

LAND USE

INTRODUCTION

This section describes the history of land use regulation in Shenandoah County, shows how the land area of the County is utilized, and presents recommended policies to guide further land use activities.

Local government management of land use through subdivision and zoning ordinances has been an option in Virginia since the 1940's. In the 1950's, the Division of State Planning and Community Affairs began providing technical assistance to encourage local governments to establish planning commissions, develop local plans, and implement them through land use ordinances. Towns are responsible for land use within their corporate limits with counties responsible for the unincorporated areas.

Shenandoah County first established a planning commission in 1971, adopting its first subdivision ordinance in 1972. The Shenandoah County Comprehensive Plan 1990 was prepared with the Planning Commission by planners from the Division of State Planning and Community Affairs and adopted in 1973. This included a future land use map and recommendation for a zoning ordinance to implement it. The basic premise of zoning is that incompatible land uses should be separated. Generally, the citizens of rural counties have been opposed to such "regulations" since they are of the opinion they will not do anything to harm their land or their neighbors. Writing down the rules for land use is however, a necessary fact of modern life as new residents move to the county with essentially suburban values for the protection of housing values.

After the plan adoption, a zoning ordinance was developed by the same state planners and presented for local adoption in 1975. A large crowd in a meeting at Woodstock's Central High School convinced the then Board of Supervisors that the citizens were not ready for a zoning ordinance to implement the County Plan. In 1976, the Planning Commission began working with staff from the Lord Fairfax Planning District Commission to develop a more appropriate zoning ordinance. This led to adoption of the current ordinance in 1978.

Actions of the General Assembly in the early 1970's contributed to an increase in the level of planning by localities. The problems encountered by Northern Virginia and Tidewater, plus recreational home development in the Valley and other rural areas, indicated the need for local regulation. Requirements for establishing local planning commissions by 1976, subdivision ordinances by 1977, and comprehensive plans by 1980 were included in the Code of Virginia. Zoning, however, is still an option. Since the adoption of the 1973 plan by the county, all towns except Toms Brook have adopted their own plans and zoning ordinances to implement them. All towns have subdivision ordinances. The majority of that work was done with the staff assistance of the PDC.

In order to achieve the goals of this plan, County and Town plans must be coordinated. Since they did not exist at the time of the 1973 plan, an administrative goal of this plan is to establish an umbrella plan that will address the land use concerns in the rural county in a way that supports the maintenance of viable towns as the primary locations for growth. Throughout this land use section of the Plan, data will be discussed in terms of the unincorporated rural area, the incorporated towns, and the County as a whole.

General land use is discussed first, followed by a discussion of the development that took place between 1970 and 1990. Current zoning and the development within the individual zoning districts is described next. An analysis of these land use trends is followed by recommended land use policies which will advance and further define fulfillment of the County's goals of preserving an open rural atmosphere and protecting the environment as first set out in the 1973 Plan.

LAND USE PATTERNS

Since first being surveyed in the 1970's, the general land use patterns of the County have not changed greatly; it is still largely rural, with the predominant land use being agriculture. However, the major types of developed uses--residential, commercial, and industrial--increased considerably during the last couple of decades.

Using figures contained in the 1973 Shenandoah County Comprehensive Plan as a base, the residential acreage has increased by 634 percent, from an estimated 2,330 acres to approximately 14,772 acres by 1988. Commercial acreage increased from about 85 acres to approximately 415, for a 488 percentage increase. Industrial land increased from 120 acres to about 1,420 acres for a 1188 percent increase.

The changes described above are shown in Table 3-A on the next page.

TABLE 3-A
DEVELOPED LAND USE CATEGORIES - 1973 AND 1988
UNINCORPORATED AREA OF SHENANDOAH COUNTY

<u>Land Use Category</u>	<u>1973 Acres*</u>	<u>1988 Acres**</u>	<u>Percent Increase</u>
Residential	2,330	14,772	634%
Commercial	85	415	488%
Industrial	120	1,420	1188%
Public/Semi-Public and Institutional	165	118 ***	- 28%
Transportation/Utilities	<u>N/A</u>	<u>4,738</u>	<u>----</u>
TOTAL "DEVELOPED" LAND	2,700	21,463	795%

Notes:

- * All acreages from the 1973 Comprehensive Plan were estimated by assigning an arbitrary land area of 0.5 acre to residential and commercial land uses, and 1 acre for industrial and public and semi-public land uses.
- ** Acreages calculated from planimeter measurements of the 1986 land use map as updated through local review in 1988 (for the unincorporated area), and from town plans.
- *** Mount Jackson airport (87.14 acres) closed. Land became part of the Shenandoah County Industrial Park.
- N/A Not available - Transportation uses not estimated in 1973 Plan, utility sites included in Industrial.

Agricultural land includes crop and pasture land, orchards, confined feeding operations, and small tracts of timber. As of 1988, these uses account for 127,782 acres, or just over 39% of the County's total land area.

The George Washington National Forest, containing approximately 77,681 acres of land is located along both the western and eastern boundaries of Shenandoah County in the two mountain ranges. It represents almost 24 percent of the entire land area of the County that will

basically be preserved in its natural state and as managed timber land, thereby contributing to the County's air and water quality.

Land committed to residential development accounts for an estimated 16,503 acres, or about 5% of the County, based on subdivision records. This represents a marked increase from the 1973 figure of 2,330 acres (less than 1%) and indicates the shift to larger lot sizes as a result of residential lots being created bypassing the subdivision ordinance.

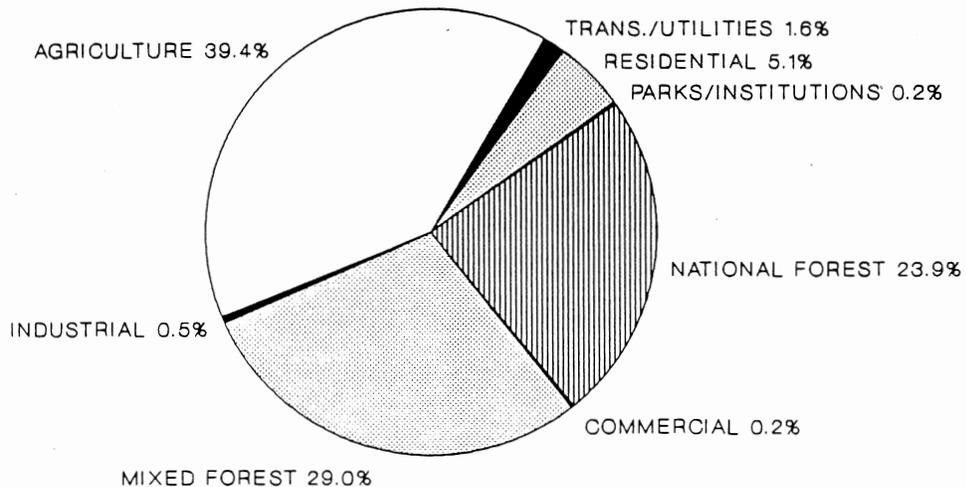
Transportation and utility uses take up approximately 5,334 acres in existing rights-of-way or easements. This includes the interstate and primary highways, the secondary road system, and electric and gas transmission lines. These uses were not estimated in the 1973 plan.

Industrial activities currently occupy about 1,672 acres, or 0.5 percent of Shenandoah's land area. This was a large amount of additional acreage devoted to this use (from 120 in 1973), but still involves a very small percentage of land area.

Commercial and institutional uses are also located on very small amounts of land at 641 and 353 acres respectively, while local parks and recreational uses occupy another 340 acres.

The remainder of the County, approximately 94,174 acres, or 29 percent of the land area, is classified as "conservation". Low density development may occur in some of these areas, but many of them are constrained by natural features such as steep slopes, flood plains, or soil conditions which have severe limitations for development. See Figure 3-A, below, and Table 3-B on the next page.

FIGURE 3-A
EXISTING LAND USE - 1988



TOTAL = 324,480 ACRES

TABLE 3-B
EXISTING LAND USES - 1988 (Acres)

Land Use	Unincorporated		Towns		Total	
	County	(%)		(%)	County	(%)
Agriculture	127,722	40.0%	60	1.1%	127,782	39.4%
Conservation	92,286	28.9%	1,888	35.6%	94,174	29.0%
National Forest	77,681	24.3%	--	--	77,681	23.9%
Residential	14,738	4.6%	1,731	32.5%	16,503	5.1%
Trans./Utilities	4,738	1.5%	596	11.2%	5,334	1.6%
Industrial	1,420	0.4%	252	4.7%	1,672	0.5%
Commercial	415	0.1%	226	4.2%	641	0.2%
Institutional	85	0.1%	268	5.0%	353	0.1%
Parks/Rec.	33	0.0%	307	5.7%	340	0.1%
TOTAL	319,152	100.0%	5,328	100.0%	324,480	100.0%

Source: Planimeter measurements from 1986 land use map updated through local review in 1988 (unincorporated areas) and Town Comprehensive Plans.

The general land use patterns are shown on Figure 3-B "Generalized Existing Land Use" on the following page.

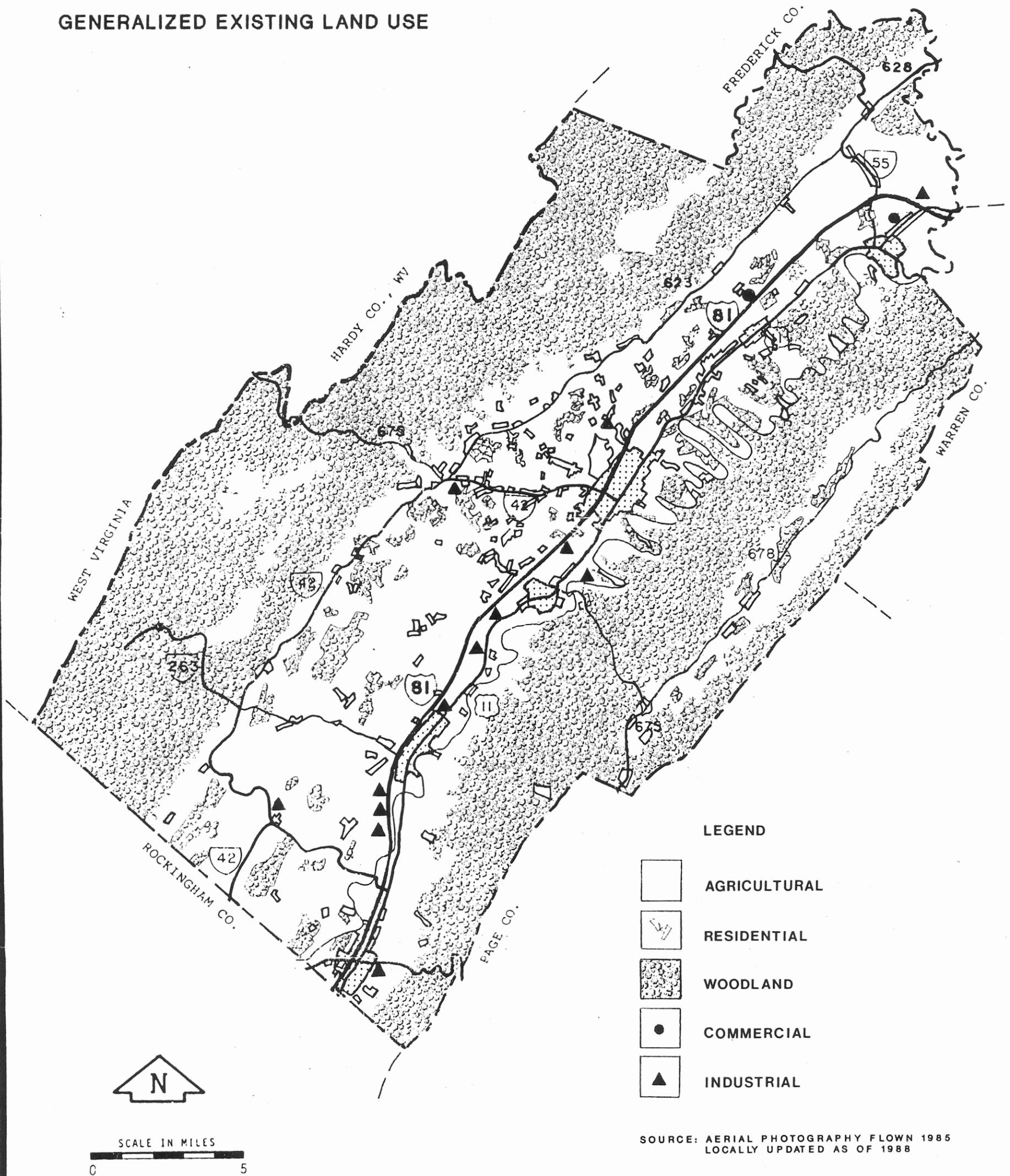
Growth and development has taken place in two distinctive patterns over the past 16 years. There has been concentrated growth in and around the towns and the Bryce Mountain service area where public facilities are available and it was possible to construct several types of housing, including townhouses and apartments, as well as commercial and industrial uses.

Outside of those areas, the growth has been primarily residential on large lots with individual on-site water and septic systems, and has been scattered throughout the County along rural secondary roads. Many of the homes--both in the Basye/Bryce Mountain area and in the rural countryside--are second homes that are used as weekend retreats or are being held for retirement.

This scattered development, combined with topographic characteristics that isolate certain areas like Fort Valley and Cedar Creek, makes much of the County impractical to economically serve with public water and sewer facilities, and it also impacts the County's natural resources and road network.

SHENANDOAH COUNTY VIRGINIA

GENERALIZED EXISTING LAND USE



LEGEND

- AGRICULTURAL
- RESIDENTIAL
- WOODLAND
- COMMERCIAL
- INDUSTRIAL

SOURCE: AERIAL PHOTOGRAPHY FLOWN 1985
LOCALLY UPDATED AS OF 1988

FIGURE 3-B

The six incorporated towns in the County are located in a linear pattern running northeast and southwest along U. S. Route 11 from south of Cedar Creek (the Frederick County line) to the Rockingham County line at the southern end of New Market.

The population of the towns is approximately 10,851 according to the preliminary 1990 Census data. Together with an additional 300 persons in the Basye/Bryce Mountain area, a total year-round population of about 11,200 is served by public water and sewer facilities, which represented approximately 36 percent of the County's population. Sixty-four percent is therefore served by individual on-site wells and sewage disposal systems, which depend upon good ground water and proper soil conditions.

Table 3-C, below, shows the population figures and approximate land areas for each of the towns and the Basye area.

TABLE 3-C
POPULATION & LAND AREAS - 1990

<u>Location</u>	<u>1990 Population</u>	<u>Land Area (Sq. Miles)</u>	<u>Population Per Sq. Mi.</u>
Basye/Bryce Mtn.	300 *	2.16	139
Edinburg	860	0.73	1,178
Mt. Jackson	1,583	1.21	1,308
New Market	1,435	1.46	983
Strasburg	3,762	1.60	2,351
Toms Brook	227	0.14	1,621
Woodstock	<u>3,182</u>	<u>3.21</u>	<u>991</u>
SUBTOTAL	11,349	10.51	1,080
Rural County	20,287	496.49	41
TOTAL COUNTY	31,636	507.00	62

* (Estimated year-round population)

Sources: U.S. Census of Population & Housing, 1990
Lord Fairfax Planning District Commission

The population in the Basye area, a resort community, fluctuates seasonally; at times it is several times the permanent year-round population and may approach 3,000. Public facilities such as water, sewer, and roads must have the capacity to serve the maximum number of residents and commercial establishments, even though this capacity may only be needed for one period in the year.

DEVELOPMENT TRENDS

Population and Housing Units

Table 3-D, below, examines the growth which took place in Shenandoah County between 1970 and 1990. Overall, 66 percent of the population growth and 69 percent of the increase in housing units took place outside of the towns in the rural portions of the County during this time period.

The trends were distinctly different, however, during the two decades. Between 1970 and 1980, 92 percent of the population growth and 79 percent of the housing growth were in the rural portions of the County. Between 1980 and 1990, 64 percent of the population increase was in the towns, while about 59 percent of the housing increase was in the rural area. This is due in part to the second home/retirement home market in Shenandoah County. Of all the vacant units in 1990, 68 percent were being held for seasonal, recreational, or occasional use. There are more homes being constructed in the County than are needed for the population. In addition, the growth rates for both population and housing were greater in the towns than the rural area between 1980 and 1990.

TABLE 3-D
POPULATION AND HOUSING GROWTH 1970-1990

	<u>1970</u>	<u>1980</u>	<u>1990</u>	<u>Increase</u> <u>'70-'90</u>	<u>% Rural</u> <u>'70-'90</u>
Population:					
Total County	22,852	27,559	31,636	8,784	
Rural Area	14,765	19,106	20,587	5,822	66%
Towns	8,087	8,453	11,049	2,962	
Housing:					
Total County	8,773	12,000	15,160	6,387	
Rural Area	5,750	8,315	10,184	4,434	69%
Towns	3,023	3,685	4,976	1,953	

Sources: U.S. Census of Population & Housing, 1970, 1980, 1990

Subdivisions

Information was compiled on the subdivisions that were recorded in Shenandoah County from June 1978 through December 1988. These subdivisions involved 6,470 acres of land. According to a preliminary analysis of the subdivision data, there were a total of 1,494 individual parcels created for development during that time period, with an average lot size of 4.3 acres. Most occurred in agriculturally-zoned areas.

Residential Building Permits

Figure 3-C, on the next page, shows the distribution of residential building permits issued from 1980 through 1988. The towns of Strasburg and Woodstock, the Basye area, plus the Census Tracts around the towns of New Market and Toms Brook each gained more than 250 dwelling units during the period. The Town of New Market and the Census tracts around the towns of Strasburg, Woodstock, Edinburg, and Mount Jackson, plus the Block Groups east of Basye and Bryce Mountain all gained between 150 and 250 dwelling units. The remainder of the County experienced relatively low levels of building (less than 150 dwelling units).

Recent Development

Two of the towns have enlarged their boundaries in the 1980s. Strasburg completed a major annexation as of December 31, 1984 which incorporated 528 acres and provided land for residential, commercial, and industrial growth. A shopping center was constructed in the annexed area in 1988, and a large apartment complex since then. Several additional developments have been proposed in that area. Under the terms of the Annexation Agreement between the Town and the County, as additional parcels are served by Town utilities they will be annexed by Resolution of the Town.

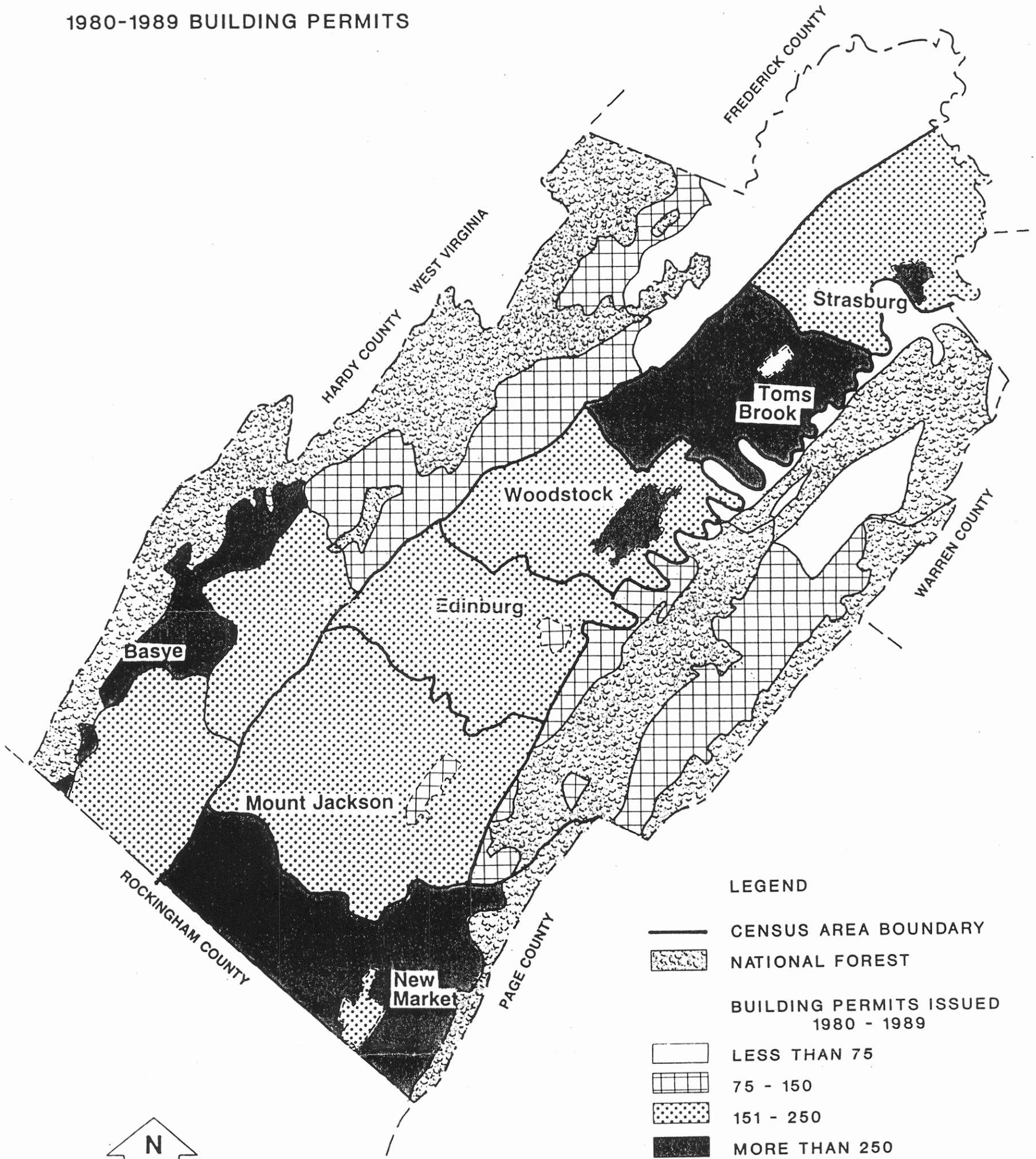
Woodstock has been enlarged by approximately 237 acres through a series of boundary adjustment agreements with the County as owners of undeveloped parcels next to the corporate limits requested that their properties be brought into the Town and have utility services extended to them.

As indicated in Table 3-C, Strasburg remains the most densely-populated town, even after its annexation. Basye is second only to Strasburg during the active resort season with a density of approximately 1388 persons per square mile, but its permanent population density is quite low. If most of these homes were to be occupied year-round, many additional public services would be required in that area.

Another important development that has taken place over the last few years has been the creation of the industrial park located just south of Mt. Jackson. The park is served by public utilities extended from the Town of Mt. Jackson. Two major industries have built on sites in the industrial park, employing a total of approximately 400 persons. The County has had several other serious inquiries from additional companies interested in locating somewhere in this region, and will continue to market the remaining sites to selected industries.

SHENANDOAH COUNTY VIRGINIA

1980-1989 BUILDING PERMITS



3-10

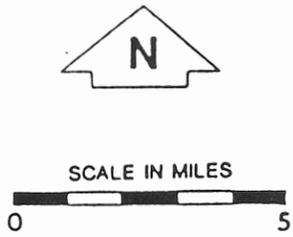


FIGURE 3-C

Development Constraints

Due to soil and rock conditions, not all of the previously subdivided lots in the County will be buildable. In some cases they may have to be combined to obtain sufficient land for a well and a septic system; in other cases, the ground may be too poor for septic systems to be approved at all.

The topography of the land is another limiting factor. Where steep slopes exist, construction will be limited or not acceptable. The same is true in flood plains, where uses such as parks and recreational areas could be developed, but no permanent buildings should be allowed.

Access by the primary highway and secondary road systems can be another development constraint. There are many locations in the County that do not now have good roads, and some where the potential for creating them is very limited due to excessive grades, limited areas for rights-of-way or poor soils.

There are many other constraints imposed upon the County due to its topography, geology, soils, and water resources. These were discussed in detail in Section 2 "Natural Resources".

LAND USE ANALYSIS BY WATERSHED

A water resources assessment was recently prepared for the County under a U.S. Environmental Protection Agency water quality planning grant administered by the Virginia Water Control Board. The Shenandoah County Water Resources Assessment is summarized in the Water Resources portion of Section 2. As part of this study, the various watersheds within the County were identified, measured, and their general types of land uses examined.

Twenty-six individual watersheds were identified within the County, from the North Fork of the Shenandoah River to small tributary streams. As can be expected from the previous portions of this section, there is a significant amount of agricultural and forestal land in all of them. Eleven out of the 26 watersheds are at least 50% agricultural, and 14 are at least 50% forested. All together, the land area within 24 of the watersheds contains 80 percent or more agricultural and forestal uses combined, none comprise less than 60 percent of these uses, and six contain only agriculture and forestry as of 1989.

Because of the amounts of land involved, non-point source pollution potential from agricultural and forestal uses is one major concern for the quality of water in Shenandoah County. This could take the form of erosion and sedimentation, plant nutrients from animal waste and fertilization, and toxic substances such as herbicides and pesticides. To avoid these problems, it is important that Best Management Practices (BMP's) be utilized for agricultural and forestal activities.

BMP's are practices or combinations of practices which will prevent or reduce the amount of pollution from non-point sources. BMP Handbooks were prepared by the Virginia Water Control Board in conjunction with other agencies such as the Soil & Water Conservation Commission, the Department of Agriculture & Consumer Services, and the Division of Forestry. There are individual handbooks for Agriculture, Forestry, Sources Affecting Groundwater, Urban, and others.

Urbanized land uses include mixed built-up areas (such as the towns), and residential, industrial, and commercial uses. There were only a few watersheds with a significant portion of their land areas devoted to such uses. Ten had less than one percent, four had between one and two percent, six had between two and five percent, and four had from 5 to 10 percent. Of the remaining two, the Narrow Passage Creek watershed had 23.4 percent of these uses and the Spring Hollow Run watershed had the most urbanized uses, occupying approximately 39.3 percent of its area. The six most urbanized watersheds are shown below in Table 3-E below and mapped on Figure 3-D on the next page.

The County as a whole, which is a part of the North Fork Shenandoah River watershed, has 6.3 percent of its land area in urbanized uses.

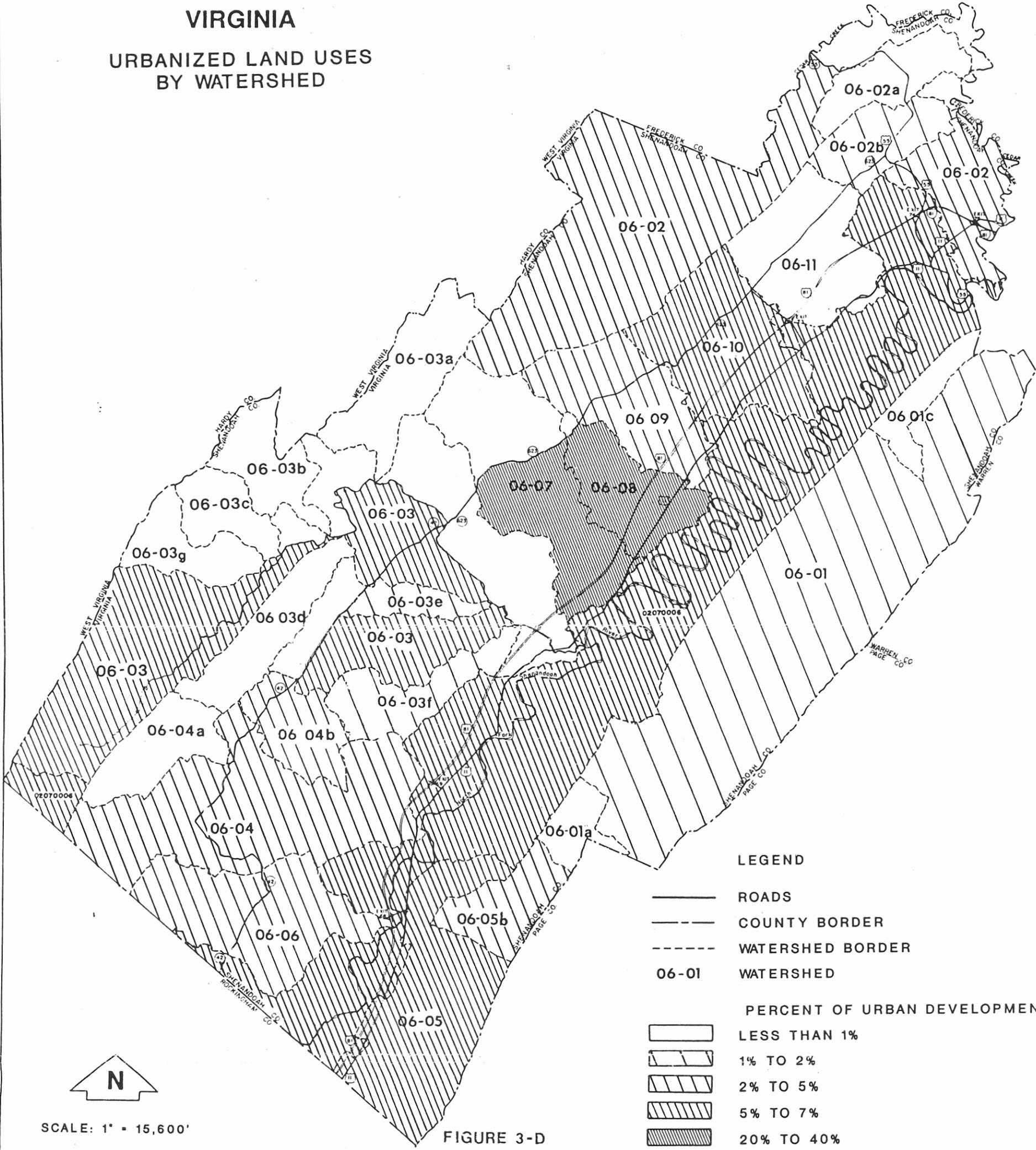
TABLE 3-E
PERCENT OF URBANIZED LAND USES
SHENANDOAH COUNTY - 1989

<u>Watershed Name</u>	<u>Watershed Number</u>	<u>Total Acres</u>	<u>Percent Urbanized</u>
Spring Hollow	06-08	6,104	39.3%
Narrow Passage Creek	06-07	13,045	23.4%
North Fork Shenandoah (Main Stem Only)	02070006	59,854	6.8%
Toms Brook	06-10	10,479	6.6%
Smith Creek	06-05	13,744	6.0%
Stoney Creek	06-03	39,530	5.0%
County Total	02070006	324,480	6.3%

Source: Shenandoah County Water Resources Assessment

SHENANDOAH COUNTY VIRGINIA

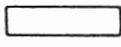
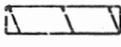
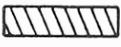
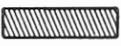
URBANIZED LAND USES BY WATERSHED



LEGEND

-  ROADS
-  COUNTY BORDER
-  WATERSHED BORDER
- 06-01** WATERSHED

PERCENT OF URBAN DEVELOPMENT

-  LESS THAN 1%
-  1% TO 2%
-  2% TO 5%
-  5% TO 7%
-  20% TO 40%



SCALE: 1" = 15,600'

FIGURE 3-D

Potential non-point pollution from urban and urbanizing areas include bacteria, fertilizers and pesticides, traffic-generated pollutants, chlorides from roadway deicing, and erosion and sedimentation from construction projects. Again, BMP's for urban areas should be followed. Other specifications, such as curbing and guttering, drainage systems, and retention ponds will assist in reducing some of these pollutants.

Both Smith Creek and Stony Creek were identified as having relatively high bacteria counts in the Water Control Board's biennial report covering 1985-1987.

Because of its underlying geology and many surface waters, it is of the utmost importance to follow good practices in all development activities to prevent any degradation of the county's water supply.

ZONING

The County and all of the incorporated towns except for Toms Brook have enacted zoning ordinances to implement their land use plans. These ordinances control the types of uses permitted on the land, the density of development, and contain requirements for minimum lot sizes, lot widths, and building set-backs. In Toms Brook, such dimensional requirements are included within the subdivision ordinance.

Each zoning ordinance within the County has districts designated for residential, commercial, and industrial uses. Other districts which are found in some ordinances are agricultural and conservation. In addition, there are "overlay" districts or additional regulations that govern such things as uses in flood plains.

In the unincorporated areas of the County which are subject to the Shenandoah County Zoning Ordinance, there are eight different zoning districts; three are for residential uses, two are for commercial uses, and one is for industrial uses. The other two districts are a conservation district and the agricultural district. The zoning districts and the acreages which are covered by each are shown in Table 3-F on page 3-16.

The residential districts range from low-density areas which require a 30,000 square foot lot size for a single-family house (R-1) to an area which will allow a density of 10,000 square foot lots if public water and services are provided (R-3). The lower density residential areas are located near several towns, in some rural "villages", and in several recreational subdivisions. Moderate-density districts are located near towns and in the Basye/Bryce Mountain area. In the unincorporated portion of the County, most of the "high-density" designation is also located in the Basye/Bryce Mountain area.

The two business districts are designed to provide for convenience type shopping and services (B-1), and more general business operations and services which require frequent access from a major roadway (B-2). Local Business B-1 districts are located in the rural village areas, while General Business B-2 districts are located primarily at interchanges of I-81 and along U.S. Route 11.

The Industrial District (M-1) is designed to permit limited industrial uses in order to encourage the development of the local economy. This classification is found in several areas of the County, with large parcels located in the County industrial park and in the Strasburg area.

The Conservation district covers parts of the County which contain various open uses such as forests, recreation areas, the George Washington National Forest, and farms. It is designed to promote the protection of such open lands and to protect the natural resources.

The Agricultural district is designed to preserve the character of those areas where the major uses are agriculture and related uses, and is located primarily in a wide belt running northeast-southwest through the center of the County. Residential uses are allowed in the conservation and agricultural districts as well as the residential districts. Required minimum lot sizes vary from 125,000 square feet to 30,000 square feet in all areas that are not served by public water and sewer. In residential areas, Lot size requirements are reduced in those areas with either or both utilities. Individual manufactured homes and manufactured home parks (as authorized by the Shenandoah County Manufactured Home Park Ordinance) are also allowed.

TABLE 3-F
Land Use by Zoning Classification
Unincorporated County

Land Use (Acres)

Zone	Total	Ag.	Open/ Mixed Forest	Nat'l Forest	Res.	Trans/ Util.	Ind.	Comm.	Inst.	Park/ Rec.
LDR	4,620 Ac.	2,311	485		1,754	39	31			
MDR	4,616 Ac.	1,571	735	---	2,258	39	13	---	---	---
HDR	292 Ac.	10	252	---	30	---	---	---	---	---
L. Bus.	83 Ac.	32	30	---	---	---	---	21	---	---
G. Bus.	933 Ac.	604	71	---	---	10	71	177	---	---
Ind.	2,526 Ac.	1,020	269	---	---	50	1,147	40	---	---
Cons.	140,384 Ac.	2,690	55,521	77,681	3,992	500	---	---	---	---
Ag.	165,698 Ac.	119,484	34,923	---	6,738	4,100	189	146	85	33
TOTAL	319,152 Ac.	127,722	92,286	77,681	14,772	4,738	1,420	415	85	33

Notes: Land Use figures measured with planimeter by LFPDC from the 1986 land use map based on 1985 aerial photography, and updated through local review in 1988.

Zoning figures measured with planimeter by LFPDC from the composite zoning map updated through local review in 1989.

All figures are approximate.

LDR = Low Density Residential MDR = Medium Density Res'l HDR = High Density Res'l.
L. Bus = Local Business G. Bus = General Business
Ind. = Industrial Cons. = Conservation Ag. = Agricultural

LAND USE CONCERNS

Despite the low-density designations of conservation and agricultural zoning districts in the unincorporated areas, a large portion of development still took place in the rural areas of the County between the time the 1973 plan was adopted and 1990. This ran counter to the goal of preserving the open rural atmosphere of Shenandoah County by having most development located within the six towns and in the areas that are served by public utilities.

While the 1973 Plan identified a need for only approximately 700 additional acres of residential land by 1990 (page 26), a total of 13,209 acres were designated "Residential (Low and Medium)" and an additional 197,726 acres were designated "Agricultural/Residential" on the Future Land Use Map on page 35 of that Plan. (Note: acreage calculations were made using the ASCS digital planimeter and all acreages are approximate.) In addition, twelve "Rural Development Centers" were proposed, each to contain a population of 500 to 1,000, and dependent upon the establishment of "package" treatment plants. With these designations, the 1973 Future Land Use map supported residential growth for two thirds of the rural county.

Projecting build-out at one and two acres per dwelling unit for the Residential designation and five and ten acres per dwelling unit for the Agricultural/Residential designation, that future land use pattern could produce 26,000 to 52,000 dwelling units in the rural county or between 68,000 to 136,000 people. (Based on the 1990 average household size of 2.59, which is lower than the average size of 3.0 projected in the 1973 Plan.)

The concept of rural development centers has not worked. This may be primarily because package sewage treatment plants serving small clusters of development generally have not worked efficiently nor economically, and were not established in those designated centers. Consequently, growth in the rural area has been scattered out over the countryside, and needs to be re-directed to the areas served by public facilities.

One way of measuring how well future growth is being directed is by tracking density in the various areas of the County. Higher rural densities are found adjacent to the towns. To meet the goal of keeping the unincorporated area of the County rural in character, the densities outside of the proposed public service areas should not increase significantly.

Density in the Unincorporated Area

A density scale that is appropriate to a rural county has been defined. (See Table 3-G, on next page). Unlike urban areas where densities are expressed in terms of so many units per acre, the rural densities have been expressed as how many acres there are for each dwelling unit.

TABLE 3-G
RURAL DENSITY SCALE

<u>Acres Per Dwelling Unit</u>	<u>Density Range</u>
Less than 1	A
1.00 to 2.49	B
2.50 to 9.99	C
10.00 to 19.99	D
20.00 to 29.99	E
30.00 to 39.99	F
40.00 to 49.99	G

Figure 3-E on the following page provides a summary and visual picture of how the density has been changing in Shenandoah County, and what is projected based on existing subdivisions. In 1980, eight block groups (as defined by the Census Bureau) had an average density of 40 or more acres for every dwelling unit. By 1990, there were only three block groups in the entire county with that average density. If the existing subdivisions build-out, or if additional lots are created and housing units constructed on them, there will not be anywhere in the County with such a low average density.

In addition, the average density in many of the other block groups shown on Figure 3-E is continuing to increase. Channeling growth towards the towns and public service areas will help to prevent the suburbanizing of the unincorporated area.

The coordination of zoning and subdivision regulations in areas just outside of the corporate limits of some of the towns has been a concern. There are places where the County allows higher density and requires less improvements to the road system than the town that is immediately adjacent to a proposed subdivision.

Commercial and industrial uses should also be concentrated in areas where public services are available, and need to be adequately buffered from adjacent uses.

There is no zoning in the Town of Toms Brook. Dimensional requirements had to be incorporated into the Town's Subdivision Ordinance, and there are very few restrictions on allowed uses.

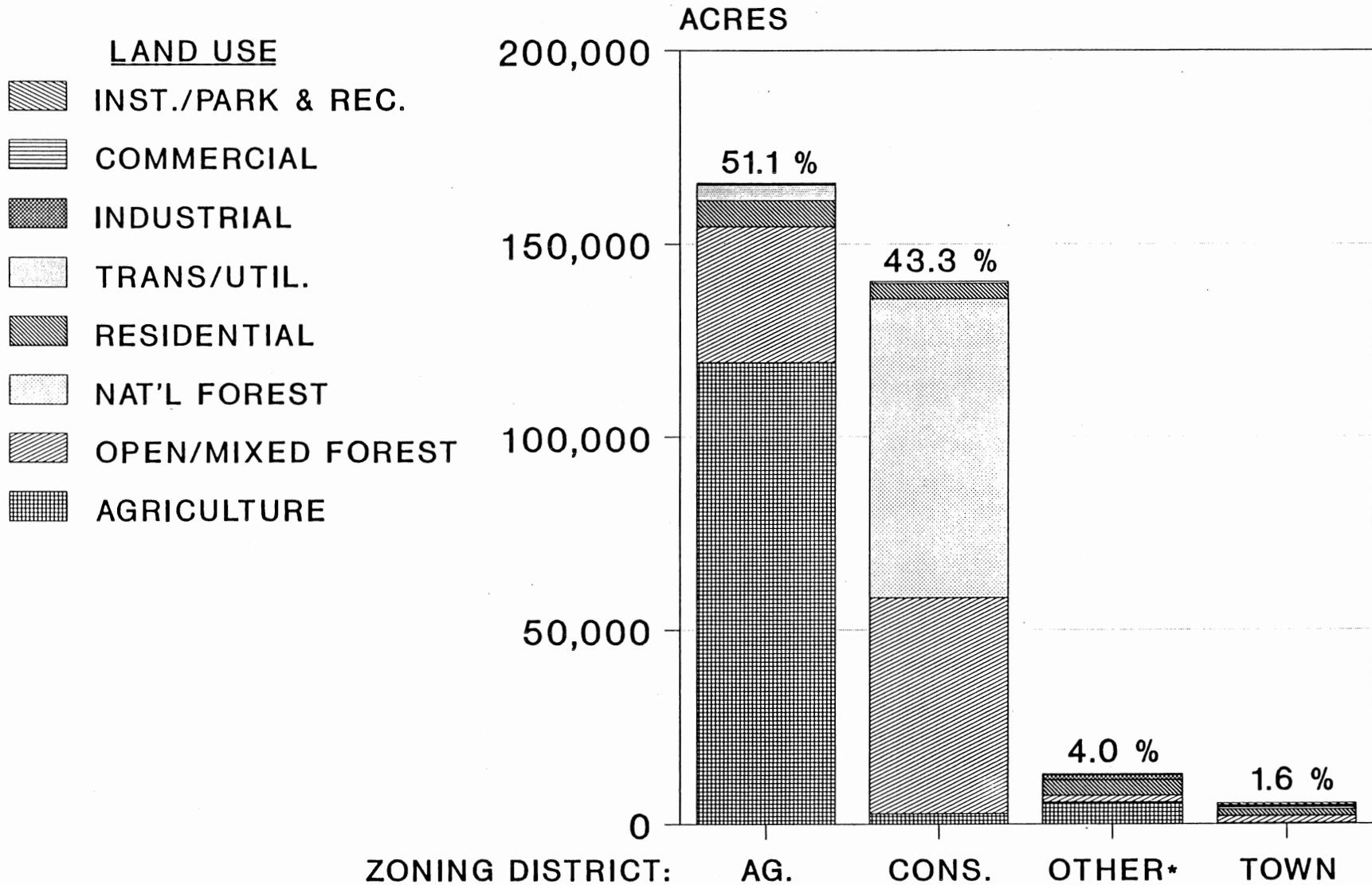
There is a need to track the status of agricultural and forestal districts, and of land that is placed in use-value taxation. With some districts due for renewal, there is also a need to review the requirements for such districts and how they affect land use decisions in the County.

Access to parts of Shenandoah County is not easy, and there are many roads throughout the County which need to be upgraded. Alignments for future expansions and upgrades need to be protected.

The first comprehensive examinations of water resources show that they must be protected by taking active measures; density of development, the amount and types of wastewater treatment systems, and the control of non-point pollution must be considered carefully in all areas.

Figures 3-F and 3-G on the next two pages show graphically the acreages of land in the zoning districts and the types of land uses that occupied their areas as of 1988. In each case, there is land available of a less dense designation than the zoning category that could be used for additional growth as zoned. Therefore, there is no need to expand any of the zoning districts at this time; however a new district which would have development requirements that match those of the towns is needed.

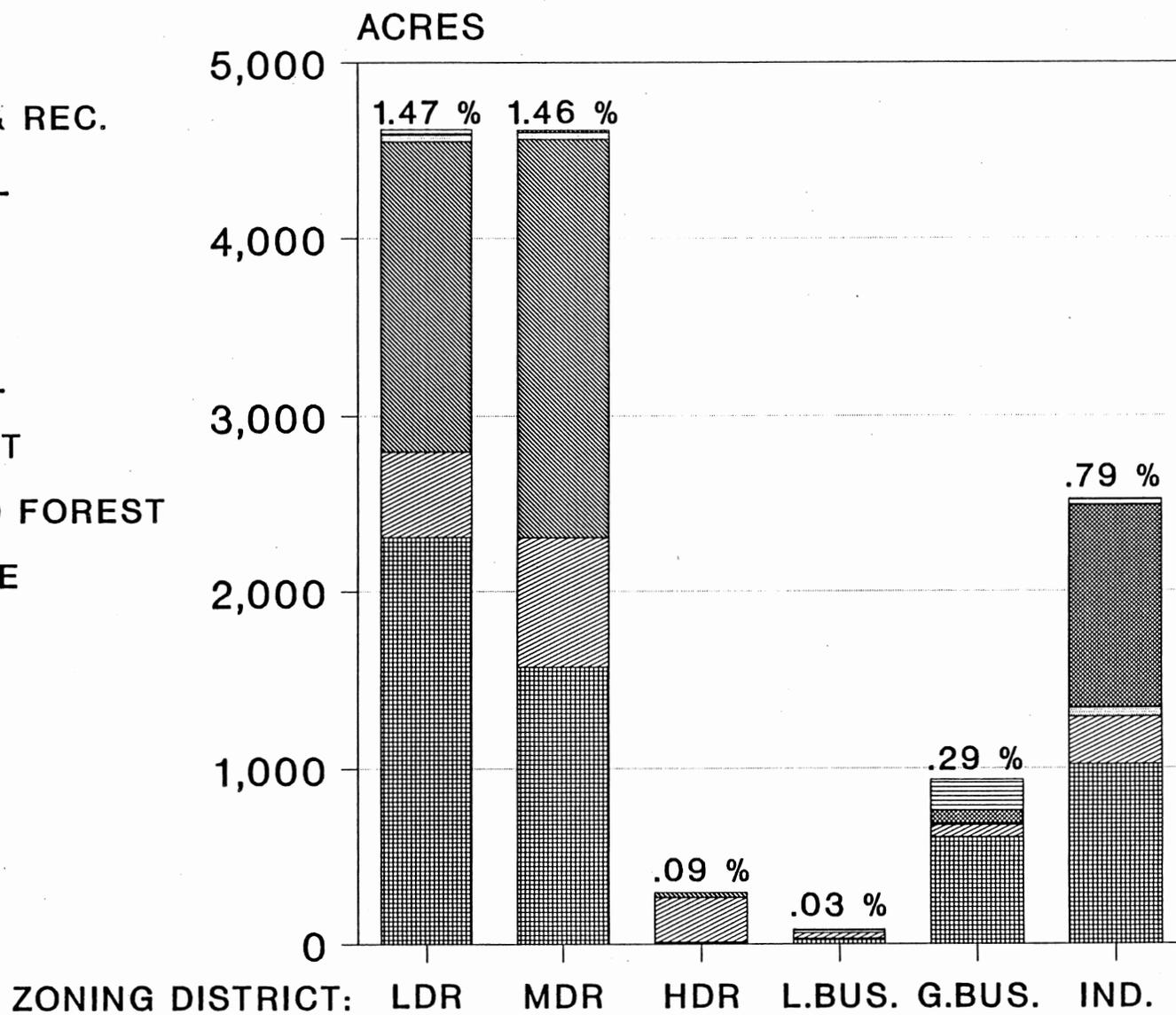
**FIGURE 3-F
COUNTY LAND USE BY RURAL ZONING DISTRICT
AND INCORPORATED TOWNS**



3-21

* Other - see figure 3-G for detail of small area zoning districts

**FIGURE 3-G
SMALL AREA RURAL
ZONING DISTRICT LAND USES**



LAND USE POLICY RECOMMENDATIONS

The purpose of this plan is to provide guidance for the continued orderly growth of the County while maintaining the quality of its environment.

In order to preserve agricultural land and to prevent hazards to the ground and surface waters in the County, the County's future growth should be tied to the availability of public facilities, with moderate density allowed where utilities and services are available. Where individual water and sewage disposal systems must be used and rural secondary roads exist only very low density can be permitted. In order for the goals of the plan to be met, the average densities in the rural areas should not increase significantly during its time frame.

Places where public utilities can be extended economically should be identified primarily in and around each town, in conjunction with the town governments, to determine their ultimate service areas. Such areas are referred to as "public service areas" in this plan. Preliminary designations of these areas are shown in Section 7, Figure 7-C Potential Water and Sewer Service Areas. Within those areas, the development ordinances of the County should be amended to match the towns' urban type of regulations. This would include the subdivision, zoning, and site plan regulations that specify requirements for such things as lot sizes, roadways, and drainage facilities.

On the other hand, certain areas of the County have already been identified as having great potential for ground water contamination and/or having severe limitations for septic systems. Such locations should be designated for conservation, agriculture, and limited to very low density development.

Additional provisions that allow for flexible development and encourage the developer to provide needed facilities should be explored and incorporated into the zoning and subdivision ordinances within the County where feasible in order to channel growth to the public service areas.

Zoning techniques can also be tied into a land evaluation and site assessment (LESA) system which rates the land according to its value for agriculture, and encourages the use of only non-prime lands for uses other than agriculture.

Perhaps even more effective than conventional land use regulations and ordinances in a rural county like Shenandoah are standards for the placement, construction, and maintenance of well, septic, and alternative waste treatment systems, and the use of private easements and restrictions. Together with capital improvements that are placed to guide growth to specific areas, these can form a firm foundation for the future development of the County. Specific policy recommendations are shown in Section 9.

Alternative Development Concepts

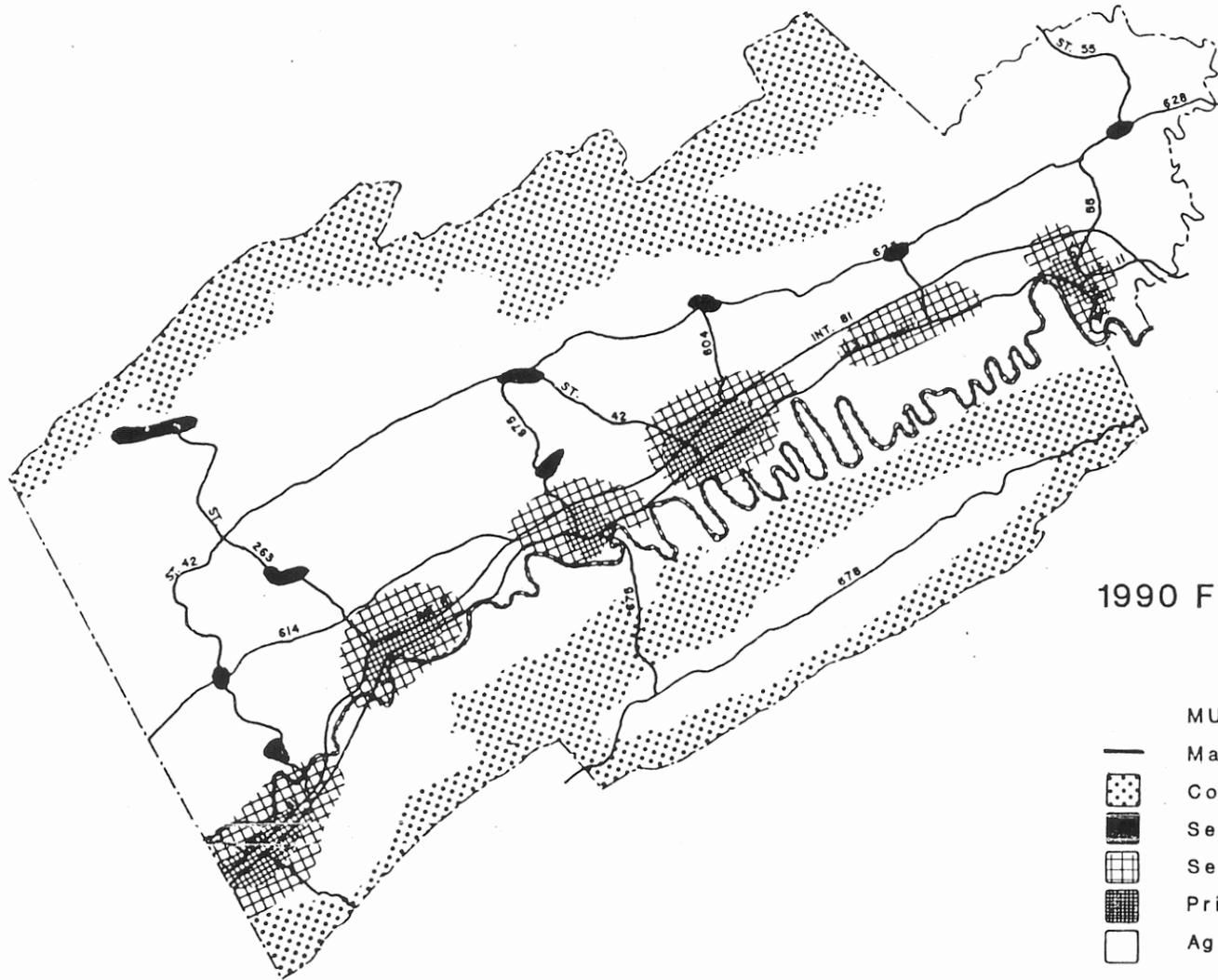
The 1973 plan selected the multi-center concept of the three options that were presented. Based on development from 1973 to the present, that concept has not worked and is not recommended. The rural centers were to depend upon some form of small community sewer treatment plant ("package" treatment plant) that has not materialized. In addition, the majority of the unincorporated rural area of the County was designated as "Agricultural/ Residential". Consequently, instead of being concentrated in the proposed rural centers, most rural development has been scattered throughout the countryside along existing roadways.

This plan recommends the following revisions to that concept: 1) removing the rural centers based on package treatment plants; 2) defining the areas of the towns and the areas surrounding them where public services can be extended logically and economically as combined "public service areas"; 3) coordinating land use planning with transportation planning; and 4) designating the rural portion of the County as "Agricultural". This recommended plan concept is shown in Figure 3-H Alternative Development Concepts on the following page.

The revised public service areas concept is also incorporated into the Generalized Future Land Use map, which is included in Section 9 - Growth Management Policies as Figure 9-A.

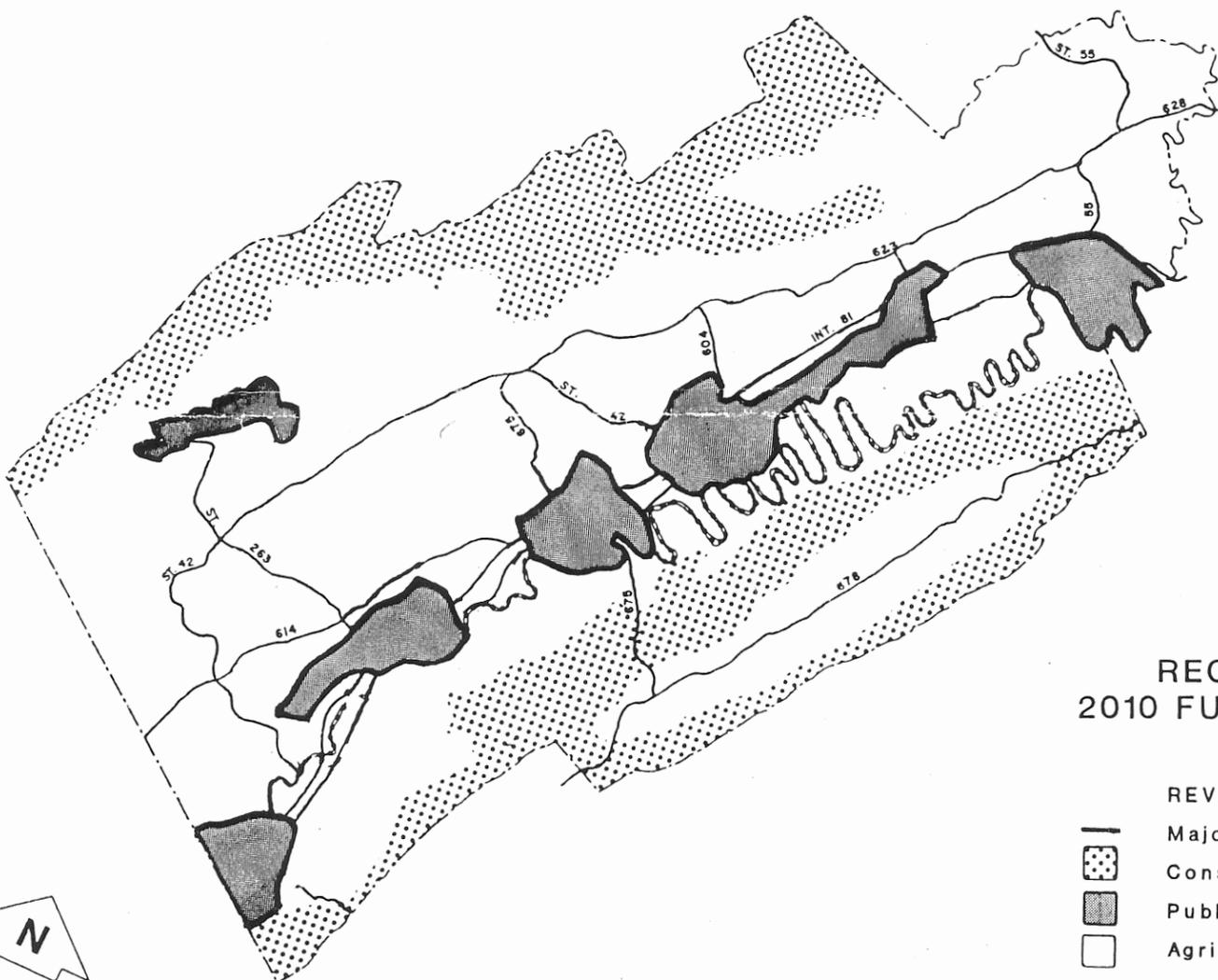
In order to implement this concept, planning must be coordinated with the towns and public service providers. The proposed public service areas need to be well-defined, and any environmentally sensitive or historically important areas within them protected.

SHENANDOAH COUNTY
VIRGINIA
ALTERNATIVE DEVELOPMENT
CONCEPTS



1990 FUTURE LAND USE

- MULTI-CENTER CONCEPT**
- Major Highways
 - ▨ Conservation & Open Space
 - Secondary Growth Center
 - ▩ Secondary Growth Area
 - ▤ Primary Growth Center
 - Agricultural/Residential



RECOMMENDED
2010 FUTURE LAND USE

- REVISED MULTI-CENTER CONCEPT**
- Major Highways
 - ▨ Conservation & Open Space
 - Public Services Areas
 - Agricultural



FIGURE 3-H