

# NATURAL CONDITIONS

This section of the Comprehensive Plan Update discusses the natural conditions and physical characteristics for the County. Air quality, climate, soils, slope or topography, water, floodplains, and geology are important factors in the physical development of a locality and can directly and indirectly affect economic growth and development.

Land use, housing, and transportation planning are directly influenced by physical factors since, for example, intensive land use tends to proceed along patterns which first consume land which is the most problem free: smooth, low slope topography; good soil characteristics; away from floodplains; and good depth to bedrock.

Franklin County, seventh in size among Virginia counties, is located in the south-central part of Virginia. The County is bounded on the north by Roanoke and Bedford Counties, on the east by Pittsylvania County, on the south by Henry and Patrick Counties, and on the west by Floyd County.

The Blue Ridge Mountains border the County on the north and west, and the Roanoke River and Smith Mountain Lake bound the County in the northeast. In the southwest is Philpott Lake and in the southeast is Turkeycock Mountain/Wildlife Management Area.

## Geological Structure and Mineral Resources

Franklin County is situated in two major physiographic provinces. Approximately two-thirds of the County is in the Piedmont Province, while the remaining land area, the County's western section, is in the Blue Ridge Province. The Piedmont Province is a maturely dissected upland underlain by a vast complex of igneous, metamorphic, and sedimentary rocks which are predominantly of the Precambrian Age. The Blue Ridge Province is a remnant of a former highland which is formed by complexly folded and faulted Precambrian and Cambrian rocks. Older igneous and metamorphic rocks underlie the main core of the Blue Ridge.

There are six principal geologic units in Franklin County, as shown on the map entitled "Geologic Formations located in Appendix 3 of this plan. The first, the Lynchburg Formation, consists primarily of gray to greenish-gray gneiss and schist. The Precambrian Age formation, which underlies about 50 percent of the County, also includes some deposits of phyllite and quartzite. The second unit, the Virginia Blue Ridge Complex, underlies the area around Algoma, Boones Mill, and Hardy's Ford and extends to the north and west to the Roanoke and Floyd County lines. The Blue Ridge Complex, which is older than the Lynchburg, is made up mostly of granite, gneiss, and biotite gneiss. The gneiss is generally thick bedded and forms much of the mountainous terrain in this part of the County. Quartz, feldspar, and biotite are the major minerals in rocks of this formation. The third geologic unit found in the County is Metamorphosed Sedimentary Rocks. This formation underlies much of the quartzite

and granite gneiss and is located in much of the southeastern part of the County. The fourth geologic unit native to Franklin County is strips of hornblende, gabbro, and gneiss. These units run in a southwest to northeast direction and are located in five areas of the County. Three long narrow strips are in the central part of the County around Rocky Mount; another is southeast of Sydnorsville; and another is south of State Route 40 between Glade Hill and Union Hall. Specifically, these strips contain sills of chloritic schist, chloritic hornblende gneiss, hornblende diorite, kyanitic schist, and kyanitic quartzite. Leatherwood Granite is light gray to pinkish-gray granite which contains biotite, muscovite, and granite. The age of this formation is uncertain. Greenstone Volcanics is the sixth, and smallest, geologic unit found in Franklin County. A small area of greenstone, volcanic in origin, is along the Pittsylvania County line just north of Virginia Highway 40. This formation consists of volcanic rocks and slate commonly altered to gneiss and schist.

To a large extent, commercial mining was an activity of nineteenth and early twentieth century Franklin County. In the past, magnetite iron ore was mined near Rocky Mount; while west of Ferrum near the Floyd County line, gossan was mined as iron ore. Asbestos has been mined to a limited extent, two miles east of Rocky Mount. Veins of mica have been mined and prospected at numerous sites in pegmatites that occur along the southeastern flanks of Fork and Chestnut Mountains in southern Franklin County. A very small quantity of beryl has been recovered during the mica-mining operations. In the northern part of Franklin County around Boones Mill, gneiss has been quarried for road-stone and concrete aggregate. Gravel, throughout the County, has been produced for highway construction. Overall, the economic potential of the mineral resources in Franklin County is small; and extensive development of any such site is very unlikely. In the past, a soapstone quarrying operation in the County was conducted by Blue Ridge Talc Company.

## **Mineral Resources and Industries in Franklin County**

The northwestern part of Franklin County is in the Blue Ridge province and the remainder is in the Piedmont province. The County is underlain by igneous and metamorphic rocks. During 1996, more than 42,000 short tons of stone (hornblende gabbro and gneiss) and sand were produced in the County. The stone was produced by Rockydale Quarries Corporation from their site on Jacks Mountain and the sand was produced by Rocky Mount Ready Mix Concrete, Incorporated, northeast of Redwood, on a tributary of the Blackwater River. Most recently, a talc-chlorite-schist was quarried near Henry by the Blue Ridge Talc Company, Incorporated. The material was ground and marketed for use in foundry facings and insecticides, and for other products. This quarry was closed in 1984.

In the past, magnetite iron ore was mined near Rocky Mount and gossan west of Ferrum near the Floyd County line has also been mined as iron ore. Copper minerals have been mined on a small scale in the County. Asbestos was formerly mined to a limited extent about two miles east of Rocky Mount. Mica has been mined and prospected at numerous sites in pegmatites that occur along the southeastern flanks of Fork and Chestnut Mountains in southern Franklin County, and also occurs in the vicinity of Jacks Mountain. A very small quantity of beryl has been recovered during the mica-mining operations. Gneiss has been quarried near Boones Mill for roadstone and

concrete aggregate, and at other localities, and mica schist was quarried near Rocky Mount for flagstone and similar use. Gravel has been produced for highway construction. Quartz near Wirtz was investigated for industrial use.

Testing indicates that clay materials at selected localities in the County are potentially suitable for use in the manufacture of whitewares, super-duty firebrick, refractories, paper filler and coater, and filler insulating material. Scattered occurrences of vermiculite are present in an area that extends from southwestern Franklin County to northwestern Pittsylvania County, and in another area that extends from the vicinity of Taylors Store in Bedford County. (This information was provided by the Virginia Division of Mineral Resources, July 1997.)

## **Physiographic Analysis**

Franklin County is located in the foothills of the Blue Ridge Mountains astride two major Physiographic provinces. In the eastern two thirds of the County, or the Piedmont Province, rocks have been weathered to gently rolling terrain. Major planning concerns in these areas are soil erosion and the scarcity of groundwater. In the west, known as the Blue Ridge Province, the land is an upfolded mass, and slopes are much steeper. Major concerns in this area are mass movement involving slope stability, erosion, flash flooding, and surface and groundwater pollution. Altitudes range from 900 feet mean sea level at the foot of the Smith Mountain Lake Dam to more than 3000 feet MSL in the Blue Ridge Mountains.

A necessary component of any land use plan is the determination of the slope, or steepness, of a particular area. Generally, such an analysis provides an understanding of the various physiographic conditions peculiar to the area's terrain, including erodibility, drainage, and practicality of conservation. In varying degrees, all types of land use are affected by the slope factor; and, therefore, the location of specific activities is affected. Areas designated as excessive slopes present severe land use problems. Should intensive development occur on these slopes, soil erosion and subsequent pollution by siltation could result in damage to adjacent water bodies, such as along sections of the Pigg and Blackwater Rivers. In addition, excessive slopes impose high costs on development by increasing both building costs and public utilities construction cost. The slope factor will influence intensive development and land use patterns within Franklin County by directing growth into those sections identified as being level, rolling, and hilly. Areas excluded from intensive development for reasons of excessive slope should be used primarily for recreation/open space, forestry, and scenic purposes.

In estimating the effect of the slope factor, all land in Franklin County was divided into the following four categories: 0-15 percent; 15-25 percent; and 25 percent and over. An identification of 25 percent slope shall mean that there is a rise or fall of twenty-five (25) feet within a horizontal distance of 100 feet. (See General Slope Map located in Appendix 3 of this Plan

It should be realized that, even though the slope map for the County is detailed, each site must be carefully inspected as to its exact slope characteristics before any attempt is made to assess development costs.

## **Soil Types**

Another essential element in planning the land use of an area is the identification and location of its various soil types. Such an analysis determines what limitations soil conditions might impose upon the use of an area for a particular activity, thus facilitating the most appropriate use of irreplaceable soil resources. Soil type will determine building foundation strength, fertility, erodibility, drainage, and effectiveness of septic tank disposal. All of these factors are important in planning the nature and extent of development that should occur within an area. In general, the use of soils information indicates the land's inherent capability of supporting a variety of land use activities and provides a technique allowing substantial basis for planning decisions. By recognizing the different potentialities of soils and offering guidelines as to their optimum use, a great deal can be done to protect both the natural environment and the residents of a particular area.

In analyzing the soil characteristics within Franklin County, data was obtained from the United States Soil Conservation Service (SCS), which organized the soil into fourteen general soil types called associations. Each of these associations contains a combination of soil types having generally similar characteristics as they relate to such conditions as depth of soil, surface and subsoil texture, available moisture capacity, and topography. However, it should be understood that, while general area soil conditions have a tendency to impose limitations on different land use activities, there may be located within any soil association an individual soil having a lesser or greater rating of limitations. Therefore, an individual site considered for possible development will require a much more detailed soil analysis as to structural suitability.

In 1989, the Franklin County Board of Supervisors signed an agreement with the Soil Conservation Service to develop a Franklin County Soil Survey. This survey is basically a detailed inventory of the soils of the County including maps and analysis. The necessary field work was completed in January 2004, covering 117,000 acres of the County. The soil survey study was published at the end of the summer of 2006. The information in this study will be used for showing location of the type of soils, description of soils, and interpretations of the major practical uses of the soils. The soil survey provides information that can be used for determining the suitability of the soils for certain crops, pasture, woodland, septic tank absorption fields, basements, sanitary landfills, farm and other uses including urban/suburban development areas.

In the 1995 Comprehensive Plan there were fourteen soil association defined by the Soil Conservation Service. The new soil survey that was published in late summer of 2006 has a total of 73 soil association defined by the Natural Resources Conservation Service (USDA). The following is a list of the soil associations references a map symbol, the soil names, percent of slope, and the number of acres:

## Soil Associations Per Acres

Franklin County, Virginia

Map Symbol	Soil name	Acres
1C	Ashe-Edneyville-Peaks complex, 8 to 15 percent slopes, very stony	541
2D	Ashe-Peaks-Edneyville complex, 15 to 25 percent slopes, very stony	979
3D	Bluemount-Redbrush-Spriggs complex, 15 to 25 percent slopes, stony	3,261
4E	Bluemount-Spriggs complex, 25 to 45 percent slopes, stony	10,529
5C	Bluemount-Spriggs-Redbrush complex, 8 to 15 percent slopes, stony	1,331
6C	Brownwood-Chandler complex, 8 to 15 percent slopes, very stony	119
6D	Brownwood-Chandler complex, 15 to 25 percent slopes, very stony	296
6E	Brownwood-Chandler complex, 25 to 45 percent slopes, very stony	2,143
6F	Brownwood-Chandler complex, 45 to 95 percent slopes, very stony	2,942
7B	Clifford fine sandy loam, 2 to 8 percent slopes	10,608
7C	Clifford fine sandy loam, 8 to 15 percent slopes	116,337
7D	Clifford fine sandy loam, 15 to 25 percent slopes	71,719
8E	Clifford-Hickoryknob complex, 25 to 45 percent slopes	57,611
9C	Clifford-Urban land complex, 8 to 15 percent slopes	832
10B	Colescreek-Delanco complex, 2 to 8 percent slopes, rarely flooded	4,005
11A	Comus-Maggodee-Elsinboro complex, 0 to 4 percent slopes	15,223
12C	Cowee-Clifffield-Evard complex, 8 to 15 percent slopes, very rocky	3
12D	Cowee-Clifffield-Evard complex, 15 to 25 percent slopes, very rocky	9
12E	Cowee-Clifffield-Evard complex, 25 to 45 percent slopes, very rocky	79
13D	Cullasaja-Tuckasegee complex, 15 to 25 percent slopes, very stony	2,105
13E	Cullasaja-Tuckasegee complex, 25 to 60 percent slopes, very stony	1,849
14C	Cullasaja-Tuckasegee-Dellwood, 0 to 15 percent slopes, very stony	362
15E	Drapermill gravelly loam, 25 to 60 percent slopes	4,343
16C	Edneytown-Sauratown complex, 8 to 15 percent slopes, very stony	791
16D	Edneytown-Sauratown complex, 15 to 25 percent slopes, very stony	1,087
16E	Edneytown-Sauratown complex, 25 to 45 percent slopes, very stony	6,307
16F	Edneytown-Sauratown complex, 45 to 95 percent slopes, very stony	3,050
17B	Elsinboro-Colescreek complex, 2 to 8 percent slopes, rarely flooded	1,639
18E	Goblintown-Drapermill-Penhook complex, 25 to 60 percent slopes	381
19C	Hayesville loam, 8 to 15 percent slopes	3,125
19D	Hayesville loam, 15 to 25 percent slopes	2,592
20E	Hayesville loam, 25 to 45 percent slopes, very stony	6,209
21F	Hickoryknob-Rhodhiss complex, 45 to 75 percent slopes, rocky	2,576
22C	Hickoryknob-Rhodhiss-Stott Knob complex, 8 to 15 percent slopes	778
22D	Hickoryknob-Rhodhiss-Stott Knob complex, 15 to 25 percent slopes	1,835
22E	Hickoryknob-Rhodhiss-Stott Knob complex, 25 to 60 percent slopes	11,828
23A	lotla-Maggodee-Colescreek complex, 0 to 4 percent slopes	2,322
24B	Jackland-Mirerock-Redbrush complex, 2 to 8 percent slopes	429
24C	Jackland-Mirerock-Redbrush complex, 8 to 15 percent slopes	2,027
25C	Littlejoe-Penhook-Goblintown complex, 8 to 15 percent slopes	189
25D	Littlejoe-Penhook-Goblintown complex, 15 to 25 percent slopes	150
26C	Littlejoe-Strawfield-Penhook complex, 8 to 15 percent slopes	4,623
26D	Littlejoe-Strawfield-Penhook complex, 15 to 25 percent slopes	2,528
27B	Minnieville loam, 2 to 8 percent slopes	835
27C	Minnieville loam, 8 to 15 percent slopes	7,696
27D	Minnieville loam, 15 to 25 percent slopes	5,373
27E	Minnieville loam, 25 to 45 percent slopes	1,492
28C	Minnieville-Orenda-Redbrush complex, 8 to 15 percent slopes	2,368
28D	Minnieville-Orenda-Redbrush complex, 15 to 25 percent slopes	2,331
29C	Minnieville-Urban land complex, 8 to 15 percent slopes	267
30C	Myersville loam, 8 to 15 percent slopes, very stony	145
30D	Myersville loam, 15 to 25 percent slopes, very stony	510
31E	Myersville-Walnut complex, 25 to 45 percent slopes, very stony	1,847
32F	Myersville-Walnut complex, 45 to 95 percent slopes, very stony, rocky	1,036
33E	Peaks-Ashe-Edneyville complex, 25 to 45 percent slopes, very stony	7,504
33F	Peaks-Ashe-Edneyville complex, 45 to 95 percent slopes, very stony	5,668
34F	Siloam-Bluemount complex, 45 to 75 percent slopes, stony, rocky	393
35C	Thurmont-Urban land-Wintergreen complex, 8 to 15 percent slopes	218
36B	Thurmont-Wintergreen complex, 2 to 8 percent slopes	248
36C	Thurmont-Wintergreen complex, 8 to 15 percent slopes	2,278

36D	Thurmont-Wintergreen complex, 15 to 25 percent slopes	172
37E	Trimont-Porters complex, 25 to 45 percent slopes, very stony	737
37F	Trimont-Porters complex, 45 to 95 percent slopes, very stony	2,130
38C	Watauga-Brownwood complex, 8 to 15 percent slopes	943
38D	Watauga-Brownwood complex, 15 to 25 percent slopes	1,286
38E	Watauga-Brownwood complex, 25 to 45 percent slopes	3,038
39B	Wintergreen loam, 2 to 8 percent slopes	2,101
39C	Wintergreen loam, 8 to 15 percent slopes	6,702
39D	Wintergreen loam, 15 to 25 percent slopes	1,661
40C	Woolwine-Fairview-Westfield complex, 8 to 15 percent slopes, stony	5,974
40D	Woolwine-Fairview-Westfield complex, 15 to 25 percent slopes, stony	5,452
40E	Woolwine-Fairview-Westfield complex, 25 to 60 percent slopes, stony	9,558
W	Water	13,645
Total		455,300

- Less than 0.1 percent.

Tabular Data Version: 5: Tabular Data Version Date: 07/31/2006

Source: U.S. Department of Agriculture, Natural Resources Conservation Service, 2006

In the past, planning decisions have often been resolved without the benefit of detailed soil data and other environmental indicators. Thus, decisions relating to the various aspects of land use often have tended to be subjective or intuitive rather than objective. The use of accurate soils information, however, indicates the land's inherent limitations and strengths and provides a technique allowing substantial scientific basis for planning decisions.

The soil survey and its final report will be useful for those involved in conservation farm planning, County comprehensive and land use planning, resource planning, and program to reduce soil erosion and sedimentation. As such, the survey and report will be of value to planners, land developers, landowners, farmers, conservation planners, health sanitarians, and soil scientists who work in the County. The soil maps and report will be published at <http://websoilsurvey.nrcs.usda.gov/app/>.

To date, the survey has focused on the Blackwater Watershed, in the northern half of the County, to augment the special Blackwater River Watershed Water Quality Project initiated to reduce soil erosion and dairy wastes to the Blackwater River that flow into Smith Mountain Lake.

In 1975, the *Roanoke River Basin Water Quality Management Plan* was prepared under the direction of the Virginia State Water Control Board (Department of Environmental Quality). The Plan was developed so as to satisfy the legislative intent of the Federal Water Pollution Control Amendments of 1972. As part of the study, various land suitability factors were deemed to be important to water quality management planning. Of particular and applicable interest is septic tank suitability as well as agricultural suitability. At present, the Franklin County Health Department has sole responsibility for permitting installation of subsurface sewerage disposal systems.

Most of the County is presently inaccessible to existing public sewer lines. Accordingly, if development occurs in those areas not having sewer mains, other forms of sewage disposal must be utilized. The identification of limitations indicated on the entitled "Franklin County General Septic System Suitability" is oriented to septic tank

usage. The Virginia Department of Environmental Quality's State Water Control Board considered soil permeability, depth to groundwater, depth to bedrock, and slope as the primary factors in determining the land's suitability for septic tank sewage disposal.

Based on the foregoing data, the following explanation related to limitations of the land for septic tank use is intended to supplement the "General Septic System Suitability Map":

**Somewhat limited**--Land is suited for use at considerably lower densities than can be accommodated on soils of slight limitations. Special measures and careful site location are required to overcome soil limitations such as poor drainage.

**Very limited**--Land usually not suited for septic tank use.

One major land use in Franklin County at the present time is agriculture. Although the pressures to develop the land for other purposes are great, it is anticipated that agriculture will continue to be an important land use throughout the planning period. Soils in the County are generally fertile, particularly in areas of gentle slope. Steep slope areas are in forest cover. Overall, when the land is steep, soils have a poor to fair or good suitability for agriculture. When land is nearly level or gently sloped, soils are prime farmland. Areas that have a poor to fair suitability for agriculture often have severe limitations for on-site sewage disposal; prime agricultural land has fewer limitations, and is sought after both for farmland and for development purposes. The following explanation relating to limitations of the land for agricultural use is intended to supplement the map entitled "Franklin County Agricultural Suitability":

**Slight Limitation**--Best land for all types of agriculture. It can be cultivated or used for pasture with relatively few difficulties.

**Moderate Limitations**--Land has slight limitations for pasture use and moderate limitations if cultivated.

**Severe Limitations**--Land has moderate to severe limitations for pasture and severe limitations if cultivated.

## **Water Resources**

Franklin County is drained by the Roanoke River Basin and is well supplied with surface water through numerous rivers and creeks. The main stem of the Roanoke River forms the northeastern boundary of Franklin County as it flows into the Smith Mountain Reservoir. The major resulting tributary rivers in the County are the Blackwater and Pigg. Significant streams are Gills Creek, Maggodee Creek, Chestnut Creek, and Snow Creek. Portions of Maggodee Creek and Runnet Bag are rated as "Cold Water Trout Streams."

At present, rather large supplies of water are available from the Roanoke River, and fairly large supplies of water are available from the other principal rivers and

streams. The water in the Roanoke River is relatively hard because the headwaters flow through a limestone formation. The water of the tributary streams is soft and generally of excellent quality for municipal and various forms of industrial use.

Records of stream flow are valuable sources of hydrologic information. The factual data collected on the flow of water in the streams is the best information available for the planning of a stream's capacity for use, for the maximum and minimum flows to be expected, and for the determination of physiographic and historical features affecting land-related problems. Accordingly, the United States Geological Survey (USGS) maintains and operates various gaging stations throughout the state and Roanoke River Basin for this very purpose.

The following table, entitled "Average Stream Discharge Per Unit Drainage Area at USGS Gaging Stations," presents flow data from USGS gaging stations both within and outside Franklin County.

**Average Stream Discharge Per Unit Drainage Area  
at USGS Gaging Stations**

<b>Stream</b>	<b>Gaging Station</b>	<b>Records Available</b>	<b>Drainage Area (Sq. Mi.)</b>	<b>Average cfs</b>	<b>Average Flow/ cfs/Sq. Mi.</b>	<b>Million Gallons Per Day/Sq. Mi.</b>
Roanoke	Niagara	1926-2004	512	938	1.832	1.18
Pigg*	Toshes (Near)	1931-1962	394	400	1.015	.66
Pigg	Sandy Level (Near)	1963-2004	350	556	1.589	1.03
Blackwater	Rocky Mount (Near)	1976-2004	115	209	1.817	1.17
Blackwater*	Union Hall (Near)	1924-1963	208	223	1.072	.69

\*NOTE: Gaging Station has discontinued monitoring.

SOURCE: *Water Resources Data - Virginia--Water Year 2004*, U. S. Geological Survey-Water Data Report VA-04-1, Prepared in cooperation with the State of Virginia & Other Agencies, November 2005.

In addition, the Virginia Department of Environmental Quality (State Water Control Board) operates water quality surveillance monitoring stations in Franklin County. These stations, through monthly samplings, analyze such properties as temperature and dissolved oxygen and phosphorus content. Depending on the needs, however, checks may be made for nutrients, solids, alkalinity, settleable solids, hardness, chlorides, chromium, zinc, dissolved solids, sulfates, and conductivity. The quantitative results of the analysis of water at any such sampling station may be greatly influenced by weather conditions, stream flow, and the season of the year.

Within Franklin County, there are several large lakes and various small water impoundments (see the map entitled "Franklin County – Water Resources/Drainage Basin.") The two most significant are the Smith Mountain Lake Reservoir on the Roanoke River in the northeast section of the County and Philpott Reservoir on the Smith River in the south, southwest section of Franklin County. Both Smith Mountain Lake and Philpott are hydroelectric impoundments designed to also control flooding.



The hydroelectric power project at Smith Mountain was placed in commercial operation in 1966 with a generating capacity of 440,000 kilowatts of electric power. As a result of the project, approximately 250 miles of shoreline has been created in Franklin County. The entire lake is over forty miles long and covers 20,000 acres in a three-county area. In 1976, Appalachian Power Company completed construction of a fifth generating unit at Smith Mountain Dam. The additional unit augments the hydroelectric power at Smith Mountain Dam by 100,000 kilowatts. The project makes maximum use of two natural resources--water and coal. Water stored in Smith Mountain Lake drops through generators in the dam's powerhouse, producing electricity. Some of the water is caught and held behind Leesville Dam in a smaller lake. A portion of the water passes through Leesville's generators, making electricity, but much of it is pumped back into Smith Mountain Lake for re-use. Pumping power for Smith Mountain Dam's turbine pumps comes from Appalachian's coal-burning plants. The project can generate 560 megawatts of electricity.

The Philpott project was authorized by the Congress in 1944 for flood control, with generation of electric power. By 1953, the dam and all three generators in the powerhouse were completed and in operation, with a combined capacity of 14,000 kilowatts of electric power. Philpott, like Smith Mountain, is one unit of an eleven-reservoir system planned by the United States Army Corps of Engineers (although some reservoirs have been built by private utility companies) to control floods in the entire Roanoke River Basin. The Philpott Reservoir Lake is fifteen miles long and covers approximately 3,000 acres.

At present, there are two water impoundments located in the Upper Blackwater Watershed (see the "Water Resource/Drainage Basins") of Franklin County. These structures have a zoned-type earth fill and a vegetated spillway.

The protection of watersheds is essential to the provision of an adequate future county water supply. A watershed is a concave or trough-shaped land area in which runoff from rain and other forms of precipitation eventually flow into a single channel. Therefore, the proper management and protection of watersheds are necessary and essential to the provision of adequate future water supply, effective flood control, enhancement of water quality, and the control of soil erosion and sedimentation.

Within Franklin County, one complete primary watershed and a portion of another has been identified by the West Piedmont Planning District Commission's *Metropolitan/Regional Comprehensive Water and Wastewater Disposal Plan*. They are the Upper Blackwater River Watershed and the northern tip of the Leatherwood Creek Watershed (see the "Water Resource/Drainage Basins"). The Upper Blackwater Watershed has a drainage area of 73,095 acres within Franklin County. It is a very rough trapezoidal shape, about seventeen miles long, and varies in width from about twelve miles near the headwaters to about three miles in the downstream area. The headwaters of this watershed lie on the eastern slopes of the Blue Ridge Mountains, while the downstream boundary is where the Virginia Highway 122 crosses the Blackwater River within the Gills Creek District. As a result, the Upper Blackwater Watershed drains the west, northwest central portions of Franklin County, with an average flow of 223 cubic feet per second near Union Hall. In comparison, the Pigg River near Toshes has an average flow of 400 cubic feet per second, and a drainage

area of 252,160 acres. The Pigg River and its tributary streams drain areas south of the Blackwater Watershed and north of the Leatherwood Watershed and have potential for water supply in its upper reaches. The Leatherwood Creek Watershed, although primarily located in Henry County, enters the extreme southeastern portion of Franklin County at Turkeycock Mountain.

The susceptibility of certain areas to frequent flooding during a period of heavy or prolonged precipitation is an important factor in determining the locations of future development within Franklin County. The construction of permanent, inhabited public and private structures in floodplains presents the potential for loss of lives and property. Furthermore, as the floodplain is developed, the normal flow of water is retarded and the area susceptible to flooding conditions is enlarged. Therefore, the future construction of residential, commercial, and industrial structures in such areas should be discouraged. Flood Boundary and Floodway Maps, available at the Franklin County Building Department, depict those floodplains in the County as delineated by the Soil Conservation Service.

In 1980, the Federal Emergency Management Agency completed a Flood Insurance Study of Franklin County. As a part of this study, Flood Boundary and Floodway Maps were finalized for the County and made effective, along with a Floodplain Ordinance, as of 1981. The Federal Emergency Management Agency revised/updated the maps in October of 2001. The maps on file with the County show flood insurance zones and base flood elevation lines for a 100-year flood. The report and maps, which are on file in the Franklin County Building Department, should be consulted before any land use/development change is made in acreage near a free-flowing stream or intermittent stream channel.

Franklin County is located on a geologic formation which is not conducive to a good subsurface water supply. Subsurface water, or groundwater, is that portion of precipitation that has penetrated the earth's surface either by direct infiltration or by seepage from surface water. The occurrence of groundwater is controlled by such factors as topography, lithology (character of rock formation), geologic structure, soil vegetation, and certain works of man. Within Franklin County, geologic structure and topography, rather than lithology, are the principal factors that control groundwater occurrence. As described previously, Franklin County is underlain primarily by a complex formation of Precambrian crystalline rocks, such as gneiss, granite, schist, filleted, quartzite, hornblende, and gabbro. This type of rock formation results in some of the poorest subsurface water production in the state, except where fracturing or weathering has occurred. Actually, water is only found in fractured zones in the upper levels of the rock. Primarily, this is a result of faults or other subsurface structural movements and contact zones between the various rock strata. The openings that provide for groundwater storage in these rocks usually occur within a few hundred feet of the surface. Due to the extremely limited supply of water in the shattered rock formation, heavy pumping often results in dramatically fluctuating water levels.

Drilled wells in Franklin County are usually six to eight inches in diameter and generally reach water at a depth range of 250-500 feet. Below this depth, reliance is primarily on contact zones. On average, County wells produce less than ten gallons per minute (gpm). In 1982, the West Piedmont Planning District Commission staff prepared

a *Groundwater Resources Inventory* for the County. This document, which is on file with the County, contains a complete inventory of wells located in the County as well as flow and chemical characteristics of the water. Information on newer wells drilled for public water supply systems may be found in Virginia Health Department records.

The future economic, demographic, and industrial growth of Franklin County will depend directly on the quality and availability of water. Currently, in Franklin County, public and private water facilities, except for the Town of Rocky Mount and the recently constructed Phase I of the countywide water system, are dependent on groundwater supplies. In most cases, the supply and quality of water is adequate. There are concerns for protecting groundwater in the County since development is often dependent on individual homeowner's wells and community well systems in subdivisions.

The Shoreline Management Plan (SMP) is a comprehensive plan intended to manage the multiple resources and uses of a lake's shoreline so that they are consistent with a utility's license requirements and project purposes, and addresses the needs of the public. The SMP attempts to balance the many competing interests associated with the construction of structures along the shoreline.

Appalachian Power Company (APCO), a subsidiary of Appalachian Electric Power, is licensed to operate the Smith Mountain Project by the Federal Energy Regulatory Commission (FERC). Appalachian Power has an obligation under its license from the FERC to manage the different occupancy and uses of project lands. This includes the construction of boat docks, piers, and erosion control structures. The FERC license for the project includes the requirement that APCO manage the lands within the project boundary in such a way as to protect the resources of the project. These resources include the environmental, public recreation, cultural, scenic, and power production resources.

The goal of the Shoreline Management Plan is to provide public and private access, protect and enhance the non-power resources (scenic, recreational, and environmental), and the project's primary function, the production of electricity.

The Town of Rocky Mount's public water supply system, constructed in 1983, serves an estimated 6,675 persons in and around Rocky Mount. The overall system is capable of supporting additional growth since the current average daily consumption is 945,000 gallons per day--or 44.1 percent load capacity, with a surplus capacity of 1,197,775 gallons per day. With respect to the remaining land area in Franklin County, general water availability is dependent upon groundwater supplies. Most of the wells, public and private, are moderate to low producers. Thus, the supply of water and the resulting water quality therein is questionable. In both the case of Rocky Mount and the remaining land areas of Franklin County, the quality of water produced is good and is useful for municipal as well as industrial uses. The key for the future is maintenance of the generally good overall water quality now possessed by Franklin County, while at the same time continually attempting to improve further the water resources of the County and the quantities of water available to the public.

The *1991 Franklin County Water and Sewer Facilities Plan*, developed by Dewberry and Davis Engineers, addressed water supply and resources. This document and its recommendations are discussed in detail in the Utilities section of this plan update.

## **Forest Resources**

The forest has always been significant in the lives of the residents of Franklin County. During the early days of the County, residents used to forest not only to obtain building materials, firewood, and other traditional uses, but also as a place to gather roots, bark and herbs for medicine, nuts and berries for food, and to graze livestock. Past uses were not necessarily good forestry practices.

Within the geographical domain of Franklin County, there are 266,733 acres of commercial forest land. This represents 60 percent of the County's total land area of 442,931 acres. Because of the vastness of Franklin County's forestry resources, the forest industry is an important part of the local economy. In fact, many people in the County depend upon the forests either directly or indirectly for their income. Commercial forest land is identified as land which is producing or is capable of producing crops of industrial wood and is not withdrawn from timber utilization by statute or administrative regulation. During the period from 1992 to 2001, commercial forest land (timberland) decreased in Franklin County by approximately 13,231 acres, for a - 4.7 percent change.

The ownership of commercial forest land in Franklin County is largely private. These landowners are offered professional forest management advice and technical services through the Department of Forestry in order to enhance the aesthetics and productivity of their woodland. The forest industry controls 6,017 acres of commercial forest, or 2.3 percent of the total, while 23,181 acres, or 8.7 percent, are owned by corporations, and 237,535, or 89.1 percent, are held by a multitude of individual private owners. By far, Franklin County's major type of forest cover is Oak-Hickory, followed by Oak-Pine, and Loblolly-Shortleaf Pine, respectively. Since 57.2 percent of the County's forest land is in pole size or sapling and seedling size stands, there is potential for an expanding forest industry in Franklin County, if proper forest management techniques are utilized.

The annual sawtimber cut in 1992 and 2001 was 32,870 and 54,415 thousand board feet, respectively. In 2001, the annual growth is exceeding saw timber cut for hardwood, but not for pine. In 1992, the sawtimber growth exceeded cut by 44,311 thousand board feet and only by 22,385 in 2001 for hardwood. However, the annual removals for pine exceeded net annual growth by 6,016 thousand board feet. In addition, the County had 87,309 thousand cubic feet of pine pulpwood and 387,714 thousand cubic feet of hardwood pulpwood in 2001.

In many areas of the County, land has been permitted to return to forests as it has been taken out of more active agricultural use. The large amount of total land covered with timber has been of major importance in limiting soil erosion and retention of rainfall and providing for more uniform stream flow. Soil conservation practices are

extremely important in Franklin County due to the highly erodible soil structure and extensive drainage system. Forests protect the watersheds which, if properly managed, determine both the quantity and quality of water. Thus, all forest land owners should adhere to proper forest management practices. Major forest management needs include the reforestation of areas which are non-stocked, conversion of low producing hardwood areas to pine stands, improvement of the timber stand in the better hardwoods, and growth of established seedlings.

Franklin County's forest resource is important for wildlife habitat, watershed protection, outdoor recreation, weather modification, as well as a source of raw materials for the wood industries throughout the County. These industries include veneer and woodtreating plants, sawmills, and a pulpwood concentration yard. Also dependent on the forest are several companies manufacturing such products as modular homes, cabinets, doors, and windows.

Many people depend upon the forest either directly or indirectly for their income. Some of the products harvested each year include sawlogs, pulpwood, veneer logs, firewood, posts, poles, and Christmas trees.

#### Franklin County Forestry Data

Forest Types	1992 Acres	2001 Acres
Oak-Hickory	230,730	211,978
Oak-Pine	15,441	22,037
Loblolly-Shortleaf	31,045	20,684
White Pine-Hemlock	2,748	6,017
Elm, Ash, Cottonwood	-----	6,017
<b>TOTAL</b>	<b>279,964</b>	<b>266,733</b>

Stand Size Classes	1992 Acres	2001 Acres
Pole Sized Timber	93,131	109,014
Seedlings and Saplings	32,693	43,622
Sawtimber	154,140	114,097
Non-Stocked	-----	-----
<b>TOTAL</b>	<b>279,964</b>	<b>266,733</b>

#### DEFINITIONS:

- Pole Size Timber Live trees of commercial species which are at least 5.0 inches in diameter at breast height, but smaller than sawtimber size.
- Seedlings Live trees of commercial species which are less than 1.0 inch in diameter at breast height that are expected to survive according to regional standards.
- Saplings Live trees of commercial species which are 1.0 to 5.0 inches in diameter at breast height that are expected to survive according to regional standards.
- Sawtimber Live trees of commercial species which are 9.0 inches and larger in diameter at breast height for softwoods and 11.0 inches and larger in diameter for hardwoods and containing at least one 12-foot saw log.

Source: *Forest Statistics for Virginia*, 1992 & 2001 publications, United States Department of Agriculture, Forest Service.

## Volume of Growing Stock and Sawtimber on Timberland

### Growing Stock (thousand cubic feet)

	All Species	Softwood	Hardwood
1992	550,970	95,383	455,587
2001	475,023	87,309	387,714

### Sawtimber (thousand board feet)

	All Species	Pine	Other Softwood	Soft Hardwood	Hard Hardwood
1986	1,141,752	144,655	100,568	444,899	451,630
1992	1,574,618	139,768	100,642	720,564	613,644

Source: *Forest Statistics for Virginia*, 1986, 1992 and 2001 publications, United States Department of Agriculture, Forest Service. 2001 data was not available for Sawtimber.

## Net Annual Growth of Growing Stock and Sawtimber on Timberland

### Growing Stock (thousand cubic feet)

	All Species	Softwood	Hardwood
1992	18,415	3,911	14,504
2001	15,368	977	14,391

### Sawtimber (thousand board feet)

	All Species	Softwood	Hardwood
1992	77,181	13,972	63,209
2001	70,784	6,495	64,289

Source: *Forest Statistics for Virginia*, 1992 and 2001 publications, United States Department of Agriculture, Forest Service.

## Annual Removals of Growing Stock and Sawtimber on Timberland

### Growing Stock (thousand cubic feet)

	All Species	Softwood	Hardwood
1992	9,936	5,380	4,556
2001	14,252	3,156	11,096

### Sawtimber (thousand board feet)

	All Species	Softwood	Hardwood
1992	32,870	18,937	13,933
2001	54,415	12,511	41,904

## Area of Timberland by Ownership Class Acres

	1992	2001
All Ownership	279,964	266,733
National Forest	-----	-----
Federal Miscellaneous	2,748	-----
State	158	-----
County & Municipal	471	-----
Forest Industry	14,056	6,017
Corporate	15,443	23,181
Individuals	247,088	237,535

Source: *Forest Statistics for Virginia*, 1992 and 2001 publications, United States Department of Agriculture, Forest Service.

## Agriculture

Agriculture plays an important role in the economy and lifestyle of Franklin County. Approximately 172,539 acres, or approximately 39 percent of the land, in Franklin County are devoted to agricultural production. This emphasis is attributed to a number of factors including a generally gently rolling terrain in much of the County, fertile soils, and an abundance of surface water held on farm ponds for irrigation.

Although agriculture plays a major role in Franklin County's economy today, it must be recognized that since the early 1950s the role of agriculture in the County's economy has been gradually eroded. The emergence of manufacturing and industry in the early 1950's signaled a major turning point in the direction of Franklin County's economy. Because of better paying full- and part-time jobs as well as the guarantee of year-round work, manufacturing now surpasses agriculture in Franklin County in both employment and total income.

The number of farms and the total acreage in farms in the County has declined over the period from 1982 to 2002. During that same period, however, the average size of farm in acreage increased through 1992, dropped for 1997, and increased again for 2002. The dollar amount of total farm products sold has increased 1.2 times over the period from 1982 to 2002. As of 2002, Franklin County was the third largest dairy farming county in the state with milk and dairy product sales accounting for approximately 60 percent or \$21.9 million of all farm income. Beef cow sales ranked second in agricultural receipts within the County at \$7.8 million. Tobacco, especially flue-cured, is a leading cash crop in the County. With dairy farming and beef cow farming being first and second, respectively, in agricultural receipts, tobacco accounts for the third largest segment of the County's agricultural income at \$3.2 million in 2002. Livestock, eggs, apples and other fruits, nursery and greenhouse, and standing timber are other large contributors to farm income. A large apple packing facility at Boones Mill ships apples across the nation. Most of the grain, other than wheat which is sold as a cash crop, is used to support the local livestock industry--primarily dairy and beef cattle. Presently, the more concentrated agricultural activity areas are the eastern, central, north-central, and south-central portions of the County.

## Franklin County Agricultural Data - 1982-2002

	1982	1987	1992	1997	2002
Land in Farms (Acres)	193,799	180,212	166,477	171,755	172,539
Average Size of Farms (Acres)	160.0	177	178	160	170
Approximate Total Land in Farms (Acres)	452,729	437,248	437,248	442,955	442,934
Proportion of Land in Farms (Acres)	42.8	41.2	38.1	35.8	39.0
Number of Farms	1,214	1,016	935	1,072	1,012
Number of Farms by Economic Class					
Sales of \$40,000 and Over	186	168	169	158	132
Sales of \$20,000 to \$39,999	108	76	81	70	62
Sales of \$10,000 to \$19,999	113	132	86	120	118
Sales of \$5,000 to \$9,999	166	141	140	154	175
Sales of Less than \$5,000	641	499	459	570	525
Number of Farmers by Principal Occupation	592	499	461	462	578
% of Total Operators	48.8	49.1	49.3	43.1	57.1
Total Value of Farm Products Sold	\$31,641,000	\$33,848,000	\$40,121,000	\$40,924,000	\$36,501,000

SOURCE: Census of Agriculture, U. S. Department of Commerce.

## Franklin County Sales of Agricultural Commodities 1997 - 2002

	1997	2002	% Change
<b>Crop Product Sales</b>			
Tobacco	\$5,005,000	\$3,207,000	-35.9
Fruits, nuts, berries	186,000	263,000	41.4
Nursery & Greenhouse	801,000	1,187,000	48.2
Hay & Other Products*	918,000	826,000	-10.0
Total Sales	\$7,602,000	\$6,299,000	-17.1
<b>Livestock Related Sales</b>			
Dairy Products	\$24,508,000	\$21,954,000	-10.4
Cattle	8,978,000	7,832,000	-12.8
Hogs, pigs	58,000	78,000	34.5
Other Products*	179,000	45,000	-74.9
Total Sales	\$33,841,000	\$30,203,000	-10.8

\*NOTE: For the 2002 census, "**Hay & Other Products**" include all crops not categorized into one of the prelisted crop sales categories on the report form. This category includes crops such as grass seed, hay and grass silage, haylage, greenchop, hops, maple syrup, mint for oil, ginseng root, peanuts, sugarcane, sugarbeets, etc. The inclusion of hay into this category is new for the 2002 census. In the 1997 census, hay sales were included with silage and field seeds. "**Other Livestock Products**" include all livestock not having specific codes on the 2002 report form. In the 1997 census, emus and ostriches were included in this category, but in 2002 they were included as individual poultry items.

SOURCE: Census of Agriculture, U.S. Department of Commerce.

Of the 1,012 farm operators in Franklin County in 2002, only 578 listed farming as their principal occupation. The remaining 434 farm operators had other primary jobs making farming their secondary profession. Males accounted for 911 of the farm operators compared to only 101 female operators. The majority of farmers (575 or 56.8



percent) were full owners of their farms while 377 or 37.3 percent were part owners. Only 60 or 5.9 percent of farmers were tenants. Another interesting statistic from the 2002 Census of Agriculture is the fact that farmers are growing older. There are fewer young people preparing to come into the farming business so the average age of farmers continues to increase. In 2002, Franklin County farmers had an average age of 55.7 which remains equivalent with the State average of 56.7 years and other localities throughout the State. In Virginia, nearly 40 percent of farmers are now age 75 or older.

## **Critical Habitat and Wildlife Management Areas**

Although within the boundaries of Franklin County there is an abundance of undeveloped land and open space, the propagation of wildlife is not necessarily directly associated with large expanses of such land areas. Environmental changes brought on by development can alter a habitat by substituting man's values for natural conditions. Therefore, the area influenced by man's presence may be much larger than the actual land area occupied by development. At present, there are no available methods for determining precisely how far man's presence does affect wildlife. In order to insure that there are areas in which wildlife can exist without human interference in Franklin County, the following areas have been designated, or identified, as critical habitat or wildlife management areas.

The first such area is Fairystone Farms, located at the common border of Henry, Patrick, and Franklin Counties. This Wildlife Management Area is owned and operated by the Commission of Game and Inland Fisheries. Within this 2,400-acre Wildlife Management Area, of which approximately 500 acres are in Franklin County, are found various game species such as deer, pheasant, grouse, turkey, raccoon, quail, rabbit, and squirrel.

Adjacent to Fairystone Farms is the Philpott Wildlife Management Area. This Wildlife Management Area contains 4,750 acres, 4,000 of which are located in Franklin County. This area is controlled by the United States Army Corps of Engineers, which has opened the area to hunting. The same species of wildlife found in Fairystone Farms Wildlife Management Area are also plentiful in the Philpott Wildlife Management Area.

A third area within Franklin County which is recognized as a critical animal habitat is the Turkeycock Mountain Area. Of the 20,000 acres which make up Turkeycock, approximately one-half, or roughly 10,000 acres, is in the southeastern portion of Franklin County. Of this acreage, 2,680 have been acquired by the Game Commission; the total acreage in the Wildlife Management Area is approximately 2,500. This region is typified by rugged topography and steep slope and is a natural habitat for various species of wildlife. Turkeycock presents a unique opportunity and challenge to the Counties of Henry, Pittsylvania, and Franklin because of their common border at Turkeycock Mountain. Preservation of the Mountain as an animal habitat and as an aesthetically pleasing natural area should be of concern to Franklin County. Means of preserving this critical animal habitat were detailed in the *Regional Open Space Plan* prepared by the West Piedmont Planning District Commission, which was adopted by the Board of Commissioners of Franklin County on May 20, 1974. Since that time, the

Commonwealth of Virginia has established the Turkeycock Wildlife Management Area on the Mountain which includes portions of both Franklin and Henry Counties.

In April 1999, the Virginia Department of Conservation and Recreation (DCR) obtained 1,392 acres in two adjoining tracts of the Grassy Hill section of Franklin County on State Route 919, which became the state's 27<sup>th</sup> natural area preserve. Managed by DCR, the tracts have an elevation of 1,800 feet and have been shaped by the force of millions of years of weathering. The rolling landscape has ultra hard rock that has produced chemically harsh soils which favor rare plant communities. Two rare types of plants grow in the area—one is the Smooth Coneflower which is on the federal government's endangered species list, and the second is the Fame flower which is globally rare. Although the area has grown over into a forest of oak, hickory, and pine trees, some of the original prairie-like plant community remains. The site was designated as a natural preserve in September 1999 through a partnership between the Virginia Department of Conservation and Recreation and the Virginia Chapter of the Nature Conservancy. In the summer of 2004, a 4.5-mile hiking trail was developed as a result of the County's partnership with DCR. According to officials, DCR may build additional hiking trails in the preserve and possibly construct some wildlife observation towers as well as a park area.

## **Air Quality**

Air pollution is the gross effect of the contribution of pollutants emitted by all sources in a given area. The concentration of a pollutant in the atmosphere at any given location will vary from one point of time to another even if the pollutant is discharged from its source at a uniform rate. This is due to local topography and changing weather conditions.

The Virginia Department of Air Pollution Control and the U.S. Environmental Protection Agency have designated Franklin County and Rocky Mount as attainment areas for all criteria pollutants. There has been no known exceedance of any standard. The area does have major facilities that emit criteria and toxic air pollutants. These emissions are reported to and monitored by the Department. The Department has no information which would indicate that the current level of emissions from these facilities is creating conditions injurious to public health. The dispersion of pollutants in complex terrain, such as the Franklin County area, is impacted by both topography and meteorological conditions. While the combination of these factors may cause localized, short-term temperature inversions that inhibit dispersion, the Department has indicated that it does not consider the area to have a dispersion problem.

Even though Franklin County is in an attainment area, in 2004, Franklin County supported localities of the Roanoke Valley in the development of the "Roanoke Valley Early Action Plan" to improve air quality before the Roanoke region is designated as a traditional non-attainment area. Improving regional support for air quality is necessary for all surrounding neighboring localities.

## **Climate**

Franklin County has a variety of climatological conditions because of its varied elevations and proximity to large bodies of water. The nearby mountains to the west and the Chesapeake Bay and Atlantic Ocean to the east are major factors affecting the climate. The Blue Ridge Mountains produce various steering, blocking, and modifying effects on storms and air masses. The large open bodies of water, which are slow in reacting to atmospheric changes, contribute to the warm, humid summers and mild winters typical of Franklin County. Temperature extremes in Franklin County are rare. The average January temperature is 37 degrees, while the average temperature for July, the hottest month, is 75 degrees. Thus, the mean annual temperature, varying slightly year to year, is 56 degrees. The average annual precipitation as rainfall amounts to approximately 44 inches. Precipitation is well distributed throughout the year with maximum monthly average occurring in July (14.6 inches) and the minimum in November (2.5 inches). The average amount of precipitation occurring as snow is 14 inches. The County's average relative humidity is 66 percent. Franklin County's growing season averages 180 days, with frost-free nights normally occurring between the average dates of April 20 and October 16. The length of this period provides for the proper maturity of a large variety of crops important to the County.

## **Natural Conditions Summary**

- **Geology/Mineral Resources**

Mineral resources provide little economic development opportunities beyond those already realized. However, area geology often has a major role in development across the County since depth to bedrock in certain areas tends to limit intensive development.

- **Physiographic Analysis**

Extensive areas in the western portion of the County have slopes that would make extensive developments with large buildings cost prohibitive. While the west half of the County has slope limitations, this tends to focus future development toward the flatter eastern half of the County where there will be competition between any new suburban types of development and pre-existing agricultural uses (both pasture and row-crop oriented), rural residential, and lakeshore residential uses.

- **Soil Types**

Available soil information is based on soil classifications and a soil rating system by association groups; mapping is currently limited to a soil association map. The current development of a detailed soil survey report will provide the County with more information on soil suitability for septic tanks/drainfields, lagoons, roads, buildings, other infrastructure, and agricultural productivity ratings. It will be particularly useful in more detailed land use planning, identifying prime farmland for preservation planning efforts, and identifying residential and commercial land.

The soil association-based rating system currently available gives a general indication of soil suitability for certain purposes and is of use in generalized land use planning. Most of the County soils have moderate or severe limitations in respect to use for septic tank drainfields and sewage lagoons. Based on areawide conditions, extensive areawide residential development in the future should be planned to carefully consider the soil and topographic conditions and adhere strictly with current and any future health department regulations and recommendations governing sewage handling and protection of groundwater supplies and surface waters in Smith Mountain Lake and its watershed.

The County includes an extensive watershed and streams that eventually flow to Smith Mountain Lake. Widespread agricultural, forestal, and rural residential activities across the watersheds and more concentrated land use activity near Smith Mountain Lake have produced erosion and then sedimentation from the soils over the area. Siltation in streams has been observed. More enforcement of erosion and sedimentation control ordinances, more active promotion of the use of Best Management Practices, and comprehensive future land use planning and supporting ordinances all should be applied to protect the soils in the watershed and to prevent sedimentation of the watershed streams and Smith Mountain Lake.

- **Water Resources**

As part of the Roanoke River Basin, two large lakes--Smith Mountain and Philpott--lie on the County's borders. Currently, they are important for hydroelectric use, flood control, and recreation. Both bodies of water could eventually be important water supplies and should be protected from pollution that could affect their future value.

Six major streams flow through the County, east to west. While only the Pigg River and Blackwater River have had significant utilization for water supply purposes in the past, other streams have segments that could be used for water supply impoundments or water intake structures. Streams with potential include Gills Creek, Maggodee Creek, Chestnut Creek, and Snow Creek. Watersheds of all these streams should be protected from pollution using Virginia Best Management Practices, the voluntary non-point pollution prevention program.

The Phase I County public water system completed in August 2005 is in the Halesford Bridge to Westlake area; it was designed to provide extensions to central county. The source for the County Phase I system is purchased bulk water from the Bedford County PSA. The County is seeking to permit its own withdrawal and water plant on Smith Mountain Lake, as a dual supply with Bedford PSA Smith Mountain Lake service, and to enter other regional agreements for water purchases and services to County customers where cost-effective.

The Shoreline Management Plan (SMP) is a comprehensive plan intended to manage the multiple resources and uses of a lake's shoreline so that they are consistent with a utility's license requirements and project purposes, and addresses the needs of the public. The goal of the SMP is to provide public and private access, protect and enhance the non-power resources (scenic, recreational, and environmental), and the project's primary function, the production of electricity. It is

utilized in the protection/management of Smith Mountain Lake. Appalachian Power is licensed to operate the Smith Mountain Project by the Federal Energy Regulatory Commission (FERC). Appalachian Power has an obligation under its license from the FERC to manage the different occupancy and uses of project lands.

- **Floodplains**

The County has a Flood Insurance Study and maps that should be consulted before land use/development changes take place on acreages near free-flowing or intermittent streams of the County.

- **Forest Resources**

Over 63 percent of the County's land mass is forested, providing aesthetic, environmental, and economic benefits to the County. Thirty-two million board feet of sawtimber and nearly ten million cubic feet of pulpwood are cut each year providing considerable revenues to the County's farmers. A number of County residents are dependent on jobs in lumber and wood-related industries that can utilize local forests. Forest protection and management are important land use and resource preservation tools that need the continual support of citizens and their elected representatives.

- **Agriculture**

The County's land in farms has declined by 11.0 percent from 1982 to 2002. However, the value of farm products has increased from 1982 to 2002. Agricultural land has been converted to forestry and rural residential subdivision uses with many farmers either ceasing operation or curtailing operations and working on both the farm and in business and industry.

Ongoing planning efforts by the Planning Commission in concert with the offices of the SCS, ASCS, and VPI&SU Extension should identify prime farmland in the County and the mechanisms needed to protect the farmland. The County is one of the state's leading agricultural areas, and comprehensive planning and actions can be central to maintaining the County's ranking. The County's continued support of the Blackwater River Watershed project to reduce erosion, siltation, and wastes is quite important to agri-production and the environment.

- **Critical Habitat and Wildlife Management Areas**

The following areas have been designated, or identified, as critical habitat or wildlife management areas: Fairystone Farms, located at the common border of Henry, Patrick, and Franklin Counties—a portions of which is in Franklin County; the Philpott Wildlife Management Area, with 4,750 acres—a portion of which are in Franklin County; the Turkeycock Mountain Area, made up of 20,000 acres, of which approximately half are in southeastern Franklin County—portions of which have been established as the Turkeycock Wildlife Management Area in Franklin and Henry Counties; and Grassy Hill Natural Area Preserve with 1,392 acres, located on

State Route 919 in the Grassy Hill section of the County just west of the Town of Rocky Mount and becoming the state's 27<sup>th</sup> natural area preserve.

- **Air Quality**

The air quality is excellent in the County. The Virginia Department of Air Pollution Control and the U.S. Environmental Protection Agency have designated Franklin County and Rocky Mount as attainment areas for all criteria pollutants. There has been no known exceedance of any standard. The area has major facilities that emit criteria and toxic air pollutants. The area is insulated from Roanoke Valley pollutant sources by Cahas Mountain and Lynville Mountain sections of the Blue Ridge chain.

- **Climate**

The County's moderate temperatures and precipitation have aided agricultural and forest production and will increasingly be a factor in future population and development growth into the 21st century because of heating costs in more northern areas and cooling costs in more southern areas of the United States.