



COMPREHENSIVE PLAN

Adopted: August 11, 2009

ACKNOWLEDGEMENTS & CONTRIBUTORS

Title: Henrico County Vision 2026
Comprehensive Plan

Author: County of Henrico, Virginia
Department of Planning

Adoption Date: August 11, 2009

Effective Date: August 11, 2009

Agency: Department of Planning

ACKNOWLEDGEMENTS:

The Department of Planning would like to acknowledge the many contributions that were received during the formulation of the Henrico County 2026 Land Use Plan. We would like to thank the consultants who got us off to a good start. We acknowledge the efforts of all County staff that were involved with this project, as well as the involvement of the citizens of Henrico County for sharing their view on the future, which in turn, helped shape the Plan. Special thanks to individuals who assisted in many ways, but whose names do not appear on this page. This massive project could not have been accomplished in the timeframe that it was without your help. Finally, we would like to thank the County Manager and his staff, the Board of Supervisors and the Planning Commission for all the time and effort afforded to Planning Department staff throughout this endeavor.

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EXECUTIVE SUMMARY

The *Henrico County Vision 2026 Comprehensive Plan* (the Plan) is an over-arching guide for the future development of Henrico County. It is a long-range vision, with goals and objectives to reflect the community's values and needs. The Plan combines assessments and recommendations on a broad spectrum of topics and functions of the county that are essential to the continued health and vitality of the community.

The county's previous comprehensive plan included the *2010 Land Use Plan*, the *2010 Major Thoroughfare Plan* (transportation), and the *2015 Parks, Recreation and Open Space Plan*. With the *Henrico County Vision 2026 Comprehensive Plan* these components, as well as chapters addressing public facilities, natural resources and community character, have been updated simultaneously and coordinated into an inclusive and unified document.

THE PROCESS

The *Henrico County Vision 2026 Comprehensive Plan* represents the culmination of a multi-year effort by the Henrico County Planning Department with assistance from the consulting firm McBride Dale Clarion, along with sub-consultants Kimley-Horn, TischlerBise, Greeley and Hansen and the Survey Evaluation and Research Laboratory at Virginia Commonwealth University. In addition, a Technical Advisory Committee, made up of representatives from several different county agencies, assisted in developing and reviewing the many components of the Plan.

Public participation was an important component of the *Henrico County Vision 2026 Comprehensive Plan* process. The Planning Department made a concerted effort to provide multiple opportunities to solicit citizen input. A dedicated website was established early in the process, allowing users to review available information and provide feedback directly to the Planning Department. A statistically valid community survey was developed and sent to a random sample of property owners to explore opinions and preferences of county residents regarding a variety of Comprehensive Plan issues and topics. Through a series of community open houses and town hall style meetings, major components of the Draft Plan were introduced and discussed. Joint work sessions between the Planning Commission and Board of Supervisors were held throughout the planning process and members of the public were invited to attend. Prior to official public hearings, full-size, color copies of the Draft Future Land Use Map were inserted into 45,000 copies of the Richmond Times-Dispatch. Over 600 interested citizens attended the various meetings and provided more than 765 comments, including 81 requests for changes to the Future Land Use and Major Thoroughfare Plans.

THE CHAPTERS

The document is organized into twelve (12) chapters. Chapter 1 (Introduction to the County) provides a brief history of the county and its development while Chapter 2 (Overview of the Plan) establishes the purpose and legal basis of the Plan. Chapter 3 (Henrico Today) offers a brief overview of the existing conditions within the county as

well as forecasts used to drive Plan recommendations. Chapter 4 (Vision, Goals and Objectives) presents the vision, goals and objectives, creating a framework or overarching vision for the Plan. Chapter 5 (Land Use) introduces the future land use designations for the county as well as development policies and density recommendations. The chapter also presents Keystone Policies, which identify the desired development character for the land use designations and function as guiding policies for development. Chapter 6 (Community Character) describes the appropriate character for a range of development types, from rural, low-intensity conservation to suburban and urban. Chapter 7 (Planning and Economic Focus Areas) identifies areas of the county requiring additional planning attention. The chapter also discusses the county's Enterprise Zone and identifies Prime Economic Development sites. Guidance on protecting, preserving and conserving the county's environmental resources is provided in Chapter 8 (Natural Resources). Chapter 9 (Parks, Recreation, Open Space, & Cultural Resources) contains an update of the 2015 Recreation and Parks Plan and includes a summary of the existing facilities and policies guiding their development. The chapter also addresses the county's efforts toward historic and cultural resource protection. Existing transportation facilities and service levels are identified in Chapter 10 (Transportation). The need for future network improvements coordinated with the Future Land Use Map recommendations are identified on the 2026 Major Thoroughfare Plan Map. Chapter 11 (Public Facilities and Utilities) identifies criteria for the assessment of potential future locations for public facilities and utilities including schools, police, fire/rescue, libraries and water and sewer. Finally, Chapter 12 (Implementation) identifies the various actions necessary to carry out the recommendations of the Plan. This includes a matrix where responsible parties and the timeframe for completion are identified.

MAPS

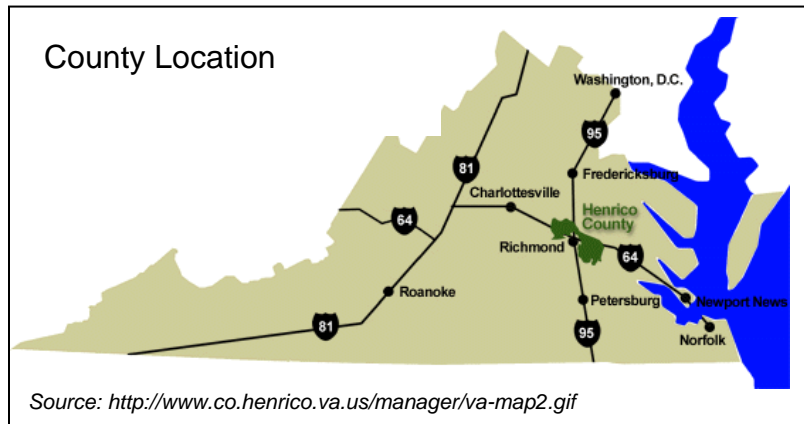
This document contains a series of maps, which are a vital part of the *Henrico County Vision 2026 Comprehensive Plan*. These visual images provide supplemental information that may otherwise be difficult to describe in written text. Due to the scale at which they are printed, the maps are for general planning purposes only. Specific questions regarding the information contained in the maps should be directed to the Henrico County Planning Department.

APPENDICES

In addition to the text and maps, the Plan also contains several appendices, which provide supplemental information about the background and process involved in developing the Plan. Included in the Appendices are the results of research performed on demographics and housing affordability, as well as specialized information on the transportation network. Although the Appendices was not adopted as part of the official *Henrico County Vision 2026 Comprehensive Plan*, they contain important information that may be of interest to the reader of the document in helping to understand and interpret the Plan.

CHAPTER 1: INTRODUCTION TO THE COUNTY

Henrico County is approximately two-hundred forty-four (244) square miles in area and is located in the central portion of the Commonwealth of Virginia. The county is bordered to the south/southeast by the James River and the City of Richmond, which separates Henrico from Chesterfield County. New Kent and Charles City Counties lie to the east. Tuckahoe Creek, to the west, defines Henrico's boundary with Goochland County, and the Chickahominy River to the north forms the boundary with Hanover County.



The county has excellent regional connections; it is accessible from Interstate-64, Interstate-95, Interstate-295, Route 895, and the James River. It is the home of the Richmond Regional International Airport, the primary airport for the Richmond Metropolitan Area. It also has a station along the Amtrak line.

Henrico County is one of the oldest communities in the country. In 1611, Sir Thomas Dale left Jamestown and established a settlement along the Powhatan River, now called the James River. The settlement of Henricus, or the Town of Henrico, was located on the north side of the river on what is now Farrar's Island. Henricus was considered the second successful English settlement in America and had the first hospital and university chartered in the English colonies. The town was abandoned in 1622 after a series of attacks by Native Americans.

In 1634, Virginia was divided into eight (8) shires, or counties, one being Henrico. The first boundaries of the county incorporated an area that became ten (10) counties, as well as the Cities of Richmond, Charlottesville, and Colonial Heights. The county was named for Henry, Prince of Wales, the eldest son of King James I of England.

The county played a role in both the Revolutionary and Civil Wars. Many important Civil War battles were fought on Henrico soil, including the battles of Seven Pines, Savage's Station, Glendale, Malvern Hill, Yellow Tavern, New Market Heights and others in defense of Richmond.

Although coal mining was a source of employment in the western portions of the county during the 18th and 19th centuries, historically, the economy of the county was based in agriculture, and the development patterns of the county reflected this agricultural focus. Until the early part of the 20th Century, the county was characterized by family holdings of between one-hundred (100) to five-hundred (500) acres of agricultural land, with Richmond serving as the primary market center.

In the 20th Century, Henrico County grew from an area of rural agriculture to a thriving suburban community generally capturing more growth than the City of Richmond. Similar to the growth trends of the nation, the county experienced its most significant growth in the period following World War II, and has continued to experience steady growth to the present day. With the growth the county experienced in the early part of the 20th Century, Henrico became the first county in Virginia to adopt the County Manager form of government in 1934.

Through the 1990's and into the new millennium, Henrico County has maintained its character as a desirable place to live and work. It has experienced steady and positive growth in population and business while still maintaining urban, suburban, and rural qualities. These diverse characteristics, along with the county's location, quality public services, and other amenities have contributed to Henrico's success over time. Many national and international companies have headquarters and facilities located in and around Henrico County, drawing new people every year. With a constant influx of new people and businesses, the county has a history of being proactive in planning for the growth and development these assets can generate.

In 1958, the Julian Tarrant Plan was adopted as the first plan for the county. This plan was used until 1983 when the 2000 Plan was adopted. In 1995, the county completed a fifteen-year, long-range Land Use Plan which has served the community well. Because the planning horizon for that plan is drawing near and development trends in the county have evolved, Henrico has embarked on the development of a plan update that will incorporate land use, public services, transportation, infrastructure, open space, and recreation planning into a coordinated and comprehensive plan that will guide the county into the future.

CHAPTER 2: OVERVIEW OF THE PLAN

The *Henrico County Vision 2026 Comprehensive Plan* (the Plan) has been developed as a tool for the county to prepare for the future. The Plan combines assessments and recommendations on a broad spectrum of topics and functions of the county that are essential to the continued health and vitality of the community. As the county has grown, it has become more important to ensure decisions are made about development in a coordinated manner. The *Henrico County Vision 2026 Comprehensive Plan* establishes a framework for land use decisions to be coordinated with transportation and public services improvements.

ROLE AND PURPOSE OF THE PLAN

The *Henrico County Vision 2026 Comprehensive Plan* will serve as the general guide for development in the county for the next twenty (20) years. The Plan provides information through four (4) steps: an assessment of current conditions and future needs; a vision, including goals and objectives for the county's future; policies for guidance; and actions and tools to implement the recommended policies. The county's previous comprehensive plan was composed of the *2010 Land Use Plan*, the *2010 Major Thoroughfare Plan* (transportation), and the *2015 Parks, Recreation and Open Space Plan*. With the *Henrico County Vision 2026 Comprehensive Plan* these components, as well as chapters addressing public facilities and utilities, have been updated simultaneously and coordinated into an inclusive and comprehensive document.

LEGAL BASIS FOR THE COMPREHENSIVE PLAN

The *Code of Virginia* (§15.2-2223) mandates Henrico County prepare and adopt a comprehensive plan for the physical development of the land within its jurisdiction. The plan must include assessments of existing conditions, growth trends, and the future needs of the community. The plan must provide guidance intended to promote the health, safety, morals, order, convenience, prosperity, and general welfare of the inhabitants. The State Code also requires the plan to include transportation and land use components. The land use component is encouraged to provide policies for: the location of future public facilities such as parks, schools, waterworks, and sewage disposal; historical areas; areas for redevelopment; and areas of environmental significance. The plan must also address affordable housing within the county.

The *Code of Virginia* specifies the process for plan adoption. The Planning Commission must hold a public hearing prior to an official recommendation to the Board of Supervisors for adoption of the comprehensive plan or any parts thereof. After this public hearing, the Planning Commission may recommend approval of the plan, or amend and recommend approval of the plan, and forward it to the Board of Supervisors for consideration. If the Planning Commission recommends approval, it must adopt and forward a resolution to the Board of Supervisors, which must also hold a public hearing to meet the *Code of Virginia* requirements.

After the Board of Supervisors adopts the comprehensive plan, it may adopt amendments as needed. The process for adoption of amendments is the same as the

approval and adoption process required for the original plan. The State Code also requires the plan be reviewed at least every five (5) years to determine if amendments are advisable.

The general or approximate location, character and extent of public facilities are controlled by the adopted plan. Therefore, if a proposed street, park, public building, or public utility facility is not identified on the plan, the Planning Commission must find that the proposal is substantially in accord with the adopted comprehensive plan. Likewise, any widening, extension, deletion or change to roadways in the Major Thoroughfare Plan requires Commission approval and Board adoption of the amendments.

PLAN DEVELOPMENT PROCESS

The development of this Plan began in November 2004, when the county retained consultants to assist in the development of the Comprehensive Plan. The first part of plan development was the inventory and assessment phase. County staff and consultants reviewed inventories of existing facilities and land uses, and assessed the transportation network for current levels of service and areas where improvements were needed.

McBride Dale Clarion and the Survey Evaluation and Research Laboratory (SERL) at Virginia Commonwealth University prepared a citizens' survey which was distributed to 3,100 county households. The survey focused on various elements relevant to the Comprehensive Plan, and their level of importance. The survey results were used to support the development of goals and objectives for review by the Board of Supervisors.

The planning team reviewed demographic information and prepared population, housing, and employment forecasts. As part of the initial assessment, the consultants prepared a detailed capacity analysis for future development to determine where and how the county could accommodate future growth. After completion of the initial assessment of existing and forecasted future conditions, a three (3) day visioning session was conducted with the Planning Commission and the Board of Supervisors. This session culminated in a draft Vision, Goals, and Objectives, which helped guide the development of the remaining elements of the Plan.

A key feature of this planning process was the coordinated development of land use, transportation, and utility models. The team used these models to test proposed future land use alternatives and assess the implications of proposed land use patterns on other county systems. These assessment results were used to refine and tailor the various Plan policies to be complementary to one another.

A draft Plan was developed from these initial land use assessments and presented to the general public through a series of five (5) open houses in May, 2008. Citizen comments and requests for Land Use and Major Thoroughfare Plan revisions are

PLAN PROCESS

- **Inventories**
- **Trends & Forecasts**
- **Citizens' Survey**
- **Visioning**
- **Modeling of Scenarios**
- **Draft Plan**
- **Public Open Houses**
- **Adoption**

documented and available in the General Comments and Proposals for Revisions Manual.

The Plan is a result of cooperative work between many county departments. A Technical Advisory Committee worked closely with the planning staff and consultant team in reviewing and developing the various Plan elements. The members of the Technical Advisory Committee represented several individual departments so the Plan would reflect the comprehensive needs of the county.

PLAN CHAPTERS

The various chapters of this Plan are designed to provide information and guidance for future county development decisions. The Plan addresses the topics of land use, community character, redevelopment and revitalization, natural, cultural and historic resources, recreation and open space, transportation, public facilities, and utilities. Policy statements are supported by the Implementation Chapter which assigns responsibility and priority to the various plan recommendations.

The *Henrico County Vision 2026 Comprehensive Plan* incorporates the adopted elements of the county’s previously adopted Comprehensive Plan (*2010 Land Use Plan, 2010 Major Thoroughfare Plan, and the 2015 Parks, Recreation, and Open Space Plan*) into one coordinated and comprehensive document. This new Plan also incorporates additional components including chapters on community character, public facilities and utilities. By incorporating all of these components into a coordinated plan and process, the county is better able to evaluate interrelationships between future development and the ability to maintain balanced and compatible growth, fiscal stability, and the need to coordinate new public facilities and utilities with growth.

Because the scope of this new Plan is broader than the previous Plan, the physical structure of the document has been updated to facilitate greater coordination between the various chapters, and help develop a cohesive and comprehensive vision to guide decisions in all growth areas.

The Plan is structured into twelve (12) chapters and an executive summary. The *Henrico County Vision 2026 Comprehensive Plan* includes the following:

Chapter 1: Introduction to the County presents a brief history of Henrico County and its development.

Chapter 2: Overview of the Plan establishes the purpose of the Plan, the legal basis for the Plan, the planning process, and a summary of the plan chapters.

CHAPTERS
▪ Introduction to the County
▪ Overview of the Plan
▪ Henrico Today
▪ Vision, Goals & Objectives
▪ Land Use
▪ Community Character
▪ Planning & Economic Focus Areas
▪ Natural Resources
▪ Recreation, Parks, Open Space, & Cultural Resources
▪ Transportation
▪ Public Facilities & Utilities
▪ Implementation

Chapter 3: Henrico Today presents a brief overview of existing county conditions to establish a starting point for the Plan. It also presents the forecasts used to establish Plan recommendations.

Chapter 4: The Vision, Goals & Objectives provides the guiding framework or overarching Vision for the Plan and establishes the goals and objectives that create the roadmap for the rest of the Plan to follow.

Chapter 5: Land Use presents the future land use designations for the county. The designations are grouped in Land Use Groups described in this chapter. This chapter also includes development policies called “Keystone Policies” for each land use group, the Future Land Use Map and development intensity recommendations.

Chapter 6: Community Character presents recommendations for future urban and non-urban characteristics. Appropriate character types are described for a range of development types, from rural, low-intensity conservation to suburban and urban. The purpose of this chapter is to identify and promote community character and a variety of quality development types. The chapter is further enhanced by the *Design Guidelines Manual* which is being developed parallel to the Plan as an implementation tool.

Chapter 7: Planning & Economic Focus Areas gives further direction on development recommendations for specific areas of the county requiring additional planning attention and are recommended for additional study or for a particular economic development use. This chapter is divided into three (3) sections: Special Strategy Areas, Prime Economic Development Sites, and the county’s Enterprise Zone. Special Strategy Areas are further broken into four (4) types of areas: Existing Character Protection Areas, Mixed-Use/Village Areas, Neighborhood Enhancement Study Areas and Revitalization/Reinvestment Opportunity Areas.

Chapter 8: Natural Resources identifies the county’s environmental resources and provides guidance on protecting, preserving and conserving these natural resources. This chapter also offers guidance related to watershed protection and natural and open space conservation.

Chapter 9: Recreation, Parks, Open Space, & Cultural Resources contains an update of the county’s *Update 2015 Parks, Recreation, and Open Space Plan* and includes a summary of the existing facilities and policies guiding their development. Recommendations are also provided related to level of service standards, and planning for future facilities, and historic and cultural resource protection.

Chapter 10: Transportation presents future transportation recommendations which address the existing transportation facilities and identification of future needs for network improvements needed to coordinate Future Land Use recommendations. The updated Major Thoroughfare Plan Map is also included in this chapter.

Chapter 11: Public Facilities & Utilities provides general planning guidance for schools, police, fire/rescue, libraries, and water and sewer. The purpose of this chapter is to identify criteria for assessing potential future public facility locations, levels of service standards and locational criteria.

Chapter 12: Implementation organizes and prioritizes in matrix format, the various actions required to implement Plan recommendations. Assignment responsibilities are identified, including a task and time frame.

In addition to the individual chapters, several handbooks will be completed to support Plan implementation. These include:

- *The Henrico County Public Facilities Handbook*
- *The Henrico County Public Utilities Plan*
- *The Henrico County Design Guidelines Manual*
- *Zoning Analysis Report*

CHAPTER 3: HENRICO TODAY

Before creating a plan, it is important to first understand where the county is today, what forces have shaped it over the years, and how the county is likely to change in the future. This chapter assesses existing population and development trends, including a planning forecast overview of forecasts for planning purposes. This chapter also presents a brief overview of the existing public services, utilities and infrastructure conditions. Additional information on these topics is also presented in the individual Plan chapters and Appendices.

POPULATION

Henrico County has sustained a period of steady population growth for over thirty (30) years, with an average annual population increase of about two percent (2%). From 1990 to 2000, the county grew by approximately twenty percent (20%), from a population of 221,287 to 267,024. The fact Henrico County has maintained such a steady percentage of growth over such an extended period of time is a good indicator that future population should continue to grow at a similar rate. The county annually prepares an assessment of population and housing growth in the *Continuing, Comprehensive and Coordinated Transportation Data Report (3-C Report)*. Based on the approved *2006 3-C Report*, the county's estimated population was 299,443. Additional information on population composition and trends is provided in Appendix A: Demand Analysis.

HOUSING

The *2006 3-C Report* established that approximately sixty-six percent (66%) of household populations were living in detached single-family units and the other thirty-four percent (34%) were living in multi-family or attached units. The total housing stock in the county at the end of 2006 was estimated to be 125,972 units (up from 123,457 recorded in 2005) with 82,577 single-family units and 43,395 multi-family units, which included attached and owner-occupied units. Both single- and multi-family housing units had relatively low vacancy rates. Estimates show that non-apartment vacancy rates were around 1.6% and apartments had vacancy rates of 6.0%. Additional information on housing characteristics is provided in Appendix C: Demographics.

EMPLOYMENT

In 1990, the U.S. Department of Commerce reported that Henrico County had 142,290 jobs, and by 2000 employment had reached 194,040 jobs. This is a forty-four percent (44%) increase in the number of jobs in the county during this ten (10) year period. County employment increased at a greater rate than the growth of the population, which increased approximately twenty percent (20%) during the same period. Employment sectors that showed the greatest growth from 1990 to 2000 included Finance, Insurance, Real Estate, and Services. Farm Employment, Mining and Federal Military Government were sectors that lost jobs over this same time period.

LAND USE

The changing demographics, changes in housing market demand and new developments in technology have contributed to changing land use patterns over the last fifteen (15) years. The county has seen steady influxes of both new residents and new businesses, creating an increase in the percentage of developed land in the county. Areas considered relatively rural in the 1980’s and the early part of the 1990’s are now thriving suburban communities. Growth brings with it both challenges and benefits, and the changing land use patterns reflect a decade of strong growth.

Information from the *1990 and 2006 3-C Reports* were compared to identify changes in the county’s land use patterns. **Table HT-1** (below) illustrates the existing 2006 land use inventory and compares it to the data from 1990. The Existing Land Use Map also illustrates current land use patterns.

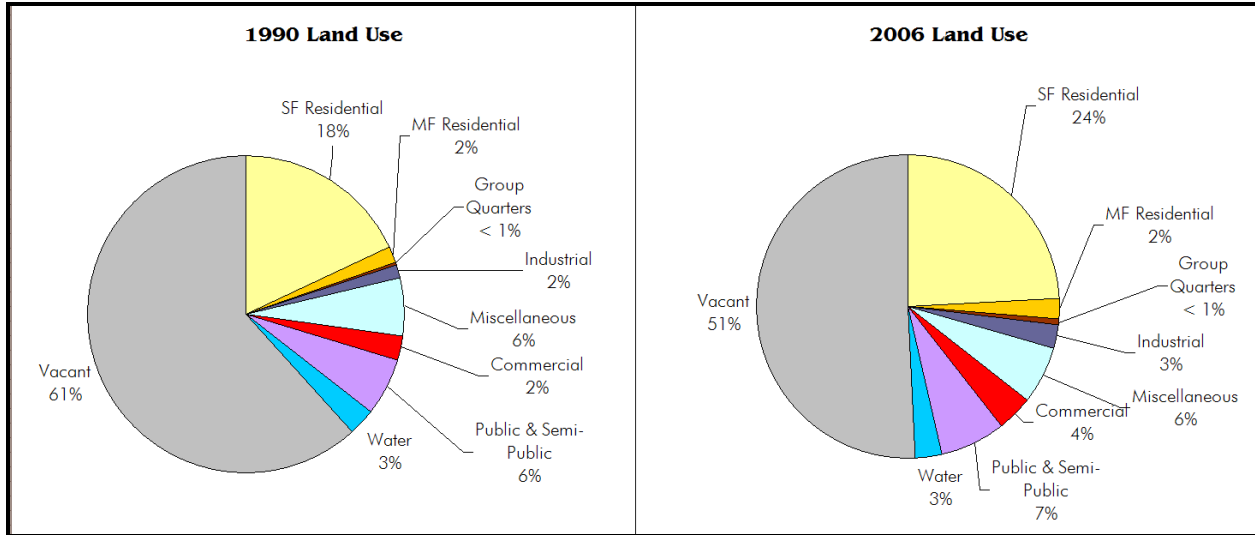
TABLE HT-1: CHANGE IN LAND USE ACREAGE BETWEEN 1990 AND 2006

	1990	2006	Change	
			Actual	Percent
Population	221,287.0	299,443.00	78,156.00	35.32%
Housing Units	95,420.0	125,972.00	30,552.00	32.02%
Acreage:				
Single-Family Residential	28,072.6	37,626.94	9,554.34	34.03%
Multi-Family Residential	2,882.5	3,801.15	918.65	31.87%
Group Quarters	270.6	459.8	189.20	69.92%
Industrial	2,514.1	4,028.72	1,514.62	60.25%
Miscellaneous	8,928.4	9,549.62	621.22	6.96%
Commercial	3,810.6	6,061.73	2,251.13	59.08%
Public & Semi-Public	9,181.3	10,910.89	1,729.59	18.84%
Water	4,341.4	4,353.00	11.60	0.27%
Vacant	96,199.1	79,446.32	-16,752.78	-17%

Source: 1990 3-C Report, 2006 3-C Report.

The charts presented in **Figure HT-1** illustrate the percentage of land use change by type between 1990 and 2006. The charts show these uses as a percentage of the overall county acreage, which is just over 156,000 acres. In 2006, due to a boundary shift with Goochland County, Henrico County gained 37.58 acres.

FIGURE HT-1: 1990 AND 2006 PERCENTAGE OF EXISTING LAND USES



Source: 1990 3-C Report, 2006 3-C Report.

Most of the land in the county is classified as "vacant" even though a significant amount of this land may be in agricultural use. As expected, the amount of land classified as "vacant" has been decreasing: at the end of 1990, sixty-one percent (61%) of the county was classified as vacant; by the end of 2006, this figure stood at fifty-one percent (51%). It should be noted that not all "vacant" land can be considered "developable" since it includes areas in flood plain, wetlands and other sensitive lands, which are otherwise restricted in terms of development. A detailed Capacity Analysis which accounted for these constrained areas is included in Appendix B. The second largest land use category, by acreage, is single-family residential. While single-family residential land use did not grow at the fastest rate, it did achieve the greatest gain as a percentage of all land uses during the time period studied.

Table HT-1 also illustrates that the group quarters residential land use category increased at a greater rate than single-family uses; however, its percentage of overall land use remained the same. This difference can be partly attributed to the increased demand for assisted living facilities, reflecting a growing number of residents requiring these services. This increase helps Henrico County as it strives to provide a variety of housing options.

Both commercial (retail and office uses) and industrial land uses increased by over fifty percent (50%) and were among the highest growth rate categories. Increases in these two (2) categories depict the health of the nonresidential sector of Henrico County's economy. Overall, existing land uses are typical of a suburban locality with a balanced economy. While the single-family uses may be the most prevalent, they have not dominated to the point where Henrico has become a bedroom community.

EXISTING LAND USE MAP

NATURAL, CULTURAL & HISTORIC RESOURCES

Henrico County is rich in natural, cultural and historic resources. A vast array of conditions and features contribute to the natural, cultural and historic context of the county. Among these are the county's unique geology, which includes wetlands, varied topography, the Chickahominy and James Rivers, and lands within Chesapeake Bay Preservation Areas. The county's geographic location and proximity to Richmond have resulted in a rich resource of cultural and historic landmarks including national battlefields. In order to ensure sustainability, these resources must be balanced with economic development. Many of the resources are accounted for in the Capacity Analysis and other Plan policies.

RECREATION & PARKS

The Division of Recreation and Parks exists to enhance the quality of life and foster a sense of well-being and community for the citizens of Henrico County. This is accomplished through management of resources and by facilitating leisure services and recreational opportunities in safe and well-maintained environments. The Division offers a variety of quality programs and facilities, which change seasonally to meet the leisure needs of Henrico residents. The Division has a full-time staff of one-hundred seventy (170) with an additional three-hundred (300) seasonal part-time employees. To accomplish their objectives, the Division is composed of three (3) sections: Recreation Services, Park Services and Administration.

The Recreation Services Section manages programs for the residents of the county in the areas of general community, youth, senior adults, outdoors, special events, sports, therapeutics, nature, history, historic preservation and cultural arts. This section also provides training and expertise to youth and adult sports associations. In addition, this section manages the following county facilities: Belmont, Confederate Hills, Deep Run, Dorey, Hidden Creek and Twin Hickory Recreation Centers, as well as Three Lakes Nature Center and Aquarium, the Armour House and Gardens, the Henrico Theatre, the museum at Meadow Farm/Crump Park, Osborne Landing and Deep Bottom boat ramps, Belmont Golf Course and Walkerton Tavern.

The Park Services Section oversees the county's park system of over 3,569 acres and maintains the Division's athletic and recreation facilities including turf management for athletic fields. Furthermore, this section is responsible for the maintenance of county historic facilities, including the Clarke-Palmore House, Cedar Hill, the Armour House, Meadow Farm and Walkerton.

The Administration Section oversees all personnel, fiscal and technology management issues, provides planning, research, and project management related to the development of new facilities and programs, and provides community relations and marketing. The Division of Recreation and Parks also oversees two (2) Citizen Advisory Committees appointed by the Board of Supervisors: the Park and Recreation Advisory Commission and the Historic Preservation Advisory Committee.

PUBLIC FACILITIES & SERVICES

Henrico County's goal has always been to provide outstanding public services to attract new residents and businesses. The following is a brief summary of the various county services and agencies, which contribute to Henrico County's high quality of life. Additional levels of service details and operational information is provided in Chapter 11: Public Facilities & Utilities.

Schools

The county is served by the Henrico County Public Schools (HCPS) system which has risen to the challenge of a growing population. The school system has welcomed approximately 16,500 new students since 1990 while managing to increase the level of educational services and reduce class sizes in elementary schools (where many of the new students have entered the system). Class sizes in both elementary and secondary schools are between twenty (20) and twenty-two (22) pupils/teacher.

The school system consists of seventy (70) facilities and includes:

- Forty-five (45) elementary schools,
- Thirteen (13) middle schools,
- Nine (9) high schools, and
- Three (3) technical centers

In the fall of 2006 HCPS employed 6,206 employees, of which 3,634 were teachers who averaged twelve (12) years teaching experience. HCPS actively works with other departments in the county to plan for future growth and a continued level of excellence.

Division of Police

The Division of Police is primarily responsible for traditional law enforcement duties and protection of county residents and businesses through the latest philosophies of community policing, crime prevention through environmental design, and the use of computer technologies to analyze crime data and assist in police management. The Division of Police has three (3) major commands: Uniform Operations, Investigative Operations and Support Operations.

Uniform (or Community) Operations provides twenty-four (24)-hour uniformed response to calls, provides patrol activities, traffic and criminal law enforcement, and preliminary investigation of certain criminal offenses. This is the largest Division section.

Investigative Operations is primarily responsible for criminal investigations, organized crime/covert section, and specialized aerial, canine, and marine patrols. Additionally, Investigative Operations oversees the DARE (Drug Abuse Resistance Education) special services unit, school resources, crossing guards, community officers, crime prevention and neighborhood watch.

Support Operations is primarily responsible for the operation of Emergency Communications. The command is also responsible for fleet and property management, warrants, personnel, training academy, and firing range operation, plus a research and development unit, police planning, animal protection, and management of the animal shelter.

The Division of Police operates out of two (2) District Headquarters. District I which serves the eastern portion of the county and is currently headquartered in the Fair Oaks facility on Eastpark Court. This facility became operational in 2004 and replaced the district headquarters formerly at Dabbs House. District II encompasses the western portion of the county and is headquartered at the Public Safety Building at the intersection of Parham and Shradler Roads. This facility also serves as the Division's main headquarters. The Henrico Animal Protection Unit is located near the county's Eastern Government Center. In 2004, District II was divided into West and Central Stations. No new facilities were immediately constructed for this new station area. Additional information on the capital facilities for the Division of Police is included in Chapter 11: Public Facilities and Utilities.

The Henrico County Division of Police is nationally accredited with eight-hundred eighteen (818) authorized positions, and operates its own academy producing well-trained and highly qualified officers.

Sheriff's Office

The Sheriff is elected at-large by county residents and the position is a legislated constitutional officer pursuant to *Code of Virginia §15.2-1600*. The Sheriff's Office is one of the Commonwealth's largest with a 2006 roster of two-hundred seventy-nine (279) sworn and forty (40) civilian staff. The Sheriff's Office is responsible for the security of the county's two (2) regional jails, the courthouse and fourteen (14) judges and administering the civil process. The county's jails have capacity for housing approximately six-hundred seventy-seven (677) inmates in the western facility and five-hundred twenty-eight (528) inmates in the eastern facility. In 2006, the average daily population was 1,226, representing an average holding of just over 101.7 percent (101.7%) of capacity. Expanded housing for female inmates, particularly special purpose housing, is desired.

Division of Fire

The Henrico County Division of Fire is a component of the Public Safety Department. The Division of Fire responds to all types of emergencies including: fire, medical, hazardous materials and water emergencies. There are four-hundred ninety-nine (499) career firefighters and twenty-one (21) support positions responsible for the countywide protection. The Division currently operates out of twenty (20) fire stations located throughout the county. Additional information on the capital facilities for the Division of Fire is included in Chapter 11: Public Facilities & Utilities.

Libraries

The Henrico County Public Libraries provide free access to collections of information in a variety of media formats. They also provide reference and information services in person, by phone and by email. Computer services and software are provided to the public free of charge.

The Library System provides information services at eleven (11) locations including:

- Five (5) branch libraries,
- Four (4) area libraries,
- The municipal government and law library, and
- A bookmobile.

The Library facilities offer a unique and unparalleled resource to the community by providing public meeting spaces, educational resources and informal community gathering areas.

As the county's population has continued to grow, the Library System has responded with increased hours of operation and expansion of collection materials. The Library System currently has one-hundred seventy-two (172) permanent full and part-time employees and forty (40) hourly employees.

TRANSPORTATION

Henrico County's transportation system includes the road network, public transportation, airport services, rail travel and pedestrian travel. The county's road network is the most conspicuous of these modes of travel. Henrico County is one (1) of only two (2) counties in Virginia that is responsible for the roadways within its jurisdiction, with the exception of State routes and interstates. The roadways are managed by the Department of Public Works, which oversees the design, construction, and maintenance of the system. The Department is responsible for developing, improving and maintaining an efficient and safe transportation network and ensures that all engineering, construction and maintenance work for roads and transit service meets acceptable, achievable standards through the efficient use of capital expenditures.

Roads

In 2006, the county had eight-hundred thirty-three (833) lane miles of roadways which are maintained by the Virginia Department of Transportation, and 3,225 lane miles of roadways which are maintained by the county.

Public Transportation

Public transportation in Henrico County is provided by the Greater Richmond Transit Company (GRTC) which has regularly scheduled stops along major transportation routes in the county. Transit service operates Monday through Friday, 6:00 a.m. to 7:00 p.m. GRTC also provides express park-and-ride service. Express buses serve four (4) park-and-ride facilities in the county and

provide peak hour transit service for commuters to and from downtown Richmond. GRTC's specialized transportation for the disabled provides curb-to-curb service from 6:00 a.m. to 11:30 p.m., seven (7) days a week. Curb-to-curb para-transit is also provided for qualified county residents who are unable to use the fixed-route services.

Rail Travel

An Amtrak station is located on Staples Mill Road and is one (1) of the three (3) stations serving the Richmond Metro area. Access is provided to the national Amtrak network via the Carolinian and Piedmont, Regional, and Silver Service/Palmetto routes. Ticketing and service is available twenty-four (24)-hours a day, seven (7) days a week.

Airport Services

The Richmond International Airport is located in Henrico County and serves Central Virginia's air transportation needs, with service from nine (9) airlines providing over two-hundred (200) daily flights. Passengers can fly non-stop to over twenty-two (22) domestic destinations. With one (1) stop, passengers can fly to/from Richmond to major destinations world-wide. For those wishing to send cargo by air, Richmond International Airport's cargo facilities are growing at a fast rate. With over one (1) million square feet of cargo space, Richmond is poised to meet the increased demand for air cargo services. The airport is located in the eastern portion of the county and is easily accessed via Interstate-64, Interstate-295 and U.S. Route 60.

The airport is owned and operated by the Capital Regional Airport Commission, which is an independent governmental entity overseen by a fourteen (14) member multi-jurisdictional appointed commission. The Airport Commission includes members from Henrico, Hanover and Chesterfield Counties and the City of Richmond.

PUBLIC UTILITIES

The Department of Public Utilities manages the water and sewer utilities, as well as solid waste and recycling. The following is a general overview.

Water and Sewer Services

Water and sewer services are provided to residents and businesses as new development occurs. New development may require additional infrastructure or infrastructure improvements, which developers are responsible for constructing and funding. Development outside the system may require new infrastructure, which developers are responsible for constructing and funding.

In 2007, the Department of Public Utilities provided water to 92,070 customers. The water system consists of approximately 1,400 miles of water mains and 11,221 total hydrants. Water is drawn from the James River and treated at the county's Water Treatment Plant which has the ability to produce fifty-five million

gallons of potable water per day (55 mgd), with an additional thirty-five million gallons per day (35 mgd) available from the City of Richmond.

The sewer system reaches 90,323 customers through 1,420 miles of sewer mains, which lead to the county's wastewater treatment plant (Water Reclamation Facility). The Facility has the capacity to treat seventy-five million gallons per day (75 mgd).

Solid Waste

The Department of Public Utilities' Division of Solid Waste provides solid waste collection, disposal, and recycling services throughout the county. The Division also provides subscription trash collection to over 35,000 homes. Subscription customers voluntarily sign up for the service and pay charges as part of their monthly utility bill. Bulky waste such as old furniture and appliances are collected when requested for a separate fee. Recycling is collected curbside at 80,000 homes through the Central Virginia Waste Management Authority. In addition, twelve (12) fire stations have drop-off centers for paper, glass, and metal recyclables.

There are also two (2) public use areas with a more extensive recycling drop-off station. Public use areas are located in both eastern and western Henrico and offer recycling, waste disposal and other services to residents. The public use areas are used approximately 300,000 times each year for recycling and waste disposal. The Solid Waste Division also operates a landfill in the western area of the county. Each year the landfill accepts 100,000 tons of commercial waste from Henrico customers and the county's own operations (household refuse collection, construction, and county building refuse).

FORECASTS FOR PLANNING

A series of forecasts were prepared for planning purposes based on historic trends in population, housing, and employment growth for planning purposes. The detailed methodology and trend information is provided in Appendix A: Demand Analysis. The consistent two percent (2%) annual population growth identified from historic trends is a good growth indicator for the next twenty (20) years. Key trends that may affect this rate are changes in the economy, and the level of development. As levels of available land decrease over time, the county may experience a slight slowing in the rate of growth.

Population Forecasts

Several scenarios were forecasted to 2030 to establish a range for the future population. The selected scenario from the analysis employs a declining growth rate over the planning period. The recommended population forecasts are illustrated in **Table HT-2**.

TABLE HT-2: RECOMMENDED POPULATION FORECASTS (FIVE YEAR INCREMENTS)

2006*	2010	2015	2020	2025	2030
299,443	320,463	345,901	370,537	394,223	416,846

New Population Per Period					
2006-2010	2010-2015	2015-2020	2020-2025	2025-2030	2006-2030
21,020	25,438	24,636	23,686	22,623	117,403

NOTES FOR TABLE

*Accepted 2006 3-C estimated population

Source: Appendix A: Demand Analysis, Table 3

These population forecasts established the basis for estimating the demand for housing units and nonresidential land and building area. Because the population is forecasted to grow by over 117,000 people (2006-2030), the estimates for housing unit forecasts show a demand for over 48,600 new housing units by 2030. The estimated residential demand is shown in **Table HT-3** by housing type. These estimates reflect structure type and not ownership. (Single-family attached units include townhouses and condominiums, while apartments are included in multi-family units.)

TABLE HT-3: NEW HOUSING DEMAND FORECAST

Total Residential Unit Demand (New Units)	48,653
Single-Family	31,357
Multi-Family Units	17,296

Source: Appendix A: Demand Analysis, Table 10.

Nonresidential Demand

The demand for nonresidential development was forecasted using a comparison of the population forecasts to employment forecasts. The forecasted employees were then translated into demand for building area in commercial/retail, office, or industrial flex categories. **Table HT-4** shows the forecasted demand for nonresidential building area.

TABLE HT-4: NONRESIDENTIAL DEMAND FORECAST (2030)

	2006 Square Feet (Estimated Inventory)	Total Demand in 2030	Demand for New Building Area
Commercial/Retail	27,323,808	39,170,221	11,846,413
Office	34,653,657	54,881,079	20,227,422
Industrial	24,953,501	32,838,261	7,884,760
Total	86,930,966	126,889,561	39,958,595

Source: Appendix A: Demand Analysis, Tables 15 and 17.

These forecasts were used to evaluate the feasibility of future land uses as presented in this Plan. The practicality of the Plan can be gauged by assessing its ability to accommodate anticipated growth. The forecasts were also used to help develop policies related to growth. These figures are presented for planning purposes and only reflect an estimate of what may happen in the future. Actual county growth will

be influenced by a number of outside factors. Fluctuations in the national and local economy, as well as development policies that are adopted can influence the future population, housing, and employment growth.

In planning for this forecasted growth and its impacts, the following Vision, Goals and Objectives were established to create a blueprint for the development of the Plan's policies.

CHAPTER 4: THE VISION, GOALS & OBJECTIVES

This chapter sets the broad goals and objectives for the Plan. Specific policies are included in the various chapters of the Plan.

THE 2026 VISION

Henrico County will be a diverse, safe, and prosperous community with distinct and sustainable neighborhoods and business districts that provide a range of housing, employment, service, education, recreation, and cultural opportunities for all people of the county. Growth and development will continue in an efficient manner that promotes the health, safety, morals, order, convenience, prosperity and general welfare of all residents while contributing to a well-balanced and stable economy, and preserving significant environmental and quality of life features that have become hallmarks of Henrico's various communities. Henrico County will continue to achieve a balance of residential and commercial uses, housing options, mixed demographics, development and open spaces, while balancing its historic fabric with new growth. Henrico County has been and will remain a community that is proud of its progress and excited about its future, a place that people are happy to call home, and a community where businesses want to locate, remain, and grow.

ECONOMY

Vision: A strong, diversified, sustainable and expanding economy will be essential to the continued high quality of life in Henrico County.

One of the driving forces behind the Comprehensive Plan is the need to maintain a strong and growing economic base in Henrico County. The ability of existing and new development to provide diverse employment opportunities and revenue for the county is vitally important to provide the levels of service that promote a high quality of life in the county.

The county will have:

Goal 1: A strong, stable, growing and diverse economy.

Goal 2: Economic resources that are distributed in an equitable geographic manner throughout the county.

Goal 3: Tax revenues that support the continuation of the highest quality public services and facilities that are generated in a balanced manner between residential and nonresidential uses.

Goal 4: A mix of employment industries that generates high paying jobs and prevents heavy reliance on service/retail employment.

Economic Objectives

The following objectives will guide the county in pursuit of the economic vision and goals.

The county will:

1. Encourage balanced growth that maintains a ratio of nonresidential and residential land uses that supports a tax base ratio of at least sixty-five percent (65%) residential to thirty-five percent (35%) commercial.
2. Evaluate the economic impacts of proposed development through the implementation of the Public Facilities & Utilities Chapter of this Plan and use of the Fiscal Impact Model and monitoring system.
3. Identify and preserve Prime Economic Development Sites for regional level growth and encourage the development of these sites for high tax revenue generating uses.
4. Identify local areas for employment-generating uses to ensure new and growing job opportunities are available in communities throughout the county.
5. Promote reinvestment in older neighborhoods to meet the needs for retail services and employment in local areas.
6. Coordinate the Capital Improvement Plan and the chapters of the Comprehensive Plan to provide an orderly guide for economic development.
7. Promote private-public partnerships to assist in economic growth.
8. Develop tools and incentives to promote small businesses and reinvestment within the county.
9. Establish a close partnership with the Economic Development Authority to market and attract high-end/high-tech industries.
10. Review and amend the *Zoning Ordinance* to accommodate targeted industries necessary for a strong and diverse economy.
11. Balance tax revenues through economic development incentives and examination of fiscal impacts of development.
12. Maintain and promote joint planning and economic development relationships with adjacent municipalities, and regional and State agencies.
13. Encourage the rehabilitation and reuse of industrial properties.
14. Promote the development of planned office centers, and business and industrial parks.
15. Monitor the programming of public and private improvements to maintain viable site alternatives to attract development.
16. Strengthen local, regional and State efforts that promote economic development of the Richmond Metropolitan Area.
17. Support the viability, operational efficiency, and productivity of the county's agricultural resources for current and future generations.

INFRASTRUCTURE/SERVICE PROVISION & GROWTH COORDINATION

Vision: In order to be fiscally responsible and provide adequate public services and infrastructure to the current and future residents and businesses in Henrico County, it will be important to closely coordinate development with plans for expansion of public services and infrastructure.

The availability of infrastructure and public services are integral to the quality of life in the county. Coordinating the planning efforts for the various public facilities and services (i.e. public utilities, schools, libraries, fire/EMS, and police services) with the timing of development and the land use recommendations will create an environment of proactive management of these services.

The county will have:

- Goal 1: Growth that occurs in coordination with the provision of public services and facilities.*
- Goal 2: Infrastructure that is provided concurrent with new growth and development.*
- Goal 3: A facilities plan that is linked to the land use and transportation elements of the Comprehensive Plan and the county's Capital Improvement Plan to ensure a connection between growth and concurrent availability of high quality public facilities.*
- Goal 4: A fiscal "cost of growth" that is allocated in a fair and balanced manner between existing development and new growth through appropriate fiscal tools and policies.*
- Goal 5: Public services and infrastructure that are provided to areas of the county in a fair and equitable manner.*
- Goal 6: Strong, high-quality schools and educational resources for the community.*
- Goal 7: Managed development of wireless communications infrastructure, while at the same time not unreasonably interfering with the development of the competitive wireless communications marketplace.*
- Goal 8: Maintained and preserved residential character throughout the county and its neighborhoods to promote the creation of an attractive community.*

- Goal 9: Wireless communications towers and related wireless communications facilities which are compatible with surrounding land uses.*
- Goal 10: A uniform and comprehensive set of standards for the development and installation of wireless communications towers, antennas and related facilities.*
- Goal 11: Properly designed, constructed, modified and maintained wireless communications towers and related wireless communications facilities to promote public safety and avoid risk of damage to adjacent properties.*

Infrastructure/Service Provision & Growth Coordination Objectives

The following objectives will guide the county in the pursuit of the infrastructure/service and growth coordination vision and goals.

The county will:

1. Identify the need for new public services and facilities based on projected growth in coordination with the Future Land Use Map.
2. Plan for development in a manner that minimizes strain on existing facilities and service areas.
3. Make strategic investments in infrastructure, such as sewer trunk lines, to encourage growth in desirable locations.
4. Implement development review procedures which are designed to demonstrate the availability of adequate public facilities to support the new development.
5. Select sites for county facilities to maximize equal opportunities for service to all residents.
6. Encourage the sensitive infill development of vacant or under-utilized parcels in more developed areas of the county to more efficiently utilize existing public facilities.
7. Select sites for government facilities which are deemed substantially in accord with the Future Land Use Map.
8. Evaluate county-owned property that is unused to determine if it can be used for current or future public needs.
9. Design public facilities to set the best possible example for private development and to encourage community pride and identification.
10. Utilize the planning process to review public facilities not shown on the adopted Future Land Use Map to determine if the general location, character and extent are in keeping with the adopted Plan.
11. Exercise the right of eminent domain when deemed necessary to implement the Comprehensive Plan.
12. Defer premature proposals for development until the time services are extended as a result of normal growth in adjacent areas. Proposals for segmented development in outlying areas should be considered as inappropriate because of

- burdensome costs incurred by allowing development beyond the limits of existing services.
13. Participate in regional forums that promote the planning, funding and development of facilities to serve regional needs.
 14. Obtain State and Federal funds whenever practical to assist in public facility site acquisition and development.
 15. Encourage the utilization of existing public facility sites for satellite offices that provide high accessibility to meet the daily needs of all residents.
 16. Recommend modification of existing public facilities where necessary to accommodate the development of intense uses in infill areas.
 17. Consider the reuse and/or expansion of existing public facility buildings to reduce the public expense of relocation.
 18. Minimize the adverse visual impacts of wireless communications towers and related facilities through careful design, siting, landscape screening and innovative camouflaging techniques.
 19. Horizontally separate wireless communication towers from residential neighborhoods and other visually sensitive areas to the extent necessary to minimize visual obtrusion.
 20. Encourage the use of alternative support structures, co-location of new antennas on the existing wireless communications towers, camouflaged towers and construction of towers with the ability to maximize additional providers.
 21. Ensure co-location opportunities are fully evaluated before permitting new wireless communications towers.
 22. Ensure the development of personal wireless facilities is done in a manner meeting all minimum requirements and standards of the Federal Aviation Association (FAA), the Federal Communication Commission (FCC) and the *Uniform Statewide Building Code*.
 23. Ensure the timely removal of obsolete or abandoned equipment at no cost to county residents.
 24. Ensure telecommunication providers implement any reasonably available technology that may reduce the number or height of towers.

LAND USE & COMMUNITY CHARACTER

Vision: Diverse and properly allocated land uses will play a vital role in the future character and quality of Henrico County and its unique and diverse communities. Community character will also be strongly influenced by the form and quality of future development. These elements will be guided by protection of neighborhoods, compatibility of land uses, maximization of opportunities for economic development, provision of public services and infrastructure, and protection of environmentally sensitive areas, and historical and cultural resources.

Land use and community character are the central physical and geographic components of the Comprehensive Plan and must be considered together to maintain and promote high quality of life and a unique identity that sets Henrico County apart from all other communities. These elements will be implemented to reinforce the objectives of the other elements of the Plan and can be used to tie the elements of the Plan together. Successful implementation of the Land Use recommendations and Community Character goals and objectives will foster greater coordination in future development of the county.

The county will have:

- Goal 1: A well-monitored and regularly updated Future Land Use Map.*
- Goal 2: An appropriate amount of land designated to accommodate a variety of uses that support forecasted growth.*
- Goal 3: A diverse and balanced mix of land uses promoting fiscal health.*
- Goal 4: A strong sense of community identity that is protected and further developed.*
- Goal 5: Strong and sustainable neighborhoods and business districts that will be maintained and developed within existing and new communities.*
- Goal 6: Portions of the county which are currently developed that offer opportunities for redevelopment, infill and intensification to take advantage of existing infrastructure, services and utilities.*
- Goal 7: A unique environment, landscape and character in the currently rural portions of the county that are respected as the county grows and develops with a balanced mixture of residential and nonresidential uses.*

Land Use and Community Character Objectives

The following objectives will guide the county in the pursuit of the land use and community character vision and goals.

The county will:

1. Develop a Future Land Use Map and definitions that identify appropriate locations and amounts of land to accommodate the forecasted growth.
2. Periodically review and amend the Future Land Use Map as necessary to reflect the changing needs and character of the county.
3. Encourage new growth and development that takes into account location and availability of infrastructure and services.
4. Promote developments with features that provide a safe pedestrian environment.
5. Amend the *Zoning and Subdivision Ordinances* to promote high quality, diverse land use patterns, including: mixed-use town centers, traditional neighborhood development, suburban mixed-use and rural subdivision design.
6. Implement new land use regulatory tools to allow for alternative forms of development only when high quality and impact mitigation is ensured.
7. Encourage large-tract, planned development to promote unified and attractive development and a sense of place, rather than piecemeal or incremental development.
8. Encourage diverse mixtures and forms of development to support the economic tax base of the county.
9. Promote diverse housing types that meet the needs of a demographically diverse population.
10. Use development design guidelines and standards to enhance, promote and protect a high-quality community identity and aesthetic.
11. Identify Planning & Economic Focus Areas of the county that offer unique economic opportunities, including areas for new development and opportunities for redevelopment or reinvestment.
12. Discourage development which over intensifies the site.
13. Provide for the logical arrangement of land uses which offers transitions from more intense to less intense uses.
14. Promote effective design standards which protect established residential areas through proper land use planning surrounding major transportation facilities and major roadway corridors.
15. Encourage public/private cooperation for rehabilitation and redevelopment and to channel growth into infill areas.
16. Increase the quantity of housing units near employment centers.
17. Encourage compatible land use adjoining other jurisdictional boundaries.

18. Encourage landscaped buffers on lots, in addition to the minimum required setbacks along any boundary which lies adjacent to collector or arterial streets.
19. Conduct surveys to determine the conditions of housing stock in the county.
20. Promote standards and specifications that assure quality residential development, while providing acceptable alternatives for minimizing development expense.
21. Encourage design alternatives that reduce the potential for crime in residential areas.
22. Encourage complementary multi-family residential areas that enhance overall land use development through their proximity to an arterial roadway, shopping areas and primary service facilities.
23. Encourage residential growth in areas where the physical conditions are conducive to development, i.e. soils, drainage, topography.
24. Encourage development of large tracts which provide space for a variety of housing types and services as opposed to small, segmented growth.
25. Promote an adequate supply of well-located housing for the elderly and the physically disabled.
26. Encourage economic development nodes which provide concentrated and interrelated economic development areas.
27. Mitigate the visual and traffic impacts of strip commercial development.
28. Encourage a distribution of commercial development which is consistent with population projections and characteristics.
29. Promote mixed-use, planned large tract development to achieve economies of scale and to provide retail services and employment opportunities near residential concentrations.
30. Minimize disruption and conflict among established residential, commercial and industrial uses and new uses.
31. Protect the function of interchanges and connecting roadways through the proper location and design of adjacent land activities.
32. Establish criteria for the development of interchange areas to minimize traffic flow problems.
33. Promote new and expanding growth at locations where various modes of transportation (such as rail, air, highway and water) converge.
34. Provide adequate safeguards to promote residential development near light industrial, office centers, and commercial concentrations for energy conservation and convenience.
35. Coordinate developments with affected municipalities when necessary.
36. Review development proposals in adjacent municipalities when they border Henrico County.
37. Review the comprehensive plans and large development proposals of adjacent municipalities and participate in the exchange of planning data.

- 38. Identify and protect areas with intrinsic natural, historical or cultural resources that should be preserved.
- 39. Protect existing development and residential areas from encroachment by incompatible or inappropriate land uses.
- 40. Encourage the public to take individual and collective actions to protect themselves and their property from crime.
- 41. Promote public safety through the use of Crime Prevention Through Environmental Design (CPTED) methods.

NATURAL, CULTURAL & HISTORIC RESOURCES

Vision: Natural, cultural and historic resources contribute to the county's identity and increase the high quality of life. These resources should be protected to ensure a well-rounded and healthy community.

There are many natural, cultural and historic resources worthy of protection. A clean Chesapeake Bay watershed, a sustainable and healthy natural environment, and a sense of historic and community identity all contribute to a high quality of life. It is important to balance the need to protect these resources with the goals of economic development within the county.

The county will have:

- Goal 1: A population that supports and welcomes diversity in socioeconomics, culture and age.*
- Goal 2: Natural resources that are protected and enhanced for the long-term enjoyment of current and future generations.*
- Goal 3: Physical development that promotes preservation and protection of air quality, noise levels, wildlife habitat, biological species and natural processes in balance with vital economic growth.*
- Goal 4: Historic and cultural resources that are protected through a mix of fair regulatory and proactive measures that considers the need for growth.*

Natural, Cultural & Historic Resources Objectives

The following objectives will guide the county in the pursuit of the natural, cultural and historic resources vision and goals.

The county will:

1. Promote educational opportunities to increase the awareness of the county's natural and historic resources through support of the schools and libraries.
2. Identify and protect watershed areas in accordance with the standards for protection of the Chesapeake Bay.
3. Manage the development of environmentally sensitive land through ordinances to balance protection of natural resources with economic development.
4. Use development standards and ordinances to protect the quality of surface and groundwater consistent with guidelines established by the Virginia Department of Conservation and Recreation Division of Chesapeake Bay Local Assistance.
5. Protect air quality consistent with guidelines established by the Virginia Department of Environmental Quality.
6. Identify potential sites where access to the county's natural, historic and cultural resources could be provided to the public, including but not

- limited to access to the James and Chickahominy Rivers.
7. Identify key corridors or areas with historical or cultural significance and identify appropriate protection measures.
8. Encourage protection of natural and historic resources by the private sector.
9. Identify and protect physical resources and natural habitats for wildlife.
10. Protect valuable natural, cultural, and historic resources from incompatible land uses through sensitive development design that respects or incorporates the resources into new development in a responsible fashion.
11. Discourage development in areas where the land's physical limitations may threaten the safety, health and welfare of residents.
12. Utilize Federal and State guidelines to determine appropriate land uses within noise-impacted areas.
13. Encourage the development of construction standards for residences in noise-impacted areas.
14. Promote the provision in the county Building Code for noise abatement measures in residential areas.
15. Encourage master planning of land areas containing mineral deposits to ensure restoration of mined portions in keeping with future plans for development.
16. Encourage the upgrading of nuisance-producing industries and their relocation (if necessary) to designated areas where their impacts on the public health, safety and welfare will be minimized.
17. Work through the State legislature to establish water conservation programs.
18. Consider design guidelines along Virginia Scenic Byways.
19. Apply design guidelines for all development that occurs along Virginia Scenic Byways.
20. Protect from objectionable land uses, when possible, valuable historic and archaeological sites and/or structures.
21. Encourage the continued residential use of historic structures and consider imaginative adaptation only where circumstances warrant.
22. Support property owners in efforts to maintain historic and cultural resources.
23. Seek funding and other mechanisms to protect and preserve vital resources.
24. Selectively acquire, preserve, restore and rehabilitate historically and archeologically significant sites and/or structures.
25. Selectively acquire and protect sites as a means of protecting natural resources as they become available.
26. Encourage private owners or developers to recognize the significance of historic areas, structures, and sites through the application of the County of Henrico Historic Building Plaque or Roadside Marker Program.
27. Identify and protect aquifer recharge areas through proper management.
28. Ensure proposed land uses are appropriate for shoreline conditions considering the erosion potential which exists.

29. Ensure development along the shoreline is managed to avoid or reduce reliance on structural erosion controls.
30. Require impoundment sites as a means of stormwater management in appropriate locations.
31. Require all county-owned operations to meet applicable emission standards.
32. Identify acceptable noise levels for various land uses and promote methods for noise reduction and mitigation by encouraging compatible locations of uses, and implementation of various noise mitigation techniques.
33. Update noise contours on the zoning maps and suggest abatement measures to developers on a continual basis.
34. Utilize noise rating contours and other technologies as a planning tool in the siting and designation of land uses.
35. Discourage the location of proposed county facilities which may be impacted by noise within the airport noise contours.
36. Protect unique and/or critically endangered resources by controlling the effects of development.
37. Promote comprehensive historical and archaeological site identification in coordination with public facilities, land use, transportation and private development efforts.
38. Protect sites, buildings, structures and objects eligible for nomination to, or presently listed on, the National or State Registers of Historic Places.
39. Develop countywide standards for the identification and preservation of historic resources.

TRANSPORTATION

Vision: A safe, efficient and effective transportation system contributes to the well-being of citizens and businesses and enhances the quality of life within the county. Adequate transportation facilities enhance economic development and support land use decisions. Proactive transportation planning should be pursued to identify necessary transportation infrastructure improvements and to coordinate with other Comprehensive Planning efforts of the county along with other agencies within the region.

Effective transportation planning involves striking a proper balance between maintaining mobility while providing access. Mobility is the movement of traffic through an area or from one place to another. Access refers to the means of entering places. Mobility and access can be provided through various modes: vehicular, bicycle, pedestrian, transit, water ways, trains and airplanes. It is important to identify future transportation needs of the county in conjunction with other elements of the Comprehensive Plan to ensure coordination and continued successful growth.

The county will have:

- Goal 1: A transportation system which operates in a safe and efficient manner that promotes the local economy and minimizes traffic congestion.*
- Goal 2: A road network that provides multiple routes and intersections to improve traffic circulation and provides alternate routes to avoid congested areas.*
- Goal 3: A transportation network supporting alternative modes of travel to provide mobility choices for the county's citizens.*
- Goal 4: Coordinated land use and transportation plans which better enable future land development activities to be supported by concurrent transportation infrastructure improvements.*
- Goal 5: Access management standards which encourage joint entrances and inter-parcel connectivity.*
- Goal 6: Transportation system management practices which provide priority movement to critical users while balancing the varied needs of multiple modes of traffic.*
- Goal 7: A transportation network supported by Intelligent Transportation System (ITS) technologies that provide area drivers with real-time information with which to make route choice decisions.*

Transportation Objectives

The following objectives will guide the county in the pursuit of the transportation vision and goals.

The county will:

1. Update the Major Thoroughfare Plan/Map to support the forecasted growth identified on the Future Land Use Map.
2. Periodically review the Major Thoroughfare Plan/Map and amend it as necessary to reflect changes in the Future Land Use Map and to reflect the changing needs and character of the county.
3. Promote the development and implementation of multimodal transportation facilities with appropriate intermodal connectivity in order to meet the needs of a demographically diverse population.
4. Encourage developments which include facilities to accommodate the pedestrian and bicyclist as well as transit.
5. Promote the use of the proffer system and alternative transportation delivery methods such as the Public-Private Transportation Act (PPTA) to encourage the development of new transportation facilities which meet existing or projected demands.
6. Identify strategic opportunities to implement Intelligent Transportation Systems (ITS) initiatives to provide real-time traveler information to transportation network users.
7. Use transportation design guidelines and standards to enhance, promote and protect a high-quality community identity and aesthetic.

CHAPTER 5: LAND USE

OVERVIEW

The Land Use Chapter is comprised of two (2) major components: 1) the General Development Policies and 2) the Land Use Groups. The General Development Policies establish guidelines and recommendations for the evaluation of development in the county. These policies should apply to all land uses on a countywide basis regardless of development type.

Land Use Groups include the individual land use categories and their respective recommended densities. The land use categories are grouped together as follows: Rural, Residential, Mixed-Use, Office/Service/Industrial, Retail/Commercial, and Civic. The characteristics of each Land Use Group are detailed in a series of “Keystone Policies” which identify the desired development character within each group and function as guiding policies for development. Following the Keystone Policies are the specific land use categories, which in combination with the Future Land Use Map, define the specific location, density and development intensity for land uses.

These land use recommendations have been made after considerable study and examination of the county’s physical conditions and development trends and are closely tied to the transportation and public facilities recommendations made in other chapters of the Plan. The county will use the land use recommendations provided in this Plan when considering rezoning applications and other requests for development approval to promote healthy growth.

GENERAL DEVELOPMENT POLICIES

In addition to the Keystone Policies in each Land Use Group, the following General Development Policies will be used when addressing development and land use issues in the county.

1. Ensure public facilities are in place or will be available to adequately serve and support new development. Only approve new development upon demonstration that adequate public facilities, as established in this Plan, are or will be available at the time of completion to maintain the desired levels of service.
2. Encourage the design of new development to be compatible with and complementary to existing land uses. Incompatible uses should not be closely located. Site design and buffering should be used to the maximum extent feasible to reduce the impacts on adjacent properties, especially between residential and nonresidential areas.
3. Encourage the design of new development, whether public or private, to be respectful of identified historic or natural resources. Incorporate the preservation and restoration of existing features to the maximum extent feasible.
4. Encourage new development to be designed to provide interconnectivity with existing and future developments through the use of stub streets.

5. Ensure subdivision and site layouts of new development are planned in consideration of the future use (as recommended by this Plan) of currently undeveloped land in the general vicinity to create interconnected neighborhoods.
6. Encourage compatible infill, redevelopment and development in proximity to existing development and services when appropriate to avoid “leap frog” growth patterns which may result in higher service costs.
7. Discourage strip development along existing or new thoroughfares. This practice creates an undesirable development pattern and causes traffic and access issues, as well as preventing access from major corridors to large tracts of land that may be developed at a later time.
8. Continue to incorporate environmental quality protection measures into the development review process, particularly related to runoff, stream protection, air quality and noise.
9. Encourage developments to be designed to minimize adverse environmental and fiscal impacts.
10. Promote the integration of Best Management Practices (BMPs) and other stormwater management techniques established by the county into the design of new development and redevelopment to ensure that individual developments ultimately function as an integrated system.
11. Encourage developments to be designed to minimize disruption to life and property resulting from erosion and flooding.
12. Encourage the preservation of private open space by supporting the use of conservation and open space easements to preserve land use in each Land Use Group/Classification, provided such easements do not adversely impact planned infrastructure or the pattern of development in the area.

LAND USE GROUPS

The Land Use Groups establish a general character for groupings of the specific land use categories and cover areas such as quality, land use relationships and public service provision. “Keystone Policies” are established for each group to provide general development guidance for these areas. Additional design guidance is provided in Chapter 6: Community Character of this Plan and in the *Design Guidelines Manual* which will be developed as part of the Plan’s implementation.

Rural

Rural character is desirable in Henrico County and helps contribute to the array of living choices. Agricultural uses, although changing, are still a viable land use and should be preserved, while allowing reasonable opportunities for new growth.

The Rural land use group applies to areas characterized primarily by agricultural uses, land maintained in its natural state, and large tract residential development. These areas currently have limited availability of water and sewer services, and require on-site provision of these utilities. Road infrastructure within these areas is characterized by paved roads with ditch drainage.

The Rural areas are primarily located around the perimeter of the eastern end of the county with a few locations along the western portion of the county. The natural geology and drainage of the eastern portion of the county places some limitations on the development capacity of land in the Rural areas. The Rural areas will likely experience pressure for growth in the near future but are not the primary growth areas.

Keystone Policies

The following keystones will be used when addressing development and land use issues in the Rural areas.

1. Promote a continuation of the historic, rural pattern, including farms, pasture land, and preserved natural and historic sites as the desired character for these areas. Accommodate new residential development but encourage it to occur on either very large lots, or in a conservation subdivision format, as described in Chapter 6: Community Character.
2. Since access to public sewer and water may be limited in Rural areas, new residential development proposals should be reviewed to assess the suitability of on-site water and sewage treatment.

RURAL KEYSTONES
<ul style="list-style-type: none"> ▪ Conservation Subdivisions ▪ On-Site Water & Sewer ▪ Environmental Protection ▪ Agricultural Transitions

3. Encourage the use of regulatory measures such as stream setbacks to place a priority on preserving and protecting environmentally sensitive features such as stream corridors, wetlands and other features contributing to water quality in Henrico County and Virginia.
4. Promote the idea of agriculture as a desirable use, subject to potential change and transition to other more intense uses. While the open nature of agriculture is enjoyed by many, and the open space is a valued community amenity, discourage the view of agriculture as permanent open space, and do not expect farmers to carry the burden of providing this amenity.
5. Encourage creative, unique and niche forms of agricultural such as farmers' markets, agri-tourism and value-added opportunities.
6. Encourage the use of agricultural science-based Best Management Practices to minimize erosion and groundwater and surface water contamination.
7. Encourage low density rural residential development to areas that minimize conflicts between residential and agricultural land uses and maintain rural character of the county.

Land Use Classifications

The following land use classifications are included in Rural areas though Open Space/Recreation and Environmental Protection Areas may be focused throughout the county:

Open Space/Recreation (OS/R)

The Open Space/Recreation designation applies to land intended for public and/or private use. The recommended uses for these areas include passive or active recreational activities or permanent preservation of natural open qualities.

Environmental Protection Area (EPA)

Environmental Protection Areas apply to locations where no future development is planned to occur due to the location of Chesapeake Bay Preservation Areas and the one-hundred (100)-year floodplain; however, if development impacts can be mitigated to prevent deterioration of environmental quality, limited development is permitted in these areas. Extra sensitivity during development or use is required to protect the environment, public health, safety and welfare in EPAs.

Prime Agriculture (PA)

Prime Agricultural areas are areas especially suitable for agricultural use because of soil conditions and/or land which is currently being used for agricultural purposes. This classification generally corresponds with the A-1 zoning district.

Rural Residential (RR)

Rural Residential areas are intended for detached, single-family residential and agricultural uses that maintain a rural character. Residential lots should be large (no less than one (1) acre) or homes should be clustered on smaller lots to preserve large tracts of natural areas and open space. Setbacks, residential landscaping and site design should be used to maintain a rural character of open space and wooded areas.

Residential

Residential use is the most dominant land use in the county. Recognizing the need to accommodate future growth, the Future Land Use Map includes significant areas planned for development as residential uses.

The county recognizes the importance of providing a variety of housing opportunities and housing types to address the goals of this Plan. The Residential areas identified in this Plan are intended to provide these opportunities. Most of the residential land use classifications focus on single-family residential neighborhoods of established and future homes. The residential classifications range from suburban single-family subdivisions to more established urban neighborhoods with single-family detached and attached housing, multi-family condominiums and apartment complexes.

Keystone Policies

The following keystones will be used when addressing development and land use issues in the Residential areas.

1. Promote high-quality development through compliance with site plan review and the *Design Guidelines Manual*, particularly related to landscaping; traffic and pedestrian circulation; signage; and building design, placement and orientation.
2. Focus on promoting a high quality of life for residents by providing safety and stability within the neighborhoods.
3. Encourage a variety of compatible housing options. While large, single-family homes are desirable, so are other types of housing which are compatible with the demands of

**RESIDENTIAL
KEYSTONES**

- **Quality Design**
- **Safety**
- **Variety**
- **Compatible Transitions**
- **Vehicular & Pedestrian Connectivity & Circulation**
- **Environmental Quality**
- **Adequate Public Facilities**
- **Appropriate Noise Levels**
- **Location Compatibility**
- **Equitable Distribution**
- **Ownership/Rental Balance**
- **Equitable Housing Programs**

non-traditional families, such as smaller homes or condominiums for young professionals or “empty nesters.” A range of ownership or rental opportunities is also encouraged.

4. Avoid encroachment of nonresidential uses into Residential areas. Use transitional uses, open space and creative site configurations to buffer and reduce the impact of nonresidential uses in Residential areas.
5. Use the road network in Residential areas to promote safety and connectivity with existing and future development. Rather than focusing traffic on a few arterial or collector streets, more “through streets” are encouraged to disperse traffic and to reduce its isolated impacts at certain points.
6. Encourage sidewalks and other pedestrian facilities in new developments. Connections to other neighborhoods and key destinations such as schools, libraries and parks are also encouraged.
7. Promote development at densities which can be supported by the natural site conditions, availability of public facilities and the transportation network.
8. Use environmental quality reviews in the development review process, particularly related to runoff and stream protection.
9. Discourage residential uses within areas that project a seventy (70) DNL or more intense noise level.
10. Multi-family homes should enhance the overall land use pattern through their proximity to arterial roadways, shopping areas and primary service areas.
11. Encourage residential units in vertical, Mixed-Use developments to promote housing opportunities near existing and future employment centers. (See *Mixed-Use Keystone Policy 12.*)
12. Evenly distribute housing for the elderly and disabled throughout the county in proximity to locations with concentrations of services.
13. Encourage an adequate supply of rental properties which are well maintained and promote the stability of the overall community.
14. Encourage programs that promote homeownership and vitality in the community for a range of income levels.

Land Use Classifications

The following land use classifications are included in the Residential areas:

Suburban Residential (SR)

Suburban Residential applies to existing and new residential neighborhoods that are limited to detached, single-family residential uses. Typical suburban development patterns/styles with curvilinear roadways are present and common in these areas. Emphasis should be placed on interconnection of roadways and sidewalks.

There are two (2) categories of Suburban Residential which vary by density.

Suburban Residential 1 (SR1) - density should not exceed 2.4 units per acre

Suburban Residential 2 (SR2) - density should not exceed 3.4 units per acre

Urban Residential (UR)

Urban Residential applies to existing and new residential neighborhoods that exhibit many characteristics of Traditional Neighborhood Development and are more urban in character than the Suburban Residential classification. Urban Residential is recognizable by an interconnected grid street pattern and small lots with shallow front yards.

These areas are limited to residential uses, although a variety of housing types is appropriate in Urban Residential neighborhoods including detached, single-family homes, attached/two-family homes, townhouses, condominiums and zero lot line homes. Existing Urban Residential neighborhoods of exclusively single-family homes should be maintained as such. Residential densities in an Urban Residential neighborhood should range from 3.4 to 6.8 units per acre.

Multi-Family Residential (MFR)

Multi-Family Residential applies to existing and new areas where multi-family dwellings such as apartments, townhouses and condominium complexes are appropriate. Transitions to surrounding uses, access to the road network, high-quality development and appropriate site design are important in Multi-Family Residential areas. Densities in Multi-Family Residential areas should not exceed 19.8 units per acre.

Mixed-Use

The Mixed-Use group provides new land use concepts in Henrico County, which are being used with increasing frequency as Urban Mixed-Use (UMU) zoning is applied throughout the county. Mixed-Use categories promote master-planned developments with a blend of residential, commercial, office uses and civic/open spaces. A well-designed, mixed-use development typically reduces automobile trips, incorporates and

preserves unique environmental features, promotes the efficient use of land, provides access to amenities at a local level, creates regional draws for commerce and provides the ability to create unique communities in the county.

There are several locations in Henrico County where unique features lend themselves to a Mixed-Use, master-planned type of development. These features include: large tracts of undeveloped land; large tracts of land with environmentally sensitive areas, which can be developed with special considerations to protect and incorporate these features into a unique community; access to regional transportation; redevelopment and infill in under-developed locations; and others.

Keystone Policies

The following keystones will be used when addressing development and land use issues in the Mixed-Use areas.

1. Mixed-Use developments are targeted for large tracts of land which should be developed in phases or at one time under an approved master plan for the site.
2. Mixed-Use developments may be appropriate, pursuant to an approved master plan, on infill or redevelopment sites to intensify land uses in areas where public facilities are currently available.
3. Encourage all Mixed-Use developments to meet the quality standards in the *Design Guidelines Manual* or as adopted by the county, related to site layout; building configuration, materials, massing, shape and height; landscaping; signage; parking lot aesthetics and functional design; pedestrian circulation; lighting; stormwater management; environmental protection; mass transit access; and others.
4. Encourage the development of an overall architectural theme for each Mixed-Use project to create a unique community character.
5. Encourage the incorporation of public open spaces in Mixed-Use developments. Promote the design of informal passive spaces and formal or active open spaces, for example plazas, parks, walking/jogging trails, to function as integrated and functional elements of the overall development. Passive

MIXED-USE KEYSTONES
<ul style="list-style-type: none"> ▪ Master-Planned ▪ Economic Development ▪ Quality Design ▪ Unique Character ▪ Public Open Spaces ▪ Vehicular & Pedestrian Connectivity & Circulation ▪ Adequate Public Facilities ▪ Incorporated Environmental Features ▪ Vertically Mixed-Uses

open space used to complement the built environment and preserve natural features is also encouraged.

6. Encourage pedestrian orientation as the emphasis of Mixed-Use developments when designating buildings and public spaces. Discourage the accommodation of the automobile as a prominent land use or dominant visible feature. Promote structured parking to preserve land area within Mixed-Use developments for open space or for more economically beneficial uses.
7. Promote the careful planning and management of traffic circulation and access so each Mixed-Use development operates as a coordinated circulation system. A strong interconnected street network is essential to the function of Mixed-Use areas. These systems need not be a typical grid but may retain some curvilinear characteristics with sufficient crossroads and access locations to promote adequate levels of service as specified in this Plan.
8. Coordinate the intensity of Mixed-Use developments with the provision of adequate public facilities. When possible, sites for new public facilities are encouraged to be incorporated into the overall design of the Mixed-Use development. Uses such as schools, libraries, post offices and safety service offices are compatible elements to include within a Mixed-Use development.
9. Mixed-Use developments should endeavor to maximize investments made by the public and private sectors.
10. Use the *Design Guidelines Manual* recommendations for Mixed-Use developments to encourage opportunities for economic development.
11. Encourage the preservation and incorporation of unique or sensitive environmental features into the overall design of Mixed-Use developments.
12. Strongly encourage vertical mixed uses in Urban Mixed-Use and Traditional Neighborhood Developments areas. Individual structures should include commercial uses on the lower stories, offices on secondary stories and residential uses on upper stories.

Land Use Classifications

The following land use classifications are included in Mixed-Use areas.

Suburban Mixed-Use (SMX)

Similar in development form to the Suburban Residential areas, Suburban Mixed-Use applies to new and existing areas that are characterized by curvilinear street patterns, moderate density residential areas and other typical suburban development patterns and styles. This designation is intended to allow cohesive development of land under a master plan that creates a community rather than a series of isolated subdivisions. These

types of developments are similar to Twin Hickory, Wyndham and Wellesley.

The SMX classification encourages unified, high-quality developments that are phased with the provision of necessary infrastructure improvements. A variety of housing types is appropriate in Suburban Mixed-Use communities including detached, single-family homes, attached/semi-attached single-family homes, townhouses, condominiums and zero lot line homes. The overall gross residential densities should not exceed four (4) units per acre in a development, but may include a combination of housing types. Residential uses are the priority in a Suburban Mixed-Use community, but a minimum of five percent (5%) of the area should be dedicated to nonresidential uses and should contain both open space/recreation office/service and commercial uses. A minimum of fifteen percent (15%) of the land area in a master-planned SMX community should be dedicated to open space/recreation and/or preservation of significant natural resources.

Traditional Neighborhood Development (TND)

TNDs are modeled after the pattern of development popular through the mid-1900's. The traditional neighborhood concept reflects human scale, walkable communities with a grid or frequently interconnected street network with alleys. A TND should have a mix of housing types, and small, local-scale retail and service uses that serve the local population and do not create excessive parking needs.

Because TNDs encourage vertically-mixed structures, traditional methods for density calculations are not adequate. Each site will be different, and the overall intensity of development must be addressed in the development review process based on the ability of public facilities and natural conditions of the site to support development. Residential is the primary use for a Traditional Neighborhood Development and, as a general guide, can support a density of twelve (12) units per acre on sixty percent (60%) of the land area. A minimum of twenty percent (20%) of the TND area should be dedicated to nonresidential uses and should include both office and commercial uses. Multi-story buildings with a vertical mix of uses are encouraged as focal points in TNDs. A minimum of twenty percent (20%) of the land area in a master-planned TND community should be dedicated to open space/recreation and/or preservation of significant natural resources.

Urban Mixed-Use (UMU)

Urban Mixed-Use areas are characterized by a range of residential, commercial, public, and semi-public uses. They emphasize pedestrian-oriented activity centers which may contain a mix of retail, office, multi-family residential, cultural, educational, open space, and other public and private uses, with a balance among the various uses. A mix of uses can occur in a single structure, in a group of structures on a parcel, or on a group of parcels; however, multi-story buildings with a vertical mix of uses

are encouraged. Greater regulatory flexibility is intended to encourage innovative and creative design and high-quality development and redevelopment. Rocketts Landing, West Broad Village, Highwoods at Innsbrook, and Staples Mill Centre are examples of Urban Mixed-Use areas in Henrico County.

Because UMUs encourage vertically-mixed structures, traditional methods for density calculations are not adequate. Each site will be different, and the overall intensity of development must be addressed in the development review process based on the ability of public facilities and natural conditions of the site to support development. However, as a general guide, UMU designated land can support residential densities of up to forty (40) units per acre on approximately sixty percent (60%) of the land area of the master-planned site. A minimum of twenty percent (20%) of the land area of a UMU should be dedicated to open space and protection of significant natural resources. Commercial and office/service uses should be developed in a UMU in a quantity that can balance the residential development.

Office/Service/Industrial

The relationship between land use and economic development is extremely important to the future financial stability of Henrico County. For many years, the county has maintained a development pattern that contributes to a good balance of residential and nonresidential land uses. The Office/Service/Industrial areas in the county are strong factors in the local and regional economy and offer a wide range of employment opportunities to Henrico residents. The employment and revenue generated in these locations are contributing factors to the high quality of life found in Henrico County.

In coordination with anticipated residential growth, the county is encouraging expansion of economically productive business uses. It is important to attract and establish new business development to maintain the desired balance of nonresidential development and residential development. The areas identified in the Future Land Use Map for Office/Service/Industrial uses should be viewed as limited resources, which should be protected and reserved for revenue-generating businesses to maintain the economic health of the county.

Keystone Policies

The following keystones will be used when addressing development and land use issues in the Office/Service/Industrial areas.

1. Strongly encourage new development in Office/Service/Industrial areas to meet quality standards related to site layout; building configuration, materials, massing, shape and height; landscaping; signage; parking lot aesthetics and functional design; pedestrian circulation; lighting; stormwater management; environmental protection; mass transit access; and others.

2. When possible, encourage master planning for development of new Office/Service/Industrial areas.
3. Office/Service/Industrial areas should have convenient access to, and when possible, visibility from the regional transportation systems including highways, airport and rail.
4. Encourage vehicular access to be designed to maximize efficiency and minimize negative level of service impacts on the surrounding road network.
5. Promote the accommodation of a range of employment opportunities from local businesses and regional employers in the county, as both are important to the fiscal well-being of the county.
6. Encourage employment-generating uses to reuse or intensify existing land areas designated for Office/Service/Industrial uses, when appropriate.
7. Encourage the mitigation of potential environmental impacts of Office/Service/Industrial uses through appropriate site design, restorative landscaping, stormwater management and proper management of potentially hazardous technologies through the county's permitting system, in regard to air and water quality.
8. Strategically locate Office/Service/Industrial areas with access to other support services and amenities for employees such as restaurants, day care centers and personal services. Promote the location of these complementary uses in close proximity to Office/Service/Industrial areas, or integrated into a coordinated master plan for a development site.
9. When Office/Service/Industrial areas are located adjacent to existing or proposed residential development, encourage the use of appropriate landscaping and buffering to reduce the impacts of development on the adjacent residential areas.

**OFFICE/SERVICE/
INDUSTRIAL
KEYSTONES**

- **Quality Design**
- **Planned Development**
- **Highway Access**
- **Variety**
- **Revitalization & Infill**
- **Environmental Impacts**
- **Support Services**
- **Transitions**

Land Use Classifications

The following land use classifications are included in Office/Service/Industrial areas.

Office (OF)

Office areas are intended to accommodate office development of individual properties rather than an “office park.” A variety of office uses including professional or administrative offices, medical offices, studios for artists, child care centers, banks, employment agencies, funeral homes, etc., are permitted at varying intensities.

Office/Service (O/S)

Office/Service areas include a wide range of business, light industrial, office, research and development and related ancillary uses, such as restaurants. They generally take on the appearance of an office development, yet with warehousing capabilities. Employment/Office Centers often take the form of a “campus” in the integration and coordination of uses and quality and character of the development. These areas are prime locations in the county with good access to major road networks and an employment base, and should therefore be reserved for high-return employment generating uses such as office buildings or light manufacturing and warehousing operations.

Light Industry (LI)

Light Industry areas are intended for manufacturing, fabricating and warehousing establishments with the least potential for adverse impact on adjacent development. They include uses and provisions that mitigate noise, heavy truck traffic, fumes, vibration or other forms of pollution.

Planned Industry (PI)

Planned Industry is applied to areas intended to accommodate a variety of industrial establishments, which employ high environmental quality standards and have minimal impacts on adjacent uses. They require large tracts of land because of their nature and function. They provide shared access, coordinated design and a planned layout.

Heavy Industry (HI)

Heavy Industry is applied to areas intended to accommodate manufacturing and fabricating establishments which are generally characterized as producing noise, vibration, heavy truck traffic, fumes and other impacts, which may be objectionable to adjacent uses.

Retail/Commercial

Retail/Commercial areas provide valuable services and goods to citizens and employees in Henrico County. These areas should be located near Residential and Office/Service/Industrial areas to provide opportunities for commerce and personal services.

Existing Retail/Commercial areas in the county are concentrated around significant corridors. These areas can include either a single use or a conglomeration of uses. Specific uses in these areas can include general Retail/Commercial uses, offices, personal services, restaurants, hotels, and automotive related businesses. The development of Retail/Commercial areas in Henrico County takes form in strip malls, traditional enclosed shopping malls, lifestyle or outdoor pedestrian shopping malls and free standing stores or hotels with out-parcels. These areas address commercial and retail uses which are not part of a master-planned section in the Mixed-Use areas.

Retail/Commercial areas can have a range of characteristics depending on their primary markets. The larger scale, regional draws are more automobile-oriented and draw people from throughout the region. These areas are typically located near interstate access, and they may include shopping malls, and “big box” stores like grocery superstores, warehouse clubs, large specialty retailers and department stores. Typically, smaller accessory uses are located in these areas and include restaurants and smaller specialty retailers, often located on out-parcels or in smaller strip centers.

Other Retail/Commercial areas are usually intended to serve a more local or community need. These areas may have some of the same uses as the larger regional draws, but are less accessible to the interstates. They often offer more service-oriented uses like hair salons, tax preparation, pet care and banks; they may also include grocery stores, restaurants and office supply stores. These uses are often found in smaller centers, as single building developments and on out-parcels.

The smallest scale at which free-standing Retail/Commercial is typically developed is at a very local or neighborhood level. These Retail/Commercial areas serve a very tight geographic area and are typically small, free-standing buildings located at or near the intersection of arterial streets within neighborhoods. Typical neighborhood-scale commercial would include convenience stores, gas stations and small delis or markets.

Keystone Policies

The following keystones will be used when addressing development and land use in Retail/Commercial areas:

1. Strongly encourage all Retail/Commercial development to meet quality standards related to site layout; building configuration, materials, massing, shape and height; landscaping; signage; parking lot aesthetics and functional design; vehicular and pedestrian circulation; lighting; stormwater management; environmental protection; mass transit access; and others.
2. Discourage and avoid the strip development of major thoroughfares with new Retail/Commercial development. Promote concentrations of

Retail/Commercial uses in well-designed centers that apply appropriate access management techniques as the preferred configuration.

3. Access management should be vital to the success of Retail/Commercial uses. Access points should be designed to provide adequate visibility for businesses while mitigating negative impacts on the levels of service on the roadways.
4. When existing Retail/Commercial areas are redeveloped, give special attention to access management and site configuration to minimize traffic impacts often associated with strip development.
5. Promote the location of new Retail/Commercial development in a manner consistent with population projections and characteristics. Encourage access to grocery stores and services for populations using mass transit and/or pedestrian access.
6. Strongly encourage redevelopment of existing Retail/Commercial areas which have become less competitive or obsolete due to market changes. Redevelopment should be encouraged to use existing public facility availability, prevent vacant structures, and continue providing Retail/Commercial services to established neighborhoods in the county. (See Chapter 7: Planning & Economic Focus Areas.)
7. New development in Retail/Commercial areas should utilize effective buffers, screening, and site design to minimize potential conflicts with surrounding residential uses.

RETAIL/COMMERCIAL KEYSTONES

- **Quality Design**
- **Access Management**
- **Convenient Locations**
- **Revitalization & Infill**
- **Environmental Impacts**
- **Transitions**

Land Use Classifications

The following land classifications are included in Retail/Commercial areas.

Commercial Concentration (CC)

Commercial Concentration is applied to land intended for retail and/or wholesale sales and service establishments with coordinated design for shared parking areas and shared points of access to a roadway.

Commercial Arterial (CA)

Commercial Arterial is applied to land intended to accommodate both wholesale and retail sales and service establishments that may function independent of adjoining development and require individual access to a roadway.

Civic

Civic areas include locations for new and existing government facilities, schools, and semi-public uses such as churches, hospitals and other similar uses. Locational factors for future siting of civic or governmental/public facilities are addressed in Chapter 11: Public Facilities & Utilities.

Keystone Policies

The following keystones will be used when addressing development and land use in Civic areas:

1. Use the policies and recommendations in Chapter 11: Public Facilities & Utilities of this Plan as a guide for locating new government and public facilities.
2. Encourage all development in Civic areas to meet quality standards related to site layout; building configuration, materials, massing, shape and height; landscaping; signage; parking lot aesthetics and functional design; vehicular and pedestrian circulation; lighting; stormwater management; environmental protection; mass transit access; and others to set a good example for private development.
3. To reduce conflict with surrounding uses, promote the location of Civic uses on sites large enough to accommodate the use and provide adequate buffers between adjacent uses.
4. When feasible, Civic uses should respect and incorporate natural, historic and cultural resources into the design of the site.

CIVIC KEYSTONES

- **Quality Design**
- **Appropriate Locations**
- **Appropriate Transitions**
- **Incorporation of Resources**

Land Use Classifications

The following land use classifications are included in Civic areas.

Government (GV)

Areas designated as Government include a variety of non-recreational public uses and facilities that are government-owned (local, State or Federal).

Semi-Public (SP)

Areas designated as Semi-Public include a variety of quasi-public uses and facilities including but not limited to private schools, churches, nursing and convalescent care facilities and hospitals.

2026 FUTURE LAND USE MAP

CHAPTER 6: COMMUNITY CHARACTER

OVERVIEW

This chapter addresses the less tangible dimensions of growth and development known as community character. Community character is less quantifiable than other aspects of land use and public facilities, but it is equally important to the creation of livable communities. Community character can be defined as the combined effect of the built, natural, historic and social features within a neighborhood. It encompasses the physical and social attributes that make one neighborhood different from another. This chapter provides guidance for creating appropriate community character in Henrico County. Community character takes land use recommendations and moves beyond the concept of “where” and “how much” and addresses the “quality” of the land use.

Achieving the right balance between the quantity and quality of new development and redevelopment is important. This Plan provides guidance for the creation and maintenance of specific identities for the different land use groups in the county. Unique and identifiable neighborhoods contribute to a sense of place and help create pride in the community, which in turn encourages higher levels of quality and maintenance. Henrico is a growing and evolving community where the community character is not static or easily definable within a single type; however, it is important to maintain local traditions and historic architectural styles to perpetuate a character that is distinctly Henrico.

Except for the preservation of historic sites and areas of archeological or cultural interest or the creation of historic districts (*Code of Virginia §15.2-2306*), state law does not permit the county to specifically regulate architectural standards. However, the county can provide guidance to developers to promote new neighborhoods, infrastructure, and buildings which contribute to the positive image of the county and promote a higher quality of life. Including this guidance in the county’s Comprehensive Plan provides details of the county’s expectations in terms of character and quality of development, increasing the chances that future development will contribute to the county’s vision for its future.

This chapter includes a description of the features that define the character of five (5) of the six (6) Land Use Groups described in Chapter 5: Land Use. The Civic Land Use Group, which includes Government and Semi-Public uses, is explained more fully in Chapter 11: Public Facilities & Utilities and is not included here. The Land Use Groups addressed in this chapter include the following:

- Rural
- Residential
- Mixed-Use
- Office/Service/Industrial
- Retail/Commercial

The physical components of community character generally include the following design elements:

- Street patterns
- Streetscape elements (landscaping, light fixtures, street furniture, etc.)
- Layout and design of individual building sites
- Architectural elements and style
- Open spaces and preserved resources

The way these essential elements of community character are used creates different communities ranging from rural to urban. The qualities of each of these elements are described for the five (5) Land Use Groups listed in this chapter. This chapter describes how the community can use each of these elements to achieve the desired character in each of the five (5) Land Use Groups. These concepts have been expanded on and detailed guidelines will be included in the *Design Guidelines Manual*.

In addition to the individual descriptions of the Land Use Groups, this chapter also provides an overview of the process for development of cluster subdivisions, and Crime Prevention through Environmental Design (CPTED) standards, which contribute to community character and safety.

CHARACTER DEFINING FEATURES OF THE LAND USE GROUPS

RURAL

These areas are characterized by agriculture, open spaces, large tract development patterns, preserved wooded areas and some historic sites. Rural areas should incorporate the design features described below to maintain rural character while providing reasonable development opportunities.

Access and Circulation

Access and circulation systems should be provided for pedestrians, bicycles and automobiles. Trails, sidewalks, and roads should be designed to provide ease of movement and emergency access, but should retain an informal appearance. The location of new roads and driveways should be designed to avoid negative impacts on Chesapeake Bay Preservation Areas and Resource Management Areas, and other natural and cultural resources. Shared driveways should be encouraged to reduce the visible number of curb cuts along major roads.



Roads without curbs or gutters enhance the Rural character.

Streets in Rural areas should be configured to maintain the rural character by having a narrow cross-section width for two-way streets unless site conditions require wider pavement with adequate shoulders and ditch sections.

Pedestrian circulation should be provided via unpaved, informal paths and trails. Whenever possible, new development should include pedestrian access to rivers, historic and cultural resources, and significant natural features, which should be preserved when sites are developed. These pedestrian trails should be extended to the perimeter of the site and should connect to a broader network to serve as a rural trail system. When designed to safely accommodate both pedestrians and bicyclists, these paths may serve a dual purpose.

Streetscape Design

Streetscape design in Rural areas should promote the rural character. Roads should be designed without curbs and gutters, and street lights and on-street parking should be avoided. Rural streets should be paved, but lane striping is generally discouraged. Widths should be flexible and reviewed on a case by case basis. The general configuration of streets should be designed to maximize scenic views into and across open spaces and natural areas. To achieve this, curvilinear roads should be encouraged. By providing a variety of distances between intersections, an informal rural road network can be created to aid in the maintenance of the rural character. Single-loaded streets can also be employed to provide variation and preservation of open spaces along roadways.

Broad vistas and views of open space are important characteristics of Rural areas. Utilities should be placed underground or out of the sight lines of the streets to maintain these views. Other obstructive features such as opaque fencing should be discouraged along rural roadways.

Site Layout & Building Organization

Sites and buildings in Rural areas should be configured to maintain the impression of low density, undisturbed lands, and agricultural activity. New residential development proposed in the Rural areas should take place on individual lots of one (1) or more acres or be within cluster subdivisions, which permanently preserve large areas of open space and cluster the building lots onto the most appropriate areas of a site.

Because the placement of a building on the site can have a significant effect on the rural character, dwellings should be situated outside of scenic views from off-site streets or other public lands. The visibility of off-street parking should be minimized by placing parking areas to the side or rear of houses. Appropriate vegetative buffering should be employed to reduce the impact of development on views from off-site roads.

Building Design and Character (Architectural Quality and Style)

Building design and character in Rural areas can be very diverse while still maintaining rural character. Because Rural areas are typically much less dense than urban ones, the relationship between the various buildings in a given area is less important than in locations where buildings are in close proximity to one another. Rural areas can accommodate agricultural buildings and single-family homes of various styles while maintaining rural character.

Open Space and Resource Conservation

Open space and resource conservation are essential elements in the perpetuation of rural character. A portion of development sites in the Rural areas should be reserved as private, common open space during the subdivision or site plan review process to preserve the rural character and protect Chesapeake Bay Preservation Areas. Open space areas should be designed to conserve open land, retain and protect significant wetlands, link open spaces, maintain active agricultural uses, and promote rural character.

When considering areas to conserve, priority should be given to features that best preserve the rural character, including the following:

- Open space that allows views of historic farm houses or structures
- Riparian corridors or wetlands
- Mature forest areas
- Significant trees and fence rows
- Ridgelines and hilltops
- Historic and cultural resources



Examples of conserved open space.

Open space can be a separate lot or integrated into existing lots and restricted for the proposed open space uses. Appropriate uses in preserved open spaces include the following:

- Agricultural activities
- Uses supportive of passive recreation
- Active recreation (that does not conflict with the protection of natural resources)

Cluster or Conservation Subdivisions

The *Code of Virginia §15.2-2286.1* requires local governments to make provisions for the creation of cluster subdivisions in the Zoning and Subdivision

Ordinances. This technique is considered one of the best ways to achieve quality residential development in Rural areas while preserving rural character. These subdivision forms allow development of detached single-family homes clustered on smaller lots than generally permitted in the underlying zoning district, but at the same gross density, while preserving large areas of open space or historic features.

Cluster subdivisions allow the location of buildings on land best suited for construction, while permanently preserving valuable resources without changing the gross density permitted on the development site. This creative and flexible subdivision approach encourages building sites with attractive views, both from off-site roads and on-site buildings; encourages efficiency in the development of roads and utilities (shorter roads because there is less frontage per unit); and contributes to the variety of housing choices in the county.

Other Considerations

There are other issues which must be considered in the design of a cluster or conservation subdivision. The following highlights the primary issues:

Location of Sewer Treatment Facilities

Dwelling units in a cluster subdivision can typically be served by private on-site well and septic systems, or be served by sanitary sewer and water lines.

Ultimate Use of Open Space

There are several ways to use the conserved open space: maintain it in its natural state, use it as pasture or cropland, or provide passive or active recreation.

Permanent Protection of Common Spaces

There are three (3) typical ways to permanently preserve the conserved spaces in the subdivision: a conservation easement, a deed restriction or a covenant. The land may be controlled by a home owners' association or be part of a privately owned lot or parcel.

Density Bonuses

In some cases, the county may decide to allow a density bonus as an incentive to use conservation or cluster subdivisions rather than a by-right traditional subdivision. As a general rule, the gross density (total number of units per acre) of the cluster subdivision should not exceed the permitted density of the zoning district where the land is located unless a significant amount of the site (70% or more) is preserved. Densities exceeding one-hundred twenty-five percent (125%) of those permitted in the underlying zoning districts should be discouraged.

The four (4) step process described in the Cluster/Conservation Subdivision Process Tool Box (**see Figure CC-1**) can be applied to the development review process in Henrico County. This process would need to be added to the front end of all Plan of Development (POD) and Subdivision applications in regard to the subdivision of land in

the Rural areas when the cluster option is desired. These steps would precede the design and submission of site layout plans, tree protection plans, schematic landscape plans, grading and drainage plans and subdivision plats for all land proposed for cluster/conservation subdivisions. The conservation plan developed in step 4 would be the foundation for any subsequent submissions for development approval.

FIGURE CC-1: CLUSTER/CONSERVATION SUBDIVISION PROCESS TOOL BOX

Cluster/Conservation Subdivision Process Tool Box

Step 1: Site Analysis Map

A map of potential conservation areas should begin with the information available from the County's mapping services, and from this Plan. The maps and aerial photos should be used to identify the primary and secondary conservation areas on the site and the features on surrounding properties. The primary conservation areas should include the most severely constrained lands, where development would typically be restricted under current codes, such as wetlands and floodplains. Secondary conservation areas should include locally significant features of the existing landscape. These secondary areas may include the following features:

- Mature woodlands
- Hedgerows, freestanding trees or tree groups
- Wildlife habitats and travel corridors
- Prime farmland
- Groundwater recharge areas
- Greenways and trails
- River and stream corridors
- Historic sites and buildings
- Scenic view sheds

This information should be combined to identify the areas on the site that are the best candidates for preservation/conservation. While it is not an exact process, this step allows the County and developer to identify the areas with the most potential to contribute to the rural character of the area.

Step 2: Site Inspection

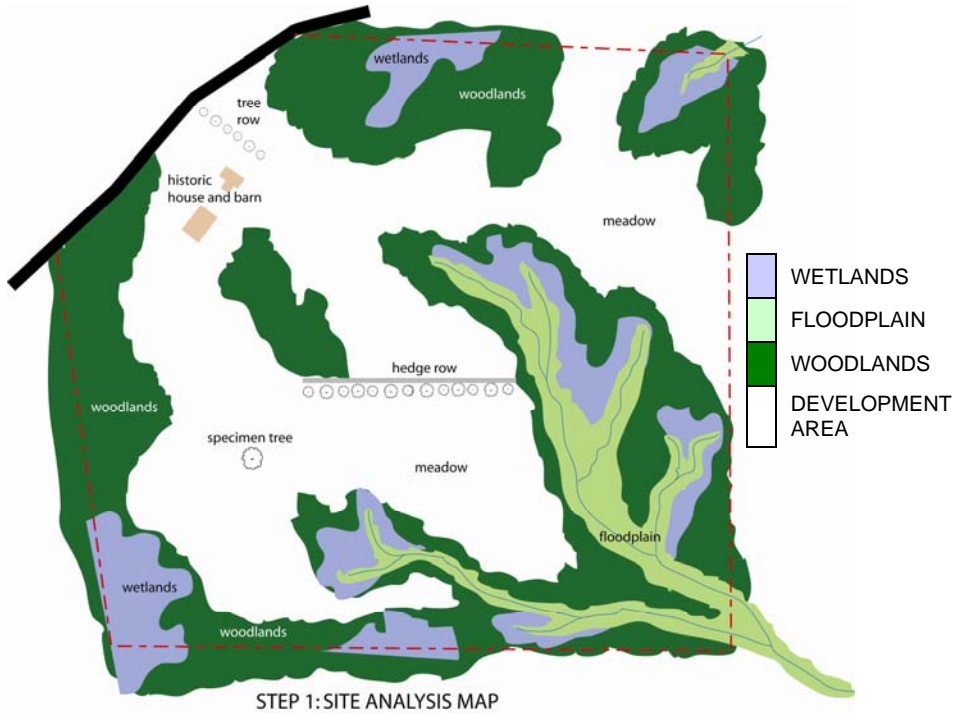
After the mapping analysis of the site, the applicant and County staff should conduct a site inspection to confirm the site analysis map and identify additional unmapped features that may be present. This step is especially important for identifying scenic view sheds.

Step 3: Conservation and Development Areas Map

Once the mapping and visual inventory of resources have been completed, the applicant should provide a map illustrating the areas to be conserved (Conservation Areas) and the land area available for building sites (Development Areas). This map will serve as the basis for the final site plan. This map should designate at least fifty percent (50%) of the site area for conservation.

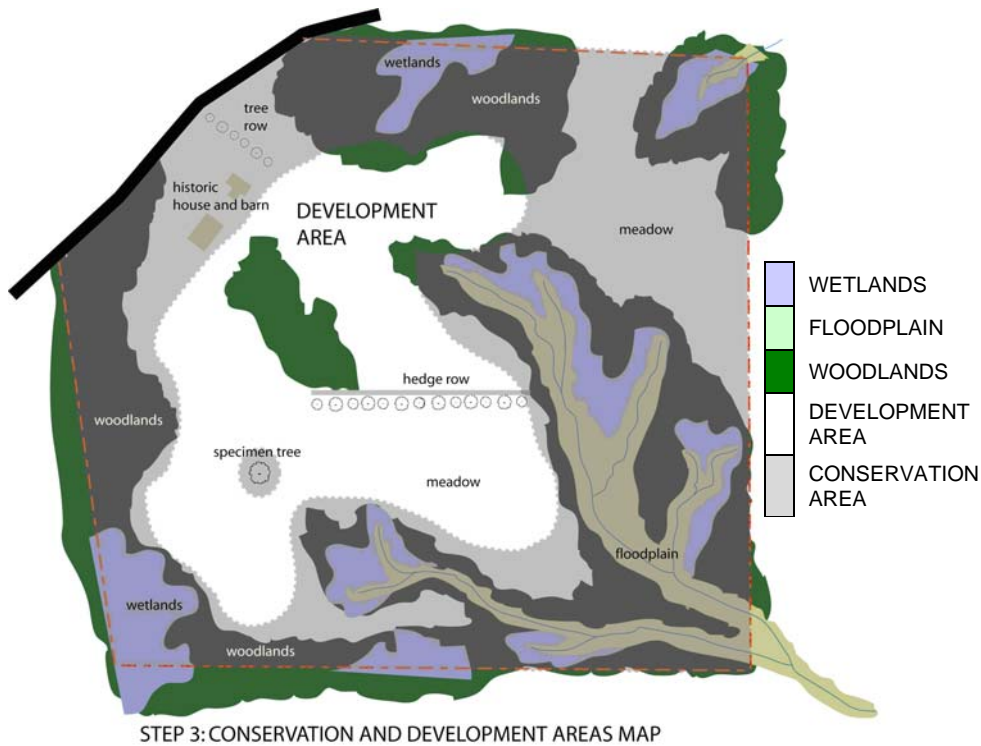
Step 4: Conservation Plan

Finally, the applicant should prepare a conservation plan. Because the conservation plan is not driven by a prescribed lot size, the most efficient and rural design can be accomplished by first locating the houses to capitalize on the best views and buffering from the off-site roads. Then the house sites should be connected with roads and trails, which minimize the amount of roads to be developed while still safely providing access to each building. Finally, the lot lines should be drawn.

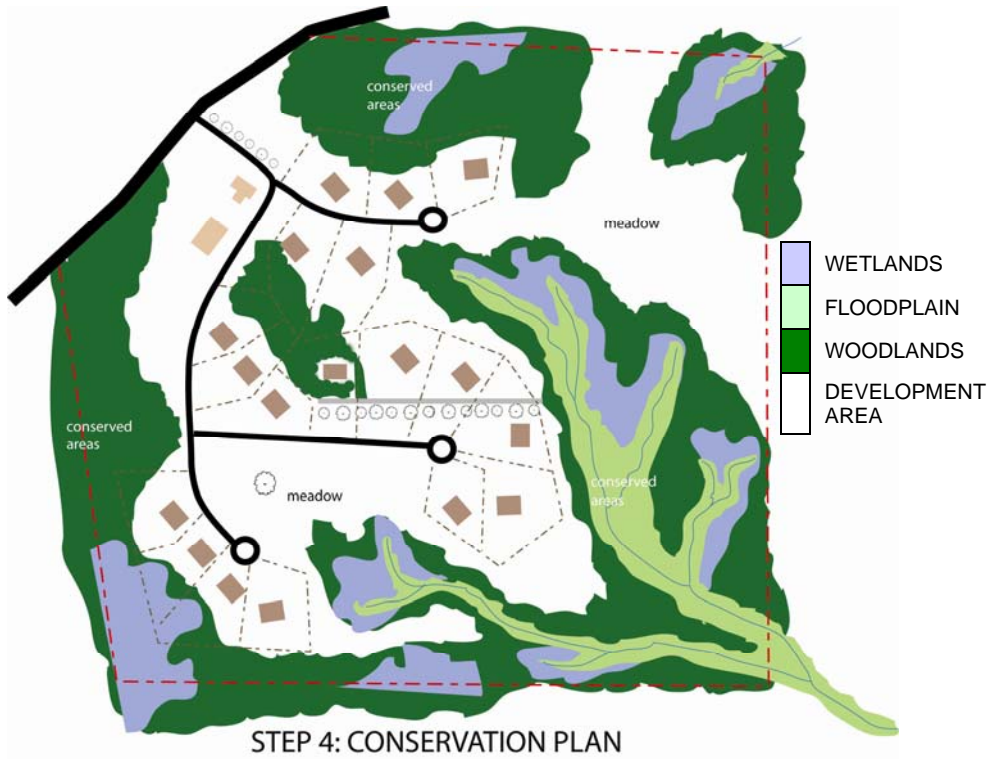


This Figure illustrates the first step in the site analysis in the Conservation Subdivision Process. The resources on the subject site should be mapped.

The Cluster Subdivision Process is described in more detail in the Toolbox on the previous page. Step 2 in the process requires onsite visits and evaluation and is not a mapping exercise; therefore it is not illustrated in this chapter.



Step 3 involves mapping the areas for conservation and the area to be considered for development after the field visit in Step 2.



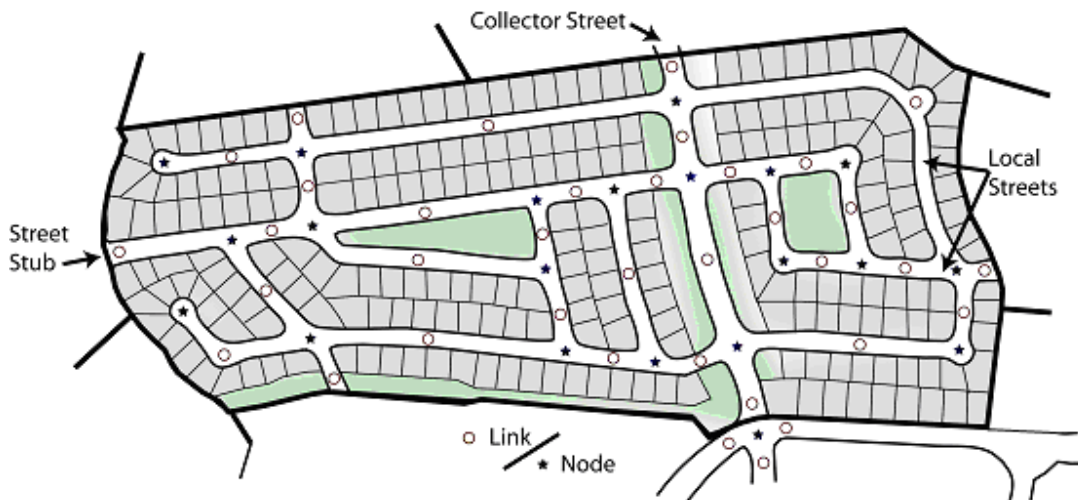
Step 4 is the final result of the design process. The buildings are located first in the development areas, and then streets are designed to connect them. Finally, the parcel lines are created.

RESIDENTIAL

A mix of detached, attached, and multi-family homes organized into distinctive communities or neighborhoods should prevail in Residential areas. While the Residential areas will have close relationships with other types of uses, they are primarily districts in which people live. The character of these areas should be safe and inviting for pedestrians and bicyclists and they should promote healthy living conditions. The Residential areas also address the character for Suburban Mixed-Use areas, which should have a decidedly “residential” character when compared to the other Mixed-Use categories in this Plan. Residential areas should have the design features described below.

Access and Circulation

Access and circulation systems should be provided for pedestrians, bicyclists and automobiles. In Residential areas, the street network should be designed to be well-integrated with surrounding roadways, both existing and planned, and should provide interconnection and alternative routes to alleviate congestion and impact on the major off-site roadways. Although cul-de-sacs are popular in Suburban Residential development, the termination of streets at the edge of a site is counter to the goals and objectives of the Land Use Plan. Cul-de-sacs should be used only when they are necessary to accommodate natural features, established development patterns, or other site constraints.



This is an example of an inter-connected street network.

One way to create a more pedestrian friendly environment is to use alleys for rear access to individual lots for vehicles, deliveries, trash receptacles and other services. Relocating vehicular access to alleys would reduce the number of curb cuts on the interior streets and will promote a safer environment for pedestrians. Alleys are particularly appropriate in the Urban Residential areas.

Pedestrian circulation should be provided through an internal network of sidewalks, paths, and trails connected to off-site sidewalks, pedestrian paths, and other public facilities.

Streetscape Design

Residential streetscape design should help define individual neighborhoods, promote safety, and create a transition from public to private spaces. The character of a residential streetscape may vary from one neighborhood to the next, but a residential streetscape design should generally include the following features:

- **Sidewalks** - Sidewalks should be separated from automobile traffic by raised curbs and/or tree lawns; they should also meet all accessibility standards.
- **Tree lawns and street trees** - Tree lawns and street trees should provide a natural buffer between pedestrians and automobiles. These lawns should be wide enough to support the growth of trees, and the trees should be provided at a regular intervals and located in a manner that will not conflict with utility lines (water, sewer, power, cable, etc.).
- **Street furniture** - Street furnishings should be coordinated in design and type with the overall character of the neighborhood. All street furniture should be located outside of the right-of-way.
- **Entry signage** - Entry signage should be coordinated with the unique character of the neighborhood through the use of appropriate materials, colors and architectural elements.
- **Street widths** - To help reduce travel speeds and increase safety in residential areas, streets should have reduced widths, and include on-street parking, street trees and medians.

Site Layout & Building Organization

The site design and building organization in residential developments should promote a high quality of life by emphasizing a consistent character for the neighborhood, ensuring safety, and providing appropriate transitions to adjacent land uses. Residential buildings should be designed to have the primary visual entrance facing the adjacent streets, not toward off-street parking areas. The orientation of the primary entrance and general building configuration should be consistent with that of adjacent structures.



The garage is placed behind the façade of the house placing emphasis on the primary entrance of the home.

The visual impact of garages and parking structures should be subordinate to the primary entrance to the structures through the use of side-, rear- or alley-loaded garages or street-facing garages recessed behind the front façade of the building. Variation in the location and type of garages within a development helps to avoid monotony. Off-street parking should be encouraged in the interior of multi-family developments.

Residential neighborhoods should be appropriately landscaped. Developments should include landscaping on individual building lots and buffers between any adjacent, higher-density developments.

In established residential areas, infill designs should be sensitive to the site characteristics, relationship to adjacent housing, and character of the surrounding neighborhood. To maintain the established characteristics of the neighborhood, adjacent structures should determine the appropriate massing, scale and setbacks for new buildings.

Building Design and Character (Architectural Quality and Style)

A mix of housing types, building materials and architectural design within a residential neighborhood help avoid “cookie cutter” development associated with large concentrations of identically designed houses. Residential development should have variety and creativity in the design of dwellings to ensure visual interest and internal compatibility. The mix of housing types within a neighborhood should be compatible with the neighborhood’s size, location, and surrounding context. Urban Residential neighborhoods should have the widest range of housing types. Variety in housing types and sizes is important in providing a range of housing options for the citizens of Henrico County. Homogenous building styles do not provide adequate opportunities for diverse households.

The materials used in residential construction should include the following attributes:

- Durability for low maintenance and a long life
- Sound insulating to reduce outside noise impacts in areas where noise is a concern
- Design compatibility to enhance the appearance of the structure

All residential structures should have semi-private spaces, such as covered porches for single-family attached and detached housing and balconies for multi-family dwellings.

Open Space and Resource Conservation

Common open spaces and resource conservation in Residential areas contribute to the aesthetic character of the neighborhood, and provide recreational opportunities and resource protection. Residential development designs should

incorporate open spaces as an integral part of the project. Incorporation of open space features will contribute to the long-term sustainability of a neighborhood by providing “green” areas in a developed area. These areas should protect natural and historic features in accordance with the other chapters of this Plan, and when possible, they should provide recreational opportunities.

MIXED-USE

This section applies to Traditional Neighborhood Developments and the Urban Mixed-Use areas. The Suburban Mixed-Use areas should be subject to the recommendations of the Residential section above. While the Suburban Mixed-Use land use category allows for integration of uses in Chapter 5: Land Use, the character of these areas as addressed in this chapter is more residential in nature.

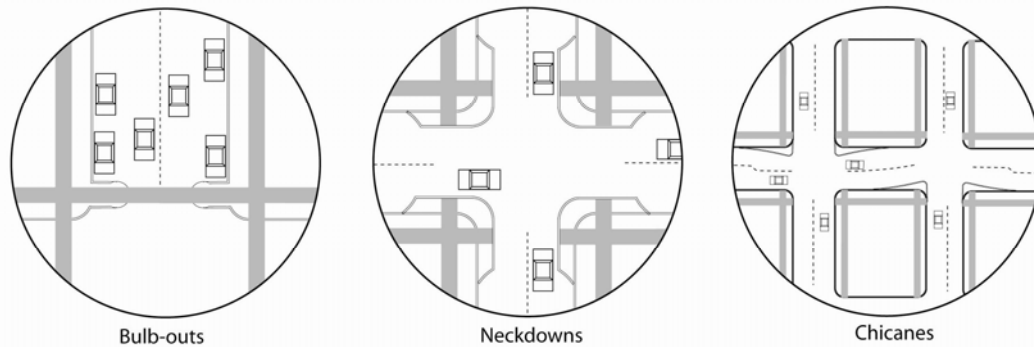
One of the major characteristics of Mixed-Use developments is the significantly higher intensity and density. Intensities of population and employment generate a critical mass of people that demand a different environment and neighborhood character than less urban forms of development. Mixed-Use areas should have the design features described below.

Access and Circulation

Mixed-Use areas should have a street and sidewalk network that provides multiple routes and frequent intersections to alleviate the impact on surrounding off-site roads and connects with existing and proposed roads and sidewalks of surrounding development. The accommodation of future mass transit service should also be addressed in the design of Mixed-Use developments. Mixed-Use areas should be pedestrian-friendly and walkable while also accommodating bicycle traffic in a safe manner.

Traffic calming techniques can contribute to the built character of a Mixed-Use development, as well as improve the safety for pedestrians in the area. Calming techniques consistent with the desired character of Mixed-Use areas include the following:

- Narrow street widths
- Frequent pedestrian crossings
- Short block lengths (between 400 and 600 feet)
- On-street parking
- Roundabouts
- Raised pedestrian crosswalks (varied materials)
- Curvilinear street segments incorporated within a grid street system
- Bulb-outs at intersections to reduce pedestrian travel distances
- Neck-downs, chicanes, or other design techniques requiring vehicles to slow down



The Figures above illustrate three (3) of the traffic calming techniques that could be employed in Mixed-Use areas to slow traffic and enhance safety for pedestrians.

Streetscape Design

Street and sidewalk cross-sections may vary from one part of a development to another. Generally, a hierarchy of cross-sections may be applied. The following are features that should be included to create the desired character in Mixed-Use areas:

- Sidewalks should be fairly wide (five (5) to fifteen (15) feet depending on the context) to accommodate large volumes of pedestrian traffic as well as potential outdoor seating, service items, displays, planters, street trees and other amenities. The sidewalks should be separated from the curb by a tree lawn or planters. Various pavement types should be used to accent building entrances, crosswalks or gateway elements
- On-street parking should be encouraged to provide a buffer between pedestrian areas and moving automobile traffic
- Curbs should be included in the design of the cross-section design for public rights-of-way

The street hierarchy in a Mixed-Use development should generally include the following:

- A main street
- Large streets to serve activity centers and connect and collect from the smaller local streets
- A network of local streets in a grid or modified grid
- Alleys to provide rear access to individual parcels and buildings for loading and services

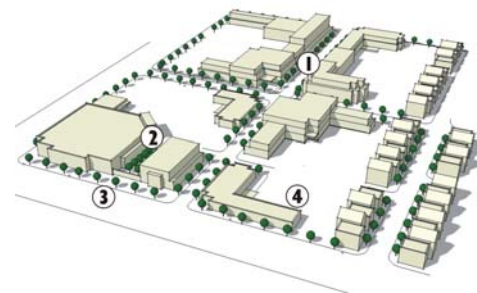
Mixed-Use developments may be fairly large, and development may be planned in a series of phases. These phases of development should be unified using a consistent set of streetscape elements.



Examples of streetscape design for Mixed- Use areas

Site Layout & Building Organization

The organization and layout of buildings within a Mixed-Use development should focus on reducing the perceived scale of the development and creating a strong street wall by locating uses close to the street. Grouping complementary uses together creates a more inviting environment for pedestrians, lessens the need for patrons to drive from one use to another and minimizes the visual presence of parking in the development.



Buildings in Mixed-Use developments should be organized to reinforce a pattern of individual blocks.

A strong street wall can be created by placing the buildings at the back of the sidewalk’s edge and using the buildings to create walls that frame and enclose the public spaces. Buildings on corner lots should have special treatments or architectural features such as towers to emphasize the intersections and create a sense of place. Buildings should be situated on sites in a way that reinforces the structure of individual blocks. Buildings should be oriented so that their primary entrance faces onto the adjacent street. Large uses such as grocery stores that abut a street and have parking or another outdoor open space to the rear should have multiple entrances.

The visibility of parking lots and parking structures should be limited; instead, the focus should be on the pedestrian environment and the buildings themselves. Parking lots and parking structures should be located to the rear of buildings or within integrated, architecturally-detailed buildings.

Buildings incorporating a mix of uses in a single structure are strongly encouraged. A vertical Mixed-Use structure incorporates two (2) or more uses into a single structure. Typically, the lower floors of these buildings should contain commercial and office uses, while the upper floors should contain residential uses. These vertical Mixed-Use buildings promote a critical mass that generates more pedestrian activities. Because pedestrian activity is desirable at

the street level, building configurations which promote and encourage street level activity are strongly encouraged. To increase the potential for pedestrian activities at the street level and reduce the visual impact of parking structures on the streetscape, buildings with commercial storefronts on the first floor and parking decks on upper stories are also appropriate.

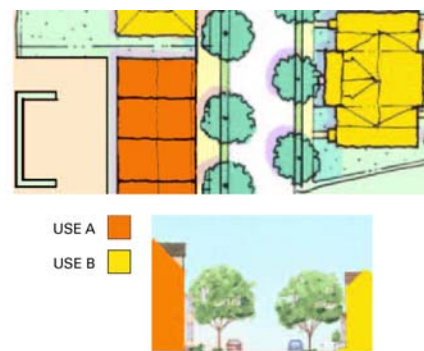
While vertically mixed-uses are preferred, they are not always practical. Horizontal mixed-uses can also be appropriate in Urban Mixed-Use areas and Traditional Neighborhood Developments (TNDs). When uses are mixed in a horizontal manner, they should be cohesively designed with centrally located parking.

The design of Urban Mixed-Use areas should incorporate a mix of retail, service, office and multi-family residential uses. TNDs should include a mix of these same uses with the addition of attached single-family homes in the form of townhouses and appropriately designed detached, single-family homes. When Mixed-Use development is proposed as infill, the lot configurations should reflect the established character of the surrounding uses.

Outdoor gathering spaces, squares or plazas should form the nucleus of a Mixed-Use development. A central gathering space promotes activity and provides amenities for the public, contributing to the sense of place within the development. The location and design of these amenities in combination with the proposed street layout should be utilized to create view corridors, terminal vistas and other features that enhance the built environment. Roundabouts, planted medians and other traffic calming features mentioned above can be employed to create variation in the views throughout a Mixed-Use development by providing green spaces and terminating views along corridors. When properly employed these devices create a more interesting and safe experience for the people using the space.

Building Design and Character (Architectural Quality and Style)

The building design and character in Mixed-Use areas should reflect a high level of detail at the street level to engage the pedestrian in the built environment. No particular architectural style is applicable to all Mixed-Use developments; however, each site should be developed with an internally compatible style respecting the surrounding development in scale and massing. Appropriate transitions in building height and massing should be provided from the central, most intense areas of a Mixed-Use development, to the surrounding single-use area of a development. Within a given type of housing (detached single-



This image demonstrates how the façade height of an office building (Use A) can be configured to be in scale with the opposing façade of Use B. Taller buildings could be located behind Use A.

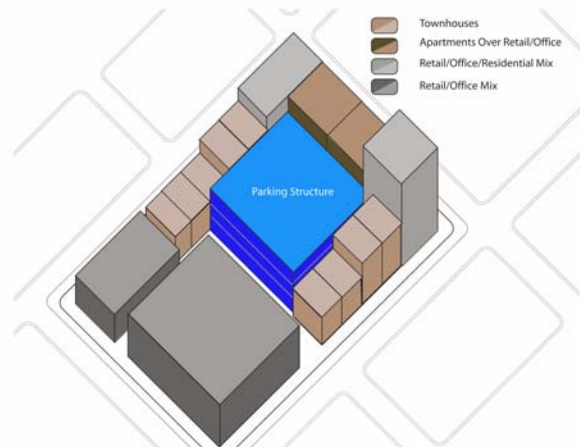
family, townhouses, multi-family), a variety of models, floor plans, garage configurations and façades are encouraged to provide various housing opportunities within the development. Larger scale developments should incorporate the widest variety of housing choices while smaller infill sites could be less broad in their variation.

Variation in housing type and façades along a single street should be encouraged to create a more interesting street character. Detailed and durable architectural design elements should be encouraged. Buildings should be finished with durable materials that complement and enhance the architectural style of the building. All façades of a building should receive the same level of quality and architectural detail to present a finished and attractive character to the public spaces.



A mixture of housing types and façade styles create a more visually interesting street.

Large monolithic buildings are not compatible with the desired character of a Mixed-Use development. Large buildings should be modulated and incorporate architectural elements that articulate their scale and help relate them to the human scale and other buildings in the district. Although parking structures are often essential to the development of an urban environment, their placement along the sidewalk does not produce viable pedestrian activity. One technique which can be employed to reduce the presence of parking structures is to wrap them in structures with a more active use, such as stores, restaurants and apartments.



This diagram illustrates how wrapping a parking structure with other active uses such as homes and mixed-use structures is possible to reduce the appearance of parking in a Mixed-Use area, while keeping the active uses at street level.

Open Space and Resource Conservation

Mixed-Use developments are inherently more urban in nature than the Residential and Rural areas; however, the protection of natural and historic resources and incorporation of open space is an important component to the design of the development. Mixed-Use developments should provide a minimum of fifteen percent (15%) of the site as open spaces. These open spaces may include resource protection, historic features, or formal spaces intended for public gathering. In Urban Mixed-Use areas, the open space is more appropriate in the form of a formal plaza, square, or town green. TNDs should have a network of smaller informal spaces and a limited number of formal outdoor spaces.

OFFICE/SERVICE/INDUSTRIAL

The general character of these areas should reflect and respect the surrounding context, and use appropriate transitions to buffer the impacts of higher-activity uses on surrounding residences. Office/Service/Industrial areas should be identifiable by a unified street network and architectural style. The development should be designed to accommodate heavy traffic generated by areas of employment and distribution. The architecture of the buildings should be of high quality and incorporate detailing to relate the buildings to the pedestrian scale and utilize durable and attractive materials. These areas should be co-located with other services to reduce the need for auto travel in and out of the development during regular business hours. Access to these sites should be adequate to handle the high volumes of morning and evening traffic, as well as delivery and truck traffic associated with warehousing uses. Office/Service/Industrial areas should have the design features described below.

Access and Circulation

Multi-building and multi-phase developments should be designed to include an interconnected, interior street network. The network must be designed to handle the type of traffic associated with the potential uses in the development. If heavy truck traffic is anticipated, the roadways must be designed to accommodate large vehicles without disrupting the regular traffic flow.

Loading, service, and delivery areas should be separate from customer parking and pedestrian areas. These service areas should also be well screened from adjacent residential developments to reduce their impacts.

Pedestrian circulation should be provided through sidewalks and trails connected with existing and planned off-site paths.

Streetscape Design

The general streetscape for a roadway in an Office/Service/Industrial development should include detached sidewalks separated from the back of the curb by a tree lawn and street trees. Additional landscaping should be employed to soften and unify the appearance of the developments from the street. Unique entrance features should be utilized to create an identity for the development.

Site Layout & Building Organization

The site layout and building organization in these areas should observe the natural topography of the site and extensive grading and removal of existing trees should be minimized. The primary entrances to buildings should face the adjacent street. When multiple buildings are proposed in the same development, the site should be broken into a series of blocks. The buildings should be configured to reduce the appearance of operations from off-site locations, and service areas should be well screened from off-site visibility.

Parking lots should include perimeter and interior landscaping to soften their appearance, provide shade over the parking areas, and separate them from pedestrian circulation. These areas should be designed to include central outdoor gathering spaces such as patios, plazas or walking trails to facilitate outdoor activities.

Building Design and Character (Architectural Quality and Style)

The general building character of these areas should be of high quality, and constructed of durable materials appropriate to the architectural style of the building. Large monolithic architecture not reflective of the local character and quality of Henrico County should be discouraged in favor of buildings that create visual interest and relate the structure to the pedestrian scale.

Larger buildings should include modulation to break large surfaces into smaller components, reducing blank walls and creating visual interest. Variations in roof forms, changes in materials, pronounced wall recesses and projections can achieve these ends. Genuine transparent windows and façade openings are strongly encouraged to promote visual interest and provide visibility. Faux windows are not appropriate. All sides of buildings, including the rear if visible from public areas, should have the same level of architectural detail.

There should be a transition in the height and mass of buildings to reduce the impact of the development on adjacent lower intensity uses. When tall or large buildings are proposed, they should be located in the interior of the site or near other tall structures, with smaller scale buildings located closer to the Residential areas.

Open Space and Resource Conservation

Existing stands of trees or specimen trees should be preserved during and after construction to maintain an established character for the development. The site design should reflect the natural pre-construction features of the site, and riparian areas or historical and cultural resources should be incorporated into the site design.

RETAIL/COMMERCIAL

Retail/Commercial areas should have architecturally detailed buildings arranged in compact clusters that reflect a local style and provide efficient and safe access to

minimize the impact on major off-site roads. The site configuration should provide adequate visibility from major thoroughfares to attract appropriate volumes of users to maintain their viability. The architecture of the buildings should be of high quality and utilize durable and attractive materials and incorporate architectural detailing to relate the buildings to the pedestrian scale. Retail/Commercial areas should incorporate site design that creates clusters of development rather than stripping along major corridors. Retail/Commercial areas should have the design features described below.

Access and Circulation

Access and circulation in Retail/Commercial areas should be designed to encourage safe and efficient on-site circulation and interconnectivity with adjacent uses, especially commercial development, to help reduce the number of access points along major corridors. The creation of a principal connecting driveway that serves as a parallel roadway along major corridors to help alleviate traffic should also be encouraged.

Areas dedicated to loading and service facilities associated with the Retail/Commercial uses should be separate from the customer parking and pedestrian areas. They should be configured to avoid disruption of primary vehicular access and circulation both on and off the site.

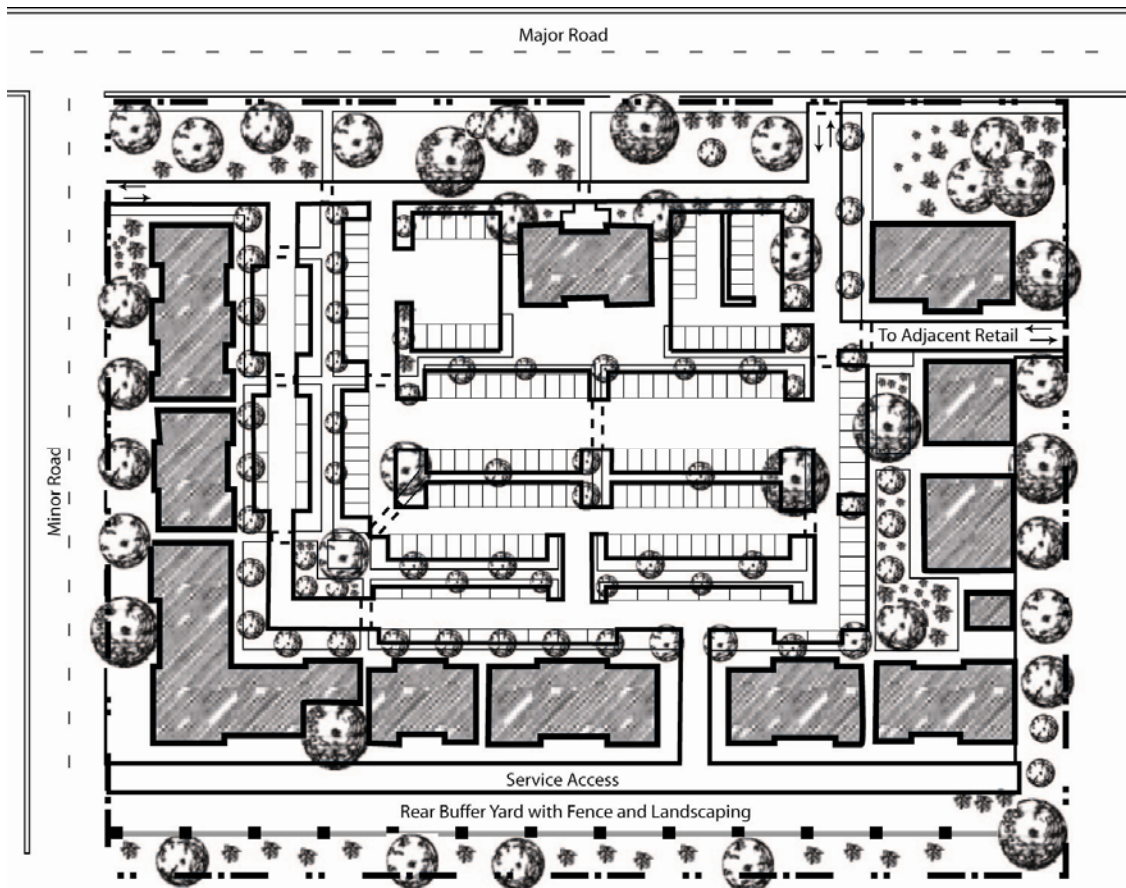
Pedestrian circulation should be provided through on-site walkways connected to adjacent public sidewalks and uses. Paths should be designed to provide safe access between parking areas and primary building entrances. Pedestrian paths crossing vehicular routes should be clearly identified by variations in paving type or color, raised areas, decorative bollards, or raised medians buffered by landscaping.

Streetscape Design & Landscaping

Retail/Commercial areas should incorporate perimeter and interior landscaping that softens the appearance of the development by including regular placement of planting materials. Landscaping should be used to help accentuate the entrances to parking areas and buildings within a Retail/Commercial development. Fences and screening walls can be incorporated into the perimeter landscaping of Retail/Commercial development to create a cohesive streetscape. When possible, the site design should preserve existing mature trees to help maintain a vegetative covering. As in other areas of the county, the location of trees should be planned in coordination with the placement of utilities.

Site Layout & Building Organization

Effective site layout and building organization allows Retail/Commercial development to fit into its surroundings and create an identifiable image for the development. Buildings should be configured on sites to create clusters of development rather than “stripping” a corridor with buildings located side-by-side. The natural topographical features should be used to guide the site layout. Extensive grading to allow for generic design or layout should be discouraged.



This diagram illustrates how a commercial site can be developed with several buildings in a configuration providing adequate buffering on the perimeters of the site, and reducing appearance of parking while still allowing visibility to the individual tenants.

While clusters or centers of development are preferred, there may be times when Retail/Commercial development is appropriate in a single building development. Individual buildings should be oriented so the primary façade faces the primary adjacent street. Multi-building developments should be designed so the overall layout is broken into a series of blocks defined by on-site streets to reduce the overall scale and massing. This technique also helps to alleviate the “sea” of parking often associated with large scale Retail/Commercial developments.

Retail/Commercial developments having multiple large structures should be designed so buildings complement one another and the surrounding uses. Buildings should frame a central open or green area, which may include surface

parking, allowing uses to be clustered while still providing high visibility for individual tenants. Any surface parking provided in this central area of the site should be broken up through the use of internal landscaping islands and pedestrian walkways.

Out-parcel development should be configured to reinforce rather than obscure the identity and function of a regional- or community-scale Retail/Commercial development. The outdoor areas on out-parcels should be improved for use by pedestrians to provide outdoor activity within the development.

The visual impact of parking lots should be minimized by breaking parking surfaces into smaller components through the use of planting areas. When possible parking should also be encouraged to be broken up and located on different areas of the site. Some of the parking (such as spaces reserved for employees) should be located to the rear or side of the buildings. The perimeter of all parking lots should be screened from adjacent off-site uses to reduce the impact of noise and light overflow.

Retail/Commercial areas should have outdoor gathering spaces as a functional part of the site design. Outdoor patios and eating areas or small pocket parks are strongly encouraged to promote outdoor activities within the site.

Building Design and Character (Architectural Quality and Style)

The general character for Retail/Commercial buildings should be of high quality. Buildings should be constructed out of durable materials appropriate to the architectural style of the building. Large monolithic architecture that does not reflect the local character and quality of Henrico County should be discouraged in favor of buildings with architectural features to create visual interest and reduce the monotony often associated with franchise architecture.

Identity is important in Retail/Commercial development; however, an architectural design theme should be created for a Retail/Commercial development. All the buildings in a development should incorporate consistent character, materials, texture, color and scale.

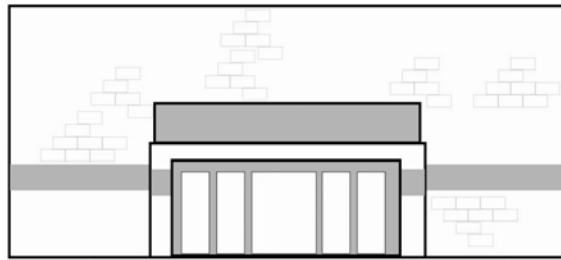
Larger buildings should include modulation to break large surfaces into smaller components, thus reducing blank walls, and creating visual interest. Modulation or articulation of a building's façade involves applying design elements to produce variation and a reduction of the overall bulk of buildings. Variations in roof forms, façade heights, prominent building entrances, changes in materials, trims and belt courses, pronounced wall recesses and projections, and transparent windows and doors are elements typically applied to create modulation.

Genuine transparent windows and façade openings are strongly encouraged to promote visual interest and provide visibility into public areas. Faux windows are not appropriate. All sides of buildings visible from public areas should have the same level of architectural detail found on the primary façade.

Open Space and Resource Conservation

Existing stands of trees or specimen trees should be preserved during and after construction to maintain an established character for the development. The site design should reflect the natural pre-construction features of the site, and riparian areas or historical and cultural resources should be incorporated into the site design.

Not Acceptable



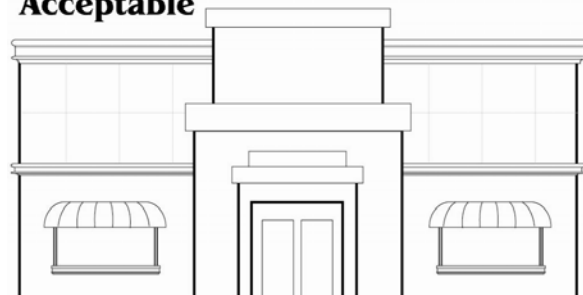
Façade is a flat plane with no visual breaks, no architectural details used, and a flat roof. Building appears to be horizontally long and does not incorporate human scale elements.

Acceptable



Façade is broken up horizontally by the placement of windows and doors and the projection of the central portion of the façade. The use of different rooflines, a belt course and two levels of windows break up the vertical bulk of the building, relating it to the pedestrian with smaller human scale elements.

Acceptable



Façade is broken up horizontally by the placement of windows and doors and the projection of the central entrance. The use of different rooflines, cornices, scoring of the exterior material and awnings break up the vertical bulk of the building, relating it the pedestrian with smaller human scale elements.

CRIME PREVENTION THROUGH ENVIRONMENTAL DESIGN

Crime Prevention Through Environmental Design (CPTED) is the process of designing security into planning and urban design. The primary intent of CPTED is to reduce the fear of stranger-to-stranger predatory crimes. CPTED design practices can be employed to take advantage of opportunities to control access to the private realm, to provide surveillance, and reinforce territories. The CPTED concepts can be applied at the community level for both residential and nonresidential developments. CPTED strategies are typically implemented through three (3) methods: Electronic, Design and Organizational. The Design method is the only one that applies to the community character aspect of development and is therefore the only method addressed in the Plan. This chapter provides only a brief overview of the techniques used. A full description of CPTED standards can be acquired from the Henrico County Division of Police.

Division of Police

The following concepts are the foundation of the CPTED guidelines:

Defensible Space

Defensible Space is the concept that the residents or “owners” of the space have control over what happens in the space. The feeling of control reduces fear and heightens the safety of an area.

Natural Access Control

Natural Access Control is the premise of denying access to potential crime targets and thereby increasing the perception of risk to offenders. It employs structural indicators of private and public areas and discourages access to private areas. Examples include community entrances, sidewalks and the location of building entrances.

Natural Surveillance

Natural Surveillance is the concept that allows intruders to be easily identified. This concept is promoted through the design of buildings that have many windows or doors that look into public areas, streets, parking areas and entrances. Examples of building features that would promote Natural Surveillance include windows facing streets, parks, and parking areas; well-lit, pedestrian-friendly sidewalks and streets; homes and apartments with front porches or balconies; and adequate nighttime lighting.

Territorial Reinforcement

Territorial Reinforcement is tightly linked to the concept of Defensible Space. Simply stated, Territorial Reinforcement includes community design features that help define the boundaries of public and private spaces. These features include landscape plantings, pavement design, gateway treatments and fencing.

The objectives of CPTED can be achieved by promoting community design that:

1. Encourages positive activities with a significant number of people in the space. More people in an area means more eyes on the street. Areas of high positive activity are generally safer environments.
2. Encourages visibility of public and semi-public areas from private areas. Well-lit areas and building design that allow for constant surveillance of semi-public and public areas from the road, sidewalk and other buildings discourages potential threats.
3. Encourages clear delineation of private and public spaces. The use of landscaping and structural elements to clearly demarcate private spaces discourages intruders from entering into the private areas by eliminating confusion between the public and private spaces.

CHAPTER 7: PLANNING & ECONOMIC FOCUS AREAS

OVERVIEW

This chapter identifies Focus Areas with unique characteristics requiring special planning consideration above and beyond the land use policies contained elsewhere in this Plan. These Focus Areas have certain characteristics or face unique challenges or opportunities requiring special consideration. This chapter provides recommendations and strategies to ensure desirable aspects of these areas are protected and integrated with the remainder of the county in the most compatible way possible. In addition to four (4) categories of Special Focus Areas, this chapter includes sections identifying the location of Prime Economic Development Sites and the county's Enterprise Zone.

SPECIAL FOCUS AREAS

The Special Focus Areas are grouped into four (4) functional categories which include:

1. **Existing Character Protection Areas;**
2. **Mixed-Use/Village Areas;**
3. **Neighborhood Enhancement Study Areas;** and
4. **Revitalization/Reinvestment Opportunity Areas.**

Existing Character Protection Areas are corridors and neighborhoods exhibiting a distinctive natural or built character that contributes to the identity of the surrounding area or the county as a whole. This plan identifies five (5) such Existing Character Protection Areas. These areas are identified because protection and enhancement of their qualities are important to the general welfare of the community.

Two (2) areas are identified as **Mixed-Use/Village Areas**, which require additional attention beyond the general Keystone Policies of the Mixed-Use land use group and the *Design Guidelines Manual*. These areas are identified due to the presence of unique challenges and opportunities, such as existing development, or natural/cultural resources.

Neighborhood Enhancement Study Areas include seven (7) established residential neighborhoods. These neighborhoods have been identified as Neighborhood Enhancement Study Areas for a variety of reasons ranging from the potential of encroachment of nonresidential uses to pressure for revitalization or reinvestment within the area.

The fourth Special Focus Area category, designated as **Revitalization/Reinvestment Opportunity Areas**, includes fifteen (15) areas targeted for revitalization or reinvestment opportunities. These areas have been broadly evaluated and found to show signs of disinvestment by the private sector, and could benefit from a strategic approach to revitalization or reinvestment.

A total of twenty-nine (29) separate Special Focus Areas are identified on the Special Focus Areas Map. The individual Special Focus Areas are listed under their respective functional category headings. Each Special Focus Area is described in detail with justification for its inclusion, a vision or goal for the future, and action recommendations

for future planning efforts which should result in more specific and long-term development policies.

Many of the Special Focus Areas have not yet been studied to the level of detail necessary to fully ascertain all the relevant factors and forces that are impacting them. The complexity associated with potential planning issues in these areas may indicate a need for additional study beyond the scope of the Comprehensive Plan. To develop a sound strategic approach for the county, the Special Focus Areas Study Tool Box on the following page provides general guidance on the type of planning process the county may wish to utilize for each study.

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FIGURE PE-1: SPECIAL FOCUS AREAS STUDY TOOL BOX

Special Focus Areas Study Tool Box

Many of the Special Focus Areas will require additional planning prior to any implementation action by the county. The following information should act as a guide for the county in any future planning actions.

A small area study and/or plan could be undertaken for any of the Special Focus Areas that have been identified as needing additional attention to more fully understand the factors that may be impacting it; at a minimum, the studies/plans could include the following:

A. Inventory and Assessment:

- Inventory the existing conditions, such as viable uses/structures; vacant buildings; adaptable buildings; reusable buildings; deteriorated or dilapidated buildings; obsolete space/configurations; levels of service on roadways and from other community facilities; and any potential on-site contaminants (brownfields).
- Identify stakeholders
- Evaluate the market and socio-economic forces contributing to the current condition (i.e., competition from new development in other areas)
- Identify the influences that affect the potential for investment
- Identify the vision or goals for the area
- Assess appropriateness of the existing land uses and future land use designations. For example, are the uses compatible with one another and the surrounding area?

B. Recommendations:

- Prepare alternative land use scenarios (when applicable)
- Recommend specific improvements/changes to public facilities/infrastructure
- Establish design guidelines for new development or redevelopment (when applicable)

C. Implementation:

- Identify the county's role in the reinvestment or redevelopment of the area
- Identify possible sources of public and private funding such as:
 - Enterprise Zones
 - Community Development Block Grants
- Establish a plan of action to implement the recommendations

SPECIAL FOCUS AREAS MAP

EXISTING CHARACTER PROTECTION AREAS

There are five (5) Existing Character Protection Areas identified in this category. The established character and quality of the identified roadway and river corridors are important to the overall image of the county. The views to and from the river and public rights-of-way are valued parts of this image. Some of the more significant scenic corridors in the county are included in these areas. Preservation of the scenic and/or historic qualities of these corridors is important for many reasons. For example, maintaining a rural view from New Market Road and Osborne Turnpike will help preserve the rural/semi-rural character in Varina while still allowing development in the area.

Each of the Existing Character Protection Areas is identified below.

1: River Road Corridor

River Road is predominantly two (2) lanes running east/west through the western portion of the county near the James River. The corridor is currently characterized by detached single-family homes and churches. A small commercial node is located at the eastern end of the corridor near the Henrico County/Richmond City boundary.

The Vision

The River Road Corridor should be preserved as a scenic, semi-rural corridor with low-density, single-family residential development and mature trees as the prominent visual features from the right-of-way. Any future infill development of residential uses should be of a consistent density with existing residential developments in the corridor.

Action Recommendations

A detailed study of the River Road Corridor, including a visual inventory of features to be preserved, could be conducted. Current zoning regulations and districts could be evaluated for their ability to support preservation of the character in the corridor by requiring adequate development standards. If any potential study reveals the corridor's special character cannot be preserved and enhanced under existing zoning regulations, a zoning overlay district for the River Road Corridor could be considered. The overlay district could include standards to regulate the development quality of the corridor through building setbacks, lot dimensions, landscaping, signage, design, use restrictions and architectural elements.

2. Marion Hill

The Marion Hill Area is generally bordered by New Osborne Turnpike, Old Osborne Turnpike, Oakland Road, Almond Creek and the Almond Creek tributary to the east of New Osborne Turnpike. This area is characterized by detached single-family homes, most dating to the early and mid 20th Century. The Clarke-Palmore House, which is listed as a Specialty Facility in **Table RP-7**, is located on the northern side of McCoul Street. A small commercial node is located at the

southern end of the area at the intersection of New Osborne Turnpike and Old Osborne Turnpike.

The Vision

The Marion Hill Area should be preserved primarily as a residential area with low-density, single-family residential, with the exception of the existing commercial node at the intersection of Old Osborne and New Osborne Turnpikes. Any future infill development should be of a consistent density with existing residential development in the area. Historic properties, such as the Clarke-Palmore House, should be preserved in a manner consistent with their historical significance.

Action Recommendations

A detailed study of the Marion Hill Area, including a visual inventory of features to be preserved, could be conducted. Current zoning regulations and districts could be evaluated for their ability to support the existing character in the area by requiring development design standards. If any potential study reveals the area's special character cannot be preserved and enhanced under existing zoning regulations, a zoning overlay district could be considered. The overlay district could include standards to regulate the development quality of the area through building setbacks, lot dimensions, landscaping, design, use restrictions and architectural elements. Any study conducted should also pay special attention to potential historic sites within the area, including, but not limited to the Clarke-Palmore House, and should outline any additional steps which could help facilitate the preservation of such sites.

3: The James River Corridor-East

The county's border with the James River offers access to natural and cultural resources, and the James River, with its related vegetation and topography, which contribute to the semi-rural character of the areas along the river. The enhancement of these resources must be balanced with potential local growth in order to promote access opportunities, and maintain the established character of this corridor. The James River Corridor-East generally includes the land within 1,000 feet of the river's edge south from the City of Richmond and continuing toward the county's border with Charles City County just north of Turkey Island.

The Vision

The James River Corridor-East should remain a scenic corridor in Henrico County. The corridor should include public and private access to the river and development of river-based businesses, while maintaining existing trees, slopes, and other natural and cultural/historic features essential to the general welfare of the river and Chesapeake Bay Preservation Area ecosystems.

Action Recommendations

Any new development should be completed in a manner that respects the environmentally sensitive and historic aspects of the area. A small area land use study of the river's eastern corridor could be conducted. The exact boundaries of any study should be determined during the

preliminary research phase of the project. This study should examine feasible locations for access to the James River, as well as the potential for a river park connecting developments in the eastern portion of the corridor. Any future study should also identify potential types of river-based businesses, which could enhance the river's recreation and economic contributions to the community. Additionally, the compatibility of the current zoning regulations and districts could be evaluated for their ability to achieve the defined vision for the James River Corridor-East.

4: Osborne Turnpike Corridor

Osborne Turnpike is a county-maintained, two-lane road with limited development and a rural character. Most of the land in the corridor is currently dedicated to single-family, detached homes on larger lots and agricultural uses. The large setbacks of the majority of these homes contribute to this rural character. A key feature of the corridor is the stand of cedar trees located in the median of Osborne Turnpike beginning at its intersection with Battery Hill Drive and southward approximately 2,644 feet. The Osborne Turnpike Corridor includes the land on both sides of the road, within seven-hundred (700) feet of the right-of-way. The corridor extends from the intersection of Osborne Turnpike and New Market Road (State Route 5) east to its terminus at Kingsland Road.

The Vision

The rural, large-lot, residential character of this corridor should be preserved and maintained. The roadway itself should also support the rural character. The stand of cedar trees in the southern portion of the corridor should be maintained as a key identifying feature of Osborne Turnpike.

Action Recommendations

A detailed study of the Osborne Turnpike Corridor, including a visual inventory of features to be preserved, could be conducted. As part of any potential study, the current zoning regulations should be evaluated to determine their ability to support preservation of the character in the corridor by requiring adequate development standards. If a study reveals the corridor's special character cannot be preserved and enhanced under existing zoning regulations, a zoning overlay district for the Osborne Turnpike Corridor could be developed. The overlay district could include standards to regulate the development quality of the corridor through building setbacks, lot dimensions, landscaping, signs, design and architectural elements. Additionally, the potential study should identify any gateways (existing or future) and landmarks along the corridor. Public/private efforts could be made to enhance these areas with improvements, such as decorative walls and signs, enhanced overpasses, and landscaping/streetscaping to support the desired scenic character.

5: New Market Road Corridor

New Market Road (State Route 5) is the earliest roadway connecting the City of Richmond to Williamsburg. The corridor has generally maintained its rural character and contributes to the rural visual identity of the eastern portion of the

county. The roadway itself is currently maintained by the Commonwealth of Virginia.

The Vision

As development pressures increase in the eastern portions of the county, the rural character and the views to and from New Market Road should be preserved to the maximum extent feasible. This should be partly accomplished by concentrating commercial development in specific nodal areas. The corridor should support the development of a bicycle and pedestrian trail that may eventually connect the City of Richmond to Williamsburg.

Action Recommendations

A detailed study of the New Market Road Corridor, including a visual inventory of features to be preserved, could be conducted. As part of any potential study, the current zoning regulations should be evaluated to assess their ability to support preservation of the character in the corridor by requiring quality development standards. If a study reveals the corridor's special character cannot be preserved and enhanced under existing zoning regulations, a zoning overlay district for the New Market Road Corridor could be considered. Any potential overlay district should include standards to regulate the development quality of the corridor through building setbacks, lot dimensions, landscaping, signs, design and architectural elements.

Additionally, any gateways (existing or future) and landmarks along the corridor, including the potential location/alignment of the trail connecting the City of Richmond to Williamsburg as planned by the State, should be identified and factored into any plan developed for this area. Public/private efforts should be made to enhance these areas with improvements, such as decorative walls and signs, enhanced overpasses and landscaping/streetscaping.

MIXED-USE/VILLAGE AREAS

The Mixed-Use/Village Areas represent locations in the county where there are significant parcels of undeveloped land that have been designated for Mixed-Use development with different ranges of density, such as a Traditional Neighborhood Development (TND), Urban Mixed-Use (UMU) or Suburban Mixed-Use (SMX). In most cases, these areas do not yet have adequate sewer/water access or local road networks to support the recommended land use densities. For this reason, they are identified as Special Focus Areas requiring focused planning attention prior to their development with the mix of uses as identified in this Comprehensive Plan.

Not all of the areas designated for Mixed-Use on the Future Land Use Map in Chapter 5 are included as Special Focus Areas. For many of those areas, this Plan presents adequate guidance through the applicable Keystone Policies and the *Design Guidelines Manual*; however, development sites that have particularly distinct planning issues are included here with additional strategies.

The Mixed-Use Keystone Policies recommend developments be constructed pursuant to a county-approved master plan. The policies and recommendations for the Mixed-Use/Village Areas in this chapter are intended to help guide the county's evaluation of the submitted plans.

Each of these Mixed-Use/Village Areas identified as Special Focus Areas are described below.

6: W. Broad Street – West Area

The W. Broad Street-West Area is located on the western border of the county along W. Broad Street (U.S. Route 250). The area is currently experiencing development pressures to convert from rural and agricultural uses to commercial development. The Future Land Use Map in Chapter 5: Land Use recommends this area for a combination of Urban Mixed-Use (UMU) and Traditional Neighborhood Development (TND).

The Vision

This area is envisioned for high-quality development with an economically beneficial regional draw incorporating retail, residential, office, and recreation opportunities. The pattern of development should primarily consist of vertically Mixed-Use structures in a compact and walkable environment supported by structured parking, entertainment venues, and public spaces. This pattern of development should adhere to the existing W. Broad Street Overlay District and respect the existing residential neighborhoods to the south.

Action Recommendations

The development of this area should be encouraged under master plans following the guidelines as detailed in the *Design Guidelines Manual* and the W. Broad Street Overlay District. Master plans approved with new development should incorporate connectivity within the area as well as to areas outside this focus area. The *Zoning Ordinance* and the W. Broad Street Overlay District should be reviewed to ensure consistency with the envisioned pattern of development.

7: Varina Village

The Varina Village Area currently has a small commercial node and several rural subdivisions generally surrounding the intersection of New Market Road and Strath Road. This existing mixture of uses creates a basis for the development of a semi-rural village and supports the vision of creating specific nodal areas along New Market Road (State Route 5).

The Vision

A village concept should be developed for this Special Focus Area, and should include a common architectural theme, uniform lighting and signage, and enhanced landscaping. The design of the village should provide appropriate transitions that are sensitive to existing homes and businesses. The village study area should incorporate features to provide a walkable, pedestrian-friendly community. This could be achieved through the use of sidewalks, enhanced

pedestrian crossings, and attractive landscaping. The historic significance of New Market Road should be respected through the limitation of vehicular access and the preservation of open spaces where appropriate.

Action Recommendations

A small area plan will be conducted for this area to ease the transitions between existing and future development. This study should re-examine the boundaries of the area and adjust them as needed. The development activity in this area should be monitored, and when development plans are submitted, the county should use the keystone policies and *Design Guidelines Manual* to evaluate the appropriateness of the proposed development. The *Zoning and Subdivision Ordinances* should be studied to ensure their consistency with the type of development envisioned for this area. The Virginia Department of Transportation (VDOT) should be consulted regarding any new development along New Market Road or any small area plan to ensure it is compatible with VDOT's planned bicycle/pedestrian trail connecting the City of Richmond to Williamsburg. In conducting the study, the following strategies should be considered:

1. Establish strong physical gateways for Varina Village, linked by a coherent streetscape design, plant materials, pedestrian-scaled light fixtures and signage, and architectural controls.
2. Establish sensitive building infill and renovation guidelines that recognize the importance of retaining and enhancing Varina's pedestrian scale, while expanding its mixture of land uses to better support a vibrant commercial area.
3. Protect the rural character of existing developments. Development adjacent to existing larger lot residences should provide for appropriate transitions in lot size, density and building scale.
4. New developments should be pedestrian in scale and reflect the existing character of Varina. National corporate designs are discouraged.
5. Promote cohesive commercial development within existing commercial nodes, interior streets and adaptive reuse of existing properties. Discourage linear commercial "strip" development along arterial roads and major collectors.

NEIGHBORHOOD ENHANCEMENT STUDY AREAS

The Neighborhood Enhancement Study Areas include seven (7) areas that are primarily residential neighborhoods in established areas of the county experiencing a transition in their built conditions. Potential topics of concern in these areas include, but are not limited to, encroachment from nonresidential development, an aging housing stock, and a need for reinvestment. It should be noted, these areas have not been studied to the level of detail necessary to fully identify all of the relevant factors and forces impacting them. These circumstances cause significant concern for the quality of life and the

general welfare of residents in these neighborhoods. These neighborhoods have been identified in this Plan as Special Focus Areas to encourage monitoring and, when necessary, reinvestment and other activities that may help improve the conditions in these areas.

8: & 9: The Beverly Hills and Regency Park/Farmington Neighborhoods

These are older, detached, single-family residential areas near Regency Square Mall. Beverly Hills is located between Three Chopt Road and Patterson Avenue, and Regency Park/Farmington is between Quioccasin Road and Patterson Avenue west of Regency Square Mall. These neighborhoods are not in decline, but the potential for decline exists due to the age and functionality of the housing stock and potential encroachment of nonresidential uses.

Vision

These areas should be maintained as residential communities of single-family, detached homes. The perimeter areas should be well-buffered from incompatible uses. Any future redevelopment plans for the Regency Square area should be designed to integrate and respect the current neighborhoods.

Action Recommendations

A plan of action including a potential neighborhood study and self-help efforts initiated by the county and operated by the neighborhood should be completed for this area. These neighborhoods should be monitored to assist the county in determining the prioritization of action for improvements. When development plans are submitted to the county for land adjacent to these areas, the Keystone Policies and *Design Guidelines Manual* should be used to evaluate the appropriateness of the proposed development and its ability to provide adequate transitions to the existing residential neighborhood.

10: The Ridgehaven Neighborhood

This is an older, detached, single-family residential neighborhood between Three Chopt and Parham Roads, just south of Fargo Road. It is comprised of fewer than fifty (50) homes and is surrounded on all sides by nonresidential uses and busy roads.

Vision

The vision for this neighborhood is unclear at this time. Additional study of this area is encouraged to evaluate prospective impacts on the neighborhood and potential solutions to improve the residential conditions in the face of pressure to change to office uses.

Action Recommendations

This area should be monitored to assist the county in determining the prioritization of action for this area. A detailed study of this area could be conducted to determine the appropriate action. Any study conducted

should review options for buffering the homes from the heavily trafficked roads at the perimeter of the neighborhood.

11: The Fort Hill Neighborhood

The Fort Hill Neighborhood is located south of I-64 between Skipwith Road and Glenside Drive. The majority of the properties lie within four (4) subdivisions: Berkeley Park, Berkshire Park, Buckingham Park, and Fort Hill. Three Chopt Road is the southern boundary of this neighborhood. The neighborhood consists primarily of detached, single-family homes. This portion of the county has had to contend with increased pressure from newer surrounding nonresidential developments.

Vision

This area should be maintained as a residential community of single-family, detached homes. The perimeter areas should be well buffered from incompatible uses, and the roadways should be maintained in a safe condition to accommodate local residents as well as increased traffic from adjacent businesses.

Action Recommendations

A plan of action including a potential neighborhood study and self-help efforts initiated by the county and operated by the neighborhood should be completed for this area. This area should be monitored and when development plans are submitted to the county for land adjacent to this area, any strategies identified in the plan of action should be used in combination with the Keystone Policies to evaluate the appropriateness of the proposed development and its ability to provide adequate transitions to the existing residential neighborhood.

12: The Bloomingdale/Hermitage Court Neighborhood

This is an older, detached, single-family residential neighborhood between the commercial corridor along Lakeside Avenue and Belmont Golf Course. In recent years, improvements have been made to the Lakeside Road Corridor (see Special Focus Area 21), but they have not necessarily translated into improvements in the nearby Residential areas.

Vision

The vision for this neighborhood is undetermined at this time. With pressure to convert homes to nonresidential uses it is unclear if the existing detached, single-family residential character is still compatible with the conditions of the neighborhood. Additional study of this area is encouraged to evaluate the impact on the neighborhood and potential solutions to improve the conditions as the Lakeside Avenue Corridor continues to change.

Action Recommendations

This area should be monitored to assist the county in determining the prioritization of action for this area. A detailed study of this area could be conducted to determine the appropriate action for this neighborhood. If conducted, this study should include a thorough examination of the future

land use recommendations of the area and a potential extension of streetscape improvements recently made to Lakeside Avenue into the neighborhood. The feasibility of self-help efforts initiated by the county and run by the neighborhood could also be examined.

13: Laburnum Avenue-West District

The Laburnum Avenue-West District includes detached, single-family homes, apartments and commercial development along Laburnum Avenue just south and west of the Richmond International Raceway. The area shows signs of disinvestment. The Future Land Use Map in Chapter 5: Land Use recommends the area be maintained as a primarily residential district with a combination of Urban Residential and Multi-Family designations and maintenance of the retail/commercial areas that are already established. A portion of this area is included in the county's Enterprise Zone, and has potential for revitalization or reinvestment.

Vision

The appropriate land use and development patterns should be identified for this area through future planning studies. The Laburnum Avenue-West District should provide an attractive and exciting gateway to the county by capitalizing on the location of the raceway. Any new development or redevelopment should respect the existing residential nature of the neighborhood.

Action Recommendations

A detailed study, as outlined in the Special Focus Areas Study Tool Box in this Chapter, could be completed for this area to determine the best mix of land uses and the proper way to encourage revitalization and reinvestment. Any future plan should closely examine the impacts of the Richmond International Raceway on the residential nature of this neighborhood, and the amount of traffic generated on Laburnum Avenue. The potential for self-help efforts initiated by the county and run by the neighborhood could be examined. The State and local incentives provided under the Enterprise Zone Program should be utilized to assist revitalization of existing businesses along the corridor.

14: Sandston/Seven Pines Neighborhood

The Sandston/Seven Pines Neighborhood is located to the northeast of Richmond International Airport on both sides of Williamsburg Road. Sandston/Seven Pines is an area of established residential communities with a small, local commercial corridor catering mainly to local residents. The Future Land Use Map in Chapter 5: Land Use recommends these uses be maintained.

Vision

The Sandston/Seven Pines Neighborhood should be maintained as a residential neighborhood that is pedestrian friendly and accessible from the commercial district. The traditional "village" character and historic aspects of this neighborhood are important and should be preserved and enhanced.

Action Recommendation

This area should be monitored for redevelopment activity or potential threats from off-site activity. If necessary, additional studies could be completed to determine the best course of action for preservation of this neighborhood. Any new development in this area should be complementary to the Sandston Commercial Area (see Special Focus Area 27). The potential for self-help efforts initiated by the county and operated by the neighborhood could be examined.

REVITALIZATION/REINVESTMENT OPPORTUNITY AREAS

The Revitalization/Reinvestment Opportunity Areas identified in this chapter are a combination of primarily nonresidential corridors and districts throughout the county. For various reasons, these locations have begun to change either through the conversion of uses or deterioration in the quality of the built environment, which can have potential adverse impacts on the quality of life for residents and the viability of businesses. The county has identified fifteen (15) districts and corridors under this category based on a general visual evaluation. The purpose of including these Revitalization/Reinvestment Opportunity Areas in the Comprehensive Plan as Special Focus Areas is to facilitate future identification of influences on the area and the appropriate methods and funding sources, such as grants, to aid revitalization/reinvestment efforts in these areas.

A brief description of each area is accompanied by a vision and recommended actions, including potential studies consistent with the Special Focus Area Study Tool Box in this chapter. Specific visions are not identified for all areas because many factors in those areas are still unknown. This Comprehensive Plan recognizes additional issues could be identified in future planning efforts. The recommendations of this section also indicate the county should monitor the identified areas for changes to help prioritize the county's actions in these locations.

15: Regency Square Area

The Regency Square Area is located in western Henrico County around the intersection of Quioccasin and Parham Roads. The area is currently a mix of retail, hotel, Semi-Public, office and multi-family residential uses. In 2003, two (2) new regional malls were opened in the Richmond Region, potentially affecting the retail market in this area. A portion of this area is included in the county's Enterprise Zone, and has potential for revitalization and reinvestment.

Vision

The Regency Square Area should continue to be revitalized to contribute to the high quality of life in the county with a variety of uses. The appropriate uses and character for this area should be determined through further planning studies. Any future development/redevelopment in the area should mitigate its traffic impact on the surrounding residential neighborhoods to the greatest extent possible. Additionally, any new development/redevelopment should be master-planned and be done in a manner to create a cohesive, walkable neighborhood with pedestrian connections to the surrounding Residential areas.

Action Recommendations

A detailed study, as outlined in the Special Focus Areas Study Tool Box in this chapter, could be completed for this area to determine the best mix of land uses and the proper way to encourage revitalization and reinvestment. Any plan should closely examine future land uses, transportation, and methods to integrate future development/redevelopment with the surrounding residential neighborhoods. Additionally, it could be beneficial to conduct an economic analysis for this area to help determine viable commercial uses. State and local incentives provided under the Enterprise Zone Program should be aggressively marketed to help foster redevelopment and improvement of existing businesses that qualify in this area.

16: Three Chopt Road and Forest Avenue

The Three Chopt Road and Forest Avenue Area is characterized by an aging office complex and multi-family residential neighborhoods. The Future Land Use Map in Chapter 5: Land Use recommends these uses be maintained. Because many of the structures in this area are now more than twenty-five (25) years old, the county feels it is important to study this area further to ensure it does not become deteriorated as competition for these types of uses in the region continues to grow.

Vision

The Three Chopt Road and Forest Avenue Area should be maintained as an office/employment district. Buildings and infrastructure should be kept up-to-date to ensure this area remains vital and responsive to market demands. Future redevelopment in this area should build on the proximity of the Henrico Doctors' Hospital, as well as respect the adjacent residential neighborhoods and county park.

Action Recommendations

A detailed study, as outlined in the Special Focus Areas Study Tool Box in this chapter, could be completed for this area to determine the best mix of land uses and the proper way to encourage revitalization and reinvestment. Any study conducted should closely examine the potential for the expansion of Henrico Doctors' Hospital and how future redevelopment could be integrated with the surrounding residential uses. Additionally, any study should examine the potential for the addition of any surrounding areas to this Special Focus Area.

17: Hungary Spring Road Corridor

The Hungary Spring Road Corridor consists of properties on both sides of Hungary Spring Road between E. Parham Road and W. Broad Street.

The Vision

The area should continue to have development that is balanced with the ability of the road to handle the increased traffic generated by higher intensity uses. The continued transition of residential uses along the corridor to nonresidential uses

should respect the adjacent neighborhoods. Future redevelopment of this area should consolidate and minimize the number of access points onto Hungary Spring Road to allow for improved flow of traffic.

Action Recommendations

A detailed study to examine the land uses along the corridor and recommend appropriate uses for conversion of residential properties could be conducted. Any future land use study should be accompanied by a detailed access management plan for the corridor. A combined effort should be undertaken to ensure redevelopment along the corridor does not have a negative impact on the adjacent residential properties or on the level-of-service along the improved roadway. Special attention should be paid to the linkage between land use and roadway capacity and access.

18: W. Broad Street Corridor - Central

This corridor includes the commercial and industrial zoned land generally fronting on both sides of W. Broad Street between its intersections with Interstate 64 and E. and N. Parham Roads. A majority of the land uses in this area are of a commercial nature, including hotels, convenience stores, restaurants, and retail establishments. The Future Land Use Map in Chapter 5: Land Use recommends these uses be maintained. This area has aging structures built as individual developments in a strip style pattern along the corridor.

Vision

This area should continue to be revitalized and promoted for employment-generating uses and to strengthen adjacent neighborhoods. The infrastructure, buildings and overall development pattern should be modernized and redeveloped in a way to retain and respond to the current demands of businesses. Any redevelopment and infill occurring in this corridor should respect the function of the roadway in the county's overall transportation system. Additionally, the uses of the surrounding area should be respected; however, integration of new development into these areas could occur where appropriate.

Action Recommendations

A detailed study, as outlined in this chapter in the Special Focus Areas Study Tool Box, could be completed for this area to determine the best mix of land uses and the proper way to encourage revitalization and reinvestment. Any future land use study should be accompanied by a detailed access management plan for the corridor.

19: Horsepen Road/W. Broad Street Corridor-East

This area includes the land along a portion of Horsepen Road that lies west of W. Broad Street and the former residential neighborhood just to the north, which has transitioned from a primarily residential area to a mix of office and commercial uses. A majority of the land use conversions have reused the existing smaller homes. The roads and water/sewer service in this area have not been updated to accommodate the intensification of uses. From the section along Horsepen Road it then continues east along W. Broad Street (U.S. Route 250), to include

the commercial, industrial and office uses between the intersection of Staples Mill and Dickens Roads. The Future Land Use Map in Chapter 5: Land Use recommends these uses be maintained. This area has aging structures built as individual developments in an irregular pattern along the corridor. A portion of this area is included in the county's Enterprise Zone, and has potential for revitalization or reinvestment.

Vision

This area should continue to be revitalized and promoted for employment generating uses. The infrastructure, buildings and overall development pattern should be modernized and redeveloped in a way that addresses the current demands of businesses. Any redevelopment occurring along W. Broad Street should respect the function of the roadway in the county's overall transportation system. Additionally, the residential uses of the surrounding area should be respected; however, integration of new development into the Residential areas could occur where appropriate.

Action Recommendations

A detailed study, as outlined in this chapter in the Special Focus Areas Study Tool Box, could be completed for this area to determine the best mix of land uses and the proper way to encourage revitalization and reinvestment. Special attention should be paid to the former residential area along Horsepen Road. Any future redevelopment should occur as infill or as a larger master-planned development. The State and local incentives provided under the Enterprise Zone Program should be utilized to assist redevelopment and improvement of existing businesses along the corridor.

20: Staples Mill Road Corridor

The Staples Mill Road Corridor generally includes the industrial and commercial land adjacent to Staples Mill Road (U.S. Route 33) from its intersection with Dumbarton Road north to Sprenkle Lane. The Future Land Use Map in Chapter 5: Land Use recommends these uses be maintained. The structures in the area are aging, and there is some indication opportunities exist for revitalization or reinvestment within this corridor. The corridor is included in the county's Enterprise Zone.

Vision

The Staples Mill Road Corridor could be revitalized to capitalize on the location of the railroad and the Amtrak station and include a mixture of structures and uses that generate a vibrant community of residences and businesses. Any redevelopment occurring along this corridor should respect the function of the roadway in the county's overall traffic system and should be designed to be sensitive to the surrounding residential neighborhoods.

Action Recommendations

A detailed study, as outlined in this chapter in the Special Focus Areas Study Tool Box, could be completed for this area to determine the best mix of land uses and the proper way to encourage revitalization and

reinvestment where appropriate. Any future study should closely examine the recommended future land uses, transportation, the railroad, and the potential for the use of the Amtrak station as a focal point for redevelopment. State and local incentives provided under the Enterprise Zone Program should be aggressively marketed to help foster redevelopment and improvement of existing businesses along the corridor.

21: Lakeside Avenue Corridor

The Lakeside Avenue Corridor includes the parcels with frontage along Lakeside Avenue from the County/City line north to the intersection with Hilliard Road. The corridor is primarily Retail/Commercial in character interspersed with office and office/service uses. The Future Land Use Map in Chapter 5: Land Use recommends these uses be maintained. Some residential uses still exist along the corridor; however, many of them are converting to other uses. In recent years a corridor enhancement project has been completed and the surrounding residential neighborhoods have begun to stabilize. As a result, the corridor has begun to experience moderate reinvestment. Lakeside Avenue is included in the county's Enterprise Zone.

Vision

The Lakeside Avenue Corridor should provide important local retail and service uses to the residents in the surrounding neighborhoods and contribute to a thriving community. The corridor should provide a pleasing pedestrian environment with streetscaping and street furniture to promote pedestrian activity. Special attention should be paid to the relationship between the commercial corridor and the adjacent residential neighborhoods.

Action Recommendations

A detailed study, as outlined in this chapter in the Special Focus Areas Study Tool Box, could be completed for this area to determine the best mix of land uses and the proper way to encourage revitalization and reinvestment. Any potential study completed for this area should pay special attention to the relationship between the existing residential neighborhoods and the commercial uses along the corridor. State and local incentives provided under the Enterprise Zone Program should be utilized to help assist redevelopment and improvement of existing businesses along the corridor.

22: Brook Road Corridor

The Brook Road Corridor includes the existing development along Brook Road (U.S. Route 1) south of I-295 to the intersection of Brook Road with I-95. This area is characterized by aging commercial buildings and residential neighborhoods that are showing potential signs of disinvestment. The corridor is located in the county's Enterprise Zone.

Vision

Appropriate land use and development patterns should be identified for this area through future planning studies. Historic properties in the corridor should be preserved. The commercial uses in this corridor should continue to provide services to the surrounding residential neighborhoods, as well as where appropriate, provide opportunities for commercial establishments to serve the regional population. The use of this corridor as a major transportation corridor should be respected, and any new development should contain limited points of access. The 2003 Brook Road Enhancement Study completed by the Department of Community Revitalization should be implemented within the boundaries designated by the study.

Action Recommendations

A detailed study, as outlined in this chapter in the Special Focus Areas Study Tool Box, could be completed for this area to determine the best mix of land uses and the proper way to encourage revitalization and reinvestment. Any potential study should build on the *2003 Brook Road Enhancement Study* previously conducted for a portion of the corridor and pay special attention to the establishment of a network of sidewalks and pedestrian paths, gateway signage and the preservation of historic properties. State and local incentives provided under the Enterprise Zone Program should be aggressively marketed to help foster redevelopment and improvement of existing businesses along the corridor. Additionally, the county should continue to work with the Brook Road Business Association and the North Chamberlayne Civic Association to promote the Brook Road area in order to attract new businesses and residents.

23: Azalea Mall Area

The Azalea Mall Area is located on Azalea Avenue southeast of I-95 at the County/City line. Azalea Mall was the Richmond area's first indoor mall; however, as newer malls were built in the region, Azalea Mall eventually closed and was demolished. The Future Land Use Map in Chapter 5: Land Use, designates the area for Urban Mixed-Use and Commercial Concentration land uses. A portion of this area is included in the county's Enterprise Zone.

Vision

The Azalea Mall Area should be redeveloped with a variety of uses to contribute to the high quality of life in the county. The appropriate uses and character for this area should be determined in further planning studies. Redevelopment occurring on the former site of the mall should respect the adjacent senior living development. The portion of the 2003 Brook Road Enhancement Study completed by the Department of Community Revitalization within this area should be implemented within the boundaries designated by the study.

Action Recommendations

A detailed study as outlined earlier in this chapter in the Special Focus Areas Study Tool Box could be completed for this area to determine the best mix of land uses and the proper way to encourage reinvestment and

redevelopment. Any future study conducted for this area should concentrate on land use and economic suitability criteria for potential uses of the vacant property. Where appropriate, it should also build on the *2003 Brook Road Enhancement Study* previously conducted for the corridor along Brook Road and pay special attention to the establishment of a network of sidewalks and pedestrian paths, gateway signage, and the preservation of historic properties. State and local incentives provided under the Enterprise Zone Program should be utilized to help assist redevelopment and improvement of existing businesses along the corridor.

24: Mechanicsville Turnpike Corridor

The Mechanicsville Turnpike Corridor is an aging commercial corridor, which includes parcels along Mechanicsville Turnpike (U.S. Route 360) from the Henrico Plaza and Glen Lea Shopping Centers, located just north of Laburnum Avenue, to the I-64 interchange. The roadway is the main connection between the City of Richmond and the Mechanicsville area of Hanover County. Recent growth in Henrico County and the region has moved the focus for large scale Retail/Commercial development away from this corridor toward higher growth areas of the county. This corridor is included in Henrico County's Enterprise Zone.

Vision

The corridor will continue to be a major connector between Henrico and Hanover Counties; however, the appropriate revitalization pattern for this corridor should be determined in future planning studies.

Action Recommendations

A detailed study as outlined earlier in this chapter in the Special Focus Areas Study Tool Box could be completed for this area to determine the best mix of land uses and the proper way to encourage revitalization and reinvestment. Any potential future study should concentrate on the selection of proper land uses for the revitalization of this corridor. State and local incentives provided under the Enterprise Zone Program should be utilized to help assist redevelopment and improvement of existing businesses along the corridor.

25: Nine Mile Road Corridor

The Nine Mile Road Corridor includes the parcels fronting on Nine Mile Road from the County/City line to the Sandston/Seven Pines Area just north of Richmond International Airport. The corridor includes a wide range of uses including Retail/Commercial shopping centers, single-family homes, assisted living facilities, the Henrico County Eastern Government Center, Fairfield Middle School, and the Highland Springs High School and Technical Center. Much of the corridor is residential in character aside from these separated commercial and civic uses. The corridor is included in the county's Enterprise Zone.

Vision

The Nine Mile Road Corridor is one of the areas designated as an Enterprise Zone in the county and should be a focus for revitalization and reinvestment efforts. Where appropriate, the recommendations made in the 1998 Nine Mile Road Economic Analysis and Revitalization Plan and the 1994 Highland Springs Revitalization Plan should be followed. The Fairfield Commons Mall and the surrounding area should be the focus of commercial revitalization efforts in this area. The existing character of Highland Springs should be preserved. Historic resources within the corridor should be preserved and, where possible, improved by public or private entities.

Action Recommendations

Detailed studies as outlined earlier in this chapter in the Special Focus Areas Study Tool Box could be completed for this area to determine the best mix of land uses and the proper way to encourage revitalization and reinvestment. Due to the varying character of the corridor, there is the potential for multiple studies concentrating on different portions of the area. Additionally, these studies may identify additional areas to be included within this Special Focus Area. Any future studies conducted in this area should examine, and where appropriate, build on the recommendations of the *1998 Nine Mile Road Economic Analysis and Revitalization Plan* and the *1994 Highland Springs Revitalization Plan*. State and local incentives provided under the Enterprise Zone Program should be utilized to help assist redevelopment and improvement of existing businesses along the corridor.

26: Williamsburg Road Corridor

The Williamsburg Road Corridor generally includes the commercial land adjacent to Williamsburg Road (U.S. Route 60) between the County/City line and Airport Drive. The corridor is characterized by aging commercial structures developed in a non-cohesive manner with individual access for each use and non-uniform site configurations. In recent years, some revitalization activities have occurred along the corridor, but additional opportunities for revitalization or reinvestment should be pursued. The corridor is included in the county's Enterprise Zone.

Vision

The Williamsburg Road Corridor should provide a mixture of retail, office and service uses to serve both local residents and the nearby airport. This area serves as a point of entry into the county and should portray a positive image. Due to the proximity of the airport, new development or redevelopment of existing properties should strive to mitigate the potential noise impacts of the airport, as well as respect the height limitations put in place for the safety of the airport uses.

Action Recommendations

A detailed study as outlined earlier in this chapter in the Special Focus Areas Study Tool Box could be completed for this area to determine the best mix of land uses and the proper way to encourage revitalization and reinvestment. Any future study should also consider potential uses for the

vacant property adjacent to the intersection of North Airport Drive and Williamsburg Road. State and local incentives provided under the Enterprise Zone Program should be utilized to help assist redevelopment and improvement of existing businesses along the corridor.

27: Sandston Commercial Area

The Sandston Commercial Area is located to the northeast of Richmond International Airport on both sides of Williamsburg Road. The Sandston Commercial Area is a small, local, commercial corridor that mainly caters to the local residents. (See Special Focus Area 14.) The Future Land Use Map in Chapter 5: Land Use recommends these uses be maintained. Portions of the area are included in the county's Enterprise Zone. In 2002, the county adopted strategies, design guidelines, and recommended actions for the commercial corridor.

Vision

Future development and redevelopment in this area should take into account the character of the existing community; this integrity must be maintained, while physical and economic characteristics are enhanced. In accordance with the previously adopted study, improvements to the area should include pedestrian-scale lights, ornamental street trees, benches, decorative trash receptacle, and landscaping. The "main street" character of the area should be respected and preserved to the greatest extent possible. Where appropriate, infill development should occur and be architecturally consistent with other structures in the corridor.

Action Recommendations

Due to the previously completed small area plan adopted in 2002, a new plan is not recommended for this area. Instead, the activity in this area should be monitored. When development plans are submitted to the county for this area the strategies outlined in the *2002 Sandston Commercial Area Study*, the applicable Keystone Policies in Chapter 5: Land Use, and the *Design Guidelines Manual* should be used to evaluate the appropriateness of the proposed development. State and local incentives provided under the Enterprise Zone Program should be utilized to help assist redevelopment and improvement of existing businesses along the corridor. As described in the *2002 Sandston Commercial Area Study*, the following actions should be taken to implement revitalization and reinvestment in the Sandston Commercial Area:

1. Organize and establish a non-profit, community-based group to oversee the implementation of the recommended policies through joint efforts, advertising, and operation schedules.
2. Establish strong physical gateways to Sandston linked by a coherent streetscape design incorporating plant materials, pedestrian light fixtures, street furniture and special paving materials.

3. Improve Sandston's public infrastructure including vehicular and pedestrian circulation, parking, and drainage.
4. Reinforce Sandston's small town character through a pedestrian-focused core and sensitive building infill and renovation.
5. Retain existing and recruit appropriate businesses, supporting and promoting those that generate economic activity, while maintaining the integrity of the existing community.
6. Recruit complementary uses for infill parcel development. Convenience stores, restaurants, specialty shops and services should be encouraged.
7. Uses should be encouraged that serve neighborhood residents or attract commuters, area employees and others residing in nearby areas.
8. Establish sensitive building infill and renovation guidelines that recognize the importance of retaining and enhancing Sandston's pedestrian character, while expanding its mixture of land uses to better support a vibrant pedestrian-oriented commercial area.

28: Rocketts Landing

Rocketts Landing was a primarily industrial district adjacent to the City of Richmond and the James River. This has begun to change with the redevelopment of the area closest to the river into a Mixed-Use community and activity center. The area is classified as Urban Mixed-Use and Heavy Industrial on the Future Land Use Map in Chapter 5: Land Use.

Vision

A true vision for this entire area has not been developed; however, it may further redevelop into a Mixed-Use community to capitalize on the activity in the surrounding area. A more developed vision should be created through further planning studies. Special attention should be paid to potential changes in the environmental quality of the river resulting from any redevelopment occurring in this area. Provision of continuous public access along the river through any future redevelopment should be encouraged.

Action Recommendations

A detailed study as outlined earlier in this chapter in the Special Focus Areas Study Tool Box could be completed to determine the best mix of land uses and the proper way to encourage reinvestment and redevelopment. Any study conducted for this area should pay special attention to potential sites of historical significance, the existing and future transportation network, and public access to the river.

29: S. Laburnum Avenue Corridor

The S. Laburnum Avenue Corridor includes parcels along both sides of the roadway between its intersections with Interstate 64 and New Market Road (State Route 5). S. Laburnum Avenue acts as the main north-south transportation corridor for this portion of the county. A majority of land uses north of Charles City Road are commercial in nature, including the new White Oak Village Shopping Center. The corridor transitions to uses of a more industrial nature between Charles City Road and Willson Road. South of Willson Road the majority of the land is undeveloped, but is classified as Office, Commercial Concentration and Traditional Neighborhood Development on the Future Land Use Map in Chapter 5: Land Use.

Vision

The corridor exhibits several different development patterns including commercial, industrial, and rural. Future development and redevelopment efforts in this area should respect the existing character for its portion of the corridor. These efforts should also accommodate the importance of S. Laburnum Avenue to the overall transportation network of the county and discourage strip commercial development.

Action Recommendations

A detailed study as outlined earlier in this chapter in the Special Focus Areas Study Tool Box could be completed to help ensure the corridor is assisted in reinvestment and redevelopment efforts where needed and new development respects the rural character existing in the undeveloped portions of the area. Future development should be done in a way that minimizes access to S. Laburnum Avenue. Any study conducted for this area should pay special attention to the existing and future transportation network, the existing character of each section of the corridor and any potential environmental features.

PRIME ECONOMIC DEVELOPMENT SITES

The relationship between land use and economic development is extremely important to the future financial stability of Henrico County. Identifying Prime Economic Development Sites throughout the county provides valuable insight for physical and financial aspects of comprehensive planning. Preservation of Prime Economic Development Sites is critical to preserving balanced growth in Henrico County.

IDENTIFICATION CRITERIA

Prime Economic Development Sites were identified using several criteria. These include:

- Sites must have good access to the county's transportation network. This could include major roads, the airport, the rail network, or a combination of one (1) or more of these.
- A majority of the site must have a future land use designation of Office, Office/Service, or Industrial.

- Parcels must be vacant of any use as proposed in Chapter 5: Land Use.
- Sites must have a minimum of twenty (20) contiguous acres.

A total of twenty-eight (28) Prime Economic Development Sites have been identified. The sites range in size from just over twenty (20) acres to over 1,000 acres. Specific statistics and information on the individual sites can be found in **Table PE-2: Prime Economic Development Sites**. All sites have been designated for a proposed use based on the future land use recommendations. These proposed uses include Office, Office/Service, and Industrial, or a mixture of multiple uses complementary to one another. The Prime Economic Development Sites Map following the table shows the location of all the selected sites in the county.

Many of these sites are presently zoned for their proposed use; however, other sites may need to be rezoned in order to be utilized to their full potential. Available sites with the qualities outlined by the selection criteria are critical to attracting new businesses to Henrico County. Given the importance of these prime locations to business development and the county's need to sustain business growth, identifying Prime Economic Development Sites provides valuable information for future land use decisions. These prime sites should be preserved and prevented from use by types of development other than those recommended.

CHAPTER 7: PLANNING & ECONOMIC FOCUS AREAS

TABLE PE-2: PRIME ECONOMIC DEVELOPMENT SITES

Site	Zoning	Acreage	Proposed Use	Parcels
1	A-1	162.35	Office	730-765-7288, 730-766-8989, 731-765-8473, 731-766-6068, 731-766-8757, 732-765-3978, 732-765-6671, 732-766-4043, 732-766-7723, 732-766-9300, 733-764-9576, 733-765-4819, 733-765-8245, 733-765-9428, 733-766-1630, 733-766-6208, 734-765-0271, 734-765-1094, 734-765-1326, 734-765-1456, 734-765-1504, 734-765-3041
2	O-3C, A-1	68.99	Office	746-768-7550, 746-769-6058, 746-769-7196, 746-769-7205, 746-769-8993, 746-770-6960, 746-770-9777, 747-769-1255, 747-770-3395, 747-770-4264, 747-770-5210
3	A-1	201.00	Office/Service	748-770-6143, 748-770-7371, 748-770-8794, 749-770-4281, 749-770-9874, 749-771-5605, 749-771-6494, 751-773-4286(pt)
4	M-1C, A-1	21.40	Office	750-768-0643, 750-768-4593, 750-768-4929
5	M-2, M-1C, M-1	64.48	Industrial	769-757-8802, 769-757-9710, 770-756-3352, 770-757-1644, 770-757-2519, 771-756-5980, 771-756-7746, 771-757-8224
6	O/SC	37.08	Office/Service	781-753-5583, 781-754-8972(pt), 781-755-0513, 782-753-8267(pt)
7	A-1	83.93	Office	782-772-1447, 783-771-2962
8	M-1C, O-3C, B-3C,	79.38	Office	785-769-6656, 786-768-8517
9	A-1	99.25	Office/Service, and Industrial	784-757-9390, 784-757-9571, 784-757-9581, 784-758-8345, 784-758-9103, 784-758-9251, 784-758-9817, 784-759-5710, 784-759-6923, 784-759-7593, 784-759-7606, 784-759-7649, 784-759-8468, 784-759-9229, 784-760-9147, 784-760-9470, 785-757-0889, 785-757-1793, 785-757-2698, 785-758-0057, 785-758-0968, 785-758-1023, 785-758-1774, 785-758-1828, 785-758-2580, 785-758-2935, 785-758-3304, 785-758-3485, 785-758-4243, 785-758-4511, 785-758-5283, 785-758-5317, 785-758-5551, 785-758-6456, 785-758-6526, 785-758-6583, 785-758-7735, 785-758-8049, 785-758-8854, 785-758-9568, 785-758-9980(pt), 785-759-0085, 785-759-0205, 785-759-2347, 785-759-8052, 785-760-0184, 785-760-2106, 785-760-2751, 785-760-6689, 785-760-8637, 785-761-1615, 786-758-0294, 786-758-0555, 786-758-5887(pt), 786-759-0638, 786-759-6600(pt)
10	M-1C, O/SC, O-3C, O-2C, R-2, A-1, C-1	600.32	Office, and Office/Service	785-758-9980(pt), 786-758-4975, 786-758-5887(pt), 786-759-6600(pt), 786-759-6815, 786-759-6831, 786-759-6946, 786-759-6962, 786-759-7078, 786-759-7392, 786-760-7607, 786-760-7923, 786-760-8338, 786-760-8752, 786-760-9366, 786-760-9881, 787-758-0566, 787-758-2966, 787-758-4866, 787-759-3251, 787-759-3931, 787-759-4313, 787-759-7667, 787-759-9108, 787-760-0897, 787-760-4411, 787-760-6687, 787-760-9582, 787-761-0950, 787-761-3206, 787-761-4675, 787-762-0418, 787-762-1773, 787-762-4514, 787-762-4638, 788-759-4709, 788-760-3976, 788-762-3171, 789-759-0279, 789-759-2105, 789-759-9448, 789-761-0925, 789-762-2116, 790-759-6085, 790-760-3417, 790-762-3014, 791-760-1417, 791-760-4833, 792-760-2349, 792-760-3482, 792-761-0424, 792-761-6534, 793-760-5253
11	M-2	93.84	Industrial	806-719-8851
12	M-1C	27.20	Industrial	819-719-0442(pt)
13	M-1C	59.79	Industrial	817-717-4199

CHAPTER 7: PLANNING & ECONOMIC FOCUS AREAS

TABLE PE-2: PRIME ECONOMIC DEVELOPMENT SITES

Site	Zoning	Acreage	Proposed Use	Parcels
14	M-1C, M-1	26.38	Industrial	818-717-5830(pt), 819-717-7270, 820-718-5307
15	M-1, B-3, A-1	97.38	Office/Service	810-712-6260, 810-712-9488, 811-711-8986, 811-712-1464, 811-712-4375, 811-712-7547, 811-712-9714, 811-713-4294, 811-713-9128, 812-711-0594, 812-711-3575, 812-712-0438, 812-712-2033, 812-712-2603, 812-712-5031, 812-713-2294
16	M-2	87.36	Industrial	814-707-7163, 814-708-6806, 814-708-9914, 814-709-0923, 815-707-1577, 815-707-7170, 815-708-7559(pt), 816-707-2573
17	M-1	41.60	Industrial	818-708-9149, 818-709-1325, 818-709-9610, 819-708-4977, 819-709-3401, 819-709-5032
18	M-2C, M-1C, A-1	574.74	Industrial	816-700-8078, 816-704-5428, 816-705-4345, 816-705-9498, 817-702-3619, 817-703-8751, 817-704-7926, 817-706-0966, 817-706-1931, 818-703-6279, 818-704-3451, 818-704-4435, 818-704-6139, 819-700-9160(pt), 819-702-6318, 819-703-0614, 819-703-7057, 819-703-7516, 819-704-9284, 820-702-5724, 820-702-6699
19	M-1C, B-3, A-1	79.31	Industrial	812-698-8241, 812-699-8604, 813-698-0785, 813-698-1428, 813-698-3447, 813-698-4960, 813-698-6173, 814-699-7796, 815-699-5794, 815-700-0749, 815-700-1434, 815-700-2828, 815-700-4329, 815-700-4617, 815-700-6110, 815-700-6804
20	A-1	231.76	Office	809-695-0423(pt), 809-696-6060, 809-696-9171, 811-696-1854(pt), 811-698-6315, 812-696-3186, 812-696-4299, 812-697-2175, 812-697-2914, 812-697-5848, 812-699-2207
21	A-1, C-1	32.94	Office	824-712-5473(pt)
22	B-3, A-1, C-1	95.64	Industrial	824-712-5473(pt)
23	A-1	63.54	Industrial	824-712-5473(pt)
24	M-2, M-1C	218.74	Industrial	831-705-8890, 832-707-0784
25	M-2, A-1	473.08	Industrial	824-703-8823, 824-704-9102, 825-703-1436, 825-703-8226, 825-704-8947, 826-703-1916, 827-702-0475, 827-702-8810, 827-703-5983, 828-702-3746, 828-702-5895, 829-701-1649(pt), 829-703-8623(pt)
26	A-1	226.93	Office	842-712-1529, 842-712-5063, 841-712-8524(pt)
27	M-2C, M-1C, O-3C, A-1	552.76	Office	841-712-8524(pt), 842-707-9113(pt), 843-705-8879, 843-708-9028, 844-704-6523, 844-706-4747, 844-709-3698(pt), 845-706-5092
28	M-2, A-1	1,882.04	Industrial	848-707-0884, 851-705-6413

PRIME ECONOMIC DEVELOPMENT SITES MAP

ENTERPRISE ZONE

The Virginia Department of Housing and Community Development administers the Virginia Enterprise Zone Program. The program operates as a partnership between the State and Virginia localities. The program aims to stimulate overall economic growth and to encourage business development and expansion within the designated Enterprise Zones. The local Enterprise Zone Program in Henrico County is administered by the Department of Community Revitalization.

HISTORY

On April 15, 2003, Henrico County established an Enterprise Zone Program in conjunction with the existing North Enterprise Zone in the City of Richmond. The City of Richmond's North Enterprise Zone was re-designated to include areas of Henrico County along W. Broad Street and to include the Nine Mile Road Sub Zone. The following year, on July 20, 2004, the Enterprise Zone Program in Henrico County was expanded to include portions of Staples Mill Road, Lakeside Avenue, Hilliard Road and Brook Road. The Enterprise Zone was expanded again on June 20, 2006 to include additional areas on Staples Mill Road, and portions of Laburnum Avenue, Mechanicsville Turnpike, Audubon Drive and Williamsburg Road. Most recently, the Enterprise Zone was expanded on March 18, 2008 to include areas near Regency Square, Woodman Road, S. Laburnum Avenue and Azalea Avenue. Once designated, both State and local incentives became available to qualified businesses located in the Zone.

CURRENT ZONE

The Henrico portion of the North Richmond/Henrico Enterprise Zone currently includes the West Zone and the East Zone. The West Zone is comprised of portions of Staples Mill Road, W. Broad Street, Brook Road, Lakeside Avenue, Hilliard Road and the Regency Square Area. The East Zone (previously known as the Nine Mile Road Sub-Zone) includes portions of Laburnum Avenue, Mechanicsville Turnpike, Nine Mile Road, Audubon Drive and Williamsburg Road.

The current zone in Henrico County, depicted on the Enterprise Zone Map on the next page, contains 3,447 acres. The focus of this program in Henrico County is primarily on nonresidential properties. The current State designation of this zone will be discontinued in 2014, unless further legislation is approved by the General Assembly.

ENTERPRISE ZONE MAP

ENTERPRISE ZONE INCENTIVES

Incentives for the Henrico County Enterprise Zone include both local and State incentives. In July of 2005, new State incentives were implemented eliminating all three (3) of the tax credit incentives and updating the Jobs Grant Incentive. It should be noted the State and local incentives listed below are subject to change. The Department of Community Revitalization should be consulted before attempting to use any Enterprise Zone incentives

State Incentives

The new State incentives are 1) the Real Property Investment Grant and 2) the Jobs Creation Grant.

1. The Real Property Investment Grant is a reimbursement of up to thirty percent (30%) of hard costs for new construction of at least \$250,000 and up to thirty percent (30%) of hard costs for renovation of at least \$50,000. Investments of \$250,000 to \$2 million have a maximum reimbursement of \$125,000 over five (5) years and projects with an investment in excess of \$2 million have a maximum grant amount of \$250,000 over five (5) years.
2. The Jobs Creation Grant requires a minimum number of hires, as well as a minimum wage in order for a business to be eligible to receive the grant.
 - a. A business only becomes eligible for the Jobs Grant after the business has hired four (4) employees. Therefore, the fifth employee becomes the first employee position eligible for the jobs grant.
 - b. Businesses may receive \$800 per year for a period of five (5) years for each eligible employee paid two-hundred percent (200%) of the Federal minimum wage.
 - c. Businesses may receive \$500 per year for a period of five (5) years for each eligible employee paid between one-hundred seventy-five percent (175%) and two-hundred percent (200%) of Federal minimum wage.
 - d. Any employee making less than one-hundred seventy-five percent (175%) of Federal minimum wage is ineligible for the jobs grant.

Local Incentives

Local incentives have been very successful in facilitating reinvestment in the Henrico County Enterprise Zone. The most successful have been the Commercial Industrial Rehabilitation Grant in conjunction with the Jobs Agreement and the Architectural Assistance Program. Local incentives include:

1. Accelerated development processing for major development projects within the Enterprise Zone.

2. The seven-year Rehabilitation Real Estate Tax Exemption administered by the Finance Department.
3. The Commercial Industrial Rehabilitation Grant which reimburses the lesser of \$30,000 or thirty-three percent (33%) of hard costs; not to exceed total exterior improvements and code correction costs. An important component of the Commercial Industrial Rehabilitation Grant is the Jobs Agreement. Businesses agree to create one (1) job for every \$10,000 awarded. Fifty-one percent (51%) of the jobs created must be for persons who were previously low income.
4. Employment training and assistance through the county job training program.
5. Plan review/permit fee waivers.
6. The Architectural Assistance Program provides up to \$2,000 in professional design assistance to participating businesses.
7. Fire safety seminars are provided on-site to reduce the threat of fire in older commercial/industrial structures.
8. Crime Prevention Through Environmental Design (CPTED) is administered through the Henrico County Police Department and provides an in-depth analysis of commercial/industrial sites to reduce or eliminate crime.
9. The Department of Community Revitalization employs Commercial Assistance Planners who provide technical assistance to businesses in the Enterprise Zone.
10. Training seminars for businesses include training sessions in marketing, special events, market analysis and design among other topics.
11. Off-site improvements is a new incentive offered for the first time in the 2006-2007 funding year. Off-site improvements provides funding for the construction of new public facilities such as drainage projects and water or sewer lines.

CHAPTER 8: NATURAL RESOURCES

OVERVIEW

The natural resources of Henrico County contribute to the quality of life enjoyed by its residents. The county recognizes these resources can be protected and enjoyed in conjunction with population growth and even enhance economic development. Many of the existing preserved natural resources have become attractive recreation facilities and provide amenities that help draw tourists to the county. This chapter provides guidance on incorporating these features into the fabric of the county to sustain a unique sense of place, history and environmental quality.

The county desires to protect, preserve and conserve its natural resources. To protect these resources the county will provide on-going guidelines and strategies to guard against their degradation and loss. Preservation involves actively saving significant resources and conservation provides guidance for safekeeping of resources before they are damaged or lost.

Environmental considerations are important in Henrico County land use decisions. The county firmly believes that population growth and economic development do not need to degrade environmental quality. Additionally, economic prosperity does not automatically diminish with development practices incorporating accountability for preservation of natural resources. The county understands continued economic development can be enhanced and supported by its rich natural resources.

CHESAPEAKE BAY PRESERVATION ACT

In July 1988, the *Chesapeake Bay Preservation Act (the Act)* became law. *The Act* requires localities to protect the public interest in the Chesapeake Bay, its tributaries and other State waters, by incorporating general water quality protection measures into comprehensive plans, zoning ordinances and subdivision ordinances. In addition, localities are also required to establish programs to (1) define and protect certain lands called Chesapeake Bay Preservation Areas, which if improperly developed, could result in substantial damage to the water quality of the Chesapeake Bay and its tributaries; (2) reduce non-point source pollution to State waters; and (3) promote and restore the high quality of State waters in order to provide for the health, safety and welfare of the present and future residents of the county and the Commonwealth of Virginia.

The *Chesapeake Bay Preservation Area Designation and Management Regulations (9VAC10-20-10 et seq.)* establishes criteria to identify Chesapeake Bay Preservation Areas, which are composed of Resource Protection Areas (RPAs) and Resource Management Areas (RMAs).

RESOURCE PROTECTION AREAS

Resource Protection Areas (RPAs) are defined as “lands adjacent to water bodies with perennial flow that have an intrinsic water quality value due to the ecological and biological processes they perform or are sensitive to impacts which may cause significant degradation to the quality of state waters.”

RPAs include the following:

1. Tidal wetlands;
2. Non-tidal wetlands connected by surface flow and contiguous to tidal wetlands or waterbodies with perennial flow;
3. Tidal shores;
4. Other lands which the Board of Supervisors may designate by ordinance; and
5. A one-hundred (100)-foot buffer located contiguous to and landward of the components listed in items 1-4 above, and along both sides of any waterbodies with perennial flow.

RESOURCE MANAGEMENT AREAS

Resource Management Areas (RMAs) are defined as “land types, which if improperly used or developed, have a potential for causing significant water quality degradation or for diminishing the functional value of the Resource Protection Areas.”

RMAs include the following:

1. All areas specifically designated as RMAs by ordinance approved by the Board of Supervisors because of their potential effect on water quality;
2. All of the following land types which are directly contiguous to RPAs:
 - a. Highly erodible soils, including steep slopes;
 - b. Highly permeable soils;
 - c. Non-tidal wetlands not included in the RPAs;
3. Base flood hazard areas (one-hundred (100)-year floodplains); and
4. Where the land contiguous to the RPA is not a RMA as defined above, the one-hundred (100)-foot areas contiguous to the RPA.

A composite map showing the Chesapeake Bay Resource Areas is included in this chapter. The county’s Geographic Information System (GIS) contains data on the location of floodplains, soils with septic limitations, highly erodible/highly permeable soils (including steep slopes) and hydric soils. The Department of Public Works may be contacted for further information.

To support this initiative, the Future Land Use Map in Chapter 5: Land Use includes areas identified as Environmental Protection Areas which are encouraged to remain in their natural state.

The county has adhered to *The Act* for many years and has amended past plans and the county's Code to incorporate the *Chesapeake Bay Preservation Area* program into the *Zoning Ordinance*. Through this program, approximately twenty-five percent (25%) of the county was designated as *Chesapeake Bay Preservation Area*. The program consists of a map delineating these areas and amendments to the zoning, subdivision, landscape, controlled density, and erosion and sediment control ordinances as the means of implementing the performance criteria. The 2000-scale Chesapeake Bay Resource Areas Map (RPAs and RMAs) and individual maps showing the approximate location of one-hundred (100)-year floodplains, highly erodible/highly permeable soils (including steep slopes), and hydric soils are on file in the Department of Public Works.

PHYSIOGRAPHIC PROVINCES

Henrico County is located in two (2) physiographic provinces: the Coastal Plain Province to the east and the Piedmont Province to the west. These two (2) provinces form distinct natural features in terms of geology, topography, and soils (see the Physiographic Provinces Map). The fall line between the two (2) provinces generally follows the CSX Transportation System right-of-way (formerly, the RF&P Railroad), located approximately two (2) miles west of U.S. Route 1, from the county's northern boundary south to Hungary Road. From that point, the fall line continues in a southerly direction across the county line. The fall line marks the head of navigation on major streams; rapids are upstream and tidal waters downstream.

CHESAPEAKE BAY RESOURCE AREAS MAP

PHYSIOGRAPHIC PROVINCES MAP

PHYSICAL CONSTRAINTS TO DEVELOPMENT

FLOOD-PRONE AREAS

Flood-prone areas (or floodplains), designated by the county as Chesapeake Bay Resource Management Areas, are lands that would be inundated by flood water as a result of a storm event of a one-hundred (100)-year return interval (that is, a flood with a one percent (1%) probability of occurring within any given year). These areas are found mainly along shorelines, wetlands, and low-lying areas adjacent to tributary and intermittent streams. The areas shown as flood prone areas on the Physical Constraints to Development Map are from the GIS layer on file with the county. This is an imprecise source and should only be used as a general guide to their location.

The floodplain acts as a natural reservoir for excess water during periods of flooding. Holding excess water during floods reduces the danger to life and property. Floodplains also provide areas for recreation and they usually contain substantial groundwater.

Flood activity has a potentially detrimental effect on water quality. Soil erosion resulting from a flood event is a source of pollution. If floodplains are developed and the natural vegetative cover removed, the natural flood controls are altered or eliminated with the possible consequence of increasing the level of soil erosion.

Two (2) primary flood-prone areas in Henrico are associated with the Chickahominy and James Rivers. The Chickahominy River originates as a relatively narrow, defined valley to a point near U.S. 1. From this point eastward, the channel spreads out into a wide, flat, marshy area described as a flood basin. Because of this terrain, even a small rise in elevation of the water will cause the river to overflow its banks for hundreds of feet on either side. With regard to the James River, maximum accumulation of floodwaters normally occurs two (2) to three (3) days after the cessation of heavy rainfall over the basin.

TIDAL/NON-TIDAL WETLANDS

Wetlands are areas of continually wet soils, where water is normally found on or slightly below the surface of the land. They are transition areas between drier uplands and the deep waters of streams, rivers, lakes and bays. Wetlands can be either vegetated or non-vegetated.

The ecological value of wetlands has become better understood over the years. Wetlands loss can be a major contributor to water quality damage. Wetlands help purify water by filtering out nutrients, wastes and sediment from runoff. They also absorb the energy of fast moving, erosive water (as in a flood event) and help to minimize coastal erosion from wave action. Wetlands also serve as reservoirs from which groundwater supplies can be replenished during dry seasons.

Two (2) extensive wetland features in Henrico are the White Oak Swamp, located in the eastern portion of the county, and the wetlands contiguous to the Chickahominy River. This information, shown on the Physical Constraints to Development Map, should be used as a general guide and a study should be conducted for specific parcels being considered for development to determine the true extent of any potential wetlands.

TOPOGRAPHY/STEEP SLOPES

Elevations in the county range from sea level along the lower James River to about three-hundred forty (340) feet above sea level on the highest ridges in the western section of the county. Slopes in the county may be categorized in the following four (4) groups:

- **Very steep (greater than 25 percent)** – If disturbed by construction or forest removal, widespread failure of the slope is highly probable. These slopes may be better used as natural areas, trails and observation points. Land in this category is the least suitable for development.
- **Steep (16-25 percent)** – If plant cover is removed, these slopes are highly susceptible to erosion and gully formation. Special design consideration is required for buildings on slopes greater than fifteen percent (15%). Development on these areas is suitable with restrictions to manage erosion.
- **Moderate (5 to 15 percent)** – These slopes will support residential and agricultural land uses; if misused, they are susceptible to serious erosion. These areas are moderately suitable for development.
- **Gentle (less than 5 percent)** – These slopes will sustain the most intensive use with the least erosion management needed; however, it is common in the flat areas of the county to encounter drainage problems where standing water can collect.

Locating and categorizing these slopes is useful for gauging the degree of caution required to evaluate and recommend a particular site for development. The Physical Constraints to Development Map shows the areas of the county with slopes in excess of fifteen percent (15%) considered steep and very steep slopes.

Generally, the Coastal Plain Province consists of broad, nearly level and gently sloping ridges. Steep slopes occur more frequently in the Piedmont Province than in the Coastal Plain Province. Areas of steep slopes may present limitations to certain types of development. The presence of steep slopes in combination with particular soil types may have the potential for severe erosion or slope failure.

Steep slopes are located in four (4) general areas of the county. They are scattered along the James River; in the vicinity of Horse Swamp; along bluffs adjacent to the Chickahominy floodplain; and in the southeastern corner of the county.

PHYSICAL CONSTRAINTS TO DEVELOPMENT MAP

SOILS

According to the *Henrico County Soil Survey*, the soils in the county were formed from a wide range of parent materials, from granite and gneiss rock in the Piedmont Province, to clay and loam alluvium deposits such as sand, silt, or clay deposited on land by streams in the Coastal Plain. Generally the soils are characterized as deep – the depth to rock level is greater than three (3) feet - and well-drained or moderately well-drained. Some areas in the Coastal Plain range from excessively-drained to very poorly-drained. Drainage is also poor in some areas of the Piedmont Province.

The soils are classified into associations, or a landscape with a distinctive proportional pattern of soils. An association normally consists of one (1) or more major soils and at least one (1) minor soil; it is named for the major soils, which themselves are named for the localities where they are found. The soils in one association may occur in another, but in a different pattern.

The soil associations in Henrico County are: (1) Colfax-Helena-Bourne; (2) Appling-Wedowee-State; (3) Kempsville-Atlee-Duplin; (4) Ochrepts and Udults-Norfolk-Caroline; (5) Lynchburg-Rains-Coxville; (6) Angie-Pamunkey-Lenoir; and (7) Chewacla-Riverview-Toccoa. **Table NR-1: Soil Properties and Development Limitations** illustrates additional characteristics of each of these associations and their suitability for certain types of development.

The General Soil Associations Map shows the general location of the soil associations in the county. A soil association map is useful for providing a general idea of the soils in a locality, for comparing different sections of a locality, or for identifying large tracts of land suitable for a particular land use. The General Soil Associations Map is for general information only and is not suitable for planning the land use for a specific site because the soils in the same association ordinarily differ in slope, depth, stoniness, drainage and other characteristics affecting their management. There may also be extensive areas with other soils in each association.

Sensitive Soils

Soil characteristics affect the capacity of land to support structures, roads, foundations and septic systems. Soil suitability is determined based upon degree of wetness, degree of slope and size and texture of the particles in the soil. Sensitive soils include those with high erodibility, low or high permeability, high water tables or high shrink-swell potential.

Highly erodible soils have a high potential for erosion and sedimentation due in part to excessive steepness and length of slope. The permeability of soils is a factor related to the rate at which water moves through the soil. Soils with extremely low permeability, usually soils with high clay content, allow water to move through the soil at less than 0.6 inches per hour. Highly permeable soils, such as sand, allow water to move too rapidly through it to properly filter or treat any contaminants present in the soil or water before the water reaches the aquifer. Areas with seasonally high water tables are those where the water table is less than four (4) feet from the surface.

Shrink-swell soils are soils with horizons containing clays that excessively shrink when dry and swell when wet. Various areas of the county have soils that may have the potential to shrink and/or swell with changes in moisture content. The Shrink-Swell Soils Map shows the general location of the soils with those characteristics. The county's Department of Building Inspections has detailed residential soil testing requirements used to determine suitability of a specific site for various development activities.

Soil Suitability for Septic Tank Use

The suitability for septic systems is determined by a combination of the degree of slope, wetness, soil erodibility and permeability. A suitable soil for a septic system should absorb all effluent, provide a high level of treatment before the effluent reaches the groundwater and have a long useful life. Sand lets wastewater run through too quickly, and heavy clays impede wastewater movement, allowing it to pool or pond on the surface instead of moving through the soil (*Threats to Virginia's Groundwater*, Virginia Water Resources Research Center, VPI).

The degree of limitation of the soils for septic tank absorption fields is rated slight, moderate, or severe. A slight limitation means that soil properties are generally favorable and limitations can easily be overcome. A moderate limitation can be overcome or modified by planning, design or by special maintenance. A severe limitation means that costly soil reclamation, special design or intense maintenance, or a combination of these is required (see the Soil Suitability for Septic Map for more information).

The *Henrico County Code* was amended in accordance with the Chesapeake Bay regulations to include the requirements for a one-hundred percent (100%) reserve drainfield area for all buildings served by on-site sewage disposal systems (septic systems) and a mandatory five-year pump out requirement for all septic tank systems in Chesapeake Bay Preservation Areas. Estimates from the county's Septic Pump-out Notification Program in 2008 indicated that approximately 8,853 properties have on-site systems. Of this figure 4,171 are located in Chesapeake Bay Preservation Areas. According to the Henrico County Health Department, the majority of the households on septic systems are in the eastern portion of the county. The Health Department monitors new and existing sewage systems by investigating reports of sewage system malfunctions, and assists owners in correcting the problems according to State and county regulations.

GENERAL SOIL ASSOCIATIONS MAP

SHRINK SWELL SOILS MAP

TABLE NR-1: SOIL PROPERTIES AND DEVELOPMENT LIMITATIONS

Soil Associations		Colfax-Helena-Bourne	Appling-Wedowee-State	Kempsville-Atlee-Duplin	Ochrepts and Udults-Norfolk-Caroline	Lynchburg-Rains-Coxville	Angie-Pamunkey-Lenoir	Chewacla-Riverview-Toccoa
PROPERTIES	County Percent	18	16	21	18	4	21	2
	Slope Percent	0-6; up to 15; nearly level to gently rolling uplands	2-15; up to 45; gently rolling uplands, steeper slopes near larger streams	0-15; nearly level to gently rolling uplands	10-25; up to 60 in some areas; rolling to hilly uplands	0-2 nearly level uplands	0-6; scattered up to 50; nearly level to gently sloping terraces	0-2; nearly level stream bottoms
	Seasonal High Water Table (ft)	1.5-3	Over 5	1.5 to over 5	Over 5	0-1.5	1 to over 5	1.5 to over 5
	Permeability Rate	Slow	Moderate	Moderately Slow to Moderate	Moderately Slow to Moderately Rapid	Moderately Slow to Moderate	Slow to Moderate	Moderate to Moderately Rapid
	Shrink-Swell Potential	Low to High	Low to Moderate	Low to Moderate	Low to Moderate	Low to Moderate	Low to Moderate	Low to Moderate
LIMITATIONS	Septic Systems	Severe	Slight to Moderate	Slight to Severe	Moderate to Severe	Severe	Slight to Severe	Severe
	Dwellings	Severe	Slight to Moderate	Slight to Moderate	Slight to Moderate	Severe	Slight to Severe	Severe
	Shallow Excavation	Severe	Slight to Severe	Slight to Severe	Slight to Moderate	Severe	Slight to Severe	Severe
	Local Roads and Streets	Moderate to Severe	Slight to Severe	Moderate to Severe	Moderate to Severe	Severe	Moderate to Severe	Severe

Source: Soil Survey of Henrico County, Virginia, 1975.

- Subject to flooding.
- May be hazard of groundwater pollution or pollution of nearby streams.

Note: See General Soil Association Map for the general locations of these soil associations.

NATURAL HERITAGE RESOURCES

The Virginia Department of Conservation and Recreation’s Division of Natural Heritage (DCR-DNH) and the Virginia Department of Game and Inland Fisheries catalog the occurrences of natural heritage resources documented within Henrico County. Natural heritage resources are defined by the *Virginia Natural Area Preserves Act* as “the habitat of rare, threatened, or endangered plant and animal species, rare or State-significant natural communities or geologic sites, and similar features of scientific interest.”

The Natural Heritage Resources Map shows the approximate location of the federally-listed sensitive areas in Henrico County. DCR-DNH states that these locations should act as indicators for resources during land use planning so that projects can be modified to avoid impact before they are approved; however, the center points should not be interpreted as precise resource locations. The use of this identification can facilitate project permitting by identifying sensitive areas before projects are submitted for approval.

SOIL SUITABILITY FOR SEPTIC MAP

NATURAL HERITAGE RESOURCES MAP

PROTECTION OF POTABLE WATER

Potable water (water suitable for drinking) includes both groundwater and surface water. The “hydrologic cycle” describes the interaction among groundwater, surface water and atmospheric water vapor. Precipitation and the resulting surface runoff supplies most of the water that feeds streams, lakes, rivers and oceans. This water is then returned to the atmosphere through evaporation from the earth’s surface or transpiration by the roots and leaves of plants.

Surface water is also fed by groundwater through what is called baseflow. The *U.S. Geological Survey* estimates that thirty percent (30%) of the annual average flow of streams in Virginia is derived from groundwater (*Threats to Virginia’s Groundwater*). Most perennial streams occur where the groundwater table is exposed to the surface. The groundwater table, or water table aquifer, is a common term used to describe the level of water trapped within the soil just beneath the surface. The water table aquifer is replenished by water which infiltrates the ground’s surface through permeable soils, wetlands and other groundwater recharge areas.

Because of the interdependence of the hydrologic cycle, anything affecting one part of the system, for example water withdrawals, or introducing pollutants, has the potential to affect other parts of the system. This interconnected cycle explains how pollutants introduced into the water table aquifer in a distant area of the Chesapeake Bay basin can be transported to one of its tributaries and eventually end up in the Bay.

Proper planning can both ensure an adequate supply of drinking water by protecting the quantity and quality of water, and it can minimize costs for providing drinking water. Henrico County is involved in many programs designed to improve water quality and water conservation including: adoption of local ordinances to comply with the Chesapeake Bay regulations; the five (5)-year septic system pump-out program; development review procedures to address water quality; participation in the *National Pollution Discharge Elimination System (NPDES)* program; adoption of the county’s Stormwater Management Plan and others.

SURFACE AND GROUNDWATER WITHDRAWALS

Information on water withdrawals is useful for determining existing demand on water supply systems. Currently all of Henrico County’s water supply is surface water withdrawals from the James River. The Department of Public Utilities operates a water treatment plant with the current capacity to treat and disperse 55 million gallons per day. In addition, the county has an agreement with the City of Richmond to purchase 12 to 35 million gallons per day. This provides the county with an available maximum daily water supply of 90 million gallons. The county’s current average daily use is approximately 40 million gallons, with a maximum use of 61 million gallons in a day. The remaining 29 million gallons is available for growth until the water treatment plant’s capacity is increased. Design to further increase the capacity of the plant by an additional 25 million gallons per day began in 2006.

The greatest use of the water supply is for residential development, followed by commercial and industrial development. **Table NR-2: Average Daily Water**

Withdrawals shows the average daily supply from both surface water and county wells for the fiscal years ending in 2000 to 2007.

TABLE NR-2: AVERAGE DAILY WATER WITHDRAWALS

Fiscal Year (ending June 30)	Avg. Daily Supply City Purchase + County Withdrawals (mgd)
2000	35.77
2001	36.53
2002	39.20
2003	35.05
2004	35.71
2005	35.41
2006	37.67
2007	41.64

Source: Henrico County Department of Public Utilities.

Most of the existing development in Henrico County is served by county-owned water lines distributing treated surface water that is either produced by the county’s water treatment facility or purchased from the City of Richmond. The county’s water treatment plant has provided treated water from the James River since the spring of 2004. There are a number of privately owned public water supply wells in use throughout the county, some of which are owned by State and Federal agencies. Any well that provides water to the public as defined in the *Virginia Department of Health (VDH) Waterworks Regulations* is considered a public supply well, and its owner is subject to the requirements of those regulations.

There are approximately eleven (11) privately owned public water supply wells permitted by the VDH to provide water to citizens, businesses and public facilities in the county. The Department of Public Utilities took all county-owned wells out of service in 1997 and does not withdraw ground water for public water supply to its customers. Five (5) county wells are maintained in operable condition to serve as an emergency back-up supply if they are needed. These wells are identified as Memorial Drive Well, Old Williamsburg Road Well, Elko Road Well, White Oak Road Well and Bradley Acres Well. All other county-owned supply wells have either been or will be abandoned in accordance with VDH Regulations.

In addition to the public supply wells, two (2) freshwater springs, located off of Turner Road in the eastern portion of the county, provide commercial bottled water. According to Camp Holly Springs, Inc., water from Camp Holly Springs and Diamond Springs is distributed to thousands of consumers daily in Virginia, North Carolina, South Carolina, Maryland, Pennsylvania, West Virginia and the District of Columbia.

Camp Holly Springs and Diamond Springs appear to originate in separate shallow aquifers or distinct horizons within a single aquifer. Recharge for the springs is from surface water infiltration or water that travels through the soil from surface water such as ponds, creeks and precipitation. The Hydrologic Unit Boundaries Map provides the general location of Camp Holly Springs and Diamond Springs.

AQUIFERS

Aquifers are areas within the earth or bedrock where potable water is stored. According to the *Wellhead Protection Pilot Study* conducted by Henrico County in 1993, groundwater in Henrico County is found in two (2) different types of aquifers - surface and confined (or artesian) aquifers. The study describes the recommended method for protecting the water supplied from each of these sources.

The surface aquifers are those not deep enough to be protected by layers of clay, and are particularly vulnerable to contamination from any pollutants introduced at the land's surface. To protect this type of aquifer from contamination, the area around the well where groundwater flow replenishes the aquifer or the recharge area needs to be protected.

Beneath the surface aquifers, between thick layers of marine clay, are the artesian aquifers. Most of the public water supply wells in the eastern portion of the county draw water from these aquifers. Rather than protecting the recharge area around individual wells that draw from the confined aquifer, protecting the entire recharge area of the aquifer is more effective. The confined aquifers are especially important to protect because they recharge regional flow systems.

WATER QUALITY ASSESSMENT

For water quality assessment and reporting, the Commonwealth of Virginia is subdivided into hydrologic river basins, which are further subdivided into smaller watersheds called "waterbodies." Henrico County is included in portions of the five (5) waterbodies listed below:

1. VAP-G06R-Chicahominy River/White Oak Swamp/Beaverdam Creek (G06)
2. VAP-G05R-Upper Chickahominy River/Upham Brook/Lickinghole Creek (G05)
3. VAP-G02R,E.-James River/Turkey Island Creek/Fourmile Creek (G02)
4. VAP-G01R,E.-James River/Almond Creek/Gillies Creek (G01)
5. VAP-H39R-James River/Tuckahoe Creek/Norwood Creek (H39)

The Hydrologic Unit Boundaries Map illustrates the location of these watershed sub areas.

The *2006 Water Quality Assessment and Impaired Waters Report* was released by the Virginia Department of Environmental Quality on July 10, 2006. The report is a summary of the water quality conditions in Virginia from January 1, 2000 to December 31, 2004. This document indicates overall quality standards are being met in most streams throughout Henrico County; however, several segments or waterbodies are impaired because of contamination, low dissolved oxygen levels, or acidic pH levels. From 2002 to 2004, six (6) additional stream segments/waterbodies were added to the impaired list within the county. Additional subcategories of aquatic life were adopted between the 2002 and 2004 dates, which may account for the addition of these bodies rather than a decline in the conditions in these six (6) stream segments/waterbodies.

An impaired waterbody is defined as a waterbody that, due to contamination levels, will not support one or more of its designated uses. The assessment identified waterbodies with more than ten (10) impairments; most of these were in the central and eastern portions of the State. Five (5) waterbodies in Henrico County had Category 5 impairments, the highest level of impairment. **Table NR-3: DEQ Impaired Waterbodies** lists the waterbodies with Category 5 Impairments.

TABLE NR-3: DEQ IMPAIRED WATERBODIES

Water body	Total number of Impairments	General Description of Category 5 Impairments
VAP-G06	10	<ul style="list-style-type: none"> • Chickahominy River-(10.3 miles-RT 360 bridge to RT 156 bridge)-Not supporting recreational uses due to fecal coliform levels which have risen since 1996. The source of the fecal coliform levels is unknown. The segment also is not supporting aquatic life due to low levels of dissolved oxygen (DO) and pH violations, likely caused by natural conditions in the watershed. • White Oak Swamp-(6.51 miles-White Oak Swamp from White Oak Swamp Creek downstream to mouth at Chickahominy River, and 3.47 miles from its headwaters to the confluence with White Oak Swamp Creek)-Not supporting recreation or aquatic life due to pH and fecal coliform. The source for the pH is attributed to natural conditions; the source of fecal coliform is unknown. • White Oak Swamp Creek-(3.9 miles from headwaters to mouth at White Oak Swamp)-Not supporting aquatic life due to pH from natural conditions. • Canal Swamp-(2.94 miles, from its headwaters to its mouth at White Oak Swamp)-Not supporting aquatic life due to pH. The source is unknown. • Deep Run-(2.33 miles, from its headwaters to the mouth at the White Oak Swamp)-Not supporting aquatic life due to pH. Source unknown.
VAP-G05	4	<ul style="list-style-type: none"> • Upham Brook Watershed-(48.4 miles, from its headwaters to confluence with the Chickahominy River, includes all tributaries)-Not supporting recreational activities because of high levels of fecal coliform, and e. Coli. Contamination source is non-point source runoff from urban development in the watershed. • Chickahominy River-(14.98 Miles, from its headwaters to its confluence with Stony Run)-Not supporting aquatic life or recreation uses because of presence of fecal coliform and low levels of dissolved oxygen. The source of the fecal coliform is unknown; the dissolved oxygen levels are attributed to natural conditions. • Stony Run-(0.22 miles, from the confluence with Lickinghole Creek downstream to its mouth at the Chickahominy River)-Not supporting recreational use due to presence of fecal coliform. The source is unknown.

Water body	Total number of Impairments	General Description of Category 5 Impairments
VAP-G02	7	<ul style="list-style-type: none"> • Fourmile Creek- (30.99 miles, the watershed from its headwaters to the mouth at the James River)-Not supporting recreation or aquatic life due to fecal coliform and pH. The source of the fecal coliform is unknown, and the pH levels are attributed to the runoff from pine forests in the headwaters. • The following waterbodies were found to not support aquatic life due to the pH levels which are attributed to the runoff from pine forests in the headwaters: A pond in Roundabout Creek, Western Run, and Crewes Channel.
VAP-G01	11	<ul style="list-style-type: none"> • James River-(10.84 Sq. Mi., from the fall line at Mayo's Bridge downstream to the Appomattox River)-Not supporting recreation use, due to the presence of e.Coli and fecal coliform the source of which is believed to be non-point source urban runoff and the combined sewer overflow events from the Richmond combined sewer system. • James River-(0.02 Sq. Mi., from the fall line at Flowerdew Hundred)-Not supporting fish consumption due to contaminants whose source is unknown. • Almond Creek-(2.26 miles, from headwaters to its mouth at the James River, includes unnamed tributaries) - Not supporting recreation or aquatic life due to fecal coliform, and pH levels. The fecal coliform is suspected to be from urban runoff and overflow discharges from the City of Richmond's combined sewer system, and the pH is suspected to be caused by runoff from a nearby landfill. • Gillies Creek-(5.79 miles, from headwaters to its mouth at the James River)-Not supporting aquatic life or recreation uses due to fecal coliform and pH. The source of impairment is unknown.
VAP-H39	10	<ul style="list-style-type: none"> • Tuckahoe Creek Watershed-(52.67 miles, the entire watershed)-The watershed is not supporting aquatic life, recreation or public water supply uses. The watershed has low levels of dissolved oxygen, pH level imbalance, fecal coliform, and elevated sulfate levels in portions of the stream. The impairments are attributed to a combination of sources including urban runoff and natural conditions. • James River-(10.06 miles, from the confluence of Tuckahoe Creek to the Williams' Island Dam)-Not supporting recreation uses due to the presence of fecal coliform, the source of which is unknown.

Source: 2004 305(b) Water Quality Assessment Report Appendix A.

HYDROLOGIC UNIT BOUNDARIES MAP

POINT AND NON-POINT SOURCES OF POLLUTION

Virginia's Groundwater Steering Committee has identified thirty-two (32) potential sources of groundwater contamination. The top potential threats statewide are: failed septic systems, poor well construction, landfills, pesticides and fertilizers. These are termed non-point sources of pollution, which are those sources not coming from a discernible point. Other sources are poorly constructed or abandoned wells, and point source discharges. The threat each of these poses to water quality in Henrico County is discussed below.

POINT SOURCE DISCHARGES

Point sources of pollution are those which reach State waters through a single source such as a pipe outlet. The outfall structures of sewage treatment plants and industrial plants are examples. All legal point source discharges to surface waters are regulated by the *Virginia Pollution Discharge Elimination System (VPDES)* permit program. Depending upon the permit requirements, some permittees must monitor their outfall to ensure the discharge meets certain quantity and quality parameters. As of 2007, there were fifty-eight (58) VPDES permitted discharge sites in Henrico County regulated by the State Department of Environmental Quality.

NON-POINT SOURCES

Underground Storage Tanks

One of the most common groundwater contamination complaints reported to the Virginia Department of Environmental Quality (DEQ) concerns underground petroleum storage tanks and lines. State regulations enacted in 1989 require owners of underground storage tanks with storage capacities of 5,000 gallons or more to register the tanks with DEQ, to test the tanks periodically and to report any tanks that are leaking. The owner is liable for any clean up costs.

According to DEQ, Henrico County currently has 2,297 regulated and unregulated underground storage tanks reporting leaks. These sites are scattered throughout the county. The types of facilities range from gas stations, to schools and cemeteries, but do not include home heating oil tanks.

Septic Tanks

Leaking or poorly maintained septic tanks can contribute a significant amount of contamination as a non-point source discharge. The Department of Public Works is developing a database and mapping effort to identify the parcels within Chesapeake Bay Preservation Areas that are also served by on-site septic systems. This database will be cross-referenced with the county's Geographic Information System (GIS) and various sources of data, including the Henrico County Planning Department 1993 Septic Pump-Out Notification database. The approximate number of parcels within CBPAs that are also served by septic systems is 4,171.

The Department of Public Works is developing a process it will use to manage on-site septic system maintenance. This process will help the county uphold the mission of the *Chesapeake Bay Preservation Act* by protecting perennial streams and other tributaries from potential contamination from on-site septic systems.

Pesticides and Fertilizers

Pesticides and fertilizers are used for agriculture, forestry, parks, golf courses and residential landscapes. The potential for contamination of aquifers by pesticides and fertilizers occurs not necessarily because these chemicals are misapplied, but because the chemicals are applied repeatedly to vast tracts of land. Contamination of groundwater from these sources can occur as water percolates through the soil. Soil erosion and surface runoff can compound the problems.

When pesticides and fertilizers are properly applied at the recommended time and rate, plant growth is enhanced. Actively growing ground cover such as trees, shrubs and turf grasses reduce nutrient movement through the soil and promote the natural decomposition of these materials. Living ground cover also prevents erosion of the soils that contain fertilizers and other chemicals. Additionally, living plants actually remove these materials from the soil.

Poorly Constructed or Abandoned Wells

Improperly constructed and abandoned wells are considered by health officials to be threats to public safety and among some of the most significant sources of groundwater contamination in Virginia. An improperly constructed or abandoned well can provide a direct conduit for pollutants into groundwater.

There are many types of wells in Henrico County; some of the more typical types include dug, bored and drilled wells. The oldest type is the dug well, which is extremely susceptible to contamination and should be taken out of service and properly abandoned. Bored wells are another form of shallow well, usually about three (3) feet in diameter, which are bored to bedrock or the green marine clay layer. These wells are susceptible to droughts and provide water close to the surface and therefore the primary source of contamination. Drilled wells are much deeper, one-hundred (100) feet or more into the ground, and the well is sealed at the surface from contaminants.

The Department of Public Utilities maintains information on county water supply wells that are out of service. The Department has documentation about the handling of county-owned wells, and the Virginia Department of Health provides guidance to private well owners on proper abandonment methods to prevent groundwater contamination.

Landfills

Landfills are soil excavations filled with solid waste. The waste is covered with soil to help prevent odors, disease and pest infestations. The soil cannot, however, prevent precipitation and other water sources from contacting the waste. Water dissolves various materials to form “leachate,” which has the potential to percolate through the soil and contaminate groundwater below the landfill.

Strict regulations in Virginia require permits for proper siting and construction of landfills with regard for the geology and hydrology of a potential landfill location. This permitting process diminishes the likelihood of significant groundwater contamination. At the local level, Henrico County uses its soil survey maps to evaluate sites for proposed land uses such as landfills, storage facilities for hazardous materials and mining activities, all of which have a high potential for groundwater pollution.

The county owns three (3) landfills: two (2) inactive sites located in the eastern portion of the county and one (1) active landfill. The active landfill is located on Ford’s Country Lane off of Nuckols Road in northwestern Henrico County. It is a one-hundred eighty-eight (188)-acre site and has a projected life span of approximately three (3) more years at current acceptance rates of three-hundred (300) tons/day. Of the inactive landfills, the landfill on Nine Mile Road was closed in 1978, and the Charles City Road landfill was closed in 1990. The Charles City Road site has seventy-six (76) acres remaining which potentially could be used for landfill development.

There are three (3) private landfills in the county. Old Dominion, owned by Allied Waste Systems, Inc., and Cox landfills are located near the county’s landfill on Charles City Road. Simon Landfill is on Darbytown Road. Old Dominion is a sanitary landfill; the Cox and Simon landfills only accept yard waste debris such as clippings from trees and lawns.

Virginia’s Corrective Action Program regulates groundwater contamination from leaking landfills by requiring solid waste management facilities (landfills) that received solid waste after December 21, 1988 to have groundwater monitoring wells. The county’s landfills have been monitored and have been found to have no contamination leaving the sites. In 2005/2006, a project to correct on-site groundwater contamination within the facility’s boundaries at the Springfield landfill was completed.

SHORELINE/STREAMBANK EROSION

Shoreline/streambank erosion is caused by natural forces such as wave motion and upland runoff. Land development activity such as grading and clearing can also increase stormwater runoff and erosion.

Shoreline/streambank erosion can have a negative effect on water quality by contributing to the nutrients and other controllable pollutant loads entering the Bay each year. Increased sedimentation in the Chesapeake Bay is another result of shoreline erosion.

Shoreline/streambank erosion, however, is not a major issue in Henrico County. The 1985 *Shoreline Situation Report: Henrico, Chesterfield and Richmond* states that there are no areas noted which are subject to rapid and/or severe erosion in the county. While somewhat dated, the document is the only data of this kind currently available. It also reports that the historical erosion rate in this area averages less than one (1) foot per year. The *Chesapeake Bay Public Access Plan* identifies two (2) areas along the James River in the eastern portion of the county where erosion was noted as being greater than two (2) feet per year. These instances of shoreline erosion along the James River have been from major flooding events, boat wakes, ship traffic to the deep water terminal in the City of Richmond and from current and tidal action.

Stormwater detention is one of several techniques, implemented by the county, to minimize shoreline/streambank erosion. Detaining stormwater on-site decreases the runoff into the receiving channel (waterway), which minimizes erosion activity along the channel. This is particularly important if the receiving channel is inadequate to accommodate the runoff. Henrico County requires all development and redevelopment to provide an adequate receiving channel. In some watersheds, detention is also required of commercial and industrial development to address downstream flooding issues. Stormwater quality requirements are applied throughout the county and compliance may require the construction of facilities known as Best Management Practices (BMPs).

Determining which watersheds require stormwater detention is based on the county's *Comprehensive Drainage Study*. This study requires stormwater detention in all watersheds identified as 50/10 Watersheds. The *Henrico County Environmental Program Manual* provides guidance on watershed plans and stormwater management measures required to prevent erosion, overtopping of stream crossings and building flooding. Regional and on-site detention basins must be evaluated in conjunction with other measures to determine the impact on erosion control, flood control and water quality.

PUBLIC AND PRIVATE ACCESS TO WATERFRONT AREAS

The *Chesapeake Bay Public Access Plan* (DCR, Dec. 1990) identifies existing and potential areas in the county for access to the James and Chickahominy Rivers. The *Access Plan* recommends criteria for determining the appropriate location, type and intensity for a variety of waterfront access activities. The *Access Plan* also provides information on shoreline planning factors, and existing and potential site uses like boat launch ramps, bank and pier fishing, hiking, picnicking and marinas. The *Access Plan* contains information on public and private access sites in map format. While not a comprehensive list of environmental considerations, it includes four (4) factors: 1) shoreline erosion, 2) wetlands, 3) natural heritage areas and 4) cultural resources, which should be evaluated in the siting of an access area. See the Waterfront Access Map for existing waterfront access sites.

In 1989, the Board of Supervisors approved a resolution designating a portion of the Chickahominy River, from Mechanicsville Turnpike (Route 360) east to the county line, as a scenic river.

Existing Public and Private Access Areas

There are currently four (4) public access sites to waterfront areas: 1) Osborne Pike Landing, 2) Richmond National Battlefield Park-Fort Brady, 3) Osborne Park, and 4) Deep Bottom Boat Landing, as well as two (2) private marinas along the James River. All are located in the eastern portion of the county. Henrico County Division of Recreation and Parks maintains the State-owned Osborne Pike Landing, the county's Deep Bottom Boat Landing and Osborne Park. The National Park Service is responsible for the location at the Richmond National Battlefield Park.

Potential Impacts from Public and Private Access

The four (4) general types of public and private water access are boat-related, swimming, fishing and natural area access. Boat-related access is discussed in more detail below because it has a greater potential impact on water quality and is usually a major element in access programs.

Topography, geologic features, capacity to sustain the proposed use and presence of fragile environmental resources, including threatened or endangered species, influence the suitability of access on a site. Significant shoreline erosion and potential impact on water quality are other important factors to consider.

The volume, flushing characteristics and tidal action of each waterbody are important to support docking facilities. In areas where the visual character is predominantly natural, the county would prefer the use of community facilities over multiple individual docks to reduce the impact on the visual and ecological amenities. Numerous facilities along the shoreline could diminish the visual aesthetics and the environmental conditions of the river.

Boat Related Facilities

Boating is commonly recognized as a non-point source of pollution, as it increases the likelihood of spilled petroleum products, non-biodegradable litter and sanitary waste. Additionally, boat traffic increases the waterway's turbidity through wave action, which in turn increases the rate of shoreline erosion. This turbidity also impacts the ecology of marsh areas.

Clearing shoreline vegetation for access, structures and adjacent parking areas can generate additional runoff which carries pollutants and eroded sediments impacting marine wildlife habitats. On-shore storage of fuel, oil and sanitary waste at such facilities can pose a threat to water quality if these substances are not properly managed. Dredging and channel widening, in situations where it is necessary for the function of boat-related facilities, can release settled pollutants and increase turbidity in the water.

The *Access Plan* was developed to help ensure maximum water quality protection in the siting and development of boat-related and other access facilities. The *Access Plan* suggests criteria for determining the appropriate location, type and intensity for a variety of access activities. Information from this resource can be incorporated into the county's planning efforts with respect to public and private waterfront access facilities.

The Osborne Pike Boat Landing, a State owned facility leased to the county, had a significant increase in boat traffic during the early part of the 1990s. To improve operations, the county Board of Supervisors authorized an application to the Virginia Department of Game and Inland Fisheries to establish a "No Wake Area." This area extends fifty (50) feet from the shoreline into the James River and runs parallel to the landing for approximately one-hundred fifty (150) feet. Pilings near the landing are sometimes hidden during high tide and pose a safety concern. Although safety is the main concern for this request, this "No Wake Area" helps to minimize siltation along the shoreline from the increased boat traffic.

REDEVELOPMENT IN INTENSELY DEVELOPED AREAS

Intensely Developed Areas (IDAs) are defined by the Chesapeake Bay Program as areas consisting of existing development and infill sites where little of the natural environment remains. These areas represent urban centers, heavy industrial development, and other densely developed areas characterized by extensive pavement and impervious surfaces. Research has shown that the increase in stormwater runoff pollution is directly proportional to increases in impervious surfaces. Runoff in these areas is typically collected in an underground drainage network which carries untreated stormwater directly into adjacent waterways. Henrico County does not have any areas officially designated as IDAs in accordance with the Chesapeake Bay Program at this time.

The Chesapeake Bay Program's intent is to reclaim some natural areas through stormwater quality management techniques as redevelopment occurs. Pollution entering the Bay from older, densely developed areas is the primary reason that the regulations now require redevelopment projects to reduce stormwater runoff pollutant loadings by ten percent (10%). In many cases, the ten percent (10%) reduction in pollutant loading is accomplished through the use of stormwater best management practices, and not necessarily through a reduction of impervious surface.

The county requires stormwater quality management, not only in the Chesapeake Bay areas, but for all new and redevelopment sites with impervious areas in excess of sixteen percent (16%). The county inspects all industrial activities that drain into the county's systems including storm sewers and roadside ditches.

AIR QUALITY

Ground level ozone is a precursor to smog and is emitted from the burning of fossil fuels by mobile sources such as cars and trucks, and stationary sources like industrial

WATERFRONT ACCESS MAP

facilities or power plants, and is one of the elements that the Environmental Protection Agency (EPA) uses to determine air quality. An ozone concentration of greater than 0.08 parts per million is the threshold for an eight (8) hour period. The number of days the county exceeded this threshold is listed in **Table NR-4: Number of Days with Eight Hour Ozone Exceedences (2000-2007)**.

As of December 2007, the EPA has classified Henrico County as a “Marginal” nonattainment area for ozone. This means the air quality in the county exceeded the acceptable level of ozone during three (3) different eight (8) hour periods in the last year. A marginal rating also indicates that there is a range of 0.085-0.092 parts of ozone per billion for the eight (8) hour period. This is the lowest (least severe) classification for ozone nonattainment areas.

TABLE NR-4: NUMBER OF DAYS WITH EIGHT HOUR OZONE EXCEEDENCES (2000-2007)

2000	2001	2002	2003	2004	2005	2006	2007
3	10	11	3	0	3	4	4

In 1990, amendments to the *Clean Air Act* required states to submit revisions to their State Implementation Plans (SIP) for air quality by November 1993. In addition to the requirements for a revised SIP, Virginia also submitted a plan to EPA, which committed

Source: Virginia Department of Environmental Quality, Air Quality Monitoring, 2007.

to a measured reduction in urban smog of fifteen percent (15%) by 1996. The result of this action was a long-term reduction in smog of at least three percent (3%) per year to reach attainment compliance with air quality standards by 2010.

NOISE

On a daily basis, the greatest noise generator in Henrico County is Richmond International Airport. Aircraft noise prediction models have been used to assess noise levels in areas surrounding the airport. The noise impacts are expressed in terms of contours of equal noise exposure in the Day/Night Average Sound Level (DNL) noise metric.

The following noise exposure levels were identified for Richmond International Airport:

- **65 DNL** - Noise level considered to have an adverse effect upon land use activities. Land use limitations and controls should be considered.
- **70 DNL** - Noise level considered to have significant adverse effects upon land use activities. Land use limitations, easements and other compatibility controls should be considered.
- **75 DNL** - Noise level considered to have the most severe adverse effect upon land use activities. Land uses other than airport related facilities should generally be excluded from this area.

The county has adopted an Airport Overlay District to assist in the management of development activities within the high DNL areas. This overlay district is illustrated on the Richmond International Airport Overlay District Map.

Additional locations that generate high decibels of noise for extended periods of time include interstate corridors and Richmond International Raceway. Efforts should be made to mitigate the impact of noise in areas affected by these sources.

RICHMOND INTERNATIONAL AIRPORT OVERLAY DISTRICT AND NOISE EXPOSURE
CONTOURS

NATURAL RESOURCE POLICIES

The following policies should be used to guide development decisions related to natural environmental features in the county.

1. Promote the protection of Chesapeake Bay Preservation Areas from development that may have an adverse environmental impact on the Chesapeake Bay ecosystem.
2. Require assessment and survey of on-site environmental conditions to identify specific environmental status and resources.
3. Require mapping of environmentally sensitive lands for individual sites, including floodplains, aquifer recharge areas, wetlands, steep slopes, woodlands and natural habitat areas in addition to areas generally identified as Chesapeake Bay Preservation Areas in this Plan.
4. Require the design and construction of developments to meet the surface and groundwater quality standards established by the Virginia Department of Conservation and Recreation's Division of Chesapeake Bay Local Assistance in the *Chesapeake Bay Preservation Area Designation and Management Regulations (9 VAC 10-20-10 et seq.)*.
5. Evaluate land development or disturbing activities for compliance with the requirements of *Chapter 10, Environment, of the County Code*.
6. Monitor shoreline development to ensure proper erosion control methods are employed.
7. Require regular or periodic maintenance of Best Management Practices (BMPs) used for the management of stormwater to ensure their continued function and removal of pollutants.
8. Use the standards established in the *Henrico County Environmental Program Manual* as a guide for the design of BMPs.
9. Encourage alternative development practices, which minimize impervious surfaces while still being consistent with the permitted uses to reduce the impacts of stormwater runoff.
10. Require soil testing when development is proposed in areas without public sewer to ensure the site can support on-site septic systems.
11. Discourage on-site septic systems, which may adversely impact the water quality of aquifers or State waters.
12. Promote restoration of land areas containing mineral deposits after being mined to keep with future development plans and to protect existing development.
13. Require the location of all sealed mines be provided to the county for future reference.

14. Encourage alternative development practices which can lessen the adverse impact to air and water quality.
15. Encourage public and private cooperation in the preservation and use of environmentally sensitive areas for public open space, or park and recreation activities with minimal impact on environmentally valuable sites.
16. Promote the preservation and enhancement of the scenic, historic, natural and open space qualities of the James River and Chickahominy River Corridors in balance with economic development.
17. Provide access to the James and Chickahominy Rivers through public and private locations. Public access to the rivers could include public park locations and the public amenities associated with large master-planned developments.
18. Protect the quality of the Camp Holly Springs and Diamond Springs recharge area to the extent reasonably practicable.

CHAPTER 9: RECREATION, PARKS, OPEN SPACE & CULTURAL RESOURCES

OVERVIEW

The county recognizes the importance of recreation, open space and access to cultural resources to the quality of life for the residents and businesses in the county. This chapter identifies the county's current inventory of parks, recreation facilities, open spaces and historic cultural resources, a needs assessment, and policies for future decisions regarding these amenities. In 1999, the Board of Supervisors adopted the *Update 2015 Parks, Recreation, and Open Space Plan*. This Comprehensive Plan includes much of the information developed in that plan.

RECREATION AND PARKS

Walking, picnicking and other leisure pursuits are long established American pastimes, while more structured recreational activities such as softball, golf, soccer, tennis, and similar activities continue to increase in popularity. The enjoyment these activities provide for residents of all ages has become a county priority, in addition to being important to quality of life.

Parks and recreation opportunities are now considered integral community features. The economic, conservation, social and psychological benefits derived from park, recreation and leisure opportunities, while difficult to quantify, are increasingly important as development increases and pace of life quickens.

Mission Statement and Division History

The Division of Recreation and Parks exists to enhance the quality of life and to foster a sense of well-being and community for the citizens of Henrico County. This is accomplished through management of resources and by facilitating leisure services and recreational opportunities in safe and well maintained environments.

Henrico County has a long history of providing park, recreation and leisure opportunities to its citizens. Beginning in 1934, the county organized summer recreation programs at three local schools. During World War II, summer recreation programs were organized and administered under the Henrico County Welfare Board. The Division of Recreation and Parks was created in 1969. Bond referenda in 1977, 1989, 2000 and 2005 have enabled the Division to build a sound foundation through the construction of numerous parks and recreation facilities.

NEEDS ASSESSMENT

The *Update 2015 Parks, Recreation, and Open Space Plan* was adopted by the Board of Supervisors in 1999 after a two (2) year planning process. As part of that process, a needs assessment survey of county residents was undertaken. Some of the key findings of the survey were:

- Two-thirds of county households use the parks system; however, use tends to be localized with most households using parks in their own or adjacent neighborhoods.
- The average Henrico household makes thirteen (13) park visits annually, travels an average of twelve (12) minutes, and takes three (3) household members.
- Jogging/walking trails are cited by nearly one-half of park users as the most attractive feature of the particular parks they visit.
- Overall satisfaction with selected park attributes is high among those who use parks.
- One (1) in seven (7) Henrico households can name a park they would like to visit but have not, primarily due to lack of time or because the park is too far away.
- One (1) in ten (10) Henrico households say the parks could be more appealing if the county provided more information, though more than one-half of households have no suggestions to make the parks more appealing, indicating a high level of satisfaction with the parks as they are now.
- Nearly one-half say they would use Henrico parks and facilities more if they were located closer to their homes.
- One (1) in five (5) county households has used a school facility for a recreational program or activity.
- Households with children are more likely to participate in many recreational activities.
- Time constraints limit the participation in recreational activities of many Henrico households.
- The majority of participants drive a car to get to parks and programs.
- One-third of all households belong to a private recreational association, and in Tuckahoe and Three Chopt, the ratio is as high as one-half.

KEY FINDINGS OF THE ASSESSMENT

Among the needs assessment's key findings are: people are not getting enough information about recreational resources available to them; people feel parks are too far from home – one of the principal constraints to park use appears to be the distance to the parks; and one-fifth of county residents use recreational facilities at schools located in their communities. Overall, the park system appears to be offering the facilities and programs desired.

EXISTING HENRICO COUNTY PARK FACILITIES

The facilities that make up the Henrico County recreation and parks system are shown in **Tables RP-1** through **RP-10**. The Park Facilities Map illustrates the location of the various park facilities. Like many localities, Henrico County has traditionally relied on

CHAPTER 9: RECREATION, PARKS, OPEN SPACE & CULTURAL RESOURCES

the dual use of some school facilities to provide additional park, recreation, and leisure opportunities. School-based facilities are also included in the facilities inventory and are shown on the School-Based Facilities Map.

Park and Facilities Classification System

The following parks, recreation and open space classification system is currently used for recreation and park planning efforts in Henrico County. In this system, facilities are classified as *neighborhood parks*, *community parks*, *county parks*, *specialty facilities*, *athletic facilities*, or *school-based facilities*. The optimum acreage presented for each of these types of facilities is based on generally accepted national standards.

TABLE RP-1: NEIGHBORHOOD PARK FACILITIES

	Neighborhood Parks														
	Bethlehem Park	Cheswick Park	Dunncroft / Castle Point Park	Hidden Creek Park	Highland Gardens Park	Highland Springs Park	Holladay Park	Robinson Park	Roslyn Hills Park	Short Pump Park	Springfield Park	Virginia Randolph Recreation Area	Westham Park	Westwood Park	Woodman Park
Acres	1	25	56	32	1.1	26	15	91	22	49	6	11	2	2	5
Existing / Undeveloped	E	E	E	E	E	U	U	E	E	E	E	E	E	E	E
Recreation Center				1								1			
Nature Center															
Historic Site / Museum															
Picnic Area	1	2	1	2				1	1	1	1	1	1	1	1
Picnic Shelter		3	1	3				1		1	1	1			
Restrooms		1	1	1				1		1	1	1			
Parking		Y	Y	Y				Y		Y	Y	Y			Y
Play Equipment	Y	Y	Y	Y	Y			Y	Y	Y	Y	Y	Y	Y	Y
Open Play Area		1	1	1					1						
Bike Path		1									1				
Exercise Trail		1													
Nature Trail		1	2	1											
Fishing															
Concession										1		1			
Baseball / Softball								1		2	1	1			1
Soccer / Football			1							1		2			
Basketball								1				2			
Tennis				2				2				2			

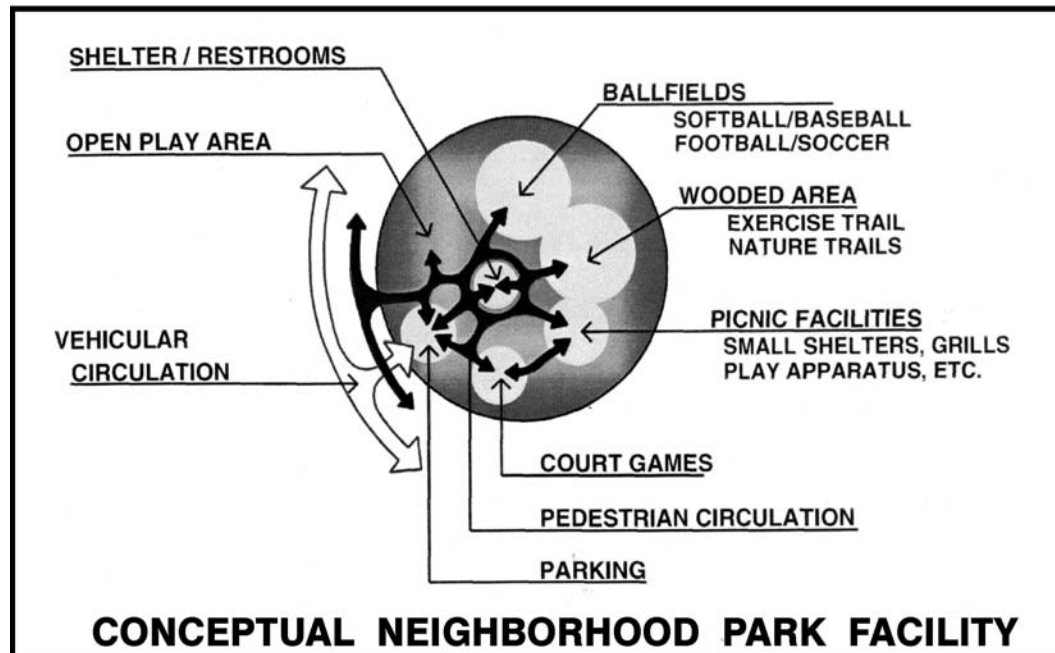
TABLE RP-2: NEIGHBORHOOD PARK LOCATIONS

Facility Name	Address	Notes/Additional Amenities
Bethlehem Park	3300 Webb Road	
Cheswick Park	1700 Forest Avenue	Horseshoe pit (1)
Dunncroft / Castle Point Park	4901 Francistown Road	Disk golf course
Hidden Creek Park	2415 Brockway Lane	Shuttle Challenger Memorial
Highland Gardens Park	3800 Patrick Avenue	
Highland Springs Park	no address	Future park
Holladay Park	7200 Galaxie Road	Future park, no current master plan
Robinson Park	214 Westover Avenue	
Roslyn Hills Park	195 Roslyn Hills Drive	
Short Pump Park	3401 Pump Road	Deep Run School Historic Site (1902), trail
Springfield Park	4600 Springfield Road	
Virginia Randolph Recreation Area	2175 Mountain Road	
Westham Park	7906 Dogwood Road	
Westwood Park	5906 Keystone Road	
Woodman Park	1700 Navion Street	

Neighborhood Park Classification

Neighborhood parks typically range in size from three (3) to twenty (20) acres, and provide a mix of active and passive uses. They can include bodies of water, wooded areas for nature study, picnic shelters, grills, open play areas, jogging or exercise trails, court games, play apparatus and other amenities. Support facilities such as restrooms and parking should be provided.

FIGURE RP-1: CONCEPTUAL NEIGHBORHOOD PARK FACILITIES DIAGRAM



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TABLE RP-3: COMMUNITY AND COUNTY PARK FACILITIES

	Community Parks										County Parks						
	Deep Bottom Park	Echo Lake Park	Gill Dale Park	Greenwood Park	Osborne Park	Pouncey Tract Park	RF&P Park	Three Lakes Park	Tuckahoe Creek Park	Twin Hickory Park	Crump Park	Deep Run Park	Dorey Park	Four Mile Creek Park	Meadowview Park	New Market Park	Vawter Street Park
Acres	86	54	76	88	26	23	53	119	241	49	149	165	400	327	591	219	237
Existing / Undeveloped	E	E	U	U	E	E	E	E	U	E	E	E	E	U	U	U	E
Recreation Center										1		1	1				
Nature Center								1				1					
Historic Site / Museum	1										1	1					
Picnic Area	2	1			2	2		3			2	6	8				1
Picnic Shelter	2	1			2	2	3	2			2	7	10				1
Restrooms	1	1			2	1	4	1			2	3	3				1
Parking	Y	Y			Y	Y	Y	Y		Y	Y	Y	Y				Y
Play Equipment		Y			Y	Y		Y			Y	Y	Y				Y
Open Play Area		1			1	1		1			1	1	2				
Bike Path												1	2				
Exercise Trail												1	1				1
Nature Trail		1			3	1	2	3			1	4	4				1
Fishing	Y	Y			Y			Y			Y	Y	Y				
Concession						1	4						3				
Baseball / Softball						1	7						8				
Soccer / Football						2	2					3	6				
Basketball												1					
Tennis							1						3				

TABLE RP-4: COMMUNITY PARK LOCATIONS

Facility Name	Address	Notes/Additional Amenities
Deep Bottom Park	9525 Deep Bottom Road	Boat landing, canoe launch, trail
Echo Lake Park	5701 Springfield Road	Bridge/dam, fishing pier
Gill Dale Park	7160 Gill Dale Road	
Greenwood Park	11225 Greenwood Road	
Osborne Park	9530 Osborne Turnpike	Fishing pier, river overlooks
Pouncey Tract Park	4751 Pouncey Tract Road	Sand volleyball courts (3)
RF&P Park	3400 Mountain Road	Stadium, restored train cars
Three Lakes Park	400 Sausiluta Drive	Fishing pier
Tuckahoe Creek Park	no address	Future park, no current master plan
Twin Hickory Park	5007 Twin Hickory Road	

Community Park Classification

Typically ranging in size from twenty (20) to one-hundred (100) acres, community parks are intended to provide both active and passive recreation uses. Picnic facilities, play apparatus, fishing facilities, nature trails, bicycle paths, hiking trails and scenic open spaces are available for the passive user. Court games and ball fields serve the more active user. Support facilities are also provided.

FIGURE RP-2: CONCEPTUAL COMMUNITY PARK FACILITIES DIAGRAM

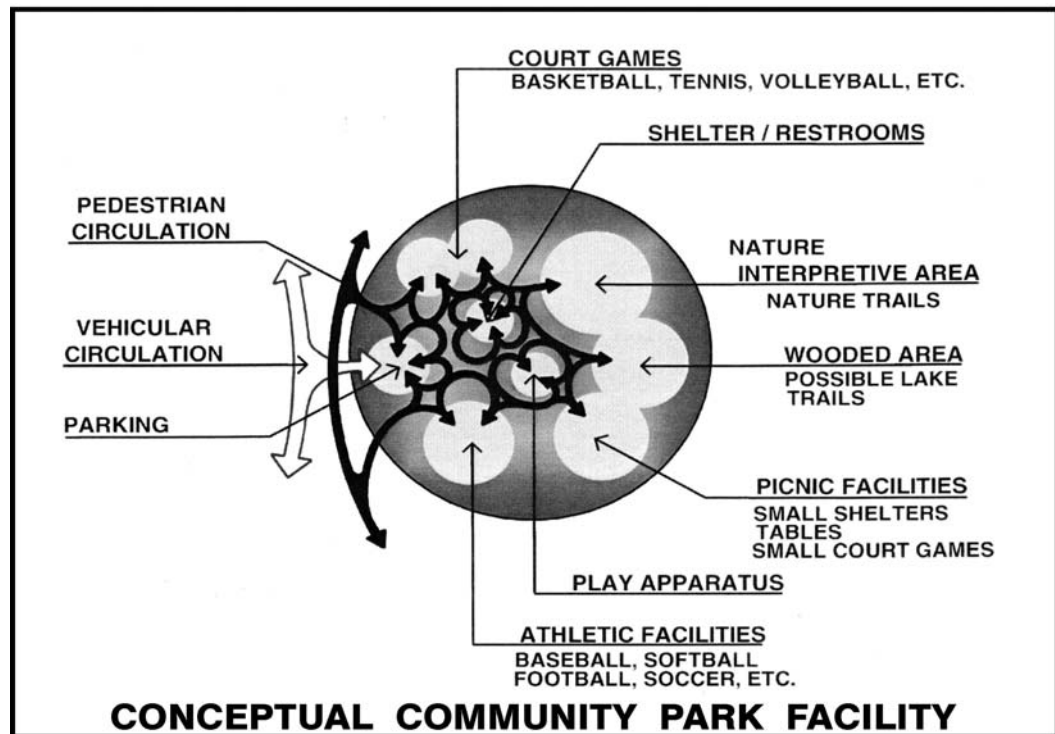


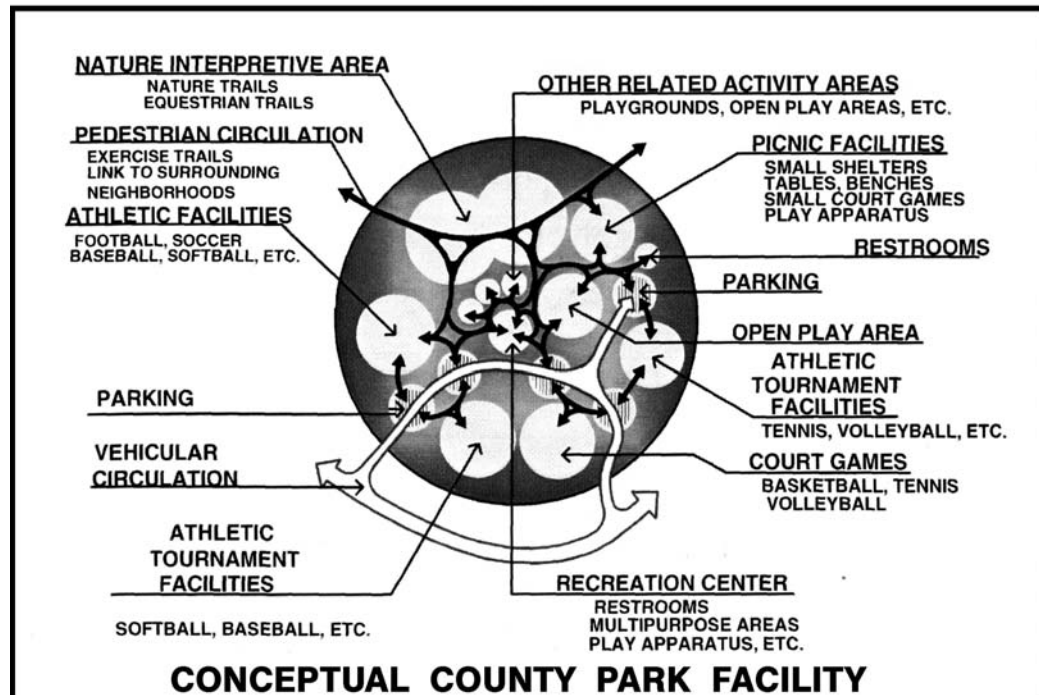
TABLE RP-5: COUNTY PARK LOCATIONS

Facility Name	Address	Notes/Additional Amenities
Crump Park	3400 Mountain Road	19th Century farm/museum, horseshoe pits (3)
Deep Run Park	9900 Ridgefield Parkway	
Dorey Park	2999 Darbytown Road	Horse arena/trails, disc golf
Four Mile Creek Park	8250 New Market Heights Lane	
Meadowview Park	4001 Clarendon Road	
New Market Park	3301 New Market Road	
Vawter Street Park	4501 Vawter Avenue	

County Park Classification

County parks are in excess of one-hundred (100) acres and intended to offer a wide variety of active and passive recreational facilities. County parks include tournament quality facilities accommodating organized recreational programs and events, a recreation or nature center, water-related activities, picnic facilities, open play areas, play apparatus and more. Support facilities such as restrooms, concessions, and ample parking are provided. County parks are developed to serve a wide audience and are not tailored for use by a specific group.

FIGURE RP-3: CONCEPTUAL COUNTY PARK FACILITIES DIAGRAM



PARK FACILITIES MAP

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TABLE RP-6: SPECIALTY FACILITIES

	Existing / Undeveloped	Recreation Center	Historic Site / Museum	Picnic Area	Picnic Shelter	Restrooms	Parking	Play Equipment	Fishing	Boat Landing	Concession	Baseball / Softball	Soccer / Football	Basketball	Tennis
Antioch School Community Center	E	1			1	1	Y								
Belmont Recreation Center	E	1				1	Y								
Clarke-Palmore House	U														
Confederate Hills Recreation Center	E	1			1	2	Y								4
Courtney Road Service Station	E		1				Y								
Cultural Arts Center at Glen Allen	E	1				2	Y								
Deep Bottom Boat Landing	E					1	Y		Y	1					
Deep Run Recreation Center	E	1				2	Y							1	
Dorey Park Recreation Center	E	1				2	Y								
Eastern Henrico Recreation Center	U														
Elko Community Center	E							Y				1		1	2
Forest Lodge	E		1												
Henrico Theatre	E					2	1								
Henricus Historical Park	E		1	1	1	1	Y		Y	1					
Hidden Creek Recreation Center	E	1				1	Y								
Highland Springs Community Center	E	1				1	Y								
Hunton Civic Association	E				1	1	Y	Y			1	2		1	
Meadow Farm Museum	E		1			1	Y								
Nuckols Farm	U														
Osborne Boat Landing	E						Y		Y	1					
Sandston Community Center	E	1				1	Y								
Spring Park Historic Site	E		1				Y								
Three Lakes Nature Center	E					1	Y								
Twin Hickory Recreation Center	E	1				1	Y	Y							
Varina Community Center	E	1				1	Y								
Walkerton Tavern	E	1				2									

CHAPTER 9: RECREATION, PARKS, OPEN SPACE & CULTURAL RESOURCES

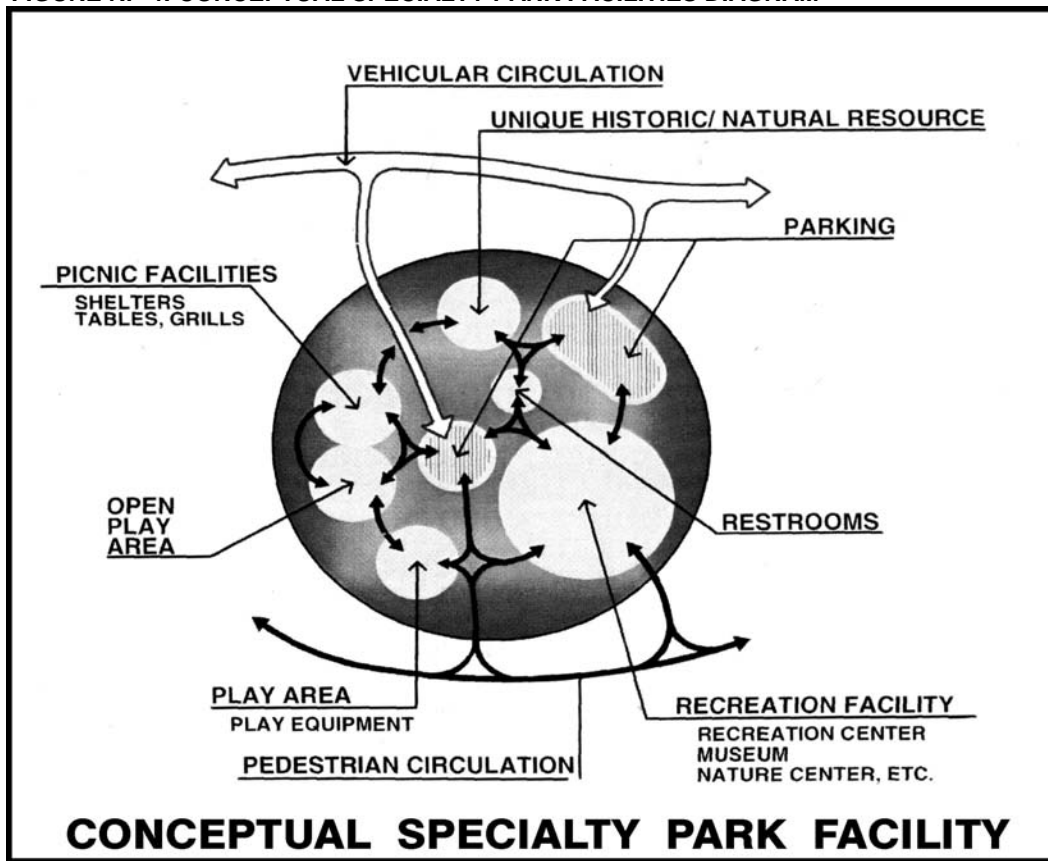
TABLE RP-7: SPECIALTY FACILITY LOCATIONS

Facility Name	Size*	Address	Notes/Additional Amenities
Antioch School Community Center	2	5650 Elko Road	1,281 sf. community center
Belmont Recreation Center	17,872 sf.	1600 Hilliard Road	17,872 sf.
Clarke-Palmore House	10.3	904 McCoul Street	1,348 sf.
Confederate Hills Recreation Center	5.4	302 Lee Avenue	8,691 sf., croquet, shuffleboard
Courtney Road Service Station	0.3	3401 Mountain Road	Restored 1940s service station
Cultural Arts Center at Glen Allen	6	2880 Mountain Road	Theatre, gallery, restaurant, 33, 892 sf.
Deep Bottom Boat Landing	2.4	9525 Deep Bottom Road	
Deep Run Recreation Center	22,674 sf.	9910 Ridgefield Parkway	22,674 sf.
Dorey Park Recreation Center	12,278 sf.	2999 Darbytown Road	12,378 sf.
Eastern Henrico Recreation Center	17.8	1440 N. Laburnum Avenue	
Elko Community Center	4.3	6216 White Oak Road	Henrico owns 4.261 acres, Windsor Club owns adjacent 1.462 acres
Forest Lodge	1.2	2940 Mountain Road	Restored tower and columns
Henrico Theatre	1.8	305 E. Nine Mile Road	
Henricus Historical Park	0.5	251 Henricus Park Road	Nature trail and reconstructed 1611 settlement located in Chesterfield Co.
Hidden Creek Recreation Center	2,403 sf.	2415 Brockway Lane	2,403 sf.
Highland Springs Community Center	0.7	16 S. Ivy Avenue	1,200 sf.
Hunton Community Center	4.5	11690 Old Washington Highway	Owned by Hunton Civic & Rec. Association, the fields are managed by the County
Meadow Farm Museum	4,960 sf.	3400 Mountain Road	4,960 sf., 19th century farm/museum, farm animals
Nuckols Farm	3.2	3501 Gayton Hills Lane	
Osborne Boat Landing	8.2	9590 Osborne Turnpike	Owned by the State, managed by Henrico Recreation and Parks
Sandston Community Center	5,528 sf.	11 J.B. Finley Street	
Spring Park Historic Site	2.8	2000 Park Street	Interpretive signs
Three Lakes Nature Center	7,067 sf.	501 Sausiluta Drive	7,067 sf., nature center including 50,000 gallon aquarium
Twin Hickory Recreation Center	2,030 sf.	5007 Twin Hickory Road	2,030 sf., opened 2005
Varina Community Center	1,683 sf.	8081 Recreation Road	1,683 sf.
Walkerton Tavern	26.1	2892 Mountain Road	Restored 1825 historic tavern

Specialty Facility Classification

Specialty facilities vary in acreage and are intended to offer a variety of recreational opportunities in conjunction with a specialized program need or a unique resource. These facilities include high quality facilities accommodating organized or non-organized activities, recreation programs and events, and interpretive facilities, as well as support facilities such as roadways, parking, picnic facilities, open play areas, restrooms and play apparatus.

FIGURE RP-4: CONCEPTUAL SPECIALTY PARK FACILITIES DIAGRAM



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TABLE RP-8: ATHLETIC FACILITIES

	Belmont Golf Course	Central Gardens Recreation Area	Glen Allen Softball Complex	Glen Echo Recreation Area	Glen Lea Recreation Area	Highland Springs Recreation Area	Klehr Field	Lakeside Club Road (Lakeside Little League)	Laurel Recreation Area	Sandston Recreation Area	Varina Recreation Area
Existing / Undeveloped	E	E	E	E	E	E	E	E	E	E	E
Recreation Center						1				1	1
Historic Site / Museum											
Picnic Area			2			2	1	1	1	1	1
Picnic Shelter			2			1	1		1	1	1
Restrooms	2		1	1		1	1	1	1	1	1
Parking	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y
Play Equipment		Y		Y		Y	Y		Y	Y	Y
Fishing											
Boat Landing											
Concession	2		1		1	1	1	1	1	2	1
Baseball / Softball		1	4	1	2	4	4	4	1	2	6
Soccer / Football					1	1	2		2		1
Basketball		2		2						2	
Tennis	8									2	

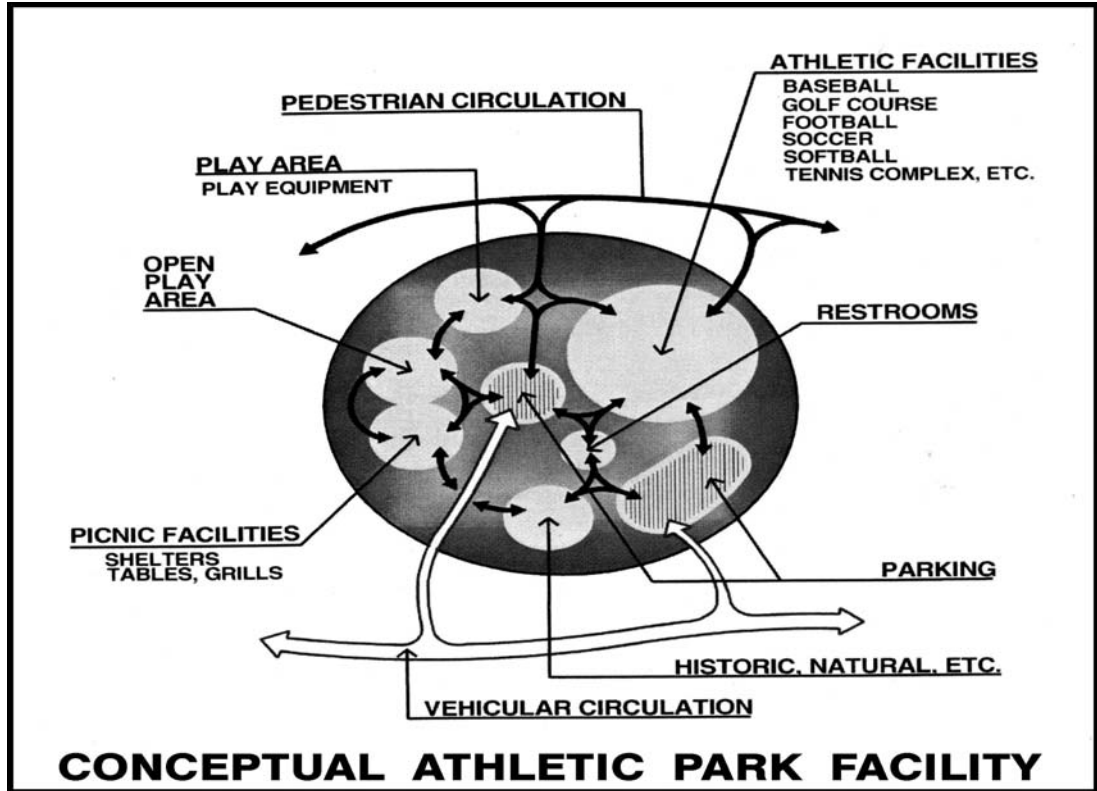
TABLE RP-9: ATHLETIC FACILITY LOCATIONS

Facility Name	Size	Address	Notes/Additional Amenities
Belmont Golf Course	129.6	1600 Hilliard Road	
Central Gardens Recreation Area	16.7	2210 Cleary Road	
Glen Allen Softball Complex	34.3	2175 Mountain Road	Softball tournament facilities
Glen Echo Recreation Area	15.8	3808 Nine Mile Road	
Glen Lea Recreation Area	13.4	4501 Vawter Avenue	
Highland Springs Recreation Area	9	300 E. Read Street	
Klehr Field	18.8	8000 Diane Lane	
Lakeside Club Road (Lakeside Little League)	11.3	6000 Club Road	
Laurel Recreation Area	10.4	10301 Hungary Spring Road	Skate park
Sandston Recreation Area	5.1	11 J.B. Finley Street	
Varina Recreation Area	20.6	8081 Recreation Road	

Athletic Facility Classification

These facilities vary in size and are intended to offer a variety of primarily active recreational opportunities. Athletic facilities could include high quality facilities accommodating organized and non-organized athletics for a variety of age groups, recreational programs or events. Support facilities include roadways, parking, picnic facilities, open play areas, concessions, restrooms and play apparatus.

FIGURE RP-5: CONCEPTUAL ATHLETIC FACILITIES DIAGRAM



SPECIALTY AND ATHLETIC FACILITIES MAP

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TABLE RP-10: SCHOOL-BASED FACILITIES AND LOCATIONS

Facility Name	Acres	Address	Existing / Undeveloped	Picnic Shelter	Restrooms	Parking	Play Equipment	Concession	Baseball / Softball	Soccer / Football	Basketball	Tennis	Track	Gym / Multi-Purpose
Adams Elementary	16.0	600 S. Laburnum Avenue	E			Y	Y				2		1	
Ashe Elementary	18.4	1001 Cedar Fork Road	E			Y	Y			1			1	1
Baker Elementary	15.0	6651 Willson Road	E			Y	Y				1		1	1
Brookland Middle	30.8	9200 Lydell Drive	E			Y			2	3	4	4	1	2
Byrd Middle	51.6	9400 Quioccasin Road	E			Y			2	2	3	4	1	3
Carver Elementary	15.4	1801 Lauderdale Drive	E			Y	Y		1	1	2		1	
Chamberlayne Elementary	12.3	8200 St. Charles Road	E			Y	Y		1	1			1	1
Colonial Trail Elementary	23.8	12101 Bacova Drive	E			Y	Y						1	1
Crestview Elementary	12.6	1901 Charles Street	E			Y	Y		1	1	2		1	1
Davis Elementary	16.1	8801 Nettlewood Drive	E			Y	Y		1	1	2		1	1
Deep Run High	60.3	4801 Twin Hickory Road	E			Y			2	3	2	6	1	2
Donahoe Elementary	19.5	1801 Graves Road	E			Y	Y		1	1	2		1	1
Dumbarton Elementary	18.7	9000 Hungary Spring Road	E	2	1	Y	Y	1	3	1	1		1	
Elko Middle	70.0	5901 Elko Road	U			Y			2	1	2	4	1	1
Echo Lake Elementary	21.5	5200 Francistown Road	E			Y	Y			1			1	1
Fair Oaks Elementary	16.8	201 Jennings Road	E			Y	Y		1		1		1	1
Fairfield Middle	39.8	5121 Nine Mile Road	E			Y			2	2	2	4	1	1
Freeman High	35.9	8701 Three Chopt Road	E			Y		1	2	1	3	6	1	2
Gayton Elementary	18.4	12481 Church Road	E			Y	Y			1			1	1
Glen Allen Elementary	20.0	11101 Mill Road	E			Y	Y		1				1	1
Glen Lea Elementary	9.9	3909 Austin Avenue	E			Y	Y	1	1		1		1	1
Godwin High	77.1	2101 Pump Road	E			Y		1	3	2	2	6	1	2
Greenwood Elementary	22.3	10960 Greenwood Road	E			Y	Y			1			1	1
Harvie Elementary	19.4	3401 Harvie Road	E			Y	Y						1	1
Henrico High	37.6	302 Azalea Avenue	E			Y		1	2	2		6	1	1
Hermitage High	73.2	8301 Hungary Spring Road	E			Y		1	3	3	4	8	1	2
Highland Springs Elementary	22.5	600 W. Pleasant Street	E			Y	Y		1		1		1	

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TABLE RP-10: SCHOOL-BASED FACILITIES AND LOCATIONS

Facility Name	Acres	Address	Existing / Undeveloped	Picnic Shelter	Restrooms	Parking	Play Equipment	Concession	Baseball / Softball	Soccer / Football	Basketball	Tennis	Track	Gym / Multi-Purpose
Highland Springs High	38.5	15 S. Oak Avenue	E			Y		2	2	2	1	6	1	2
Holladay Elementary	18.0	7300 Galaxie Road	E			Y	Y			2	2		1	
Hungary Creek Middle	40.0	4909 Francistown Road	E			Y			2	1	2	4	1	1
Johnson Elementary	15.8	5600 Bethlehem Road	E			Y	Y	1	3	1	2		1	1
Laburnum Elementary	23.9	500 Meriwether Avenue	E			Y	Y		1		3		1	1
Lakeside Elementary	9.4	6700 Cedar Croft Street	E			Y	Y		2	1	3	2	2	
Longan Elementary	14.7	9200 Mapleview Avenue	E			Y	Y		1	1	3		1	1
Longdale Elementary	11.7	9500 Norfolk Street	E			Y	Y						1	1
Maybeury Elementary	12.6	901 Maybeury Drive	E			Y	Y		1	1	1		1	1
Mehfoud Elementary	9.7	8320 Buffin Road	E			Y	Y		1	1	1		1	1
Montrose Elementary	11.8	2820 Williamsburg Road	E			Y	Y		2		2		1	1
Moody Middle	20.	7800 Woodman Road	E			Y			2	1	2	4	1	1
Mount Vernon Middle	4.8	7850 Carousel Lane	E			Y								1
New Bridge Elementary & Middle	9.7	5915 Nine Mile Road	E			Y	Y						1	1
Nuckols Farm Elementary	15.7	12351 Graham Meadows Drive	E			Y	Y			1			1	1
Pemberton Elementary	9.7	1400 Pemberton Road	E			Y	Y		1	1	1		1	1
Pinchbeck Elementary	13.8	1225 Gaskins Road	E			Y	Y			1	1		1	1
Pocahontas Middle	27.7	12000 Three Chopt Road	E			Y			2	1	2	4	1	1
Randolph Community High	16.3	2204 Mountain Road	E			Y								1
Ratcliffe Elementary	13.4	2901 Thalen Street	E			Y	Y		1		1	3	1	1
Ridge Elementary	10.2	8910 Three Chopt Road	E			Y	Y		1		1		1	1
River's Edge Elementary	20.5	11600 Holman Ridge Road	E			Y	Y			1			1	1
Rolfe Middle	35.0	6901 Messer Road	E			Y			3	2	2	4	1	2
Sandston Elementary	4.7	7 Naglee Avenue	E			Y	Y						1	1
Seven Pines Elementary	14.4	301 Beulah Road	E			Y	Y	1	2	1	2		1	1
Shady Grove Elementary	19.3	12200 Wyndham Lake Drive	E			Y	Y			1			1	1
Short Pump Elementary	12.7	3425 Pump Road	E			Y	Y				2			1
Short Pump Middle	33.9	4701 Pouncey Tract Road	E			Y			3	2	2	4	1	2

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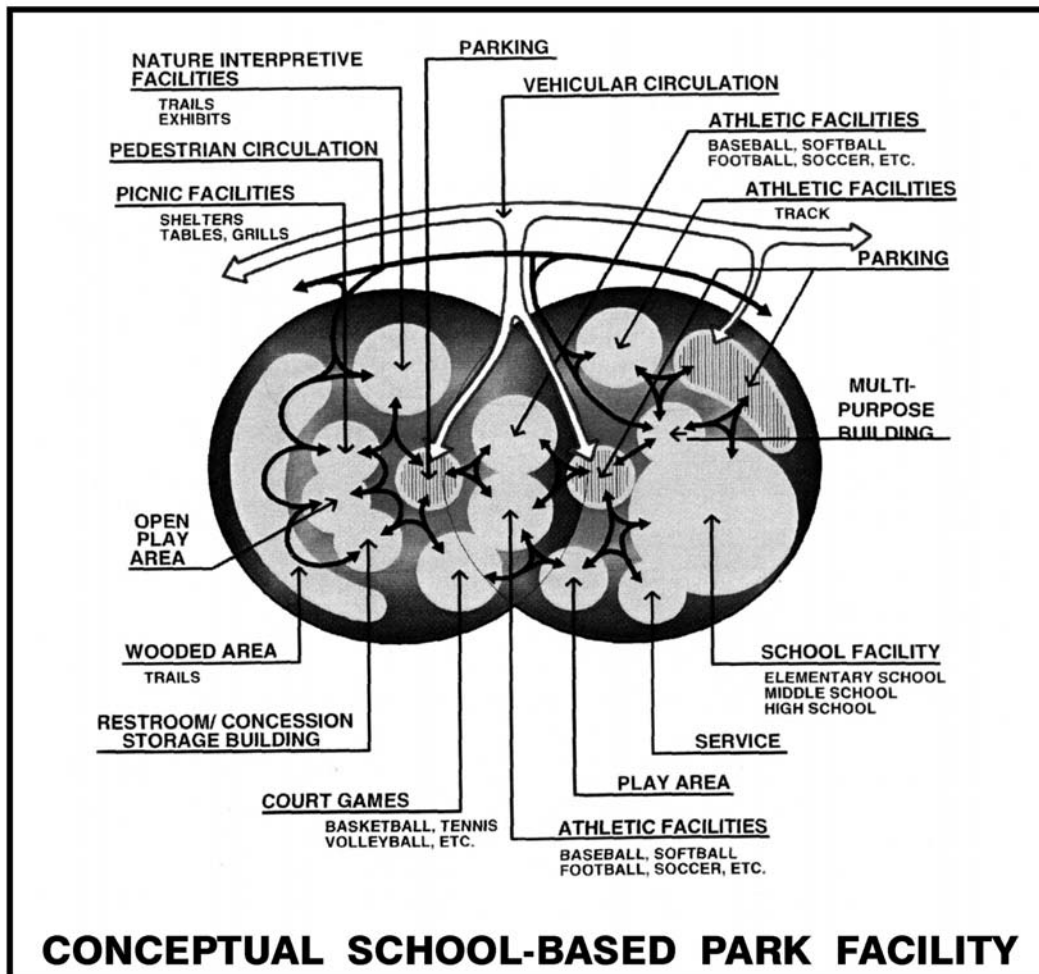
TABLE RP-10: SCHOOL-BASED FACILITIES AND LOCATIONS

Facility Name	Acres	Address	Existing / Undeveloped	Picnic Shelter	Restrooms	Parking	Play Equipment	Concession	Baseball / Softball	Soccer / Football	Basketball	Tennis	Track	Gym / Multi-Purpose
Skipwith Elementary	20.	2401 Skipwith Road	E			Y	Y		1		2		1	1
Springfield Park Elementary	19.1	4301 Fort McHenry Parkway	E			Y	Y			1			1	1
Staples Mill High	98.1	10700 Staples Mill Road	U											
Three Chopt Elementary	16.0	1600 Skipwith Road	E			Y	Y			1	3		1	
Trevvett Elementary	14.4	2300 Trevvett Drive	E			Y	Y		2	1	2		1	1
Tuckahoe Elementary	10.2	701 Forest Avenue	E			Y	Y			1	1			1
Tuckahoe Middle	22.7	9000 Three Chopt Road	E			Y			2	1	2	4	1	1
Tucker High	41.8	2910 Parham Road	E			Y		1	2	1	2	7	1	1
Twin Hickory Elementary	19.6	4900 Twin Hickory Lake Drive	E			Y	Y			1			1	1
Varina Elementary	29.8	2551 New Market Road	E			Y	Y		2		1		1	
Varina High	43.2	7053 Messer Road	E			Y		2	2	2	2	7	1	1
Ward Elementary	21.1	3400 Darbytown Road	E			Y	Y			1			1	1
West Area Elementary	29.7	5680 Pouncey Tract Road	U											
West Creek Middle	30.2	600 Concourse Boulevard	U											
Wilder Middle	58.5	6900 Wilkinson Road	E			Y		1	2	6	2	4	1	1

School-Based Facilities

These facilities vary in acreage and are intended to offer a wide variety of active and passive recreational opportunities in conjunction with elementary, middle and high school facilities. These sites include high-quality facilities accommodating organized and non-organized athletics, recreational programs and events, interpretive facilities, and support facilities such as parking, picnic facilities, open play areas, restrooms, concessions and play apparatus.

FIGURE RP-6: CONCEPTUAL SCHOOL-BASED PARK FACILITIES



SCHOOL-BASED FACILITIES MAP

LEVELS OF SERVICE

Due to increasing land costs and the limited availability of suitable sites, many of the traditional, proximity-based techniques associated with recreation, parks and open space planning are no longer appropriate for use in the county. This is an increasingly common occurrence in urbanizing localities, and may be addressed in a variety of ways. Similar localities have instituted higher levels of park programming at existing facilities, increased hours of operation and forged joint development relationships with other jurisdictions and organizations.

For recreation and park planning purposes, Henrico County is divided into three (3) planning areas as shown on the Park Facilities Map. The areas are 1) from the western border to Interstate 95 (Western Area); 2) between Interstate 95 and Interstate 64 (Central Area); and 3) east of Interstate 64 (Eastern Area). These boundaries coincide with those used in preparing Levels of Service (LOS) evaluations for other county services and help provide consistency in identifying surpluses and deficiencies in these services. In order to determine current Levels of Service (LOS), a county-specific acres per capita calculation (total developed acres of existing parks or square footage of existing facilities divided by the total current population) was performed and is presented in **Table RP-11**.

TABLE RP-11: PARK FACILITY LEVEL OF SERVICE STANDARDS

TYPE OF FACILITY	LEVEL OF SERVICE STANDARD
Neighborhood Parks	0.00007 acres per person
Community Parks (Including Athletic Facilities)	0.00023 acres per person
County Parks	0.0024 acres per person
Recreation Centers	0.29 square feet per person

This methodology is a *needs-based, facilities-driven, and land-measured* approach to recreation and park planning. It focuses on identifying specific *needs* as identified by the client population and after an examination of existing services, determining what *facilities* are required to fill these needs, and measuring the amount of *land* required to provide the identified facilities. Using these LOS standards, surpluses or deficiencies in the acreage of public lands devoted to recreation and park facilities can be quantified and this information can then be used to guide future acquisition and management decisions.

The following section of this chapter addresses the historic resources in the county.

HISTORIC RESOURCES

“In the beginning of September 1611, hee set sail, and arrived where he intended to build a towne. . .within ten or twelve daies he had invironed it with a pale, and in honor of our noble Prince Henry, called it Henrico.”

-The General Histories of Virginia, by Captain John Smith, 1624

Henrico County has a long and storied history. It was in Henrico that John Rolfe, who would marry the Native American princess Pocahontas, first cultivated tobacco and ensured the economic viability of the new Virginia colony. Henrico was also the site of Bacon’s Rebellion, conflicts during the Revolutionary War, and several major battles of the Civil War. As one of the oldest communities in the country, Henrico has abundant historic resources, and part of the Division of Recreation and Parks’ mission is to identify, preserve and interpret the rich history associated with these resources.

HISTORIC PRESERVATION ADVISORY COMMITTEE (HPAC)

The Historic Preservation Advisory Committee (HPAC), for which the Division provides staff support, was created in February, 1990 and advises the Henrico County Board of Supervisors regarding the identification, interpretation, rehabilitation, protection and preservation of historical and cultural resources located within the county. The Committee meets this charge in the following ways:

- Marketing and distributing historical publications
- Creating and promoting public awareness of historic preservation
- Developing a bureau of volunteer speakers, to share information on Henrico's local history to groups
- Encouraging the public to identify historical sites within the county not currently on the county-maintained inventory
- Providing information to interested citizens on the methods used in the preservation of historic properties
- Developing guidelines for determining the historical significance of county sites
- Promoting the local historical plaque and roadside marker programs
- Celebrating significant historical events for public appreciation
- Recognizing significant historic preservation projects on an annual basis

Historic Preservation and Museum Services Section

The county's Historic Preservation and Museum Services Section assists in these efforts using the following tools:

- The Historic Roadside Marker & Building Plaque Programs promotes awareness of Henrico County events and other historic resources of local significance. Roadside markers feature narratives that recognize an important person, place or event and historic plaques display the construction date of significant historical structures.
- The Division maintains an archive that serves as a repository for manuscripts, personal papers, correspondence, account books, receipts, photographs and video materials. The Sheppard Family papers (1770-1980) are deposited here as well as a collection of materials related to Gabriel's Rebellion and other significant events in local history.
- The *Inventory of Early Architecture* was first produced in 1976 and was updated in 1978, 1993 and 1998. This publication contains descriptions and photographs of more than one-hundred eighty (180) landmarks of interest, dating from the pre-Colonial era to the 1960s. It includes archeological sites, residences, churches and commercial and industrial structures.

CONCLUSION

The Henrico County system of parks, recreation centers, school-based facilities, and historic and cultural spaces provide residents and visitors alike the opportunity to participate in a wide range of leisure and cultural activities. As the county's population continues to increase, greater demands will be placed on the entire system. These demands can be met not only through site acquisition and facility construction, but also through innovative program design, continued joint use of school-based facilities where appropriate, continued identification and interpretation of historic and culturally significant places and structures, and coordination with other leisure service providers. Policies and recommendations are presented in the next section of this chapter to provide guidance in the future management of recreation, parks, open space and historic resources in Henrico County.

POLICIES AND RECOMMENDATIONS

The following policies and recommendations are based largely on those developed as part of the *Update 2015 Parks, Recreation, and Open Space Plan*. As was recognized in that planning process, they are “intended to be flexible and expandable, evolving and adapting as time goes on and opportunities arise.”

QUALITY OF LIFE

The Division of Recreation and Parks exists to enhance the quality of life and to foster a sense of well-being and community for the citizens of Henrico County. This is accomplished through management of resources and by facilitating leisure services and recreational opportunities in safe and well-maintained environments.

Policies

The policies listed below should be used to guide decisions related to improving the quality of life for residents and visitors to Henrico County.

1. Design and develop a system of parks, natural and historic resources, facilities and programs that meet the needs of a broad array of users.
 - a. Solicit the input of potential users in the planning and development of the parks and open space system.
 - b. Use demographic trends, recreational trends and standards, results of needs assessments, historic and cultural resources protection standards, and other available information to design a system that anticipates and addresses future needs.
 - c. Develop parks, facilities and programs that serve segments of the population with special needs.

SITING AND ACQUISITION

Investment in parks should be undertaken in the most efficient and cost-effective manner possible. Sites should be identified well in advance of need to help ensure the county can make sound decisions regarding the acquisition and construction of new facilities and balance those decisions against competing priorities. Efficiency and cost-effectiveness may require using existing infrastructure more intensively and expanding existing facilities in lieu of constructing or acquiring new parks.

Policies

The policies listed below should be used to guide decisions related to siting and acquisition of recreation and park land.

1. Encourage advance acquisition of land for parks throughout the county, especially in rapidly developing areas.
 - a. Identify areas where additional land is needed to meet the future needs of county residents.

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- b. Determine areas where additional land is available and determine whether available sites are suitable.
 - c. Allocate adequate funding for the acquisition and development of parks, open spaces and natural and historical resources.
 - d. Acquire sites through purchase, donation, lease, or other means as appropriate.
 - e. Conduct and maintain a county-wide comprehensive inventory of natural and historic resources to guide conservation and preservation efforts in the identification and potential acquisition of sites.
2. Phase the development of the park and recreation system to respond to service demand and population growth.
 - a. Develop a standard for acquisition and development of open space and recreational facilities based on national and State standards, demographic trends, recreational trends and standards, the results of needs assessments, historic, cultural, and natural resource protection standards, and citizen input.
 - b. Explore the desirability of accepting land for parks, open space, and possibly other public facilities and infrastructure during the development process.
 - c. Explore mechanisms to encourage the dedication of more and higher quality open space.
 - d. Encourage developers to dedicate parks and open space to the county, provide on-site recreation facilities managed and maintained by neighborhood associations, and/or preserve historic and natural resources through cluster development techniques for the future residents of the community. (See Cluster Subdivision Tool Box in Chapter 6: Community Character, for techniques for open space preservation in cluster subdivisions.)
 3. Actively pursue a wide range of alternative sources of revenue/funding for programs and facilities, such as gifts of land or direct funding for acquisition and development or preservation of open space, parks and recreational facilities and natural and historic resources where they are in the county's best interests.
 - a. Use established criteria to evaluate proposed gifts for park development to determine whether the proposed gifts would complement the existing and planned park system.
 - b. Pursue State and Federal funds, where appropriate, to assist in acquisition and development of parks, natural and historic resources, and open space and recreational facilities.

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- c. Explore opportunities for public-private collaboration to provide cultural, arts and recreational facilities.
 - d. Pursue Recreation Access Roadway funds, Community Development Block Grants, Land and Water Conservation Funds, Virginia Trail Funds, and other potential sources of funding to reduce the local cost of acquisition and/or facility construction.
 - e. Explore the feasibility of operating certain facilities and programs on a self-supporting basis, provided these facilities do not compete unfairly with private sector providers.
 - f. Explore additional public/private partnerships to provide cultural, arts and recreational facilities.
4. Seek opportunities to convert undeveloped property or property owned, but no longer used, by county, city, State and Federal governments to parks and recreational use.
 - a. Work with other departments or agencies to determine the feasibility of converting available, publicly-owned property to park or recreational uses as property becomes available.
 - b. Only pursue conversion of properties that would be beneficial to the parks and recreation system or recommended program use.
 5. Seek opportunities to provide open space and recreational uses in conjunction with major public and semi-public facilities.
 - a. Continue to work with Henrico County Public Schools, other county agencies and public and semi-public organizations to share recreational facilities for planned activities through memoranda of understanding.
 - b. Continue to seek opportunities for joint land acquisition with the Henrico County School Board and other agencies.

BALANCE

Parks, recreational facilities and open space should be geographically distributed throughout the county, located near the population they are intended to serve.

Policies

The policies listed below should be used to promote an equitable balance of parks, recreation facilities, and open space across the county.

1. Use the level of service standards as a means of identifying deficiencies and providing resource-based and school-based facilities throughout the county.
2. Strive to ensure that every household has access to adequate park, recreation and leisure opportunities.

- a. Develop an implementation plan that identifies and prioritizes additional acquisition, development and renovation projects to overcome any perceived shortfalls in levels of service and provide for a balanced system.
- b. Continue to seek appropriate co-location opportunities with the School Board and other county agencies in providing park and open space opportunities close to Residential areas.
- c. Provide recreation center facilities flexible enough to meet the specialized needs of populations to be served.

ECONOMIC DEVELOPMENT

The quality of recreational facilities has a direct impact on Henrico County's attractiveness for economic development. Amenities such as recreation facilities and cultural opportunities may help the county to continue to attract high quality employers. These amenities also help draw tourists and tourist revenue to the county.

Policies

The following policies should be used to promote economic development through the provision and protection of parks, recreation facilities, open space, and natural and historic resources in the county.

1. Recognize that the primary justification for investing in open space, parks, recreation, and natural and historic resources is to ensure a high quality of life for county residents, but that the availability of these features may also be attractive to visitors and businesses considering visiting or relocating to the county.
 - a. Continue to market the county's open space, parks, recreation, natural and historic resources as attractive amenities to economic development prospects.
 - b. Encourage the private sector to provide certain specialized facilities that may be attractive to some industrial and economic development prospects.
2. Adopt measures to establish the distinctiveness of major transportation corridors that contain open space or historic resources. (See Chapter 7: Planning & Economic Focus Areas for some identified corridors.)
 - a. Explore opportunities for overlay districts and other measures to improve and differentiate the visual appearance of entryways into distinct areas of the county. Such measures could include landscaping, distinct signage, streetscape buffers, impact controls and design standards. Target roadways that serve as the main transportation corridors into and through the county. (An overlay district is a zoning district that applies to a geographic area, usually organized around some physical feature, such as a road.)

- b. Study the appearance and function of other entryways into the county, such as the train station on Staples Mill Road and Richmond International Airport.
3. Increase efforts to actively promote tourism.
 - a. Study ways to increase tourism, such as establishing a museum and/or visitors' center, or joining forces with existing visitor centers in the area, to encourage increased visitation to Henrico attractions.
 - b. Study the feasibility of attracting more regional and national tournaments to Henrico's parks, athletic facilities and golf courses.
 - c. Encourage private development that makes Henrico a destination for tourism and capitalizes on historical and cultural resources in the county.

DESIGN FOR USER SAFETY AND COMPATIBILITY

The users' perceptions of safety or lack of safety in parks may have a direct impact on the parks throughout the county as well as the recreation programs. The real and perceived safety concerns in the parks should be identified and addressed.

The design alone will not guarantee a safe environment. Maintenance, proper scheduling of recreation activities and community involvement are also necessary components of a safe park facility. The viability of a park system is determinant on the use of facilities by county residents. The perception of safety in Henrico County parks is an integral part of the Division of Recreation and Parks.

Policies

The policies listed below should be utilized to provide safe and compatible parks, open space and recreation facilities in Henrico County.

1. Incorporate the concepts and strategies of CPTED (Crime Prevention Through Environmental Design) in existing and proposed park facilities as feasible and desirable. (See Chapter 6: Community Character for a description of CPTED strategies.)
 - a. Continue to use the Crime Prevention Unit within the Division of Police for review and redesign of existing and proposed recreation facilities.
 - b. Undertake safety assessments of the county's parks in coordination with the Division of Police.
2. Adopt practices that encourage safety on an ongoing basis.
 - a. Identify and address concerns and/or safety problems as soon as they occur. This could be accomplished through diligent maintenance of park properties, a speedy cleanup of any

- vandalized areas or the notification of proper authorities in the case of an emergency.
- b. Encourage county residents, neighborhoods and businesses located near a park facility to look at parks as their own and take “ownership” of the site or events at or near the site through the Division’s existing Park Watch program.
 - c. Recognize the need for police and/or county security to have access to facilities and provide such access. Continue to identify and pursue the use of technology (automated entry systems) to enhance park safety and improve access for the public. Seek additional opportunities for police, fire and emergency services personnel to become familiar with the location and layout of parks.
 - d. Post the hours of operation and other rules for the park at all access points into park facilities. These access points should also include walkways and bike paths.
 - e. Provide adequate and appropriate lighting for each park facility.
 - f. Coordinate with the Division of Police to assess the safety of potential park-school connections and to identify measures to improve safety.
 - g. Establish design criteria for joint school/park facilities to ensure that park users can get to park areas.
3. Adopt design measures and management practices that help parks and recreation facilities fit into the surrounding community.
- a. Continue efforts to seek citizen input during the master planning process for new facilities and seek appropriate input during phased development using civic associations, neighborhood watch groups, block associations, special interest user groups and county residents at large.
 - b. Protect both parks and adjacent neighborhoods through deliberate design and use of physical buffers to include landscaping and appropriate fencing as necessary to distinguish park boundaries from adjacent private property.
 - c. Whenever possible, establish legitimate and safe access to park facilities from adjacent neighborhoods. Access design should ensure that park limits are clearly demarcated so park users will not be drawn onto adjacent private property.
 - d. When master planning parks, anticipate and minimize possible points of conflict or concern regarding facility lighting, noise and traffic.

4. Continue to maintain parks to a high level of cleanliness and attractiveness in order to encourage use and good stewardship among users and neighbors.
 - a. Ensure sufficient staffing and resources to perform necessary maintenance.
 - b. Use community volunteer organizations to help maintain facilities. Encourage the “adoption” of parks to supplement maintenance efforts.

RESOURCE/HERITAGE PROTECTION

The county continues to recognize the need for the preservation of historic resources and has had a structured system since 1976. Preservation of both natural and historic resources is important for future generations and promotes values that strengthen a community. Often, the preservation of historical sites also assists in natural and environmental protection. Both of these factors are essential to providing a high quality of life for residents and have a direct impact on the county’s attractiveness for economic development. Preserved historic and natural sites have become attractive recreation facilities and provide cultural opportunities to enhance the quality of life in Henrico County.

The protection of historic resources is to provide ongoing guidelines and strategies to guard against their loss. The preservation of historic resources is to actively save significant structures and sites. The conservation of historic resources is to provide plans that define a vision for safekeeping of historic structures or sites before they are damaged or lost.

Policies

The policies listed below should be used to assist in the protection, preservation and conservation of historic resources in the county.

1. Seek funding and other mechanisms to protect and preserve vital resources.
 - a. Protect designated and proposed scenic highways and rivers in order to preserve their special qualities. (See Chapter 7: Planning & Economic Focus Areas for identified corridors.)
 - b. Participate in Federal, State, and local programs that offer grants for the preservation of historic and natural resources. These funds are available for county-wide historical and natural preservation plans, surveys, and historic rehabilitation projects.
 - c. Pursue partnerships with organizations like Keep Henrico Beautiful to participate in joint projects to protect resources and enhance communities.
 - d. Acquire appropriate sites as a means to protect both historic and natural resources as they become available.

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2. Maintain a sense of historical continuity through the preservation of sites, buildings, structures and objects important to our heritage.
 - a. Promote comprehensive historical and archeological preservation planning in coordination with public facilities, land use, transportation and private development efforts.
 - b. Develop criteria for determining which sites are worthy of protection.
 - c. Develop incentives for preserving historic sites/structures in their original settings.
 - d. Support Federal and State legislation that promotes historic and cultural preservation and development while respecting private property rights.
 - e. Encourage private property owners to nominate noteworthy sites and/or structures to the Virginia and/or National Register of Historic Places. Apply for designation of eligible county-owned sites.
 - f. Seek Federal and State funds to provide public access to historic sites and structures that are open to the public. Encourage developers to provide access to historic sites and structures as part of the development process.
 - g. Encourage owners of property included on the *Virginia Register* to consider the *Virginia Historic Landmark Commission's Historic Easement Program*.
 - h. Adopt standards for the preservation, reuse, and management of county-owned historic resources and sites.
 - i. Continue to assist developers during the planning process through appropriate recommendations for the protection and interpretations of significant historic resources.
 - j. Encourage development of a museum system that could serve as a cultural resource and focal point for community heritage.
 - k. Explore public/private partnerships in the creation and development of a Henrico County museum.
 - l. Regularly update the *Inventory of Early Architecture*.
3. Encourage residents and tourists to visit historic and cultural sites open to the public.
 - a. Highlight historic and cultural resources in the county through tourism promotional literature, direct marketing and advertising.

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- b. Identify potential visitors to historic and cultural resources in the county through citizen and consumer surveys, direct marketing appeals and direct advertising.
- c. Identify sites and resources protected by other governmental agencies or groups and promote these resources as tourist attractions in promotional literature, direct marketing and advertising.

ACCESSIBILITY

The county has an inventory of over 1,826 acres of developed or partially developed parkland and over 1,600 acres of undeveloped parkland. The primary means of access to these sites is via of automobile; however, to alleviate congestion on county roadways, there may be instances where alternative access is appropriate. Where pedestrian and bicycle access can be provided, getting to the park may be as much a part of the recreational experience as being there.

Closely related, the county possesses many important natural features, most notably the Chickahominy and James Rivers. Better access to these features, through publicly held lands, should continue to be explored. Easements over privately held land are not proposed to provide access.

Policies

The policies listed below should be used to provide accessibility to the various public facilities and natural resources in the county.

1. Establish access to park facilities on lands owned by the county or on lands dedicated specifically for the purpose of bicycle and pedestrian access.
 - a. Undertake an inventory of sidewalks maintained by the county to determine which parks are already served by sidewalks.
 - b. Study the feasibility of requiring the construction of sidewalks within one (1) mile of county parks as adjacent lands are developed.
 - c. Pursue additional public access to the James River and Chickahominy River.
 - d. Ensure a high degree of access within parks for all parks users.

PROGRAMS AND FACILITIES

The county recognizes the need for innovative, high quality programming throughout the park system to benefit Henrico residents. The needs assessment reflects citizen opinion and highlights the activities in which they participate. The needs assessment overall indicates a high level of customer satisfaction, yet challenges the Division of Recreation and Parks to ever higher standards of programming.

Policies

The policies listed below should be used to guide the Division of Recreation and Parks in the development of new programs and facilities.

1. Continue to review and assess program offerings and objectives using citizen input, program trends and county population trends to ensure they continue to meet the needs of the entire community. Develop new programs as necessary.
 - a. Develop countywide full service recreation centers to meet the needs of an ever growing and changing population.
 - b. Continue to seek partnerships and cooperative arrangements with private sector and other levels of government to move into new program areas and develop innovative facilities.



CHAPTER 10: TRANSPORTATION

OVERVIEW

A good county transportation network plays a critical role in the ability to travel in a safe manner, promoting the local economy and minimizing traffic congestion. A good transportation network also offers multiple modes or options for transportation including, but not limited to, walking, bicycling, bus services and automotive travel. Henrico County's transportation system is proactively planned, and improvements typically are timed to occur as land development creates the need for increased access and mobility. System management of the supply and demand for transportation is essential.

This chapter addresses travel by automobile, walking, cycling, bus, train and airplane. The public rights-of-way within the county's road network are shared by motorists, pedestrians, cyclists and bus riders. Henrico County is responsible for the roadways within its jurisdiction with the exception of State routes and interstates. As a result, the county's Department of Public Works oversees that all engineering, construction and maintenance of roads, sidewalks and transit service adheres to the acceptable standards with the efficient use of capital expenditures. This chapter provides general guidance for decisions affecting the county's transportation system and resources and briefly details the county's new regional travel demand model developed as part of the Comprehensive Plan.

TRAVEL MODES

The following section describes the travel modes in Henrico County and provides policy guidance for future decisions.

PEDESTRIANS

Safe pedestrian facilities are an important component to the county's overall transportation network. Within developed areas, residents use existing sidewalks and trails for recreation and travel. The recommendations contained in Chapter 5: Land Use encourage the development of Mixed-Use town centers and other forms of Mixed-Use development which promote pedestrian movement. Pedestrian activity typically is greater in these types of developments because distances between origins and destinations tend to be shorter. The *Zoning and Subdivision Ordinances* will be amended to promote high-quality, diverse land use patterns including Mixed-Use town centers, Traditional Neighborhood Developments (TND), and villages, all of which are pedestrian-friendly. The *2004 Richmond Regional Bicycle and Pedestrian Plan*, a VDOT-funded regional study of potential bicycle and pedestrian routes, demonstrated strong public interest in walking in Henrico County.

Pedestrian Facility Policies

The following policies should guide the provision of pedestrian travel:

1. Encourage new developments to install sidewalks and other pedestrian facilities. Connections to other neighborhoods and key destinations such as schools, libraries, parks, etc., are also encouraged.
2. Require sidewalks and other pedestrian pathways along all new and reconstructed major thoroughfares (see Major Thoroughfare Plan Map) excluding interstate highways and other controlled-access roads.

BICYCLES

The *2004 Richmond Regional Bicycle and Pedestrian Plan* demonstrated strong public interest in bicycling in Henrico County. A variety of facility types to accommodate bicycle traffic were highlighted, ranging from wider lanes on roadways to striped bicycle lanes and off-road trails and bikeways. The location of signed bike routes and the proposed Capital to Capital Trail are shown on the Bicycle Map. It is recognized that the county's four-lane, median-divided roads can be used by advanced bicyclists adept at riding with vehicular traffic; however, less experienced cyclists may find these roadways difficult to travel. The county's extensive recreation and parks areas may be appropriate for less experienced bicyclists including families with children. Serving citizens with intermediate bicycling capabilities and providing routes for alternative modes of travel should be examined by the county.

Bicycle Facility Policies

The following Policies should guide the provision of bicycle facilities in the county.

1. Facilitate bicycle travel along all planned and existing designated, long-distance bicycle routes in the county (Rtes 1, 76 and VA Capital to Capital Trail) through use of signage, shared lanes, bike lanes and shared use paths.
2. Consider the accommodation of bicycles in the planning and design of all major road projects where feasible.
3. Encourage bicycle accommodations in conjunction with new development.
4. Consider the development of a county-wide bicycle plan in order to identify and evaluate potential locations for bicycle facilities.

BICYCLE ROUTES MAP

BUS SERVICE

Public transportation in Henrico County is provided by the Greater Richmond Transit Company (GRTC) which has regularly scheduled stops along major routes. GRTC also provides express service for commuters into and out of Richmond. County services operate Monday through Friday 6:00 a.m. to 7:00 p.m. GRTC's specialized transportation for the disabled provides curb-to-curb service from 6:00 a.m. to 11:30 p.m., seven (7) days a week.

GRTC operates nine (9) local routes in Henrico County, and provides access to the City of Richmond. The bus system includes:

- The two (2) Orange Routes generally follow W. Broad Street west from Richmond City Hall to Pemberton and Staples Mill Roads. One route ends at Westpark Shopping Center and the other near Parham Road at the Henrico Government Center.
- The Black Route, north of Richmond, offers access from central Richmond via Hermitage and Brook Roads and Chamberlayne Avenue to Grammarcy Circle and Azalea Avenue to Pony Farm Drive.
- The four (4) Purple Routes, serving the eastern portion of the county, generally follow Nine Mile Road to the Airport and Williamsburg and Darbytown Roads as well as the Mechanicsville Turnpike/Central Gardens area and Laburnum Avenue.
- The two (2) Blue Routes serve the western areas of the county, generally following Three Chopt Road to Regency Square Mall and Monument Avenue to St. Mary's Hospital.
- Additional Blue and Green Routes serve the central Richmond area and south of the James River.
- Express buses serve four (4) park-and-ride facilities and provide peak hour transit service for commuters to and from downtown Richmond. Curb-to-curb para-transit service is also provided for qualified county residents who are unable to use the fixed-route services. The Bus Service and Park-and-Ride Facilities Map illustrates the current bus routes and park-and-ride facilities.

Bus Service Policies

The following policy should guide the provision of bus service in the county.

1. Continue to monitor citizen satisfaction with GRTC service and ensure a bus system that provides adequate service to the residents of the county.

BUS SERVICE & PARK AND RIDE FACILITIES MAP

PASSENGER TRAIN SERVICE

The Staples Mill Amtrak station is located about a quarter of a mile north of the intersection of Glenside Drive and Staples Mill Road and is one (1) of three (3) stations serving the Richmond metropolitan area, providing access to the national Amtrak network.

A study of alternatives and the environmental consequences of implementing passenger light rail transit service in an exclusive right-of-way in the Richmond region was completed in June 2003 by the Richmond Metropolitan Planning Organization (MPO). Candidate corridors favored by a regional transit study group included two (2) routes, which could be combined into one interlined transit route. These are:

1. **Short Pump Route** – Using either (or both) W. Broad Street or the edge of I-64, passenger rail service would travel about fourteen (14) miles to connect the Short Pump area near the interchange of I-64 and I-295 with downtown Richmond’s Main Street Station and points in between. Envisioned to serve growth around and west of Short Pump, it is possible the true benefit could be realized along the W. Broad Street areas of the City of Richmond and Henrico County. This route would support redevelopment of properties as private property owners compete with newer commercial and Mixed-Use developments in outlying areas. The study forecasted ridership of more than 30,000 people per weekday.
2. **Airport Route** – Using one (1) of four (4) alternate routes, passenger rail service would travel about seven (7) miles to connect Main Street Station in downtown Richmond with Richmond International Airport. The potential exists to serve Henrico neighborhoods that lie between the airport and downtown; however, the primary objective of moving airport passengers to and from downtown rapidly would be diminished with each additional train stop. Alternate alignments studied included the use of the following general corridors: Nine Mile Road, Williamsburg Road and the CSX railroad just south of the airport property.

Passenger Train Service Policies

The following policies should guide the provision of rail services in the county.

1. Participate in regional efforts to monitor and evaluate the potential demand for passenger train and light rail service within the county pursuant to regional studies and encourage service that benefits the general welfare of county residents and businesses.
2. Consider potential station locations in the design of Mixed-Use developments particularly in areas where preferred routes have been identified.

RAIL CARGO SERVICE

Two (2) major railroad companies operate in Henrico County: CSX and Norfolk Southern (NS). CSX maintains Acca Yard as its primary facility with approximately twenty (20) tracks providing such freight services as classification, bulk transfer, rail car maintenance, industrial switching and staging. Many of the rail shipments along the Acca Yard rail lines are coal, which is primarily moving through the region and is not an origin or destination commodity.

Acca Yard is physically constrained and expansion would be costly. A regional need has been identified for an intermodal (rail-truck) transfer facility in the Richmond Area Metropolitan Planning Organization's *2026 Long-Range Transportation Plan* (LRTP). Acca Yard was one (1) of seven (7) sites considered for an intermodal transfer facility, but the cost to obtain the necessary land for expansion was prohibitively high. In addition, Acca Yard is one of the most congested facilities on the east coast and Norfolk Southern does not operate at the yard.

CSX also has rail sidings and spurs at the Richmond International Airport. Generally, CSX operations are intended to serve north-south corridors while Norfolk Southern services east-west corridors.

Rail Cargo Service Policies

The following policy should guide the provision of cargo rail service in the county.

1. Continue to participate in regional efforts to evaluate potential investments of State and Federal funds to improve rail cargo facilities in the region and encourage service that benefits the general welfare of county residents and businesses.

AIR TRAVEL SERVICE

Richmond International Airport (RIC) is located in eastern Henrico County and serves Central Virginia's air transportation needs by providing passenger and air cargo service. The airport's location is easily accessible via I-64, I-295 and Route 60 with future plans to provide more direct access to Route 895.

The airport is owned and operated by the Capital Region Airport Commission, a political subdivision of the Commonwealth of Virginia, whose governing board consists of fourteen (14) members appointed by the City of Richmond and the Counties of Henrico, Chesterfield and Hanover. The airport master plan was amended in 1999, and is currently in the process of being updated. This facility can accommodate additional commercial airline operations with available gates, ticketing areas and airfield capacity.

The airport has recently completed a major capital improvement program which included: a concourse expansion; the addition of ten (10) new airline gates; the construction of a two-level terminal curbside and the renovation of the terminal building to provide for separate arrival and departure levels; the construction of a new Federal Aviation Administration (FAA) air traffic control tower; and the construction of additional parking facilities, including garages. Construction is currently underway to improve Airport Drive to a four (4) lane divided roadway on airport property from Clarkson Road

to Charles City Road in addition to providing improved access to the terminal building from Airport Drive.

RIC is the gateway for Virginia's Capital Region, with annual passenger traffic volume exceeding 3.6 million in 2007. Nine (9) airlines offer approximately two-hundred (200) daily non-stop flights between Richmond and twenty-two (22) domestic destinations.

Air Travel Service Policies

The following policies should guide the provision of air travel service in the county.

1. Continue to have representation on the Capital Region Airport Commission.
2. Monitor and regulate land use and zoning in areas near the airport for compatibility in order to support current and future operations.

ROAD FACILITIES

The Department of Public Works currently maintains eighty percent (80%) of the county's roadway lane-miles, while the Virginia Department of Transportation (VDOT) maintains the other twenty percent (20%). With such a high percentage of roads under its management, the county recognizes its responsibility to efficiently move large volumes of traffic and provide integrated inter-county and intra-county mobility. This responsibility provides opportunities to create a well-designed road network contributing to the county's identity and high quality of life. The county also seeks to protect valuable historic, natural and cultural resources from incompatible transportation improvements through sensitive project design that respects or incorporates the resources responsibly.

Henrico County uses a variety of techniques to successfully manage both safety and efficiency along high-volume, multi-lane roads. These techniques include: the strategic review of driveway locations; frequent use of raised-curb medians; and a traffic monitoring approach that measures congestion, referred to as level of service. The county also intends to improve traffic flow along select arterials through the implementation of coordinated signal timings.

The careful placement of raised-curb medians is the most common method used in the county to support optimal signal timing and reduce unnecessary traffic flow interruptions from left turn queues or driveways sited at less than ideal locations. Medians may limit direct access to some properties along a corridor, so median placement should be carefully considered. The county will continue to include raised-curb medians and other alternatives in arterial street design and construction, because of safety and road capacity advantages. However, consideration will be given to allowing right-in/right-out only driveways at strategic locations in order to lessen the side-street traffic demand at nearby major intersections. In addition, the county will continue to place an emphasis on the use of shared driveways and inter-parcel connections for developments in order to manage access along its thoroughfares and promote internal capture of trips in Mixed-Use developments.

Road Facility Policies

The following policies should guide the provision of road facilities:

1. Monitor levels of service to identify changes in traffic congestion and evaluate alternative counter-measures to maintain or improve traffic conditions in the county.
2. Consider right-in/right-out only driveways at strategic locations for their potential to lessen traffic volumes and improve levels of service at nearby critical intersections.
3. Continue to coordinate traffic signal timing plans along strategic corridors. State and Federal transportation funds are available for signal coordination upgrades because of demonstrated benefits to motorists and the general public through air quality improvements. The corridors should continue to be evaluated as dictated by changes in background traffic volumes and traffic generated by new development.

Additional policies associated with the roadway network are included as part of this chapter under Land Use and Transportation Coordination.

EXISTING ROAD CONDITIONS

Existing base year (2004) and future year (2026) roadway network link levels of service were evaluated using the Richmond/Tri-Cities MPO Travel Demand Model. Under the existing scenario, the major thoroughfares within the county’s network generally operate at acceptable levels of service across a majority of the network. Even in the western portion of the county, where development is more intense, deficient levels of service along roadway links are rare, although congestion at signalized intersections is more prevalent.

Table T-1: Base Year Deficiencies contains a list of county roadway segments which were found to be operating at deficient levels of service (D or worse) in the 2004 base year.

TABLE T-1: BASE YEAR DEFICIENCIES

Facility	From	To
E. Williamsburg Road *	Elko Road	New Kent County Line
Darbytown Road	Oakland Road	East of S. Laburnum Avenue
New Market Road *	Osborne Turnpike	I-295
River Road	Sleepy Hollow Road	East of Chippenham Parkway
Derbyshire Road	Gaskins Road	Sleepy Hollow Road
Pouncey Tract Road *	Shady Grove Road	W. Broad Street
Nuckols Road	I-295	West of Shady Grove Road

* Indicates roads maintained by VDOT.

The Department of Public Works has identified various locations throughout the county for spot improvements at intersection or interchange locations and at locations where opportunities exist to improve a roadway’s alignment. This information can be found in **Table T-2: Alignment Improvements**.

The improvement locations are shown on the Henrico County 2026 Major Thoroughfare Plan Map included later in this chapter. Improvements to the locations listed below may be made as development occurs, through public-private partnerships, or through funding provided by the county or State/Federal agencies. County staff also has identified the following signalized intersections which currently rank among the most congested in the county:

- W. Broad Street and Pouncey Tract Road/Pump Road *
- W. Broad Street and Glenside Drive *
- E. Parham Road and Brook Road *
- Parham Road and Patterson Avenue *
- S. Laburnum Avenue and Williamsburg Road *
- S. Laburnum Avenue and Gay Avenue
- E. Parham Road and Staples Mill Road *
- Laburnum Avenue and Mechanicsville Turnpike *
- W. Broad Street and Parham Road *

* Indicates intersections maintained by VDOT.

TABLE T-2: ALIGNMENT IMPROVEMENTS

Location	Opportunity
N. Gayton Road and I-64	New Interchange
N. Parham Road and Patterson Avenue	New Interchange
Route 895 and Wilton Road	New Interchange
I-295 and Portugee Road	New Interchange
E. Williamsburg Road and Technology Boulevard	Intersection Improvement
E. Williamsburg Road and Memorial Drive	Intersection Improvement
New Market Road and Concept Road 192-1	Intersection Improvement
New Market Road and Doran Road	Intersection Improvement
New Market Road and Turner Road	Intersection Improvement
New Market Road and Kingsland Road	Intersection Improvement
New Market Road and Long Bridge Road	Intersection Improvement
New Market Road and Concept Road 2026-24	Intersection Improvement
New Market Road and Concept Road 2026-21	Intersection Improvement
New Market Road and Concept Road 2026-26	Intersection Improvement
New Market Road and Concept Road 2026-22	Intersection Improvement
New Market Road and Concept Road 2026-19	Intersection Improvement
Carters Mill Road and Long Bridge Drive	Intersection Improvement
Charles City Road and Darbytown Road	Intersection Improvement
Carters Mill Road – North of Charles City County Line	Alignment Improvement
Charles City Road – West of Hines Road	Alignment Improvement

2026 FUTURE DEVELOPMENT SCENARIO

As part of the development of the Plan, a travel demand model has been developed to assist in the analysis of the transportation system for the county. The model has been developed by building upon the existing transportation network and assuming reasonably restrained conditions from the 2026 Richmond MPO's *Long Range Transportation Plan*, the proposed Henrico County 2026 Major Thoroughfare Plan as well as projects in the current *County Capital Improvement Program* and VDOT's *Six Year Improvement Program*. Some minor facilities in the above-referenced documents were not included because the regional scale of the travel demand model is built at a regional scale. Their exclusion, however, does not have a significant effect on the overall model output.

A future year deficiency analysis was conducted using the county's projected 2026 land use as shown in Chapter 5: Land Use. The recommended roadway improvements generated by the model analysis are listed in **Table T-3: 2026 Recommendations for Roadway Widening**.

TABLE T-3: 2026 RECOMMENDATIONS FOR ROADWAY WIDENING

Facility	From	To	Recommended Cross-Section
New Market Road	Richmond City Line	Bradbury Road	6 lane divided
Osborne Turnpike	County Line	N. of Route 895	4 lane divided
S. Laburnum Avenue	Route 895	Carolina Avenue	6 lane divided
Charles City Road	S. Airport Drive	Gill Dale Road	4 lane divided
E. Williamsburg Road	New Kent County Line	Beulah Road	4 lane divided
E. Williamsburg Road	Beulah Road	Richmond City Line	6 lane divided
Memorial Drive	Turner Road	Technology Boulevard	4 lane divided
Elko Road	White Oak Road	Meadow Road	6 lane divided
Elko Tract Road	Technology Boulevard	Elko Road	4 lane divided
Darbytown Road	Richmond City Line	Doran Road	4 lane divided
Beulah Road	Whiteside Road	Charles City Road	4 lane divided
Willis Church Road	New Market Road	Carters Mill Road	4 lane divided
Bradbury Road	New Market Road	Long Bridge Road	4 lane divided
Seven Hills Road	S. Laburnum Avenue	Charles City Road	4 lane divided
Strath Road	New Market Road	Darbytown Road	4 lane divided
Pouncey Tract Road	Shady Grove Road	W. Broad Street	4 lane divided
Nuckols Road	Shady Grove Road	Springfield Road	6 lane divided
Cox Road	Nuckols Road	W. Broad Street	4 lane divided
Greenwood Road	Mountain Road	Mill Road	4 lane undivided
River Road	Gaskins Road	Willey Bridge	4 lane divided
N. Gayton Road	Pouncey Tract Road	Lauderdale Drive	4 lane divided
Woodman Road	Hungary Road	Mountain Road	4 lane divided

LAND USE AND TRANSPORTATION COORDINATION

Transportation projects are envisioned to support the Land Use Chapter. Locations of projected new residential and nonresidential areas are shown on the Future Land Use Map in Chapter 5: Land Use. The regional travel demand model maintained by the Richmond/Tri-Cities MPO was used to assess roadway capacity needs based on population and employment forecasts. (A complete description of the regional travel demand model methodology utilized in the transportation planning process is contained in Appendix D.) Reliance on existing roads to support the new growth is unreasonable; therefore, construction of new roads is anticipated and key in supporting Henrico County’s future growth. The location and spacing of new roads is directly related to the anticipated density of new development; that is, closer spacing of new roads is expected in areas of higher development density. The relationship between development density and average roadway spacing is shown in **Table T-4: Roadway Spacing Guide**.

TABLE T-4: ROADWAY SPACING GUIDE

	Development Density	Average Roadway Spacing Needs
Residential	Less than 2 dwelling units per acre	3,000 to 6,000 feet apart
Residential	2 to 4 dwelling units per acre	1,500 to 3,000 feet apart
Residential	More than 4 dwelling units per acre	750 to 1,500 feet apart
Village or Town Center	Mixed-Use residential and nonresidential	400 to 1,500 feet apart

Source: Independent research conducted by Kimley-Horn and Associates, Inc.

Transportation-Related Land Use Policies

The following policies, as iterated in Chapter 5: Land Use, should guide the provision of transportation facilities and services in the county.

1. Consider the roadway spacing guide presented in **Table T-4: Roadway Spacing Guide** as the county evaluates applications for new development.
2. Ensure public facilities are in place or planned to be available to adequately serve and support new development. Only approve new development upon demonstration that adequate public facilities, as established in this Plan, are or will be available at the time of completion to maintain desired levels of service.
3. Design new development to provide interconnectivity with existing and future developments through the use of stub streets.
4. Discourage strip development along existing or new thoroughfares. This practice creates an undesirable development pattern and causes traffic and access issues, as well as preventing access from major corridors to large tracts of land that may be developed at a later time.

5. Promote high-quality development through compliance with site plan review and the *Design Guidelines Manual*, particularly related to landscaping, traffic and pedestrian circulation, signage, building design, placement and orientation.
6. Focus on promoting a high quality of life for residents by providing safety and stability within neighborhoods.
7. Use the road network on Residential areas to promote safety and connectivity with existing and future development. Rather than focusing traffic on a few arterial or collector streets, more “through streets” are encouraged to disperse traffic and to reduce isolated impacts at certain points.
8. Encourage pedestrian orientation as the emphasis of Mixed-Use developments when designing buildings and public space. Discourage the accommodation of the automobile as a prominent land use or dominant visual feature. Promote structured parking to preserve land area within Mixed-Use developments for open space or more economically beneficial uses.
9. Promote the careful planning and management of traffic circulation and access so each Mixed-Use development operates as a coordinated circulation system. A strong interconnected street network is essential to the function of Mixed-Use areas. These systems need not be a typical grid but may retain some curvilinear character with sufficient crossroads and access locations to promote adequate levels of service as specified in this Plan.
10. Provide convenient access to, and when possible, visibility from the regional transportation systems including highways, airport and rail for Office/Service/Industrial areas. Vehicular access should be designed to maximize efficiency and minimize negative levels of service impacts on the surrounding road network.
11. Discourage and avoid the strip development of major thoroughfares with new Retail/Commercial development. Promote concentrations of Retail/Commercial uses in well-designed centers that apply appropriate access management techniques as the preferred configuration.
12. Encourage access management for the success of Retail/Commercial uses. Access points should be designed to provide adequate visibility for businesses while mitigating negative impact on the levels of service on the roadways.
13. Give special attention to access management and site configuration when existing Retail/Commercial areas are redeveloped to minimize traffic impacts often associated with strip development.

THE MAJOR THOROUGHFARE PLAN

The depiction of new roadway corridors is intended solely to connect origins and destinations, not suggest precise lines where new roads must be built. Efforts were made to show new roadway corridors in areas likely to develop while avoiding or minimizing the extent of new roadways in areas that are environmentally, historically or culturally sensitive. Where practical, existing corridors are emphasized and, in some cases, used more efficiently by showing extensions and new connections to other major roads. The county intends to promote the implementation of interconnected roads as a means of spreading traffic demand across multiple corridors and shortening trip length for citizens.

The 2026 Major Thoroughfare Plan Map illustrates existing and proposed county roadways having a designated functional classification. Descriptions of each of the county's functional classifications are provided in the following section.

ROAD CLASSIFICATIONS

A classification system communicates the role of each road in the county's network. Henrico County has an established classification system that defines roads according to jurisdiction, function, and degree to which roadway access is managed.

Jurisdictional Class

Henrico County records show the county has jurisdiction over eighty percent (80%) of the lane-miles of roadways, with the remaining twenty percent (20%) under the jurisdiction of the Commonwealth of Virginia. The individual roadways maintained by VDOT are listed in **Table T-5: VDOT Maintained Roadways** and illustrated on the VDOT Maintained Roadway Map.

Functional Class

The functional class hierarchy of roads varies. The highest priority is on vehicular mobility and throughput on "controlled access" highways. The lowest priority is vehicular mobility on local streets. Major and minor arterials and major and minor collector streets fall in the middle of the hierarchy.

2026 MAJOR THOROUGHFARE PLAN MAP

VDOT MAINTAINED ROADWAY MAP

TABLE T-5: VDOT MAINTAINED ROADWAYS

Route #	Name of Facility	Beginning	End
Controlled Access Facilities			
64	Interstate 64	Entire Length	
95	Interstate 95	Entire Length	
195	Interstate 195	Entire Length	
295	Interstate 295	Entire Length	
895	Pocohontas Parkway	Entire Length	
Non-Controlled Access Facilities			
US 1	Brook Road	Entire Length	
Route 2 / US 301	Chamberlayne Road	Entire Length	
Route 5	Old Osborne Turnpike/New Market Road	Entire Length	
Route	New Market Road	Charles City County Line	Route 5
Route 6	Patterson Avenue	Entire Length	
US 33	Staples Mill Road	Entire Length	
US 33	Nine Mile Road	Richmond City Line	North Airport Drive (Rte. 156)
US 33 / 60	E. Williamsburg Road	Williamsburg Road (US 60)	New Kent County Line
US 60	Williamsburg Road	Richmond City Line	E. Nine Mile Road
Route 73	E. Parham Road	Brook Road (US 1)	I-95
Route 147	Huguenot Road	Huguenot Memorial Bridge	River Road
Route 147	River Road	Huguenot Road	Richmond City Line
Route 150	Chippenham Parkway	Parham Road / River Road	Richmond City Line
Route 156	Airport Drive	Hanover County Line	Williamsburg Road (US 60)
Route 156 / US	Williamsburg Road	Airport Drive	Elko Road
Route 156	Elko Road	E. Williamsburg Road (US 60)	Charles City Road
Route 156	Charles City Road	Elko Road	Willis Church Road
Route 156	Willis Church Road	Charles City Road	New Market Road (Route 5)
Route 157	Gaskins Road	Patterson Avenue (Route 6)	Quioccasin Road
Route 157	Quioccasin Road	Gaskins Road	Pemberton Road
Route 157	Pemberton Road	Quioccasin Road	W. Broad Street (US 250)
Route 157	Springfield Road	W. Broad Street	Staples Mill Road (US 33)
Route 161	Lakeside Avenue	Richmond City Line	Hilliard Road (Route 356)
Route 161	Hilliard Road	Lakeside Avenue	Brook Road (US 1)
Route 197	Westwood Avenue	Entire Length	
US 250	W. Broad Street	Entire Length	
Route 271	Pouncey Tract Road	W. Broad Street (US 250)	Goochland County Line
Route 301	Access Road	FR-653 / US 301 / I95	US 301 Upham Drive
Route 356	Hilliard Road	Staples Mill Road (US 33)	Lakeside Avenue
US 360	Mechanicsville Turnpike	Entire Length	

Controlled Access Roads

Vehicle access is allowed only at designated interchanges. Trip lengths on a controlled access facility are longer. With the exception of certain rush hour periods, these roads primarily are for inter-city travel.

The function of controlled access roads is to move large volumes of traffic through the metropolitan area, and to serve major population centers and civil defense activities with full control of access. Controlled access roads will:

- Not have direct access (driveways) to abutting properties.
- Relieve existing major arterial streets of excessive traffic.
- Provide interchanges with appropriate arterial highways.
- Provide rapid public and private service between large Residential areas, employment centers and the central business district.

The controlled access roads in the county are Interstate Highways 64, 95, 195, 295 and Route 895.

Major Arterials

These roads connect major centers of activity within the metropolitan area. Next to controlled access roads, major arterials are the highest traffic volume corridors and are designed to accommodate the longest trips within the area. These roads should carry a large portion of the total area traffic on a minimum of road mileage. Service to abutting land should be secondary to the provision of mobility for major traffic movements.

The function of major arterials is to provide high traffic volume and maximum travel service to and between regional centers of activity. Major arterials will:

- Create an integrated network providing both inter-county/city and intra-county service.
- Control entrances and encourage joint entrances to abutting property to ensure free-flowing, uninterrupted movement serving the highest traffic volumes while (secondarily) providing land access.
- Be located so all developed areas are within a reasonable distance from, and access is available to, the collector road system.
- Require a non-access strip for residential development along the road.
- Allocate land use activities to effectively distribute intensity along the road.

A complete list of the major arterial facilities in Henrico County is shown in **Tables T-6A and T-6B: Major Arterials.**

TABLE T-6A: MAJOR ARTERIALS (PARTIAL LINKS)

Major Arterials (Partial Links)	From	To
Charles City Road	Williamsburg Road	Turner Road
Charles City Road	Darbytown Road	Charles City County Line
Concept Road 48	Charles City Place	Concept Road 8
Old Osborne Turnpike	Richmond City Line	New Market Road
S. Airport Drive	Concept Road Airport Access	I-64
Turner Road	Charles City Road	Memorial Drive

TABLE T-6B: MAJOR ARTERIALS (FULL LINKS)

Major Arterials (Full Links)		
Brook Road	E. Parham Road	Patterson Avenue
Chamberlayne Road	Mechanicsville Turnpike	S. Laburnum Avenue
Chippenham Parkway	N. Laburnum Avenue	Staples Mill Road
Concept Road 70	N. Parham Road	W. Laburnum Avenue
Darbytown Road	New Market Road	Williamsburg Road
E. Laburnum Avenue	Parham Road	--

Minor Arterials

These roads augment the higher road classifications and they should not penetrate identifiable neighborhoods. Because of mobility and safety concerns for longer-distance trips, adequate access is provided through the use of turning lanes and signalization. These roads place more emphasis on land access and offer a lower level of traffic mobility than major arterials.

The function of minor arterials is to interconnect with and augment the major arterial system. Minor arterials will:

- Create an integrated network providing both inter-county and intra-county service.
- Be located so all developed areas are within a reasonable distance from, and access is available to, the collector road system.
- Control entrances and encourage joint entrances to abutting properties to assure free-flowing, uninterrupted movement serving the highest traffic volumes while (secondarily) providing land access.
- Require a non-access strip for residential development along the road.
- Control balanced land use activities to distribute intensity along the road.

A complete list of the minor arterial facilities in Henrico County is shown in **Tables T-7A and T-7B: Minor Arterials.**

TABLE T-7A: MINOR ARTERIALS (PARTIAL LINKS)

Minor Arterials (Partial Links)	From	To
Charles City Road	Turner Road	Darbytown Road
Creighton Road	N. Laburnum Avenue	Hanover County Line
Concept Road 7	Varina Road	South East I-295
Concept Road 8	Concept Road 46	Charles City Road
Concept Road 18	Gill Dale Road	Bradbury Road
Concept Road 133	Virginia Center Parkway	Greenwood Road
Forest Avenue(West End)	Three Chopt Road	Glenside Drive
Hungary Road	Springfield Road	Staples Mill Road
Jeb Stuart Parkway	Woodman Road	Brook Road
Libbie Avenue	Richmond City Line	W. Broad Street
N. Gayton Road	W. Broad Street	Pouncey Tract Road
Portugee Road	I-295	Memorial Drive
Pouncey Tract Road	Goochland County Line	Nuckols Road
S. Airport Drive	I-64	N. Airport Drive
Technology Boulevard	Memorial Drive	E. Williamsburg Road
Three Chopt Road	N. Parham Road	Richmond City Line
Woodman Road	E. Parham Road	Jeb Stuart Parkway

TABLE T-7B : MINOR ARTERIALS (FULL LINKS)

Minor Arterials (Full Links)		
Azalea Avenue	Gill Dale Road	N. Airport Drive
Bradbury Road	Glenside Drive	N. Gaskins Road
Concept Road 26	Hilliard Road	Nine Mile Road
Concept Road 43	Homeview Drive	Nuckols Road
Concept Road 73	Huguenot Road	Richmond Henrico Turnpike
Concept Road 120	John Rolfe Parkway	Ridgefield Parkway
Concept Road 144	Lauderdale Drive	River Road
Dumbarton Road	Meadowbridge Road	W. Nine Mile Road
Eastridge Road	Memorial Drive	Westwood Avenue
Gaskins Road	Monument Avenue	--

Major Collectors

Collector roads provide both access and service for local traffic movements within residential neighborhoods, commercial areas and industrial areas. The collector system may penetrate neighborhoods, collecting traffic from the local streets throughout the area and channeling it to higher-level roads. Major collectors provide a slightly higher level of mobility and a slightly lower level of access than minor collectors.

The function of major collectors is to collect and distribute traffic between local streets and arterial roads. Major collectors will:

- Be designed so that traffic movement at reasonable speeds compatible with residential neighborhoods is the primary function of the road.
- Provide access to and from major traffic volume generators.

- Control entrances and encourage joint entrances to provide safe and efficient traffic movement.
- Be identified within all developed areas.
- Provide shorter travel distances than arterials.
- Provide heavy vehicular traffic in industrial zones.

A complete list of the major collector facilities in Henrico County is shown in **Tables T-8A and T-8B: Major Collectors**.

TABLE T-8A: MAJOR COLLECTORS (PARTIAL LINKS)

Major Collectors (Partial Links)	From	To
Bethlehem Road	Dickens Road	Dabney Road
Beulah Road	Charles City Road	Whiteside Road
Church Road	Lauderdale Drive	Cox Road
Concept Road 3	Elko Road	Charles City Road
Concept Road 5	Turner Road	Darbytown Road/Turner Road
Concept Road 6	Doran Road/Pinefields Drive	Darbytown Road/Henry Ward Boulevard
Concept Road 9	Long Bridge Road	Darbytown Road/Concept Road 198
Concept Road 14	Pump Road	Concept Road 120
Concept Road 39	Buffin Road	New Market Road/Doran Road
Concept Road 45	Beulah Road	Portugee Road
Concept Road 46	Turner Road	Concept Road 8
Concept Road 71	Whiteside Road/Nash Road	Portugee Road
Concept Road 123	Springfield Road	Springfield Road/Francistown Road
Concept Road 139	Kingsland Road	New Market Road/Long Bridge Road
Concept Road 140	North of Cedar Knoll Lane	Dottrell Road
Concept Road 176	Beulah Road	Charles City Road/Britton Road
Cox Road	Ridgefield Parkway	Nuckols Road
Creighton Road	Richmond City Line	N. Laburnum Avenue
Forest Avenue (West End)	N. Ridge Road	Three Chopt Road
Gayton Road	Ridgefield Parkway	N. Gaskins Road
Hermitage Road	Hilliard Road	Woodman Road
Hungary Road	Staples Mill Road	Woodman Road
Mayland Drive	N. Gaskins Road	N. Parham Road
N. Gayton Road	Causeway Drive	W. Broad Street
Pouncey Tract Road	W. Broad Street	Nuckols Road
Shrader Road	E. Parham Road	Wistar Road
Skipwith Road	Three Chopt Road	N. Parham Road
Starling Drive	Patterson Avenue	Quioccasin Road
Three Chopt Road	Lauderdale Drive	N. Parham Road
Turner Road	New Market Road	Memorial Drive
Woodman Road	Hilliard Road	E. Parham Road

TABLE T-8B: MAJOR COLLECTORS (FULL LINKS)

MAJOR COLLECTORS (FULL LINKS)		
Basie Road	Concept Road 31	Midview Road
Bremner Boulevard	Concept Road 32	Mountain Road
Brittles Lane	Concept Road 38	N. Holly Avenue
Britton Road	Concept Road 52	Oakland Road
Bunche Street	Concept Road 99	Oakleys Lane
Carolina Avenue	Concept Road 180	Twin Hickory Lake Drive
Concept Road 1	Concept Road 184	Twin Hickory Road
Concept Road 19	Concept Road 198	White Oak Road
Concept Road 20	Dabney Road	Whiteside Road
Concept Road 25	Derbyshire Road	Wilkinson Road
Concept Road 27	Long Bridge Road	Willis Church Road
Concept Road 28	Masonic Home Lane	Willson Road
Concept Road 29	Meadow Road	Yahley Mill Road

Minor Collectors

These roads generally provide the same service as major collector roadways; however, minor collectors provide for a slightly lower level of mobility and a slightly higher level of access than major collectors.

The function of minor collectors is to collect and distribute traffic between local streets and arterial roads. Minor collectors will:

- Provide for shorter travel distances than arterials.
- Provide access to abutting property.
- Discourage “through” traffic on local streets.
- Encourage lower speeds on local streets.
- Control entrances to provide safe and efficient local traffic movement between local streets and the arterial system.

A complete list of the minor collector facilities in Henrico County is shown in **Tables T-9A and T-9B: Minor Collectors**.

TABLE T-9A: MINOR COLLECTORS (PARTIAL LINKS)

Minor Collectors (Partial Links)	From	To
Antigo Road	Colwyck Drive	Oakleys Lane
Bethlehem Road	Basie Road	Dickens Road
Beulah Road	Whiteside Road	W. Williamsburg Road
Church Road	Causeway Drive	Lauderdale Drive
Comet Road	Mayland Drive	Mayland Drive
Concept Road 4	Hines Road	Elko Road
Concept Road 12	Carters Mill Road	Long Bridge Road
Concept Road 13	Warriner Road	Warriner Road
Concept Road 15	Sadler Road/Ireland Lane	Sadler Grove Road/Sadler Road
Concept Road 21	Curles Neck Road	Turkey Island Road
Concept Road 22	Curles Neck Road	Concept Road 206
Concept Road 37	Twin Hickory Lane	Holman Ridge Road
Concept Road 50	Beulah Road	Concept Road 71
Concept Road 58	Holman Ridge Road	Concept Road 135
Concept Road 61	Concept Road 150	Yarnell Road
Concept Road 63	Shady Grove Road	Holman Ridge Road
Concept Road 65	Woodside Street	Woodside Street
Concept Road 69	Rasmussen Drive	Elko Road
Concept Road 86	Treva Road	Whiteside Road
Concept Road 91	Meadow Road	Dilworth Circle
Concept Road 95	Sanburne Parkway	Audubon Drive
Concept Road 98	Graves Road	Pondorosa Drive
Concept Road 105	Meadowview Lane	Cedar Fork Road
Concept Road 131	Kain Road	Perrywinkle Road
Concept Road 136	Colfax Road	Mill Road
Concept Road 137	Grey Oaks Park Drive	Nuckols Road
Concept Road 138	Willis Church Road	Warriner Road
Concept Road 165	Osborne Turnpike	Hickory Avenue
Concept Road 204	Bacova Drive	Concept Road 132
Concept Road 205	Curles Neck Road	New Market Road
Concept Road 207	Woodside Street	Burning Tree Road
Concept Road 209	Curles Neck Road	Concept Road 23
Gayton Road	Lauderdale Drive	Ridgefield Parkway
Hermitage Road	Staples Mill Road	Woodman Road
Hungary Road	Woodman Road	E. Parham Road
Impala Drive	Dumbarton Road	Glenside Drive
Jeb Stuart Parkway	Brook Road	Virginia Center Parkway
Lakeside Avenue	Glenside Drive	Brook Road
Mayland Drive	N. Parham Road	Skipwith Road
N. Gayton Road	Causeway Drive	Lauderdale Drive
Old Williamsburg Road	Old Whiteside Road	Dry Bridge Road
Shrader Road	End	E. Parham Road
Skipwith Road	N. Parham Road	W. Broad Street
Starling Drive	Quioccasin Road	Fargo Road
Westmoreland Street	City of Richmond Line	Thalbro Street

TABLE T-9B: MINOR COLLECTORS (FULL LINKS)

Minor Collectors (Full Links)				
25th Street	Concept Road 107	Fargo Road	Michael Road	Sanburne Parkway
Access Road	Concept Road 126	Evergreen Road	Mill Road	Sandy Lane
Ackley Avenue	Concept Road 132	Falconbridge Drive	Messer Road	Sleepy Hollow Road
Anoka Road	Concept Road 135	Falmouth Street	Miller Road	Southbury Avenue
Antioch Road	Concept Road 146	Farmington Drive	Millers Lane	Springdale Road
Antionette Drive	Concept Road 149	Finlay Street	Monaco Drive	St Charles Road
Appling Road	Concept Road 150	Fitzhugh Avenue	Monahan Road	Stoneleigh Road
Arrowdel Road	Concept Road 154	Fordson Road	Montclair Road	Stoney Run Parkway
Audubon Drive	Concept Road 157	Forest Avenue (East End)	Montpelier Street	Telegraph Road
Austin Avenue	Concept Road 167	Fox Downs Drive	N. Midview Road	Thalbro Street
Bacova Drive	Concept Road 168	Francis Road	N. Mooreland Road	Treva Road
Besler Lane	Concept Road 169	Francistown Road	N. Washington Street	Tuckernuck Drive
Betty Lane	Concept Road 171	Gay Avenue	Naglee Avenue	Turkey Island Road
Bickerstaff Road	Concept Road 172	Glen Gary Drive	Neale Street	Twin Hickory Lane
Blue Jay Lane	Concept Road 199	Glendale Drive	New Osborne Turnpike	Twin Hickory Road
Bremo Road	Concept Road 200	Gordon Lane	Newbridge Road	Twin Pine Road
Broad Meadows Road	Concept Road 201	Grapevine Road	North Run Road	University Boulevard
Bronwood Road	Concept Road 202	Graves Road	Northbury Avenue	University Drive
Brookmont Drive	Concept Road 203	Gray Oaks Park Drive	Oakleys Lane	Upham Drive
Buckingham Avenue	Concept Road 206	Hanover Road	Old Hanover Road	Varina Road
Buffin Road	Concept Road 208	Hart Street	Old Nuckols Road	Villa Park Drive
Burning Tree Road	Concept Road 210	Harvie Road	Old Springfield Road	Virginia Center Parkway
Cambridge Drive	Cool Lane	Hickory Avenue	Old Washington Highway	W. Broad Street Connector
Carters Mill Road	Copper Creek Lane	Hickory Bend Drive	Old Whiteside Road	W. Washington Street
Causeway Drive	Copperas Lane	Hickory Park Drive	Old Wyndham Drive	Walsing Drive
Cedar Fork Road	Courtney Road	Hines Road	Oregon Avenue	Waltham Drive
Charles Street	Crowncrest Drive	Hughes Road	Oronoco Avenue	Warren Road
Chauncey Lane	Curles Neck Road	Hunton Park Boulevard	Park Terrace Drive	Warriner Road
Church Run Parkway	Dabbs House Road	Huron Avenue	Penick Road	Warwick Park Road
Cleveland Street	Dan Street	Indale Road	Pepper Avenue	Watts Lane
Cloister Drive	Deep Bottom Road	Jacque Street	Perrywinkle Road	West Club Lane
Cloverdale Street	Denham Road	Kain Road	Pilots Lane	West End Drive
Colfax Road	Diane Lane	Kinvan Road	Pleasant Street	Westerre Parkway
College Road	Dill Avenue	Kirkwood Street	Pondrosa Drive	Westham Parkway
Colwyck Drive	Dilworth Circle	Klockner Drive	Purcell Road	Westham Station Road
Concept Road 10	Dogwood Oaks Drive	La France Road	Quarter Mill Road	Whitfield Avenue
Concept Road 11	Dominion Boulevard	Lanier Avenue	Raintree Drive	Wilmer Avenue
Concept Road 17	Dominion Club Drive	Lee Avenue	Ralston Road	Wilton Road
Concept Road 23	Donora Drive	Lewis Road	Rasmussen Drive	Winesap Drive
Concept Road 30	E. Cedar Fork Road	Library Road	Reynolds Road	Wistar Road
Concept Road 34	E. Washington Street	Lindsay Drive	Richmond Road	Wistar Village Drive
Concept Road 53	Eanes Lane	Locust Street	Roslyn Hills Drive	Woodside Street
Concept Road 68	Edenbrook Drive	Lourdes Road	Ryandale Road	Woodview Drive
Concept Road 74	Edgefield Street	Lydell Drive	S. Gaskins Road	Wyndham Lake Drive
Concept Road 100	Eisenhower Drive	Maplewood Road	S. Mooreland Road	Wyndham Park Drive
Concept Road 101	Eubank Road	Maybeury Drive	S. Ridge Road	Yarnell Road
Concept Road 104	Eunice Drive	Meredith Woods Road	Sadler Road	--

Major Access Roads

These roads generally serve abutting land with high levels of commercial and industrial development. Roads within business and industrial parks are prime examples. Because of the abutting land uses, these roads generally require higher design standards than local residential streets.

The function of major access roads is to provide access to existing or proposed commercial/industrial concentration centers. Major access roads, also will allow safe and efficient movement of goods and services.

A complete list of the major access road facilities is shown in **Tables T-10A** and **T-10B: Major Access Roads**.

TABLE T-10A: MAJOR ACCESS ROADS (PARTIAL LINKS)

Major Access (Partial Links)	From	To
Concept Road 143	Brooks Road	Magellan Parkway
Cox Road	Nuckols Road	End
Impala Drive	End	Glenside Drive
Old Williamsburg Road	End	E. Williamsburg Road
St. Charles Road	E. Parham Road	Magellan Parkway
Technology Boulevard	E. Williamsburg Road	End
Technology Boulevard	Memorial Drive	Portugee Road
Westmoreland Street	Thalbro Street	Maywill Street

TABLE T-10 B: MAJOR ACCESS ROADS (FULL LINKS)

Major Access (Full Links)		
Byrdhill Road	Elko Tract Road	Par Street
Concept Road 40	Emerywood Parkway	Park Central Drive
Concept Road 51	Enterprise Parkway	Prestwick Road
Concept Road 80	Franklin Farms Drive	Vawter Avenue
Concept Road 94	Glen Alden Drive	Vernon Road
Concept Road 97	Greendale Road	Waco Street
Concept Road 174	Mary Street	Willard Road
Concept Road 183	Maywill Street	Zulu Road
Discovery Drive	Old Staples Mill Road	--

Residential Collectors

These roads are not shown on the 2026 Major Thoroughfare Plan Map. They generally provide the same service as a minor collector at a slightly lower level of mobility and a slightly higher level of access than a minor collector. These roads are primarily located in residential areas. The function of a residential collector is to collect and move traffic between local streets or cul-de-sacs in residential neighborhoods and move traffic to minor and major collectors. Residential collectors will:

- Provide for longer travel distances than local streets within residential neighborhoods.
- Provide “through” access to abutting property.
- Discourage “through” traffic on local streets.
- Encourage lower speeds on local streets.
- Control entrances to provide safe and efficient local traffic movement between local streets and the arterial system.

Local Streets

These roads are also not shown on the 2026 Major Thoroughfare Plan Map. The function of a local street is to provide direct access to abutting land and to the collector system. Local streets will:

- Serve shorter travel needs.
- Provide direct access to abutting properties.
- Give priority to local traffic and pedestrians through a design that encourages low-speed operation.
- Require off-street parking, loading, unloading and access service.
- Require proper location and design of driveways, entrances and exits to ensure safe and efficient ingress and egress.
- Provide a local road network that supports low traffic volumes.
- Discourage connection with streets that serve a function higher than a minor collector.

TRANSPORTATION SYSTEM MANAGEMENT

As part of this Plan, a *Transportation System Management Manual* (TSM Manual) was prepared to address roadway design solutions that will reduce congestion on the county’s road network. This manual is included as Appendix E to this Plan. The *TSM Manual* details general practices to reduce and manage congestion, including specific improvement recommendations for seven (7) county corridors. The techniques for congestion management covered in the manual include:

- Traffic signal coordination
- On-site traffic signal circulation
- Non-traversable median treatments
- Median U-turn treatment
- Advanced left turn treatment
- Consolidated driveways
- Relocated driveways

- Improved intersection turning radii at intersections/driveways
- Left turn storage bays at major driveways
- Exclusive left turn lanes on minor approach and
- Emergency vehicle preemption

The manual also assesses and presents recommendations for improvements along the following corridors:

- Laburnum Avenue
- W. Broad Street
- Gaskins Road
- Parham Road
- Brook Road
- Woodman Road and
- Nuckols Road

Each of these congested corridors was found to be operating below an acceptable level of service with expectations of additional growth and congestion within the corridor. It was found that the opportunity to widen these roads to increase capacity was significantly limited due to surrounding land use, existing terrain or expectations of funding.

PROJECT TIMING

The timing of transportation improvements depends on many factors including the availability of funds, governmental and environmental permits, and project needs compared to priorities. The county will encourage orderly new growth and development in coordination with the provision of public services and facilities. To the extent practical, new roads and widening projects will be timed to coincide with the extension of development, public services and utilities. Furthermore, the county will distribute investments within the transportation system in a fair and equitable manner.

CHAPTER 11: PUBLIC FACILITIES & UTILITIES

OVERVIEW

Providing and maintaining public facilities is essential to the protection of the health, safety, welfare and quality of life of the residents and businesses in Henrico County. Adequate land allocation for public facilities is necessary to maintain high levels of service as growth continues. As the county continues to experience development of residential and commercial uses, it becomes vital that the land allocation needs for public facilities are identified before development occurs and limits options. When safety services (Police/Fire/EMS) are able to provide high levels of service, the community is safer, and lower insurance rates can be maintained. Public facilities like schools, parks and libraries contribute to the identity of a community and provide public gathering places. Additionally, when these facilities are provided in an exemplary manner, they contribute to higher property values and increased community appeal.

Public facilities and utilities should be designed and built to be environmentally sensitive and consistent with the urban/suburban form in which they are located. They should also maintain desired levels of service where applicable, maximize the existing infrastructure, and be cost efficient. Public facilities and utilities are critically important to economic development. Additionally, natural and cultural opportunities provided through public facilities are important for social interaction, offering amenity value to the community. Finally, it is important to enhance community facilities where possible, and identify deficiencies in order to accommodate the expected growth.

This chapter provides guidance to identify future needs for public facilities and their locational requirements. The primary goal of this chapter is to establish criteria for the identification of general locations for new facilities and areas where services can be expanded which best serve a growing population. This chapter does not provide specific locations, the necessary equipment acquisition, personnel needs or other service-related expenditures. These elements will be addressed in the *Public Facilities Handbook* and *Public Utilities Plan*, which will accompany this Plan as implementation tools. While it is important to plan for public facilities, it is also important for the county to remain flexible so it can respond to growth and service needs in a fiscally sustainable manner, and provide services when and where they are needed.

Planning for public facilities is based in part on attaining a desired and reasonable “level of service.” A level of service (LOS) standard is a way for the county to measure the services being provided. A LOS standard for public facility capital expenditures can be derived from existing data or goals, and is generally expressed as a ratio of floor area to population. LOS standards, locational criteria and general policies are provided in the Plan for the following public facilities:

- Schools
- Fire/Rescue
- Police
- Libraries
- Water and Sewer
- Wireless Communication Facilities

While parks and roads are also public facilities, they were discussed in previous chapters due to the broader scope of planning needed to address them. Chapter 9: Recreation, Parks, Open Space & Cultural Resources contains the recreation, parks, open space and cultural resources element and transportation and roadway improvements are addressed in Chapter 10: Transportation.

The general policies for the development of new public facilities are provided first, and are intended to act as an over-arching guide for future decisions. These general policies are followed by a description of the existing facilities, the needs assessment, locational criteria and other recommendations associated with each of the public facility types listed above.

GENERAL FACILITY POLICIES

The following policies are intended to act as a guide for the county in the location, acquisition and design of new public facilities:

1. Consider the location of new public facilities to be substantially in accord with this Plan when addressing the locational standards and policies of this chapter for general planning purposes.
2. Avoid locating facilities, such as schools, that may be negatively impacted by noise within the airport noise contours as defined in Chapter 8: Natural Resources.
3. Encourage co-location and multi-purpose use of existing and future public facility sites.
4. Mitigate adverse visual, noise and odor impacts associated with future public facilities to the greatest extent possible in order to maintain the county's attractive living environment.
5. Locate and design public facilities in a manner that minimizes disruption to established land uses.
6. Use appropriate, high-quality designs so public facilities can portray a sense of community pride and identification, thereby setting a positive example for private development within the county.
7. Centrally locate new public facilities to make them accessible by the local roadway network and serving the largest possible concentrations of population and employment areas, in addition to addressing response times and levels of service.
8. Coordinate the development of improvements to public facilities with the phasing of private development.
9. Design and build upgrades and/or improvements made in conjunction with private development to standards that are adequate to meet build-out needs under the Plan's land use recommendations, not just the mid-range needs of a

specific development. Additionally, coordinate the development and expansion of public facilities to ensure upgrades benefit as many nearby property owners as possible who are not currently being served.

10. Identify and consider the possible need for modification to, or expanded capacity of, existing public facilities when reviewing redevelopment, intensification or infill development proposals.
11. Identify appropriate sites for public facilities in growing areas of the county and pursue acquisition of these sites in advance of development pressures.
12. Encourage new developments to include pedestrian access via sidewalks and paths to public facilities, such as schools, libraries and parks.
13. Encourage new development in areas where public water and sewer services are available to connect into the system.

SCHOOLS

Schools play an important role in the county's high quality of life. The excellent school system in the county is an asset, which attracts businesses to locate and remain, stimulating additional jobs and economic development. While this Plan provides guidance for the numerical criteria that can be used to determine the need for a new school, it should be recognized the needs associated with high quality education are not limited to new buildings. The quality of education goes beyond a numeric ratio of students to floor area and encompasses programs that enhance the overall educational experience. The Henrico County Public Schools and the Henrico County Department of Planning should maintain a relationship of flexibility in developing recommendations for future development of school facilities that meet the changing needs of a growing population.

EXISTING FACILITIES

The current school system is comprised of seventy (70) facilities; of these, forty-five (45) are elementary schools, thirteen (13) are middle schools, nine (9) are high schools, and three (3) are technical centers. These facilities serve approximately 48,000 students and are identified on the Existing School Facilities Map.

The current level of service goal is to operate school facilities at ninety percent (90%) of their capacity. However, because it takes considerable time to acquire land and construct a new school building, the growing student population is often accommodated by expanding existing facilities or moving students to locations where facilities can support their enrollment until new facilities are constructed. As a result, schools typically function at approximately one-hundred ten percent (110%) capacity when needed. This method has worked well for the schools, allowing a high quality of education to be provided in an efficient manner that accommodates growth.

EXISTING SCHOOL FACILITIES MAP

NEEDS ASSESSMENT

From the late 1990's, much of the population growth in the county has occurred in the northwest portion resulting in the majority of new schools being constructed in this area. As the amount of land available becomes more limited, the Plan estimates the northwest portion of the county will begin to approach build-out in the next ten (10) to fifteen (15) years. As growth begins to increase in the eastern portion of the county, the demand for new school construction in these areas will likewise increase. This trend is already evident with the development activity occurring at Rocketts Landing and Tree Hill Farm along the James River.

While this Plan can generally prepare for aspects such as the density and quality of development, it is impossible and unrealistic to estimate exactly when and where development will occur—these factors are generally driven more by market forces. For this reason, it is important that the county remain flexible when planning for new school facilities.

The following standards have been applied to derive a forecasted demand for new school facilities. The analysis of population and housing trends portrays a “what if” scenario and assumes the county’s population will continue to grow at a rate just below two percent (2%) annually, and will continue to be distributed within various housing types as illustrated in Appendix A: Demand Analysis. Each household has been assumed to generate a specific number of students based on forecasting. Factors which cannot be predicted may change in the future affecting the real-time demand for school facilities. These standards are presented for planning purposes to help guide future decisions. Requirements for new school sites and facilities are set by State regulations. The county should continue to monitor these standards in order to maintain its excellent educational levels.

Current Levels of Service

Student population projections were generated based on the household results from the Future Land Use Map in Chapter 5: Land Use. These projections were applied to an average level of service for capacity at ninety-five percent (95%). This current level of service was derived based on past practices and discussions with county staff during the creation of new capital facilities to meet the needs of the growing population. It is a standard that represents the middle ground created when the schools strive for a ninety percent (90%) capacity and have some schools operating at one-hundred ten percent (110%) for periods of time. It was determined that a ninety-five percent (95%) capacity level of service best represents current conditions. The standard capacity for new schools of each type is as follows:

- **Elementary Schools** – Capacity for 736 students
- **Middle Schools** – Capacity for 1,100 students
- **High Schools** – Capacity for 1,450 students

Future Facilities Needed

Future needs or circumstances outside of the assumptions mentioned above may have an impact on the need for new schools even in the near future. Using this methodology to project needed facilities, it serves as a point of reference and gives the county a possible future scenario to prepare for land needs and understand the fiscal implications of providing services to a growing population.

If the county grows at a different rate than what is shown in the Demand Analysis and, if the household compositions change, or the desired level of service is modified, the number of new schools and their timing would obviously be affected. The needs assessment methods presented here have been used in a similar form by the schools for many years, and they should continue to employ these methods to determine the need for new schools on an annual basis.

LOCATIONAL CRITERIA

The following criteria can be used to help identify appropriate locations for new school construction. It has long been the practice of the school system to provide smaller-scale “local” elementary schools to best serve the population. Middle schools have a slightly higher capacity, and high schools can serve a much larger population. Historically, the school system has developed elementary schools on sites of approximately twenty (20) to thirty (30) acres, middle schools on fifty (50) to sixty (60) acres and high schools on sites in excess of sixty (60) acres. These site sizes reflect the former rural/suburban transition of most of the county, when land was more available and design prototypes were different. The land use recommendations in Chapter 5: Land Use propose a more diverse character and development level however, and it may be appropriate for future schools to be sited on fewer acres in the more dense, urban portions of the county. Also, as land becomes scarcer and more expensive, smaller sites with alternative building configurations could accommodate the projected student population within the limited land resources.

School Sites

New school sites should meet the following criteria:

1. Sites should meet the acreages listed below depending on school level and the existing or planned character of the location. Sites in areas planned for more dense urban neighborhoods could be smaller (on the lower end of the ranges below), while sites in rural or suburban areas may be larger.
 - a. **Elementary Schools** – 15-20 acres
 - b. **Middle Schools** – 20-40 acres
 - c. **High Schools** – 40-60+ acres
2. Sites should be selected to provide recreational opportunities appropriate for school-aged children, including playgrounds, athletic fields and open space.

3. Sites should be located within Residential areas and away from major roadways to increase student safety. High schools may be located on or closer to higher-volume roadways than elementary schools.
4. Sites should not be located in areas with Daily Noise Levels in excess of sixty-five (65) decibels.

RECOMMENDATIONS

In addition to the locational criteria listed above, the following recommendations should be used to guide the acquisition of land for the development of new school facilities:

1. The growth patterns and trends in the county should be monitored by the Department of Planning and the Henrico County Public Schools on an annual basis to ensure the educational needs of the community are being met.
2. Encourage school site co-location with recreational and park facilities and other public facilities.
3. Integrate school sites into neighborhoods, providing pedestrian access and promoting walking to reduce the roadway impacts. This policy is particularly important for elementary and middle schools in Traditional Neighborhood Developments and Urban Mixed-Use areas.
4. Locate schools in primarily Residential areas to be in close proximity to the students' homes.
5. Develop an urban prototype for schools to take advantage of different site opportunities in the proposed Urban Mixed-Use and Traditional Neighborhood Development areas proposed in Chapter 5: Land Use.
6. Promote site design ensuring availability of adequate land area for faculty parking and emergency access.
7. Encourage acquisition of land for schools in advance of development pressure when possible, because the cost of land typically increases over time and as demand rises.
8. Design all public school facilities to meet or exceed State and Federal standards for universal accessibility.

FIRE/RESCUE

The mission of the Division of Fire is to promote and sustain a superior quality of life in Henrico County through the provision of fire/rescue services. The Division delivers professional, cost-effective services in a personal, responsive, and innovative manner that serves the public's interest. It also provides fire planning and response; emergency medical services; environmental control; specialized rescue; fire prevention and investigations; training and education; and planning, hazard reduction, response, and recovery related to natural and man-made disasters.

EXISTING FACILITIES

The Division of Fire responds to all types of emergencies including fire, emergency medical, hazardous materials, high-rise, confined space, and water emergencies. Staffed with over four-hundred ninety-nine (499) career firefighters, the Division currently operates twenty (20) fire stations, a fire/ems training facility, specialty repair shops and a central administration office. The Existing Fire/Rescue Stations Map illustrates the location of these facilities.

NEEDS ASSESSMENT

The need for new fire/rescue facilities associated with growth over the next twenty (20) years will be estimated using the following criteria:

Current Level of Service

The current level of service is determined by the ratio of calls to floor area of fire/rescue facilities. The reported number of calls for Fiscal Year 2006/2007 was 38,094; this figure is divided into the current floor area of the existing fire/rescue stations (125,090 square feet) to derive a current level of service of 3.28 square feet per service call. This translates to 0.5250 stations per 1,000 calls for service. Based on current figures, the number of annual calls per person in the county is 0.1272.

Estimated Future Demand for Facilities

Future calls for service can be projected using the growth scenario associated with the land use recommendations in Chapter 5: Land Use, which is based on the Demand Analysis, and applying the average calls for service (0.1272) per new person. This is a general countywide approach, which does not take into account response time or proximity to development.

Additional Factors Influencing Needs

As with schools, additional factors can sway the location, timing and demand for a new fire station making it difficult to quantify with numeric ratios. The county does respond to these factors by employing a Computer Aided Design-based application known as CADADAM. This program allows the Division to map out the potential location of a needed station by incorporating road conditions, trip times and area populations into a model.

A primary hindrance to rapid response times under current conditions is often attributed to traffic congestion and lack of multiple routes. The successful development of an interconnected transportation network will significantly influence the response times for each of the existing and future stations. With the data included in this chapter, the Major Thoroughfare Plan Map and the growth scenario associated with the Future Land Use Map and recommendations in Chapter 5: Land Use, the county can employ the CADADAM system to generate call response data and identify specific locations based on a service goal response time of eight (8) minutes.

EXISTING FIRE/RESCUE STATIONS MAP

LOCATIONAL CRITERIA

A primary concern of the Division of Fire is transportation routes to access areas of development. The location of stations is vital, and response time from multiple locations can be decreased by frequent interconnections of the transportation network and access to the interstate.

The following locational criteria should be considered when identifying locations for fire/rescue facilities:

1. Co-locate fire fighting facilities and emergency medical services for maximum efficiency. Multi-use structures housing police or other public facilities are also encouraged.
2. Locate fire fighting facilities and emergency medical services with easy access to a major arterial or at an intersection of two (2) major arterials to gain both east-west and north-south access.
3. Encourage sites to be large enough to accommodate equipment storage and facilitate maneuverability, allowing equipment to either pull through or be backed into garage bays without hindering traffic flows in the public right-of-way.
4. Locate fire/rescue station facilities on sites of between two (2) and five (5) acres to allow for future expansion. Sites may be smaller when developed as part of a Traditional Neighborhood Development or an Urban Mixed-Use area.
5. Select and design sites to minimize the adverse impact of sirens and other noise on Residential areas.

RECOMMENDATIONS

In addition to the locational criteria listed above, the following recommendations should be used to guide the acquisition of land for the development of new fire/rescue facilities:

1. Continue the use of the CADADAM system to assist in the identification of general locations for future station sites by applying the data from the Major Thoroughfare Plan Map, transportation model, and the Future Land Use Map and recommendations in Chapter 5: Land Use, and update annually.
2. Promote the inclusion of fire/rescue stations as one of the civic elements in the design and development of Traditional Neighborhood Developments and in Urban Mixed-Use areas to provide adequate service to these more densely populated areas.

POLICE

The mission of the Division of Police is to provide quality service to the citizens and community through honor, professionalism, commitment, compassion, and accountability. The Division of Police is organized into three (3) major commands: uniform, investigative operations and support operations. With the exception of a few staff functions directly under the Chief of Police, all components of the organization are categorized so as to fall under one of the major commands. The Division of Police is responsible for a broad range of law enforcement activities that can generally be placed in one of the following categories:

- Community Policing
- Criminal
- Traffic
- School Services
- Animal Control

The facilities associated with these operations include two (2) district headquarters and the animal shelter.

EXISTING FACILITIES

The Division operates primarily out of two (2) district headquarters. District I encompasses the eastern portion of the county and is currently headquartered in the Fair Oaks facility on Eastpark Court. District II encompasses the western portion of the county and is headquartered at the Public Safety Building at the intersection of Parham and Shradler Roads. This facility also serves as the Division's main headquarters. The Henrico Animal Protection Unit is located near the county's Eastern Government Center. The Existing Police Facilities Map shows the existing police districts and facility locations.

NEEDS ASSESSMENT

The future need for police facilities will be identified based on the following information:

Current Level of Service

The current level of service for police stations is at 0.92 square feet of building space per call for service (137,000 sf./149,688 calls annually). The Division's records indicate approximately eighty-one percent (81%) of the calls originate from residential uses and nineteen percent (19%) from nonresidential uses. Based on this analysis, it is estimated that each new person in the county will generate 0.416 calls for service.

Estimated Future Demand

The future demand for police facilities can be generated by applying the current level of service to the projected county population.

LOCATIONAL CRITERIA

The following locational criteria should be considered when identifying locations for police stations:

1. Identify sites which have good central access to the local road network in the district which they will serve.
2. Sites should accommodate approximately 10,000 square feet of operational building space of which 3,500 square feet should accommodate vehicles and other equipment which should be protected from the elements.

RECOMMENDATIONS

In addition to the locational criteria listed above, the following recommendations should be used to guide acquisition of land for new facility development:

1. Maintain an active exchange of information between the Division of Police and the Department of Planning to address future needs for police services in the county.
2. When possible, use existing space for new district headquarters to reduce the start-up costs associated with establishing a new district command.

EXISTING POLICE FACILITIES MAP

LIBRARIES

The Henrico County Public Library System strives to provide residents with resources in friendly and technologically up-to-date facilities. Residents of Henrico and the City of Richmond or Chesterfield County, who have proper photo identification that provides a name and current address within the library’s service area, may register and borrow library materials. The public library also offers a non-resident membership for an annual fee.

EXISTING FACILITIES

The Henrico County Public Library System currently has a bookmobile and ten (10) permanent locations comprising 207,423 square feet and listed in **Table PF-1: Libraries**. The Existing Library Facilities illustrates the location of these facilities.

TABLE PF-1: LIBRARIES

Branch & Size	Address	Phone	Hours	
Bookmobile NA	Mobile	652-3214	Varies	
Dumbarton Area Library 22,500 sf.	6800 Staples Mill Rd. Henrico, VA 23228	262-6507	M - Th: F & S:	9:00 a.m. - 9:00 p.m. 9:00 a.m. - 6:00 p.m.
Fairfield Area Library 24,000 sf.	1001 N. Laburnum Ave. Henrico, VA 23223	652-3251	M - Th: F & S:	9:00 a.m. - 9:00 p.m. 9:00 a.m. - 6:00 p.m.
Gayton Branch Library 12,500 sf.	10600 Gayton Rd. Richmond, VA 23238	740-2747	M - Th: F & S:	9:30 a.m. - 9:00 p.m. 9:30 a.m. - 5:30 p.m.
Glen Allen Branch Library 12,000 sf.	10501 Staples Mill Rd. Glen Allen, VA 23060	756-7523	M, - W: TH: F & S:	10:00 a.m. - 9:00 p.m. 1:00 p.m. - 9:00 p.m. 10:00 a.m. - 6:00 p.m.
Municipal Government and Law Library 1,980 sf.	4301 E. Parham Rd. Henrico, VA 23228 (Henrico County Courthouse)	501-4780 or 501-5155	M - F:	8:00 a.m. - 4:30 p.m.
North Park Branch Library 15,000 sf.	8508 Franconia Rd. Henrico, VA 23227	262-4876	M & W: T & Th: F, S:	9:30 a.m. - 9:00 p.m. 1:00 p.m. - 9:00 p.m. 9:30 a.m. - 5:30 p.m.
Sandston Branch Library 7,833 sf.	23 E. Williamsburg Rd. Sandston, VA 23150	737-3728	M -W: Th: F & S:	10:00 a.m. - 9:00 p.m. 1:00 p.m. - 9:00 p.m. 10:00 a.m. - 6:00 p.m.
Tuckahoe Area Library 53,000 sf.	1901 Starling Dr. Henrico, VA 23229	270-9578	M - Th: F & S:	9:00 a.m. - 9:00 p.m. 9:00 a.m. - 6:00 p.m.
Twin Hickory Area Library 53,000 sf.	5001 Twin Hickory Rd. Glen Allen, VA 23059	364-1400	M-Th: F & S:	9:00 a.m. - 9:00 p.m. 9:00 a.m. - 6:00 p.m.
Varina Branch Library 5,600 sf.	2001 Library Rd. Henrico, VA 23231	222-3414	M,W,F & S: T & Th:	9:30 a.m. - 5:30 p.m. 1 :00 p.m. - 9:00 p.m.

NEEDS ASSESSMENT

A primary concern for the provision of adequate library services is the operational hours for each library. The preference is to design facilities that are larger in scale, provide more comprehensive services and offer longer hours of operation.

Current Level of Service

The current countywide level of service for library facilities is 0.8632 square feet per county resident.

Estimated Future Demand for Facilities

To estimate the future demand for library facilities, the current level of service can be applied to the projected future population. This demand would apply only to the public portion of the libraries. In addition to new public space needs, the administrative/headquarter operations space may need to be expanded to accommodate the increased demand for services.

LOCATIONAL CRITERIA

The following locational criteria should be considered when identifying locations for new libraries:

1. Encourage site sizes adequate enough to allow for the initial construction of 20,000 square feet with potential expansion to over 60,000 square feet as demand increases. Sites should be approximately eight (8) acres in size to accommodate this size facility.
2. Select sites to expand the service area of the library system rather than locating close to existing facilities.
3. Locate sites in close proximity to residential neighborhoods, parks, and schools to allow easy facility access and incorporation into a neighborhood.

RECOMMENDATIONS

In addition to the locational criteria listed above, the following recommendations should be used to guide the acquisition of land for development of new library facilities:

1. Add additional square footage to the existing library space in areas of the county anticipated to increase in population. The additional space could be accommodated through a new location or through the expansion of existing facilities.
2. Encourage the inclusion of libraries as one of the civic elements in the design and development of Traditional Neighborhood Developments and in Urban Mixed-Use areas to provide adequate service for these more densely populated areas.

EXISTING LIBRARY FACILITIES MAP

UTILITIES (WATER AND SEWER)

The Department of Public Utilities is responsible for the provision and maintenance of county water and sewer services. In conjunction with this Plan, the consulting firm of Greeley and Hansen will complete a *Public Utilities Plan* to assist with the implementation of the county’s Vision. That plan will be based on projected growth associated with the recommendations and the Future Land Use Map contained in Chapter 5: Land Use. These system improvements and expansions will address the growing demand from increased development over the planning period and beyond.

EXISTING FACILITIES

The current network of water and sewer service lines serves most of the central and western portions of the county. The county is divided into sewer pumping station basins which are based on the topography of the land and indicating areas where gravity flow can be used and where pumps are necessary. **Table PF-2: Basin Status** shows the water and sewer service status of these basins. A Sewer Pumping Station Basins Map also illustrates the location of these basins.

TABLE PF-2: BASIN STATUS

Basin Name	Water	Sewer
ACCA	Extensively Served	Extensively Served
Allens Branch	Extensively Served	Extensively Served
Almond Creek	Partially Served	Partially Served
Area D	Partially Served	Partially Served
Area H	Partially Served	No Existing Service
Area J	Partially Served	Partially Served
Bailey Creek (Longbridge)	Partially Served	Partially Served
Boar Swamp	Partially Served	No Existing Service
Bottoms Bridge	Partially Served	Partially Served
Broadwater Creek (1)	Partially Served	Partially Served
Broadwater Creek (2)	Partially Served	Partially Served
Carters Mill	No Existing Service	No Existing Service
Charles City Road	Partially Served	Partially Served
Chickahominy	Extensively Served	Extensively Served
Cornelius Creek	Partially Served	Partially Served
Deep Bottom	Partially Served	Partially Served
Elko	Partially Served	Partially Served
Four Mile Creek	Partially Served	Partially Served
Gambles Mill	Extensively Served	Extensively Served
Gill Dale	No Existing Service	No Existing Service
Gillies Creek	Extensively Served	Partially Served
Hines Road	No Existing Service	No Existing Service
Holladay Branch	Partially Served	Partially Served
Keeton Road	Extensively Served	Extensively Served
Mayfield	Extensively Served	Extensively Served
Meredith Branch	Extensively Served	Extensively Served
Mill Creek	No Existing Service	No Existing Service
New Market	Partially Served	Partially Served

Basin Name	Water	Sewer
Poplar Spring	Partially Served	Partially Served
Pouncey Tract	No Existing Service	No Existing Service
River Road	Extensively Served	Extensively Served
Rooty Branch	Extensively Served	Extensively Served
Roundabout Creek (1)	No Existing Service	No Existing Service
Roundabout Creek (2)	No Existing Service	No Existing Service
Sandston Woods	Partially Served	No Existing Service
Scandia Road	Partially Served	No Existing Service
Strawberry Hill	Extensively Served	Extensively Served
Turkey Island	No Existing Service	No Existing Service
Virginia Center	Partially Served	Partially Served
White Oak (1)	Partially Served	Partially Served
White Oak (2)	No Existing Service	No Existing Service
Williamsburg Road	Partially Served	No Existing Service
Willow Lawn	Extensively Served	Extensively Served

The Department of Public Utilities operates a water treatment plant with a current capacity of fifty-five (55) million gallons per day. In addition, the county has an agreement with the City of Richmond to purchase between twelve (12) and thirty-five (35) million gallons per day as reserve capacity. This provides the county with an available maximum daily water supply of ninety (90) million gallons. The current average daily demand is approximately forty (40) million gallons, with a maximum day use of sixty-one (61) million gallons. The remaining twenty-nine (29) million gallons of daily capacity is available for growth until the water treatment plant capacity is increased. Designs to increase the capacity of the plant by an additional twenty-five (25) million gallons began in 2006.

Sewage treatment is handled at the county’s wastewater treatment plant which has a capacity of seventy-five (75) million gallons per day with a recent treatment average of forty-two (42) million gallons per day. The remaining thirty-three (33) million gallons per day capacity would be available for future growth.

SEWER PUMPING STATION BASINS MAP

NEEDS ASSESSMENT

Greeley and Hansen's preparation of a *Public Utilities Plan* uses a hydraulic model which addresses the necessary expansion and modification to the county's sewer and water systems. The *Public Utilities Plan* will identify the necessary improvements to support the build-out based on the recommendations and the Future Land Use Map in Chapter 5: Land Use, not just projected growth within the planning period.

Chapter 5: Land Use recommends redevelopment and infill in a number of locations that may intensify the current development density of these areas. Redevelopment and intensification of development in areas with established infrastructure can be challenging to serve with adequate water and sewer. In many of these areas, the sewer and water line capacity or pipe diameter was designed and installed to handle a former or existing development intensity and flow. Areas of the county with the oldest sewer and water lines frequently do not have existing capacity for additional growth. Infill and redevelopment are still strongly encouraged with the caveat that in instances where existing sewer and water lines cannot manage additional capacity, parallel or replacement lines will be necessary to provide adequate service.

The ability to provide adequate sewer and water service to individual areas of the county depends on the functionality of the overall system. Efficiency is achieved when the sewer and water lines are extended in an orderly manner that builds the system incrementally. The *Public Utilities Plan* is intended to designate the necessary capacity to serve the county at build-out, and as new service lines are constructed they must be designed and handle such capacity.

LOCATIONAL CRITERIA

Locational criteria for sewer and water facilities relate primarily to the acquisition of easements for the location and placement of sewer lines relative to land slope. The following criteria should apply to the location of new water and sewer facilities:

1. Gravity sewer lines are preferable, but sewage pumping stations may be needed.
2. Sewer lines should correspond to the natural and altered slope of the land.
3. When possible, water and sewer lines should follow public rights-of-way.
4. Specific engineering will be required for each system expansion.
5. Needed facilities' locations for sewage pumping stations, water pumping stations and water storage tanks will be determined in the *Public Utilities Plan*.

RECOMMENDATIONS

In addition to full system improvement recommendations for sewer and water services in the *Public Utilities Plan*, the following recommendations should be used to guide water and sewer improvements:

1. Support improvements recommended in the *Public Utilities Plan*.
2. Continue the construction of water and sewer lines to serve growing areas of the county.
3. Developers should be responsible for funding the expansion of sewer and water lines to serve new development.
4. In instances where the *Public Utilities Plan* indicates a necessary capacity greater than that which is needed to serve new development, the facility should be built to handle the capacity stated in the plan. The developer should receive credits for the additional capacity, which can be used for future developments or transferred to another developer.
5. Redevelopment and infill projects are desirable when consistent with Chapter 5: Land Use and Chapter 7: Planning & Economic Focus Areas, and are to be approached with caution from the provision of utilities. The county and developers should recognize there may be limitations to the capacity of existing sewer and water facilities in these areas.
6. Encourage new development adjacent to existing lines to tie into the sewer and water systems in the most efficient way possible. It may be necessary to loop water lines to provide redundancy within the system.

WIRELESS COMMUNICATION TECHNOLOGY

Digital or cellular phone service, otherwise known as wireless communication, has become an essential element of modern day communication, and usage continues to increase. Although wireless communication services are not publicly owned utilities, their inclusion in the county's Plan is appropriate given their necessity and scope of use.

The future development of wireless communications services in the county calls for careful planning. The citizens and businesses of the county will continue to demand services, which will improve the quality of life and economic development of the community; however, the manner in which these services are provided must be sensitive to the aesthetic, health, safety and property values of the community. Striking a balance between the desires for state-of-the-art, cost-effective communications infrastructure while being aesthetically sensitive to residential and commercial areas will be necessary. This will require careful consideration not only on a case-by-case basis but may also warrant an in-depth, countywide network analysis given the continued evolution of the industry and related technology.

EXISTING CONDITIONS

The county is currently served by several wireless communication providers. Since the county has encouraged co-location on towers, many of the existing structures are filled and cannot support additional equipment. In some cases, available space is at the lowest tower level and may not meet the coverage goals of the service providers. The demand for wireless communication services will require the expansion of existing facilities or location of new ones.

NEEDS ASSESSMENT

While the system/network of wireless facilities has become more established in the past several years, the technology continues to evolve, thus requiring additional facilities. The original service provider strategy was to serve a strictly mobile market; however, the market has begun shifting toward replacing the conventional landline with cellular service. Following this trend, facilities are being located closer to residential areas, resulting in increased sensitivity to the impacts created by these facilities.

The Technology of the Wireless System

Most personal wireless services operate in a similar fashion. A portable communication device receives from and, in the case of a portable telephone, sends signals to an erected antenna or antenna set. The area covered by an antenna set is commonly referred to as a "cell." The signal is routed to switching equipment that selects the channel and monitors the signal strength. In telephone applications, the signal normally is connected to a conventional or landline public telephone system. If the communication device is moving, the signal is passed on to an antenna in an adjoining cell, and the call continues uninterrupted.

For services which require more than one (1) antenna to serve a large area, such as wireless telephone service, an effective system requires a more-or-less uniform grid or network of antennas mounted on towers or other structures in a pattern somewhat resembling a honeycomb.

Depending on the technology used, the height of the tower, the position of the antenna, topography, vegetation and other factors, the cell size can vary from less than a mile to several miles across a given area. The Personal Communication Service (PCS) provider seeks to locate antennas spaced just far enough apart to provide the coverage needed. If the antennas are too close the signal overlap can cause interference problems, and the capacity of the system suffers. If the antennas are too far apart, gaps or holes are created in the coverage pattern, which can result in calls being “dropped” as travelers move beyond the range of the antenna handling the call.

Each cell can only handle a finite number of conversation calls at one time. As the signal traffic becomes too congested, additional cells are required to provide additional system capacity. The primary networks are largely established in Henrico County, and service providers are infilling towers/antennas in locations where the network is over capacity due to increased use.

Demand for Wireless Facilities

Demand for wireless communication technology is increasing, while appropriate locations for such facilities are becoming more difficult to find. In addition, telecommunication towers have special land use implications because of their potential visual impact on surrounding properties. These realities place a premium on determining the most efficient distribution of wireless infrastructure on the whole, rather than solely for individual service providers. Considering the highly technical nature of wireless infrastructure development, the interdependence of tower sites, and the scope of the existing wireless network, the drafting of a separate wireless study and/or plan may be appropriate to help achieve greater efficiency in facility placement.

Public Safety

Public safety is often a concern when dealing with the installation of wireless communications facilities. It is within the purview of local government to regulate the manner in which structures are located and constructed in order to protect the safety of its citizens. While a good wireless communication network can offer an increase in public safety through the provision of the E911 services, there remain some concerns with public safety associated with PCS facilities. The following are the prominent perceived safety issues associated with PCS facilities, and the measures in place to ensure the protection of public safety.

Radio Frequency Emissions

The power used in PCS technologies is relatively low and is not of the type normally associated with health risks caused by certain kinds of radio frequency radiation. The *Federal Telecommunications Act of 1996* took steps to remove radio frequency emissions as a basis for regulating or

prohibiting PCS facilities, as long as specific standards are met. The Act states:

No State or local government or instrumentality thereof may regulate the placement, construction, and modification of personal wireless service facilities on the basis of environmental effects of radio frequency emission to the extent that such facilities comply with the Commission's regulations concerning such emissions.

Because the Federal Communications Commission (FCC) does not review each cell site, it is incumbent upon local government to assure that Radio Frequency (RF) standards are being met; at a minimum, this should involve certification by the carrier that the proposed cell site meets the FCC guidelines.

Structural Hazards

Structural hazards are minimized because tower structures are constructed to BOCA National Building Code standards, and can withstand hurricane force winds up to one-hundred ten (110) miles per hour. Structures are also designed to collapse into themselves if there is a failure. In response to potential hazards of falling debris, some local governments designate a "fall zone" around the base of the tower structures. These are generally expressed as distance-to-height ratios. The County of Henrico's Zoning Ordinance currently requires fall zone setbacks. The basis for these setbacks is to prevent damage from ice or other falling debris from the antenna platform.

DESIGN CONSIDERATIONS

One method to reduce the visual impact of towers on surrounding residential areas involves stealth or camouflage facility designs. The county's policies related to tower location and design are detailed in the following sections; however, the technique of "stealth design" is further elaborated here. While the county encourages a minimum number of towers necessary, it is also important that these wireless communications facilities have as little visual impact on Residential areas as possible.

To minimize the negative impact on existing Residential areas or areas recommended for residential use, the county encourages the use of camouflage or "stealth design" for newly constructed communication towers. Stealth design towers support the county's efforts to preserve its existing aesthetic qualities, maintain its quality of life and protect property values.

A stealth design can reduce the visual profile of the tower structure and antennae, create a structure that is not easily recognizable as communications equipment, or hide equipment from view entirely. Stealth design may include flush-mounted equipment; antennas totally enclosed within an existing or proposed structure; and facilities that replicate more common structures such as flagpoles, church steeples, bell towers, light poles, or roof structures.

Stealth design can also be used to camouflage equipment at the base of towers. The equipment can be housed in a shed or similar structure that is architecturally compatible

with nearby dwellings or other buildings. The location of cell tower structures throughout the county can be found on the Communication Towers and Antenna Co-Locations Map.

LOCATIONAL CRITERIA

The *Telecommunications Act* established a role for three (3) parties in the future development of wireless communications services: the communications industry, the FCC, and local government. Within the confines of FCC licensing and administration and local government regulations of land use and zoning, each provider is free to design its own network or system. Wireless communications service providers are not treated as public utilities or franchises, but are competitors in an open market. Although the free-market approach is intended to result in the best communications services for the least cost, it also results in an increase in the number of wireless communications antennas and towers.

In order to balance the interest of providing quality wireless service with the interests of the public health, safety and welfare, community aesthetics and promoting the integrity of the county's residential neighborhoods, preserving the residential character of the community is especially crucial. Telecommunications facilities are not encouraged in large areas consisting of low-rise residential uses, with limited nonresidential and commercial uses; however, if telecommunications facilities are located in close proximity to these areas, the facilities should utilize a stealth design.

Location Opportunities

The following provides general location types which may be appropriate if the siting and design standards and policies of this section are met.

Existing Communication Towers

Co-location opportunities may still exist on some existing towers in the county. New towers should be designed to allow co-location.

Dominion Virginia Power

Dominion Virginia Power has several large power transmission corridors which cross the county. These corridors consist of easements and rights-of-way between one-hundred fifty (150) and three-hundred (300) feet in width, and combined are over eighty (80) miles in length. These corridors offer opportunities for co-location of transmission towers and communications antennas. Dominion Virginia Power has worked closely with the telecommunications industry in facilitating co-location within its rights-of-way.

Buildings

Wireless service antennas can be mounted on the roofs or sides of buildings. While most buildings in the county are less than thirty-five (35) feet tall, taller structures could be used for co-location opportunities.

Churches

Many churches in the county present telecommunication service providers with the potential for locating antennas inside existing steeples or building a steeple for a church that does not presently have one.

COMMUNICATION TOWERS AND ANTENNA CO-LOCATIONS MAP

Public Sites

County government sites appropriate for locating commercial wireless communications facilities include selected fire stations, libraries, schools, parks, post offices, water tanks, towers erected for public service use, and other public facilities. These facilities are often large enough to allow sufficient separation from surrounding residential uses, or are located adjacent to industrial land uses. Even on these sites, steps must still be taken to minimize impacts on surrounding properties.

Private Land

Although the use of existing facilities is preferred to the construction of new ground-mounted facilities, there are opportunities for the development of freestanding mounts on private land. In particular, land planned and zoned for industrial uses could be used for new tower locations.

Locational/Siting Policies

The following policies should be used to determine appropriate sites for the location of wireless communication facilities:

1. Discourage towers in areas zoned or planned for residential uses.
2. Discourage towers in private cemeteries.
3. Encourage stealth tower design when towers are requested adjacent to or in close proximity to existing Residential areas or areas recommended for residential use in Chapter 5: Land Use.
4. Only consider new locations for towers when co-location or replacement of existing towers is not adequate and feasible. The order of preference for land use categories when considering a new site is Industrial, Commercial, or Agricultural not utilized for residential purposes.
 - a. Consider county-owned, State-owned, or Federal properties and facilities that encourage proper siting of wireless communications towers provided:
 - i. The use and character of public properties and adjacent properties is not adversely impacted;
 - ii. The proposed telecommunications facilities are consistent with other elements of the Comprehensive Plan and *Zoning Ordinance*; and
 - iii. Appropriate approvals and agreements are reached with the public agency's boards, or authorities.
5. New telecommunications sites in areas zoned or planned for Industrial, Commercial or Agricultural properties with no residences should be initially constructed or designed to be extended to a height of one-

hundred ninety-nine (199) feet. Reduced tower height may be more appropriate in sensitive locations.

6. If co-location opportunities are not possible, encourage siting of towers at locations within wooded areas or remote sites away from residential structures. While such locations may not obscure from view the entirety of the tower, they may reduce the visual impact.
7. Locate towers at the lowest possible point along ridgelines.
8. Ensure new towers or antenna structures do not block the county's microwave paths or interfere with the county's public safety radio system.
9. Discourage the location of towers within 1,400 feet of New Market Road (Route 5) unless an acceptable stealth-tower design is utilized.

RECOMMENDATIONS AND POLICIES

In addition to the standards listed above for the selection of appropriate locations for wireless communication facilities, the following policies should be applied to guide the county's decisions regarding wireless communication facilities:

1. Encourage, where appropriate, the placement of antennas on existing structures including but not limited to existing towers, utility poles, water tanks, building rooftops, and other tall structures.
2. Encourage, where appropriate, the upgrade or replacement of lower towers with taller towers designed to maximize co-location opportunities.
3. Expedite the permitting of wireless communication towers that have minimal visual impacts and meet all regulatory standards.
4. Maintain an inventory of tower sites and all existing telecommunication facilities to determine co-location opportunities.
5. Coordinate with adjoining localities when a tower request is proposed near the county boundary.
6. Encourage providers to submit their "build-out" coverage grid for the entire county.
7. Obtain industry and citizen input in the future development of local wireless communications regulations.
8. Ensure ground-mounted equipment does not generate noise in excess of fifty (50) decibels at the property line of the parcel on which the tower is located.
9. Encourage the consideration of stealth tower designs for all applications.
10. Use monopoles rather than lattice towers.

11. Limit clearing of the sites to allow existing mature vegetation to remain for visual screening.
12. Screen security fencing and visible tower locations from public view. A row of evergreen trees a minimum of eight (8) feet tall and a maximum of ten (10) feet apart, and a continuous hedge at least twenty (20) inches in height in front of the tree line should be planted around the perimeter of the fence.
13. Discourage lighting and painting of a tower unless required by the FAA. Construct towers at reduced height to eliminate FAA lighting requirements. Limit flashing strobe lights to requirements by the FAA.
14. When lighting is required on equipment shelters, shield and orient it inward so as to not project on surrounding properties.
15. Finish equipment shelters in earth-tone colors and provide appropriate screening.
16. When antennas are attached to an existing building, blend them with the existing structure.
17. Use the requirements of the Department of Public Works to evaluate access to the site.
18. Use flush-mounted or stealth antennas in visible or sensitive locations.
19. Consider the development of a countywide network analysis to help achieve greater efficiency in facility placement.

CHAPTER 12: IMPLEMENTATION

Planning is a continuous process; therefore completion of the Comprehensive Plan should not be viewed as the end of the project. In addition to providing an overview of existing conditions, the previous chapters assessed the needs of Henrico County as they relate to seven (7) elements of the Comprehensive Plan: land use; community character; planning and economic focus areas; natural resources; recreation, parks, open space and cultural resources; transportation; and public facilities and utilities. This chapter merges the goals, objectives and policies identified in the separate plan chapters into a cohesive implementation strategy to direct growth and development in the county for the next twenty (20) years.

The policies and recommendations in this Plan can be implemented through a multitude of techniques and measures. The county currently has some of these tools in place, although the adoption and implementation of the Plan would involve amending them. Implementation of the Plan may also involve the development of new tools to help the county achieve its vision as established in Chapter 4: The Vision, Goals & Objectives. This chapter summarizes these measures.

EXISTING IMPLEMENTATION TOOLS

The implementation tools the county currently has in place include:

- The *Zoning Ordinance* (Chapter 24 of the *County Code*)
- Zoning Overlay Districts
- The *Subdivision Ordinance* (Chapter 19 of the *County Code*)
- The *Erosion and Sediment Control Ordinance* (Chapter 10 of the *County Code*)
- Stormwater Management Ordinance
- National Pollutant Discharge Elimination System (NPDES)
- Capital Improvement Program

ZONING ORDINANCE

The *Code of Virginia* permits jurisdictions to adopt a *Zoning Ordinance* (§ 15.2-2285) which regulates the use of land and buildings, the location of uses, the size (height, area and bulk) of structures, and other aspects of development. The *Zoning Ordinance* consists of both text and the zoning boundary maps. The text provides the specific requirements of each of the zoning classifications and the maps show the existing zoning for all land within the county.

Zoning Overlay Districts

The county currently employs zoning overlay districts to regulate development in the far W. Broad Street corridor and in the airport area.

This implementation tool may be used in the future to address various site development concerns in several of the identified Special Focus Areas in Chapter 7: Planning & Economic Focus Areas. Zoning Overlay Districts involve a two-tiered regulatory approach. Basic standards are set forth for the underlying

zoning and additional regulatory standards apply for the specifically established overlay zone. Overlay zones are particularly useful in locations of special public interest in specific geographic areas, which do not necessarily coincide with the underlying zoning boundaries.

SUBDIVISION ORDINANCE

The adoption of a subdivision ordinance is mandated by the *Code of Virginia* (§ 15.2-2240). The subdivision process is required to assure the orderly division of land and its subsequent development. The County of Henrico *Subdivision Ordinance* controls the division of land for the purpose of transfer of ownership, the erection of a building or structure, and the dedication of public roadways to the county.

EROSION AND SEDIMENT CONTROL ORDINANCE

The Commonwealth of Virginia requires localities to adopt an erosion and sediment control program (§10.1-562). The county's ordinance regulates erosion and the transportation of sediment from construction sites using recommended devices and construction methods to protect downstream waterbodies and adjacent property.

STORMWATER MANAGEMENT ORDINANCE

A stormwater management ordinance may be adopted by localities per the *Code of Virginia* (§10.1-603.3). The county's ordinance regulates the discharge of materials other than stormwater to the storm system by spills, dumping or disposal without a Virginia Pollutant Discharge Elimination System permit.

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)

The NPDES, an Environmental Protection Agency (EPA) permit program which took effect in 1972, is responsible for significant improvements in the quality of our nation's waters. Henrico has a permit with both the State of Virginia and the EPA which allows the county to discharge stormwater into our rivers. This permit also has guidelines for improvements which the county implements on an on-going basis such as stormwater Best Management Practices (BMPs), stream restorations, stream cleanings and many others.

CAPITAL IMPROVEMENT PROGRAM (CIP)

The county annually prepares a Capital Improvement Program. The most recent program was prepared in Fiscal Year 2006-2007. This program details the capital improvements to be made through FY 2010-2011. The CIP provides specific guidance on the location and construction of new public facilities and improvements and expansions to existing facilities. Water and sewer, roadways, parks, schools, and other public buildings are among the facilities addressed in both the CIP and this Comprehensive Plan. The recommendations in this Plan pertaining to public facilities should be used to help guide the development of future CIPs, recognizing that the recommendations in this Plan address maintenance of the county's current levels of service as the county's population and employment continue to grow. Close coordination of future CIP efforts with the recommendations of the Plan are key to the successful implementation of this Comprehensive Plan.

ADDITIONAL IMPLEMENTATION TOOLS

In addition to the implementation tools the county currently has in place, the following tools are recommended to assist in future decision making, keeping with the spirit of this Plan.

- The *Design Guidelines Manual* will include general advisory guidelines for design quality in new development. These guidelines will be developed in conjunction with the recommendations in this Plan to help articulate the county’s vision for the future.
- The *Public Utilities Plan* will detail the necessary improvements to the sewer and water facilities in the county to accommodate growth at build-out.
- The *Public Facilities Handbook* will identify general areas of the county where new facilities will likely be needed as development continues. The general locations will be identified in conjunction with forecasted demand for future public facilities detailed in Chapter 11: Public Facilities & Utilities, to help in the selection of future sites for schools, libraries, police facilities and fire stations.
- *The Zoning Ordinance Assessment* will include a full analysis of the county’s development ordinances noting where updates or amendments are necessary to effectively implement the recommendations of the Plan. This memo will serve as a basis for follow-up amendments to the *Zoning Ordinance*.

THE ACTION ITEMS WORK PROGRAM AND MATRICES

In addition to the tools listed above, this chapter also identifies key planning actions, initiatives, ordinance and code changes, public improvements and other programs and projects the county should pursue to achieve the long-range development pattern proposed in this Plan. Most of the implementation of the Comprehensive Plan will occur on a day-to-day basis as county staff and elected and appointed officials make decisions regarding rezoning requests, subdivision developments, proposed site plans and the provision of public improvements and facilities.

The Action Items Work Program includes the prioritized efforts the county should undertake to implement the Plan. The matrix shows the action item and the department(s) responsible for carrying out the action.

The following matrices (Policy Matrix and Implementation Matrix) detail specific actions that should be taken to implement the recommendations and policies of the Plan. Some of these items have parallel language to specific policies contained in chapters throughout this Plan, while others provide more general guidance on further actions to be taken by the county and its various departments.

Table I-1: ACTION ITEMS WORK PROGRAM

Action Item	Responsible Agency or Department
Revise the <i>Zoning Ordinance</i> as needed to implement goals and objectives of the Comprehensive Plan. Use the results of the forthcoming <i>Zoning Ordinance Assessment</i> to identify specific changes.	Planning
Revise the <i>Subdivision Ordinance</i> as needed to implement goals and objectives of the Comprehensive Plan. Use the results of the forthcoming <i>Zoning Ordinance Assessment</i> to identify specific changes.	Planning
Draft criteria for the submission of fiscal impact analyses for land use proposals.	Planning & Finance
Prioritize and study the Planning and Economic Focus Areas by those with the greatest development pressure.	Community Revitalization & Planning
Develop noise abatement guidelines for construction.	Building Inspections
Develop a plan to promote trip reduction and congestion management methods.	Public Works
Develop and maintain a map illustrating future service areas for new parks and recreation facilities.	Recreation and Parks
Update the <i>Inventory of Early Architecture</i> document.	Recreation and Parks
Draft comprehensive standards for the development and installation of wireless communications infrastructure including collecting the build-out coverage grid for wireless service providers.	Planning
Develop urban prototypes for public facilities.	Planning & General Services
Develop programs to encourage affordable housing.	Community Revitalization
Monitor the funding of new programs (transportation and other infrastructure) made available through the State, and re-evaluate impact fees.	Planning & Public Works
Develop guidelines to encourage sustainable development.	Planning
Develop programs to increase tourism opportunities.	Recreation and Parks & Planning
Update data and run the Transportation Model annually.	Public Works
Update data and run the Fiscal Model annually.	Finance

THE POLICY MATRIX

The Policy Matrix lists the consolidated general policies from the Plan. Various departments should refer to this matrix when evaluating development proposals. These actions are generally administrative in nature and may include tasks the departments are currently doing or new practices that could be implemented relatively quickly. These actions are usually an on-going effort and do not require a significant amount of resources to accomplish. The policies in the Matrix are reiterated from the various chapters of the Plan and organized by chapter in the order they appear.

TABLE I-2: POLICY MATRIX

CH 5: Land Use		
Policy	Responsible Agency or Department	
1	Ensure public facilities are in place or will be available to adequately serve and support new development. Only approve new development upon demonstration that adequate public facilities, as established in this Plan, are or will be available at the time of completion to maintain the desired levels of service.	Planning in conjunction with various departments
2	Encourage the design of new development to be compatible with and complementary to existing land uses. Incompatible uses should not be closely located. Site design and buffering should be used to the maximum extent feasible to reduce the impacts on adjacent properties, especially between residential and nonresidential areas.	Planning
3	Encourage the design of new development, whether public or private, to be respectful of identified historic or natural resources. Incorporate the preservation and restoration of existing features to the maximum extent feasible.	Planning & Recreation and Parks
4	Encourage new development to be designed to provide interconnectivity with existing and future developments through the use of stub streets.	Public Works & Planning
5	Ensure subdivision and site layouts of new development are planned in consideration of the future use (as recommended by this Plan) of currently undeveloped land in the general vicinity to create interconnected neighborhoods.	Planning
6	Encourage compatible infill, redevelopment and development in proximity to existing development and services when appropriate to avoid “leap frog” growth patterns which may result in higher service costs.	Planning & Community Revitalization
7	Discourage strip development along existing or new thoroughfares. This practice creates an undesirable development pattern and causes traffic and access issues, as well as preventing access from major corridors to large tracts of land that may be developed at a later time.	Planning
8	Continue to incorporate environmental quality protection measures into the development review process, particularly related to runoff, stream protection, air quality and noise.	Public Works & Planning
9	Encourage developments to be designed to minimize adverse environmental and fiscal impacts.	Planning & Finance

TABLE I-2: POLICY MATRIX

CH 5: Land Use		
	Policy	Responsible Agency or Department
10	Promote the integration of Best Management Practices (BMPs) and other stormwater management techniques established by the county into the design of new development and redevelopment to ensure that individual developments ultimately function as an integrated system.	Public Works & Planning
11	Encourage developments to be designed to minimize disruption to life and property resulting from erosion and flooding.	Planning & Public Works
12	Encourage the preservation of private open space by supporting the use of conservation and open space easements to preserve land use in each Land Use Group/Classification, provided such easements do not adversely impact planned infrastructure or the pattern of development in the area.	Planning
Rural		
1	Promote a continuation of the historic rural pattern, including farms, pasture land, and preserved natural and historic sites as the desired character for these areas. Accommodate new residential development but encourage it to occur on either very large lots, or in a conservation subdivision format, as described in Chapter 6: Community Character.	Planning
2	Since access to public sewer and water may be limited in Rural areas, new residential development proposals in these areas should be reviewed to assess the suitability of on-site water and sewage treatment.	Planning, Public Utilities & Health
3	Encourage the use of regulatory measures such as stream setbacks to place a priority on preserving and protecting environmentally sensitive features such as stream corridors, wetlands and other features contributing to water quality in Henrico County and Virginia.	Planning & Public Works
4	Promote the idea of agriculture as a desirable use, subject to potential change and transition to other more intense uses. While the open nature of agriculture is enjoyed by many, and the open space is a valued community amenity, discourage the view of agriculture as permanent open space, and do not expect farmers to carry the burden of providing this amenity.	Planning
5	Encourage creative, unique and niche forms of agriculture such as farmers' markets, agri-tourism and value-added opportunities.	Henrico County Extension Service & Planning
6	Encourage the use of agricultural science-based Best Management Practices to minimize erosion and groundwater and surface water contamination.	Henrico County Extension Service, Henricopolis Soil and Water Conservation District & U.S. Department of Agriculture - Natural Resources Conservation Service
7	Encourage low-density rural residential development to areas that minimize conflicts between residential and agricultural land uses and maintain rural character of the county.	Planning

TABLE I-2: POLICY MATRIX

CH 5: Land Use		
Policy		Responsible Agency or Department
Residential		
1	Promote high quality development through compliance with site plan review and the <i>Design Guidelines Manual</i> , particularly related to landscaping; traffic and pedestrian circulation; signage; and building design, placement and orientation.	Planning
2	Focus on promoting a high quality of life for residents by providing safety and stability within the neighborhoods.	Planning
3	Encourage a variety of compatible housing options. While large single-family homes are desirable, so are other types of housing which are compatible with the demands of non-traditional families, such as smaller homes or condominiums for young professionals or “empty nesters.” A range of ownership or rental opportunities is also encouraged.	Planning
4	Avoid encroachment of nonresidential uses in the Residential areas. Use transitional uses, open space, and creative site configurations to buffer and reduce the impact of nonresidential uses in Residential areas.	Planning
5	Use the road network in Residential areas to promote safety and connectivity with existing and future development. Rather than focusing traffic on a few arterial or collector streets, more “through streets” are encouraged to disperse traffic and to reduce its isolated impacts at certain points.	Planning
6	Encourage sidewalks and other pedestrian facilities in new developments. Connections to other neighborhoods and key destinations such as schools, libraries and parks are also encouraged.	Planning & Public Works
7	Promote development at densities which can be supported by the natural site conditions, availability of public facilities and the transportation network.	Various Departments
8	Use environmental quality reviews in the development review process, particularly related to runoff and stream protection.	Public Works
9	Discourage residential uses within areas that project a seventy (70) DNL or more intense noise level.	Planning
10	Multi-family homes should enhance the overall land use pattern through their proximity to arterial roadways, shopping areas and primary service areas.	Planning
11	Encourage residential units in vertical, Mixed-Use developments to promote housing opportunities near existing and future employment centers.	Planning
12	Evenly distribute housing for the elderly and disabled throughout the county in proximity to locations with concentrations of services.	Planning
13	Encourage an adequate supply of rental properties, which are well maintained and promote the stability of the overall community.	Planning

TABLE I-2: POLICY MATRIX

CH 5: Land Use		
	Policy	Responsible Agency or Department
14	Encourage programs that promote homeownership and vitality in the community for a range of income levels.	Planning & Community Revitalization
Mixed-Use		
1	Mixed-Use developments are targeted for large tracts of land which should be developed in phases or at one time under an approved master plan for the site.	Planning
2	Mixed-Use developments may be appropriate, pursuant to an approved master plan, on infill or redevelopment sites to intensify land uses in areas where public facilities are currently available.	Planning
3	Encourage all Mixed-Use developments to meet the quality standards in the <i>Design Guidelines Manual</i> or as adopted by the county, related to site layout; building configuration, materials, massing, shape and height; landscaping; signage; parking lot aesthetics and functional design; pedestrian circulation; lighting; stormwater management; environmental protection; mass transit access; and other criteria.	Planning
4	Encourage the development of an overall architectural theme for each Mixed-Use project to create a unique community character.	Planning
5	Encourage the incorporation of public open spaces in Mixed-Use developments. Promote the design of informal passive spaces and formal or active open spaces, for example plazas, parks, walking/jogging trails, to function as integrated and functional elements of the overall development. Passive open space used to complement the built environment and preserve natural features is also encouraged.	Planning
6	Encourage pedestrian orientation as the emphasis of Mixed-Use developments when designing buildings and public spaces. Discourage the accommodation of the automobile as a prominent land use or dominant visible feature. Promote structured parking to preserve land area within Mixed-Use developments for open space or more economically beneficial uses.	Planning
7	Promote the careful planning and management of traffic circulation and access so each Mixed-Use development operates as a coordinated circulation system. A strong interconnected street network is essential to the function of Mixed-Use areas. These systems need not be a typical grid but may retain some curvilinear characteristics with sufficient crossroads and access locations to promote adequate levels of service as specified in this Plan.	Public Works & Planning
8	Coordinate the intensity of Mixed-Use developments with provision of adequate public facilities. When possible, sites for new public facilities are encouraged to be incorporated into the overall design of the Mixed-Use development. Uses such as schools, libraries, post offices and safety service offices are compatible elements to include within a Mixed-Use development.	Planning, Public Works, Henrico County Public Schools, Libraries, Police, Fire & Public Utilities
9	Mixed-Use developments should endeavor to maximize investments made by the public and private sectors.	Finance, Planning, Public Works & Public Utilities
10	Use the <i>Design Guidelines Manual</i> recommendations for Mixed-Use developments to encourage opportunities for economic development.	Planning

TABLE I-2: POLICY MATRIX

CH 5: Land Use		
Policy	Responsible Agency or Department	
11	Encourage the preservation and incorporation of unique or sensitive environmental features into the overall design of Mixed-Use developments.	Planning & Public Works
12	Strongly encourage vertical mixed uses in Urban Mixed-Use and Traditional Neighborhood Developments. Individual structures should include commercial uses on the lower stories, offices on secondary stories and residential uses on upper stories.	Planning
Office/Service/Industrial		
1	Strongly encourage new development in Office/Service/Industrial areas to meet quality standards related to site layout; building configuration, materials, massing, shape and height; landscaping; signage; parking lot aesthetics and functional design; pedestrian circulation; lighting; stormwater management; environmental protection; mass transit access; and others.	Planning & Public Works
2	When possible, encourage master planning for development of new Office/Service/Industrial areas.	Planning
3	Office/Service/Industrial areas should have convenient access to, and when possible, visibility from the regional transportation systems including highways, airport and rail.	Planning
4	Encourage vehicular access to be designed to maximize efficiency and minimize negative level of service impacts on the surrounding road network.	Planning & Public Works
5	Promote the accommodation of a range of employment opportunities from local businesses and regional employers in the county, as both are important to the fiscal well-being of the county.	Planning & Economic Development
6	Encourage employment-generating uses to reuse or intensify existing land areas designated for Office/Service/Industrial uses, when appropriate.	Planning & Economic Development
7	Encourage the mitigation of the potential environmental impacts of Office/Service/Industrial uses through appropriate site design, restorative landscaping, stormwater management and proper management of potentially hazardous technologies through the county's permitting system, in regard to air and water quality.	Planning & Public Works
8	Strategically locate Office/Service/Industrial areas with access to other support services and amenities for employees such as restaurants, day care centers and personal services. Promote the location of these complementary uses in close proximity to Office/Service/Industrial areas, or integrated into a coordinated master plan for a development site.	Planning
9	When Office/Service/Industrial areas are located adjacent to existing or proposed residential development, encourage the use of appropriate landscaping and buffering to reduce the impacts of development on the adjacent residential areas.	Planning

TABLE I-2: POLICY MATRIX

CH 5: Land Use		
Policy	Responsible Agency or Department	
Retail/Commercial		
1	Strongly encourage all Retail/Commercial development to meet quality standards related to site layout; building configuration, materials, massing shape and height; landscaping; signage; parking lot aesthetics and functional design; vehicular and pedestrian circulation; lighting; stormwater management; environmental protection; mass transit access and others.	Planning & Public Works
2	Discourage and avoid the strip development of major thoroughfares with new Retail/Commercial development. Promote concentrations of Retail/Commercial uses in well-designed centers that apply appropriate access management techniques as the preferred configuration.	Planning & Public Works
3	Access management should be vital to the success of Retail/Commercial uses. Access points should be designed to provide adequate visibility for businesses while mitigating negative impacts on the levels of service on the roadways.	Planning & Public Works
4	When existing Retail/Commercial areas are redeveloped, give special attention to access management and site configuration to minimize traffic impacts often associated with strip development.	Planning, Community Revitalization & Public Works
5	Promote the location of new Retail/Commercial development in a manner consistent with population projections and characteristics. Encourage access to grocery stores and services for populations using mass transit and/or pedestrian access.	Planning
6	Strongly encourage redevelopment of existing Retail/Commercial areas which have become less competitive or obsolete due to market changes. Redevelopment should be encouraged to use existing public facility availability, prevent vacant structures, and continue providing Retail/Commercial services to established neighborhoods in the county.	Planning & Community Revitalization
7	New development in Retail/Commercial areas should utilize effective buffers, screening, and site design to minimize potential conflicts with surrounding residential uses.	Planning
Civic		
1	Use the policies and recommendations in Chapter 11: Public Facilities & Utilities of this Plan as a guide for locating new government and public facilities.	Planning in conjunction with various departments
2	Encourage all development in Civic areas to meet quality standards related to site layout; building configuration, materials, massing, shape and height; landscaping; signage; parking lot aesthetics and functional design; vehicular and pedestrian circulation; lighting; stormwater management; environmental protection; mass transit access; and others to set a good example for private development.	Planning & Public Works
3	To reduce conflict with surrounding uses, promote the location of Civic uses on sites large enough to accommodate the use and provide adequate buffers between adjacent uses.	Planning

TABLE I-2: POLICY MATRIX

CH 5: Land Use		
	Policy	Responsible Agency or Department
4	When feasible, Civic uses should respect and incorporate natural, historic and cultural resources into the design of the site.	Planning & Recreation and Parks

TABLE I-2: POLICY MATRIX

Ch 6: Community Character		
	Policy	Responsible Agency or Department
1	Encourage positive activities with a significant number of people in the space. More people in an area means more eyes on the street. Areas of high positive activity are generally safer environments.	Police & Planning
2	Encourage visibility of public and semi-public areas from private areas. Well-lit areas and building design that allow for constant surveillance of semi-public and public areas from the road, sidewalk and other buildings discourages potential threats.	Police & Planning
3	Encourage clear delineation of private and public spaces. The use of landscaping and structural elements to clearly demarcate private spaces discourages intruders from entering into public areas by eliminating confusion between the public and private spaces.	Police & Planning

TABLE I-2: POLICY MATRIX

Ch 8: Natural Resources		
	Policy	Responsible Agency or Department
1	Promote the protection of Chesapeake Bay Preservation Areas from development that may have an adverse environmental impact on the Chesapeake Bay ecosystem.	Planning & Public Works
2	Require assessment and survey of on-site environmental conditions to identify specific environmental status and resources.	Planning & Public Works
3	Require mapping of environmentally sensitive lands for individual sites, including floodplains, aquifer recharge areas, wetlands, steep slopes, woodlands and natural habitat areas in addition to areas generally identified as Chesapeake Bay Preservation Areas in this Plan.	Planning & Public Works
4	Require the design and construction of developments to meet the surface and groundwater quality standards established by the Virginia Department of Conservation and Recreation's Division of Chesapeake Bay Local Assistance in the <i>Chesapeake Bay Preservation Area Designation and Management Regulations (9 VAC 10-20-10 et seq.)</i>	Public Works
5	Evaluate land development or disturbing activities for compliance with the requirements of Chapter 10, Environment, of the <i>County Code</i> .	Public Works
6	Monitor shoreline development to ensure proper erosion control methods are employed.	Public Works
7	Require regular or periodic maintenance of Best Management Practices (BMPs) used for the management of stormwater to ensure their continued function and removal of pollutants.	Public Works
8	Use the standards established in the <i>Henrico County Environmental Program Manual</i> as a guide for the design of BMPs.	Public Works
9	Encourage alternative development practices which minimize impervious surfaces while still being consistent with the permitted uses to reduce the impacts of stormwater runoff.	Planning & Public Works
10	Require soil testing when development is proposed in areas without public sewer, to ensure the site can support on-site septic systems.	Planning, Health & Public Utilities
11	Discourage on-site septic systems which may adversely impact the water quality of aquifers or State waters.	
12	Promote restoration of land areas containing mineral deposits after being mined to keep with future development plans and to protect existing development.	Planning & Public Works
13	Require the location of all sealed mines be provided to the county for future reference.	Planning
14	Encourage alternative development practices which can lessen the adverse impact to air and water quality.	Planning & Public Works
15	Encourage public and private cooperation in the preservation and use of environmentally sensitive areas for public open space, or park and recreation activities with minimal impact on environmentally valuable sites.	Planning & Recreation and Parks

TABLE I-2: POLICY MATRIX

Ch 8: Natural Resources		
	Policy	Responsible Agency or Department
16	Promote the preservation and enhancement of the scenic, historic, natural and open space qualities of the James River and Chickahominy River Corridors in balance with economic development.	Recreation and Parks & Planning
17	Provide access to the James and Chickahominy Rivers through public and private locations. Public access to the rivers could include public park locations and the public amenities associated with large master-planned developments.	Planning & Recreation and Parks
18	Protect the quality of the Camp Holly Springs and Diamond Springs recharge area to the extent reasonably practicable.	Planning & Public Works

TABLE I-2: POLICY MATRIX

Ch 9: Recreation, Parks, Open Space & Cultural Resources		
Policy	Responsible Agency or Department	
Quality of Life		
1	Design and develop a system of parks, natural and historic resources, facilities and programs to meet the needs of a broad array of users.	Recreation and Parks
	a. Solicit the input of potential users in the planning and development of the parks and open space system.	Recreation and Parks
	b. Use demographic trends, recreational trends and standards, results of needs assessments, historic and cultural resources protection standards, and other available information to design a system that anticipates and addresses future needs.	Recreation and Parks
	c. Develop parks, facilities and programs that serve segments of the population with special needs.	Recreation and Parks
Siting and Acquisition		
1	Encourage advance acquisition of land for parks throughout the county, especially in rapidly developing areas.	Recreation and Parks & Real Property
	a. Identify areas where additional land is needed to meet the future needs of county residents.	Recreation and Parks
	b. Determine areas where additional land is available and determine whether available sites are suitable.	Recreation and Parks
	c. Allocate adequate funding for the acquisition and development of parks, open spaces and natural and historical resources.	Recreation and Parks
	d. Acquire sites through purchase, donation, lease, or other means as appropriate.	Real Property
	e. Conduct and maintain a county-wide comprehensive inventory of natural and historic resources to guide conservation and preservation efforts in the identification and potential acquisition of sites.	Recreation and Parks
2	Phase the development of the park and recreation system to respond to service demand and population growth.	Recreation and Parks
	a. Develop a standard for acquisition and development of open space and recreational facilities based on national and State standards, demographic trends, recreational trends and standards, the results of needs assessments, historic, cultural, and natural resource protection standards, and citizen input.	Recreation and Parks
	b. Explore the desirability of accepting land for parks, open space, and possibly other public facilities and infrastructure during the development process.	Recreation and Parks

TABLE I-2: POLICY MATRIX

Ch 9: Recreation, Parks, Open Space & Cultural Resources

	Policy	Responsible Agency or Department
	<ul style="list-style-type: none"> c. Explore mechanisms to encourage the dedication of more and higher quality open space. d. Encourage developers to dedicate parks and open space to the county, provide on-site recreation facilities managed and maintained by neighborhood associations, and/or preserve historic and natural resources through cluster development techniques for the future residents of the community. 	<p>Recreation and Parks</p> <p>Recreation and Parks</p>
3	<p>Actively pursue a wide range of alternative sources of revenue/funding for programs and facilities, such as gifts of land or direct funding for acquisition and development or preservation of open space, parks and recreational facilities and natural and historic resources where they are in the county's best interests.</p> <ul style="list-style-type: none"> a. Use established criteria to evaluate proposed gifts for park development to determine whether the proposed gifts would complement the existing and planned park system. b. Pursue State and Federal funds, where appropriate, to assist in acquisition and development of parks, natural and historic resources, and open space and recreational facilities. c. Explore opportunities for public-private collaboration to provide cultural, arts and recreational facilities. d. Pursue Recreation Access Roadway funds, Community Development Block Grants, Land and Water Conservation Funds, Virginia Trail Funds, and other potential sources of funding to reduce the local cost of acquisition and/or facility construction. e. Explore the feasibility of operating certain facilities and programs on a self-supporting basis, provided these facilities do not compete unfairly with private sector providers. 	<p>Recreation and Parks</p> <p>Recreation and Parks</p> <p>Recreation and Parks</p> <p>Recreation and Parks</p> <p>Recreation and Parks</p> <p>Recreation and Parks</p>
4	<p>Seek opportunities to convert undeveloped property or property owned, but no longer used, by county, city, State and Federal governments to parks and recreational use.</p> <ul style="list-style-type: none"> a. Work with other departments or agencies to determine the feasibility of converting available, publicly-owned property to park or recreational uses as property becomes available. b. Only pursue conversion of properties that would be beneficial to the parks and recreation system or recommended program use. 	<p>Recreation and Parks & Henrico County Public Schools</p> <p>Recreation and Parks & Henrico County Public Schools, in conjunction with various departments</p> <p>Recreation and Parks</p>
5	<p>Seek opportunities to provide open space and recreational uses in conjunction with major public and Semi-Public facilities.</p> <ul style="list-style-type: none"> a. Continue to work with Henrico County Public Schools, other county agencies and public and semi-public 	<p>Recreation and Parks & Henrico County Public Schools</p> <p>Recreation and Parks in conjunction with various</p>

TABLE I-2: POLICY MATRIX

Ch 9: Recreation, Parks, Open Space & Cultural Resources

	Policy	Responsible Agency or Department
	<p>organizations to share recreational facilities for planned activities through memoranda of understanding.</p> <p>b. Continue to seek opportunities for joint land acquisition with the Henrico County School Board and other agencies.</p>	<p>departments</p> <p>Recreation and Parks & Henrico County Public Schools, in conjunction with various departments</p>
Balance		
1	Use the level of service standards as a means of identifying deficiencies and providing resource-based and school-based facilities throughout the county.	Recreation and Parks
2	<p>Strive to ensure that every household has access to adequate park, recreation and leisure opportunities.</p> <p>a. Develop an implementation plan that identifies and prioritizes additional acquisition, development and renovation projects to overcome any perceived shortfalls in levels of service and provide for a balanced system.</p> <p>b. Continue to seek appropriate co-location opportunities with the School Board and other county agencies in providing park and open space opportunities close to Residential areas.</p> <p>c. Provide recreation center facilities flexible enough to meet the specialized needs of populations to be served.</p>	<p>Recreation and Parks & Henrico County Public Schools</p> <p>Recreation and Parks</p> <p>Recreation and Parks & Henrico County Public Schools in conjunction with various departments</p> <p>Recreation and Parks</p>
Economic Development		
1	<p>Recognize that the primary justification for investing in open space, parks, recreation, and natural and historic resources is to ensure a high quality of life for county residents, but that the availability of these features may also be attractive to visitors and businesses considering visiting or relocating to the county.</p> <p>a. Continue to market the county's open space, parks, recreation, natural and historic resources as attractive amenities to economic development prospects.</p> <p>b. Encourage the private sector to provide certain specialized facilities that may be attractive to some industrial and economic development prospects.</p>	<p>Recreation and Parks</p> <p>Recreation and Parks & Economic Development</p> <p>Recreation and Parks & Economic Development</p>
2	<p>Adopt measures to establish the distinctiveness of major transportation corridors that contain open space or historic resources.</p> <p>a. Explore opportunities for overlay districts and other measures to improve and differentiate the visual appearance of entryways into distinct areas of the county. Such measures could include landscaping, distinct signage, streetscape buffers, impact controls, and design standards. Target roadways that serve as the main transportation corridors into and through the county.</p>	<p>Recreation and Parks, Planning & Public Works</p> <p>Recreation and Parks, Planning & Public Works</p>

TABLE I-2: POLICY MATRIX

Ch 9: Recreation, Parks, Open Space & Cultural Resources

	Policy	Responsible Agency or Department
	<ul style="list-style-type: none"> b. Study the appearance and function of other entryways into the county, such as the train station on Staples Mill Road and Richmond International Airport. 	Recreation and Parks, Planning & Public Works
3	<p>Increase efforts to actively promote tourism.</p> <ul style="list-style-type: none"> a. Study ways to increase tourism, such as establishing a museum and/or visitors' center, or joining forces with existing visitor centers in the area, to encourage increased visitation to Henrico attractions. b. Study the feasibility of attracting more regional and national tournaments to Henrico's parks, athletic facilities, and golf courses. c. Encourage private development that makes Henrico a destination for tourism and capitalizes on historical and cultural resources in the county. 	<p>Recreation and Parks & Economic Development</p> <p>Recreation and Parks & Economic Development</p> <p>Recreation and Parks & Economic Development</p> <p>Recreation and Parks & Economic Development</p>
Design for User Safety and Compatibility		
1	<p>Incorporate the concepts and strategies of CPTED (Crime Prevention Through Environmental Design) in existing and proposed park facilities as feasible and desirable.</p> <ul style="list-style-type: none"> a. Continue to use the Crime Prevention Unit within the Division of Police for review and redesign of existing and proposed recreation facilities. b. Undertake safety assessments of the county's parks in coordination with the Division of Police. 	<p>Recreation and Parks & Police</p> <p>Recreation and Parks & Police</p> <p>Recreation and Parks & Police</p>
2	<p>Adopt practices that encourage safety on an ongoing basis.</p> <ul style="list-style-type: none"> a. Identify and address concerns and/or safety problems as soon as they occur. This could be accomplished through diligent maintenance of park properties, a speedy cleanup of any vandalized areas or the notification of proper authorities in the case of an emergency. b. Encourage county residents, neighborhoods and businesses located near a park facility to look at parks as their own and take "ownership" of the site or events at or near the site through the Division's existing Park Watch program. c. Recognize the need for police and/or county security to have access to facilities and provide such access. Continue to identify and pursue the use of technology (automated entry systems) to enhance park safety and improve access for the public. Seek additional opportunities for police, fire and emergency services personnel to become familiar with the location and layout of parks. 	<p>Recreation and Parks & Police</p> <p>Recreation and Parks & Police</p> <p>Recreation and Parks & Police</p> <p>Recreation and Parks, Police, Fire & EMS</p>

TABLE I-2: POLICY MATRIX

Ch 9: Recreation, Parks, Open Space & Cultural Resources

	Policy	Responsible Agency or Department
	<ul style="list-style-type: none"> d. Post the hours of operation and other rules for the park at all access points into park facilities. These access points should also include walkways and bike paths. e. Provide adequate and appropriate lighting for each park facility. f. Coordinate with the Division of Police to assess the safety of potential park-school connections and to identify measures to improve safety. g. Establish design criteria for joint school/park facilities to ensure that park users can get to park areas. 	<p>Recreation and Parks & Police</p> <p>Recreation and Parks</p> <p>Recreation and Parks & Police</p> <p>Recreation and Parks, Henrico County Public Schools & General Services</p>
3	<p>Adopt design measures and management practices that help parks and recreation facilities fit into the surrounding community.</p> <ul style="list-style-type: none"> a. Continue efforts to seek citizen input during the master planning process for new facilities and seek appropriate input during phased development using civic associations, neighborhood watch groups, block associations, special interest user groups, and county residents at large. b. Protect both parks and adjacent neighborhoods through deliberate design and use of physical buffers to include landscaping and appropriate fencing as necessary to distinguish park boundaries from adjacent private property. c. Whenever possible, establish legitimate and safe access to park facilities from adjacent neighborhoods. Access design should ensure that park limits are clearly demarcated so park users will not be drawn onto adjacent private property. d. When master planning parks, anticipate and minimize possible points of conflict or concern regarding facility lighting, noise and traffic. 	<p>Recreation and Parks</p> <p>Recreation and Parks, Community Revitalization, Public Relations & Media Services</p> <p>Recreation and Parks & Planning</p> <p>Recreation and Parks & Planning</p> <p>Recreation and Parks, Planning & Public Works</p>
4	<p>Continue to maintain parks to a high level of cleanliness and attractiveness in order to encourage use and good stewardship among users and neighbors.</p> <ul style="list-style-type: none"> a. Ensure sufficient staffing and resources to perform necessary maintenance. b. Use community volunteer organizations to help maintain facilities. Encourage the "adoption" of parks to supplement maintenance efforts. 	<p>Recreation and Parks</p> <p>Recreation and Parks</p> <p>Recreation and Parks</p>
Resource/Heritage Protection		
1	<p>Seek funding and other mechanisms to protect and preserve vital resources.</p>	<p>Recreation and Parks</p>

TABLE I-2: POLICY MATRIX

Ch 9: Recreation, Parks, Open Space & Cultural Resources

	Policy	Responsible Agency or Department
	<ul style="list-style-type: none"> a. Protect designated and proposed scenic highways and rivers in order to preserve their special qualities. b. Participate in Federal, State, and local programs that offer grants for the preservation of historic and natural resources. These funds are available for county-wide historical and natural preservation plans, surveys and historic rehabilitation projects. c. Pursue partnerships with organizations like Keep Henrico Beautiful to participate in joint projects to protect resources and enhance communities. d. Acquire appropriate sites as a means to protect both historic and natural resources as they become available. 	<p>Recreation and Parks & Planning</p> <p>Recreation and Parks</p> <p>Recreation and Parks</p> <p>Recreation and Parks</p>
2	<p>Maintain a sense of historical continuity through the preservation of sites, buildings, structures and objects important to our heritage.</p> <ul style="list-style-type: none"> a. Promote comprehensive historical and archeological preservation planning in coordination with public facilities, land use, transportation and private development efforts. b. Develop criteria for determining which sites are worthy of protection. c. Develop incentives for preserving historic sites/structures in their original settings. d. Support Federal and State legislation that promotes historic and cultural preservation and development while respecting private property rights. e. Encourage private property owners to nominate noteworthy sites and/or structures to the Virginia and/or National Register of Historic Places. Apply for designation of eligible county-owned sites. f. Seek Federal and State funds to provide public access to historic sites and structures that are open to the public. Encourage developers to provide access to historic sites and structures as part of the development process. g. Encourage owners of property included on the <i>Virginia Register</i> to consider the <i>Virginia Historic Landmark Commission's Historic Easement Program</i>. h. Adopt standards for the preservation, reuse, and management of county-owned historic resources and sites. i. Continue to assist developers during the planning process through appropriate recommendations for the 	<p>Recreation and Parks</p> <p>Recreation and Parks, General Services, Planning & Public Works</p> <p>Recreation and Parks</p> <p>Recreation and Parks</p> <p>Recreation and Parks & Planning</p> <p>Recreation and Parks</p> <p>Recreation and Parks & Planning</p> <p>Recreation and Parks</p> <p>Recreation and Parks & General Services</p> <p>Recreation and Parks & Planning</p>

TABLE I-2: POLICY MATRIX

Ch 9: Recreation, Parks, Open Space & Cultural Resources

	Policy	Responsible Agency or Department
	protection and interpretations of significant historic resources. j. Encourage development of a museum system that could serve as a cultural resource and focal point for community heritage. k. Explore public/private partnerships in the creation and development of a Henrico County museum. l. Regularly update the <i>Inventory of Early Architecture</i> .	Recreation and Parks Recreation and Parks Recreation and Parks
3	Encourage residents and tourists to visit historic and cultural sites open to the public. a. Highlight historic and cultural resources in the county through tourism promotional literature, direct marketing and advertising. b. Identify potential visitors to historic and cultural resources in the county through citizen and consumer surveys, direct marketing appeals and direct advertising. c. Identify sites and resources protected by other governmental agencies or groups and promote these resources as tourist attractions in promotional literature, direct marketing and advertising.	Recreation and Parks Recreation and Parks Recreation and Parks Recreation and Parks
Accessibility		
1	Establish access to park facilities on lands owned by the county or on lands dedicated specifically for the purpose of bicycle and pedestrian access. a. Undertake an inventory of sidewalks maintained by the county to determine which parks are already served by sidewalks. b. Study the feasibility of requiring the construction of sidewalks within one (1) mile of county parks as adjacent lands are developed. c. Pursue additional public access to the James River and Chickahominy River. d. Ensure a high degree of access within parks for all parks users.	Recreation and Parks & Public Works Public Works Recreation and Parks & Public Works Recreation and Parks Recreation and Parks
Programs and Facilities		
1	Continue to review and assess program offerings and objectives using citizen input, program trends and county population trends to ensure they continue to meet the needs of the entire community. Develop new programs as necessary.	Recreation and Parks

TABLE I-2: POLICY MATRIX

Ch 9: Recreation, Parks, Open Space & Cultural Resources	
Policy	Responsible Agency or Department
<ul style="list-style-type: none"> a. Develop countywide full service recreation centers to meet the needs of an ever growing and changing population. b. Continue to seek partnerships and cooperative arrangements with private sector and other levels of government to move into new program areas and develop innovative facilities. 	<p>Recreation and Parks</p> <p>Recreation and Parks</p>

TABLE I-2: POLICY MATRIX

Ch 10: Transportation		
Policy		Responsible Agency or Department
Pedestrian Facilities		
1	Encourage new developments to install sidewalks and other pedestrian facilities. Connections to other neighborhoods and key destinations such as schools, libraries, parks etc., are also encouraged.	Public Works & Planning
2	Require sidewalks and other pedestrian pathways along all new and reconstructed major thoroughfares (see Major Thoroughfare Plan Map) excluding interstate highways and other controlled-access roads.	Public Works & Planning
Bicycle Facilities		
1	Facilitate bicycle travel along all planned and existing designated long-distance bicycle routes in the County through use of signage, shared lanes, bike lanes and shared use paths.	Public Works & Planning
2	Consider the accommodation of bicycles in the planning and design of all major road projects where feasible.	Public Works & Planning
3	Encourage bicycle accommodations in conjunction with new development.	Public Works & Planning
4	Consider the development of a county-wide bicycle plan in order to identify and evaluate potential locations for bicycle facilities.	Public Works & Planning
Bus Service		
1	Continue to monitor citizen satisfaction with GRTC service and ensure a bus system that provides adequate service to the residents of the county.	Public Works
Passenger Train Service		
1	Participate in regional efforts to monitor and evaluate the potential demand for passenger train and light rail service within the county pursuant to regional studies and encourage service that benefits the general welfare of county residents and businesses.	Public Works & Planning
2	Consider potential station locations in the design of Mixed-Use developments particularly in areas where preferred routes have been identified.	Public Works & Planning
Rail Cargo Service		
1	Continue to participate in regional efforts to evaluate potential investments of State and Federal funds to improve rail cargo facilities in the region and encourage service that benefit the general welfare of the county residents and businesses.	Public Works & Planning
Air Travel Service		
1	Continue to have representation on the Capital Region Airport Commission.	Henrico County

TABLE I-2: POLICY MATRIX

Ch 10: Transportation		
2	Monitor and regulate land use and zoning in areas near the airport for compatibility in order to support current and future.	Planning
Policy		Responsible Agency or Department
Road Facilities		
1	Monitor levels of service to identify changes in traffic congestion and evaluate alternative counter-measures to maintain or improve traffic conditions in the county.	Public Works
2	Consider right-in/right-out only driveways at strategic locations for their potential to lessen traffic volumes and improve levels of service at nearby critical intersections.	Public Works
3	Continue to coordinate traffic signal timing plans along strategic corridors. State and Federal transportation funds are available for signal coordination upgrades because of demonstrated benefits to motorists and the general public through air quality improvements. The corridors should continue to be evaluated as dictated by changes in background traffic volumes and traffic generated by new development.	Public Works
Transportation-Related Land Use Policies		
1	Consider the roadway spacing guide presented in Table T-4: Roadway Spacing Guide as the county evaluates applications for new development.	Public Works
2	Ensure public facilities are in place or planned to be available to adequately serve and support new development. Only approve new development upon demonstration that adequate public facilities, as established in this Plan, are or will be available at the time of completion to maintain desired levels of service.	Planning in conjunction with various departments
3	Design new development to provide interconnectivity with existing and future developments through the use of stub streets.	Public Works & Planning
4	Discourage strip development along existing or new thoroughfares. This practice creates an undesirable development pattern and causes traffic and access issues, as well as preventing access from major corridors to large tracts of land that may be developed at a later time.	Planning & Public Works
5	Promote high-quality development through compliance with site plan review and the <i>Design Guidelines Manual</i> , particularly related to landscaping, traffic and pedestrian circulation, signage and building design, placement and orientation.	Planning & Public Works
6	Focus on promoting a high quality of life for residents by providing safety and stability within neighborhoods.	Planning & Police
7	Use the road network in Residential areas to promote safety and connectivity with existing and future development. Rather than focusing traffic on a few arterial or collector streets, more “through streets” are encouraged to disperse traffic and to reduce its isolated impacts at certain points.	Planning & Public Works

TABLE I-2: POLICY MATRIX

Ch 10: Transportation		
8	Encourage pedestrian orientation as the emphasis of Mixed-Use developments when designing buildings and public spaces. Discourage the accommodation of the automobile as a prominent land use or dominant visible feature. Promote structured parking to preserve land area within Mixed-Use developments for open space or more economically beneficial uses.	Planning & Public Works
9	Promote the careful planning and management of traffic circulation and access so each Mixed-Use development operates as a coordinated circulation system. A strong interconnected street network is essential to the function of Mixed-Use areas. These systems need not be a typical grid but may retain some curvilinear characteristics with sufficient crossroads and access locations to promote adequate levels of service as specified in this Plan.	Public Works & Planning
10	Provide convenient access to, and when possible, visibility from the regional transportation systems including highways, airport and rail for Office/Service/Industrial areas. Vehicular access should be designed to maximize efficiency and minimize negative levels of service impacts on the surrounding road network.	Planning
11	Discourage and avoid the strip development of major thoroughfares with new Retail/Commercial development. Promote concentrations of Retail/Commercial uses in well-designed centers that apply appropriate access management techniques as the preferred configuration.	Planning & Public Works
12	Encourage access management for the success of Retail/Commercial uses. Access points should be designed to provide adequate visibility for businesses while mitigating negative impact on the levels of service on the roadways.	Planning & Public Works
13	Give special attention to access management and site configuration when existing Retail/Commercial areas are redeveloped to minimize traffic impacts often associated with strip development.	Planning & Public Works

TABLE I-2: POLICY MATRIX

Ch 11: Public Facilities & Utilities		
Policy		Responsible Agency or Department
General Facility Policies		
1	Consider the location of new public facilities to be substantially in accord with this Plan when addressing the locational standards and policies of this chapter for general planning purposes.	Planning
2	Avoid locating facilities, such as schools, that may be negatively impacted by noise within the airport noise contours as defined in Chapter 8: Natural Resources.	General Services & Planning
3	Encourage co-location and multi-purpose use of existing and future public facility sites.	General Services in conjunction with various departments
4	Mitigate adverse visual, noise and odor impacts associated with future public facilities to the greatest extent possible in order to maintain the county's attractive living environment.	General Services
5	Locate and design public facilities in a manner that minimizes disruption to established land uses.	General Services & Planning
6	Use appropriate, high-quality designs so public facilities can portray a sense of community pride and identification, thereby setting a positive example for private development within the county.	General Services
7	Centrally locate new public facilities to make them accessible by the local roadway network to the largest possible concentrations of population and employment areas, in addition to addressing response times and levels of service.	General Services in conjunction with various departments
8	Coordinate the development of improvements to public facilities with the phasing of private development.	General Services in conjunction with various departments
9	Design and build upgrades and/or improvements made in conjunction with private development to standards which are adequate to meet build-out needs under the Plan's land use recommendations, not just the mid-range needs of a specific development. Additionally, coordinate the development and expansion of public facilities to ensure upgrades benefit as many nearby property owners as possible who are not currently being served.	General Services in conjunction with various departments
10	Identify and consider the possible need for modification to, or expanded capacity of, existing public facilities when reviewing redevelopment, intensification or infill development proposals.	General Services in conjunction with various departments
11	Identify appropriate sites for public facilities in growing areas of the county, and pursue acquisition of these sites in advance of development pressures.	General Services in conjunction with various departments
12	Encourage new developments to include pedestrian access via sidewalks and paths to public facilities, such as schools, libraries and parks.	Planning & Public Works
13	Encourage new development in areas where public water and sewer are available to connect into the system.	Planning & Public Utilities

TABLE I-2: POLICY MATRIX

Ch 11: Public Facilities & Utilities		
Policy	Responsible Agency or Department	
School Sites		
1	Integrate school sites into neighborhoods, providing pedestrian access and promote walking to reduce the roadway impacts. This policy is particularly important for elementary and middle schools in Traditional Neighborhood Developments and Urban Mixed-Use areas.	Henrico County Public Schools
2	Locate schools in primarily Residential areas to be in close proximity to the students' homes.	Henrico County Public Schools
3	Promote site design ensuring availability of adequate land area for faculty parking and emergency access.	Henrico County Public Schools
4	Design all public school facilities to meet or exceed State and Federal standards for universal accessibility.	Henrico County Public Schools
Fire/Rescue		
1	Promote the inclusion of fire/rescue stations as one of the civic elements in the design and development of Traditional Neighborhood Developments and in Urban Mixed-Use areas to provide adequate service to these more densely populated areas.	General Services & Fire
Police		
1	Maintain an active exchange of information between the Division of Police and the Department of Planning to address future needs for police services in the county.	Police & Planning
2	When possible, use existing space for new district headquarters to reduce the start-up costs associated with establishing a new district command.	General Services & Police
Libraries		
1	Add additional square footage to existing library space in areas of the county anticipated to increase in population.	Libraries & General Services
2	Encourage the inclusion of libraries as one of the civic elements in the design and development of Traditional Neighborhood Developments and in Urban Mixed-Use areas to provide adequate service to these more densely populated areas.	Planning & Libraries
Utilities (Water and Sewer)		
1	Support improvements recommended in the <i>Public Utilities Plan</i> .	Public Utilities
2	Continue the construction of water and sewer lines to serve growing areas of the county.	Public Utilities
3	Developers should be responsible for funding the expansion of sewer and water lines to serve new development.	Public Utilities & Planning
4	In instances when the <i>Public Utilities Plan</i> indicates a necessary capacity greater than that which is needed to serve new development, the facility should be built to handle the capacity stated in the plan. The developer should receive credits for the additional capacity, which can be used for future developments or transferred to another developer.	Public Utilities

TABLE I-2: POLICY MATRIX

Ch 11: Public Facilities & Utilities

	Policy	Responsible Agency or Department
5	Redevelopment and infill projects are desirable when consistent with Chapter 5: Land Use and Chapter 7: Planning & Economic Focus Areas, and are to be approached with caution from the provision of utilities. The county and developers should recognize there may be limitations to the capacity of existing sewer and water facilities in these areas.	Public Utilities
6	Encourage new development adjacent to existing lines to tie into the sewer and water systems in the most efficient way possible. It may be necessary to loop water lines to provide redundancy within the system.	Public Utilities

Wireless Communication Technology

1	Discourage towers in areas zoned or planned for residential uses.	Planning
2	Discourage towers in private cemeteries.	Planning
3	Encourage stealth tower design when towers are requested adjacent to or in close proximity to existing Residential areas or areas recommended for residential use in Chapter 5: Land Use.	Planning
4	<p>Only consider new locations for towers when co-location or replacement of existing towers is not adequate and feasible. The order of preference for land use categories when considering a new site is industrial, commercial, or agricultural not utilized for residential purposes.</p> <ul style="list-style-type: none"> a. Consider county-owned, State-owned, or Federal properties and facilities to encourage proper siting of wireless communications towers provided: <ul style="list-style-type: none"> i. The use and character of public properties and adjacent properties is not adversely impacted; ii. The proposed telecommunications facilities are consistent with other elements of the Comprehensive Plan and <i>Zoning Ordinance</i>; and iii. Appropriate approvals and agreements are reached with the public agency’s boards, or authorities. 	<p>Planning</p> <p>Planning</p> <p>Planning</p> <p>Planning</p>
5	New telecommunications sites in areas zoned or planned for industrial, commercial or agricultural properties with no residences should be initially constructed or designed to be extended to a height of one-hundred ninety-nine (199) feet. Reduced tower height may be more appropriate in sensitive locations.	Planning
6	If co-location opportunities are not possible, encourage siting of towers at locations within wooded areas or remote sites away from residential structures. While such locations may not obscure from view the entirety of the tower, they may reduce the visual impact.	Planning
7	Locate towers at the lowest possible point along ridgelines.	Planning
8	Ensure new towers or antenna structures do not block the county’s microwave paths or interfere with the county’s public safety radio system.	Planning
9	Discourage the location of towers within 1,400 feet of New Market Road (Route 5) unless an acceptable stealth-tower design is utilized.	Planning
10	Encourage, where appropriate, the placement of antennas on existing structures including but not limited to existing towers, utility poles, water tanks, building rooftops, and other tall structures.	Planning

TABLE I-2: POLICY MATRIX

Ch 11: Public Facilities & Utilities		
Policy	Responsible Agency or Department	
11	Encourage, where appropriate, the upgrade or replacement of lower towers with taller towers designed to maximize co-location opportunities.	Planning
12	Expedite the permitting of wireless communication towers that have minimal visual impacts and meet all regulatory standards.	Planning
13	Ensure ground-mounted equipment does not generate noise in excess of fifty (50) decibels at the property line of the parcel on which the tower is located.	Planning
14	Encourage the consideration of stealth-tower designs for all applications.	Planning
15	Use monopoles rather than lattice towers.	Planning
16	Limit clearing of the sites to allow existing mature vegetation to remain for visual screening.	Planning
17	Screen security fencing and visible tower locations from public view. A row of evergreen trees a minimum of eight (8) feet tall and a maximum of ten (10) feet apart, and a continuous hedge at least twenty (20) inches in height in front of the tree line should be planted around the perimeter of the fence.	Planning
18	Discourage lighting and painting of a tower unless required by the FAA. Construct towers at reduced height to eliminate FAA lighting requirements. Limit flashing strobe lights to requirements by the FAA.	Planning
19	When lighting is required on equipment shelters, shield and orient it inward so as to not project on surrounding properties.	Planning
20	Finish equipment shelters in earth-tone colors and provide appropriate screening.	Planning
21	When antennas are attached to an existing building, blend them with the existing structure.	Planning
22	Use the requirements of the Department of Public Works to evaluate access to the site.	Public Works
23	Use flush-mounted or stealth antennas in visible or sensitive locations.	Planning

THE IMPLEMENTATION MATRIX

The **Implementation Matrix** highlights the recommendations that the county should take to ensure that the general goals, objectives and policies identified in the Plan are put into action. In many cases these recommendations are either on-going in various departments or are given a high priority as they are direct ways to ensure the implementation of the Plan. Beyond the recommendation, the matrix also identifies the agency or department proposed to be responsible for carrying out the action and the time period in which the action should occur.

TABLE I-3: IMPLEMENTATION MATRIX

CH 5: Land Use			Action Term ¹			
Action		Responsible Agency or Department	On-going	Short-Term	Mid-Term	Long-Term
1	Revise the <i>Zoning Ordinance, Subdivision Ordinance</i> and related regulations as needed to implement the goals, objectives and policies of the Comprehensive Plan.	Planning		✘		
2	Develop and implement innovative zoning and subdivision regulations to facilitate cohesive large-tract planned development. New zoning and subdivision regulations will be necessary to effectively implement the recommendations associated with the rural residential/prime agriculture, suburban mixed-use and traditional neighborhood development.	Planning		✘		
3	Establish and implement criteria that provide guidance on when a development should be required to include a fiscal impact analysis at the Plan of Development, subdivision, rezoning or use permit stage.	Finance & Planning		✘		
4	Develop policies and procedures to encourage infill and redevelopment. When vacant land in the vicinity is currently zoned for the desired use, rezoning should be discouraged.	Planning & Community Revitalization	✘			
5	Continue to place a priority on preserving and protecting environmentally sensitive features such as stream corridors, wetlands and other areas contributing to water quality in Henrico County and Virginia.	Planning & Public Works	✘			
6	Maintain and regularly update the countywide geographic information system to provide assistance in making land use decisions.	Planning, Information Technology & Public Works (GIS)	✘			
7	Review Chapter 5: Land Use and the Future Land Use Map on an annual basis to determine the need for amendments.	Planning	✘			
8	Monitor the conditions of housing stock in the county. Encourage the maintenance, and when necessary, the demolition of units which are unsafe. Continue to participate in the CDBG program.	Community Revitalization	✘			
9	Establish and maintain joint-planning relationships with adjacent jurisdictions.	Planning in conjunction with various departments	✘			
10	Continue intra-governmental cooperation in all areas dealing with land use and development.	Planning	✘			

¹ Short-Term = 1-2 Years; Mid-Term = 3-5 Years; Long-Term = 5+ Years

TABLE I-3: IMPLEMENTATION MATRIX

			Action Term ¹			
			On-going	Short-Term	Mid-Term	Long-Term
Action		Responsible Agency or Department				
11	Use the Future Land Use Map, Land Use Categories, and Keystone Policies to guide rezoning recommendations in terms of density and types of uses.	Planning	✘			
12	Review all Board of Zoning Appeals, Planning Commission and Board of Supervisors applications to determine their consistency with the Comprehensive Plan.	Planning	✘			
13	Require a feasibility study which addresses the health, safety and welfare of the community as a part of rezoning applications for all TND, SMX and shopping center sites that are not shown on the adopted Future Land Use Map.	Planning		✘		
14	Use the Plan of Development review process to ensure proper attention is given to site design to minimize any adverse effects of new development on existing development.	Planning	✘			
15	Encourage home ownership programs.	Community Revitalization	✘			
16	Participate in housing programs which promote the vitality of the community.	Community Revitalization	✘			

TABLE I-3: IMPLEMENTATION MATRIX

		Ch 7: Planning and Economic Focus Areas				
		Action Term ²				
Action		Responsible Agency or Department	On-going	Short-Term	Mid-Term	Long-Term
1	Prioritize the Existing Character Protection Areas by those with the greatest development pressure and where appropriate, create overlay districts as described in the action recommendations for that area, to protect the unique and existing character.	Planning & Community Revitalization		✘		
2	Require the submission of master plans for development approval of the Mixed-Use areas designated on the Future Land Use Map and particularly the Special Focus Areas identified in Chapter 7.	Planning		✘		
3	Continue to monitor the Neighborhood Enhancement Study Areas identified in Chapter 7 to determine when action is necessary.	Community Revitalization	✘			
4	Develop a program to evaluate the need for action in the Reinvestment/Redevelopment Opportunity Areas, and monitor the areas identified in Chapter 7 to determine when or if reinvestment or redevelopment is required. The process for developing improvement strategies for these areas is included in the Special Focus Areas Study Tool Box in Chapter 7.	Community Revitalization & Planning			✘	
5	Continue to investigate new sources of external funding to assist in improvement and redevelopment efforts within areas of the county.	Community Revitalization	✘			
6	Continue to work directly with business leaders and encourage their business's continuance and growth in the county.	Economic Development Authority	✘			
7	Promote the economic development of the county by preserving the areas identified as Prime Economic Development Areas for employment and revenue generating uses by discouraging rezoning or development practices that would result in residential development in these locations.	Planning & Economic Development Authority	✘			
8	Continue to promote the benefits of the Enterprise Zone.	Community Revitalization	✘			
9	Continue to work with public and private agencies to publicize the advantage of locating businesses in Henrico County and the Richmond area.	Economic Development Authority	✘			

² Short-Term = 1-2 Years; Mid-Term = 3-5 Years; Long-Term = 5+ Years

TABLE I-3: IMPLEMENTATION MATRIX

		Responsible Agency or Department	Action Term ²			
			On-going	Short-Term	Mid-Term	Long-Term
Action						
10	Promote the use of bonds available through the Industrial Development Authority, State Industrial Access Funds, Community Development Block Grants and other funding programs to attract economic development.	Economic Development Authority & Finance	✘			

TABLE I-3: IMPLEMENTATION MATRIX

Ch 8: Natural Resources			Action Term ³			
Action		Responsible Agency or Department	On-going	Short-Term	Mid-Term	Long-Term
1	Require connection to public water and sewer in areas of potential groundwater contamination.	Health & Public Utilities	✘			
2	Maintain the erosion and sediment control, zoning, and subdivision ordinances to properly manage the development of flood prone and wetland areas in accordance with the objectives and policies of this Plan.	Public Works & Planning	✘			
3	Manage and control environmentally hazardous technologies through the zoning regulations and permitting.	Planning	✘			
4	Require conspicuous statements on all subdivision plats to alert prospective purchasers of pre-existing conditions (on-site or in proximity) which may be hazardous or affect the use and enjoyment of the property, (i.e., noise, mined areas, floodplains, wetlands, and Chesapeake Bay Preservation Areas).	Planning & Public Works	✘			
5	Regulate heights and structures in airport approach zones in accordance with Federal Aviation Administration (FAA) standards.	Planning	✘			
6	Work with the Virginia General Assembly to improve building construction standards to reduce noise impact and develop noise abatement construction standards in the county Building Code.	Building Inspections		✘		
7	Maintain and enforce appropriate stormwater management regulations to meet the requirements of the Chesapeake Bay Preservation Act.	Public Works	✘			
8	Continue to enforce stormwater management BMP regulations for all land disturbing activities.	Public Works	✘			
9	Monitor State and Federal regulations regarding the Chesapeake Bay and other natural resources, and update local policies accordingly and continue to cooperate with local, State, and Federal agencies to address environmental issues.	Public Works	✘			
10	Continue to enforce required maintenance of BMP to ensure their continued function and removal of pollutants.	Public Works	✘			

³ Short-Term = 1-2 Years; Mid-Term = 3-5 Years; Long Term = 5+ Years

TABLE I-3: IMPLEMENTATION MATRIX

		Ch 8: Natural Resources				
Action	Responsible Agency or Department	Action Term ³				
		On-going	Short-Term	Mid-Term	Long-Term	
11	Continue to enforce a program to review existing BMP facilities for such things as retrofit potential, possible illegal connections to storm sewer, oil/water separator and trash racks maintenance.	Public Works	✘			
12	Encourage the rezoning of properties in the 100-year floodplain to the "C-1" Conservation District as may be designed to implement this plan, in order to protect these environmentally sensitive areas and to minimize stormwater control problems.	Planning	✘			
13	Maintain the program requiring five-year pump outs of on-site waste treatment systems.	Public Works	✘			
14	Continue and improve basic guidelines for natural resource protection, including proposing a method of preserving upland habitat in developing areas, stabilizing disturbed areas and slopes, maintaining shade cover over creeks and water bodies, and maintaining floodplains as natural habitat areas.	Public Works	✘			
15	Continue to promote trip reduction, and congestion management methods including but not limited to: mass transportation; carpooling, flex time; free transit passes vs. free parking; and alternative fuel vehicle fleets, to reduce non-point source pollutants to the air, soil and water.	Public Works			✘	
16	Continue to implement a program to encourage protection and maintenance of environmental quality.	Planning & Public Works	✘			
17	Develop and implement a program to encourage private property owners to utilize innovative environmental protection strategies on private property.	Public Works & Planning				✘
18	Identify and pursue opportunities for the public acquisition, protection and preservation of natural resources.	Recreation and Parks	✘			
19	Establish and implement criteria that provide guidance on when a development should be required to include an environmental impact analysis at the POD, subdivision, rezoning, or use permit stage.	Planning & Public Works		✘		
20	Actively participate in ongoing environmental resource studies affecting the county.	Planning in conjunction with various departments	✘			
21	Insure the county's flood insurance program is regularly updated to maintain data and mapping and use this information to assess proposed development.	Public Works	✘			
22	Continue to review all applications for extraction of mineral resources to prevent irreversible damage to the environment and to ensure reclamation for future development.	Planning & Public Works	✘			

TABLE I-3: IMPLEMENTATION MATRIX

Ch 8: Natural Resources			Action Term ³			
Action		Responsible Agency or Department	On-going	Short-Term	Mid-Term	Long-Term
23	Promote recycling of renewable resources by supporting local recycling efforts.	Public Utilities & Central Virginia Waste Management Authority	✘			
24	Enforce soil erosion and sediment control ordinances with frequent inspection of construction sites.	Building Construction & Inspection	✘			
25	Require all BMPs to meet the guidelines established in the <i>Henrico County Environmental Program Manual</i> .	Planning, Permit Center & Public Works	✘			
26	Require stormwater quality management and maintenance for all new and redevelopment sites.	Public Works	✘			

TABLE I-3: IMPLEMENTATION MATRIX

Ch 9: Recreation, Parks, Open Space, and Cultural Resources

Action	Responsible Agency or Department	Action Term ⁴			
		On-going	Short-Term	Mid-Term	Long-Term
1	Adopt measures to establish the distinctiveness of major transportation corridors that contain open space or historic resources. (See Chapter 7: Planning & Economic Focus Areas for some identified corridors.)	Recreation and Parks & Planning		✘	
2	Adopt design measures and management practices that help parks and recreation facilities fit into the surrounding community.	Recreation and Parks, Community Revitalization & Planning		✘	
3	Develop and maintain a map illustrating future service areas for new park and recreation facilities based on maintaining high levels of service for existing development and new growth. This map should be reviewed and updated if necessary on a biannual basis. The map can be found in the <i>Public Facilities Handbook</i> .	Recreation and Parks & Planning		✘	
4	Prioritize recreation, park, and open space projects based on population growth, citizen input, and the locations of needed future service areas.	Recreation and Parks		✘	
5	Maintain a current comprehensive listing of historical and archaeological sites within the county (<i>Inventory of Early Architecture</i>), and use this list in the review of all projects receiving State and/or Federal funding.	Recreation and Parks	✘		
6	Monitor Federal and State legislation related to historic and cultural preservation and development and implement as appropriate.	Recreation and Parks	✘		
7	Identify and pursue funding options for the public acquisition, protection and preservation of natural, historic and cultural resources and park land when in the county's best interest.	Recreation and Parks	✘		
8	Encourage the advance acquisition of land for parks throughout the county utilizing the future service areas map.	Recreation and Parks & Planning	✘		
9	Seek opportunities to convert undeveloped property or property owned, but no longer used, by county, State, and Federal governments to parks and recreational use.	Recreation and Parks & Planning	✘		
10	Use the level of service standards as a means of identifying deficiencies and providing resource-based and school-based facilities throughout the county.	Recreation and Parks, Henrico County Public Schools & Planning	✘		
11	Design recreation and park facilities for user safety and compatibility.	Recreation and Parks	✘		

⁴ Short-Term = 1-2 Years; Mid-Term = 3-5 Years; Long Term = 5+ Years

TABLE I-3: IMPLEMENTATION MATRIX

		Ch 9: Recreation, Parks, Open Space, and Cultural Resources				
Action		Responsible Agency or Department	Action Term ⁴			
			On-going	Short-Term	Mid-Term	Long-Term
12	Incorporate the concepts and strategies of CPTED (Crime Prevention Through Environmental Design) in existing and proposed park facilities as feasible and desirable.	Recreation and Parks & Police	✘			
13	Continue to review and assess program offerings and objectives using citizen input, program trends, and county population trends to ensure they continue to meet the needs of the entire community. Develop new programs as necessary.	Recreation and Parks	✘			
14	Use the policies and recommendations included in Chapter 9 to maintain and enhance the recreation, park and open space system in the county.	Recreation and Parks	✘			
15	Promote public awareness of the importance of sites and structures with historic or cultural significance.	Recreation and Parks	✘			
16	Support efforts to develop public cultural facilities incorporating historical or archaeological sites or structures.	Recreation and Parks	✘			
17	Support efforts to promote heritage tourism.	Recreation and Parks	✘			
18	Support property owners who are seeking Federal and State funds for the preservation of historic sites or structures.	Recreation and Parks	✘			

TABLE I-3: IMPLEMENTATION MATRIX

		Ch 10: Transportation			
Action	Responsible Agency or Department	Action Term ⁵			
		On-going	Short-Term	Mid-Term	Long-Term
1	Establish and implement criteria that provide guidance on when a development should be required to include a traffic impact analysis and/or an interchange impact analysis at the plan of development, subdivision, rezoning or use permit stage.		✘		
2	Continue to encourage right-of-way dedication in the Plan of Development and proffer processes. Particular focus should be placed on establishing right-of-way for the planned roads identified on the Major Thoroughfare Plan Map included in Chapter 10 and on file in Planning and Public Works.	✘			
3	Reduce congestion on the road network by applying the design solutions detailed in the <i>Transportation Systems Management Manual</i> .	✘			
4	Continue to monitor citizen satisfaction with GRTC service and ensure a bus system that provides adequate service to the residents of the county.	✘			
5	Monitor levels of service to identify changes in traffic congestion and evaluate alternative counter-measures to maintain or improve traffic conditions in the county.	✘			
6	Continue to coordinate traffic signal timing plans along strategic corridors.	✘			
7	Follow the recommendations of Chapter 10 in the design and development of new transportation facilities associated with roadway improvements, pedestrian facilities, and other modes of transportation.	✘			
8	Monitor and update the Major Thoroughfare Plan Map every five (5) years if necessary.	✘			
9	Encourage intergovernmental coordination with other jurisdictions within the region when considering designs for transportation facilities that will have an impact on the overall region.	✘			

⁵ Short-Term = 1-2 Years; Mid-Term = 3-5 Years; Long Term = 5+ Years

TABLE I-3: IMPLEMENTATION MATRIX

			Action Term ⁶			
			On-going	Short-Term	Mid-Term	Long-Term
Action		Responsible Agency or Department				
1	Require new development to tie into public water and sewer where it is available.	Planning & Public Utilities	✘			
2	Establish and institute a procedure for evaluating gifts of land, easements or funds for development of public facilities. Donations should only be accepted if they are in the best interest of the county.	Planning & Real Property in conjunction with various departments			✘	
3	Monitor the growth patterns and trends in the county on an annual basis to ensure the educational needs of the community are being met	Planning & Henrico County Public Schools	✘			
4	Encourage school site co-location with recreational and park facilities.	Planning & Henrico County Public Schools	✘			
5	Develop an urban prototype for public facilities to take advantage of different site opportunities in the Urban Mixed-Use and Traditional Neighborhood Development areas proposed in the Future Land Use Map.	General Services & Planning		✘		
6	Encourage acquisition of land for schools in advance of development pressure when possible.	Henrico County Public Schools	✘			
7	Continue the use of the CADADAM system to assist the county in the identification of general locations for future fire station sites by applying the data from the Transportation Model, Chapter 10: Transportation and Chapter 5: Land Use.	Fire & Rescue in conjunction with various departments	✘			
8	Evaluate the feasibility and appropriateness of extending water and sewer service to areas of the county under development.	Public Utilities		✘		
9	Continue to maintain a comprehensive inventory of existing telecommunication infrastructure to help identify future co-location opportunities and provide information to other County Departments.	Planning	✘			
10	After obtaining anticipated county-wide build-out coverage grids from all wireless service providers, initiate technical evaluation of the County's wireless network to identify an optimal build-out strategy which maximizes locational efficiency and minimizes overall visual impacts.	Planning			✘	

⁶ Short-Term = 1-2 Years; Mid-Term = 3-5 Years; Long Term = 5+ Years

TABLE I-3: IMPLEMENTATION MATRIX

Chapter 11: Public Facilities & Utilities			Action Term ⁶			
Action	Responsible Agency or Department	On-going	Short-Term	Mid-Term	Long-Term	
11	Update comprehensive standards for the development and installation of wireless communications infrastructure based on results from the county-wide study.			✘		
12	Continue to coordinate with adjoining localities when a wireless tower request is proposed near the county boundaries.	✘				
13	Consider the development of a countywide network analysis to help achieve greater efficiency in the placement of wireless communication infrastructure.			✘		
14	Obtain industry and citizen input on the future development of local wireless communications regulations.	✘				
15	Coordinate with adjacent municipalities on projects that may have regional impacts on public service and facilities.	✘				
16	Use the <i>Public Facilities Handbook</i> to identify and acquire sites for future public facilities.	✘				
17	Use the information in the Comprehensive Plan and the <i>Public Facilities Handbook</i> to coordinate the provision of public services/facilities with private development.	✘				
18	Use the recommendations and guidance in the Comprehensive Plan to complete an annual review of the Capital Improvement Program.	✘				

APPENDICES

The Appendices can be found on the Henrico County Planning Department's website. For more information, go to:

www.co.henrico.va.us/departments/planning/projects/2026-comprehensive-plan

APPENDIX A: DEMAND ANALYSIS

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APPENDIX B: CAPACITY ANALYSIS

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APPENDIX C: DEMOGRAPHIC APPENDIX

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APPENDIX D: TRAVEL DEMAND MODEL METHODOLOGY

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APPENDIX E: TRANSPORTATION SYSTEMS MANAGEMENT STRATEGIES

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APPENDIX F: HOUSING AFFORDABILITY

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