

**CHAPTER ONE : LOCATION**

A. Regional Setting .....1-2

    1. Topography.....1-2

    2. Soils .....1-3

    3. Geology .....1-3

    4. Surface Water .....1-4

    5. Flood Plain .....1-4

    6. Air Quality.....1-4

    7. Forest.....1-4

B. Climate .....1-5

C. History .....1-5

## **A. REGIONAL SETTING**

Warren County is located in the Shenandoah Valley of northwestern Virginia. It is bounded by Frederick and Clarke Counties on the north, Fauquier and Rappahannock Counties on the east, Page County to the south, and by Shenandoah County to the west.

Warren County has a total land area of 219 square miles. The rural part of the County contains 209.9 square miles and the Town of Front Royal covers 9.1 square miles.

Three factors in the County's regional setting have greatly influenced growth and development. The first factor is its location in the Shenandoah Valley. For more than a century, the Valley has been noted for its beautiful mountains and clear streams, and has attracted many tourists and seasonal guests. Because of the ease of travel along its length, the Valley has been an important North-South transportation route since Indian times.

A second regional setting factor influencing growth is the County's location bordering two low passes over the Blue Ridge Mountains. Much pioneer commerce from the Richmond and Hampton Roads areas passed through Chester and Manassas Gaps, across Warren County to distant markets. The early retail and industrial sectors of the economy developed from trans-shipping of manufactured goods and agricultural produce through the County.

The third factor is the close proximity of Warren County to major cities. The distance to Washington, D.C. is 70 miles; to Baltimore, 110 miles; and to Richmond, 135 miles. These and other eastern cities have been major market places for County produce and products, as well as major suppliers of manufactured goods.

### **1. Topography**

Warren County is bounded by the Blue Ridge Mountains on the east and the Massanutten Mountains on the west. The Blue Ridge Mountains are the highest, averaging 2,700 feet above sea level throughout the County. The lowest elevations are found in the north (1,925 feet at the Clarke County line) and the highest in the south (3,460 feet at the Page County line). The Massanutten Mountains average 2,000 feet above sea level with the highest elevations in the north (2,106 feet on Signal Knob) and lowest in the south (1,860 feet at the Page County line). These two mountain ridges visually dominate the landscape within the County, looming 1,000 to 2,900 feet over the central lowland. Topography in these mountainous parts includes steep-walled valleys with fast flowing streams and wooded slopes.

The following four categories define slope areas within the County and describe the development potential of each. Flat terrain is land having a slope of less than three percent. It includes the flood plain of the Shenandoah River. Development in these areas should be prohibited because of drainage problems caused by the negligible slope and because of the high probability of flooding. Warren County has 5,940 acres or 4% of its total land area, in the 0-3% slope category.

Gently sloping land ranges from a 3% to 7% slope. This land is suitable for all forms of development, but particularly for industrial, commercial, and public (institutional) uses because the gentle slopes provide good drainage without posing construction problems. The gently sloping land is located in the central and northwestern part of the County. The 3 to 7% slope category covers 63,358 acres, or 47% of the total land area.

Moderately sloping land ranges from 7 - 15% slope. These areas are well suited for single-family, detached residential development; however, the steeper the slope (especially over 12%), the greater the problems that will arise during construction and site development. Moderately sloping land is found in the Browntown area and along the boundary of the George Washington National Forest. Warren County has 19% of its total land area, in the 7 - 15% slope category.

Steeply sloping land ranges from 15 - 25% slope. Development in areas with this slope becomes costly and difficult. Steeply sloping land extends along the boundary of the Blue Ridge Mountains. The County has approximately 18,296, or 13% of its total land area, in the 15 - 25% slope category.

Excessively sloping land includes land ranging from 25 - 45% slope. This land is found within the Massanutten Mountain range along the southwestern boundary of the County and within the Blue Ridge Mountains along the County's eastern boundary. Warren County has 22,898 acres, or 17% of its total land area, in the 25 - 45 % slope category.

---

## **2. Soils**

A detailed soil survey for Warren County has recently been updated by the USDA Soil Conservation Service. This survey is the County's best source for detailed site data on soils constraints for development. The soil composition of an area is another factor determining natural development potential. The three major divisions of soils in Warren County are the Massanutten Mountains in the west, the shale and limestone areas of the central County, and the Blue Ridge Mountains and foothills in the eastern part of the County. Major soil associations in the County include: lodi-endcav; carbo-rock outcrop-chilhowie; unison-chagrin-dyke; berks-blairton-weikert; berks-weikert-sequoia; myersville-montalto-lew.

---

## **3. Geology**

Warren County is part of the northern Appalachian Valley, also known as the Shenandoah Valley because of its major river. The central and western section of the County is part of the Valley and Ridge physiographic province, and the eastern section is part of the Blue Ridge physiographic province.

The extreme southwestern portion of the County, or the eastern ridge of the Massanutten Mountains is underlain by quartzite and sandstone. The central part of the County has limestone, dolomite and shale bedrock. The eastern area, the Blue Ridge Mountains and foothills, is comprised mainly of igneous and metamorphic rocks, including granite, greenstone, conglomerate, and quartzite.

The bedrock underlying the surface soils in Warren County include a variety of sedimentary, metamorphic and igneous rocks. These include limestones, dolomites, sandstone, shale, siltstone, conglomerate, quartzite, phyllite, tuff, granite, and other metasedimentary rocks. Soils found over these different rock types are the result of weathering of the underlying bedrock.

---

#### **4. Surface Water**

---

Warren County is drained by the Shenandoah River and its North and South Forks. A fourth stream, Happy Creek, merges at the junction of the two tributary forks, forming the Shenandoah River, and is the last major drainage basin within the County.

The Shenandoah River, including both the North and South Forks, is one of the most important resources in the County. It provides the major domestic and industrial water supply, a source of power and water for recreation and agriculture, as well as an irreplaceable scenic landscape.

The four basins can be divided into another six minor watersheds. Each of these represents small but locally important streams draining into the larger basins. The ten major drainage basins are as follows: (1) South Fork of the Shenandoah River, including very small tributaries - 26,575 acres. (a) Cabin Run Watershed - 7,040 acres, (b) Gooney Creek Watershed - 17,498 acres, (c) Flint Run Watershed - 9,210 acres. (2) Happy Creek - 17,138 acres, (3) North Fork of the Shenandoah River, with very minor tributaries - 11,650 acres, (a) Passage Creek Watershed - 2,307 acres. (4) Shenandoah River and very small tributaries - 27,799 acres, (a) Manassas Run Watershed - 9,325 acres, and (b) the Crooked Run Watershed - 11,618 acres.

---

#### **5. Flood Plain**

---

Nearly 4% of the total land area in Warren County (or 5,940 acres) has a high probability of flooding because of a slope of less than 3%. It includes the flood plain of the Shenandoah River.

Flood plains are nearly level land areas which border streams and rivers and are occasionally flooded unless artificially protected. The actual boundary of a flood plain varies significantly depending on the frequency of flooding. The 100 year frequency is most often used to determine flood hazard areas. The 100 year flood plain is the area which has a 100 percent probability of flooding at least once during a 100 year time period.

---

#### **6. Air Quality**

---

Although Warren County is an attainment area, it is registered a Class I airshed, which allows little or no additional degradation to air quality. The Class I requirements are intended to protect the George Washington National Forest and the Shenandoah National Park.

---

#### **7. Forest**

---

A majority of Warren County is well suited for forestry. Land in the central and eastern section of the County is the most favorably suited. Soils in this area have high potential for growing

both pine and hardwood species. The terrain ranges from nearly level to moderately steep. Natural wood lots consist of mixed stands of oak, locust, black walnut, ash, sycamore, hemlock, black locust, hickory and yellow poplar.

## **B. CLIMATE**

The State of Virginia has a moderate year-round climate, characterized by short, mild winters, long spring and fall seasons, and warm summers. The moderate climate is a result of the State's location between the Deep South and the northern states, and between the mountains on the west and the Atlantic Ocean on the east.

Warren County's climate is characterized by mild winters and warm, humid summers. Winter daytime temperatures are usually in the 40's with nighttime lows in the 20's. During the summer, daytime highs are usually in the 80's with nighttime lows around 60 degrees.

The average annual precipitation in Warren County is 40 inches and snowfall averages 21 inches annually. The mean date of the last spring freeze is April 26 and the mean date of the first fall freeze is October 13, making the average growing season around 170 days. Prevailing winds are from the south-southwest direction at an average velocity of 10 mph.

## **C. HISTORY**

The history of Warren County begins with the Indians between 11,000 and 12,000 years ago. The site of the oldest known permanent habitations in the eastern United States is located in the County along the South Fork of the Shenandoah River.

White men first appeared in the Shenandoah Valley in the mid-1600's. Warren County was first settled around 1730. Many of the County's early settlers were Scots-Irish and English Quakers.

Warren County was situated at the intersection of land and water trade routes. Supplies and manufactured goods came through the Blue Ridge Mountains through Chester and Manassas Gaps. At the confluence of the North and South Forks of the Shenandoah River, much of the early agricultural produce of the Valley was loaded onto barges for shipment to the coastal ports. The Town of Front Royal was eventually established at that river port in 1788.

Leadership and military manpower were the major resources supplied by Warren County and other Shenandoah Valley communities during the Revolutionary War. Pig iron, grain, leather, flour, meat, fruit, vegetables, and lumber were other valuable resources furnished to the Colonial cause.

Warren County began to boom in the early 1800's. The wars in Europe created a need for breadstuffs and brought a quick change from a tobacco-oriented economy to the raising of wheat.

The County was officially founded in 1836. It was formed from parts of Frederick and Shenandoah Counties. Front Royal has been the county seat from the beginning. In 1840, Warren County had a population of 5,627, one-fourth of which were slaves.

The first railroad made its way into the Shenandoah Valley in 1854 by way of the Manassas Gap and Front Royal.

Warren County was of strategic importance during the Civil War because of its agricultural productivity, its transportation links with Winchester to the north, and its links with eastern Virginia by way of the roads through Chester and Manassas Gaps and the vital Manassas Gap Railroad.

The Battle of Front Royal, on May 23, 1862, was one of the battles in General Stonewall Jackson's famous Valley Campaign. In that battle, Confederate forces defeated 1,000 Union soldiers to capture a military supply depot, the Manassas Gap Railroad, and the strategic bridges over the two forks of the Shenandoah River at Riverton.

The Civil War destroyed most of the buildings in Warren County, but the soil could still be farmed and the County soon began to attract investors to develop local natural resources. By the 1890's, the County had again erupted in a flurry of activity. An enormous vineyard had been started near Front Royal, and iron, copper, and manganese were discovered within the County. Lime works had been founded in Riverton in 1869. Manufacturing also soon expanded, with sumac, tanning, and leather industries regaining the importance they had previously known. Other industries included tinning and cigar production. By 1900, Warren County's population had reached 8,837.

The two most important changes in Warren County during the 20th century have been the construction of two large manufacturing plants and the growth of tourism.

In 1937, construction began on the American Viscose manufacturing facility. This chemical-textile plant in Front Royal was at one time the world's largest producer of rayon. The U.S. Government operated the plant during World War II, producing materials to aid the war effort. FMC, Incorporated purchased the facility and operated it into the mid 1970's. An FMC management team, led by Mr. John Gregg, executed one of the first leveraged buyouts in the United States. The new company was named Avtex Fibers-Front Royal, Inc.

The rayon plant was the economic mainstay of this community for several decades. It was the largest employer within the region for over 20 years. Several major layoffs decreased the workforce from approximately 1300 in 1988 to 468 at the plant's closing in November 1989.

In the 1980s, Avtex was cited for a number of federal and state water quality violations and was eventually designated a Superfund Site. In the mid-1990s, the Front Royal-Warren County Economic Development Authority purchased the property and has since worked with the FMC Corporation, U.S. Army Corps of Engineers and the U.S. Environmental Protection Agency to remediate and release parcels of the site for reuse and redevelopment. One hundred and sixty-two acres of the site are projected to be released for redevelopment by the EPA to the owner, EDA, in mid-to-late 2012. In 2005, the site was renamed Royal Phoenix Business Park.

Since 1980, Warren County has seen tremendous growth in its Route 522 N industrial corridor. DuPont, Pen-Tab, Toray Plastics America, FDR Laundry Services, Family Dollar Distribution Center, Ferguson Enterprises, Roanoke Cement, New Breed Corporation, Baugh NE (SYSCO), Interbake Foods, Interchange Group, Great Wide Transportation, Rappahannock Electric

Cooperative, Via Satellite, Atlantic Skyline, and Ayreshire Farms have all located there, creating more than 2,000 new jobs.

Warren County has long attracted tourists and seasonal residents, who come to the area because of its climate, accessibility to major cities, and scenic beauty. Major tourist attractions include the Shenandoah National Park, the Skyline Drive, the Shenandoah River, and the Skyline Caverns.