detailed plans such as the Implementing Component Plans, or in programs and processes such as a Capital Improvement Planning program. Implementing the Plan's recommendations via these tools is the most critical element to ensure that the Plan's strategies are followed.

The County's Planning Commission is charged with preparing the plan and presenting it to the Board of Supervisors for consideration. The Code of Virginia requires local jurisdictions to adopt comprehensive plans in accordance with §15.2-2223:

> *The local planning commission shall prepare and recommend a comprehensive plan for the physical development of the territory within its jurisdiction and every governing body shall adopt a comprehensive plan for the territory under its jurisdiction.*
>
> *In the preparation of a comprehensive plan, the commission shall make careful and comprehensive surveys and studies of the existing conditions and trends of growth, and of the probable future requirements of its territory and inhabitants. The comprehensive plan shall be made with the purpose of guiding and accomplishing a coordinated, adjusted and harmonious development of the territory which will, in accordance with present and probable future needs and resources, best promote the health, safety, morals, order, convenience, prosperity and general welfare of the inhabitants, including the elderly and persons with disabilities.*
>
> *The comprehensive plan shall be general in nature, in that it shall designate the general or approximate location, character, and extent of each feature, including any road improvement and any transportation improvement, shown on the plan and shall indicate where existing lands or facilities are proposed to be extended, widened, removed, relocated, vacated, narrowed, abandoned, or changed in use as the case may be.*

Most recently, the General Assembly mandated that comprehensive plans include transportation plans with new requirements including coordination with the Statewide Transportation Plan, Six

Year Improvement Program, and route locations selected by the Commonwealth Transportation Board. The transportation plan components must also be provided to the Virginia Department of Transportation (VDOT) to be reviewed for consistency with the aforementioned elements before the plan is adopted by the locality. Urban development areas (UDAs), a previously mandated component for certain jurisdictions, have now been made optional by the General Assembly.

Form and Function of the Clarke County Comprehensive Plan

The Comprehensive Plan consists of two components – a base Plan document and various Implementing Component Plans. The base Plan document contains background information on the County's history and characteristics, demographic and statistical information, and general goals, objectives and policies. The Implementing Component Plans are separate specialized documents that provide detailed implementation strategies on specific topic areas outlined in the base Plan.

Code of Virginia §15.2-2230 requires planning commissions to review their comprehensive plans at least once every five years in order to determine whether it is advisable to make changes to the plan. The Planning Commission began their review and update of the 2007 Plan in Summer 2012 with the adoption of a work plan that designated the Commission as a "committee of the whole" for the review of the base Plan document. Upon the adoption of the revised base Plan document, attention will be turned to the review and update of the Implementing Component Plans along with the drafting of any new Component Plans recommended in the revised base Plan document. To ensure the efficient review of the Component Plans, the use of subcommittees is recommended so that multiple Component Plans can be worked on in tandem.

The base Plan document consists of three Chapters – General Information (Chapter I); Goals, Objectives, and Policies (Chapter II), and Implementing Components (Chapter III). The revised Plan document includes new appendices that include detailed background information on the County and additional statistical information – some of which were moved from other sections in the 2007 Plan to make the Plan more readable. All demographic information has been updated to include the data provided in the 2010 US Census as well as current and projected information provided by the University of Virginia's Weldon-Cooper Center and the Virginia Employment Commission (VEC).

Goals, Objectives, and Policies

Goals of the Comprehensive Plan describe the future of Clarke County in general terms and are the long-term expectations of this Plan. The goals for land-use planning in Clarke County are listed below.

1. Preserve and protect the agricultural, natural, and open-space character of unincorporated areas.

2. Enhance town, village, and commercial areas through context-sensitive design and walkability elements to improve the quality of life for all residents.

3. Encourage and maintain a diverse and viable local economy compatible with the County's size and character.

4. Exercise stewardship over resources so as to reduce the consumption of nonrenewable resources, utilizing renewable energy whenever possible; and foster within the private sector of the County a culture of resource conservation.

5. Provide for the economical delivery of necessary public services consistent with these goals.

Objectives are more specific expressions of these goals. They describe the County's intended planning actions. Policies are specific statements for each planning objective. They provide the rationales for land-use decisions and help to guide them. The objectives and policies can be found in Chapter II.

Implementing Components of the Comprehensive Plan

To achieve these Goals, Objectives, and Policies, implementation of the Clarke County Comprehensive Plan has been divided into seven components pertaining to specific geographic and policy areas. It is through these implementing components that the aspirations of the citizens are achieved and the elements of the Plan are realized. These components can be found in Chapter III of the Comprehensive Plan and are briefly described below.

Agricultural Land Plan

Clarke County has been, and continues to be, a predominantly rural and agricultural environment. Agriculture is the defining characteristic of the County. It is Clarke County's most significant economic, cultural, and historic feature. The preservation of agricultural lands is promoted and encouraged by the Agricultural Land Plan as it seeks to perform the following items.

1. Minimize the impact of nonagricultural residential development.
2. Minimize the size of parcels created for residential purposes in rural areas.
3. Keep residual tracts as large, and therefore as agriculturally viable, as possible.
4. Provide for residential growth within the designated growth areas.

Mountain Land Plan

The mountain lands of Clarke County to the east of the Shenandoah River constitute approximately one-fourth of the County. The steep slopes and predominantly forested areas create special land-use concerns that require specific land use planning. The Mountain Land Plan is designed to protect the scenic values, forest resources, surface and groundwater quality as well as wildlife habitats of the area, while allowing well-sited development compatible with these concerns.

Berryville Area Plan

The Berryville area has been identified in the Comprehensive Plan as the designated growth area of the County. Because Berryville contains the highest concentration of available public facilities and infrastructure, it is the most appropriate place for growth. The Berryville Area Plan provides a guide for the physical growth of that area. The overriding purpose of this Plan is to encourage development of a safe, vibrant, and distinctive small town environment, while maintaining the unique historical character of the community.

Business Intersections Area Plans
There are two intersections in the County of major arterial highways that are federally designated routes: Waterloo (U.S. Routes 50/17 and 340), and Double Tollgate (U.S. Routes 340 and 522). These intersections are uniquely suited for business activities that require auto or truck access. Area plans are necessary to help ensure that appropriate land is provided for such development, that the necessary utilities are available, and that the character of the development enhances the character of County.

Water Resources Plan

1) Groundwater Resources

Three-fourths of the people in Clarke County depend on groundwater as their source of drinking water. Protection of groundwater from pollution is, and has been, of primary importance. The urgent need for protection was vividly demonstrated in 1981, when, because of pollution, the Town of Berryville had to abandon the wells that provided its public water supply. In the early 1990s wells were polluted by benzene in the White Post area and fuel contamination has occurred in Pine Grove and the Shepherd's Mill Road area. These events underscored the need for protection of groundwater. The Groundwater Resources section addresses related issues, including minimizing contamination from non-point sources, protecting the Prospect Hill Spring water supply (the public water supply serving the businesses and residents in Boyce, Millwood, Waterloo, and White Post), and increasing public understanding of the sensitive nature of limestone geology and its susceptibility to contamination.

2) Surface Water Resources

Surface waters include secondary streams or tributaries, such as the Shenandoah River, the Opequon Creek, and Spout Run (a state-designated trout stream). The Surface Water Resources section addresses related issues including surface water contamination from both point and nonpoint sources, off-stream water use, such as domestic supply and irrigation, and recreational uses. Point-source pollution comes from specific, identifiable sources. Nonpoint-source pollution is caused by many diffuse sources, such as runoff, precipitation, or percolation.

Historic Resources Plan
Clarke County's extensive historic resources play a large part both in attracting tourism and influencing land use decisions. The County encourages historic preservation through state and national programs and has conducted four area surveys to provide documentation of historic properties.

Capital Improvement Plan
Public facilities are the infrastructure for Clarke County's essential services, including education, police and fire protection, social services, parks and recreation, and library services. Because the provision of public facilities can influence when and where development will take place, they are very important growth management tools. The intent of the Capital Improvement Plan is to provide an outline of potential public facility and services needs so the County can review these provisions and maintain adequate levels of services in a timely fashion. Most important, it promotes the effective provision of capital improvements consistent with the goals of the Comprehensive Plan.

Transportation Plan
Provision of a safe and efficient transportation network is critical to any community but it is also important to ensure that the community's transportation needs are compatible and coordinated with the land use philosophy. These needs are not limited to public roads but also extend to bicycle, pedestrian, and commuter networks. The Transportation Plan provides a clear statement of how the County's land use philosophy is coordinated with its transportation policies. The Transportation Plan also contains the County's current list of improvement projects along with planning level cost estimates and statistical information to support the need for each project.

Process for Amending the Comprehensive Plan
While not recommended, the Planning Commission and Board of Supervisors may consider a proposal to amend the Comprehensive Plan or any of the Implementing Components of the Comprehensive Plan outside of the scope of the Plan's five-year review cycle in accordance with Code of Virginia §15.2-2229 and other relevant sections.

A Comprehensive Plan amendment should demonstrate the following elements: a) preserving open space, farmland, natural beauty, and critical environmental areas, and/or b) improving the quality of life and services and directing development toward designated growth areas.
A Plan Amendment must also meet one of the following criteria.

1. The goals, objectives, or policies of the Comprehensive Plan or an implementing element of the Comprehensive Plan would be more effectively met or implemented, particularly by a concept of land development that was not foreseen by the Plan, if the Plan Amendment were approved.

2. The area surrounding the property in question has changed substantially since the review of the Comprehensive Plan or the applicable element of the Comprehensive Plan.

3. The General Assembly has adopted new requirements affecting comprehensive plans that must be implemented prior to the County's next five year review schedule.

The importance of the three criteria noted above are critical to ensure that such an amendment addresses a genuine change in conditions of the property, the County, or outside influences affecting the County, or to address a gap in the guidance or State regulatory compliance provided by the Plan and its Component Plans. Piecemeal Plan Amendments should not be considered solely to address a land use change or other request that is in conflict with the Plan's recommendations.

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CHAPTER I

General Information

A. COUNTY PROFILE

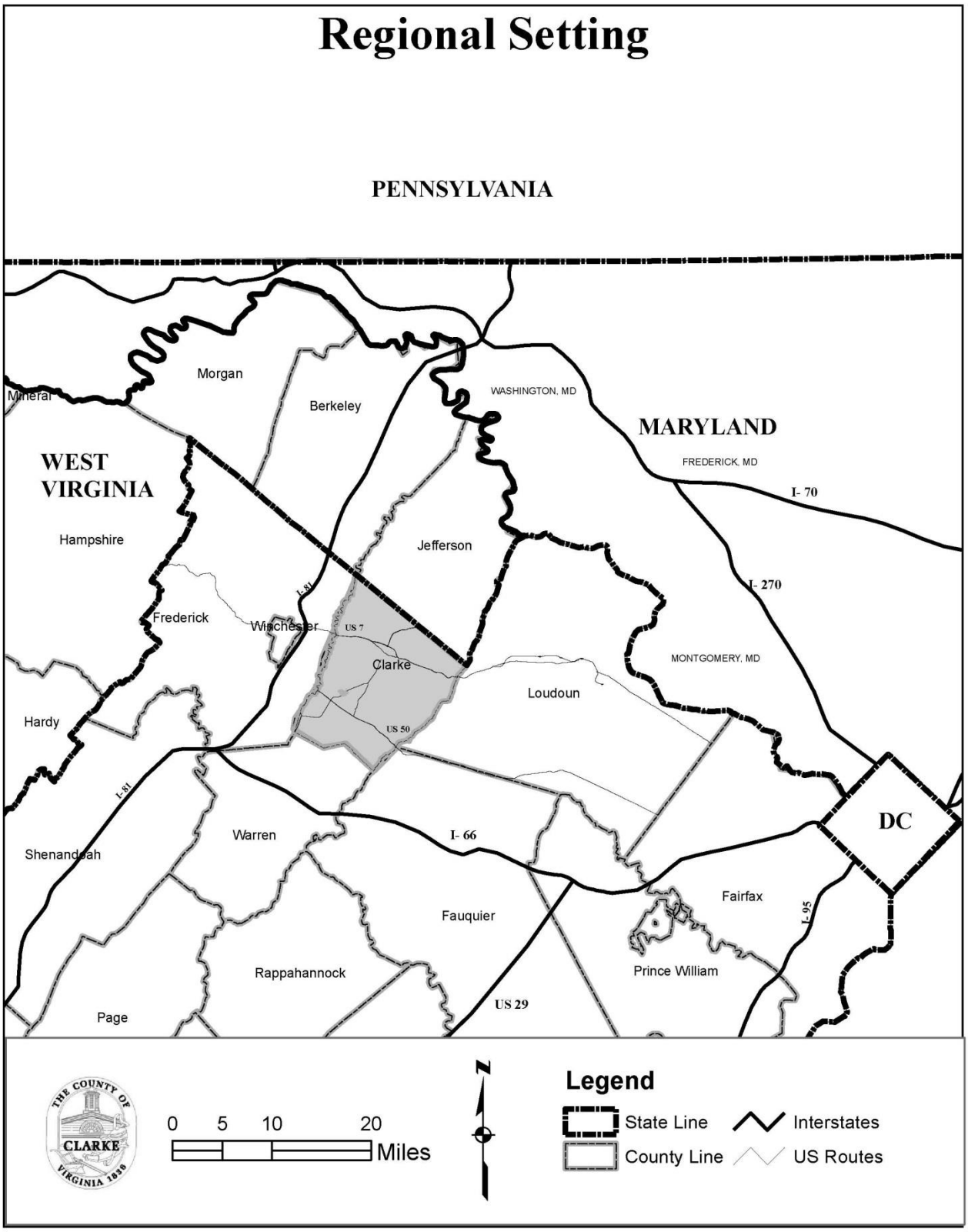
Clarke County was formed in 1836 from Frederick County and was named for Revolutionary War hero George Rogers Clark. It remains primarily a rural, agricultural county, continuing a tradition begun in colonial times. The County is bounded on the east by Loudoun County and the crest of the Blue Ridge Mountains, on the west by Frederick County and the Opequon Creek, by Warren County to the south, and by Jefferson County, West Virginia, to the north.

Clarke County has a population of 14,034 (2010 U.S. Census). Nearly three-fourths of the 174 square miles (111,360 acres) of the County is west of the Shenandoah River. The western section of the County contains two incorporated towns, Berryville and Boyce. Located 10 miles east of Winchester and Interstate 81, Berryville, the county seat, has a population of 4,185 (2010 U.S. Census). Berryville is situated at the intersection of U.S. Route 340 (Lord Fairfax Highway) and Virginia Route 7 (Harry Byrd Highway). Route 7 serves as the main east-west corridor for the northern half of the County. U.S. Route 340 serves as the County's main north-south corridor.

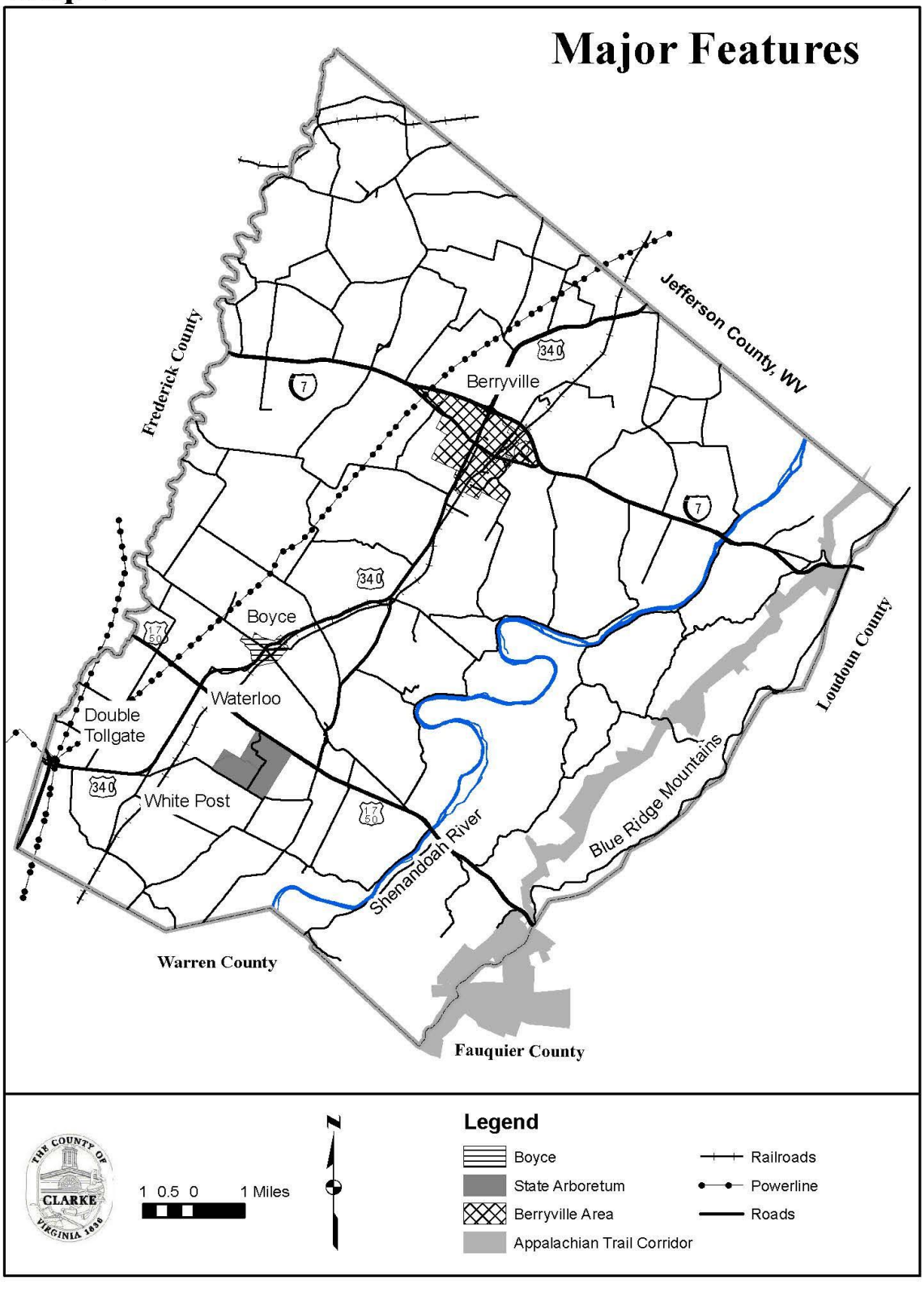
Boyce, with a population of 589 (2010 US Census), is located on U.S. Route 340 approximately 1 1/2 miles north of U.S. Route 50/17 (John Mosby Highway). U.S. Route 50 is the main east-west corridor for the southern half of the County.

Clarke County is located 40 miles west of Washington Dulles International Airport, which provides easy access to both passenger and freight air service. Washington, D.C. lies 20 miles further to the east.

MAP 1


Regional Setting
PENNSYLVANIA
Morgan
Mineral
Berkeley
WASHINGTON, MD
MARYLAND
FREDERICK, MD
I- 70
WEST VIRGINIA
Hampshire
Jefferson
I- 270
Frederick
Winchester
I-81
US 7
Clarke
MONTGOMERY, MD
Loudoun
Hardy
US 50
I-81
DC
Warren
I- 66
Shenandoah
Fairfax
Fauquier
I-95
Rappahannock
Prince William
US 29
Page
THE COUNTY OF CLARKE VIRGINIA 1836
0 5 10 20
Miles
N
Legend
State Line
County Line
Interstates
US Routes

Map 2


Major Features
Frederick County
Jefferson County, WV
Loudoun County
Warren County
Fauquier County
Berryville
Boyce
Waterloo
Double Tollgate
White Post
Blue Ridge Mountains
Shenandoah River
340
7
50
1 0.5 0 1 Miles
N
Legend
Boyce
State Arboretum
Berryville Area
Appalachian Trail Corridor
Railroads
Powerline
Roads

B. ENVIRONMENTAL RESOURCES

1. Geology

Clarke County is located at the junction of two distinct regions. The Shenandoah Valley and the Blue Ridge physiographic provinces create two different hydrogeologic regions underlain by characteristic bedrock types. Bedrock in the Valley region consists of carbonates (limestones and dolomites) and calcareous shales; in the Blue Ridge region, it consists of metamorphic basalt, sandstone, phyllite, quartzite, slate and shale. The rocks of the Blue Ridge are more resistant to weathering and erosion, and this resistance is expressed in the more mountainous terrain, compared to the Valley region.

A more detailed discussion of the County's geology is included in the Geological Profile Appendix.

2. Groundwater

Groundwater may be considered to be any water in the ground, but generally it refers to the water below the level at which the pore spaces in soil or rock materials are fully filled or saturated with water. In most settings, groundwater moves slowly through the small pores and cracks among soil and rock particles. In humid areas, perched water tables occur above the true water table in early spring. Although some wells may obtain water from these temporary water tables, most wells are supplied from deeper, more permanent water sources or aquifers.

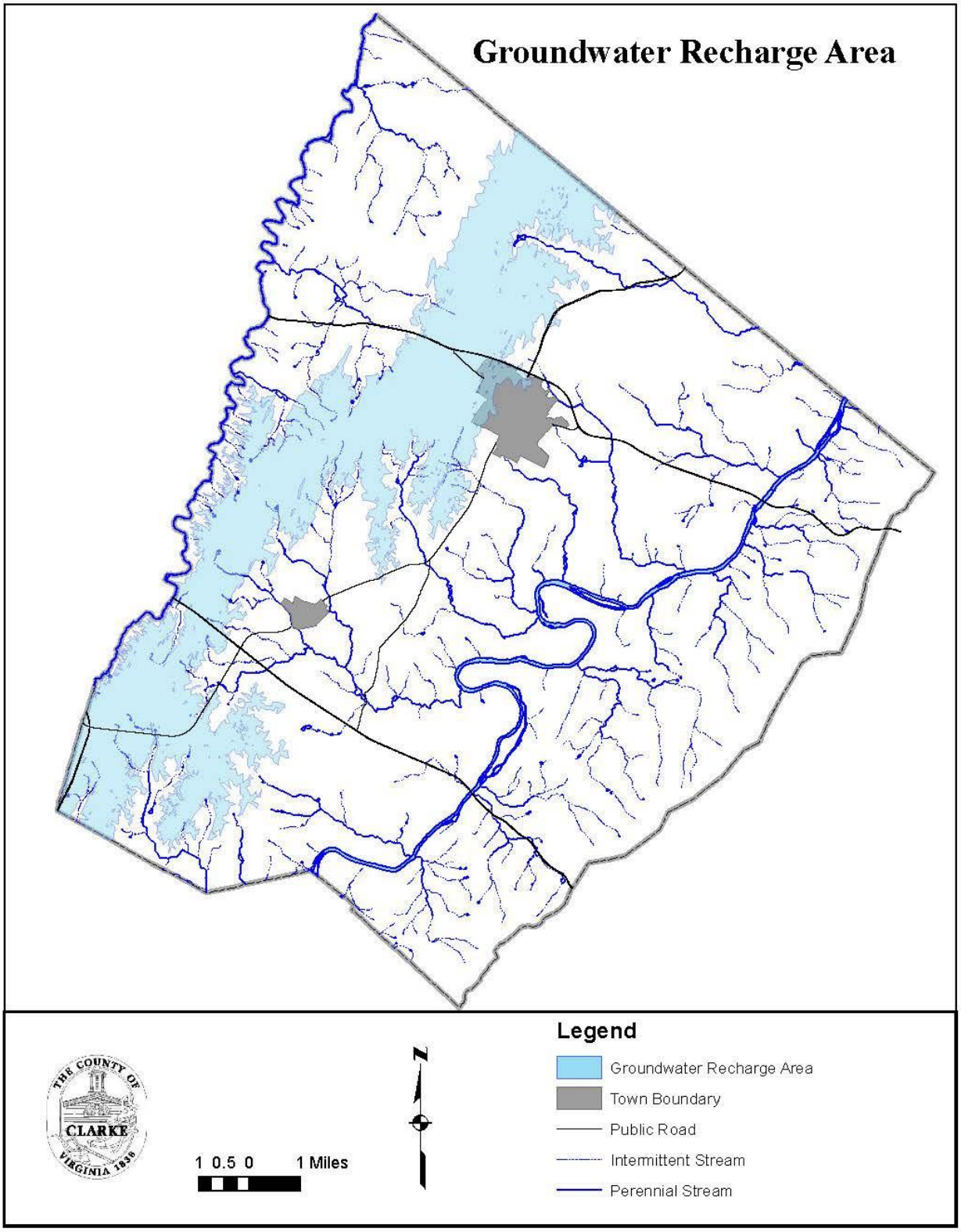
Groundwater protection problems are generally greater in areas that are underlain by carbonate rocks, such as limestone and gypsum, than in areas underlain by most other rock types. This is due to the presence of solution-enlarged sinkholes, conduits, and caves. These geologic features characterize what is called karst terrane. The generally high permeability of these rocks facilitates the infiltration and transport of contaminants from the land surface to the groundwater reservoir.

Groundwater aquifers in the eastern United States are continuously replenished or recharged by precipitation. Recharge rate affects groundwater quality and quantity. Only a fraction of all precipitation, however, reaches the deep aquifers used for drinking water, because most of it runs off and flows into streams, is absorbed by plants, or evaporates.

In the steep western slopes of the Blue Ridge, aquifer recharge is slight because water quickly runs down the steep slopes before it can soak into the soil. The ancient metamorphic and sedimentary rock also has few pores for seepage but does have fractures that allow some water to reach deep aquifers. Although the water quality is generally good, the quantity of water from wells on the Blue Ridge is generally low, even at great depths.

Aquifer recharge is much more rapid in the Eastern Lowland carbonate area, which encompasses three-quarters of the County. This carbonate area is described as karst topography. The limestone and dolomite rock is highly fractured, allowing water to move quickly through to the aquifer. Moreover, carbonate rocks are usually water soluble, and fractures are eroded to form larger channels. Sinkholes and sinking streams indicate the rapid recharge ability of this area. In areas characterized by karst, pollution of groundwater is more likely because the open channels allow ground-level pollutants quick and easy access to the aquifer.

Map 3


Groundwater Recharge Area
Legend
Groundwater Recharge Area
Town Boundary
Public Road
Intermittent Stream
Perennial Stream
N
1 0.5 0 1 Miles
THE COUNTY OF CLARKE VIRGINIA 1836

3. Relief

Relief, the difference between the highest and lowest points on the landscape, varies according to the underlying geology. In Clarke County, the metamorphic and sedimentary rocks of the Blue Ridge have been highly resistant to erosion, but softer sedimentary rocks have eroded considerably. Thus, the County's relief ranges from 1,935 feet above sea level on the Blue Ridge to 360 feet at the Shenandoah River. In the Eastern and Central lowland areas, the average elevation is about 600 feet.

4. Watercourses and Watersheds

The major watercourses of Clarke County are the Shenandoah River and the Opequon Creek. Both are within the larger Potomac River watershed. The Shenandoah flows generally at the juncture of the Blue Ridge and the carbonate rock area found on the east side of the Shenandoah Valley. The main stem Shenandoah River watershed encompasses 352 square miles, from the confluence of the north and south forks at Front Royal to the confluence with the Potomac River at Harper's Ferry; 40% of this watershed is in Clarke County. The Shenandoah watershed covers 142 square miles (or 80%) of Clarke County. Similarly, the Opequon runs on the edge of the shale area located in the central area of the Valley, where it meets the carbonate rocks. The Opequon Creek originates in Frederick County, Virginia, and extends approximately 54 miles to its confluence with the Potomac River. It has a watershed of 344 square miles, with 10% of this watershed in Clarke County. The Opequon watershed covers 35 square miles (or 20%) of Clarke County.

Flooding of the Shenandoah River prompted the County, in 1960, to establish regulations governing land use within the 100-year floodplain and 10-year floodway. The Zoning Ordinance defines a 100-year flood as a flood that, on the average, is likely to occur once every 100 years (i.e., that has a one (1) percent chance of occurring each year, although the flood may occur in any year). A floodway is defined as the channel of a river, stream, or other watercourse and the adjacent land area required to carry and discharge a flood that, on the average, is likely to occur once every 10 years (i.e., that has a ten percent chance of occurring each year). These regulations restrict building, structure, and drainfield location in floodplains.

5. Soil Types

Climate, plants, and animals act upon parent rock material to turn it into soil. Clarke County has three major soil areas: upland soils of the Blue Ridge, river terrace and floodplain soils of the Shenandoah Valley, and the upland soils of the Shenandoah Valley. Within these areas, there are 11 major soil groups, which are combinations of the various soil series. A map of the soil types, detailed descriptions, and percentages of County land area covered by each type are included in the Geological Profile Appendix.

C. HISTORY AND HISTORIC RESOURCES

Native Americans inhabited the area of Clarke County for centuries before the first Europeans, some with their African slaves, settled the region. Several prehistoric archeological sites have been discovered on the banks of the Shenandoah River in Clarke County, and records indicate that there are potentially thousands of such sites throughout the County. Native Americans passed through the Shenandoah Valley, a major trade route between present-day New York and Georgia. The Shenandoah River ("Daughter of the Stars") and the Opequon Creek, are Indian-named, reflecting the heritage of the County's indigenous people. Although few Native American groups were resident in the Shenandoah Valley at the time of European settlement, the area remained within the territorial organization of tribes to the north and west.

Europeans first came into the Shenandoah Valley in the early 1700s. Thomas Fairfax, Sixth Baron Fairfax of Cameron (1693-1781), was the proprietor of the Northern Neck of Virginia as heir to the 1688 royal charter to the land between the Rappahannock and Potomac Rivers. Just less than half of Clarke County was part of a 50,212-acre grant given as payment by Lord Fairfax in 1730 to his agent Robert "King" Carter, the wealthiest and most prominent landholder in the Tidewater of Virginia. The remaining area of the County was distributed in smaller grants, either by the Council of Virginia or Lord Fairfax, or retained by him as the Manor of Greenway Court (his home after 1752) and as the Manor of Leeds. Several buildings and structures of the Greenway Court complex remain**,** including the 1761 Land Office. The village of White Post, near Greenway Court, grew up around the prominent post directing new settlers to Greenway Court. By tradition, the first post was erected in the early 1750s by George Washington, then a surveyor for Lord Fairfax.

Carter's land in Clarke County was mostly unavailable for settlement until the mid-1700s when it was divided into tenancies and rented out to farmers. With the end of the Revolutionary War in 1783 and the commercial decline of tobacco, settlers from the Tidewater**,** most of whom were Carter's descendents, began to move to Carter's land in greater numbers. The Tidewater families imported their lifestyle, their appreciation of stylish architecture, their wealth, and the slave system, all of which are reflected in the structures they built. One of the Tidewater settlers was "King" Carter's great-grandson, Nathaniel Burwell, builder of Carter Hall, the leading plantation in the County. The village of Millwood, near Carter Hall, developed around a prominent commercial mill completed in 1786. It was operated by Burwell and Revolutionary War hero, General Daniel Morgan. The establishment of this and several other mills during the late eighteenth and early nineteenth centuries reflects the transition from tobacco planting to wheat farming by Tidewater families.

African slaves brought from the Tidewater made the settlement and production of large plantations possible in Clarke County. In the 1840 Census, over 50% of the County's population was of African descent. According to the 2010 Census, the percentage of African-Americans in the County had dropped to 5.3%.

Pioneers migrating south from Pennsylvania, New York, New Jersey, and Maryland in search of rich farmlands formed the broad pattern of European settlement of the Lower Shenandoah Valley. These people were, for the most part, Scots-Irish, English Quakers, and Germans, and they settled in the portion of the northern Shenandoah Valley that today is known as Frederick County and, to a lesser extent, in what is now Clarke. Clarke County was part of Orange County until 1738, when Frederick County was established out of Orange, remaining part of Frederick County until 1836 when it became a separate entity. The socio-economic differences between what is now Clarke and the rest of Frederick County and the considerable distance to the county seat in Winchester contributed to the separation of Clarke County from Frederick.

The Civil War brought an abrupt end to any new construction and growth in Clarke County. The Battle of Cool Spring and several skirmishes took place in the County, and troops were constantly passing through the area. Numerous buildings, including houses, barns, and mills, were destroyed during the period. The Shenandoah Valley provided Confederate troops with food and grain and became known as the "breadbasket of the Confederacy." Reconstruction came slowly, and there was little growth in the County until the 1880s when the Shenandoah Valley Railroad (now Norfolk Southern) was constructed and provided improved access to larger markets.

Clarke County was a highly productive agricultural county throughout the nineteenth century. According to 1860 census data, although Clarke was the smallest county in the Shenandoah Valley, it had the largest percentage of land in farms and ranked second in wheat production in the Valley. Wheat was the largest cash crop in the County until the early 20th century, when it was replaced by apple production.

Clarke County's abundance of bluegrass has long made it a desirable location for horse breeding. The Tidewater families brought their thoroughbreds with them and began a tradition of horse breeding that has continued to the present. By the beginning of the 21st century, apple production declined, while beef and dairy cattle and horses were the mainstays of the local agricultural economy.

Berryville, incorporated in 1798, is the largest town in the County. It was first settled in 1775 and was originally known as Battletown, due to its rowdy taverns. Its location at the intersection of major roads leading to Alexandria, Baltimore, and Winchester made it the commercial center of the County and insured its selection as the seat of County government. Boyce, the second town of the County, was incorporated in 1910. It was originally settled in 1880 at the crossing of the Millwood-Winchester Turnpike (now Route 723) and the newly built Shenandoah Valley Railroad (now Norfolk Southern).

Today, Clarke County remains primarily rural, and agriculture is still one of its main sources of income. Berryville is still the commercial, governmental, and manufacturing center of the County. In the late 20th century, people increasingly moved to the County to construct new homes in rural settings, as well as to restore older residences. In order to preserve the agricultural economy of the County and its rural character, the County enacted innovative land-use regulations in 1980. These regulations limited residential growth in rural areas and focused new housing in the Berryville area.

The large number and diversity of historic structures and buildings accentuate Clarke County's rural and agricultural environment. A Countywide archeological assessment was completed in 1993 to survey the Native American presence. Possible sites of several palisade villages were located, as well as thousands of individual dwelling sites. All pre-World War II structures were also documented with reconnaissance-level surveys. A total of 962 historic properties were identified (each of which may include several structures), dating from the early 1700s through 1941 in the rural portion of the County. From approximately the same period, 236 historic structures and buildings were identified in Berryville, 100 in Boyce, 58 in Millwood, and 28 in White Post.

As a follow-up to the general identification of historic properties, more than 30% of the County has been placed on the Virginia Landmarks Register and the National Register of Historic Places, including the historic districts of Greenway (30 square miles), Long Marsh (16 square miles), Cool Spring Civil War Battlefield (6 square miles), Berryville (150 acres), Boyce (102 acres), White Post (30 acres), Bear's Den (1,900 acres) and 28 individually listed structures. The County is currently working to add the Chapel Rural Historic District which would consist of 16,700 acres. In addition, Greenway Court (the 1750 home of Lord Fairfax) and Saratoga (the 1780 home of Daniel Morgan) have been designated National Historic Landmarks, the highest level of national recognition for an historic property. The County is also part of the John Singleton Mosby Heritage Area, the first heritage area designated in Virginia. This Heritage Area approximates "Mosby's Confederacy," to encompass parts of six counties, of which Clarke is the only county included in its entirety.

D. APPROACH TO GROWTH MANAGEMENT

Clarke County's heritage and natural characteristics, combined with its recreational, cultural, and educational opportunities, make it an attractive place to live, work, and visit. The Shenandoah River runs south to north through the County, dividing the primarily forested and mountainous land in the east from the rolling agricultural lands in the west. Used as a major transportation route during the nineteenth and early twentieth centuries, the Shenandoah has been designated a State Scenic River by the Virginia General Assembly and is one of the state's outstanding rivers. The Appalachian National Scenic Trail runs the length of the County, providing 10 miles of hiking along the Blue Ridge Mountains. The State Arboretum of Virginia is located at the University of Virginia's Blandy Experimental Farm near Boyce. The County's Parks and Recreation Department offers a wide variety of recreational opportunities. Nearly 20% of the County (approximately 21,000 acres) is under permanent conservation easement, permanently protecting farmland, forest, natural and historic resources, and open space by limiting development. Historic museums and public buildings include Clermont Farm (1770), the Burwell-Morgan Mill (1782), the Clarke County Historical Association Museum, the Clarke County District Courthouse (1839), the Long Branch House and Farm Museum (1809), and the Josephine School Community Museum (1881). More than 30% of Clarke County is within five National Register historic districts, and the entire County is in the John Singleton Mosby Heritage Area. Self-guided driving tours of these historic areas are available.

For the past several decades, the County has been challenged with balancing preservation of these unique resources with pressures for growth and development primarily from Northern Virginia. As shown in the table below, Loudoun County to the east increased in population from 37,150 in 1970 to 312,311 in 2010 with a growth rate well in excess of 50% each decade during the period. Similarly, Frederick County and the City of Winchester to the west have grown from 48,322 in 1970 to 104,508 in 2010 with growth rates in excess of 20% for all except one decade during the period. Growth in these jurisdictions, along with Warren County to the south and Jefferson County, WV to the north, is mostly attributable to the explosive growth experienced in Northern Virginia. Potential residents continue to look for more affordable homes away from the density and traffic of the urban core and to seek a high quality rural lifestyle. Clarke County lies directly in the path of this growth due to its proximity to major commuter routes (US 50/17 and VA Route 7) that convey traffic to and from the major employment centers to the east.

The County has been very aware of these pressures over the years and has implemented land use tools to ensure that development occurs on a controllable scale and only in designated areas where infrastructure can be provided in the most cost-effective manner. Sliding-scale zoning is the most prominent of these tools.

Sliding-scale zoning was implemented by the County in 1980 with the primary purpose being to preserve agricultural land and the rural character of the County. This has been accomplished by limiting the number of parcels that may be created, limiting the size of new parcels, and keeping residual parcels as large as possible. Sliding-scale zoning allocates dwelling unit rights (DURs) for parcels of land and specifies a maximum number of dwelling units that may be built in the Agricultural/Open Space/Conservation (AOC) Zoning District and Forestal/Open Space/Conservation (FOC) Zoning District. That number cannot be increased unless parcels are rezoned, but is decreased as landowners build houses or place their property under permanent open-space easement. Hand in hand with this tool is the Plan's designation of the Towns of Berryville and Boyce as the only areas of the County appropriate for more suburban scale residential development due to the proximity of water and sewer

infrastructure. These are the only areas where rezoning to a higher residential density could be considered.

The chart below was adopted with sliding-scale zoning in 1980 along with the corresponding DUR assignments to parcels in the County at the time. The sliding-scale chart has remained unchanged since its adoption.

TABLE 1A – Sliding Scale Zoning/Dwelling Right Distribution

Size of Tract Permitted	Dwelling Unit Rights Assigned	Average Resultant Density
0-14.99 acres	1	1 unit/7.495 acre
15-39.99 acres	2	1 unit/13.748 acres
40-79.99 acres	3	1 unit/19.998 acres
80-129.99 acres	4	1 unit/26.249 acres
130-179.99 acres	5	1 unit/30.999 acres
180-229.99 acres	6	1 unit/34.166 acres
230-279.99 acres	7	1 unit/36.428 acres
280-329.99 acres	8	1 unit/38.124 acres
330-399.99 acres	9	1 unit/40.555 acres
400-499.99 acres	10	1 unit/44.999 acres
500-599.99 acres	11	1 unit/49.999 acres
600-729.99 acres	12	1 unit/55.416 acres
730-859.99 acres	13	1 unit/61.153 acres
860-1029.99 acres	14	1 unit/67.499 acres
1030 acres or more	15	1 unit/68.666 acres (max)

Sliding-scale zoning also provides for an accurate accounting of the residential build-out potential for the County. This accounting is an important tool to accurately project the County's growth potential and in making land use decisions on development proposals. Below are two tables that show the distribution of DURs to date according to zoning district and by election district.

TABLE 1B – Dwelling Unit Rights (DURs) Used and Remaining By Zoning District

Zoning District	DURs Allocated	DURs Remaining	% Remaining
AOC	4,397	2,541	57.8%
FOC	2,144	1,158	54.0%
TOTAL	6,541[1]	3,699	56.6%

[1] The total initial DUR allocation fluctuates slightly as Planning Department staff evaluates properties in more detail including accurate boundary surveys.

TABLE 1C – Dwelling Unit Rights (DURs) Used and Remaining by Election District

Election District	DURs Allocated[1]	DURs Remaining	% Remaining
Berryville[2]	23	18	78.3%
Buckmarsh	1,056	601	56.9%
Millwood	1,932	1,067	55.2%
Russell	1,573	706	44.9%
White Post	1,966	1,307	66.5%
TOTAL	6,550[1]	3,699	56.6%

[1] The total initial DUR allocation fluctuates slightly as Planning Department staff evaluates properties in more detail including accurate boundary surveys.
[2] The Berryville Election District is primarily composed of the Town of Berryville but contains a few parcels located within the County. This explains the small number of DURs allocated compared to the other districts.

Another important growth management tool is the imposition of maximum lot size and average lot size requirements in the Agricultural-Open Space-Conservation District (AOC). Over 90% of the County's land area west of the Shenandoah River is currently zoned AOC. Application of these requirements has resulted in DURs being redistributed via subdivision over small, rural-scale residential lots and large residual tracts. The maximum lot size in the AOC District is 4 acres and the average lot size (excluding the residual parcel) is 3 acres. As an example, a 100 acre parcel with 4 assigned DURs would not be permitted to be divided into four 25-acre tracts. The lot size requirements would instead produce a subdivision of three 3-acre lots and one residual 91 acre lot each with one assigned DUR each. This design approach helps to facilitate land conservation and continued use of farmland. The Forestal-Open Space-Conservation District (FOC), located east of the Shenandoah River along the Blue Ridge, utilizes open space set aside requirements in lieu of maximum lot size requirements to manage growth. All subdivision of FOC land containing 40 or more acres must reserve a percentage of land in an open space residual parcel with one dwelling or one DUR.

A relatively newer tool used to encourage the preservation of land is the County's conservation easement program. A conservation easement is a voluntary agreement between a landowner and an easement holder (either a private organization, a state entity such as the Virginia Outdoors Foundation, or Clarke County) to place a property or group of properties in a permanent conservation state with very limited options to develop in the future. In many cases, limitations on development comes in the form of reducing available DURs by allowing only one primary dwelling and an accessory dwelling as a condition of the easement.

State agencies and land trusts for many years have worked with County property owners to voluntarily place lands in conservation easement. In 2002, the County became an active participant in easement acquisition by establishing an easement program and creating a Conservation Easement Authority to oversee the program. Easements are accepted by the County on a voluntary basis but the County, through the Easement Authority, also purchases certain easements that have conservation value such as prime soils for agriculture, historic or natural resources, or that would result in the retirement of DURs. Property owners that choose to place their land in easement and forego any development potential gain certain tax benefits in addition to Federal, State, local, or private funds if they qualify for easement purchase.

The tables below outline conservation easement activity in the County since 1974.

TABLE 2A – Conservation Easements Added/Dwelling Units Retired, 1974-2011

	VOF, OTHERS (acres)	COUNTY (acres)	DURs RETIRED*
1974	72	0	n/a
1975	4	0	n/a
1976	195	0	n/a
1977	119	0	n/a
1978	667	0	n/a
1979	1,037	0	n/a
1980	166	0	n/a
1981	0	0	n/a
1982	100	0	n/a
1983	0	0	n/a
1984	0	0	n/a
1985	0	0	n/a
1986	0	0	n/a
1987	0	0	n/a
1988	807	0	n/a
1989	1,540	0	n/a
1990	2,503	0	n/a
1991	846	0	n/a
1992	64	0	n/a
1993	328	0	n/a
1994	2	0	n/a
1995	95	0	n/a
1996	42	0	n/a
1997	336	0	n/a
1998	485	0	n/a
1999	951	0	n/a
2000	1,453	0	n/a
2001	764	0	n/a
2002	1,180	0	n/a
2003	133	145	3
2004	957	35	1
2005	943	314	5
2006	425	579	18
2007	285	1,261	45
2008	0	250	12
2009	230	484	13
2010	0	473	21
2011	210	582	18
2012	0	709	26
SUBTOTAL	**16,939**	**4,832**	
TOTAL		**21,771**	**162**

Source: Clarke County Planning Department Annual Report, 2011

* Data on retired DURs is not available prior to 2003

DUR – Dwelling Unit Right
VOF – Virginia Outdoors Foundation
* Represents DURs retired by County Easement Authority, data on retired DURs is not available prior to 2003

TABLE 2B – Conservation Easement Purchase Summary, 2003-2012

YEAR	ACRES	DURs TERMINATED	APPRAISED VALUE	DUR PURCHASE VALUE	OWNER SHARE	COUNTY SHARE*	GRANT SHARE	GRANT SOURCE
2003	139.7	3	$251,000		$26,000	$225,000		
2003	4.9	0	$0		$0	$0		
2005	39.6	2	$198,100		$123,100	$75,000		
2005	32	2	$200,000		$125,000	$50,000	$25,000	SRCDC
2006	99.93	3	$578,400		$445,133	$133,267		
2006	74	3	$508,800		$166,575	$114,075	$228,150	VOF
2008	46.82	3	$120,000		$86,638	$86,638		FRPP
2008	30	2	$180,000		$53,100	$42,300		FRPP
2007	216	5	$648,500		$162,125	$8,062	$478,313	FRPP, VLCF, VDACS
2008	46.82	3	$0		$86,638	$86,638	$173,275	FRPP
2008	30	2	$180,000		$53,100	$42,300	$84,600	FRPP
2008	204	5	$716,500		$179,125	$27,750	$509,625	FRPP, VLCF, VDACS
2008	43	1	$131,500		$32,875	$16,437	$82,188	FRPP, VDACS
2010	11.48	1		$25,000		$12,500	$12,500	VDACS
2010	19.8	2		$80,000		$40,000	$40,000	VDACS
2010	10.5	1		$28,000		$14,000	$14,000	VDACS
2010	133	6		$240,000		$120,000	$120,000	VDACS
2010	145	5		$140,000		$70,000	$70,000	VDACS
2010	38.1	2		$80,000		$40,000	$40,000	VDACS
2010	47.6	2		$60,800		$30,400	$30,400	VDACS
2010	15.18	1		$30,400		$15,200	$15,200	VDACS
2011	60.00	2	$240,500		$60,125	$30,063	$150,312	FRPP, VDACS
2011	13.02	1		$13,000		$6,500	$6,500	VDACS
2011	16.69	2		$25,000		$12,500	$12,500	VDACS
2011	134.00	2		$80,000		$40,000	$40,000	VDACS
2012	78.00	2		$80,000		$40,000	$40,000	VDACS
2012	121.18	4	$345,500		$86,375	$20,000	$239,125	FRPP, VDACS, PEC
	1850.32	**67**		**Total**	**$1,685,909**	**$1,398,630**	**$2,411,688**	
				% of Total	**30.7%**	**25.4%**	**43.9%**	

* Represents County funds used to purchase conservation easements; program began in 2003

E. ENVIRONMENTAL LIMITATIONS AND CONSIDERATIONS

Clarke County has significant environmental and geological characteristics that present challenges for preservation of natural resources and for development. These characteristics are summarized below.

1. Geology

The most significant geological feature in the county is karst. Karst, consisting primarily of limestone, is characterized by large underground drainage systems, sinking streams, sinkholes, and caves due to the solubility of the limestone. The resultant hollow underground geology makes groundwater supplies very susceptible to pollution from surface and subsurface point and nonpoint sources. Groundwater pollutants are able to travel significant distances and can impact multiple aquifers due to the drainage networks that typically exist in karst. Surface pollutants are able to penetrate through to these same aquifers via sinking streams and sinkholes, making stormwater runoff a critical feature to manage. Approximately 90% of the County's land area west of the Shenandoah River contains karst.

The County experienced a major example of groundwater contamination first-hand in 1981. The Town of Berryville was forced to abandon its public well system due to contamination from nitrates, phenols, and herbicides -- none of which could be traced to a single source. The Town's water supply is now provided by a direct intake from the Shenandoah River and a water treatment facility. Instances of groundwater contamination have occurred in other parts of the county ranging from petrochemical contamination in the Pine Grove, White Post, and Shepherd's Mill Road areas to fecal coliform, nitrate, and pesticide contamination in various locations across the County. The County provides public water via the Prospect Hill spring to the Town of Boyce and to residences and businesses in Millwood, White Post, and Waterloo. Given the County's usage of the spring as its primary water source and the fact that all homes and businesses outside of these areas rely on private wells, groundwater protection is a major issue to be considered in land use planning and decision-making.

The County has implemented a number of different ordinances to help mitigate the potential for groundwater contamination. These ordinances include the following:

Septic Ordinance. This ordinance was adopted to provide local regulations for onsite sewage disposal systems that are more stringent than the State's minimum standards. These more stringent standards include greater setbacks from streams, springs, and sinkholes and the requirement of resistivity tests to ensure that geological voids do not exist under proposed drainfield sites. The County has also been active in regulating alternative onsite septic systems within the boundaries provided by the Code of Virginia.

Well Ordinance. This ordinance also provides more stringent standards for the placement of onsite wells for water supplies including greater setbacks than the State's minimum standards and more extensive well pump requirements.

Sinkhole Ordinance. The County's sinkhole ordinance was implemented to prohibit property owners from constructing on or placing objects or substances into sinkholes that are located on their properties. The ordinance provides for several methods to mitigate the potential for groundwater pollution via sinkholes and enforcement tools to ensure compliance.

Spring Conservation Overlay District. The Spring Conservation Overlay District was adopted as part of the County's Zoning Ordinance to provide additional protection to the Prospect Hill Spring. This spring

provides the public water supply for the Town of Boyce, the villages of Millwood and White Post, and the Waterloo commercial district. The spring was permitted by the State Health Department as a public water supply in 1977 and several studies were completed over the years concluding that the spring is very susceptible to contamination from point and nonpoint sources.

Overlay District regulations provide additional safeguards over and above the underlying zoning district provisions specifically targeted at preserving the spring's integrity. These include additional use restrictions and requirements, lot and structure requirements, and septic system requirements.

Erosion and Sediment Control Ordinance. The County adopted an Erosion and Sediment (E&S) Control Ordinance in 1990. The purpose of the Ordinance is to prevent the erosion of land and the deposit of sediment in waters in order to protect not only the County watersheds, but also the regional Chesapeake Bay watershed. This Ordinance is intended to reduce pollution and sedimentation of waterways so that fish and aquatic life, recreation, and other water related activities would not be adversely affected. Virginia Code Section 10.1-560 et. seq. provides for state standards and enables counties to fortify further the laws governing erosion control. The County amended the Ordinance in 1994 as part of the Mountain Land Plan. These amendments strengthened the Ordinance by requiring E&S plans for smaller areas of land disturbance and for non-agricultural pond construction.

Stormwater Ordinance. In 2010, Clarke County voluntarily adopted a stormwater management ordinance and design manual in advance of efforts by the State to strengthen the Virginia Stormwater Management Law (Code of Virginia §10.1-603.3). This State law requires localities to take an active role in managing stormwater runoff from development projects. The ordinance proactively involves the County early in the site preparation process by requiring submission and review of a stormwater management concept plan. The concept plan is designed to demonstrate a system that meets stormwater quality and quantity requirements set forth by State law and the County's ordinance. The ordinance also maintains County oversight after completion of construction by requiring maintenance agreements for all stormwater best management practices (BMPs).

In addition to regulating the quantity of stormwater that leaves a development site, the ordinance regulates the quality of the stormwater and degree of pollutants via water quality design criteria. All BMPs used to manage stormwater must also meet minimum standards for reducing phosphorus content. Phosphorous removal is critical for the County to meet water quality runoff standards that are imposed on each locality by the State via the Chesapeake Bay Preservation Act.

Clarke County is one of only a handful of small localities in Virginia that proactively adopted a stormwater ordinance that meets and exceeds the State's new criteria.

2. Soils

The Clarke County Soil Survey (published 1982) included analyses of the soils' capacity to support for various potential uses. The results of the analyses for two potential uses, conventional on-site sewage disposal systems (septic tank and drainfield) and agriculture, are discussed below. Included in the analysis were major soil and landscape features such as physical properties, slope, depth to rock, depth to water tables, stones and rock outcrops, soil productivity, and landscape relief.

On-site Sewage Disposal Systems

Almost 75 % of the land (83,297 acres) in Clarke County has severe limitations for on-site sewage disposal systems, according to the soil survey. Septic fields in this soil will result in excessively slow absorption of effluent, surfacing of effluent, and hillside seepage. However, due to the limited accuracy of the soil survey, there may be areas within those soils that are suitable for septic systems. Groundwater pollution can also result if highly permeable sand and gravel or fractured bedrock is less than 4 feet below the base of the absorption field, if the slope is excessive, or if the water table is near the surface.

In the remainder of the County, about 6 % of the land (6,682 acres) has moderate to severe limitations for on-site sewage disposal systems, 14 % (15,590 acres) has moderate limitations, and 5 % has not been rated.

TABLE 3 – Septic Systems Limitations

Category	Total Area (acres)	% of Total County Area
Severe	83,297	75%
Moderate to Severe	6,682	6%
Moderate	15,590	14%
Unrated	5,746	5%

These soil conditions present serious challenges to development in areas not served by public sewer and are an important reason why the County has chosen to focus development near the towns and villages where such infrastructure can be provided.

3. Agriculture

About 40% of the land in Clarke County is suitable for some type of cultivated farm crop. Best suited for agriculture are soil group 5, which forms a strip through the center of the County, and soil group 8, which includes the floodplain of the Shenandoah River. (Chapter III, Article 1, describes the Agricultural Land Plan, which contains a full discussion of agriculture in the County.)

In addition to the general soil classifications, the U.S. Department of Agriculture (USDA) characterizes soil types in terms of important farmland. This classification recognizes areas important to agricultural production, with responsibility given to governing bodies, in cooperation with the USDA, for classifying farmlands within their jurisdictions.

1. Prime farmland is land that has the best combination of physical characteristics for the production of food, fiber, forage, oilseed, and other agricultural crops, with minimum inputs of fuel, fertilizer, pesticides, and labor and without intolerable soil erosion. Prime farmland includes land that also possesses the above characteristics but is currently being used to produce livestock and timber. It does not include land already in or committed to urban development or water storage.

2. Unique farmland is land other than prime farmland that is used for the production of specific high-value food and fiber crops. It has the special combination of soil quality, location, growing season, and moisture supply needed to produce sustained high quality or high yields of specific crops economically, when treated and managed according to acceptable farming methods.

Examples of such crops include citrus, tree nuts, olives, cranberries, fruit, including grapes, apples, and vegetables.

3. Farmland of statewide importance is land other than prime or unique farmland that is of statewide importance for the production of food, feed, fiber, forage, or oilseed crops.

4. Farmland of local importance is land that is neither prime nor unique but is of local importance for the production of food, feed, fiber, forage, or oilseed crops.

5. Other is land that is usually of little or no importance to agriculture and includes all map units not assigned to a higher class.

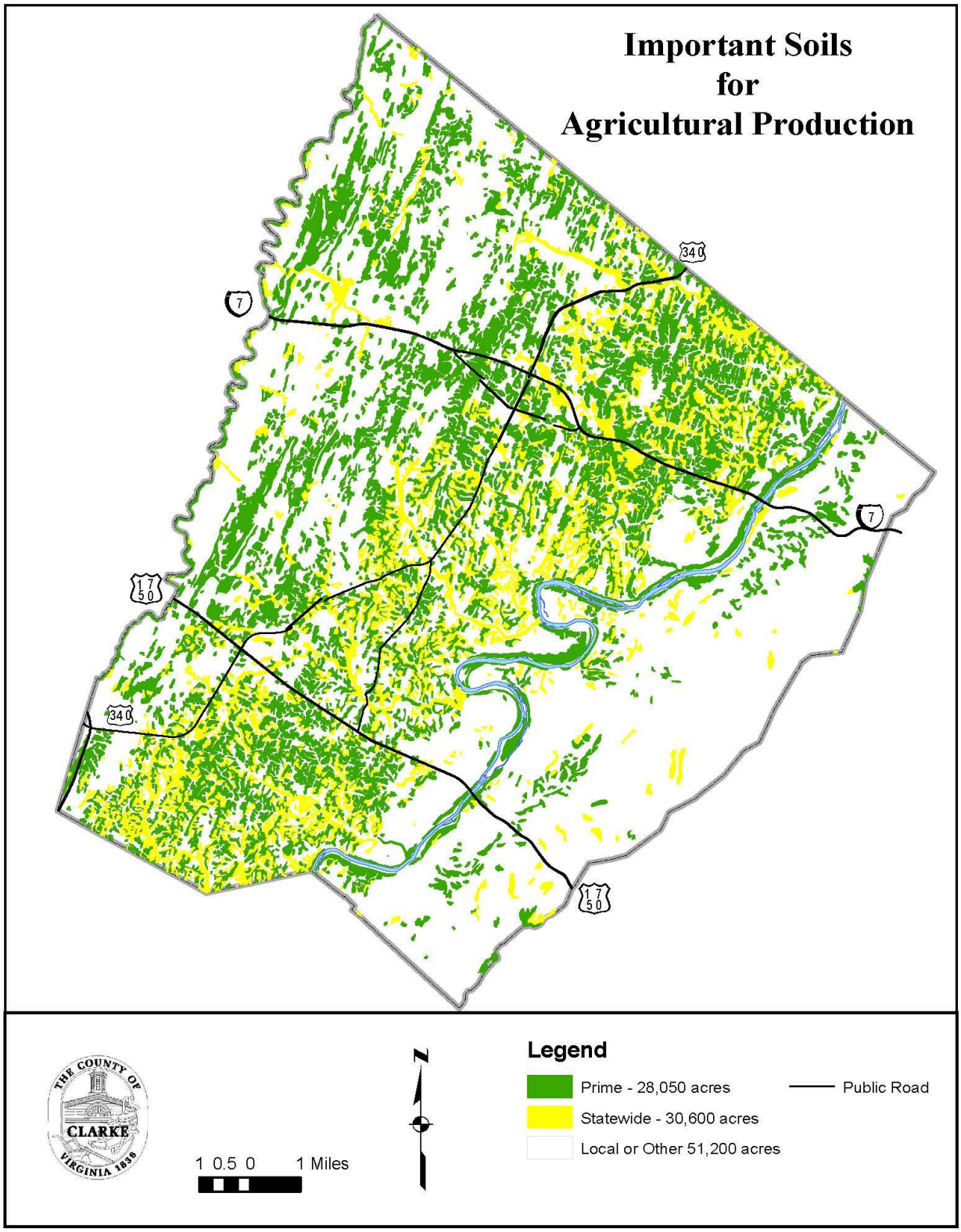
Clarke County further classified farmland types into categories described in Table 1 and shown on Map 4. These categories are used with the Land Evaluation and Site Assessment (LESA) system. The LESA system is a technique developed by the USDA's Natural Resources Conservation Service (NRCS) to evaluate the productivity of agricultural land and its suitability or non-suitability for conversion to nonagricultural use. The NRCS, previously referred to as the Soil Conservation Service (SCS), assisted the County in developing the categories and implementing the system in 1982.

TABLE 4 – Important Farmland Values of Soils

Group #	Acreage	% of Total Land Area
1 (prime, nonrocky)	9,395	8.7%
2 (prime)	12,107	11.0%
3 (prime, rocky)	6,552	5.9%
4 (Statewide)	16,189	14.8%
5 (Statewide)	14,418	13.1%
6 (Local)	4,687	4.3%
7 (Local)	17,052	15.5%
8 (Local)	6,431	5.9%
9 (Local)	18,199	16.6%
10 (Other)	4,643	4.2%

* Soil Survey of Clarke County, 1982.

Map 4


Important Soils
for
Agricultural Production
340
7
17
50
7
340
17
50
THE COUNTY OF
CLARKE
VIRGINIA 1836
1 0.5 0 1 Miles
N
Legend
Prime - 28,050 acres
Statewide - 30,600 acres
Local or Other 51,200 acres
Public Road

F. POPULATION PROFILE

1. Population Growth and Density

Changes in population have extensive implications for planning because they affect the need for community facilities and services, land uses, and housing demand. Planning for population growth must be proactive to help guide growth as it occurs, rather than react to it after it is in place. Demographics and statistical information for this Comprehensive Plan is provided from the 2010 U.S. Census, the University of Virginia's Weldon-Cooper Center, and the Virginia Employment Commission (VEC) among other sources.

According to the 2010 Census, Clarke County's population increased from 12,652 in the 2000 Census to 14,034 – an increase of 10.9%. This increase is greater than the 4.5% increase from 1990-2000 and can be attributed to the housing "boom" experienced from 2001-2005. Despite this increased growth rate, Clarke still grew at a slower rate than any surrounding jurisdictions (ranging from Warren County's 19% rate to Loudoun County's 84.1% rate), and below the Commonwealth of Virginia's growth rate of 13%. The County also grew at a slower rate than the 14,205 projection made in 2005 by the Weldon-Cooper Center.

Population density within Clarke County (persons per square mile) increased from 57 in 1980, to 70 in 1990, to 72 in 2000, and to 78 persons per square mile in 2010. This level of density remains considerably lower than in all surrounding counties**,** being half that of the next most dense jurisdiction, Warren County. Most of the growth continues to occur in the northern portions of the County, with 59% of the population in Census Tract 101 (the northern half of the County west of the Shenandoah River, including the Town of Berryville). Census Tract 102 (the southern half of the County west of the River) has 22% of the population. Census Tract 103 (east of the River) has 19% of the population.

TABLE 5 – Population and Growth Rates, 1950-2010

Jurisdiction	1950	1960	1970	1980	1990	2000	2010
Clarke	7,074	7,942 (12.2%)	8,102 (2.0%)	9,965 (23.0%)	12,101 (21.4%)	12,652 (4.5%)	14,034 (10.9%)
Loudoun	21,147	24,549 (16.1%)	37,150 (51.3%)	57,427 (54.6%)	86,129 (50.0%)	169,599 (96.9%)	312,311 (84.1%)
Frederick/City of Winchester	31,378	37,051 (18.1%)	48,322 (30.4%)	54,367 (12.5%)	67,686 (24.5%)	82,794 (22.3%)	104,508 (26.2%)
Warren	14,801	14,655 (-1.0%)	15,301 (4.4%)	21,200 (38.6%)	26,142 (23.3%)	31,584 (20.8%)	37,575 (19.0%)
Fauquier	21,248	24,066 (13.3%)	26,375 (10.0%)	35,889 (36.1%)	48,860 (36.1%)	55,139 (12.9%)	65,203 (18.3%)
Fairfax	98,557	275,002 (179.0%)	454,275 (65.2%)	598,901 (31.8%)	818,584 (36.7%)	969,749 (18.4%)	1,081,726 (11.5%)
Berkeley Co., WV	30,359	33,791 (11.3%)	36,356 (7.6%)	46,775 (28.7%)	59,253 (26.7%)	75,905 (28.1%)	104,169 (37.2%)
Jefferson Co., WV	17,184	18,665 (8.6%)	21,280 (14.0%)	30,302 (42.4%)	35,926 (18.6%)	42,190 (17.4%)	53,498 (26.8%)

Source – US Census 2010

The U.S. Census does not make projections. The University of Virginia's Weldon-Cooper Center, through a contractual arrangement with the Virginia Employment Commission (VEC), establishes the official population projections for the state. The VEC projected population for Clarke in 2020 is 15,025, a 7.1 percent increase from 2010. It should be noted that population projections are based on local and regional growth trends. A locality's growth control measures and approach to land use is not included as a factor in making the projections.

Clarke County's neighboring counties continued to experience significant growth. As a point of reference, the Code of Virginia establishes a decadal growth rate of 10% or more as "high growth." Loudoun's growth of almost 100% in the 1990s was nearly repeated with an 84.1% rate in the 2000-2010 period, but is projected to slow to 27.2% through 2020. Fauquier's growth rate increased from 13% in the 1990s to 18% in the 2000s and is expected to increase by 13.7% in the current decade. The combined population of Frederick and Winchester grew by 22% in the 1990s, and increased by 26.2% in the past decade. The 21% Warren County growth rate in the 1990s slowed slightly to 19%. The 17% rate of growth in Jefferson County in the 1990s increased to 26.8%. Similarly, the 28% Berkeley County growth rate also increased to 37.2%. Jefferson and Berkeley Counties are projected to continue growing at rates of 17.2% and 23.4% respectively over the current decade.

TABLE 6 – Population Projections, 2000-2030

Jurisdiction	2010*	2020**	Growth % 2010-2020	2030**	Growth % 2020-2030	2040**	Growth % 2030-2040
Clarke	14,034	15,025	7.1%	15,871	5.6%	16,631	4.6%
Loudoun	312,311	397,272	27.2%	482,234	21.4%	567,195	17.6%
Frederick	78,305	97,192	24.1%	119,419	22.9%	145,938	22.2%
City of Winchester	26,203	27,967	6.7%	29,449	5.3%	30,781	4.5%
Warren	37,575	41,856	11.4%	45,818	9.5%	49,709	8.5%
Fauquier	65,203	74,118	13.7%	83,312	12.4%	93,028	10.4%
Fairfax	1,081,726	1,182,609	9.3%	1,271,995	7.6%	1,350,245	6.2%
Berkeley Co., WV	104,169	128,550***	23.4%	155,566***	21.0%	n/a	n/a
Jefferson Co., WV	53,498	62,691***	17.2%	71,208***	13.6%	n/a	n/a

Sources:
* US Census (2010 population)
** University of Virginia's Weldon-Cooper Center (projections)
*** West Virginia University's Bureau of Business and Economic Research (WV projections)

The 60 miles to Washington, D.C. and the buffer afforded by the Blue Ridge along the County's eastern border have in the past shielded Clarke County somewhat from urban development pressures. However, Fairfax County is now heavily urbanized with 1,081,726 residents (2,766 people per sq. mi.), and Loudoun County is among the fastest growing jurisdictions in the nation. In addition, major employment centers are continuing to be developed in Loudoun and Prince William Counties. Because of this continued growth in surrounding counties, it can be expected that Clarke County's desirability for

residential and economic growth will continue to increase. It thus becomes increasingly important to provide Clarke County's residents with land-use planning that balances diverse community interests.

2. Mobility and In-Migration

The 2010 Census revealed that Clarke County had an increase of people moving into the county versus moving out (Migration) from 9.5% to 11.4%. The County also had a higher rate of deaths versus births (Natural Increase) from 0% to -0.5%. The increase in migration is likely a result of the increase in new home construction from 2001-2005 as well as homebuyers looking for more affordable housing options away from Northern Virginia's urban core and to seek the high quality rural lifestyle. The increase in the rate of deaths versus births is indicative of an aging population as younger residents and families are not coming to or remaining in the County as they had in previous years. The net migration rate for Virginia and the natural increase rate both increased from 2000-2010. Migration and natural rates of increase were greater for surrounding jurisdictions.

TABLE 7 – Migration and Rates of Natural Increase

MIGRATION				NATURAL INCREASE	
Jurisdiction	**2000**	**2010**		**2000**	**2010**
Clarke	9.5%	11.4%		0.0%	-0.5%
Loudoun	37.9%	61.2%		10.9%	22.9%
Frederick	10.6%	24.9%		3.5%	7.3%
City of Winchester	9.3%	4.7%		3.4%	6.4%
Warren	6.0%	14.0%		2.5%	5.0%
Fauquier	11.4%	12.6%		2.7%	5.7%
Virginia (statewide)	3.7%	6.5%		3.2%	6.5%

Sources: US Census (2010) and Weldon-Cooper Center
* Migration – Rate of people moving in vs. people moving out
* Natural Increase – Rate of births vs. deaths

3. Commuting Patterns

According to the U.S. Census Bureau's 2007-2011 American Community Survey 5-Year Estimates, roughly 2/3 of the County's workforce were employed outside of the County. 66.4% of residents worked outside of the County as compared to 26.9% that worked in the County. This is a slight increase from the 2000 Census which depicted 64% of workers employed outside of the County. As indicated in the table below, the average travel time to work for commuters is 34.5 minutes. The American Community Survey results indicated that 22.2% of workers reported a daily commute to work of 60 minutes or greater. The top five destinations for commuters include Loudoun County, Fairfax County, City of Winchester, Frederick County, and Washington, DC.

TABLE 8A – Commuting Patterns

	2000	2010
Mean Travel Times (min)	32.4	34.5
Workers 16 yrs/older	n/a	6,952
Drove alone (%)	77.3%	82.6%
Carpool (%)	10.8%	9.7%
Walked (%)	n/a	1.6%
Other/Public Trans (%)	n/a	1.4%
Worked from home (%)	n/a	4.7%

TABLE 8B – Top 10 Places Residents Are Commuting To and From

Top 10 places residents are commuting to:			**Top 10 places non-residents are commuting from:**	
AREA	**WORKERS**		**AREA**	**WORKERS**
Loudoun County	1,553		**Frederick County**	932
Fairfax County	1,058		**City of Winchester**	285
City of Winchester	572		**Berkeley County, WV**	247
Frederick County	459		**Jefferson County, WV**	230
Washington, DC	201		**Loudoun County**	182
Montgomery County, MD	191		**Warren County**	156
Prince William County	183		**Shenandoah County**	88
Arlington County	139		**Hampshire County, WV**	67
Warren County	127		**Fairfax County**	53
Jefferson County, WV	120		**Fauquier County**	41

Source: US Census Bureau OnTheMap Application and LEHD Origin-Destination Employment Statistics Program (2011)

4. Employment and Wages

The table below lists the top 10 employers for the first quarter of 2012. Statistics are not publicly available for Mt. Weather Emergency Operations Center, a Federal Emergency Management Agency (FEMA) facility.

TABLE 9 – Top 10 Employers, April 2013

EMPLOYER	INDUSTRY
Berryville Graphics	Printing
Clarke County School Board	Public School
Grafton School, Inc.	Health Care
Clarke County	Local Government
GGNSC Berryville LLC	Health Care
Project Hope	Nonprofit
GSM Consulting	IT Consulting
Bank of Clarke County	Banking
Powhatan School	Private School
Virginia Division of Community Corrections	State Government

Source: Virginia Employment Commission

As noted in the table below, the County's unemployment rate in 2010 was 4.4% compared to the statewide rate of 5.5%.

TABLE 10A – Unemployment Rate

	2000	2010	2011	2012
Employed Residents[1]	6,712	7,790	n/a	n/a
County Unemployment	1.6%	4.4%	5.0%	4.6%
State Unemployment	2.3%	5.5%	6.4%	5.5%

[1] Employed residents data was provided only in the decennial U.S. Census.

TABLE 10B – Unemployment Rate by Year, 2002-2013 (February)

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	FEB 2013
Clarke	3.0%	3.1%	2.8%	2.6%	2.4%	2.7%	3.5%	6.5%	5.8%	5.0%	4.9%	4.7%
Loudoun	3.7%	3.2%	2.6%	2.4%	2.1%	2.1%	2.8%	4.8%	4.8%	4.8%	4.2%	4.1%
Frederick	3.5%	3.6%	3.0%	2.8%	2.6%	3.0%	4.2%	7.7%	7.1%	5.9%	5.4%	4.9%
City of Winchester	3.8%	3.8%	3.3%	3.0%	2.8%	3.1%	4.3%	7.9%	7.5%	6.6%	6.0%	6.2%
Warren	4.0%	4.0%	3.3%	3.0%	2.8%	3.1%	4.5%	7.7%	7.2%	6.4%	5.9%	6.0%
Fauquier	3.1%	3.1%	2.7%	2.6%	2.4%	2.5%	3.4%	5.6%	5.8%	4.9%	4.9%	4.8%
Fairfax	3.4%	3.1%	2.7%	2.5%	2.2%	2.2%	2.9%	4.9%	4.9%	4.9%	4.3%	4.1%
Berkeley Co., WV	4.7%	4.6%	4.2%	3.8%	3.9%	3.8%	4.6%	8.4%	8.7%	7.9%	7.3%	7.0%
Jefferson Co., WV	3.9%	3.7%	3.3%	3.1%	3.1%	3.0%	3.7%	6.5%	6.4%	6.0%	5.2%	5.1%

Sources: Virginia Employment Commission
WVU Bureau of Business and Economic Research

TABLE 11 – Employment and Wages

	2000			3Q 2012		
Industry	**# of Jobs**	**Avg Weekly Wage**		**# of Jobs**	**# of New Hires**	**Avg Weekly Wage**
Agriculture, Forestry, Fishing, Hunting	132	$401		151	12	$507
Construction	319	$562		310	50	$715
Manufacturing	1191	$611		n/a	23	n/a
Wholesale Trade	37	$1,562		156	16	$1,367
Retail Trade	309	$294		246	46	$403
Transportation and Warehousing	56	$496		16	6	$668
Information	26	$832		17	0	$1,104
Finance and Insurance	21 (2005)	$1306 (2005)		92	6	$847
Real Estate, Rental, and Leasing	35	$378		48	7	$756
Professional, Scientific, and Technical Services	89	$898		228	33	$1,892
Administrative, Support, and Waste Management	53	$250		107	14	$483
Educational Services	1157	$482		262	34	$810
Health Care and Social Assistance	221	$351		391	74	$460
Arts, Entertainment, and Recreation	84	$332		57	28	$366
Accommodation and Food Services	143	$210		228	73	$267
Other Services (except Public Administration)	168	$425		136	14	$741
Public Administration	267	$483		722	27	$840

Source: US Census (2010) and Virginia Employment Commission

5. Income

a. Median Household Income. Median household income is the middle income in a distribution of all family incomes. The U.S. Census Bureau calculates this figure in conjunction with the decennial census. In 2010, the median household income was $77,048 – a significant increase from the 2000 Census figure of $59,750. This figure exceeds the statewide median of $63,302 and also

exceeds figures in Frederick County ($66,440), City of Winchester ($46,065), Warren County ($61,379), and Jefferson County, WV ($65,285). The County's figure was less than the median income in Fairfax County ($108,439), Loudoun County ($120,096), and Fauquier County ($87,958).

b. Per Capita Income. Per capita income is the average income per person in a defined area. In Clarke County, the per capita income was $37,551 per the U.S. Census 2007-2011 estimates – up from $24,844 reported in the 2000 Census. This exceeds the state average of $33,040. Similarly, the County's income figure exceeded Frederick County ($29,409), City of Winchester ($26,343), Warren County ($30,069), and Jefferson County, WV ($29,602). The County's figure was less than Fairfax County ($63,302), Loudoun County ($46,493), and Fauquier County ($40,569).

c. Poverty Status. Poverty is defined by the U.S. Department of Housing and Urban Development as an income level of 30% or less of median income varied by household size. Per the U.S. Census 2007-2011 estimates, 6.7% of Clarke County's residents were determined to be below the poverty level of $23,114. This figure is well below the statewide average of 10.7% and also below Frederick County (7.9%), City of Winchester (18.7%), Warren County (8.8%), and Jefferson County, WV (9.1%). The figure was above the figures for Fairfax (5.5%), Loudoun (3.4%) and Fauquier Counties (5.3%).

6. Ethnic Composition

The ethnic composition of a community is a key element of its character. Change in the relative size of ethnic groups can be a challenge and an opportunity for a community. Currently, the County is relatively homogenous, but this has not always been the case. The first census of Clarke County, in 1840, showed 55% of population to be African-American (52% slaves and 3% free colored), but this gradually changed over time. In 2000, African-American residents made up 6.7% of the County's population. This number decreased to 5.5% in the 2010 Census. Over the same time period, the County's Hispanic population increased from 1.5% to 3.6 % reflecting national trends.

TABLE 12 – Ethnic Composition of Population

ETHNICITY	2000	2010
Population	12,652	14,258 (2011 est)
White persons (%)	91.1%	91.0%
Black persons (%)	6.7%	5.5%
Hispanic/Latino persons (%)	1.5%	3.6%
American Indian/Alaska Native (%)	n/a	0.3%
Asian persons (%)	n/a	1.1%
Hawaiian/Pacific Islander persons (%)	n/a	0.1%
Two or more races (%)	n/a	2.0%
White persons not Hispanic (%)	n/a	88.0%

Source: US Census 2010

7. Age Distribution

Population age distribution is very important from a planning perspective for several reasons. People under age 18 and over age 65 years are generally more dependent on family or public resources than those of prime working ages. Therefore, a large population in these age brackets can dramatically influence per capita income and buying power.

According to the Census Bureau's 2011 American Survey 1-Year Estimates, nationally 26.6% of the population is 19 years or younger, 60% is between the ages of 20 and 64, and 13.2% is 65 and older. For Virginia, 25.9% of the population is 19 years or younger, 61.7% is between the ages of 20 and 64, and 12.5% is 65 and older.

TABLE 13 – Age Distribution of Population in Clarke County

Age Range	1970	1980	1990	2000	2010*	2030*/**
17 or younger	32.4%	27.0%	22.8%	23.4%	25.0%	20.8%
Under 5 years	8.0%	6.0%	6.4%	5.2%	5.2%	5.3%
5-17 years	24.4%	21.0%	16.4%	18.2%	19.8%	15.5%
18-64 years	56.0%	59.5%	63.2%	62.0%	58.7%	53.8%
65 years or older	11.6%	13.5%	14.0%	14.6%	16.3%	25.4%

Sources: US Census (2010) and Virginia Employment Commission

* 2010 and 2030 figures used age range of 19 or younger, 5-19 years, and 20-64 years

** Virginia Employment Commission projection (2011)

8. Educational Attainment

The US Census Bureau's American Community Survey 5-year Estimates (2007-2011) indicate that 89.6% of persons over 25 years of age in Clarke County were high school graduates. This figure is higher than the statewide average of 86.6%. 31.6% of persons over 25 years of age have completed a four year college degree which is slightly below the statewide average of 34.4%. Increases in both rates are shown in the table below.

TABLE 14 – Educational Attainment of Persons over 25 Years of Age in Clarke County

Year	High School Diploma or Greater	4 year college degree or greater
1980	57.3%	15.7%
1990	75.0%	18.6%
2000	82.1%	23.5%
2011[1]	89.6%	31.6%

Sources: US Census (1980, 1990, 2000, 2011)

[1] 2007-2011 American Community Survey 5-year Estimates

G. HOUSING PATTERNS

1. Housing Growth

Over the past three decades, the County has experienced a relatively steady rate of new housing growth due primarily to the implementation of sliding-scale zoning in 1980. The County's approach to land use decision-making directs growth to the incorporated towns and strongly limits residential development in the County's unincorporated areas. Allowing higher density residential development to occur only in the towns enables development to be more closely managed through provision of public water and public sewer. As noted in the table below, the rate of increase of new dwellings has ranged from 14.4%-18.9% over the past three decades.

TABLE 15A – Housing Growth

	1980	1990	2000	2010
Population	9,965	12,101	12,652	14,034
Percentage Increase	n/a	21.4%	4.5%	10.9%
# of Dwelling Units	3,961	4,531	5,388	6,185
Percentage Increase	n/a	14.4%	18.9%	14.8%
Persons Per Dwelling Unit	2.52	2.67	2.35	2.27

2. Distribution of Housing

Distribution of the housing stock influences the County's ability to provide public services, affects the amount of land available for agriculture, and affects the rural and scenic character of the County. For these reasons, the County has designated Berryville and Boyce as the most appropriate areas for residential growth to occur. However, from 1980 to 1992, fewer than 4% of the permits issued for new dwelling units were within the designated growth area. In the 1980s, 98% of new units were built outside of Berryville, compared with 85% of new units in the 1990s, and 54% of new units were built outside of Berryville and Boyce from 2000-2011.With the adoption of the Berryville Area Plan and the approval of several major subdivisions within that area, along with three new subdivisions developed within the Town of Boyce, the County is successfully directing future growth to the designated areas.

The table below lists the major subdivisions developed in Boyce and Berryville since 1995.

TABLE 15B – Major Subdivisions Added in the Towns of Boyce and Berryville, 1995-2013

	Total Acreage	Total Number of Lots
Town of Berryville		
The Hermitage	107	290
Battlefield Estates	208	200
Berryville Glen	72	71
Darbybrook	38	85
Southgate	11	26
Shenandoah Crossing	19	75
Town of Boyce		
Boyce Crossing	21	43
Roseville Downs	10	28
Meadow View	13	41

The table below lists the distribution of residential lots and housing units approved by decade in the County and in the Towns of Berryville and Boyce.

TABLE 15C – Residential Lots and Housing Units, 1970-2011

	1970-1979	1980-1989	1990-1999	2000-2011
New residential lots-Berryville	n/a	n/a	407	337
New housing units-Berryville	n/a	14	224	375
New residential lots-Boyce	n/a	n/a	n/a	131
New housing units-Boyce	n/a	n/a	n/a	93
New residential lots-County	456	350	305	295
East of Shenandoah River	n/a	n/a	65	80
West of Shenandoah River	n/a	n/a	240	215
New housing units-County*	n/a	665	556	516
Total # of new residential lots	n/a	n/a	712	763
Total # of new housing units	777	679	780	984

* Includes Boyce prior to 2000

3. Housing Condition

The predominant dwelling unit type in Clarke County is single-family detached, which represents 87% of all housing units (essentially unchanged from the 86% in 1990). Of the 6,220 housing units identified by the 2007-2011 American Community Survey, there was a total vacancy rate of 11.0%. The census considers two factors when measuring the condition of housing: lack of complete plumbing and overcrowding (more than one occupant per room). The number of dwelling units lacking complete plumbing in Clarke County declined by 56% from 1980 to 1990 (334 to 147) and by 76% from 1990 to 2000 (147 to 35 or 0.7% of the total houses***)***. From 2000-2010, that number dropped from 35 to 24 homes. Housing units considered overcrowded (one or more persons per room) fluctuated due to economic conditions (101 units in 1980, 115 in 1990, 29 in 2000) to 67 units in 2010.

4. Housing Affordability

Housing affordability is measured by the percentage of monthly income spent on rent or mortgage. Housing is considered affordable if the household costs are not more than 30% of monthly income. The 2010 Census states that 31% of county households in owner occupied dwellings spend 30% or more of their monthly income on housing costs. The median monthly mortgage amount was $1,864. The 2010 Census also states that 14.7% of households in rental units spend more than 30% of their monthly income on rent. The median monthly rent was $954.

For owner occupied housing, another measure of affordability is a purchase price of not more than 3 times a household's annual income. According to the 2010 Census, the median family income was $77,048 and the median value of an owner-occupied housing unit was $356,700 (4.6 times the median family income). The average assessed value of a single-family home plus a one-acre house site was $286,625 per the 2010 County assessment.

TABLE 16 --- Other Housing Statistics

Total Housing Units	6,220
Vacant Housing Units	656
Owner-Occupied Units	4,269
Renter-Occupied Units	1,295
Homeowner Vacancy Rate*	1.7%
Rental Vacancy Rate	9.3%
Year Structure Built (% of total)	
2005 or later	4.3%
2000-2004	8.9%
1990-1999	11.1%
1980-1989	13.3%
1970-1979	17.1%
1960-1969	9.2%
1950-1959	8.7%
1940-1949	7.4%
1939 or earlier	19.8%
Median Home Value	$356,700
Median Monthly Owner Costs	$1,974
Median Gross Rent	$1,038

Source: U.S. Census 2007-2011 American Community Survey 5-year Estimates
* Homeowner vacancy rate is the proportion of homeowner inventory that is vacant "for sale."

H. LAND USE

1. Land Use Types

Land use in Clarke County is predominantly agricultural, forested, and open space. Commercial intersections, villages, towns, and rural subdivisions are lightly dispersed throughout the County. The Town of Berryville, the predominant area of nonrural land use, includes industrial land, a central business district, and relatively dense residential development. The Town of Boyce also contains development on a nonrural scale with three residential subdivisions built in the past ten years surrounding a modest sized town core. Forest covers much of the rugged land east of the Shenandoah River. Suburban residential parcels located east of the Shenandoah River (lots under six acres) consume a significant portion of this land, 10.4 % as opposed to 5.3 % on land west of the river. This is due primarily to the presence of subdivisions that were platted prior to the 1980 implementation of sliding-scale zoning such as Shenandoah Retreat and Carefree Acres. The land west of the Shenandoah River is the agricultural heartland of Clarke County. Almost 70% of this land is used for agriculture-related operations**,** and almost 85% is in parcels of 20 acres or more.

Throughout this Plan, there are four distinct references to agricultural land:

1. Agricultural – Open Space – Conservation (AOC) Zoning District. This district provides zoning regulations to control land use. It was established by the County Board of Supervisors in 1980 and was applied to most of the Valley portion of the County.

2. Clarke County Agricultural and Forestal Districts. Agricultural and Forestal Districts are a designation established by the Virginia General Assembly (Code of Virginia, §§ 15.2-4300 through 4314 as amended) to protect and enhance agricultural land as an economic and environmental resource. Landowners voluntarily apply for inclusion in a district, but their property must meet specific criteria as agricultural land. By being in a district, the property is automatically eligible for taxation based solely on its agricultural value. The Clarke County Agricultural and Forestal District program was first established by the Board of Supervisors in 1986 and is subject to renewal every seven years.

3. Agricultural Land classification (parcels between 20 and 99 acres). The Clarke County Commissioner of Revenue classifies land for the purpose of taxation based on actual use, following criteria established by the Virginia Department of Taxation. Two of these classifications are applied to agricultural land and are differentiated based on acreage.

4. Agriculture (cropland/pasture) Land Cover
   Aerial photography, when read by experts, provides the most accurate accounting for actual land use. The Smithsonian Institution, as part of an effort to identify wildlife habitats, also identified agricultural activities.

These four designations have significant overlap. It is possible for a parcel to be in one category but not in the other three, depending on site-specific circumstances.

Below is a table listing the land area of the County and the Towns of Berryville and Boyce according to current land use, and a table listing land area by zoning district classification:

TABLE 17 – Current Land Use

LAND USE TYPES	Berryville (acres/%)	Boyce (acres/%)	County East (acres/%)	County West (acres/%)	Total (acres/%)
Urban Residential*					
With Dwellings	910/0.8%	120/0.1%	n/a	n/a	1,030/0.9%
Without Dwellings	297/0.3%	80/0.07%	n/a	n/a	377/0.3%
Suburban Residential**					
With Dwellings	n/a	n/a	1,934/1.7%	2,530/2.2%	4,464/3.9%
Without Dwellings	n/a	n/a	1,410/1.2%	769/0.7%	2,179/1.9%
Rural Residential***					
With Dwellings			2,576/2.3%	4,152/3.6%	6,728/5.9%
Without Dwellings			1,558/1.4%	1,221/1.1%	2,779/2.4%
Commercial******			6/.005%	129/0.1%	135/0.1%
Agriculture (20 to <100 acre parcels)			9,944/8.7%	24,686/21.7%	34,630/30.4%
Agriculture (100+ acre parcels)			9,389/8.2%	41,953/36.8%	51,342/45.0%
Exempt (untaxed)			3,898/3.4%	2,878/2.5%	6,776/5.9%
Recreation/Open space (not in permanent conservation easement)			194/0.2%	1,362/1.2%	1,556 /1.4%
Appalachian Trail Properties					3,441/1.2%
Shenandoah River					946/0.8%
Lands in permanent conservation easement			3,328/2.9%	18,705/16.4%	22,033/19.3%

Sources: Clarke County GIS and Commissioner of the Revenue records

Note: Parcels located in the County may be included in more than one use type. Land use types are derived from designations used by the Commissioner of the Revenue.

* Urban Residential – Limited to parcels located in the Towns of Berryville and Boyce
** Suburban Residential – Limited to parcels located in the County and less than 6 acres in size
*** Rural Residential – Limited to parcels located in the County and between 6 and 20 acres in size
****This item does not include commercial acreage located within the Towns of Berryville and Boyce (see Table 18)
Total acreage of County – 114,021 (source GIS)

TABLE 18 – County Zoning Districts; Land Uses in Berryville and Boyce

	Acres	%
Agricultural-Open Space-Conservation (AOC)	82,924	72.0%
Forestal-Open Space-Conservation (FOC)	27,054	24.0%
Rural Residential	801	0.7%
Neighborhood Commercial	27	<.01%
Highway Commercial	131	0.1%
Light Industrial	0	0.0%
Boyce	239	0.2%
Residential	209	
Commercial	30	
Berryville	1,486	1.3%
Residential	1,041	
Commercial	280	
Berryville Annexation Area	241	0.2%
Residential	152	
Commercial	6	
Institutional/Open Space	83	
Industrial	0	
Total Acreage	114,039	100.0%

2. Zoning and Subdivision

In 1980, Clarke County adopted a method of rural land preservation known as sliding-scale zoning. The primary purpose of sliding-scale zoning is to preserve agricultural land and the rural character of the County. This is accomplished by limiting the number of parcels that may be created, limiting the size of new parcels, and keeping residual parcels as large as possible. Sliding-scale zoning allocates dwelling unit rights (DURs) for parcels of land and a maximum number of dwelling units that may be built in the Agricultural/Open Space/Conservation (AOC) Zoning District and Forestal/Open Space/Conservation (FOC) Zoning District. That number cannot be increased unless parcels are rezoned in designated growth areas but is decreased as landowners build houses or place their property under permanent open-space easement. Approximately 22,000 acres of the County have been placed in permanent open-space easement. An additional 4,000 acres is recreational open space, primarily the Appalachian Trail.

A total of 6,646 DURs were initially allocated when sliding-scale zoning was implemented in 1980. This number has been adjusted to 6,541 to account for periodic auditing and retirement of DURs. As of December 2012, a total of 3,699 DURs remain unused. This equates to 2,541 DURs in AOC areas west of the Shenandoah River, and 1,158 DURs in FOC areas east of the river. When all DURs have been used in the AOC and FOC areas, the number of dwelling units in the rural portion of the County is intended to remain stable in perpetuity.

There are also areas of higher density residential parcels located in the unincorporated areas of the County that are zoned Rural Residential (RR). The Rural Residential zoning designation was used to

identify concentrations of residential development that existed prior to the 1980 implementation of sliding-scale zoning. These areas include the villages of Millwood and White Post, Shenandoah Retreat, and scattered parcels around the towns of Berryville and Boyce. RR-zoned parcels do not have DURs assigned to them and are instead governed by minimum lot size and other dimensional standards. Although there are some undeveloped RR-zoned parcels remaining, full build-out of these parcels would have a minimal impact on the total number of dwellings in the County. The RR zoning designation is not intended to be used to create new residential developments or to expand the number of parcels in existing developments or villages.

Analysis of subdivision records from 1970 to 2005 shows two important trends. The population of Clarke County (outside the Berryville Area) and the number of households continued to grow, albeit at a slower rate in the 1990s, compared with the 1980s and the first half of the 2000s. However, parcel creation occurred more slowly when compared to the number of new houses. There were 2.0 new houses built for every lot created in this decade compared to 1.8 houses for every new lot in the 1990s. In addition, the average number of new lots created per subdivision decreased significantly, along with the acreage involved in subdivisions. These trends continued into the current decade, showing the impact of the County's policies to direct residential growth. These trends are very significant when compared with the rates of growth in Loudoun and Frederick Counties.

TABLE 19 – Lots Created Outside of the Towns of Berryville and Boyce

	1970-1979	**1980-1989**	**1990-2000**	**2001-2011**
Lots Created	456	350	330	312
Houses Built	777	665	624	516

To complement the land preservation elements of sliding-scale zoning, the County and Town of Berryville have jointly adopted the Berryville Area Plan (BAP) as a master plan for the development of County lands planned for annexation into the Town of Berryville. As estimated in 1992, the BAP allows for approximately 500 new dwellings to be developed and annexed to the Town of Berryville. The total number of housing units expected in the Berryville area at full build-out is about 2,200 (1,100 existing + 600 new in pre-1989 town limits + 500 new in annexation area). Based on adopted policies and zoning regulations, the Town population would increase from 4,185 in 2010 to about 5,500 at full build-out (assuming 2.5 people per household, county average in the 2000 Census).

In the 2000s, three major subdivisions were developed in the Town of Boyce that added a total of 112 new lots. As of 2013, development in these subdivisions has either reached or is close to full build-out.

Currently, there are 280 acres of commercially zoned land in Berryville, 6 acres to be annexed by Berryville, 30 acres in the Town of Boyce, and 158 acres elsewhere in the County (Double Tollgate, Waterloo, etc.), for a total of 474 acres of land in the County zoned commercial. This does not include the 248 acres of light industrial or business park zoning. The Urban Land Institute defines a neighborhood commercial center as ranging from 3 to 10 acres, with a minimum resident population ranging from 3,000 to 40,000. A community commercial center ranges from 10 to 30 acres, with a minimum resident population ranging from 40,000 to 150,000.[1]

[1] **Source: *Shopping Center Development Handbook*. Third Edition. Washington, DC: ULI-the Urban Land Institute, 1999, page 13.**

Comparing anticipated population growth against the area currently zoned commercial suggests that additional commercial zoning will not be necessary. However, the location of some of the current commercially zoned property may not meet market needs, and some, because of location and other factors, is unlikely to be developed. The rezoning of such properties to more usable zoning districts or districts that are consistent with the property's current use, as well as consideration of additional commercial zoning, should evaluated in conjunction with the creation of the County's Economic Development Strategic Plan.

Analysis of subdivision growth has shown favorable results since the adoption of sliding scale zoning in 1980. If sliding scale zoning, in conjunction with the goals expressed in the Comprehensive Plan, continues to prove successful, modest population changes will result in the future. Based upon current projections, the population of Clarke County could reach 15,871 residents by the year 2030. Total population growth may not be significantly altered by the current policies, but growth will continue to be directed to the Towns and designated growth areas as outlined in the Comprehensive Plan. This effect will become more pronounced as dwelling unit rights are used up in the rural portions of the County.

CHAPTER II

Goals, Objectives, and Policies

1. **Agriculture**
2. **Mountain Resources**
3. **Natural Resources**
4. **Historic Resources**
5. **Conservation Easements**
6. **Outdoor Resources**
7. **Energy Conservation and Sustainability**
8. **Village Plans (Millwood, Pine Grove, White Post)**
9. **Designated Growth Areas for Development**
10. **Economic Development**
11. **Capital Improvement Planning and Fiscal Responsibility**
12. **Transportation**
13. **Citizen Participation in the Planning Process**

GOALS

The goals for land use planning in Clarke County are to:

1. Preserve and protect the agricultural, natural, and open-space character of unincorporated areas;

2. Enhance town, village, and commercial areas through context-sensitive design and walkability elements to improve the quality of life for residents;

3. Encourage and maintain a diverse and viable local economy compatible with the County's size and character; and

4. Exercise stewardship over resources so as to reduce the consumption of nonrenewable resources, utilizing renewable energy whenever possible; and foster within the private sector of the County a culture of resource conservation.

5. Provide for the economical delivery of necessary public services consistent with these goals.

OBJECTIVES

Objective 1 -- Agriculture.

Encourage agricultural operations and productivity to ensure the preservation and availability of land for the continued production of crops and livestock through the following policies and the Agricultural Land Plan.

Policies

1. Promote and protect agriculture as the primary use of land in rural areas and inform the public of benefits of this policy.

2. Support a vigorous agricultural development program in the County that emphasizes promotion of Clarke County agricultural products, encourages cooperation with individual agricultural interests within the County and with advocacy agencies, and liaisons with counties in the area that have similar development programs.

3. Utilize the Agricultural Land Evaluation and Site Assessment (LESA) System to assess accurately the suitability of land for continued agricultural use. The LESA system provides an objective evaluation tool that scores the soils and physical conditions of a parcel for agricultural use.

4. Make land use decisions and plans that are consistent with LESA ratings. Approve conversion of important farmland to nonfarm use only if an overriding public need exists to change the land use and the existing development areas cannot accommodate the new use.

5. Encourage the use of best management practices as outlined in the Chesapeake Bay Regulations and as determined by the Federal Total Maximum Daily Load (TMDL) program to improve water quality by the following methods.
   a. Making technical assistance available.
   b. Promoting public awareness on the benefits of, and necessity for, best management practices, erosion and sedimentation controls, storm water management and Chesapeake Bay Preservation Regulations.
   c. Assisting in the establishment of conservation plans for all farms adjacent to perennial streams.
   d. Encouraging the participation of all landowners engaged in agricultural activities to use the assistance of the Virginia Cooperative Extension Service, the Natural Resource Conservation Service, the Lord Fairfax Soil and Water Conservation District, and other public agencies.

6. Provide limited, low-density residential opportunities in unincorporated areas in a manner compatible with agricultural activities in the area of the county west of the Shenandoah River. Such residential development should include the following characteristics.

   a. Should not be located on Important Farmland, as determined by the County's Land Evaluation and Site Assessment (LESA) rating system.
   b. Should be on a minimum area sufficient to provide proper placement of a dwelling, related accessory structures, well, and septic system.
   c. Should be located in or substantially bounded by natural or cultural features, such as wooded areas, railroads, or public roads that would buffer them from agricultural lands.
   d. Should be located away from natural and cultural resources such as the Shenandoah River and the Blandy Experimental Farm and State Arboretum.
   e. Should be compatible with the environmental features of that land and should not diminish natural and scenic values.
   f. Should respect environmental limitations and protect natural features during and after the development process.
   g. Should be consistent with the County's sliding-scale zoning philosophy and should not involve rezoning to a higher residential density to produce additional lots above the parcel's dwelling unit right allocation.

7. Strongly discourage the rezoning of agricultural zoned properties to the Rural Residential District (RR) in areas outside of designated growth areas and villages to avoid loss of farmland, sprawl development, and consumption of potential conservation lands and open space.

8. To the maximum extent possible, separate nonagricultural land uses from agricultural lands and operations. Where nonagricultural operations are adjacent to agricultural operations, the nonagricultural operations should provide buffering in the form of fencing, landscaping, and open space, and by inclusion of the right-to-farm warning notice within the deed of dedication.

9. With the exception of telecommunication and high-speed internet facilities, discourage extension of public utilities and other growth-inducing public facilities into agricultural areas and land under permanent conservation easement.

10. Encourage all government agencies to consider the impacts that their programs and projects may have on maintaining the availability and use of agricultural land. Encourage them to eliminate or minimize adverse impacts.

11. Promote and support the renewal and expansion of the Clarke County Agricultural and Forestal District program by providing information on its benefits and incentives to associated farmland owners, timberland owners, and farm organizations.

12. Use the Land Evaluation and Site Assessment (LESA) System for the objective and consistent evaluation of applications for additions to the Clarke County Agricultural District.

13. Support use-value taxation and other fiscal programs that help to alleviate economic burdens on owners of land used for agricultural, horticultural, forest, or open-space purposes (Code of Virginia, Section 58.1-3230, as amended). Continue to implement strategies to protect agricultural land from escalating assessments as a result of development pressures.

14. Evaluate and consider implementing innovative land-conserving techniques as authorized by State law.

15. Refine and strengthen the Agricultural Land Plan to include specific strategies pertaining to agribusiness and agritourism concepts.

Objective 2 – Mountain Resources.

Preserve the natural beauty and protect the ecology of forested areas to ensure that development in those areas is in conformance with their environmental limitations through the following policies and the Mountain Land Plan.

Policies

1. Promote multiple uses of forested land that are nonintensive and compatible, such as outdoor recreation, wildlife habitats, watershed protection, and forest management.

2. Ensure that timber harvesting is conducted in accordance with Virginia Department of Forestry and Chesapeake Bay protection standards and an approved forest management plan for each site so that sedimentation of streams and other environmental impacts are minimized.

3. Encourage the use of best management practices as outlined in the Chesapeake Bay Regulations and as determined by the Federal Total Maximum Daily Load (TMDL) program to improve water quality through the following methods.

a. Making technical assistance available.
b. Promoting public awareness on the benefits of, and necessity for, best management practices, erosion and sedimentation controls, stormwater management and Chesapeake Bay Preservation Regulations.
c. Assisting in the establishment of conservation plans for all farms adjacent to perennial streams.
d. Encouraging the participation of all landowners engaged in forestal activities to use the assistance of the Virginia Department of Forestry, the Natural Resources Conservation Service, the Lord Fairfax Soil and Water Conservation District, and other public agencies.
e. Supporting these and other innovative efforts to ensure continued water quality improvements in the future.

4. Provide limited, low-density residential opportunities in unincorporated areas in a manner compatible with forestal activities in the area of the county east of the Shenandoah River. Such residential development should include the following characteristics.

   a. Should be on a minimum area sufficient to provide proper placement of a dwelling, related accessory structures, well, and septic systems.
   b. Should not be located on steep slopes, slippage soils, or ridgelines.
   c. Should recognize the fragile nature of the soils and slopes, understanding that trees protect these features from erosion and clearing should be limited.
   d. Should be compatible with the environmental features of that land and should not diminish natural and scenic values.
   e. Should respect environmental limitations and protect natural features during and after the development process.
   f. Should be consistent with the County's sliding-scale zoning philosophy and should not involve rezoning to a higher residential density to produce additional lots above the parcel's dwelling unit right allocation.

5. Strongly discourage the rezoning of forestal zoned properties to the Rural Residential District (RR) in areas outside of designated growth areas and villages to avoid loss of forest, sprawl development, and consumption of potential conservation lands and open space.

6. Promote the protection of lands adjoining or visible from the Appalachian National Scenic Trail, the Shenandoah River, and other public lands. Protect the scenic value of those lands when making land use decisions and plans.

7. Promote the addition of forestal lands to the Clarke County Agricultural and Forestal District program by providing information on the program's benefits and incentives to owners of timber lands.

8. Work proactively with the Mount Weather Emergency Operations Center to encourage compatible development, public notice, and public input opportunities for future expansion projects as well as continued communication and cooperation.

Objective 3 – Natural Resources.

Protect natural resources, including soil, water, air, scenery, night sky, wildlife habitats, and fragile ecosystems through the following policies, the Water Resources Plan, and other adopted policies.

Policies

1. Prohibit land uses that have significant adverse environmental impacts, recognizing especially the interrelationships among natural resources, especially between ground and surface waters in Karst topography and steep slopes.

2. Ensure that adverse environmental impacts of activities directly or indirectly related to construction are minimized. Require effective mitigation when impacts occur, such as removal of vegetation, cutting of trees, altering drainage ways, grading, and filling. Provide for effective, proactive enforcement when necessary.

3. Maintain, implement, and continue to enforce the County's strong Erosion and Sedimentation Control and Stormwater Management Ordinances.

4. Manage and protect floodplains by the following methods.
   a. Limiting structures, uses, and activities in the 100 year floodplain that cause sedimentation, harm to property, and adverse impacts due to the risk of floating debris and bank erosion.
   b. Enforcing floodplain management regulations so that residents continue to be eligible for flood insurance under the National Flood Insurance Program.
   c. Prohibiting installation of drain fields in the 10 year floodway.
   d. Discouraging the use of drain fields within the 100 year floodplain.

5. Recognizing that the Shenandoah River is a state-designated Scenic River and is one of the County's significant environmental and recreational resources, provide for its protection by the following methods.
   a. Cooperating with state agencies in developing a river corridor management plan.
   b. Limiting development within the River's 100-year floodplain.
   c. Promoting the placement of conservation and scenic easements on lands within view from the River and seeking to protect the scenic value of those lands when land use decisions and plans are made.
   d. Promoting initiatives to reduce bank erosion, evaluate the impact of new or expanded private river accesses (e.g, docks and ramps), protect canoeists and other recreational users, and minimize noise levels.
   e. Considering participation in a regional Shenandoah State Scenic River Advisory Board and/or establishing a local board or committee to provide guidance and develop programs to protect and enhance the river's scenic beauty.

6. Apply best management practices to protect local and regional water resources and environmentally sensitive areas such as the Shenandoah River, Opequon Creek, perennial streams, floodplains, wetlands, steep slopes, slippage soils, and highly erodible soils. Establish specific water quality performance guidelines to include Chesapeake Bay

Resource Protection and Resource Management Areas when considering land use and development related activities.

7. Identify and inventory environmentally significant land suitable for the preservation and conservation of natural resources. Encourage landowners to apply for preservation programs such as the Agricultural and Forestal District program (AFD) as well as applicable use-value taxation for such lands as "real estate devoted to open space use" (Code of Virginia, Section 58.1-3230). Such real estate includes parcels adjacent to designated scenic rivers, wetlands, designated scenic highways, registered historic structures. Such real estate also includes lands adjacent to or under permanent open space easement or lying within the 100-year floodplain.

8. Prohibit new or expanded mining, oil, or gas-drilling operations.

9. Promote the placement of scenic easements on lands adjoining or visible from roads designated as Scenic Byways and protect the scenic value of those lands when making land use decisions and plans.

10. Promote the concept of linear greenways to link natural features, wildlife corridors, cultural and scenic resources, such as designated scenic rivers, designated scenic highways, registered historic properties, permanent open-space easements, recreation facilities, Blandy Experimental Farm, Shenandoah University's Shenandoah River Campus, and the Appalachian Trail.

11. Encourage and expand support for the Conservation Easement Purchase Program, both philosophically and financially, to protect natural resources important to preserving soils, watersheds, water quality, scenery, natural habitats, and air quality.

12. In response to requests for rezoning land for more intensive use in designated growth areas, encourage applicants to proffer the placement of land use easements on important scenic, historic, open-space, conservation, agricultural, or wildlife-habitat lands that are not essential to the future economic viability of the project and are suitable for future development.

13. Ensure that the natural and/or cultural features of properties held in recorded Conservation Easements and state designated scenic rivers are protected when reviewing land use decisions, such as rezoning, special use, site plan, and subdivision requests on adjacent properties.

14. Support Watershed Management planning for each perennial stream and consider any watershed management plan as a factor in making land use decisions.

15. Take all appropriate steps to protect public water sources, such as the Shenandoah River serving the Town of Berryville, and the Prospect Hill Spring serving the Town of Boyce and the communities of Millwood, Waterloo, and White Post.

16. Support Shenandoah Basin regional water planning efforts including creation of surface water management areas, and programs to study and address low flow issues. Oppose efforts to establish new interbasin transfers within the Shenandoah River watershed.

17. Utilize USGS Groundwater Study findings when evaluating proposed changes in land use and continue to support ongoing water resource monitoring efforts.

18. Establish and maintain a long term water quality monitoring network and real-time water quantity monitoring network, in cooperation with the USGS, to track changes and better assess impacts to our water resources.

19. Revise and implement the adopted County ordinance requiring pump out of septic systems per State requirements.

20. Recognize that karst terrane underlies the majority of the Shenandoah Valley, making groundwater in these areas is highly susceptible to contamination. Steps should be taken to protect groundwater and prevent contamination whenever possible.

21. Strengthen and develop site design features that protect the environment by minimizing new stormwater runoff and that provide the most effective measure of protection for onsite disposal of sewage. Factor in cost-effectiveness and ongoing maintenance requirements for current and future property owners.

22. Adopt the most stringent regulations for alternative onsite sewage treatment systems permitted by State law to protect the County's vulnerable surface and groundwater resources. Implement an onsite treatment system monitoring program including enforcement of mandatory pump-out requirements for septic systems. For new development and re-development projects that require a land use change, ensure use of the onsite sewage treatment method that provides the maximum protection to surface/groundwater resources and Karst terrane.

Objective 4 – Historic Resources

Conserve the County's historic character by preserving its historical and cultural resources for the aesthetic, social, and educational benefits of present and future citizens through the following policies and the Historic Resources Plan.

Policies

1. Develop innovative ways to protect and promote the economic and cultural importance of historic and archaeological resources.

2. Encourage and assist property owners to pursue State and National Register designation, either individually or through thematic nominations.

3. Encourage and assist property owners to place voluntary scenic easements on lands associated with historic buildings, sites, districts, and archaeological resources

representing all historical time periods and cultures present in the County. Particular focus should be given to those resources listed on the National Register of Historic Places and the County's Civil War resources.

4. Investigate and define the scope of adaptive reuses for historic structures and properties that are compatible with the County's land use regulations and infrastructure goals.

5. Establish and protect state and national historic districts, especially in rural areas, to recognize officially their historical significance and value.

6. Support the establishment of County historic overlay districts to protect recognized properties and areas of historic and archaeological value and to ensure that new nonresidential development along access corridors leading to historic areas will be compatible and harmonious with such historic areas.

7. Ensure that proposed development in County historic overlay districts is compatible with the historic architectural, landscape, or archaeological attributes of nearby or adjoining properties, neighborhoods, and districts, and that archaeological resources on the development site are not disturbed. Encourage proposed development elsewhere to be compatible with and ensure that it does not disturb nearby historic resources or the scenic values of land associated with these resources.

8. Consider historic/archaeological resources that have been surveyed and documented when reviewing land-use decisions, such as rezoning, site plan, and subdivision requests.

9. Review and update the current "Clarke County Archaeological Assessment: Historical Character of the Lower Shenandoah Valley" and include more specific recommendations to ensure protection of archaeological resources, focusing on the sites of pre-historic indigenous peoples.

10. Promote community awareness and public education through use of a wide variety of media regarding tax incentives, designation procedures, design guidelines, and appropriate rehabilitation guidelines. Support the creation of literature on the historic resources of the County to acquaint the general public, and in particular new residents, with the County's rich cultural heritage. These activities should have the objective of informing property owners and residents of the value that historic preservation adds to their properties and community.

11. Incorporate historic resources in comprehensive efforts to promote tourism in the County by aiding in the development of a promotional brochure, a local historic-plaque program, and self-guided tours.

12. Continue to map 18th- and 19th-century road traces and make the information available to the public.

13. Investigate solutions to address the issue of demolition by neglect including public education initiatives, cooperative efforts, and regulatory tools provided by State law.

14. Continue to support the research and documentation of the history of Clarke County, including but not limited to African-Americans and their contribution to the history of the County.

15. Encourage owners of eligible properties to convey historic preservation easements as a tool for protecting these properties.

Objective 5 – Conservation Easements

Ensure the continued success of the Conservation Easement program by encouraging landowners to place County lands in voluntary permanent easement. Provide support and funding of the County's Conservation Easement program and collaboration with other easement programs managed by State, Federal, and private entities.

1. Encourage and facilitate the donation of open-space and conservation easements on land that meets the criteria of the U.S. Internal Revenue Service for easement donation and that is identified as having important scenic, historic, open-space, conservation, agricultural, or wildlife-habitat qualities. Such easements should also be consistent with the Comprehensive Plan and implementing component plans.

2. Encourage and expand support for the Conservation Easement Purchase Program, both philosophically and financially, in order to fund easement purchases on land with significant conservation value that are owned by individuals with low to moderate income.

3. Encourage and support the goals of the Conservation Easement Program to protect and preserve:

    a. Land essential to agriculture including land with soils classified as "Important Farmland" by the Natural Resource Conservation Service for the continued production of crops and livestock.

    b. Forested areas for their value as natural habitat and recreation, ability to enhance air and water quality, prevent soil erosion, and as a source of renewable wood products.

    c. Historic resources, to maintain community character and identity, and encourage the tourism industry.

    d. All water resources with particular emphasis on land adjacent to the Shenandoah River and other perennial streams and the limestone ridge/groundwater recharge area to protect water quantity and quality (reference Map 3, Groundwater Recharge Area).

e. Land adjacent to the Appalachian Trail and other public lands.

f. Land with environmentally sensitive areas important to air and water quality, plant life, and wildlife.

g. Lands that provide viewsheds for the County's gateways, main roads, and scenic byways.

h. Lands that are not located in designated growth areas with the exception of those lands with scenic value, historic value, or environmental sensitivity.

4. Continue to support efforts pertaining to public education and outreach to expand the understanding and benefits of conservation easements.

5. Continue to support efforts to secure grant funding to purchase new easements and to promote stewardship of existing easements.

6. Support efforts by County staff to monitor and, where necessary, enforce County conservation easement agreements with landowners.

Objective 6 – Outdoor Resources

Promote and protect the County's outdoor resources to ensure ongoing, diverse active and passive recreational opportunities for residents and visitors to the County.

1. Develop a Recreation Plan as a new implementing component plan containing specific strategies pertaining to the County's Parks and Recreation program. Support and protect the County's local, state, Federal, and other publicly-accessible active and passive outdoor recreational resources.

2. Provide an array of recreational opportunities for citizens throughout Clarke County that meet the changing needs of the community and foster development of mutually beneficial partnerships.

3. Promote the concept of linear greenways to link natural features, wildlife corridors, cultural and scenic resources, such as designated scenic rivers, designated scenic highways, registered historic properties, permanent open-space easements, recreation facilities, Blandy Experimental Farm, Shenandoah University's Shenandoah River Campus, and the Appalachian Trail.

4. Study and implement strategies to manage the current and future recreational use of the Shenandoah River corridor.

Objective 7 – Energy Conservation and Sustainability.

Encourage sustainable development by promoting renewable energy, energy conservation, and preservation of natural resources within the context of the County's land use philosophy so that the needs of the present generation are met without compromising the ability of future generations to meet their own needs.

Policies

1. Promote energy efficiency to the maximum extent economically feasible when making decisions affecting County operations.

2. Encourage the use of active and passive renewable energy systems and consider developing policies that address potential impact of such systems on scenic viewsheds and historic resources (e.g., windmills and solar panels).

3. Encourage reusing and recycling materials, including a recycling program. Facilitate access to public recycling facilities.

4. Encourage a regional reduction in single occupant vehicles (SOVs) through mechanisms such as ridesharing, public transit, carpools, and bicycle/pedestrian accommodations. Identify locations for commuter and ridesharing lots to serve Clarke County residents and explore fee systems to recoup costs from non-County users.

5. Adopt economically feasible measures to maximize energy efficiency in the siting and design of new and refurbished public buildings, schools, and other public facilities. Establish policies that require new or renovated public buildings to be designed to meet a nationally recognized energy and environmental standard such as Leadership in Energy and Environmental Design (LEED) or Earthcraft.

6. Adopt economically feasible measures to reduce resource use, including maximizing energy use efficiency, when purchasing, recycling, and disposing of products.

7. Conduct regularly scheduled audits of County facilities to ensure energy efficiency.

8. Encourage use of Low Impact Development (LID) techniques that help manage stormwater in an environmentally sensitive manner.

9. Establish water quality performance standards that include retention of vegetation, minimal site disturbance, and reduction of nutrients and sediment in post-development stormwater.

10. Coordinate with the Town of Berryville, the Town of Boyce, and the Clarke County School District on joint sustainable community practices such as energy efficiency and alternative transportation.

11. Encourage the use of cisterns and other water reuse applications in new residential and commercial developments.

12. Consider adopting the Energy and Resource Management Plan (dated 4/20/2010) or modified version of this Plan as a new implementing component plan. Investigate tax credit programs that encourage energy conservation by residents and businesses.

Objective 8 – Village Plans (Millwood, Pine Grove, White Post)

Enhance the identity and appearance of established villages, such as Millwood, Pine Grove, and White Post.

Policies

1. Develop a new Village Plan as an implementing component plan that provides planning and economic development strategies for the designated villages.

2. Protect private and public water sources serving these areas.

3. Protect the cultural and economic identity of these communities.

4. Encourage the preservation, renovation, and restoration of existing structures.

5. Encourage economic development and revitalization of these communities through innovative uses of new and existing structures.

6. Encourage upgrading of existing substandard housing in these communities.

7. Promote projects that build upon or enhance the historic characteristics of each village including but not limited to walkability, compact development, and design elements.

Objective 9 – Designated Growth Areas for Development

Encourage business and residential development in designated growth areas to implement the principles of 1) preserving open space, farmland, natural beauty, cultural features, and critical environmental areas, and 2) improving the quality of life and services in existing towns and directing development towards these existing towns. Provide for nonresidential business development at the intersections of two or more federally-designated primary highways (U.S. Routes 50/17 and 340 and U.S. Routes 340 and 522) through the following policies, the Berryville Area Plan, the Waterloo Area Plan, and the Double Tollgate Area Plan.

Policies

1. Continue to designate the Town of Berryville and certain areas adjacent to the Town as the Berryville Growth Area. The Berryville Area Plan defines the boundaries and uses for this growth area. The boundaries of the adopted Berryville Area Plan should not be expanded until the land area addressed by the Plan is substantially developed.
    a. Direct urban and suburban uses that require water and sewer service, including residential, commercial, and light industrial development, to this growth area where they can be served conveniently and economically by available public

facilities and services. These uses include schools, parks, water and sanitary sewer, storm-water drainage, roads, police, fire, and emergency services.

b. In this growth area, provide for the construction, rehabilitation, and maintenance of affordable housing, meeting the needs of current and future households with incomes at or below the County median as planned for in the Berryville Area Plan and Town of Berryville Comprehensive Plan.

2. Apply the following land-use and design principles to development in the Berryville Growth Area.
   a. Provide for a mixture of complementary land uses and consider innovative techniques such as form-based codes that create walkable, pedestrian-friendly street networks and greater flexibility of uses.
   b. Create a range of housing opportunities and choices, including an appropriate level of affordable housing.
   c. Create walkable neighborhoods.
   d. Encourage a variety of transportation choices.
   e. Promote compact, efficient land use and building design that maximizes green space and minimizes road and utility costs.
   f. Foster distinctive and attractive neighborhoods with a strong sense of place.
   g. Include recreation areas in new developments that are provided by the developer, maintained by the developer or homeowners' association, and are designed to meet all county standards and safety regulations.

3. Continue to coordinate and cooperate with the towns of Berryville and Boyce to implement effective policies to provide for residential and business development compatible with the established character of these towns as reflected in their comprehensive plans.

4. Promote business activities at Waterloo (U.S. Routes 50/17 and 340) through provision of public water and sewer services and provision of areas zoned for business uses. An area plan should be maintained to identify: 1) the specific boundaries and mixes of uses, 2) the way public services are to be provided, and 3) the way proposed activities will be integrated with surrounding uses, especially agricultural, residential, and parcels held in permanent conservation easement. The boundary of the adopted Waterloo Area Plan should not be expanded until the land area addressed by the Plan is substantially developed, and the Plan should be periodically reviewed and updated.

5. Designate the Double Tollgate area (U.S. Routes 340 and 522) as a deferred growth area and delay county investment in infrastructure until such time as it is applicable and economically feasible. Feasibility should be triggered through evaluation of factors such as the quantity and long-term stability of growth in the immediate area, the availability of public water and public sewer capacity, and compliance with any adequate public facility measures that are developed. Once it is feasible to do so, promote business activities at Double Tollgate through provision of public water and sewer services and provision of additional areas zoned for business uses.

The Double Tollgate Area plan should be maintained to identify: 1) the specific boundaries and mixes of uses, 2) the way public services are to be provided, and 3) the way proposed activities will be integrated with surrounding uses, especially agricultural, residential, and parcels held in permanent conservation easement. The boundary of the adopted Double Tollgate Area Plan should not be expanded until the land area addressed by the Plan is substantially developed, and the Plan should be periodically reviewed and updated.

6. Ensure that land-use decisions do not allow urban and suburban forms of development to occur in designated growth areas unless public facilities and services commensurate with such development either are available or are programmed with a plan for cost recovery including but not limited to direct contribution by the development community or increased tax revenue generated by the new development.

7. Encourage the use of best management practices as outlined in the Chesapeake Bay Regulations and as determined by federal TMDL program to improve water quality and minimize runoff impacts that could be caused by development of the Berryville Growth Area and at primary highway intersections.

8. Consider developing levels of service for public facilities including public water, public sewer, roads, schools, and parks to ensure that the County is capable of providing adequate services to support existing and new development.

9. Consider the planning goals, principles, and policies of incorporated towns in designating growth areas. Make provisions for public utility services, and, where feasible, undertake joint or coordinated action with town governments, independent county authorities, and other regional entities.

Objective 10 – Economic Development

Encourage economic growth that is compatible with the County's environmental quality, rural character, and residential neighborhoods, and that provides a healthy balance between revenues from residential and agricultural uses, and those from commercial and industrial uses.

Policies

1. Establish and maintain an Economic Development Strategic Plan as a component plan to implement this Objective and its policies.

2. Direct the location of compatible businesses to designated growth areas and existing commercial centers as allowed by the adopted plans for those areas.

3. Encourage new or expanded businesses that have minimal impact on the County's sensitive environment and that do not adversely impact surrounding properties with excessive noise, odor, or light pollution.

4. Ordinances and policies should be implemented to ensure high-quality design and construction of new and redeveloped businesses. This shall include context-sensitive landscaping that makes use of native plants, xeriscaping, and use of gray water for irrigation where possible. Maintenance of landscaping and site plan features should be enforced by the County throughout the lifespan of the business.

5. Promote types of economic development that are consistent with the County's existing uses and character, including but not limited to the following.
   a. Tourism and the land uses that would benefit from it.
   b. Agricultural businesses.
   c. Agriculturally related businesses.
   d. Equine businesses and related services.
   e. Compatible light industrial uses in designated locations.

6. Protect and enhance the environmental resources of the County, recognizing that they can serve as an attraction to business and industry.

7. Encourage the attraction of business activities that complement or that work in conjunction with existing industrial and commercial activities in the County, particularly active farming and forestry operations.

8. Ensure that new commercial development occurs according to the following provisions.

   a. Does not impede traffic flow on roads and/or overload intersections.
   b. Prevents strip development by integrating new development with existing development through the use of reverse frontage, consolidated or shared access points, shared parking and/or drive aisles, internal circulation networks, and interparcel access; and ensures that land use ordinances provide flexibility to facilitate clustered development patterns.
   c. Ensures that access to and impacts on the transportation network are safe and do not degrade efficiency.
   d. Meets all applicable zoning- and building-code regulations and all standards for water, sewage disposal, and waste disposal needs.
   e. Does not have a negative impact on adjacent property values.

9. Evaluation of adaptive reuse projects, and projects to redevelop existing agricultural, commercial, and light industrial uses shall include the following elements in addition to the criteria set forth in Policy 8 above for new development projects.

   a. Whether the project is in general accord with the Comprehensive Plan.

   b. Whether the resultant structures, parking, lighting, landscaping, stormwater management, onsite well and septic systems, property ingress/egress, and other site elements would be in full compliance with County land use ordinances and State regulations.

c. The degree to which the project mitigates an existing public safety concern.

d. The degree to which the project mitigates any new impact to the existing character of the area including but not limited to noise, odor, intensity, or aesthetics.

e. In the case of a conditional rezoning application, the degree that the applicant's proffer package addresses all existing and potential site impacts to surrounding properties.

f. Consistency with prior land use decisions involving similar cases.

10. Support a vigorous agricultural development program in the County that emphasizes promotion of Clarke County agricultural products, encourages cooperation with individual agricultural interests within the County and advocacy agencies, and establishes liaisons with counties in the area that have similar development programs.

11. Seek and consider additional fiscal tools by which the County may enhance its tax base.

12. Promote the retention, attraction, and expansion of businesses and industries that support the land use goals of the County, in particular, businesses that generate a relatively high level of local tax revenue in relation to the number of jobs, create minimal impact on public services, and are compatible with the County's agricultural and natural resources.

Objective 11 – Capital Improvement Planning and Fiscal Responsibility

Ensure the provision of capital improvements in a manner consistent with the land-use objectives of the County through the following policies and the Capital Improvement Program.

Policies

1. Develop an annual Capital Improvement Planning process that evaluates the need for capital projects via established performance triggers and degree of conformance of each project with the Comprehensive Plan and implementing component plans. Also develop a means of consistent, objective, and accurate fiscal impact analysis for use in evaluating capital projects.

2. Encourage the development of level of service criteria, needs assessments, and other performance triggers to plan for capital improvements in advance of the actual need. Ensure that assessments and criteria are based on standards that are accepted by the relevant industry and that they are evaluated and updated on a regular basis by the managing department.

3. Prohibit the extension of capital improvements into areas not designated for growth in the Comprehensive Plan that would be subjected to increased development pressures by such extensions. Such improvements would include public water, public sewer, schools,

public facilities but would not include passive recreational resources and high-speed internet facilities.

4. Carefully assess the short- and long-range fiscal impacts of necessary capital improvements, such as roads, schools, and water and sewer service when land-use decisions and plans are made.

5. Provide funding for school facilities that will enable the School Board to achieve its priorities within the County's fiscal capabilities. Ensure that the School Board's goals and needs and the County's ability to fund projects are compatible and are discussed jointly on a regular basis.

6. Ensure that the County's facilities are located, designed, and constructed to maximize public convenience and accessibility. New construction should, where economically feasible, maximize use of existing facilities. Available technology should be reviewed and, where possible, technological improvements should be used to minimize the need for additional space.

7. Ensure that sheriff, fire, rescue, and emergency management provide the highest level of citizen protection within the fiscal resources of the County. Work with these agencies and departments to ensure that performance measures are established to effectively plan for future capital, personnel, and equipment needs.

8. Provide or permit Waterworks[1] and Sewerage System & Treatment Works[2] only as described in the following policies, to ensure consistency with the previously stated land-use policies.
   a. Coordinate with the Towns of Berryville and Boyce in their activities to provide Waterworks and/or Sewerage System & Treatment Works on land within Town limits and areas that the County agrees should be annexed to the Towns.
   b. Provide septage treatment facilities to meet the County's water resource and environmental protection objectives.
   c. Work with State and Federal agencies and property owners to remedy incidents where a significant health threat has been identified by the Clarke County Health Department involving existing residential development. Any applicable grant or

[1] Waterworks means a system that serves piped water for drinking or domestic use to (a) the public, (b) at least 15 connections, or (c) an average of 25 individuals for at least 60 days out of the year and shall include all structures, equipment, and appurtenances used in the storage, collection, purification, treatment, and distribution of pure water (except the piping and fixtures inside the building where such water is delivered).

[2] Sewerage System & Treatment Works means 1) Sewerage System: pipelines or conduits, pumping stations and force mains, and all other construction, devices, and appliances appurtenant thereto, used for the collection and conveyance of sewage to a treatment works or point of ultimate disposal, and 2) Treatment Works: any device or system used in the storage, treatment, disposal or reclamation of sewage or combinations of sewage and industrial wastes, including, but not limited to, pumping, power, other equipment and appurtenances, septic tanks, and any works (including land) meeting the definition of a Mass Drainfield, that are or will be (a) an integral part of the treatment process or (b) used for ultimate disposal of residues or effluent resulting from such treatment. This term does not include Subsurface Drainfields not defined as Mass Drainfields.

low-interest loan program should be pursued to assist in paying for the construction of such facilities.

d. Provide Waterworks and/or Sewerage System & Treatment Works, through the Clarke County Sanitary Authority, at property owner expense, for business uses at the intersection of two or more federally designated primary highways and/or state designated limited access primary highways, specifically the Waterloo Area (US Routes 50/17 and 340). Any applicable grant or low-interest loan program should be pursued to assist in paying for the construction of Sanitary Authority facilities.

9. Permit, in cooperation with the Clarke County Sanitary Authority, the construction of sewage treatment facilities, in accord with the aforementioned policies. These facilities should be financed by the fees charged to the users of the facilities, State and Federal grant programs, or other innovative and incentivized financing programs that produce a net benefit to the County. Facilities should use innovative, cost-effective technology consistent with environmental protection policies, such as water recycling/land application systems.

10. Evaluate all private development proposals as they relate to public utility and land-use plans.

11. Improve coordination among County departments in standardizing methods of financial calculation and projection.

Objective 12 -- Transportation

Ensure that the County's transportation system provides safe and efficient means for all modes of travel for citizens and visitors through coordinated land use decision-making and judicious use of limited fiscal resources.

1. Create and maintain a transportation plan that includes an inventory of the County's existing transportation network, planning assumptions, needs assessment, and recommended future improvements. Conduct an annual review of this plan to ensure consistency with the County's Six Year Secondary Road Improvement Plan and Budget and with the Commonwealth Transportation Board's Statewide Transportation Plan.

2. Develop specific strategies for prioritizing transportation projects, responding to new State and Federal projects in the County, and identifying new projects to improve safety or increase capacity of the public road system. Include policies on bicycle and pedestrian facilities and commuter facilities.

3. Maintain the existing primary road system at its present level and upgrade it only for safety purposes or planned traffic increases to the extent funds are provided by the Virginia Department of Transportation.

4. Establish specific transportation planning policies in the area plans for the County's designated growth areas including but not limited to policies on walkability, bicycle and pedestrian mobility, interconnected street networks, traffic calming, and other modern techniques that support high quality communities and neighborhoods.

5. Carefully assess the short- and long-range fiscal impacts of transportation improvements when land-use decisions and plans are made.

6. Develop and maintain a County bicycle and pedestrian plan.

Objective 13 – Citizen Participation in the Planning Process

Encourage citizen involvement in the planning process.

Policies

1. Provide opportunity for citizens to participate in all phases of the planning process.

2. Require that all meetings involving preparing, revising, or amending the Comprehensive Plan be publicly posted and open to the public.

3. Meet or exceed all state requirements for public notice for meetings and freedom of information requests.

4. Ensure that information pertaining to the Plan and the planning process is available to citizens in an understandable form, which may include internet postings, newsletters, mailings, informational brochures, and announcements in newspapers and on radio to stimulate citizen involvement.

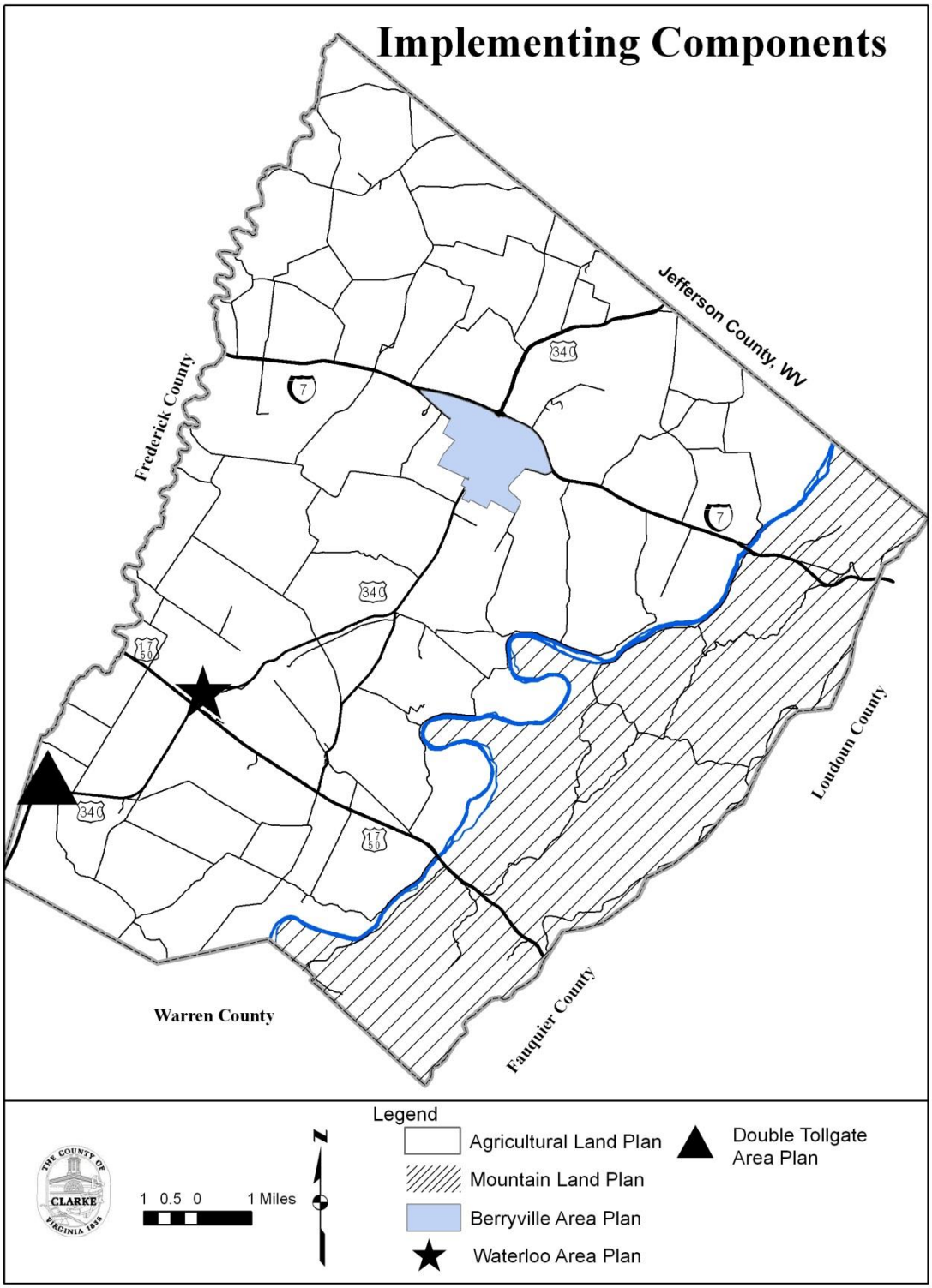
5. Encourage educational institutions, agencies, clubs, and special interest groups to review and comment on the Comprehensive Plan and implementing components.

6. Ensure uniform interpretation, administration, enforcement procedures, and staffing levels for the implementing plans, policies, and ordinances of the Comprehensive Plan.

CHAPTER III

Implementing Components

Map 5


Implementing Components
Jefferson County, WV
Frederick County
Loudoun County
Fauquier County
Warren County
Legend
Agricultural Land Plan
Mountain Land Plan
Berryville Area Plan
Waterloo Area Plan
Double Tollgate Area Plan
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INTRODUCTION

The Clarke County Comprehensive Plan utilizes a base plan structure with several implementing component plans. This document, the "base plan," contains goals, objectives, and policies that provide general guidance on land use decision-making. The "implementing component plans" are topic-specific plans that contain more detailed factual information than the base plan provides and strategies on designated growth areas, industry sectors, and County resources. Each implementing component plan is developed, vetted, and adopted through the same public process required of a County Comprehensive Plan and is reviewed and updated periodically to account for new challenges and impacts associated with growth and regulation. Component plans are standalone documents that can be obtained from the County Planning Department or the Clarke County website.

Below is a list of current implementing component plans and new plans proposed for future development:

- Agricultural Land Plan
- Mountain Land Plan
- Berryville Area Plan
- Business Intersections Plans (Waterloo and Double Tollgate)
- Water Resources Plan
- Historic Resources Plan
- Capital Improvement Plan
- Transportation Plan
- Economic Development Strategic Plan – NEW
- Recreation Plan – NEW
- Village Plan – NEW

The 2007 Plan includes a Transportation Plan as a standalone implementing component plan. Based on the recommendations of the current Comprehensive Plan, the Transportation Plan will now be maintained as a separate companion document to the Comprehensive Plan. This will enable the Transportation Plan to be updated on a more frequent basis to reflect current projects and traffic data. Objectives and policies pertaining to transportation issues remain in Chapter II.

A. AGRICULTURAL LAND PLAN

The Board of Supervisors adopted the Agricultural Land Plan in September 1997. The Federal Agricultural Census occurred in 2012 with data available in early 2014. An update of the Agricultural Land Plan should be planned for Spring 2014 based on this most recent information.

1. Summary

Clarke County, using powers delegated to it by the Virginia General Assembly, has developed a sophisticated and comprehensive set of policies and associated methods of implementation for protecting its highly-valued farmland. In addition, the County has either completed or retained consultants to assemble the background studies needed to undergird its strategies.

The major components of this state/county farmland protection program are listed below.

1. Land Use Taxation.
2. Virginia Estate Tax.
3. State right-to-farm protection against private nuisance lawsuits.
4. Agricultural and Forestal districts authorized by state law.
5. Conservation Easement Purchase Program managed by the Clarke County Conservation Easement Authority.
6. Other easement programs operated by the Department of Historic Resources, Virginia Outdoors Foundation, and private organizations such as the Piedmont Environmental Council and Potomac Appalachian Trail Conference.
7. Sliding-scale zoning system to aid in the preservation of large tracts of land.
8. The three committees that participate in various ways in efforts to maintain a strong agricultural economy:
    a. The Agricultural and Forestal District Committee that advises the Board of Supervisors on matters affecting the Clarke County Agricultural and Forestal District created through the Code of Virginia;
    b. County's Economic Development Advisory Committee (EDAC) that provides guidance on economic development matters including agribusiness and agritourism.
    c. The Clarke County Farm Bureau's Economic Development Committee.
9. Provision in the Comprehensive Plan for protecting agricultural and mountain lands, on the one hand, and coordinating the control of urban development and the provision of infrastructure, on the other. The intent of such policies is to concentrate new growth in the Towns of Berryville and Boyce and at primary highway intersections. Few jurisdictions in the country can match these accomplishments.

2. Priorities for the Next Few Years

The 1997 Agricultural Land Plan concentrates on two major themes: (1) the necessity of taking steps to strengthen Clarke County's agricultural sector to ensure that farmers can continue to operate profitably, and (2) developments in the law that affect the capacity of the County to protect its farmland resource. In conjunction with the scheduled update of the Plan, these major themes will be evaluated for relevance and expanded or modified as needed. Current trends in agriculture such as alternative farming techniques, agribusiness, and agritourism will be considered for inclusion in the Plan.

As a general matter, the protection of the County's farmland resources requires that new development be channeled away from prime farm areas and into those parts of the County that are more suitable for urban development and are well served by necessary infrastructure. In short, it is necessary to manage urban growth thoughtfully and effectively to protect natural and agricultural resources. The County should continue to articulate forcefully its policies for concentrating development in the Towns and designated growth areas.

Over the years, the County has adopted several regulations pertaining to subdivision design, especially in the AOC and FOC districts, so that they are well laid out and their impact on the natural environment is minimized. The County should continue to periodically review its zoning and

subdivision regulations and procedures to ensure that they contain policies and criteria that produce better-designed developments, while minimizing their negative impacts on surrounding areas.

3. Major Policies

1. Encourage and expand the activities of County committees that study and make recommendations on issues affecting agriculture.
2. Include the promotion of agriculture and related businesses in the responsibilities of the County's Economic Development program.
3. Retain the land use taxation program.
4. Continue to support the County's Conservation Easement Purchase program as a means of preserving prime farmland and reducing the potential impact of development on existing farms.
5. Require an agricultural disclaimer in agreements-of-sale for land in the AOC District;
6. Continue to adopt site design requirements for subdivisions in the AOC and FOC Districts; and
7. Promote agriculture-related businesses in AOC, such as pick-your-own operations, farm stands, agritourism elements, and other ways of increasing farmers' agricultural income.

B. MOUNTAIN LAND PLAN

The Mountain Land Plan was created in order to develop customized land use strategies to address the unique characteristics of the Mountain Land Area. The County Board of Supervisors adopted the original Mountain Land Plan in August 1994. The Board adopted an updated Plan in 2005.

1. Summary

The following are key excerpts from the Purpose Statement of the 2005 Mountain Land Plan.

The need for a Mountain Land Plan became apparent as people in the community recognized the importance of the mountain to Clarke County as a natural resource, a timber resource, and an environmentally important resource with regard to increases in residential development. The first Mountain Land Plan was adopted in August 1994. The need for an updated Mountain Land Plan has become apparent. Most flat and easily accessible land has been developed. Development is now occurring in mountain areas with increasingly difficult access and terrain challenges that are not adequately addressed in the current Mountain Land Plan.

As an implementing component of the Clarke County Comprehensive Plan, the Mountain Land Plan seeks to describe the mountain environment, to identify the elements that are important to the people of the County with regard to the mountain character, and to outline a plan for future development patterns.

In summary, the updated Mountain Land Plan recommends increasing the minimum lot size, requiring large residual tracts (to encourage the grouping of new lots in a manner that protects the mountain's character), and providing for continued forestry. The standards for private roads are adjusted to improve their safety and limit their impact on the natural terrain. The Plan proposes improved protection of surface and ground water resources. Clearing standards are addressed with regard to

slope, property lines, and viewshed. Recommendations are made to protect extreme slopes and areas of slippage soils from development, to the maximum extent possible. Forestry issues are addressed as well as cultural and historic resource issues.

2. Priorities for the Next Few Years

The Mountain Land Plan is the most recently drafted component plan and steps were taken in recent years to adopt ordinance amendments to implement its recommendations. Given the relative newness of the Plan, the need to review and update older component plans, and the desire to draft new recommended component plans, a major review is not recommended at this time. A review of the Mountain Land Plan should take place in conjunction with the next five-year review of the Comprehensive Plan. Efforts to further the Mountain Land Plan's recommended strategies should also continue during this period.

3. Major Policies

The following objectives were developed to guide public land use policy in the Mountain Land Area based on the above development pressures and on the unique, irreplaceable, and environmentally sensitive character of the Mountain Land Area.

1. Protect the forest resources of the area.
2. Protect surface water quality of the area.
3. Protect availability and quality of groundwater in the area.
4. Protect wildlife habitats and ecosystems (including natural heritage areas).
5. Protect the scenic values and scenic byways of the area.
6. Protect cultural resources (such as the Appalachian National Trail / historic structures/sites).
7. Ensure safe public and private roads.
8. Protect private property rights.
9. Provide for well-sited development compatible with the first eight objectives.

All of these objectives are important, but no single one is pre-eminent. The first five are mutually reinforcing objectives. A development pattern that serves any one of these objectives is likely to serve the others. Nevertheless, achieving each objective requires individual consideration. The particular characteristics of the Mountain Land Area in regard to each must be identified and policies that serve each must be developed and enacted.

C. BERRYVILLE AREA PLAN

In 1986, the governing bodies of Clarke County and the Town of Berryville appointed a joint Annexation Committee to study the Town's need to annex areas on its periphery and to draft a proposed annexation agreement. In March 1987, the Committee recommended an annexation agreement for consideration by the two governing bodies. The County Board of Supervisors and the Town Council approved the annexation agreement on December 29, 1988.

The agreement provided for annexation by the Town of two areas: Area A and Area B. Area A is comprised of parcels that were developed and served by the Town's water and sewer systems as of the

date of the agreement. The 350 acres in Area A were added to the Town's 493 acres on January 1, 1989.

The agreement stipulates that several requirements must be met before parcels in the 880-acre Area B can be annexed:

1. A land use plan for this area must be completed and adopted by the County and approved by the Town,
2. Amendments to the Zoning Ordinance and the Zoning Map to implement that plan must be enacted by the County, and
3. The Town provides water and sewer service to proposed development on the parcels.

As of January 1, 2007, the Town has annexed a total of 1,449 acres (or 84 %) of Area B since its establishment in 1989.

On April 21, 1992, the County and Town adopted the Berryville Area Plan, the land use and facilities policy for Annexation Area B. Implementing zoning ordinances were also adopted in April 1992, and properties were rezoned accordingly in July 1993. The Plan was amended in 1997, 2001, 2009, and 2010 to show changes in land use policies. The Town and County are conducting a review and update of the Berryville Area Plan concurrent with the update of both the Town and County Comprehensive Plans. Policy recommendations from both of these Plan updates will be incorporated into the revised Berryville Area Plan.

1. Summary

The purpose of the Berryville Area Plan is to provide for the orderly development of lands in the designated annexation areas through a cooperative process shared by Clarke County and the Town of Berryville. The Area Plan is critical to furthering the County's overall land use strategy of focusing residential and commercial development in the incorporated towns and designated growth areas.

To oversee the Berryville Area Plan and to help manage this cooperative process, the Berryville Area Development Authority (BADA) was formed to serve as a joint planning commission for the annexation areas. The BADA's responsibilities include maintaining and updating the Area Plan, reviewing and providing recommendations on land use applications within the annexation areas, and working with the Town and County planning commissions and governing bodies on projects to implement the Area Plan's recommendations.

The BADA is currently working on a comprehensive review and update of the Berryville Area Plan and has developed the following draft goals that will be proposed for inclusion in the updated Area Plan document. These draft goals were developed to more clearly summarize the Area Plan's purpose and objectives:

1. Provide a platform for the cooperative planning and development of lands annexed or designated for future annexation into the Town of Berryville.

2. Ensure that the Town and County's land use and environmental objectives for the annexation areas, as reflected in the respective comprehensive plans, are compatible and coordinated.

3. Verify that planned public infrastructure (water, sewer, transportation, high-speed internet) is sufficient to support the future development needs as reflected in the Plan.

4. Establish a streamlined and readily understandable process for development of lands covered by the Plan from annexation status designation through the land use approval process.

5. Strongly encourage context-sensitive development plans that are designed to complement rather than compete with Downtown Berryville, that accommodate growth in a logical and efficient manner, and that provide for the maximum protection and preservation of natural resources, historic resources, and open space.

2. Priorities for the Next Few Years

As noted above, a major review of the Berryville Area Plan is underway and is expected to be completed in conjunction with the adoption of the County and Town Comprehensive Plan updates. The primary goals of the review are to streamline and simplify the Area Plan's wording, to evaluate and recommend changes as necessary to the land use sub-areas in the Plan, and to recommend refinements to the Area Plan's policies and regulatory processes.

As the County proceeds with the update of the existing component plans and drafting of new recommended component plans, any new or amended strategies developed that may impact the Berryville Area Plan should be thoroughly evaluated and required changes to the Area Plan should be considered.

3. Major Policies

The Berryville Area Plan's objectives and policies are divided into topic-specific categories that can be summarized as follows:

1. Environment – Protect the Town's environmentally sensitive areas by focusing development away from waterways, sensitive slopes, rock outcroppings, poor drainage, and other similar areas.

2. Transportation – Coordinate new development with the Town's transportation plan.

3. Housing – Encourage housing stock that is compatible with the small-town character and historic growth patterns.

4. Land Use – Planned areas for development should complement the small-town character and should focus on areas with the strongest urban development potential.

5. Public Facilities and Services – Coordinate development proposals with the capacity of development to support it including roads, water, sewer, solid waste, schools, and parks and recreation.

6. Economic Development – New economic development should support the Town's existing economic development base with compatible opportunities for new employment and tax revenue generation.
7. Urban Design – Enhance and protect the Town's aesthetics through quality land use design criteria and regulations.

8. Implementation – Adopt policies, ordinances, and programs to further the Plan's strategies.

Map 6


Berryville Area Plan
Route 7
Route 340
Legend
Original Town
Annexation Area A, January 1989
Town of Berryville, 2008
Annexation Area B, August 1, 2013
0.25 0.125 0 0.25 Miles
N

D. BUSINESS INTERSECTIONS AREA PLANS

The Board of Supervisors adopted the Waterloo Area Plan in August 1995 and adopted the Double Tollgate Area Plan in May 2002. The County's proposed Economic Development Strategic Plan will likely require additions and changes to the Area Plans, both of which will be reviewed concurrently with the development of the Economic Development Strategic Plan. The Double Tollgate Area Plan will also be amended to establish a deferred growth approach as recommended in the draft revised Comprehensive Plan.

1. Summary

The County has two intersections of major arterial highways that are federally-designated routes: Waterloo (US Routes 50/17 & 340), and Double Tollgate (US Routes 340 & 522). These are uniquely well-suited locations for business activities dependent upon vehicular traffic. Area plans are necessary to insure that appropriate parcels are provided for such development, that the necessary utility services are available, and that the character of the development enhances the character of the County.

The original Waterloo Area Plan calls for an increase in the area zoned Highway Commercial from 18 acres to 49 acres, an expansion of uses in the Highway Commercial Zoning District, a provision of road networks in the commercial area, and an updating of stormwater management requirements. Since the last revision of the Plan, development has occurred in the southeastern quadrant of the intersection with the addition of a convenience store complex and a VDOT commuter parking lot.

The original Double Tollgate Area Plan calls for an increase in the area zoned Highway Commercial at this intersection from 24 acres to 44 acres, establishment of access management standards to protect the carrying capacity of the primary highways, and provision of central water and sewer service. While there has been a substantial increase in the volume of traffic on Route 522, no new private development has occurred since adoption of the Plan. Much of the planning associated with this Area Plan was based upon anticipated growth around nearby Lake Frederick (in excess of 2,000 new residential units) and other areas in Frederick and Warren Counties, as well as availability of public sewer from Frederick County. By 2013 and as a result of the downturn in the economy, only a fraction of the anticipated new growth had occurred in this area. Also, new state water quality requirements have reduced Frederick's available wastewater capacity. Given these changed circumstances and the costs for the County to extend public utilities to serve this area, the Comprehensive Plan recommends designating the Double Tollgate Area as a deferred growth area. The Area Plan will have to be reviewed and amended to add development triggers to indicate when and under what circumstances growth should occur in this Area.

Both the Waterloo and Double Tollgate Area Plans include specific maps to identify the boundaries of the Areas to ensure that development is confined to the parcels immediately surrounding the designated intersections.

In December 1995, the Board of Supervisors considered an area plan for the intersection of primary highways U. S. Route 340 and Virginia Route 7 Bypass. Many issues were identified in the planning process, including: diverse land ownership patterns, significant areas prone to flooding, lack of water and sewer service, poor access to primary highways, and interrelationships with the Berryville Area

Plan. The Board decided that any action establishing commercial uses at this intersection would be premature until these issues could be efficiently and economically addressed. The appropriate venue for the consideration of these issues would be as part of a future review of the Berryville Area Plan.

2. Priorities for the Next Few Years

As noted above, both Area Plans will likely be amended to include new strategies developed through the creation of the Economic Development Strategic Plan, and the Double Tollgate Area Plan will be amended to establish deferred growth policies for the Plan Area. Since both areas can be significantly impacted by new development and infrastructure projects both in and near the Plan Areas, it is recommended that both Area Plans be reviewed on the same five-year schedule as the Comprehensive Plan.

3. Major Policies

Both the Waterloo and Double Tollgate Area Plans provide recommendations regarding the scope and type of development that is desired, recommended changes to land use ordinances to manage and facilitate development and use types, policies to ensure sufficient utility capacity and transportation improvements, and strategies to maximize tax revenue generation and to encourage sustainable development.

E. WATER RESOURCES PLAN

The Water Resources Plan is comprised of two sections, one addressing groundwater resources and the other addressing surface water resources. The Board of Supervisors adopted the groundwater section on October 20, 1998, and the surface water section on December 21, 1999. The following is an overview of these two sections.

1. Summary

A. Groundwater Resources

The groundwater resources section of the Water Resources Plan covers issues relating to groundwater, including groundwater contamination from non-point sources, protection of the Prospect Hill Spring water supply, and enhanced public education of the sensitive nature of limestone geology. This section is designed to accomplish Comprehensive Plan's Natural Resources Objective that states: "Protect natural resources, including soil, water, air, scenery, night sky, wildlife resources, and fragile ecosystems."

The groundwater resources of Clarke County are particularly susceptible to contamination resulting from human activities because of the sensitive nature of the aquifers found in carbonate rocks underling the Valley region of the County. Groundwater protection and resource problems are generally greater in areas that are underlain by carbonate rocks, such as limestone and gypsum, than in areas underlain by most other rock types, because of the presence of solution-enlarged sinkholes, conduits, and caves. These geologic features characterize what is called karst terrane. The generally high permeability of these rocks facilitates the infiltration and transport of contaminants from the land surface to the groundwater reservoir.

Three-fourths of the people in Clarke County depend on groundwater as the source of their drinking water. Protecting groundwater from pollution, therefore, has been of primary importance in the County for many years. The urgency and economic necessity for doing so was highlighted in 1981, when the Town of Berryville had to abandon the wells that provided its public water supply. The wells had been contaminated by a combination of nitrates, phenols, and herbicides, none of which could be traced to a single point source. Because new wells might later become contaminated, the Town decided to draw its water from the Shenandoah River and to construct a $1.3 million plant to treat the river water.

Pollution of private wells was recognized as a problem in the 1960s. Pollution sources included improperly installed and maintained septic systems, underground storage tanks, and materials placed on the soil surface, including pesticides, herbicides, and human and animal wastes. Improper well installation was also a factor in these incidences of groundwater contamination.

The need for potable water in the Boyce-Millwood area led to the creation of the Clarke County Sanitary Authority in 1968. By the mid-1970s, the Authority began supplying water to more than 200 residences and businesses from the high-yielding Prospect Hill Spring. The recharge area of the Spring is now protected by a natural resource conservation overlay district, in which no development may occur that would adversely affect the quantity or quality of the Spring water. In addition, the County has applied for federal designation of the Prospect Hill Spring as a sole-source aquifer.

To minimize the effects of future growth and development, the Planning Commission established a Water Study Committee in 1985. This Committee directs plans and studies aimed at protecting the water resources of the County. Accomplishments of this Committee include the creation of the Clarke County Groundwater Protection Plan (1987), which, in addition to describing the sensitivity of Clarke groundwater, proposed a) an ordinance that limits land use around sinkholes, b) septic system installation guidelines, and c) water-well construction regulations. The Groundwater Protection Plan is a precursor to the groundwater resources section of the Water Resources Plan. The Committee also contracted with the U.S. Geological Survey (USGS) to conduct an in-depth study on the hydrology and quality of groundwater to assist in land use and planning decisions made in the County. This study produced the Water Resources Investigation Report 90-4134 entitled "Ground-Water Hydrology and Quality in the Valley & Ridge and Blue Ridge Physiographic Provinces of Clarke County, Virginia" (Wright, 1990).

B. Surface Water Resources

Surface waters include secondary streams or tributaries, such as the Shenandoah River, the Opequon Creek, and Spout Run (a state-designated trout stream). The surface water resources section of the Water Resources Plan addresses related issues including surface water contamination from point and non-point sources, off-stream water use, such as domestic supply and irrigation, and recreational uses. Point-source pollution comes from specific, identifiable sources. Non-point source pollution is caused by diffuse sources such as erosion, runoff, precipitation, percolation, and direct deposition from livestock and wildlife.

The 2000 Bay agreement establishes a cap on the total amount of nitrogen and phosphorus that may be discharged from wastewater treatment facilities in Virginia. The cap is set at the level of those pollutants that the Bay can tolerate in order to correct its degradation. Most larger wastewater treatment facilities must upgrade their treatment facilities to achieve much lower discharges of such pollutants under individual caps placed on those facilities by the Commonwealth. In any expansion of smaller facilities (Boyce, for example) substantial reductions in the discharge of nitrogen and phosphorus are required.

Under the coordination of the Department of Conservation and Recreation there is substantial new focus on old programs and the initiation of new programs to achieve the overall non-point source reductions goals which are being carried out by the County and the Lord Fairfax Soil and Water Conservation District. These efforts are focused in the County on (1) Acceleration of Agricultural Best Management Practices; (2) Expansion of Nutrient Management Planning and Implementation Efforts; (3) Consolidation and Strengthening of the Local Stormwater Management Program; (4) Enhancing Implementation of the Local Erosion and Sediment Control Program; (5) Enhancing Outreach, Media and Education Efforts to Reduce Pollution Producing Behaviors. Nitrogen, phosphorus and sediment non-point source reduction goals have also been set for the entire Shenandoah River watershed and tributaries including Spout Run.

The Federal Total Maximum Daily Load (TMDL) Program is currently being carried out by the Lord Fairfax Soil and Water Conservation District in the Abrams/Opequon watershed where an Implementation Plan has been developed to correct the fecal and sediment impairments in the watershed. Further TMDL Program-related efforts are anticipated shortly in the Wheat Spring Branch, Dog Run and other watersheds in the County. It has not been possible to develop a plan to correct the PCB impairment of the main stem of the Shenandoah River in the County where PCBs are concentrated in river sediments. The River continues under a Health Department Advisory against consuming fish caught in the River because of PCBs. The TMDL-related fecal impairment of Spout Run has been dealt with, at least in part, by the installation of sewer lines in Millwood.

Major fish kills have taken place in the Shenandoah River watershed in 2004-2006 with a dramatic reduction evident in the numbers of small-mouth bass and red-breasted sunfish. The State has established a fish-kill task force and a major effort is underway to determine the cause and find a solution to this serious environmental problem.

2. Priorities for the Next Few Years

A complete review and update of the Water Resources Plan should begin shortly after the adoption of the revised Comprehensive Plan. The update should focus on adding information and policies for the following items:

1. Impact of recent changes to the State's water quality regulations and stormwater management requirements.
2. Maintaining and expanding the County's water quality and quantity programs and infrastructure.
3. Additions or changes to policies that may be impacted through the update of or development of new implementing component plans.

3. Major Policies

The Water Resources Plan contains a number of strategies to protect the quality of the County's groundwater and surface water. Over the years, several ordinances have been passed, such as the Spring Conservation and Stream Protection Overlay Districts, to implement the Plan's recommendations. Programs to test groundwater wells and to monitor water quantity have also been established. The importance of the Water Resources Plan should not be understated as the complexity of the County's geology as well as the complexity of State and Federal regulations necessitate a wide range of strategies to ensure and protect water quality.

F. HISTORIC RESOURCES PLAN

The Historic Resources Plan was first adopted by the Board of Supervisors in August 1994 and was readopted as part of the Comprehensive Plan in 2001 and 2007.

1. Summary

Historic and natural resources define the physical character of Clarke County. The County's documented historic and cultural resources originated with Native Americans, thought to have been present as long as 100 centuries ago, followed by Europeans and Africans, who arrived almost three centuries ago and established the current settlement pattern. Over the past 270 years, Clarke County has evolved from a rural frontier to part of the Washington Metropolitan Area. The County intends to retain its historic resources and guard its unique character from the ever-increasing pressure of cultural homogenization.

To protect its historic resources, the County amended its zoning ordinance to establish a historic preservation commission and local historic district regulations. To encourage the preservation of these resources, the County amended its tax regulations to allow a freeze on property tax assessments for rehabilitated historic properties. In 1989 and 1992, the County conducted two surveys that documented the 962 historic structures and sites in Clarke County dating from 1710 to 1943.

The Commonwealth of Virginia helps protect historic resources by enabling local governments to have local regulations, providing grants for historic research and building rehabilitation, and providing tax credits for building rehabilitation. In addition, the U.S. Government also encourages historic structure rehabilitation through grants and tax credits. Virginia and the U.S. Government have established, respectively, the Virginia Landmarks Register and the National Register of Historic Places to list and recognize specific historic resources. In Clarke County, 28 properties are listed individually on these registers, including two national historic landmarks. In addition, seven national register districts cover a total of 33,750 acres (53 square miles or 27% of the County) and contain 1,478 contributing structures and sites.

2. Priorities for the Next Few Years

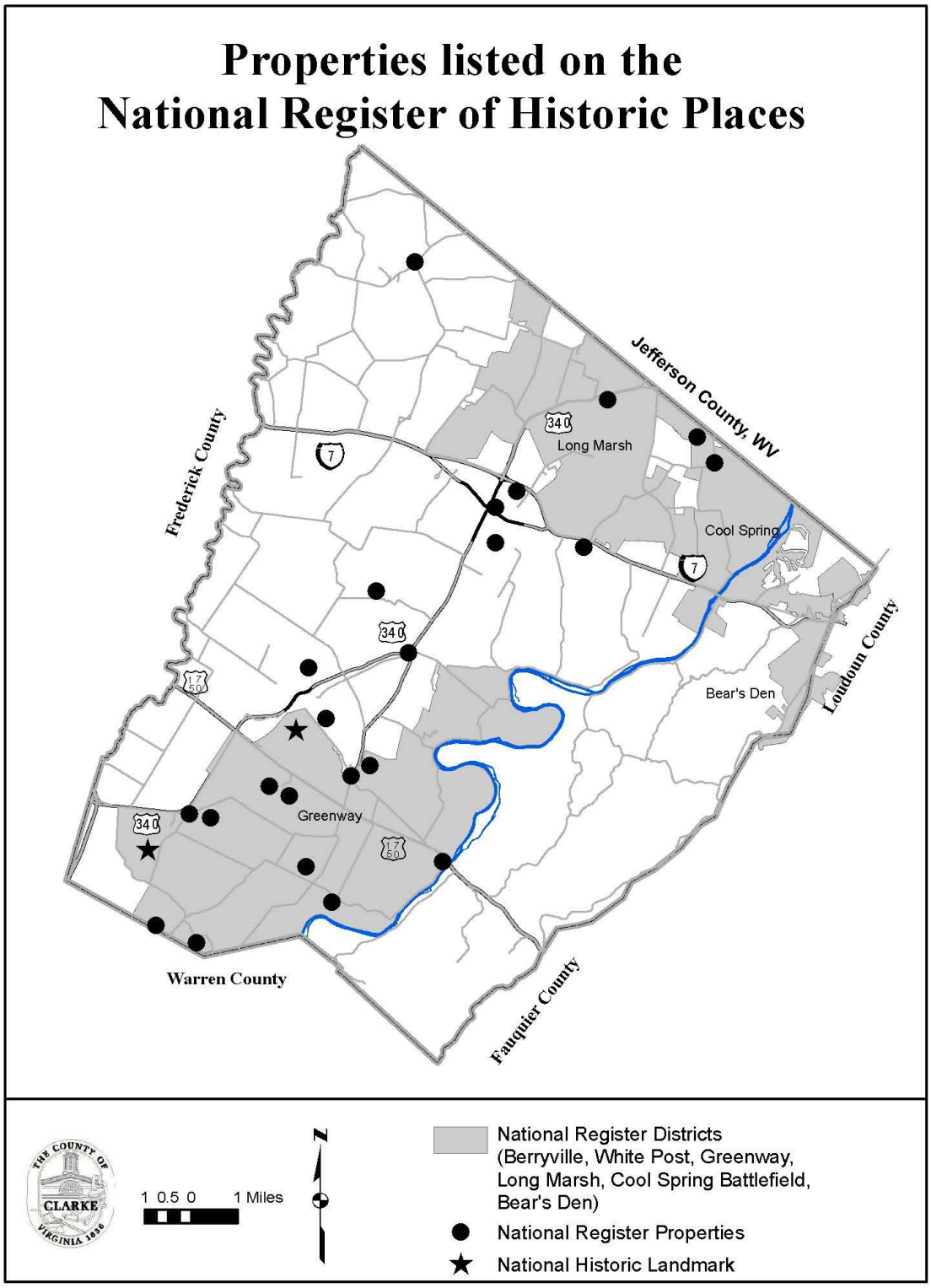
Significant implementation of the Historic Resources Plan has taken place since the Plan's original adoption including the creation of four historic districts and a fifth district in process, establishment of historic preservation regulations in the Zoning Ordinance, and creation of a Historic Preservation

Commission. In the next few years, a review and update of this Plan should take place with a focus on identifying and prioritizing remaining work items in addition to creating strategies to ensure their implementation.

3. Major Policies

The specific policies for historic preservation are found in the Comprehensive Plan. The Historic Resources Plan document contains background information on the County historic preservation efforts, State and Federal programs and details on rehabilitation standards and tax credit programs. Policies found in the Comprehensive Plan focus on the County's role to assist and facilitate property owners to place their properties on historic registries or in easement, to create ordinance language to protect existing historic resources, and to promote other historic preservation efforts.

Map 7


Properties listed on the
National Register of Historic Places
Jefferson County, WV
Frederick County
Long Marsh
Cool Spring
Bear's Den
Loudoun County
Greenway
Warren County
Fauquier County
340
7
17
50
1 0.5 0 1 Miles
N
National Register Districts
(Berryville, White Post, Greenway,
Long Marsh, Cool Spring Battlefield,
Bear's Den)
National Register Properties
National Historic Landmark

G. CAPITAL IMPROVEMENT PLAN

The intent of the Capital Improvement Plan (CIP) is to provide an outline of potential facility and services needs based upon the goals outlined in the Comprehensive Plan. Both the 2001 and 2007 Comprehensive Plans included complete CIPs. The County's CIP has not been updated since 2007.

1. Summary

A capital improvement plan (CIP) is an annual or five-year schedule of capital projects for public facilities. Types of public facilities in a CIP might include public water and sewer, parks, public safety, public buildings, and schools. Many communities prioritize these facilities and develop a CIP for three or four public facilities. Chief among these are public water, wastewater, and public safety. The capital improvement plan can be supported by a Fiscal Impact Analysis and the same levels-of-service may be used in both analyses to assess the need for new facilities and the cost of providing them.

To help tie the CIP to the Comprehensive Plan even more closely, the County may consider instituting level-of-service (LOS) standards for some or all services and facilities provided by county funding. Level-of-service is a term used to describe a benchmark or standard against which the provision of a service can be measured. Using public water as an example, the LOS may be related to the capacity of the pipes carrying the water, or the pressure of water in the home, or the capacity to treat potable water in gallons per day. The important thing with a LOS is that it can be established in many ways but is then used as a way to measure continued performance. If a goal LOS is set, it can be used to assess the need for new facilities to maintain the desired level-of-service.

The recommended process for establishing a CIP for a given facility includes the following:

1) Establish a level-of-service (LOS) for the facility;

2) Identify existing conditions of the facility, based on the established LOS;

3) Identify deficiencies (if they exist), and costs to correct the deficiencies;

4) Identify and utilize appropriate land use assumptions from the comprehensive plan;

5) Estimate demand for the facility over the planning horizon, based on the land use assumptions and the established LOS;

6) Estimate capital improvements needed to accommodate new growth and development over the planning horizon to maintain the established LOS;

7) Estimate costs over the next five years (Five-Year CIP), to provide the needed improvements;

8) Develop a financially feasible program to fund the capital improvements identified in the Five-Year CIP;

9) Review and adopt the CIP, (responsibility of Planning Commission and Board of Supervisors); and

10) Update annually.

Financial feasibility is the key element in CIP. Once needs and goals are identified, the county must have a feasible financial structure to bring about the infrastructure improvements. If the County hinges approval on the provision of services, it needs to have a service provision plan, which identifies the targeted or required levels-of-service.

The CIP is a planning tool. Capital expenditures are authorized through the annual operating budget as capital outlays. This Program does not bind the Board of Supervisors to carry out any of the proposed projects, nor does it appropriate or require the expenditure of money. The CIP also provides the basis for evaluating cash proffers associated requests to amend the County Zoning Map. Cash proffers benefiting public services should be favorably considered only if they fully address the capital costs incurred by the proposed use.

Capital improvements provide a base for essential services provided by the County to its citizens. These services include education, police and fire protection, and solid waste and recycling disposal. In addition, they provide a base for community services such as social services, parks and recreation, and library services.

Because provision of public facilities can influence when and where development will take place, they are very important growth management tools. Sufficient planning for future public facility needs is essential to provide them in the most efficient and equitable manner. Responding to the goals and objectives outlined in the Comprehensive Plan can best do this.

The construction, operation, and maintenance of public facilities are very expensive, and there is never enough money at any time to meet all demands for new and expanded facilities. Directing development to areas where facilities are already available or planned allows such facilities to be utilized more fully. In contrast, scattered development increases the demand for capital improvements and public services over a larger area, dramatically increasing public costs. Therefore, capital improvements and public services should be provided in areas designated for growth by the Comprehensive Plan.

The CIP is a plan to guide the construction or acquisition of capital projects over the next ten years. It identifies needed capital projects, estimates their costs, prioritizes them by year, and, in many instances, identifies sources of funding other than County revenues. The Program time schedule may change, depending on new information, availability of funds, population changes, or unexpected circumstances.

2. Priorities for the Next Few Years

As noted above, the CIP has not been updated since 2007 and CIPs typically operate on a five-year schedule. The Board of Supervisors will need to determine whether they want to begin preparing and adopting a CIP on an annual basis, whether they want to require level of service performance measures

to be established to justify new projects, and whether they want to direct the Planning Commission to prepare the CIP on an annual basis as allowed for in the Code of Virginia.

3. Major Policies

The following principles have been used to identify Program elements:

1. Capital improvements and public services shall be provided to the citizens of Clarke County in the most timely, efficient, economical, and equitable manner possible.
2. The locations of new capital improvements shall be within the designated growth area, in accord with the Comprehensive Plan.
3. All capital improvements shall enhance the quality, identity, and appearance of established neighborhoods, while preserving the County's natural, cultural, and historic resources.

H. TRANSPORTATION PLAN

The intent of the Transportation Component Plan is to implement the Comprehensive Plan's transportation policies that are set forth in Objective 12. The Transportation Component Plan was first added to the Comprehensive Plan in 2007. It was incorporated into the body of the Comprehensive Plan as Chapter III, Item H. The revised Transportation Plan will be developed as a separate document consistent with the other implementing component plans.

1. Summary

The Transportation Component Plan is designed to comply with the requirements of Code of Virginia §15.2-2223 which outlines specific transportation elements that must be included as part of a jurisdiction's comprehensive plan. These required elements include:

1. An inventory of the County's transportation system.
2. Planning assumptions to support the County's policies and proposed improvement projects.
3. A needs assessment that compares the existing transportation system with the County's land use policies to determine how future growth will affect the system.
4. Proposed improvement projects with cost estimates that address the County's transportation needs.

The latter element – proposed improvement projects – is a dynamic list that can change periodically in both scope and priority depending on the following factors.

1. Available funding sources.
2. Impact of or contribution to a project from the private sector.
3. Increased usage of a road or intersection as demonstrated by traffic counts.
4. Increase in the number of accidents at an intersection or road segment.
5. Other safety hazards such as bridge deficiencies and flooding/stormwater.

The Transportation Component Plan is intended to be used in concert with other transportation planning efforts such as the annual review of the County's Six Year Secondary Road Construction Plan and Budget and the State's Six Year Plan for Transportation Improvements.

2. Priorities for the Next Few Years

Given the changing nature of State and Federal funding, it is recommended that the project priorities in the Transportation Component Plan be evaluated on an annual basis. This would enable project scopes and priorities to be adjusted if new funding programs are made available for specific types of transportation projects. The Plan could be evaluated in conjunction with the Board of Supervisors' annual review of the Six Year Secondary Road Construction Plan and Budget, which typically takes place in the spring of each year.

It is also recommended that the County continue to assemble up-to-date traffic data via the Virginia Department of Transportation, law enforcement agencies, and other resources to assist in identifying new projects and obtaining funding to complete them.

3. Major Policies

Specific transportation policies may be found in Chapter II, Objective 12 of the Comprehensive Plan and are further elaborated upon in the Transportation Component Plan. In summary, the County's transportation policies mirror the overall land-use philosophy by encouraging capacity-expanding projects only within the incorporated towns where new development is directed. For the unincorporated areas, the County focuses on projects to improve safety and functionality as well as to hard surface public roads that are currently gravel surfaced. The County is generally opposed to any projects to expand the capacity of the State and Federal primary highways and instead encourages projects that provide enhanced commuter opportunities and reduction in single-occupant vehicles.

I. NEW PROPOSED IMPLEMENTING COMPONENT PLANS

Three new Implementing Component Plans are recommended for development in the 2013 Comprehensive Plan:

1. Economic Development Strategic Plan

In early fall 2012, the Board of Supervisors made the creation of an Economic Development Strategic Plan a high priority by requesting the Planning Commission to make it the top priority upon completion of the Comprehensive Plan revision. The Board also hired an economic development consultant to assist with the development of the Strategic Plan.

The Plan will include specific strategies to implement the Comprehensive Plan's economic development policies found in Objective 10. These policies include promoting economic development that is compatible with the County's existing uses and character; attracting businesses that complement or work in conjunction with the County's existing agricultural, commercial and industrial businesses; and focusing development in designated growth areas and requiring high quality design standards.

2. Recreation Plan

Objective 6 recommends the development of a Recreation Plan that encompasses the County's parks and recreation program as well as the local, state, and Federal active and passive recreation resources in the County. The purpose of the Plan would be to tie together various recreation-related plans with specific strategies to enable the County to maximize, grow, and protect our recreational resources. These plans include but are not limited to Parks & Recreation Department master plans, bike and pedestrian plans, and the Virginia Outdoors Plan.

3. Village Plan

Objective 8 recommends the creation of a Village Plan for the established villages of Millwood, Pine Grove, and White Post. The County currently does not designate these villages as designated growth areas despite the fact that they each possess a concentration of residential and commercial uses. Furthermore, Millwood and White Post both have public water and/or sewer services. The primary purpose will be to provide strategies to help address future land use requests and infrastructure needs while simultaneously ensuring that the villages' character is maintained and unintended, unplanned growth does not occur in the future.

APPENDIX

Geological Profile

APPENDIX - Geological Profile

The notable geological features of Clarke County are described below. They include geologic areas, relief, watercourses, soil types, and groundwater. All are to some degree manifestations of the County's geologic framework, which dictates the nature of the topographic features and relief, the types of soils that occur, and the characteristics and locations of surface and underground water.

1. Geologic Areas

Map 8 shows the general geology of the northern Shenandoah Valley. Clarke County encompasses three geologic areas running south-north. From east to west, these zones are described as Blue Ridge, eastern lowland on carbonate rock, and central lowland on shale and siltstone.

a. Blue Ridge

The Blue Ridge geologic area lies east of the Shenandoah River and along the western slope of the Blue Ridge Mountains. It is composed primarily of Proterozoic metamorphosed intrusive and extrusive igneous and sedimentary rock, formed some 900 million to 600 million years ago[1]. The high temperatures and pressures of metamorphism turned the Blue Ridge's diabases into metadiabase (greenstone); basalts into metabasalts; rhyolitic tuffs into metatuffs; shales into metashales, slates and phyllites; sandstones into metasandstones and quartzites; and granites and diorites into gneisses. Later, a Cambrian sea, whose marine deposits form the carbonate rock of the eastern lowland, covered the landscape.

b. Eastern Lowland on Carbonate Rock

The eastern lowland geologic area, from the Shenandoah River west to the Opequon Creek, constitutes three-quarters of Clarke County. Its carbonate-rock framework varies but is primarily limestone and dolomitic limestone. Purest limestone is found on the western part of this area. Dolomitic limestone is found toward the east, along with lesser amounts of chert, sandstone, shale, siltstone, and mudstone. These sedimentary rocks, formed as chemical precipitates of calcium carbonate or sediments of mud or sand, were consolidated under shallow seas approximately 542-488 million years ago. They now constitute a 12,000-foot thick limestone and dolomitic-rock sequence that underlies the Shenandoah Valley. Areas that are underlain by carbonate rocks, such as limestone and gypsum, contain solution-enlarged sinkholes, conduits, and caves. These geologic features characterize what is called karst terrane. The generally high permeability of these rocks facilitates the infiltration and transport of contaminants from the land surface to the groundwater reservoir.

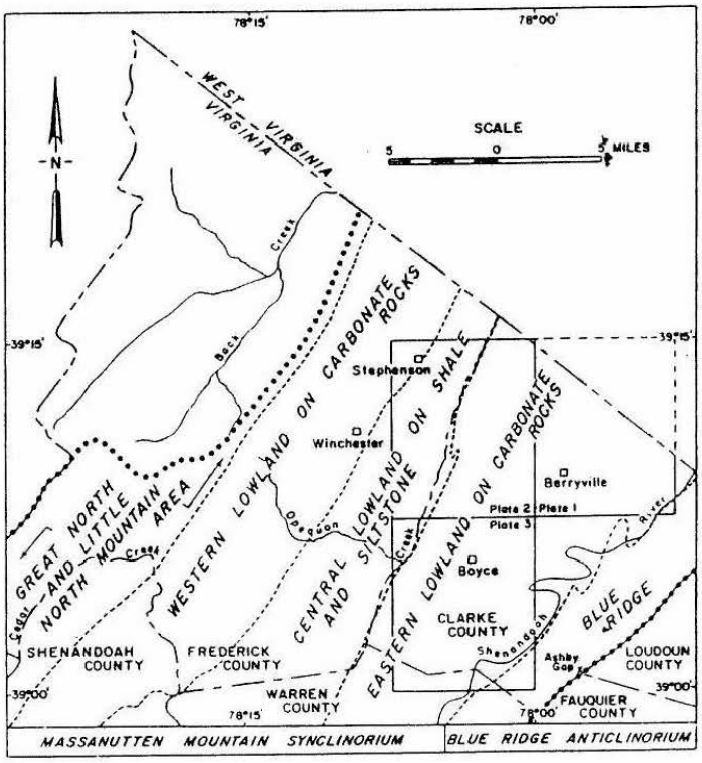
c. Central Lowland on Shale and Siltstone

The far western sliver of Clarke County is in the area described as the central lowland on shale and siltstone, which extends primarily across eastern Frederick and Shenandoah Counties and western Warren County. These are the youngest rocks remaining in Clarke County, deposited during the Ordovician Period (488-443 million years ago) over the older limestone of the eastern lowland. Low rounded hills, a large number of surface streams, a thin soil cover, and an abundance of shale chips characterize the central lowland.

[1] Note that prehistoric time increments are typically referenced in reverse order.

Map 8

Geology of the Northern Shenandoah Valley

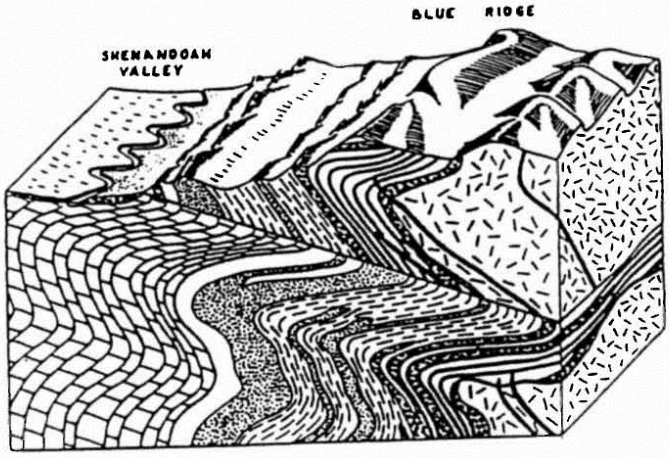


Source: Geology of Clarke County (Charlottesville, Virginia Division of Mineral Resources, 1976).

FIGURE 1 Blue Ridge and Shenandoah Valley Rock Formations and Structures

Figure 1

Land Surface of the Blue Ridge and Shenandoah Valley and its relation to rock formations and structures.



Source: Geology of Clarke County (Charlottesville, Virginia Division of Mineral Resources, 1976).

2. Major Geologic Events

Two major geologic events, occurring after the rocks of the Blue Ridge and the eastern and central lowlands were formed, shaped the topography of Clarke County. The first, called the Allegheny Orogeny, occurred during post-Ordovician times when lateral pressures from the southeast caused a tremendous movement of the Earth's crust. Besides uplifting the Appalachian Mountains, this episode resulted in extensive folding, faulting, and fracturing of the previously fairly flat layers of rock (Figure 1).

The second and more recent major geologic event is the carving of the landscape by erosion, a process that continues today. Water is considered to be the eroding agent, as there is no evidence indicating glaciers extended into this area. The magnitude of the erosion is striking: rocks representing thousands of feet of sediment have been removed by erosion during the past one million years.

3. Relief

Relief, the difference between the highest and lowest points on the landscape, varies according to the underlying geology. In Clarke County, the metamorphosed granitic and volcanic rocks of the Blue Ridge have been highly resistant to erosion, but softer sedimentary rocks of the valley have eroded considerably. Thus, the County's relief ranges from 1,935 feet above sea level on the Blue Ridge to 360 feet at the Shenandoah River. In the eastern and central lowland areas, the average elevation is about 600 feet.

4. Watercourses and Watersheds

The major watercourses of Clarke County are the Shenandoah River and the Opequon Creek. Both are within the larger Potomac River watershed. The Shenandoah flows generally at the juncture of the Blue Ridge and the carbonate rock area found on the east side of the Shenandoah Valley. The main stem Shenandoah River watershed encompasses 352 square miles, from the confluence of the north and south forks at Front Royal to the confluence with the Potomac River at Harper's Ferry; 40% of this watershed is in Clarke County. The Shenandoah watershed covers 142 square miles (or 80%) of Clarke County. Similarly, the Opequon runs on the edge of the shale area located in the central area of the Valley, where it meets the carbonate rocks. The Opequon Creek originates in Frederick County, Virginia, and extends approximately 54 miles to its confluence with the Potomac River. It has a watershed of 344 square miles, with 10% of this watershed in Clarke County. The Opequon watershed covers 35 square miles (or 20%) of Clarke County.

Flooding of the Shenandoah River prompted the County, in 1960, to establish regulations governing land use within the 100-year floodplain and 10-year floodway. The Zoning Ordinance defines a 100-year flood as a flood that, on the average, is likely to occur once every 100 years (i.e., that has a one (1) percent chance of occurring each year, although the flood may occur in any year). A floodway is defined as the channel of a river, stream, or other watercourse and the adjacent land area required to carry and discharge a flood that, on the average, is likely to occur once every 10 years (i.e., that has a ten percent chance of occurring each year). These regulations restrict building, structure, and drainfield location in floodplains.

5. Soil Types

Climate, plants, and animals act upon parent rock material to turn it into soil. Clarke County has three major soil areas: upland soils of the Blue Ridge, river terrace and floodplain soils of the Shenandoah Valley, and the upland soils of the Shenandoah Valley. Within these areas, there are 11 major soil groups, which are combinations of the various soil series. They are shown by number on Map 4 and discussed below. Percentages are given for the amount of area covered by each type.

a. Upland Soils of the Shenandoah Valley

The uplands in the Shenandoah Valley encompass most of Clarke County, including nearly all of the major population centers and most of the better farmland. Most of the soils were formed from sedimentary rocks.

Soil groups 2, 3, and 4 all have numerous rock outcrops and sinkholes. Low available water capacity, shallow rooting depth, and outcrops of limestone bedrock limit the use of machinery for farming. Limitations for residential and community development include outcrops of limestone bedrock and numerous sinkholes and solution channels in the bedrock that may result in contamination of wells and springs by surface runoff and seepage from septic fields.

Soil groups 5 and 6 have numerous rock outcrops and sinkholes but are well suited to farming, mainly row crops, pasture, and apple orchards. Limitations for residential and community development include clayey subsoils with high shrink-swell potential and low strength. Permeability is moderately slow and should be considered when septic tank absorption fields are designed. Sinkholes and bedrock channels make the groundwater very vulnerable to pollution.

1. *Berk-Endcav-Weikert (3%) is about 70% gently sloping to rolling and about 30% hilly to steep soils. These are shallow to deep, well-drained soils that have a loamy or clayey subsoil formed from materials weathered from shale or calcareous shale. The area is used mainly for pasture but includes some row crops (70%) and woodlands (30%). The soil has many limitations for farming, very low available water capacity, limited rooting depth, high acidity, low natural fertility, and coarse fragments on the surface. It also has many limitations for residential and community development.*

2. *Carbo-Opequon-Oaklet (9%) is about 35% nearly level and 65% gently sloping soils. These are shallow to deep, well-drained soils that have a clayey subsoil formed from materials weathered from limestone. This area is 85% cleared and used for pasture and row crops; 15% is wooded and generally too rocky for pasture.*

3. *Rock Outcrop-Opequon-Swimley (6%) is about 60% nearly level and 40% gently sloping soils. Areas of rock-outcrop that are characterized by shallow and deep, well-drained soils formed from materials weathered from limestone. The area is about 75% cleared for crops or pasture and 25% wooded.*

4. *Rock Outcrop-Hagerstown-Swimley (14%) is about 20% nearly level and 80% gently sloping soils. Characterized by areas of rock outcrop and deep well-drained soils that have a clayey subsoil formed from materials weathered from limestone. The area is about*

65% cleared and 35% wooded.

5. *Poplimento-Timberville (20%) is about 70% gently sloping and 30% rolling soils. These are deep, well drained soils formed from materials from interbedded limestone, shale, and colluvium. The area underlain by these soils is well suited to crops, orchards, and pasture.*

6. *Poplimento-Webbtown-Timberville (19%) is about 40% gently sloping, 45% rolling, and 15% hilly soils. These are deep and moderately well-drained soils formed from materials from interbedded limestone, shale, and colluvium. These soils are well suited for crops, orchards, and pasture. There are limitations for development based on moderate shrink-swell potential, high clay content, and the presence of sinkholes.*

b. River Terrace and Floodplain Soils of the Shenandoah Valley

These areas are mostly along the Shenandoah River and include some of the better farmland (in terms of soils) in the County. The soils here, groups 7 and 8, were formed from alluvium deposited by the Shenandoah River or from residuum weathered from adjacent uplands.

7. *Monongahela-Braddock-Webbtown (4%) is about 50% gently sloping, 30% rolling, 10% hilly, and 10% steep soils. Many areas have gravel and cobblestones on the surface. The area is used mostly for woodland but has some areas well suited for farming. About half the gently sloping and rolling soils are cleared and now used for cultivated crops or pasture. The area has many limitations for residential and community development.*

8. *Chagrin-Udipsamments-Lobdell (2%) is nearly level land that is occasionally flooded and therefore severely limited for residential and community development. The area is well suited for farming. Most is cleared and used for cultivated crops or pasture.*

c. Upland Soils of the Blue Ridge Mountains

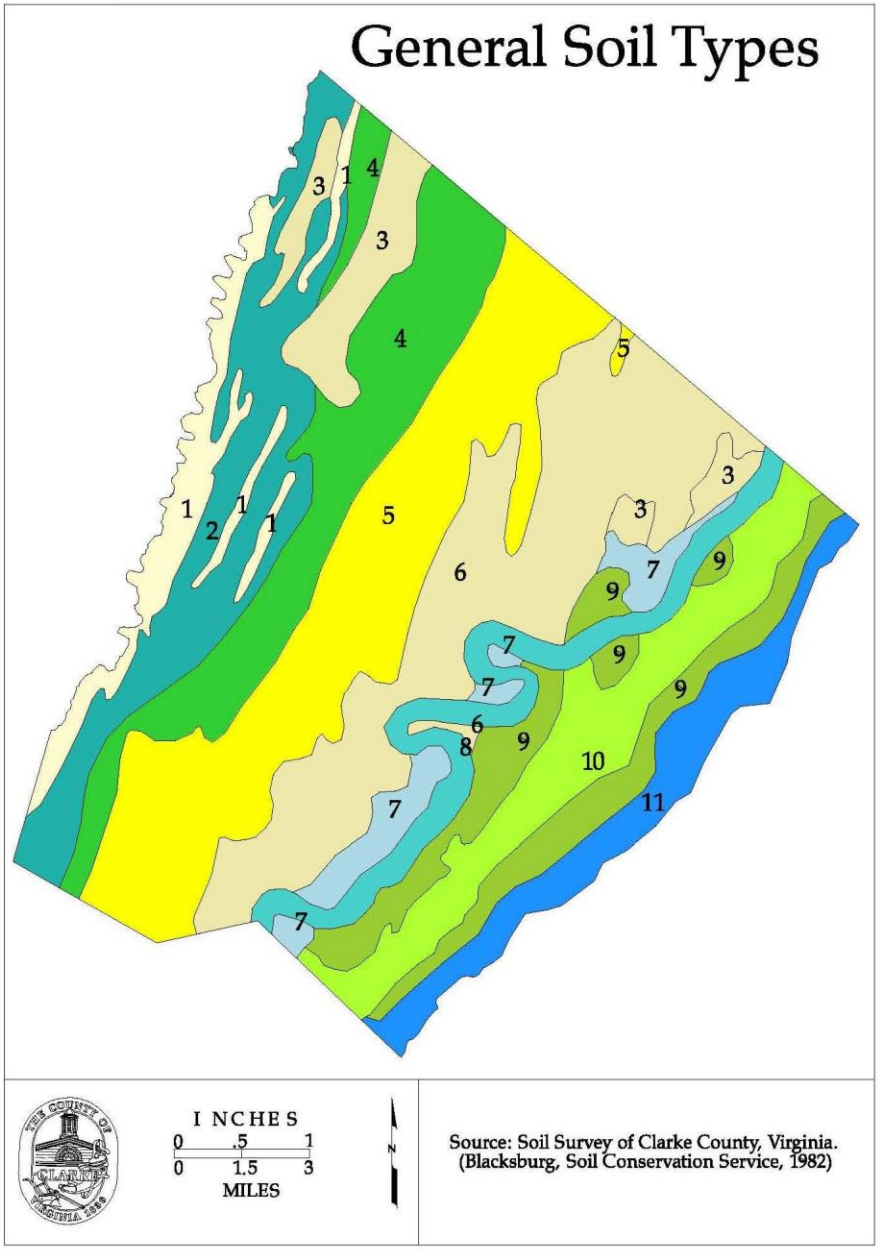
The Blue Ridge is the roughest and steepest part of the County. It is mostly woodland and contains soil groups 9, 10, 11, formed from sedimentary and metamorphic rocks. These soils have limited potential for agriculture and residential development because of slope.

9. *Dekalb-Laidig (10%) is about 10% gently sloping, 30% sloping, 30% hilly, and 30% steep soils. These are moderately deep or deep, well-drained soils formed from materials weathered from sandstone. There is a west, northwest, or north aspect to half of the area. The area is mainly forested, due to steep slopes and rocky substrate.*

10. *Cardiff-Cataska-Whiteford (5%) is about 15% gently sloping, 40% sloping, 35% hilly, and 10% steep soils. Soils are deep to shallow, well-drained and formed from materials weathered from phyllites and slates. There is a west, northwest, or north aspect to half of the area.*

11. *Catoctin-Myersville-Lew (8%) is about 25% sloping, 45% moderately steep, and 30% steep and very steep soils. Stones and boulders limit agricultural and residential development.*

Map 9


General Soil Types
INCHES
0 .5 1
0 1.5 3
MILES
Source: Soil Survey of Clarke County, Virginia.
(Blacksburg, Soil Conservation Service, 1982)

6. Groundwater

Groundwater may be considered to be any water in the ground, but generally it refers to the water below the level at which the pore spaces in soil or rock materials are fully filled or saturated with water. In most settings, groundwater moves slowly through the small pores and cracks among soil and rock particles. In humid areas, perched water tables occur above the true water table in early spring. Although some wells may obtain water from these temporary water tables, most wells are supplied from deeper, more permanent water sources or aquifers.

Groundwater protection problems are generally greater in areas that are underlain by carbonate rocks, such as limestone and gypsum, than in areas underlain by most other rock types because of the presence of solution-enlarged sinkholes, conduits, and caves. These geologic features characterize what is called karst terrane. The generally high permeability of these rocks facilitates the infiltration and transport of contaminants from the land surface to the groundwater reservoir.

Groundwater aquifers in the eastern United States are continuously replenished or recharged by precipitation. Recharge rate affects groundwater quality and quantity. Only a fraction of all precipitation, however, reaches the deep aquifers used for drinking water, because most of it runs off and flows into streams, is absorbed by plants, or evaporates.

In the steep western slopes of the Blue Ridge, aquifer recharge is slight because water quickly runs down the steep slopes before it can soak into the soil. The ancient lava and granitic rock also has few pores for seepage but does have fractures that allow some water to reach deep aquifers. Although the water quality is generally good, the quantity of water from wells on the Blue Ridge is generally low, even at great depths.

Aquifer recharge is much more rapid in the eastern lowland carbonate area, which encompasses three-quarters of the County. This carbonate area is described as karst topography. The limestone and dolomite rock is highly fractured, allowing water to move quickly through to the aquifer. Moreover, carbonate rocks are usually water soluble, and fractures are eroded to form larger channels. Sinkholes and sinking streams indicate the rapid recharge ability of this area. In areas characterized by karst, pollution of groundwater is more likely because the open channels allow ground-level pollutants quick and easy access to the aquifer.