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1994



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TABLE OF CONTENTS

Part I

Introduction.....I-1

PART II

Demographic Analysis.....II-1  
Housing Analysis.....II-16  
Economic Analysis.....II-27

PART III

Transportation.....III-1  
Water Resources.....III-17  
Wastewater Treatment.....III-28  
Solid Waste.....III-36  
Law Enforcement and Emergency Services.....III-40  
Education.....III-58  
Parks, Recreation, Culture and the Arts.....III-71  
Natural Resources.....III-83  
Historic Preservation.....III-93  
General Land Use.....III-97  
Agricultural Land Use.....III-99  
Residential Land Use.....III-107  
Industrial and Commercial Land Use.....III-111

## LIST OF TABLES

<u>Table No.</u>	<u>Name</u>	<u>Page No.</u>
1	Place of Birth and Residence Five Years Before the Census for 1970, 1980 and 1990	II-4
2	Population Change from 1960 to 1990 by Jurisdiction	II-6
3	Population Changes by Age and Sex	II-8
4	Marital Status for 1970, 1980 and 1990	II-10
5	Years of School Completed by Residents 25 Years and Older for 1970, 1980 and 1990	II-12
6	Income of Families for 1970, 1980 and 1990	II-13
7	Population Projections	II-14
8	Population - Households	II-16
9	Periodic change in Households	II-16
10	Housing Profile - 1990	II-17
11	Incorporated and Unincorporated Housing Growth	II-18
12	Trends in Housing Occupancy	II-18
13	Housing Structure	II-18
14	Building Permits	II-19
15	Median Value, All Housing Sales Panhandle and Surrounding Counties January 1, 1991 - December 31, 1991	II-19
16	Estimated Values of Single Family Residential Structures - Jefferson County	II-20
17	Median Value, Owner-Occupied Units, 1990	II-21
18	Contract Rents (Monthly)	II-21
19	Substandard Housing 1980 to 1990	II-22
20	Housing Needs for Jefferson County Based on Assessment of Substandard Housing	II-23
21	Age of Year Round Housing Units	II-23
22	Profile of Household - 1980 versus 1990	II-24
23	Source of Sewer and Water - 1980 versus 1990	II-24
24	Future Housing Needs Forecasts	II-26
25	Farm Statistics	II-28
26	Farm Tenure	II-29
27	Sex by Labor Force Status Persons 16 Years and Older	II-30
28	Work Force Mobility	II-31
29	Average Annual Wage in Jefferson County Industries	II-32
30	Persons Employed Age 16 and Over by Occupation for 1970, 1980 and 1990	II-33
31	Employment by Industry for 1970, 1980 and 1990	II-34
32	Retail Trade, Establishments and Sales for 1977, 1982 and 1987	II-36
33	Wholesale Trade Establishments and Sales for 1977, 1982 and 1987	II-37
34	Service Establishments and Sales for 1977, 1982 and 1987	II-37
35	Manufacturing Industries-Establishments and Sales for 1977, 1982 and 1987	II-38

36	Major Employers in Jefferson County	II-38
37	Industrial Site with Infrastructure	II-43
38	Undeveloped Industrial Properties	II-43
39	Industrial/Commercial Zones	II-44
40	Road Mileage by Class--State System	III-4
41	Average Daily Traffic at Selected Locations	III-5
42	Summary of Traffic Problems in Jefferson County	III-8
43	Groundwater Use in 1988	III-19
44	Jefferson County Water Systems	III-27
45	Wastewater Treatment Plants	III-34
46	State, County and Local Police Protection	III-44
47	Police Calls in Jefferson County for 1983-1985 and 1987-1991	III-46
48	Emergency Operations 1987 to 1991	III-52
49	Public School Facilities in Jefferson County	III-70
50	Tischler & Associates Study and Board of Education Survey 1990	III-71
51	Parks in Jefferson County	III-74A
52	Rare and Endangered Species From either the Federal List or Rangewide Status	III-88

#### LIST OF MAPS

<u>Map No.</u>	<u>Name</u>	<u>Page No.</u>
1	Tax Districts	II-7
2	Highway Classification System	III-3
3	Highway Problem Areas	III-7
4	Water Systems	
III-20A		
5	Sewer Systems	
III-29A		
6	Fire Stations and Districts	III-51
7	Elementary School Districts	III-60
8	Junior and Senior High School Districts	III-61
9	Parks and Recreational Areas	III-74
10	Natural Resources	III-86

#### LIST OF FIGURES

<u>Map No.</u>	<u>Name</u>	<u>Page No.</u>
1	Population Growth Past and Projected in Jefferson County	II-2
2	Relationship of Production to Use Jefferson County Ground-Water	III-18
3	Ground-Water Use - Jefferson County 1988	III-19

## INTRODUCTION TO THE JEFFERSON COUNTY COMPREHENSIVE PLAN

About 250 years ago, settlers began arriving in what is now Jefferson County from Pennsylvania, Maryland, and Virginia. They found it rich in natural resources and scenic beauty, and they shaped it into an area with a proud cultural heritage, growing industry, and respect for rural values. Many things in the County have changed over the years, but most of the old values still remain, passed on from one generation to the next and from oldtimer to newcomer.

Now we are facing a new wave of arrivals. They are people who want to escape from the pressures and problems of the city and, sometimes, from excessive rules and regulations. Arriving in small numbers, they add new ideas and vitality to the community. When they arrive in masses, they bring with them the threat that Jefferson County will become just like the place they left. We cannot turn away people who want to become part of our way of life. And we cannot, like many of our ancestors, move further westward when we see the smoke from our neighbor's chimney. We need to make decisions now that will let us grow and change while we preserve our values and quality of life. We need a plan.

### Past Planning Efforts in Jefferson County

During the 1950's and early 1960's, citizens in the County saw the Federal Government acquire Harpers Ferry and express interest in using the banks of the Shenandoah and Potomac Rivers for a national parkway. Fifty miles to the east, the Washington metropolitan area was growing rapidly, as were most major urban areas on the eastern seaboard, and projections showed that eventually growth would move into Jefferson County. Citizens saw Dulles Airport as a particular nearby magnet for some of that growth.

In response to these events, two groups of concerned citizens began meeting informally. These citizens felt that it was important for Jefferson County to plan its future with an emphasis on solving problems at the local level, particularly in light of the Federal presence in the county. In early 1967, these groups petitioned the Jefferson County Commission to appoint a planning commission and in March 1967 the first planning commission was selected. It was composed of 11 members, including two from each magisterial district and one county commissioner.

With the assistance of Federal funds, the Planning Commission hired a consultant, Michael Baker, Jr., Inc. to prepare a Comprehensive Plan in 1968. The plan was to serve as a guide to future growth in the County. After a series of public hearings,

the plan was submitted to the County Commission. The Comprehensive Plan was formally adopted in June 1972, along with the County's first Subdivision Ordinance, which regulated how land was divided into lots. This Ordinance has since been substantially revised, first in 1973 and again in 1979.

In 1973, the Planning Commission began preparing a Zoning Plan for the County, following the recommendations of the Comprehensive Plan. This Zoning Plan was presented to the citizens through a series of public hearings around the County. In May 1976, the zoning plan was placed on the ballot for public referendum. The public decisively defeated the zoning plan by a three-to-one majority.

Understanding the reasons for the defeat of zoning in 1976 is important in initiating a program to prepare an updated Comprehensive Plan and County planning program. To this day, the specific reasons are debated. However, there are a few reasons that are generally accepted.

- o The zoning plan document was too complex and was misunderstood, producing a great deal of misinformation about its potential effects on property owners.
- o Not enough time was taken to educate the public on the zoning proposal. Meetings that were held were called "hearings," giving citizens the impression that the zoning ordinance was virtually finalized. This lack of public understanding caused a great deal of opposition.
- o Many residents, newcomers and oldtimers alike, hold dearly to their right to use their land as they see fit. Zoning was viewed as an unacceptable infringement of this right.

Despite the defeat of zoning, the 1972 Comprehensive plan has proved to be a useful tool over the years.

In July 1985, The Jefferson County Planning Commission appointed a Citizen Advisory Committee to help develop the Comprehensive Plan. The seventeen Committee members were selected to represent not only the concerns of specific areas in the county but also broader concerns such as business, agriculture, education, transportation, public health and safety, land conservation, and historic preservation. Working independently, with the help of State and County staff, the Committee completed that task at the end of 1986.

In December of 1986, the Planning Commission and subsequently the County Commission approved the Comprehensive Plan which was prepared by this cross section of Jefferson County citizens. This plan led to the adoption of the Zoning and Development Review Ordinance adopted in 1988.

## THE BASIS FOR A COMPREHENSIVE PLAN

### Why Should We Plan?

Planning is a process we all undertake. It consists of finding out where you are, where you want to go, and how to get there. Just as the farmer or businessman must plan activities that affect him, so should a community plan the activities that affect it. Community planning gives elected and appointed officials a rational basis for making their decisions based on what results are desired, what future conditions are likely to occur, and how various independent actions can relate to each other and be mutually beneficial.

There are many reasons for undertaking a planning program in Jefferson County. The most prominent of these include the following.

Advanced and comprehensive planning will save money. Careful consideration of the many interrelated factors of the total community will assure, as much as possible, that every new development in the county is properly located and properly designed so that it will not have to be torn up and replaced or moved before it is worn out. Timely planning can also prevent costly mistakes as to the location of county facilities and the provision of county services.

A well-planned and developed community is more attractive to potential investors and employers. Investors consider it sound business to plan for their future development, and they look with favor on communities that use such sound business measures. Employers seek communities that are pleasant and convenient places for their personnel to live--communities that have good schools, hospitals, churches, recreational facilities, etc. Planning efforts can aid in the realization of these goals.

Farsighted and innovative planning will preserve natural amenities and enhance property values. Good planning, coupled with equitable enforcement of control measures, will provide a proper location for all required uses of land in the county. It will also prevent undesirable intermingling of conflicting uses of land.

A sound plan that recognizes current land use and anticipated needs is essential to a smooth-flowing transportation system of roads and highways. Transportation may be considered the link to overall development of the county. Industry, education, health, recreation, and housing depend on an efficient transportation system for development and survival.

Planning affords much-needed protection of unincorporated portions of the county surrounding existing communities. Much of the new residential growth in the county is taking place outside the municipal boundaries. An all-embracing plan can prevent undesirable and costly scattered development that becomes a heavy burden to the taxpayers. Such an effort can prevent the cluttering of the countryside with improperly located automobile junkyards and other property-devaluating developments.

#### How Should We Plan

Although the specific process will vary from community to community, there are several basic steps to the planning process. These are outlined below.

1. Assess community values and identify problems and opportunities.
2. Determine overall goals and objectives.
3. Collect, update, and analyze information.
4. Compare and choose an alternative plan.
5. Adopt comprehensive plan.
6. Develop alternate implementation tools.
7. Adopt tools.
8. Monitor results and changing conditions.

#### Comprehensive Plan Recommendations

It is very important to note at the beginning of this plan that although there are many recommendations included, most can only be implemented with the proper funding mechanisms in place. Without funding these recommendations can only be prioritized for such time when funding becomes available.

## STATEMENT OF GOALS

The following list of general goals was prepared to serve as guidelines for the preparation of the Comprehensive Plan. The following goals are listed randomly, with no particular purpose as to their order:

- o Encourage growth and development in areas where sewer, water, schools, and other public facilities are available or can be provided without excessive cost to the community.
- o Insure that growth and development are both economically and environmentally sound.
- o Promote the maintenance of an agricultural base in the County at a level sufficient to insure the continued viability of farming.
- o Encourage and support commercial, industrial, and agricultural activities to provide a healthy, diversified, and sound local economy.
- o Promote the conservation of the natural, cultural, and historical resources and preserve the County's scenic beauty.
- o Advocate the maintenance and improvement of the transportation system so that people and goods can move safely and efficiently throughout the County.
- o Provide safe, sound, decent housing for all residents of the County.
- o Give citizens a chance to affect the course of planning activities, land development, and public investment in Jefferson County.
- o Establish a planning framework within which the various conflicting activities and objectives can coexist, while providing logical, continuing, and farsighted guidance for the future of the community.
- o Support and defend private property rights while insuring overall public health, safety, and general welfare.

## ORGANIZATION OF THE PLAN

The Comprehensive Plan has been organized in three parts. Part A consists of the introduction which describes the reasons and basis for planning. Part B contains three sections on demographics, housing and economic development, and includes an analysis of data, primarily from the U.S. Bureau of Census, in each of these areas. These sections provide much of the basic information upon which the second part was prepared.

Part III is comprised of background information, analysis, and recommendations to address the major trends and problems affecting the County. This part is broken into ten sections based on topic and includes; Transportation, Education, Water Resources, Wastewater Treatment, Solid Waste Disposal, Emergency Services, Parks and Recreation, Historic Preservation, Natural Resources and land use sections on Agriculture, Industrial and Commercial, and Residential Development. Additional background information on each of these areas is available for viewing in the Jefferson County Planning Commission office.

## DEMOGRAPHIC ANALYSIS

### Introduction

This element of the Comprehensive Plan analyzes trends and characteristics of past and current populations and presents projections of future population growth.

### POPULATION GROWTH

U. S. Census population statistics for Jefferson County from 1900 to 1990 are plotted on Figure 1.

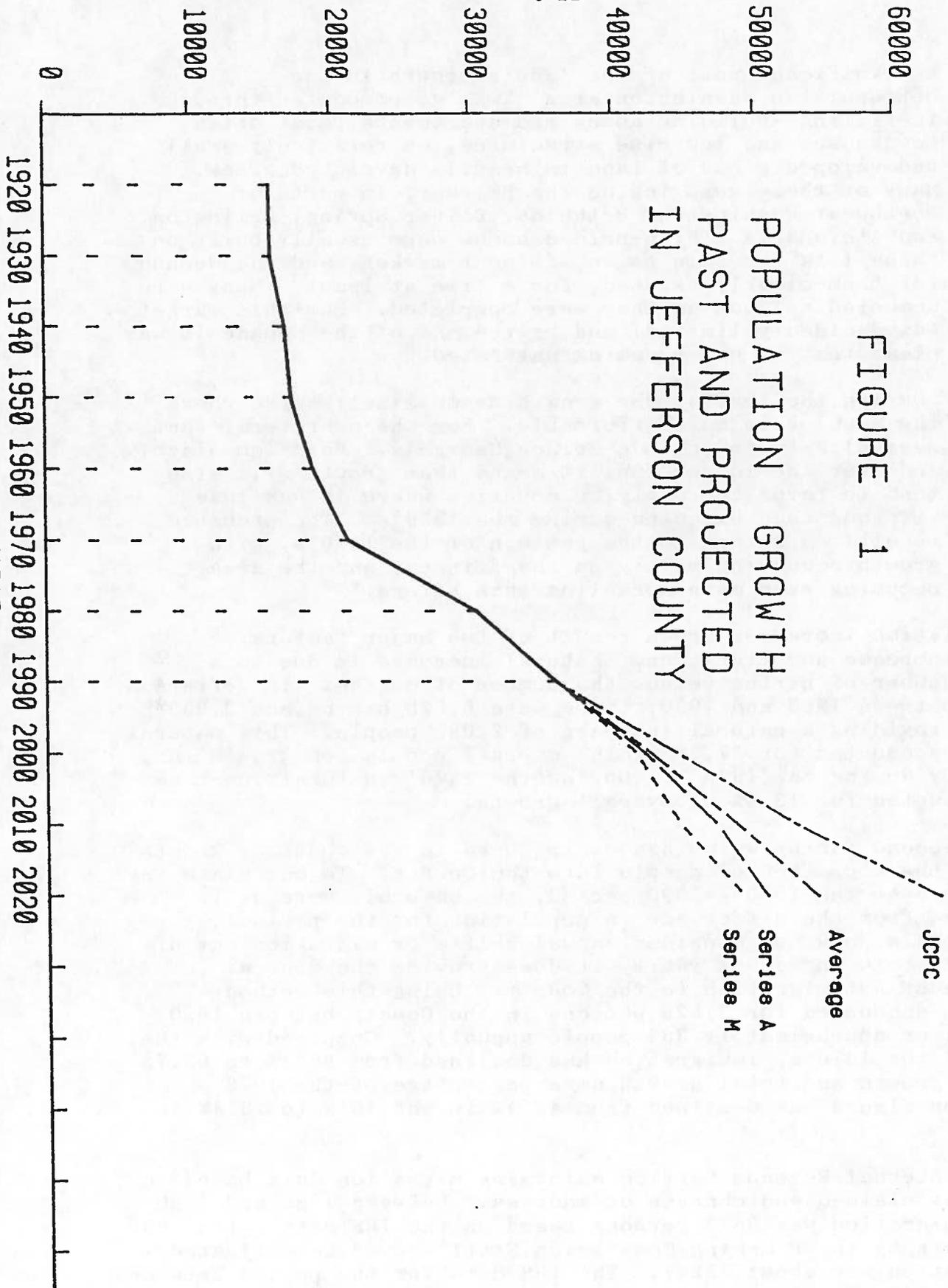
During the first half of this century, the population of Jefferson County ranged between 16,000 and 17,000 people. Beginning in the 1950's the population of the county began to grow. Between 1960 and 1970 the County's population increased from 18,665 to 21,280 residents, an increase of only 14.5%. Between 1970 and 1980 population went to 30,302, an increase of 42.3%, and between 1980 and 1990 an increase of 18.6% brought the figure up to 35,926.

Jefferson County is part of the Washington Metropolitan Fringe as defined by the Greater Washington Research Center. Growth in the County is influenced by what is happening in the Washington Metropolitan Region as a whole. The Greater Washington Research Center has pointed out the following things about growth in the region:

1. "Jurisdictions on the fringe (such as Jefferson County) that still are not officially part of the metropolitan area had seemed to be taking off in the 1970's; yet their growth in the 1980's was surprisingly modest."
2. "Future growth is likely to go primarily where the housing is most affordable."
3. During the 1970's "'Sewer moratoria' were imposed in both the Maryland and Virginia suburbs to allow infrastructure development to catch up with the needs created by the rapid growth of the 1960's." "The growth occurred anyway, but it took place in jurisdictions one or two tiers farther from the center." "The 1990's could see that history repeated."
4. "Growth patterns turned inside-out in the 1980's. The inner suburban jurisdictions gained far more than in the previous decade, while growth in the suburbs farther out either slowed or increased only moderately. And population increase in most of the fringe jurisdictions was, surprisingly, slower in percentage terms--and in a couple of cases in numbers as well--than during the preceding decade."

# POPULATION GROWTH PAST AND PROJECTED IN JEFFERSON COUNTY

FIGURE 1



5. A significant part of the 1980's growth in the Metropolitan Washington area "was accommodated through in-filling--building homes and apartments, most often townhouses and low-rise structures, on relatively small undeveloped plots of land in heavily-developed areas. Many of these were inside the Beltway, in parts of Northwest Washington, Bethesda, Silver Spring, Arlington, and Alexandria. High-priced homes were usually built on these lots for sale to an affluent market, and the demand for them clearly existed, for a time at least. Many were occupied as soon as they were completed. But this market was decidedly limited, and by the end of the decade it was clear that it was becoming saturated."
6. "During the 1990's, the growth seems likely to go where the housing is most affordable. For the near term, that seems likely to include Prince George's. Both immediately and over the longer run, it means that growth will also tend to favor the outlying counties where it was less vigorous than expected during the 1980's. The probable result? A return to the pattern of the 1970's, with growth occurring mainly on the fringes, and the area becoming even more sprawling than before."

Population increases are a result of two major factors: natural increase and migration. Natural increase is due to a greater number of births versus the number of deaths. In Jefferson County, between 1980 and 1990, there were 5,028 births and 2,933 deaths, providing a natural increase of 2,095 people. This natural increase accounted for 37.3% of the overall population growth in the county during the 1980's. During the 1970's natural increase only accounted for 13.6% of overall growth.

The second factor which has contributed to the county's growth has been the migration of people into the County. To calculate the migration over the 1980 - 1990 period, the natural increase is subtracted from the difference in population for the period. Although this does not consider annual shifts or migration out of the County between census years, it does provide the general magnitude of net migration to the County. Using this method, migration accounted for 3,529 persons in the County between 1980 and 1990, or approximately 353 people annually. Compared with the decade of the 1970's, immigration has declined from 86.4% to 62.7% of total growth and total growth as a percentage of the 1970 population figure has declined from 42.4% in the 70's to 26.4% in the 80's.

The Internal Revenue Service maintains migration data based on exemptions claimed and changes of address. Between 1980 and 1990 the net migration was 3673 persons based on the IRS data. (In 1990 an analysis by the Planning Commission Staff showed an estimated net migration was about 3524). The IRS data for the period between 1981 and 1982 showed a negative net migration of approximately 480

persons. Building permits hit a low for the decade at approximately the same time. However, in all other years during the 1980's the net migration reflected an inflow. And in the later half of the decade the average annual net migration was approximately 630 persons per year.

Table 1 shows the increase in the number of individuals residing outside the county and state five years prior to the 1970, 1980 and 1990 Census. Also shown in this table is the birth place of County residents.

Table 1

PLACE OF BIRTH AND RESIDENCE  
FIVE YEARS BEFORE THE CENSUS  
FOR 1970, 1980 AND 1990

<u>Place of Birth</u>	<u>1970</u>	<u>% of Total</u>	<u>1980</u>	<u>% of Total</u>	<u>1990</u>	<u>% of Total</u>
West Virginia	14812	69.6	16593	54.8	16992	47.3
Other State	5444	25.6	13099	43.2	18337	51.1
Foreign Born	54	0.3	480	1.6	597	1.6
Other	818	3.8	130	0.4		
TOTAL	21128	99.3	30302	100.0	35926	100.0
<u>Residence 5 Years Before Census</u>						
Same House	10921	51.3	15470	51.1	18124	50.45
Same County	4062	19.1	5343	17.6	6907	19.22
Other WV County	978	4.6	1014	3.3	1648	4.58
Other State	2517	11.8	5794	19.1	6549	18.22
Abroad	33	0.2	393	1.3	179	.4
TOTAL	18511	87.0	28014	92.4	33407	92.9
TOTAL POPULATION	21280		30302		35926	

Source: 1970, 1980 and 1990 U. S. Bureau of the Census

The only clear trend shown on Table 1 is that the percentage of County residents that are native West Virginians has declined from a substantial majority (69.9%) to a minority (47.3%). In actual numbers West Virginia-born residents have gone from 14,812 to 16,992, whereas the number of persons born elsewhere has gone from 6,316 to 18,934. This probably reflects growth and expansion coming from the metropolitan areas and from the counties in Maryland and Virginia.

One of the most significant changes created by the increased growth has been its distribution in the County. Unlike the period from 1900 to 1950 when the incorporated areas (with the exception

of Harpers Ferry) grew more rapidly than the unincorporated areas, most of the growth since 1960 occurred outside the incorporated areas. These areas grew 110% while the incorporated areas as a whole only increased by 4.3% during the 70's and 80's. As of 1990, 76% of the total county population lived in unincorporated areas, as opposed to 57% in 1960. The specific population counts as well as the percentage increase for the period from 1960 to 1990 are shown in Table 2. From this table one can get a sense of the general distribution of growth among the magisterial districts in the county through 1980. Unfortunately, the U. S. Bureau of the Census used different district boundaries in 1990. Map 1 shows the Tax District boundaries which remained constant during the study period.

Table 2  
POPULATION CHANGE FROM 1960 to 1990  
BY JURISDICTION

<u>Incorporated Areas</u>	<u>1960</u>	<u>1970</u>	<u>1980</u>	<u>1990</u>	<u>% Change 80-90</u>	<u>% Change 60-90</u>
Bolivar	754	943	672	1013	50.7	34.3
Charles Town	3329	3023	2857	3122	9.3	-6.2
Harpers Ferry	572	423	361	308	-14.7	-46.2
Ranson	1974	2189	2471	2890	17.0	46.4
Shepherdstown	<u>1328</u>	<u>1688</u>	<u>1791</u>	<u>1287</u>	-28.1	-3.1
TOTAL	7957	8266	8152	8620	+5.7	8.3

<u>% Incorporated Areas</u>	43	39	27	24
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Unincorporated  
Areas by Census District

Charles Town	3426	4782	7287	6101*	**	**
Harpers Ferry	2087	2206	3904	8676*	**	**
Kabletown	1609	1739	2657	7115*	**	**
Middleway	1894	2264	4941	6649*	**	**
Shepherdstown	<u>1692</u>	<u>2023</u>	<u>3361</u>	<u>7385*</u>	**	**
TOTAL	10708	13014	22150	35926		

<u>% Unincorporated Areas</u>	57	61	73	76
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\* Boundaries of districts have changed from 1980.

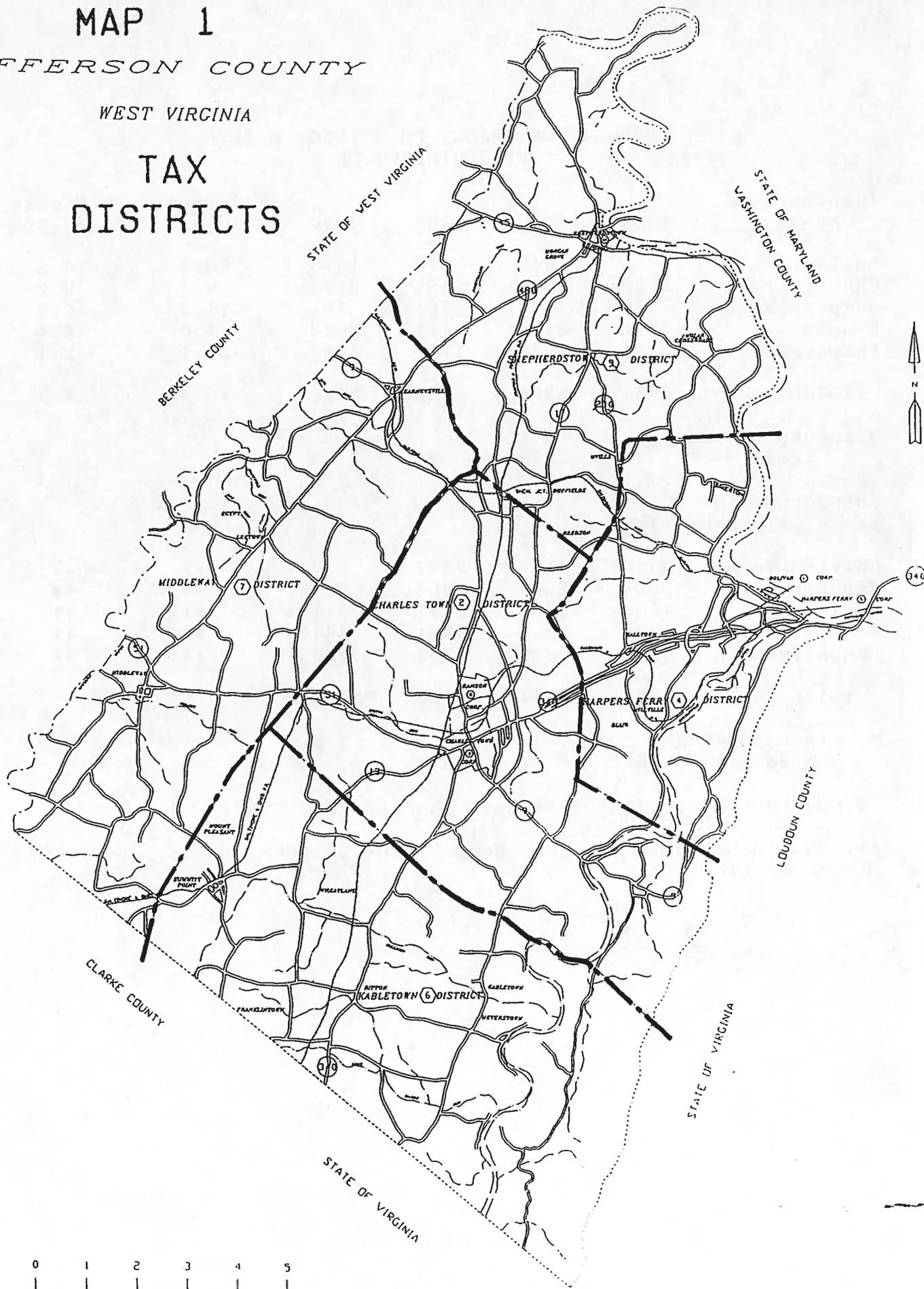
\*\* Due to boundary changes, comparisons between census years would be meaningless.

# MAP 1

## JEFFERSON COUNTY

WEST VIRGINIA

# TAX DISTRICTS



## Age and Sex Distribution

The median age of the County's population has increased from 27.1 in 1970 to 29.1 in 1980 and thence to 32.7 in 1990. This trend can be attributed to the following three factors:

1. Aging of the "baby Boom" generation (those born between 1945 and 1960).
2. Increased average length of life.
3. Lower fertility rates.

The median age is not as high as the State average or the national average. This probably is due to one characteristic of the Washington Region; that is, that this region attracts enough young people to keep the median average somewhat lower. Unemployment in the Region has remained low relative to national averages, thus creating an attraction for young people from areas with less economic vitality.

Table 3 shows the changes in population groupings by sex between 1970 and 1990.

TABLE 3  
POPULATION CHANGES BY AGE AND SEX  
1970 - 1990

Age		1970	1980	1990	% Change		
					70-80	80-90	70-90
0-17	Male	3599	4625	4784	28.5	3.4	32.9
	Female	3501	4290	4411	22.5	2.8	26.0
	Total	7100	8915	9195	25.6	3.1	29.5
18-44	Male	3792	6290	7754	65.9	23.3	104.5
	Female	3975	6296	8067	58.4	28.1	102.9
	Total	7767	12586	15821	62.0	25.7	103.7
45-64	Male	2223	2760	3441	24.2	24.7	54.8
	Female	2265	2971	3366	31.2	14.0	48.6
	Total	4488	5731	6807	27.7	18.8	51.7
65+	Male	827	1364	1710	64.9	25.4	106.8
	Female	1098	1706	2393	55.4	40.3	117.9
	Total	1925	3070	4103	59.5	33.6	113.1
Total	Male	10441	15039	17689	44.0	17.6	69.4
	Female	10839	15263	18237	40.8	19.5	68.3
	Total	21280	30302	35926	42.4	18.6	68.8

These data indicate a low fertility rate during the 1980's relative to the number of females in the 18-44 group. In 1970 the proportion of persons between ages 0-17 to female 18-44 was 1.786. By 1990 this had dropped to 1.140. School enrollment during the

1980's also reflects this situation. Total enrollment in Jefferson County public schools was 6239. In 1990 it was 6343, an increase of 1.7%, or essentially unchanged. In 1993 enrollment had only risen another 53 students to 6396.

From the figures above, it can also be seen that the percentage of residents aged 65 and over has also increased. This group increased more than any other between 1970 and 1990. From 1970 to 1980 the increase was 59.5%. Between 1980 and 1990 the increase was 33.6%. From 1970 to 1990 it was 113.1%.

The 1986 Comprehensive Plan contained the opinion that "the migration of the baby boom generation" would result in a "demand for smaller, affordable housing" and an increase in the number of pre-school and school aged children. On the other hand the 1986 Plan suggested that "with more women and couples remaining childless, and fewer children per family, this trend should be monitored carefully over the next few years to confirm this trend." The Plan also suggested that "the migration of retired citizens can be expected to place greater demand on health care systems in the County as well as senior citizen housing facilities and nursing home facilities."

Current data suggests that other than a minor boomlet the baby boom generation is not replacing itself at rates that will place much pressure on schools. The minor 3.1% increase between 1980 and 1990 suggests that the people who caused the 25.7% increase in the 18 to 44 year old group didn't bring many children with them and haven't had many since they arrived. And in another five to ten years the reproductive capacity of the baby boom generation will have passed and been replaced by a smaller group which, if it continues low fertility rates, could result in a leveling or decrease in school age population.

The increases in the 65+ year old group expressed in numbers of people have been 1145 and 1033 for the 1970-80 and 1980-90 periods, respectively. These numbers indicate a relatively steady increase in retirement age County residents. This is a reasonable supposition because retirees generally are not as affected by economic swings. Their decisions to move to Jefferson County probably are based on low taxes, natural features such as the rivers and the mountain, and the generally rural nature of the County. Hence, it would be reasonable to assume that during the 90's the same steady population increase in this age group would continue.

#### Households, Families and Marital Status

Changes in households, families and marital status provide an indication of the social structure in the County. Family household and householder are defined by the Bureau of the Census as follows:

1. Family -- "a householder and one or more persons living in the same household who are related to the householder by birth, marriage, or adoption. The Census Bureau counts only one family per household, however, not all households contain families since a household may be made up of a group of unrelated persons or one person living alone."
2. Household -- "all the people who occupy a housing unit. A household may consist of one person or many people, as long as they occupy the same housing unit."
3. Householder -- "Usually this indicates the person or one of the people in whose name the home is owned, being bought, or rented. Classification of a person as the householder was based upon responses given on the census form, therefore, the householder may not be the "head" of the household. If there were no responses to this question any household member 15 years of age or older could have been designated as householder by the Census Bureau. Other persons in the household are classified according to their relationship to the householder."

The total number of households in the County increased 57% between 1970 and 1980 from 6374 to 9980. Between 1980 and 1990 the number increased to 12,914. The number of families for 1970, 1980 and 1990 was 5304, 7883 and 9487, respectively. These numbers as a percentage of all households were 83%, 78% and 73% for the years, 1970, 1980 and 1990, thus showing a declining trend. Table 45 presents marital status trends from 1970 to 1990.

Table 4  
MARITAL STATUS  
FOR 1970, 1980 AND 1990  
Persons 15 Years and Over

<u>Status</u>	<u>1970</u>	<u>% of Total</u>	<u>1980</u>	<u>% of Total</u>	<u>1990</u>	<u>% of Total</u>
Single	4146	26.0	5981	25.9	7126	25.1
Married	9892	62.1	13679	59.3	16328	57.7
Separated	212	1.3	350	1.5	501	1.8
Widowed	1247	7.8	1685	7.3	2001	7.1
Divorced	<u>428</u>	<u>2.7</u>	<u>1379</u>	<u>6.0</u>	<u>2351</u>	<u>8.3</u>
TOTAL	15925	100.0	23074	100.0	28307	100.0

Source: 1970, 1980 & 1990 U. S. Bureau of the Census

Another area affected by these trends in households, families and marital status is the number of people residing in family and non-family households. The average number of people per household

has declined from 3.2 (1970) to 2.9 (1980) to 2.68 (1990). Family household size has also decreased over the same census periods from 3.6 to 3.4 to 3.13 persons per household, due to the decline in the number of children per family. This decline in overall household size has and is expected to continue to have a major impact on the demand for additional housing units. Simply put, a greater number of housing units will be required to accommodate the same number of people. However, this logic also suggests that future housing units need not be as large as when households were larger.

### Education

The educational achievement of Jefferson County residents followed national trends during the 1970's and 1980's, with more people completing their high school education. The percentage of high school graduates, as shown in Table 56 below, increased from 42% to 57% to 68.2% of all persons 25 years and older between 1970, 1980 and 1990. This generally reflects a higher level of educational achievement of residents within the county as well as higher levels of education of those individuals who have migrated into the county.

Educational levels of a population influence the decisions of industries that are looking at Jefferson County as a candidate for locating a new facility. Obviously high technology industry seeks a population that either is educated or shows evidence of technical aptitude. On the other hand, low technology industry seeks a population that is generally under employed, has a good work ethic and would be appreciative of a modest wage. Such populations often correlate with being under-educated also. These factors in turn affect the demand for various types of residential growth--for example, high-end versus affordable or high versus low density. The County's land use policy can either be flexible enough to accommodate the demands of these market decisions or be rigid in order to attempt to control these decisions and hence either meet the needs of the existing populations or force shifts in the character of the population.

TABLE 5  
YEARS OF SCHOOL COMPLETED  
BY RESIDENTS 25 AND OLDER  
FOR 1970, 1980 and 1990

<u>Years of School Completed</u>	<u>1970</u>	<u>% of Total</u>	<u>1980</u>	<u>% of Total</u>	<u>1990</u>	<u>% of Total</u>
Elementary: 1-4 Yrs.	953	8.6	876	5.1)		
5-7 Yrs.	1766	15.8	2086	12.1)	2861	12.8
8 Yrs.	1654	14.8	1710	9.9)		
High School: 1-3 Yrs.	2123	19.1	2776	16.1	4234	19.0
4 Yrs.	2630	23.6	5211	30.3	7522	33.7
College: 1-3 Yrs.	855	7.7	1757	10.2	3391	15.2
4+ Yrs.	<u>1163</u>	<u>10.4</u>	<u>2801</u>	<u>16.3</u>	<u>4299</u>	<u>19.3</u>
TOTAL	11144	100.0	17217	100.0	22307	100.0
% High School Grads		41.7		56.7		68.2

Source: 1970, 1980, 1990 U. S. Bureau of the Census

#### Income and Poverty

The median income of families in the County, as shown in Table 6, increased from \$7,721 to \$17,577 to \$34,887 between 1970, 1980 and 1990. After adjusting for inflation using the Consumer Price Index, the actual median family income increased 9.5% between 1970 and 1980. Between 1980 and 1990 the adjusted percent change was 25.1%.

These figures are better than the State median but slightly less than the national figure of \$35,225. Table 6 provides a breakdown by income group from the last three Census reports.

TABLE 6  
INCOME OF FAMILIES  
FOR 1970, 1980 AND 1990

<u>Income</u>	<u>1970</u>	<u>% of Total</u>	<u>1980</u>	<u>% of Total</u>	<u>1990</u>	<u>% of Total</u>
Less than \$5,000	1470	27.7	551	7.0	210	2.2
\$5,000-\$7,499	1093	20.6	530	6.7)		
\$7,500-\$9,999	1060	20.0	733	9.3)	563	6.0
\$10,000-\$14,999	1074	20.2	1335	16.9	761	8.0
\$15,000-\$24,999	473	8.9	2568	32.6	1476	15.6
\$25,000-\$49,000	121	2.3	1950	24.7	4002	42.3
\$50,000 or more	<u>13</u>	0.2	<u>216</u>	2.7	<u>2445</u>	25.9
<b>TOTAL</b>	<b>5304</b>		<b>7883</b>		<b>9457</b>	
<b>Median Income (\$)</b>	<b>7721</b>		<b>17577</b>		<b>34887</b>	
<b>Mean Income (\$)</b>	<b>8710</b>		<b>19906</b>		<b>39990+</b>	
<b>Per Capita Income (\$)</b>	<b>2400</b>		<b>6139</b>		<b>13249</b>	

Source: 1970, 1980 and 1990 U. S. Bureau of the Census

Changes in the median income of families could be the result of the following factors:

1. Increase in percentage of persons employed in white-collar occupations from 39.3% in 1970 to 49.1% in 1990.
2. Increase in the number of families with two or more earners.

Another measure of the overall economic well being is the extent of poverty in the community. Poverty for a non-farm family of four was \$3,745 in 1969, \$7,412 in 1979 and \$16,850 in 1992. In Jefferson County, the number of people with incomes below the poverty level rose from 3582 residents in 1969 to 3881 in 1979, then declined to 3670 in 1989. This is a decrease of 5.5% from 1979 to 1989.

## POPULATION PROJECTIONS

Population projections have been prepared by the Regional Research Institute of West Virginia University (RRI/WVU) and the Jefferson County Planning Commission staff. The WVU projections contain two scenarios. Series M is based on current rates of birth, survival and migration whereas Series A is based on long term averages which portend more growth than current averages.

The Jefferson County Planning Commission staff projections are predicated on assumptions that (1) long-term trends in dwelling unit construction will continue, (2) persons per dwelling unit will continue to decline and (3) fluctuations will occur due to economic cycles. Appendix A contains the development of these assumptions.

The three projections plus an average of the three are presented below in Table 7. They are also platted on Figure 1.

TABLE 7  
POPULATION PROJECTIONS

<u>Projections Series</u>	<u>1995</u>	<u>2000</u>	<u>2005</u>	<u>2010</u>	<u>2015</u>	<u>2020</u>
Regional Research Institute						
Series M	38,806	41,457	43,844	45,904	47,612	48,968
Series A	39,163	42,137	44,831	47,178	49,120	50,671
JCPC	39,994	44,121	48,391	52,874	57,770	63,101
Average	39,321	42,571	45,688	48,652	51,500	54,247

Source: Regional Research Institute, "West Virginia Population Projections by County, Age and Sex, 1990-2020", West Virginia University, July, 1992.

In the original Comprehensive Plan a population projection of 50,000 was used for the year 2000. This number exceeds all of the above projections. In 1991 and 1992, permits were obtained for 411 and 406 dwelling units, respectively. During the first six months of 1993 permits for 194 new dwelling units were issued. These numbers suggest that the Planning Commission projection, although higher than those of the RRI/WVU, may not be far from the actual trend. However, the average of the three projection series is used throughout the rest of this document as the basis for computing population related needs.

The growth of the 1980's was not reflected in school enrollments, which remained essentially unchanged. This suggests that this growth came from immigration of households with no school-age children--perhaps primarily retirees. Unless the County experiences an increase in middle-class salary jobs, the type of growth probably will continue to be the same. On the other hand, if employers of middle-class workers move to the County, a greater influx of households with children could be expected. In the 1970's and early 1980's property values were substantially less than the Washington Metropolitan area. During the late 1980's this gap closed significantly although not completely. Land costs in Jefferson County still are less than in the Washington Metropolitan area but not to the extent as in the previous decade.

Increased employment opportunities for current County residents in adjoining Berkeley and Washington Counties are taking up some of the slack created by the loss of major Jefferson County employers such as Dixie-Narco. But these employment opportunities may not result in many new County residences because the natural tendency of new workers is to locate either near the job or in a direction away from the metropolitan area. On the other hand, employment growth in Frederick County, Maryland, could generate some residential growth in Jefferson County if the differentials in home purchase prices and taxes remain significant. However, future employment growth in Frederick County and other parts of Maryland may not be at the level experienced during the 1980's due to a perceived negative business environment created by new tax increased on top of existing high tax levels.

The conclusion can be drawn that the impact of external employment opportunities does not appear to be changing and is not likely to change significantly. the most likely source of new employment will be new industry in the County. The U.S. Fish and Wildlife Service is constructing a training center north of Shepherdstown. This is an example of one type of employment growth, that is, decentralization of Federal offices. Another type is the employment that the Burr Industrial Park would attract. In both cases, though, there is no basis for projecting trends. With regard to Federal agency moves, these are unpredictable and are subject to the political breezes. The Industrial Park is in its infancy. However, it appears that the new industries have begun to be attracted here due to availability of an inexpensive and hard working existing labor force and ready-to-use, competitively priced industrial lots. This may mean minimal immigration as the work force for these industries currently reside in the County. On the other hand, the question remains as to how much industry will be attracted due to a desire to relocate a technically sophisticated, well-paid staff to an area with country aesthetics and lower taxes. This could result in substantial immigration. Until these patterns have been established, the projections presented will suffice. Perhaps by the next Comprehensive Plan update these trends can be considered.

Population growth is not forecast to be as vigorous as was projected in the 1986 Comprehensive Plan, but could reach between 43,500 and 48,500 by 2005. The value, 46,000, will be used for analysis purposes.

## HOUSING ANALYSIS

### Introduction

This chapter is based on the "Housing Analysis, Eastern Panhandle Counties of Berkeley, Jefferson and Morgan" published in January, 1992 by the West Virginia Housing Development Fund and information from the U. S. Bureau of the Census and data analyses by Jefferson County personnel. The data presented includes characteristics of households, characteristics of housing and an assessment of the specific issues of substandard housing and affordable housing.

TABLE 8  
POPULATION - HOUSEHOLDS

	<u>Total</u>	<u>Residing in Group Quarters</u>	<u>Residing in Household</u>	<u>Persons Per Household</u>	<u>House- holds</u>
Actual 1970	21,280	800	20,480	3.21	6,374
Actual 1980	30,302	1,487	28,815	2.89	9,980
Actual 1990	35,926	1,362	34,564	2.68	12,914

Source: U. S. Bureau of the Census

TABLE 9  
PERIODIC CHANGE IN HOUSEHOLDS

<u>Year</u>	<u>Total</u>	<u>Annual Average</u>
1970-1980	3,606	361
1980-1990	2,934	293

Source: U. S. Bureau of the Census

### Existing Housing Profile

In 1990, according to the U.S. Bureau of the Census, there were 14,606 housing units in the County. This number breaks down as shown in Table 10.

Table 10

## HOUSING PROFILE - 1990

<u>Category</u>	<u>Number</u>	<u>Rate</u>	<u>% of Total Units</u>
Occupied housing units	12,914		88.4
Owner occupied	9,286		71.9
Renter occupied	3,628		24.8
Vacant housing units	1,692		11.6
For seasonal, recreational or occasional use	628		4.3
Home owner Vacancy Rate			2.7
Rental Vacancy Rate			6.2
Persons per owner-occupied unit		2.75	
Persons per renter-occupied unit		2.48	
Units with over 1 person per room	330		2.3
By Voting District			
Charles Town	2,654		18.2
Harpers Ferry	3,726		25.5
Kabletown	3,051		20.9
Middleway	2,411		16.5
Shepherdstown	2,764		18.9
TOTAL	14,606		

Source: U. S. Bureau of the Census, 1990

Changes in the Housing Profile

The number of housing units according to the U.S. Bureau of the Census has grown as follows:

Total Number in 1970	7,411
Increase during the 1970's	4,131
Total Number in 1980	11,542
% increase from 1970 to 1980	55.7%
Increase during the 1980's	3,064
Total Number in 1990	14,606
% increase from 1980 to 1990	26.5%

During the 1980's population increased by 18.5%. During the 1970's the increase in the number of housing units outpaced population growth by 55.7% to 42.4%. During the 1980's this continued to be true (26.5% versus 18.6%) although both percentages were less than those of the 1970's. This trend is consistent with regional and national trends and is related to a declining number of persons per household.

Of the total housing units 10,997 were located outside of the incorporated areas of the County. These areas experienced substantial growth during the 1970's and 1980's.

TABLE 11  
INCORPORATED AND UNINCORPORATED HOUSING GROWTH

	1970		1980		1990	
	<u>Units</u>	<u>Percent</u>	<u>Units</u>	<u>Percent</u>	<u>Units</u>	<u>Percent</u>
Incorporated	2,640	35.7	2,962	25.7	3,609	24.7
Unincorporated	<u>4,762</u>	64.3	<u>8,580</u>	74.3	<u>10,997</u>	75.3
County Total	7,411		11,542		14,606	

Source: U. S. Bureau of the Census, 1970, 1980 and 1990

Trends in housing occupancy rates from 1970 to 1980 to 1990 are as shown below.

TABLE 12  
TRENDS IN HOUSING OCCUPANCY

	<u>1970</u>	<u>1980</u>	<u>1990</u>
Total Occupancy Rate		90.4%	88.4%
Owner Occupied Rate	(1976) 64.0%	74.1%	71.9%
Home Owner Vacancy Rate		1.8%	2.7%
Renter Vacancy Rate		3.8%	6.2%

Source: U. S. Bureau of the Census

The next three tables provide profiles of the type of housing structure. Table 13 compares total inventories in 1970, 1980 and 1990. And Table 14 shows the building permit (Improvement Location Permit) activity from 1980 through 1990.

Table 13  
HOUSING STRUCTURE

	1970		1980		1990	
	<u>Units</u>	<u>Percent</u>	<u>Units</u>	<u>Percent</u>	<u>Units</u>	<u>Percent</u>
Single Family	5749	79.4	8493	76.5	10566	72.3
Multi-Family	695	9.6	1344	12.1	1781	12.2
Mobile Homes	799	11.0	1261	11.4	2077	14.2
Other	-	-	-	-	<u>182</u>	1.3
Total	7243		11098		14606	

Source: U. S. Bureau of the Census.

These figures indicate that the housing unit mix is changing in the direction of the lower cost housing. This may be related to increases in costs of single family houses. Table 14 provides actual numbers of permits for the various types of housing going back to the year 1980.

TABLE 14  
BUILDING PERMITS

Year	Single Family Detached	Single Family Attached	Mobile Homes	Apartment Units	Total Dwelling Units
1980	143	0	39	2	184
1981	155	0	48	5	208
1982	112	0	30	17	159
1983	103	0	29	82	214
1984	124	31	26	88	269
1985	136	24	40	64	264
1986	189	16	37	16	258
1987	256	12	38	80	386
1988	270	22	42	20	354
1989	370	25	68	4	467
1990	367	21	103	0	491
1991	284	18	66	24	392
1992	331	12	63	0	406
Total					4052
Plus Estimated Municipal Permits					1000
TOTAL RESIDENTIAL PERMITS -- 1980-1992					5052

Source: Jefferson County Planning Commission

Housing Costs

The West Virginia Housing Development Fund has evaluated housing costs in the Panhandle. Tables 15, 16, and 17 are taken from their study.

TABLE 15  
MEDIAN VALUE, ALL HOUSING SALES  
PANHANDLE & SURROUNDING COUNTIES  
January 1, 1991 - December 31, 1991

County	Total Units Sold	Mean Average Sale Per Month	Mean Average Days on Market	Median Average Sales Price
Berkeley	309	26	165	\$ 89,853
Jefferson	218	18	180	\$112,435
Morgan	43	4	233	\$ 64,584
Frederick, Va.	450	39	N/A	\$107,112
Washington, Md.	901	76	144	\$ 94,662
Frederick, Md.	1347	112	N/A	\$134,918

Sources: Eastern Panhandle Board of Realtors  
Greater Hagerstown Association of Realtors  
Blue Ridge Board of Realtors  
Frederick Co., Md Board of Realtors

Other Median Housing Prices, 1990

Montgomery Co., Md (All Housing, 1990)	\$167,620
Fairfax Co., Va (4th Quarter, 1990)	
Single Family Detached	\$342,460
Town Houses	\$177,460
Loudoun Co., Va (All Housing, 1st Quarter, 1991)	\$147,333

"Median house prices and number of units sold were derived from the Board of Realtors Multiple List Service. The Board of Realtors in the Eastern Panhandle indicates that many realtors do not report the units sold. Further, builders do not always use realtors in selling new homes. Consequently, the numbers of units presented above are not absolute, but should be regarded as a representative sampling of real estate sales in this area."

The Jefferson County Planning Commission when receiving Improvement Location Permit (ILP) applications requests applicants to provide an estimate of the value of the structure to be built. Table 16 shows the mean average of these estimated values for each year from 1980 to 1992.

TABLE 16  
ESTIMATED VALUES OF SINGLE FAMILY RESIDENTIAL STRUCTURES  
JEFFERSON COUNTY

YEAR	Estimated Value		Mobile Homes
	S.F. Detached	S.F. Attached	
1980	\$50,770	No Data	\$ 8,840
1981	49,110	" "	6,920
1982	39,740	" "	8,690
1983	45,300	" "	9,300
1984	45,960	\$34,730	8,240
1985	54,040	36,880	10,100
1986	65,130	52,500	12,280
1987	66,510	54,830	12,350
1988	74,290	52,860	16,840
1989	91,200	56,620	14,070
1990	91,980	54,450	15,700
1991	82,825	81,111	13,795
1992	82,843	97,667	14,713

Source: Jefferson County Planning Commission

These figures do not include land costs, and are self-reported by applicants. However, over the period 1980 to 1990 the estimated values increased by 81%, 57% (1984-1990), and 78% for single family detached, single family attached and mobile homes, respectively. In 1991 and 1992 the trends changed. The possible reasons for these changes are as follows:

1. Recessionary pressure lowered construction costs.
2. Decreased demand for single family detached houses forced prices down.

3. High-end single family attached units outpaced more moderately priced items.
4. The number of permits for single family attached housing was too small for statistical significance.
5. The variation in mobile home values is within an acceptable variation and does not have significance as a trend.

TABLE 17  
MEDIAN VALUE, OWNER-OCCUPIED UNITS, 1990

	1980	1990	Change
State of WV	38,500	47,900	+24.4%
Berkeley County	43,200	70,600	+63.4%
Jefferson County	44,600	84,100	+88.6%
Morgan County	35,000	61,900	+76.9%

Source: The West Virginia Housing Development Fund, "Housing Analysis, Eastern Panhandle Counties of Berkeley, Jefferson and Morgan", January 1992

Table 17 is consistent with the estimates on Table 16; that is, that housing unit values in the Panhandle in general and in Jefferson County, specifically, have increased significantly. Higher values mean higher purchase prices which, in turn, have made it less possible for some local residents to afford home ownership. This pressure has caused more demand for rental properties with an even higher percentage change in contract rents as shown in Table 18.

TABLE 18  
CONTRACT RENTS (Monthly)

	1980 Median	1990 Median	Change	
West Virginia	\$136	\$221	+\$ 85	+ 62.5%
Berkeley County	\$130	\$284	+\$154	+118.5%
Jefferson County	\$135	\$294	+159	+117.8%
Morgan County	\$107	\$217	+110	+102.8%

Source: Ibid.

Rents tended to increase most in 1989 and 1990 due to a very limited supply. Emphasis on the single family houses dominated the market during the 1980's. However, during the early 1990's there has been an appearance of increased interest among some developers in providing rental apartment units.

Substandard Housing

Substandard housing has traditionally been defined as housing which lacks complete plumbing and is overcrowded. Complete plumbing facilities means that a housing unit has a flush toilet, bathtub or shower, and a wash basin with piped hot and cold water for the exclusive use of the occupants of the housing units. Overcrowding is defined as having more than 1.01 persons per room in a household, excluding kitchens and bathrooms.

Table 19 shows that Jefferson County has a higher rate of housing units lacking complete plumbing, and a higher rate of overcrowded housing units than the averages for the State. In both areas, rental substandard housing is higher than owner occupied substandard housing. The highest concentrations of housing lacking plumbing facilities occurs in the Kabletown and Harpers Ferry Districts, while overcrowding is highest in the Charles Town and Middleway Districts. The Shepherdstown District had the lowest percentages of substandard housing in the County, and lower figures than the State average.

Substandard housing units having both overcrowding and lack of complete plumbing make up only 0.2% of the total occupied housing units. All of these were renter occupied units.

TABLE 19  
SUBSTANDARD HOUSING  
1980 to 1990

Category	1980		1990	
	Number	Percent of Category	Number	Percent of Category
Occupied Housing Units Lacking Complete Plumbing				
Renter	374	14.5	132	3.6
Owner	<u>282</u>	3.8	<u>87</u>	0.9
Total	656	6.6	219	1.7
Occupied Housing Units with 1.01+ Persons Per Room				
Renter	211	8.2	167	4.6
Owner	<u>272</u>	3.7	<u>163</u>	1.8
Total	483	4.8	330	2.6
Total Occupied Substandard Units	1020	10.2	443	3.4

Sources: U. S. Bureau of the Census

The substandard housing breakdown is presented in Table 19 above. The figures indicate that 443 of the housing units overall are substandard, down from 1020 in 1980. Of these units 106 were both overcrowded and lacked complete plumbing.

Comparing 1990 with 1980 it is apparent that the proportion of crowded units to total units is declining.

The State determination of substandard housing includes an added element not included in the HUD determination. Besides the standards for plumbing and overcrowdedness, the State standards include central heating. These standards are applied to low income families and to elderly people, those that are forced by financial constraints to reside in substandard housing, to determine the number of standard housing units required to fulfill the area's need. Those with the financial means to afford good housing, but that are living in substandard housing, are assumed to be there by choice, and are therefore not considered in the housing need category. In Table 20 below is information on the county's housing needs as determined by the Eastern Panhandle Regional Planning and Development Council based on the State's standards for substandardness.

TABLE 20  
HOUSING NEEDS FOR JEFFERSON COUNTY  
BASED ON ASSESSMENT OF SUBSTANDARD HOUSING

	Elderly		Small Family		Large Family		Total
	Owner	Renter	Owner	Renter	Owner	Renter	
1980	154	277	189	1155	68	188	2031
1990	*	*	*	*	*	*	*

\* Not available at time of publication  
Source: U. S. Bureau of the Census

Age of Housing Units

In regard to the age of the housing units in Jefferson County, 11,707, or 80.2 percent of the total housing units have been built since 1940. Table 21 shows that 4,237, or 29.0 percent, of the County's housing units were built between 1980 and 1990.

TABLE 21  
AGE OF YEAR ROUND HOUSING UNITS

<u>Year Units Built</u>	<u>Units</u>	<u>Percent</u>	<u>Cumulative</u>	
			<u>Units</u>	<u>Percent</u>
1989-1990	628	4.3	627	4.3
1985-1988	1959	13.4	2598	17.7
1980-1984	1650	11.3	4237	29.0
1970-1979	3982	27.3	8219	56.3
1960-1969	1813	12.4	10032	68.7
1950-1959	1045	7.2	11077	75.9
1940-1949	630	4.3	11707	80.2
1939 and earlier	<u>2899</u>	<u>19.8</u>	14606	100.0
Total	14606	100.0		

Source: U. S. Bureau of the Census.

### Rooms and Persons per Room

The mean number of rooms per housing unit in the County is 5.8, with 2.46 persons per unit, and a mean household size of 2.68. Shepherdstown has a mean household size, 2.27, below the mean size for the County. This is, in part, due to the non-family college student population in that district. A profile of persons per household is shown in Table 22.

TABLE 22  
PROFILE OF HOUSEHOLD  
1980 versus 1990

	1980		1990	
	<u>Number</u>	<u>Percent</u>	<u>Number</u>	<u>Percent</u>
One Person Households	1861	18.6	2776	20.5
Two Person + Households	7760	77.8	10138	74.7
Non-Family Households	<u>359</u>	<u>3.6</u>	<u>651</u>	<u>4.8</u>
Total	9980	100.0	13565	100.0

Source: U. S. Bureau of the Census

In addition to the information on Table 22, married couples make up 60.0 percent of the total households. Male householders (with no wife present) make up 3.7% of the households while female householders (no husband present) make up 9.5% of the households. A large part of the discrepancy in the number of female householders over male householders may be due to the longer life expectancy of women. Many of the female householders may be elderly widows.

### Facilities and Services

Table 23 shows the number of housing units in Jefferson County by water and sewer sources. Just over 50 percent of the total units are on public or private centralized water systems, and 40 percent are on public sewer systems. In contrast, 44% of the units rely on private wells and 58% of the County's housing units rely on septic tank sewer systems.

TABLE 23  
SOURCE OF SEWER AND WATER  
1980 versus 1990

	1980		1990	
	<u>Number</u>	<u>Percent</u>	<u>Number</u>	<u>Percent</u>
<u>Source of Water</u>				
Central System	5649	50.9	7384	50.6
Drilled Well	4444	40.0	6390	43.7
Dug Well	271	2.4	408	2.8
Other	<u>734</u>	<u>6.6</u>	<u>424</u>	<u>2.9</u>
Total	11098	100.0	14606	100.0
<u>Source of Sewer</u>				
Central Sewer	3670	33.1	5906	40.4
Septic Tank	6743	60.8	8486	58.1
Other	<u>685</u>	<u>6.2</u>	<u>214</u>	<u>1.5</u>
Total	11098	100.0	14606	100.0

Source: Ibid.

## Housing Assistance

Public involvement in providing housing opportunities for individuals of low and moderate income has been limited in Jefferson County. Rental assistance and subsidies have been provided for 85 units in the county, which are administered by the Martinsburg Housing Authority. In addition, since 1980 over 230 rental units for moderate income individuals and families have been constructed around the county, including 34 units in Bolivar. These units have been built with the assistance of long term low interest loan guarantees from Farmer's Home Administration and do not involve any direct rent subsidies.

The municipalities have also undertaken programs to improve existing housing stock in the incorporated areas using funds from the U. S. Department of Housing and Urban Development. Through grants and low interest loans for housing rehabilitation, approximately 150 units have been improved during the past five years. Although the greatest need for housing rehabilitation is most visible in the densely settled incorporated areas, similar needs exist in the County on a scattered site basis.

## Future Housing Needs

The West Virginia Housing Development Fund has projected housing needs for each county in the Panhandle. The Fund expressed the following opinions about estimating future growth:

"Household growth based on census data/population growth does not take into consideration needs for additional housing units which may be created by the existing population including:

- \*Renter households purchasing homes
- \*Households formed from existing families through marriage, divorce, children moving away from parents, etc.
- \*Households living in substandard housing
- \*Mobile home owners moving into single family units."

The Fund used a method for determining needed housing units that was adapted from G. Vincent Barnett and John P. Blair's How to Conduct and Analyze Real Estate Market and Feasibility Studies, 1982. Table 24 contains two projections using this method, one based on the Fund's population projection and one based on a projection by the Office of the County Engineer. This table looks at needed new construction based on projected population and household size; however, it also includes shortfalls/surpluses in existing housing when looking at future needs.

TABLE 24  
FUTURE HOUSING NEEDS FORECASTS

	Based On	
	Fund 1/	JCPC 2/
(a) Projected 1995 Population	39,017	39,321
(b) Estimated Required Housing (a/2.68	14,559	14,672
(c) Plus 10% (vacancy rate/loss rate)	1,455	1,467
(d) Total Estimated Housing Required by 1995	16,014	16,139
(e) *Minus units present in 1990	13,535	13,535
(f) Additional Units Required by 1995 est.	2,479	2,604
(g) Required per year to 1995 (f/5)	496	521
(h) Current Population, 1990	35,926	35,926
(i) Present Housing Requirements (35926/2.68)	13,405	13,405
(j) Plus 10% (vacancy/loss rate)	1,340	1,340
(k) Present Housing Requirement est.	14,745	14,745
(l) Minus existing, 1990	13,535	13,535
(m) Shortage/surplus of housing	-1,210	-1,210
(n) Estimated time to fill shortage (m/g)	2.4 yrs.	2.3 yrs.

\* Exclusive of seasonal use units and substandard units

1/ The West Virginia Housing Development Fund

2/ Jefferson County Planning Commission

By this method a housing shortfall is shown. However, "it is important to also consider that the shortages are based on total housing units available. No deductions or consideration is given for units which may be substandard and in need of rehabilitation or replacement, nor to the economic mix of unit costs versus the buyers ability to pay." Hence, these forecasts of need may be underestimated.

## ECONOMIC ANALYSIS

### Economic History

What is now Jefferson County was first settled by German, Dutch and Scottish pioneers in the early 1700's. These early settlers were farmers and craftsmen. One special asset of the Shenandoah Valley is that historically it has been a crossroads of the north-south traffic through the Valley and the east-west traffic for Western travelers. These factors influenced the decisions of railroad and canal companies to establish lines in or near Jefferson County in the early 1800's providing employment and market access for local residents and businesses. Another significant factor during the early development of the County was the availability of native iron ore, which, together with the availability of good transportation led to the selection of Harpers Ferry as the site for the U. S. Armory. This industry, the first indication of the prominent position manufacturing would have in the local economy, brought jobs, prosperity and prestige to the County.

The destruction of this industrial base during the Civil War and the county's status of being either part of Virginia or West Virginia, seriously hampered economic growth. The second economic period can be said to have begun in 1880. Agricultural and livestock production became far more specialized and commercially oriented. Lime and stone quarry mining along with their supporting processing industries became major employers. Textile mills and durable goods manufacturing also flourished during this period. The resulting diverse opportunities for employment and economic stability allowed the County to prosper.

In the modern era after WWII, manufacturing and agriculture have remained major industries, although since the 1986 Comprehensive Plan some decline in these sectors has occurred. Sectors such as mining and transportation (railroad) have lost some of their prominence being replaced by tourism, warehousing and opportunities with the federal government in the County and region.

### AGRICULTURE

In 1987 approximately 83,000 of the total 135,040 acres of land in Jefferson County were actively farmed. This acreage produced some \$19 million worth of farm products annually, which represents a decrease of \$3 million from 1982.

Table 25 is a summary of farm statistics for Jefferson County for the years 1974, 1978, 1982 and 1987. These data are taken from the U. S. Department of Commerce, Bureau of the Census. Since 1969 the amount of land in farms and the number of farms have declined by 13.0 and 8.1%, respectively.

TABLE 25  
FARM STATISTICS

	<u>1974</u>	<u>1978</u>	<u>1982</u>	<u>1987</u>
Number of Farms	381	370	398	363
Land in Farms (acres)	86642	84985	87648	83079
Percentage in Farms	64	63	65	62
Average Size (acres)	227	230	220	229
Avg. Value Per Farm (\$)	191369	294270	312631	385413
Avg. Value Per Acre (\$)	842	1285	1442	1684

Inventory

Cattle & Cows (All)	22233	20896	20213	17925
Dairy Cows	5325	5948	5780	4692
Poultry	76203	37831	N/A	2278
Crops, All Acres	36310	41790	48024	39190
Fruit (All Acres)	3443	4009	4466	3354
Apple	2718	3584	3813	2871
Peach	573	379	526	365
Corn		16514	21884	10953

Sale of Farm Products (in \$1,000 of dollars)

Total Value (\$)	12794	17222	22166	18813
Average Per Farm (\$)	34	47	56	52
All Crops	4312	6432	9619	7164
Fruit	2391	3964	4839	4584
Grains	1627	2117	4260	1876
All Livestock &				
Poultry Products	8452	10790	12547	11652
Cattle & Calves	2663	2818	2571	3161
Dairy	4752	7027	8980	7592
Poultry	444	365	N/A	169

Source: Census of Agriculture 1974, 1978, 1982 and 1987.

Agriculture in the County is diverse. There is significant production in three different areas; dairy products, fruits (primarily apples) and grains (principally corn). Generally, dairying continues to be the leading source of farm income in the County, followed by fruit production and cattle and calf sales, which now both exceed farm income from grain production. Other uses such as fish farming and Christmas tree growing exist in the County.

A review of the information on farm operators shows that most farms are family operated. Although most farmers also lived on their farms for five or more years the percentage has decreased from 88% in 1982 to 85% in 1987. There are other changes in the

characteristics of farms that may suggest changes in the future. An increasing number of farms have listed their principal occupation as non-farming. Between 1974 and 1987, this figure increased from 33.8% to 43.8%, although in 1982 the percentage was 45.5%. This large proportion of farms being operated as a second occupation suggests that some farms are no longer economically viable and may be vulnerable to conversion to non-farm use. Another factor that may have a negative implication for farming is aging of the farm operators. In 1987 31% of the farm operators were over 65 years old, an increase from 25% in 1982. However, these and other related issues are more fully discussed in the Agriculture-Land Use section of this plan.

Table 26

FARM TENURE

	<u>Farmers 1978</u>	<u>Farmers 1982</u>	<u>Farmers 1987</u>
Type of Organization			
Family Farms	300	328	293
Partnerships	45	42	40
Corporations			
Family held	20	23	27
Non-Family	4	2	1
Operator Residence			
On Farm	262	292	282
Off Farm	84	85	61
Operator's Principal Occupation			
Farming	213	217	204
Other	157	181	159
Years on Farm			
Four or Less	-	41	48
Five or More	-	289	271
Age			
Less than 44	137	129	88
45 to 64	172	156	161
65 and over	77	97	114

Source: Census of Agriculture, 1978, 1982 and 1987

## EMPLOYMENT AND THE LOCAL ECONOMY

A very important component of the population profile is the local economy. The welfare and prosperity of the local residents depends on the local and regional economy. This part of the report is broken down into three segments: 1) Labor Force; 2) Business and Industry; and, 3) Tourism.

### Labor Force

As with other facets of the County, there have been some significant changes in employment characteristics, due to the overall growth in population. The total available labor force (persons between the age of 16 and 65) in Jefferson County increased 58% between 1970 and 1980 from 8,428 to 13,311 and increased another 39% to 18,540 between 1980 and 1990. Participation in the labor force, increased somewhat between 1980 and 1990 from 49.7% to 51.6%. This reflects the large in-migration of persons of young working age discussed earlier. The labor force status by sex for 1980 and 1990 is shown on Table 27. Particularly noteworthy is the increase in the percentage of women in the civilian labor force. In 1970 only 35% of all females 16 years and older were employed by seeking employment. By 1982 this figure had risen to 39.6% and by 1990 it had reached 57.0%. The male participation rate was 77.0% in 1990.

Table 27

#### SEX BY LABOR FORCE STATUS - PERSONS 16 YEARS AND OLDER

Year	Armed Forces		Employed		Unemployed		Not in L.F.	
	Male	Female	Male	Female	Male	Female	Male	Female
1980	12	0	7,410	4,887	489	513	3,093	6,082
1990	20	0	9,864	7,767	514	375	3,081	6,130

Source: 1980 and 1990 Census

Jefferson County has one of the lowest unemployment rates in the state and its rate is generally below that of the nation. Over the last two decades the rate has only gone above 8% in four years and has been as low as 2.9%. Currently the rate is near 5.5%. This indicates that the employment picture is fairly positive.

Many of Jefferson County's residents are also employed outside the County which is shown in Table 28 below. These data are over a decade old. However, there is little to indicate any substantial change in the conclusions drawn from these data.

Table 28

## WORK FORCE MOBILITY

	Number of Workers		Percentage of Workers	
	1980	1990	1980	1990
<u>Residents Working in</u>				
Jefferson County	7012	9000	58.8	51.0
Berkeley County (Another WV County*)	1056	1326	8.9	7.5
D.C. Metro Area (Another State*)	1495		12.5	
Other Areas	1434	7058	12.0	40.0
Not Reported	<u>935</u>	<u>247</u>	<u>7.8</u>	<u>1.5</u>
Subtotal	4912	17631	41.2	49.0
TOTAL	11932			
* 1990 Census Categories				

Non-residents Working  
in Jefferson County From

Berkeley County	1006
Other	<u>170</u>
Subtotal	1176

Source: 1980 and 1990 Census

As the above figures show, the percentage of Jefferson County's residents employed in the County has dropped from 59% in 1980 to 51% in 1990. This is an indication that the County is becoming a bedroom community. In 1980 four times as many workers left the county to find work as those that came into the county to find work (4,912/1,176). This indicates some weakness in the economic base of the County. The County, by not having the basic employment for its residents, is losing some of the financial gain in terms of tax revenues, that could be reaped from businesses located in the County and their hiring of local residents.

Wages

In contrast to the average income of \$39,990 discussed in the demographic section, wages in Jefferson County industries are below the average state wages as shown in Table 29. These lower wages may be due to the limited opportunities available locally for semi-skilled, skilled and professional employment. In contrast, the overall average income, as stated before, is primarily due to higher incomes earned outside the County.

Table 29

Average Annual Wage in Jefferson County Industries

	<u>Jeff (1992)</u>	<u>WV (1992)</u>
Overall	\$27,343	\$22,179
Manufacturing	23,344	29,758
Retail Trade	10,212	11,459
Services	13,721	19,098
Government	22,201	22,542
Transportation and Public Utilities	22,809	29,932

Source: W. Virginia Bureau of Employment Programs, WV Employment and Wages 1992, Statistical Abstract of the United States

Employment by Occupation and Industry

Between 1970 and 1980 there were significant shifts in the occupations and industries of residents in the County. Overall, white collar workers increased from 39% to 46% of all people employed, while blue collar workers declined from 38% to 33%. This shift from blue collar occupations to white collar jobs generally coincided with national trends. Between 1980 and 1990 this trend as shown in Table 30 continued but not at as steep a rate as in the previous decade. White collar workers in 1990 accounted for 49% of the employed persons, age 16 and over. The only dramatic change during the 1980's was an almost 200% increase in the number of sales workers.

Table 30

PERSONS EMPLOYED AGE 16 AND OVER BY OCCUPATION  
FOR 1970, 1980 AND 1990

Occupation	1970		1980		1990	
	Number	Percent	Number	Percent	Number	Percent
Professional & Tech.	1227	15.0	2179	17.7	2675	15.2
Health Practitioners	46	0.6	87	0.7	**	**
Health Workers	73	0.9	224	1.8	**	**
Teachers	352	4.3	947	7.7	**	**
Technicians, non-health	99	1.2	205	1.7	533	3.0
Other Professional	657	8.1	716	5.8	**	**
Managers & Admin.	618	7.6	969	7.9	1731	9.8
Sales Workers	401	4.9	539	4.4	1549	8.8
Clerical and Kindred	960	11.8	1943	15.8	2708	15.4
Craftsman and Kindred	1181	14.5	1742	14.2	2676	15.2
Mechanics and Repairs	231	2.8	485	3.9	**	**
Construction Trades	486	6.0	831	6.8	**	**
Other Craftsman	464	5.7	426	3.5	**	**
Operatives, except Trans. Transport Equip.	1051	12.9	1059	8.6	1124	6.4
Operators	348	4.3	627	5.1	838	4.8
Laborers, except farm	498	6.1	618	5.0	962	5.5
Construction Laborer	183	2.2	128	1.0	**	**
Material Handlers	94	1.2	116	0.9	**	**
Other Laborers	221	2.7	374	3.0	**	**
Farmers & Farm Managers	283	3.5	320	2.6)	954	5.4
Farm Laborers & Foreman	396	4.9	447	3.6)		
Service Workers	978	12.0	1733	14.1	2280	12.9
Cleaning Services	253	3.1	415	3.4	**	**
Food Services	321	3.9	590	4.8	**	**
Protective Services	72	0.9	204	1.7	217	1.2
Other Service Workers	332	4.1	524	4.3	2063	11.7
Private Household Workers	214	2.6	121	1.0	134	0.7
TOTAL	8155		12297		17631	100.0%

Source: 1970, 1980 and 1990 U.S. Bureau of Census

\*Table 30 and 31 and the accompanying analysis are based on Census place of residence data. Therefore, although Jefferson County residents may be working in a particular field, some of those jobs are based outside the County.

\*\* Category titles for the 1990 Census differ from those of the 1970 and 1980 Census.

In terms of the eleven major industries employing residents in the county, only one, mining, showed any decline. In the remaining industrial categories, growth varied considerably. The greatest growth occurred in the areas of finance, insurance and real estate (142%), construction (109%), retail trade (73%) and transportation, communication and utilities (56%). The service industry, however, remained the largest sector by industry with 30% of the total work force followed by retail trade with 15% (up from 13% in 1980). Table 31 shows the number of people employed in each of the 11 major industries as well as the percent change between 1980 and 1990.

Table 31

EMPLOYMENT BY INDUSTRY  
FOR 1970, 1980 AND 1990

<u>Industry</u>	<u>1970</u>	<u>1980</u>	<u>1990</u>	<u>% of Change 80-90</u>
Agriculture	830	756 )	983	28.5
Forestry & Fishing	13	9 )		
Mining	206	127	116	-8.7
Construction	789	1139	2378	108.8
Manufacturing	1636	2038	2399	17.7
Nondurable Goods	644	716	818	14.2
Durable Goods	992	1322	1581	19.6
Trans., Comm., & Utilities	390	707	1101	55.7
Wholesale Trade	145	333	384	15.3
Retail Trade	1083	1576	2730	73.2
Finance, Ins. & Realty	196	373	904	142.4
Services	2516	4182	5330	27.5
Public Administration	<u>351</u>	<u>1057</u>	<u>1306</u>	23.6
TOTAL	8155	12297	17631	

Source: 1970, 1980 & 1990 U. S. Bureau of Census

A study by the West Virginia Private Industry Council of Eastern Panhandle Employment concludes that the most rapid gains in employment will be in Service Workers; Professional, Technical and Kindred Workers; and Sales Workers. The slowest growth occupation will be Laborers (Non-Farm) and Craft and Kindred Workers. Service workers are and have been the largest employment sector.

An evaluation of the labor force indicates that there are both strengths and weaknesses. On the one hand, there is an ample supply of potential workers. Low unemployment rates during the late 1980's indicated that potential workers were not actively seeking employment. Incentives in terms of occupations and pay needed to attract or to provide these potential workers a place in the work force was a matter of speculation. The recession of 1990-92 resulted in layoffs locally which created more competition for jobs.

Another factor in the labor market is the overall level of education of County residents. In 1990 16% of the County population had a bachelor's degree or higher and 68% had a high school degree or higher. These improving education levels, as they translate into wages, may have a positive influence in attracting businesses. However, an improvement in the skills and education of the labor force is needed to attract other than high paying, high skill, technology related businesses. Vocational training programs designed in cooperation with company executives should be oriented towards improving the skills of local residents in high skill areas if it is the objective of the County to attract high wage firms to the County. In the meantime, training for semi-skilled jobs may be more compatible with the type of industries which currently are being attracted to the County. Either way the programs at James Rumsey Vocational Technical Center have been effective in using private and public sector cooperation in designing their training programs. Opportunities for expansion in this area should be explored.

### Business and Industry

Historically, small business development in the region has taken place in close proximity to housing and population growth. The combination of limited mobility and inadequate transportation routes fostered early small business development within the incorporated areas. Hence, the older, more established small business firms are located in Charles Town and the other small towns.

In recent years, population growth and transportation improvements have generated new markets for small businesses. Multi-purpose shopping centers have been built on the outskirts of several communities, thereby creating competition for downtown businesses. In some instances, shopping centers have attracted downtown merchants to suburban locations. In addition, relatively easy access to Maryland and Virginia fosters shopping in Hagerstown, Frederick and Winchester, thereby detracting from small business development in the county.

While recent small business development on the fringe areas has helped increase the variety of goods and services available to area residents, it has also heightened the competitive disadvantage of the traditional central business district (CBD).

Even so, the outlook for small business development in the region is promising. Trends in those sectors of the economy traditionally associated with the small business community, namely retail trade, wholesale trade, and services, during the mid 1980's, indicated continued growth in the number of firms, sales and employment. In addition, Private Industrial Council projections forecasted an additional 2,587 jobs in the regions trade, finance, and service sectors by the year 1990. At this time only 1987 data are available. Hence, it is not possible to determine whether or not these projections were correct. In light of the recession and the sluggish recovery it would not be unreasonable to estimate that the projections fell short. However, the region is competitive in

attracting industry. The challenge to the region's communities is to balance small business development between new and existing facilities and assist the small business community in remaining competitive with adjacent states.

Table 25 shows data about retail trade for the years 1977, 1982 and 1987. However, the lack of 1992 data makes it difficult to assess the current post-recession condition.

Table 32

RETAIL TRADE ESTABLISHMENTS AND SALES  
1977, 1982 AND 1987

	<u>1977</u>	<u>1982</u>	<u>1987</u>	Percent Change	
				<u>1977-82</u>	<u>1982-87</u>
Jefferson County					
Establishments	134	145	184	8.2	26.9
Sales (in Millions)	53.3	69.9	118.4	31.1	69.4
West Virginia					
Establishments	10,175	9,853	10,737	-3.2	9.0
Sales (in Millions)	5,463.3	7,276.8	9,030.0	33.2	24.1

Source: Bureau of the Census, Census of Retail Trade, 1972, 1977 and 1982.

In specific categories, the census shows that between 1982 and 1987 the County experienced increases in all categories of retail sales.

Principally this underscores the potential for major expansion in the area of retail trade. Retail trade does not appear to have grown at the same rate as the population leading to the conclusion that local incomes are being spent outside the county. A simple comparison illustrates the point. While Jefferson County has 1.55% of the state population and per capita incomes higher than the state average, it has less than 1% of the state's sales in retail trade.

Table 33 shows that the wholesale market between 1977 and 1987 has been unsteady.

Table 33

WHOLESALE TRADE ESTABLISHMENTS AND SALES  
1977, 1982 and 1987

	1977	1982	1987	Percent Change	
				1977-82	1982-87
Jefferson County					
Establishments	21	16	18	-33.8	+12.5
Sales (in Millions)	19.1	26.8	18.1	40.3	-52.0
West Virginia					
Establishments	2372	2380	2444	0.3	2.7
Sales (in Millions)	4492.6	6101.2	5935.4	35.8	-2.3

Source: Bureau of the Census, Census of Wholesale Trade, 1972, 1977 and 1982.

The service industry continued to be the largest component of the County's economy in 1987.

Table 34

SERVICE ESTABLISHMENTS AND SALES  
1977, 1982 AND 1987

	<u>1977</u>	<u>1982</u>	<u>1987</u>	Percent Change	
				<u>1977-82</u>	<u>1982-87</u>
Jefferson County					
Establishments	63	95	137	50.8	44.2
Sales (in Millions)	27.2	33.2	44.9	22.1	35.2
West Virginia					
Establishments	4702	7424	8909	57.9	20.0
Sales (in Millions)	749.2	1759.3	2917.0	34.8	65.8

Source: Bureau of the Census, Census of Selected Service and Service Industries, 1972, 1977 and 1982.

The percentage growth in services, as indicated in Table 34, has been well below the rate of growth of West Virginia. However, more recently growth in the service industry has been substantial. This may be related to a trend toward a bedroom community economy.

Manufacturing is a sector of the national economy that is not growing as fast as other sectors of the economy such as Services and Retail Sales. Between 1970 and 1980 Jefferson County significantly improved its state rank in terms of value added in manufacturing, as can be seen in Table 35.

TABLE 35

MANUFACTURING INDUSTRIES-ESTABLISHMENTS AND SALES  
1972, 1982 AND 1987

	1972	1982	1987
Jefferson County			
Establishments	26	21	
Sales (in Millions)	18.3	130.7	
West Virginia			
Establishments	1733	1662	
Sales (in Millions)	2644.3	4049.2	

Source: Bureau of Census, Census of Manufacturing.

Table 36 is a list of major employers in Jefferson County and the number of people employed by these firms in 1986 and 1993.

Table 36

## MAJOR EMPLOYERS IN JEFFERSON COUNTY

<u>Company</u>	<u>Product or Service</u>	<u>Number of Employees</u>	
		<u>1986*</u>	<u>1993**</u>
AB&C, Inc.	Order fulfillment	N.R.	296
Activ Industries, Inc.	Shotgun shells	40	22
American Tele/Response	Telemarketing	N.R.	200
Americast	Concrete Products	N.R.	45
Badger-Powhatan	Fire protection Products	285	230
Bavarian Inn	Inn and Restaurant	N.R.	95
Burch Manufacturing	Industrial Crating	59	45
Charles Town Races	Horse Racing	450	400
Cliffside Inn	Hotel	N.R.	85
DALB, Inc.	Silk screened signs	23	29
Downes Fiberglass, Inc.	Construction forms	N.R.	10
Dixie-Narco, Inc.	Cold Drink Dispensers	900	***
Furniture Corp. of Am.	Furniture	50	N.R.
Glen E. Woods Int.	Communications	15	9
Halltown Paperboard Co.	Paper Box Board	165	180
Jefferson Asphalt Products Co., Inc.	Asphalt Products	N.R.	25
Jefferson Machine Co.	Tool & Die Making	36	N.R.
Jefferson County Board of Education	Public Education	N.R.	750
Jefferson Memorial Hospital	Hospital	N.R.	256
Mid-Atlantic Retreading, Inc.	Off-road Tire Retreading	N.R.	18
Millville Quarry, Inc.	Agricultural and Crushed Limestone	60	80

<u>Company</u>	<u>Product or Service</u>	<u>Number of Employees</u>	
		<u>1986*</u>	<u>1993**</u>
3M	Printing Products	290	290
Peoples Supply, Inc.	Grain Mill	34	45
Perkins Enterprises	Cosmetic Lotions	38	N.R.
Ranson Fruit Company	Fruit Processing	120	N.R.
Royal Vendors, Inc.	Cold Drink Dispensers	N.R.	400
Shenandoah Quarry, Inc.	Limestone	45	N.R.
Summit Point Raceway	Automobile Racing	N.R.	35
TST Impresso	Computer Business Forms	27	45
Universal Wood Products	Wood Products	N.R.	51
U.S. Dept. of Agriculture	Fruit Research	101	85
U.S. Dept. of Interior	Training Center	N.R.	275
Valley Block Company	Concrete Pipes	35	6
Jefferson County Govt.	Government	N.R.	84
National Fisheries	Research	N.R.	53
Shepherd College	Education	N.R.	365

\*Source: 1986 Comprehensive Plan

\*\*Source: Jefferson County Development Authority

\*\*\*Company relocated out of the county

N.R. = Not Reported

## TOURISM

History, culture, and rural beauty combine to make Jefferson County an attractive area for travel and tourism. The area's close proximity to major population centers (Baltimore and Washington D.C. metropolitan areas) enhances this potential. Many people from these areas come to Jefferson County to escape the urban environment and to enjoy the scenic rural nature of the County. In most cases, though, the visits are one day trips to Harpers Ferry, the racetrack or to the Mountain Heritage Arts and Crafts Festival. The tourist industry in the County could be greatly improved by developing facilities for weekend long or week long visitors. Resort and pleasure hotels would provide accommodations for visitors and keep tourists here for longer periods of time. In this way more tourist dollars would be spent in the county and with facilities such as indoor pools or hot tubs, the tourist attraction could be year round. The large investments in vacation homes by city dwellers illustrates this get-away attitude.

Tourist facilities in the area offer a variety of recreational activities, including the following major attractions:

**CHARLES TOWN RACES** - Thoroughbred horse racing is conducted at the Charles Town Race Track. This is one of the most modern tracks in the country featuring fully weatherized grandstands and an advanced pari-mutuel betting system. It employs approximately 400 people, and its presence promotes the development of thoroughbred horse breeding and related equipment and supply businesses locally.

**HARPERS FERRY NATIONAL HISTORICAL PARK** - This picturesque town, established as a National Historic Park in 1944, is located at the confluence of the Potomac and Shenandoah Rivers. It attracts approximately 500,000 per year who come to relive history and enjoy the scenic beauty of the location. The town grew to prominence in the 19th century with the establishment of the national armory and the construction of the C & O Canal and B & O Railroad. John Brown's raid in 1859 foreshadowed the prominence of the town during the civil war. With the destruction of the town during the civil war followed by repeated flooding, the town declined until it became a park.

**MOUNTAIN HERITAGE ARTS & CRAFTS FESTIVAL** - Twice a year, the Jefferson County Chamber of Commerce sponsors the Mountain Heritage Arts and Crafts Festival. For three days in June and September, over 160 craftsmen, selected for the high quality of their products, gather to demonstrate their skills and sell their goods. The Festival has grown through the years to become one of the most prestigious festivals of its kind on the east coast.

NATIONAL FISHERIES CENTER - The U. S. Department of the Interior Fish and Wildlife Service operates the National Fisheries Center, a fish hatchery, research laboratory and training center, on Route 1 at Leetown. It receives about 13,800 visitors per year.

SUMMIT POINT RACEWAY - The Summit Point Raceway located on Route 13 south of Summit Point, features motorcycle road racing, motorcross, and Sports Car Club of America auto road racing. The track has a seasonal daily average attendance of 2,000.

WHITE WATER RAFTING - White water rafting trips on the Shenandoah and Potomac Rivers are provided by several West Virginia licensed white water river outfitters.

THE APPALACHIAN TRAIL - This trail, which runs from Maine to Georgia, enters the county at Harpers Ferry and runs southward along the crest of the Blue Ridge Mountain until it enters Virginia.

In addition to these major attractions, Jefferson County is rich in history with many sites of interest to tourists. For example, the Jefferson County Court House, erected in 1803, is best known as the building in which John Brown and members of his band were tried and sentenced for treason in 1859. The county also contains seven "Washington Homes" which were built between 1770 and 1820 by descendents of George Washington and his brother Charles Washington. Another attraction is the James Rumsey Monument, memorializing the first successful operation of a steamboat in 1787. Finally, Shepherdstown, the oldest town in West Virginia, and Middleway are registered districts listed on the National Register of Historic Places along with 38 other buildings and sites in the county.

The outlook for the County's travel industry is very good. Employment, sales, and tax revenues generated by travel and tourism have increased to the point where they make a significant contribution to the economy. In 1982, sales resulting from travel and tourism in Jefferson County amounted to 34.5 million. The expectation is that the travel industry market will continue to expand.

#### FUTURE ECONOMIC DEVELOPMENT

The County has several major advantages for economic growth and development. The principal one of these is its location. A major segment of the U. S. population is within one day's driving distance and within 300 miles are a number of major metropolitan areas including Washington-Baltimore, Philadelphia, New York, Pittsburgh, Cleveland and, to the south, Richmond, VA. and Raleigh, NC. However, this same advantage is shared by neighboring locations such as Hagerstown and Frederick, MD, Loudoun County, VA. and even Berkeley County, WV, but with the additional advantage of having interstate or

4-lane highways for better access. In fact, industrial expansion along Interstate 81 and 70 and along Route 7 has been quite rapid in recent years. Major projects such as Citicorp and Xerox may provide jobs to Jefferson County residents but do not provide direct revenue to the County since they are located out of state.

Lack of road improvements have been cited previously as a restraint on growth of business in the County. However, the Charles Town Bypass is complete and major improvements to Route 9 and the Shenandoah River Bridge (Route 340) are all programmed. Completion of these projects is expected during the late 1990's. The completions can be viewed as being positive factors for economic growth.

Rail access to the county is very good with a CSX line running from Harpers Ferry west through the county and with the Norfolk and Southern line running north-south through the county connecting Hagerstown, MD. with Front Royal, VA. These are both main lines. There is also a CSX branch line running from Harpers Ferry to Winchester, VA.

Air transportation of cargo is available through the Martinsburg airport. Access to the airport will be enhanced by the improvements of WV Route 9.

Another advantage for economic growth is the availability of industrial sites. These break down into two groups, (1) industrial sites with basic infrastructure and (2) lands zoned for industrial, light industrial and commercial uses. The County, unlike much of West Virginia, has gently sloped land suitable for industrial development.

Table 37 contains a list of industrial sites for lease or sale that currently have public water and sewer and access to a major highway.

Table 37

## INDUSTRIAL SITES WITH INFRASTRUCTURE

<u>Name of Property</u>	<u>Overall Parcel Size</u> Acres	<u>Number of Lots Present</u>	<u>Ultimate</u>	<u>Infrastructure* Completed</u>
Bardane Industrial Park	80	2**	Sold Out	1, 2, 3
Burr Industrial Park	300	40	67	1, 2, 3
James Burr Technology Center	72	13	39	1, 2, 3

\* Infrastructure Codes -- 1 = Public or Private Water  
 2 = Public or Private Sewer  
 3 = Access to Primary Highway  
 4 = Railroad

Table 38 is a list of selected property that are zoned for industrial or light industrial uses but which have not been developed.

Table 38

## UNDEVELOPED INDUSTRIAL PROPERTIES

<u>Name of Property</u>	<u>Frontage Road</u>	<u>Parcel Size</u>	<u>Adjoining or Confronting Infrastructure</u>
Hunt Field	U.S. Rt. 340	500 Ac.	Sewer & Water within one mile, 4
Old J & L Quarry	U.S. Rt. 340	300 Ac.	3
Martin Marietta Quarry	U.S. Rt. 340	400 Ac.	3, 4
J. P. Burns	U.S. Rt. 340	500 Ac.	3
Huyett Property	U.S. Rt. 340	100 Ac.	3, 4
Capriotti	U.S. Rt. 340	90 Ac.	3
Capriotti	W.V. Rt. 9	40 Ac.	1, 2, 3

The total acreage of property zoned for industrial and commercial uses is shown in Table 39.

Table 39

INDUSTRIAL/COMMERCIAL ZONES

<u>Zoning District</u>	<u>Acres in District</u>	<u>% of Total Land</u>
"Heavy" Industrial and Commercial	3,000	2.2
Mixed--Residential, Light Industrial, Commercial	3,200	2.3

The Jefferson County Zoning System, the Land Evaluation and Site Assessment (LESA) system, provides for the issuance of Conditional Use Permits for industrial uses to properties outside of these zoning districts if the LESA process shows that the property meets the criteria of the system. The number of acres of property which could meet the LESA criteria has not been determined. However, as a general rule, sites in the Agricultural District with public water and sewer and which are located near primary highways probably are going to qualify for industrial/commercial use, assuming that other factors such as buffering, etc. can be met.

There are two organizations in the county promoting economic growth. They are the Jefferson County Development Authority and the Jefferson County Chamber of Commerce.

The Development Authority was created in 1979 for the purposes of the promotion, development and advancement of prosperity and economic welfare and to encourage and assist new businesses and industry. To this end, they can furnish money through grants, loans and bonds, and assist in arranging for credit and land, as well as other kinds of technical assistance.

The Development Authority has been effective in preparing brochures and advertisements in national trade magazines to promote industrial location in the county. It has become the window through which industries can learn about the benefits of establishing themselves in Jefferson County and receive assistance toward that end. The Development Authority, located near the Burr Industrial Park, has also been instrumental in developing and promoting the industrial park.

The Jefferson County Chamber of Commerce is a private organization of businesses funded through its members. Its objectives are to stimulate the expansion of business and employment opportunities, to promote economic activity and local prosperity. It also serves as a clearing house for information on the County.

## SUMMARY

It is the goal of the Economic Development Plan to expand the County's economy by building upon the existing economic base. As demonstrated, the existing economic base of Jefferson County consists of many diverse activities: industry, commercial and service, tourism and agriculture. From a tax revenue standpoint, it is necessary that these industries grow and develop to offset the tax shortfalls resulting from years of residential construction without corresponding growth in the commercial and industrial sectors. As the population of the County continues to rise, more jobs will be needed to support the labor force, and more businesses providing services will be expected. In order to meet these increasing demands, the County's economy must grow.

The business climate is determined by many factors: transportation, access to markets, labor force (education, wage rate and productivity), quality of life (crime rate, school quality and cultural amenities), planned environment, taxes, infrastructure, etc. Improvements are required in the areas that are lacking to make Jefferson County more competitive.



## TRANSPORTATION

### INTRODUCTION

#### Background

Of all the problems to be addressed in a Comprehensive Plan, transportation is one of the most urgent. The improvement or further deterioration of transportation in Jefferson County will directly affect our quality of life.

Jefferson County had the first paved roads in West Virginia. But, many of today's roads still follow the old carriage and wagon roads and, except for paving, have not been improved. Most of these improvements were made when traffic was lighter and slower.

With the increase in population in the last three decades Jefferson County's roads have had to bear the combined burden of increased traffic volume and heavier commercial vehicles. As a result, the deficiencies of the highway and road systems have become more critical. Inadequate funding and further increase in transportation demand are conditions which probably will be facing the people of Jefferson County for some time.

The municipalities of Charles Town, Ranson, Harpers Ferry, Bolivar, and Shepherdstown have their own land use plans and regulations, and as such are not subject to guidelines or regulations developed as part of the Comprehensive Plan for Jefferson County. However, they are the sites where the major roads converge and where traffic problems occur with increased traffic flow. Therefore, their transportation needs are part of the overall county needs.

#### General Goals

In addition to the specific recommendations discussed in this section, the following general goals need to be attained:

- o To reduce the occurrences of traffic accidents.
- o To reduce the severity of traffic accidents.
- o To eliminate conditions which either cause accidents or contribute to their severity.
- o To achieve and maintain efficient traffic flow throughout the County.
- o To develop coordination between all levels of government to assure the establishment of common priorities and the best use of transportation resources.
- o To adopt an aggressive and creative position toward overcoming funding and legislative limitations to solving transportation problems.
- o To advocate and lobby for road improvements in the County.

## Categories of Road Systems

Roads and highways in the County fall into the following categories.

- o State Highways -- These are further categorized according to standard highway classification systems shown in Map 2.
- o Private Roads -- These are owned by individuals or groups of homeowners who are responsible for their maintenance. For the most part these are land service roads which are used by the public to visit, serve or otherwise gain access to homes and businesses along such roads. Private roads that meet State criteria can be accepted into the State Highway System.
- o Orphan Roads -- These are land service roads with no known ownership or assigned responsibilities for maintenance.

There are no County owned or maintained roads.

Public transportation consists of a bus service (PanTran) and commuter rail to Washington, D.C. (MARC). Transportation is an integral part of all aspects of life within Jefferson County and a primary influence on most other elements of this Plan.

## STATE HIGHWAYS

### Functional Classification

The West Virginia Department of Highways classifies highways in five different ways:

1. By jurisdiction
2. By Federal-aid system
3. By National Highways Functional Class
4. By sign system
5. By functions within the State-administered system.

The latter system is the only one of interest to the County planning process because it reflects function which in turn influences potential land use.

There are three West Virginia State-Administered Systems. They are as follows:

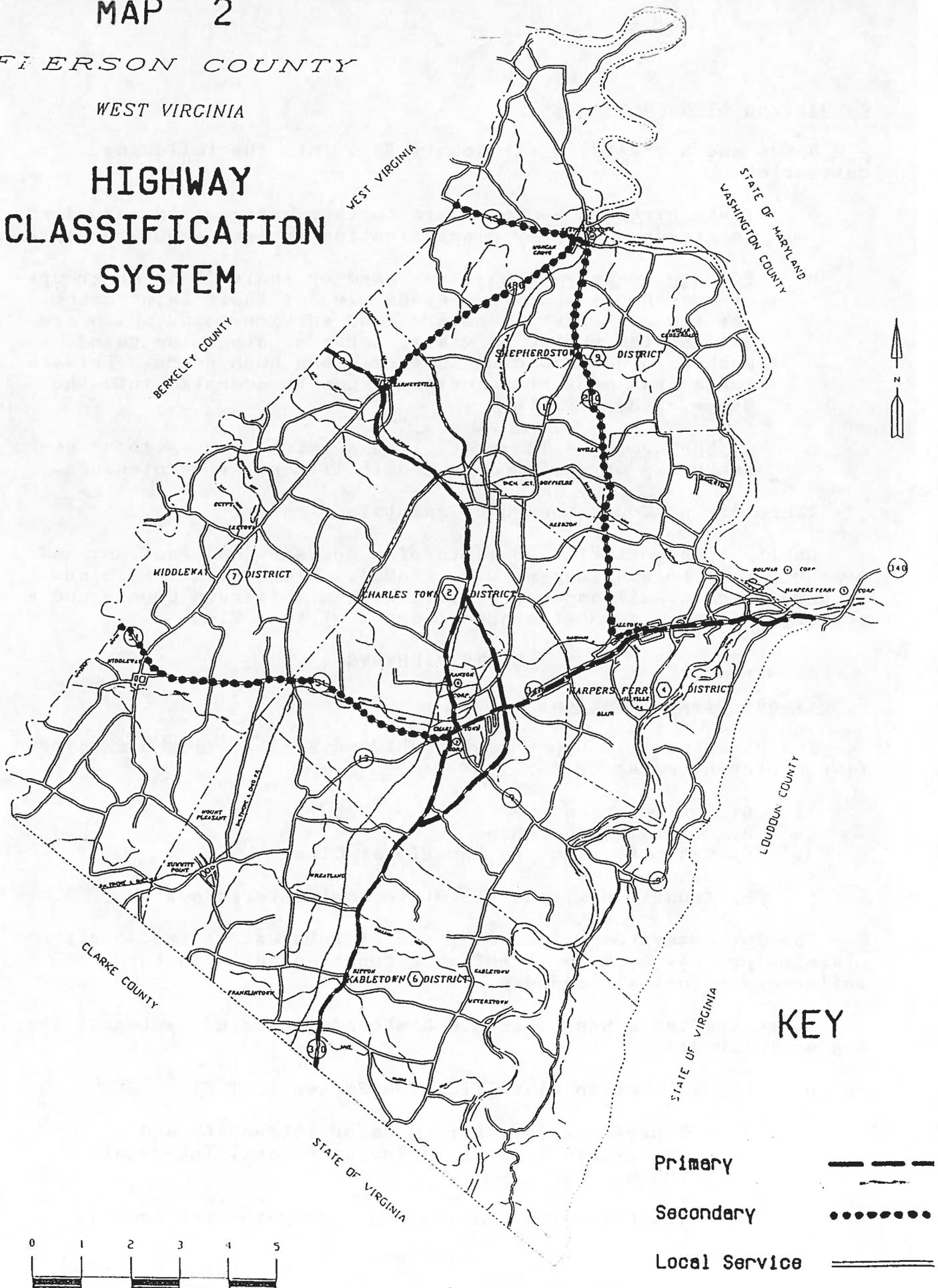
- o Legal Function Classification System (X-T-F)
  1. Expressway (X): serves major intrastate and interstate travel, including Federal Interstate routes.
  2. Trunkline (T): serves major city-to-city travel.

# MAP 2

JEFFERSON COUNTY

WEST VIRGINIA

## HIGHWAY CLASSIFICATION SYSTEM



### KEY

- Primary 
- Secondary 
- Local Service 

3. Feeder (F): serves community-to-community travel or collects and feeds traffic to higher systems.
4. State Local Service (SLS): localized arterial and spur roads which provide access and socio-economic benefits to abutting properties. These are further broken down by (a) essential arterial, (b) collectors, and (c) land access.

o Delta Road System

These are in the public domain by virtue of long history of common public use, but where title to rights-of-way is indeterminate.

o State Park and Forest Roads

The distribution of road miles and vehicle miles traveled on the X-T-F classification is shown below in Table 40.

TABLE 40  
ROAD MILEAGE BY CLASS--STATE SYSTEM

<u>Class</u>	<u>Roadway Miles</u>	<u>% of County Total</u>	<u>Annual* Vehicle Miles Traveled (millions)</u>	<u>% of County Total **</u>
X Expressway	0.0	00.00	0.0	0.0
T Trunkline	35.48	10.08	117.296**	44.58
F Feeder	25.88	7.36	48.320	18.37
SLS Essential				
Arterial	69.90	19.86	58.644	22.29
SLS Collectors	86.31	24.52	26.133	9.93
SLS Land Access	134.38	38.18	12.706	4.83
Local (Unclassified)	<u>0.00</u>	<u>0.00</u>	<u>0.000</u>	<u>0.00</u>
	351.95	100.00	263.099**	100.00

\*Source: WVDOH Traffic Count File Summary Tables 1990

\*\* These values do not include the Bypass which was not open at the time.

The highway classifications used in the 1986 Comprehensive Plan, Primary, Secondary and Local Service, approximately correspond to the State-Administered classifications, Trunklines, Feeders and State Local Service, respectively.

## Traffic Volume Trends

The West Virginia Department of Highways maintains a traffic flow map. It shows the Average Daily Traffic (ADT) at counting stations around the County. The map is updated every three years. Table 41T2 shows a comparison of 1987 and 1990 ADT's for selected locations on State highways in Jefferson County.

TABLE 41  
AVERAGE DAILY TRAFFIC AT SELECTED LOCATIONS

<u>Location</u>	<u>1987</u>	<u>ADT</u> <u>1990</u>
Route 340 @ eastern Va. line	8800	14000
Route 340, west of Bolivar	14000	17500
Route 340, east of Charles Town	16500	21500
Route 340, south of Charles Town	7800	7300
Route 9 @ eastern Va. line	4800	6000
Route 9, south of Charles Town	8900	8650
Route 9, north of Charles Town	9300	9400
Route 9 @ Berkeley County line	8100	11000
Route 51, west of Charles Town	5000	7100
Route 45 @ Berkeley County line	4800	5600
Route 45, west of Shepherdstown	9300	9700
Route 480, south of Shepherdstown	4200	5000
Route 230, south of Shepherdstown	4800	5200
Route 230, south of Route 17 fork	1700	2100
Route 17, south of Duffields	2300	2900

Source: West Virginia Department of Transportation Traffic Map

It is apparent from these figures, but no surprise, that traffic volumes have increased in Jefferson County. However, the Charles Town Bypass was opened in 1991 which solved traffic problems in downtown Charles Town with the removal of most trucks and through traffic. The State DOT has made their 1993 traffic counts but the processed data will not be available until 1994. However, the improvement in traffic operations is readily observable.

### ANALYSIS OF CURRENT PROBLEMS ON STATE HIGHWAYS

Highway engineering professionals define highway problems based on documented traffic flow problems (Level-of-Service, comparisons of actual volume versus designed capacity, etc.) and accident rates (number and severity of accidents relative to exposure as measured by vehicle miles). On the other hand, the public perceives highway problems by experienced congestion, knowledge of individual accident

occurrences, severity of a particular accident and perceived potential hazards such as poor sight distance. The final program of highway improvements usually is based on a mix of engineering analysis and public concern.

WV DOT Critical Levels List

Based on accident analysis alone the WV DOT has identified the following locations as having accident rates that exceed critical levels:

1. Rural Primary
  - a. US 340 Milepost 8.10 - 10.00
  - b. US 340 Milepost 15.30 - 15.90
  - c. WV 9 Milepost 1.00 - 1.90
  - d. WV 9 Milepost 2.40 - 3.10
  - e. WV 9 Milepost 4.40 - 5.20
  - f. WV 9 Milepost 10.10 - 15.10
  - g. WV 9 Milepost 15.50 - 16.20
  - h. WV 45 Milepost 0.90 - 2.40
  - i. WV 51 Milepost 0.30 - 1.20
  
2. Urban Primary Two Lane
  - a. US 340 Milepost 7.40 - 8.30
  - b. WV 9 Milepost 8.00 - 9.90
  - c. WV 51 Milepost 7.00 - 7.50
  
3. County Routes Over 500 ADT
  - a. CR 20 Milepost 0.00 - 0.60

These are shown on Map 3.

Low volume roads are difficult to evaluate using the "critical level" approach because patterns (substantial clusters of accidents) amenable to evaluation and improvement usually are not found.

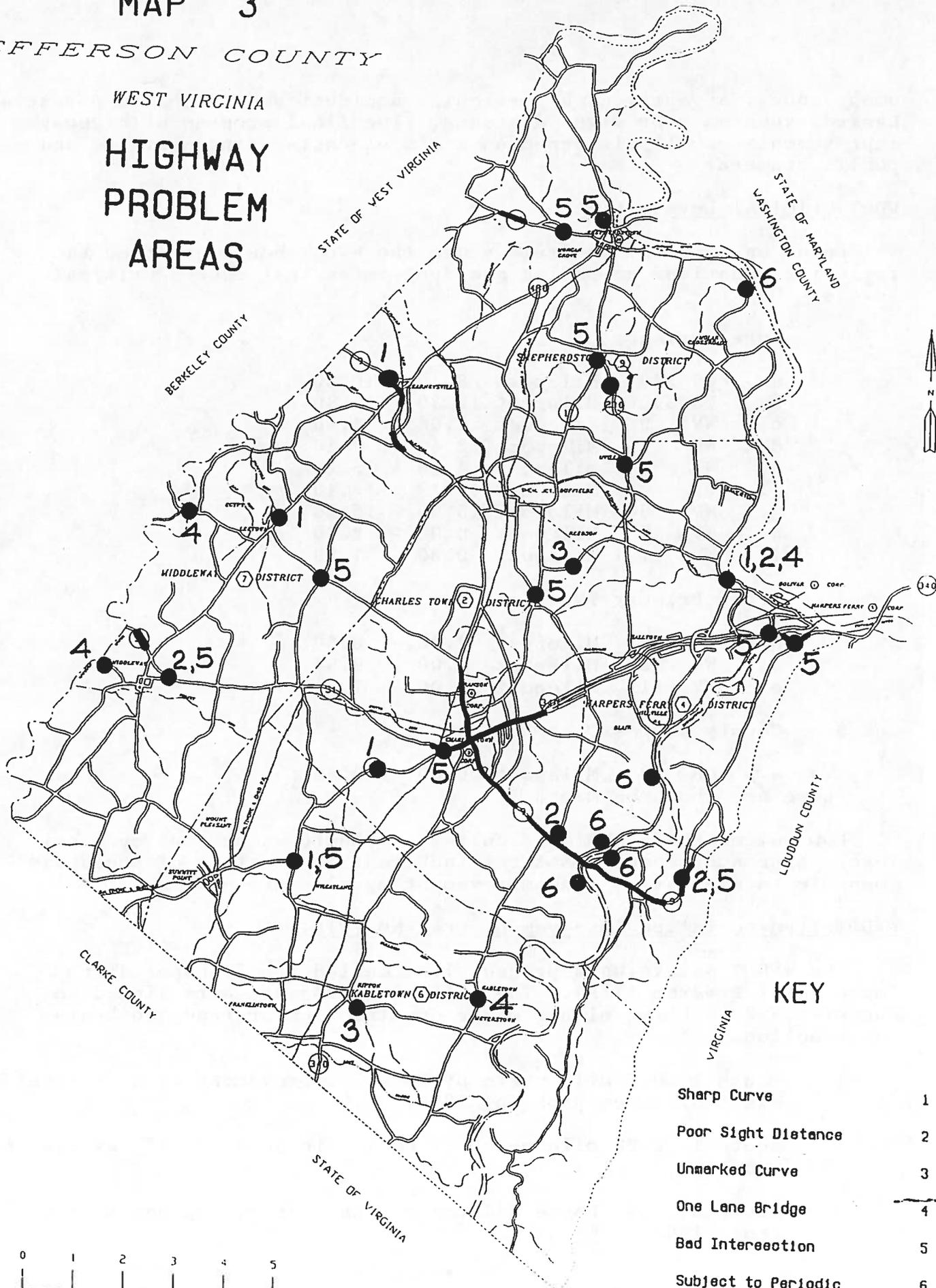
WV DOT Transportation Improvement Program (TIP)

The WV DOT maintains a project list called the Transportation Improvement Program (TIP). The following projects were listed in August, 1992 as being either under construction or ready to begin construction.

1. Route 1, 0.1 mile north of WV 51, improvement of a vertical sight distance problem, 1993,
2. Route 1, 0.08 mile north of CO 1/2 to Route 9, 1" resurfacing, underway,
3. Route 9, U.S. Route 340 to Va. state line, upgrade to four lane, 1998,

# MAP 3 JEFFERSON COUNTY

## WEST VIRGINIA HIGHWAY PROBLEM AREAS



### KEY

- Sharp Curve 1
- Poor Sight Distance 2
- Unmarked Curve 3
- One Lane Bridge 4
- Bad Intersection 5
- Subject to Periodic Flooding 6
- High Accident Rate

4. Route 9/Route 20 intersection relocation, underway.
5. Route 9, 0.45 mile east of CO 27 to 0.39 mile east of CO 9/8, realign roadway,
6. Route 22, 0.02 mile east of CO 17 to 0.8 mile east of CO 17, 1" resurfacing,
7. Route 25/5, over Bullskin Run, replace timbers, underway,
8. Route 48/2, 0.47 miles north of CO 20, install RR Xing signal and gates,
9. Route 51, Berkeley County line to 0.02 mile east of CO 6, 1" resurfacing,
10. Route 340, U.S. 340 near CO 13/3, landscaping,
11. Route 340/Route 17 Intersection, modify traffic signal, 1993,
12. Route 340, replace Shenandoah River Bridge, 1995,
13. Route 480, Potomac River Bridge, repair, 1993.

Summary of Traffic Problems Identified by County Citizens

Table 42 is an update of the Summary of Traffic Problems in Jefferson County which was presented in the 1986 Comprehensive Plan as Table 31. With the exception of U.S. 340 and the Bypass almost all roads and highways are upgraded wagon trails which originally were laid out to fit property lines. Consequently, there are numerous locations with poor sight distance, sharp curves, inadequate shoulders, encroaching fixed objects and hidden entrances. Under the land development process and the ordinances the County is able to deal with these situations when landowners develop their property by preventing future problems and by requiring improvements to problems adjacent to their properties.

Unprotected at-grade railroad crossings are a class of hazard which has been a long-term public concern. Since 1986, signals and gates have been installed at seven locations.

TABLE 42 SUMMARY OF TRAFFIC PROBLEMS IN JEFFERSON COUNTY, WV

<u>Route Number (Road Class)*</u>	<u>Problems</u>
Route 340(P)	Parallel to Potomac R.: curvy, rough shoulders, falling rocks, inadequate parking, stone retaining walls at road edge; Intersection with Rt. 32: inadequate turning area, single lane traffic on hill, limited sight distances, dangerous when road surface wet or icy; Entering Shenandoah River Bridge: high traffic speeds and congestion at park entrances, limited visibility;

Route 9(P) At Route 32/2: poor visibility; At Route 1/2 & 48/3: numerous intersections; At Route 480: inadequate visibility; At Route 9/3: inadequate sight distance.

Route 51(S) Poor visibility at Route 1/5, 1/13, and 1/17; blind 2driveways;

Route 230(S) S-curve 1 mi. S Rt. 17; poor visibility at Rt. 230, 31/1, and 16/1;

Route 480(L) At Route 5: intersection conflicts, pedestrian conflicts;

Route 1/7(L) Poor visibility at Rt. 51;

Route 1/17(L) Rough 1-lane dirt road;

Rt. 9/3(L) R Poor visibility at Route 9;

Route 9/4(L) Within 100 year flood boundary; portions frequently covered with water;

Route 9/5(L) Partially dirt road with pot holes; many curves on 2-lane paved section; serves several large residential developments;

Route 11(L) No signals and rough at RR crossing (Mt. Pleasant Rd.)

Route 13(L) Poor visibility at Rt. 51 and 51/1; S curves; 90 degree turn at Rt. 13/2;

Route 16/1(L) No signals at RR crossing; poor visibility at Rt. 230 and Rt. 13/1;

Route 16/4(L) No signals at RR crossing;

Route 16/4(L) No signals at RR crossing;

Route 17(L) Rough, no signals at RR crossing at Flowing Springs Run; bad curves S. of Duffields and near Dogwood Manor; poor visibility at Rt. 18 and Rt. 22;

Route 18(L) Limited visibility at Rt. 17;

Route 21(L) Difficult ingress/egress at Rt. 340;

Route 24(L) Rough, no signals at RR crossing at Flowing Springs Run;

Route 25(L) One-lane traffic at Kabletown bridge with sharp curve at S. end;

Route 26(L) Poor visibility at Rt. 340;

Route 27(L) At North: one-lane tunnel with hill and sharp curve; At South: within 100-year flood plain, rough, no signals at RR crossing;

Route 28(L) Several unmarked sharp curves;

Route 29(L) Rough RR crossing on curve;

Route 30(L) Several unmarked curves;

Route 31(L) Poor visibility at junction Rt. 31/1, Rt. 17, & Rt. 16/1;

Route 32(L) Inadequate turning space; 1-lane on hill; hazardous when wet or icy;

Route 32/1(L) Limited visibility at Rt. 32;

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\* Road Classifications: P = Primary (Trunk);  
S = Secondary (Feeder);  
L = Local Service

Projects that are in the design report phase are as follows:

1. Route 9, Charles Town to Route 45 in Berkeley County, upgrade to four lanes,
2. Route 9, Charles Town to Virginia State line, upgrade to four lanes.

#### Long-Range Highway Projects

In the 1986 Comprehensive Plan concern was expressed that major improvements in the State road network had been slow to materialize. Since then major improvements--Charles Town Bypass and Bloomery Bridge--have been completed and preliminary design work is proceeding on complete upgrading of Route 9 and replacement of the U.S. Route 340 Shenandoah River Bridge. The concern being expressed now relates to how any rerouting of Route 9 might affect land use. In fact, the route planning process is a function of the WVDOH and contains numerous opportunities for private citizens and local jurisdictions to present their concerns and preferences. WVDOH after this extensive planning and public process selects the final route. Once

this route is selected the County may alter land use policy as deemed necessary. Under the current Land Evaluation and Site Assessment (LESA) system properties near upgraded major highways would become more eligible for conditional use permits for higher intensity uses. Under traditional zoning, map amendments would be needed following a major highway upgrading or relocation plan in order to adjust land use to the newly enhanced transportation system.

Citizens have expressed the desire to be more involved in the route selection process possibly even to the extent of proposing routings. As noted above, the WVDOH process provides opportunities for a wide range of input to the route selection process. This could include an actual proposed alignment.

### PRIVATE ROADS

Since the County has no legal authority to build, own, and maintain roads, the responsibility falls upon the developers, who eventually transfer ownership and responsibility of maintenance to the property owners. Almost all of these roads remain in private ownership. However, the West Virginia Division of Highways has procedures whereby a private subdivision road may be added to the State road system.

Before the County Subdivision Ordinance was adopted, no method existed to provide for maintenance of these private roads, and maintenance on many was minimal or nonexistent. Since 1979, the County has required that a formal road maintenance agreement be developed and recorded for each new subdivision. Although road maintenance agreements provide a mechanism that subdivision residents can use to keep roads in repair, they do not ensure that regular maintenance or snow removal takes place.

Maintenance problems on private roads can be minimized with good construction practice and sound road section standards. The JCPC has modified standards to achieve stronger roadways and should continue to develop standards that result in low maintenance roadways.

At present, several roads within the County are not included in either the State or private road systems. In general, these are roads in which the ownership is uncertain and include some roads that the State refused to accept when it took over the other roads in Jefferson County. Some of them (such as the one leading to the Valley View Subdivision in Bakerton) now serve new development. In some cases, paved roads have deteriorated to the point where vehicle damage is a possible outcome of regular travel over these roads.

## PUBLIC TRANSPORTATION

### PanTran, Bus Service

The Eastern Panhandle Transit Authority, PanTran, provides bus service within the City of Martinsburg and between Martinsburg and other locations in Jefferson County and Berkeley County, including Charles Town, Harpers Ferry, Shepherdstown and Inwood. Service is available Monday through Saturday.

PanTran provides route-deviated service as far as 3/4 of a mile off the regular routes for any passenger when requested in advance. All PanTran buses are wheel-chair accessible. The service operates eight buses. In 1986 there were seven buses, but only two of them were wheel-chair accessible.

Ridership has doubled in Jefferson County since early 1993. The causes of this increase have not been determined.

As traffic density and population increase, public transportation can be used as one means of relieving congestion in affected areas and of providing low income and elderly persons access to employment, shopping, recreation, and health services. However, experience has shown that people rarely make efficient uses of buses as long as it is more convenient to use their cars. Thus, any transportation plan that includes buses will have to provide incentives both to riders and carriers without creating a financial burden for the public.

### Commuter Rail Service

The rail commuter service from Martinsburg to Washington, D.C. has attracted a growing number of County residents. Between mid-1988 and spring of 1992 the number of A.M. boardings have increased from approximately 60 to 160 at the Duffields stop and from 130 to 170 at the Harpers Ferry stop.

Parking is a critical problem for this service. The Duffield stop has a gravel parking lot with no amenities (lighting, telephone or restrooms) and which currently has no reserve space. A future stop at the Burr Industrial Park several minutes away is planned, but has not been programmed for development. It could replace the Duffields site without inconvenience to most commuters. On the other hand, commuters boarding at Harpers Ferry are faced with possible loss of the current parking lot which now is owned by the National Park Service (NPS). NPS is reputed to have other plans for the site. The growth in the number of riders boarding in Jefferson County is exceeding the rate of population growth. Based on the parking situation cited above it would not be unreasonable to ask whether or not ridership would be even higher if parking were more convenient and available.

Commuter rail systems in general are heavily subsidized by State and Federal funds. Rider fees only cover a portion of operating fees. Capital costs are totally subsidized. This suggests that future growth of commuter rail service will be affected by success of other strategies (van pooling, High Occupancy Lanes on freeways close to Washington), uncertainty of fiscal policies of the State and Federal governments, relative attractiveness of exurbia living and the cost-to-ride relative to other options.

### Other Strategies

High Occupancy Vehicle (HOV) lanes are programmed for the I-270 corridor of Maryland. When these lanes are open and if they achieve the success of HOV lanes in northern Virginia, they could attract some County commuters to use van pools. Although van pooling and HOV lanes are not, strictly speaking, public transportation, they achieve many of the objectives of public transportation. In numerous cities HOV lanes have attracted more commuters from using single occupancy vehicles than have heavy-or light-rail systems, although they have not received the fanfare that rail systems have. In the event a substantial trend of van pooling should develop marshalling areas will be needed at which van poolers can meet their vans and park their cars.

### OTHER ISSUES

#### Shepherdstown

Traffic passing through Shepherdstown must go through the intersection of Routes 45 and 480. Traffic at this intersection is controlled by stop signs on each of the four legs. Traffic volumes are high enough that there is a relatively steady flow of traffic to the intersection. With this four-way stop control vehicles are released onto Route 45 at a rate of about one every five seconds. This creates a situation whereby it can be difficult for vehicles desiring to enter Route 45 from adjoining properties. Signalization of the intersection would help relieve this situation because vehicles would be released from the intersection in "platoons", thus leaving longer gaps between platoons which entering or left turning vehicles could use.

The question as to whether or not there will be a Shepherdstown bypass is frequently asked. As of this time there are no solid proposals for such a bypass. Traffic volumes probably would not warrant such an effort for many years. However, in the process of development it would be useful if a secondary link between Route 480 and Route 45 were to result. This may be possible by linking future land development parcels in the area southwest of Shepherdstown.

## At-Grade Railroad Crossings

The 1986 Comprehensive Plan cited at-grade railroad crossings in the County as potential traffic hazards. As noted previously the WVDOH has been installing gates and warning lights at selected RR crossings. Emergency Services Companies have agreements relative to providing coverage when access is cut off by railroads. The Charles Town Bypass crosses two rail lines with grade separation structures thus eliminating the cut off problem in the adjacent areas.

## ISTEA

The scope of transportation related activities that are eligible for Federal funding was broadened by the Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991. Flexibility as to how States use their Federal allocation is a major element of this Act. The County needs to keep abreast of these decisions to identify opportunities for application of Federal funds to the solution of local problems and enhancement of the County transportation system. (More data is expected on this subject).

## RECOMMENDATIONS

Transportation problems in Jefferson County largely fall within the purview of State agencies. However, the County, by being aware of the State-of-the-Art of Federal and State transportation programs and by taking an active role in initiating actions to solve transportation problems, can maximize its role in planning and operating the transportation system.

The following recommendations are categorized to correspond with the headings used in the 1986 Comprehensive Plan.

### Land Use Regulations

- o Subdivision planning should provide for collector routes to connect large subdivisions.
- o Village center concepts should be investigated as a means of encouraging walking and bicycling as modes of transportation.
- o Developers of large subdivisions should be encouraged to provide commuter and van pool parking areas.
- o Zoning and subdivision ordinances should provide flexibility for locating commuter and van pool parking areas.
- o The Roadway Adequacy criterion of the LESA System should be reviewed for possible reclassification of roads to provide more road categories.

- o (1986) As areas for commercial and office use are developed, the high volume of traffic generated by these businesses should be channeled to roads capable of handling it. Two-lane roads with limited sight distances and many turns are not adequate for office and commercial uses. Residential, low density traffic uses should be placed along minor roads.

#### Coordination and Planning

- o (1986) Ways for routing traffic around Shepherdstown need to be explored as soon as possible.
- o (1986) Jefferson County should develop the public or private means to bring existing private roads up to State standards and to ensure that new private roads meet the appropriate design criteria where such roads are deemed to be candidates for inclusion in the State system.
- o (1986) The County should advocate the adoption of legislation which officially designates planned public highway improvements to reserve those corridors for acquisition and restrict private land and building development.
- o The County should participate in all public input stages of planning for limited access roads in order to influence the choice of locations.
- o The County should cooperate with the State rail agency in establishing a parking lot to replace the Harpers Ferry site if the U.S. Park Service closes the present site.

#### Access Control

All the recommendations from the 1986 Comprehensive Plan have been implemented.

#### Generation of Revenue

- o (1986) Residential or commercial developments should help pay for the improvements needed to accommodate increased traffic flow.
- o (1986) Federal funds should be sought to supplement State and local transportation funds.
- o (1986) County officials need to find methods of obtaining more State highway funds and of having increased control over locally generated tax revenue.

- o Determine how the County may benefit from the Federal ISTEA program to fund highway improvements, commuter services and pedestrian pathways.

#### Specific Improvements

- o The County should establish a process for making recommendations to the State that priorities be given to upgrading specific intersections, improve certain road alignments, create or widen shoulders, and improve at-grade railroad crossings.
- o (1986) The County should recommend that the state use the following priorities for road maintenance: Resurfacing, snow removal, shoulders, signs and signals, markings and trash removal.
- o (1986) The Governor should be encouraged to use his authority and direct the B & O Railroad to enlarge the Bakerton Underpass to three lanes.
- o The County should support the improvement of the U.S. Route 340 Shenandoah River Bridge and the Shepherdstown Bridge over the Potomac River.
- o The County should support the addition of basic services to the Duffield rail stop.
- o The County should support continuing efforts to enhance existing public transit services, especially the Pantran service.
- o Crossing gates should be encouraged on all railroad crossings.

## WATER RESOURCES

### INTRODUCTION

The following sections present an analysis of the water resources, an overview of current and anticipated problems, and recommendations for the future. In this chapter, as in virtually every section, the problems and resources of the municipalities must be considered when a comprehensive plan for Jefferson County is formulated, even though these municipalities have independent systems of land use planning and regulation. Central water facilities are located in these towns and generally have the capacity to accommodate some adjacent development. Since future growth is expected to take place primarily outside the incorporated areas, municipal and County needs will have to be carefully coordinated.

### WATER AVAILABILITY AND USE

#### Source

The Potomac and Shenandoah Rivers are utilized to provide water to five municipalities and areas surrounding those municipalities. Groundwater from wells and springs provides water to industry, agriculture, private water systems and single family homes. As of 1988, 58.5% of Jefferson County residents relied on surface water for their needs. The remaining 41.5% utilized groundwater from wells and springs.

While the greatest usage at present is surface water, the greatest potential for future use is groundwater. The U. S. Geological Survey study of Jefferson County's groundwater (Kozar and other, 1991) emphasized answering questions about quantity and quality of groundwater, particularly in the limestone (carbonate) areas of the county. Approximately 86% of the county is underlain by limestone. This study found that three limestone formations are the most productive. These formations underlie 55% of Jefferson County and yield about 86% of the total flow to springs in the County. The following summarizes the findings:

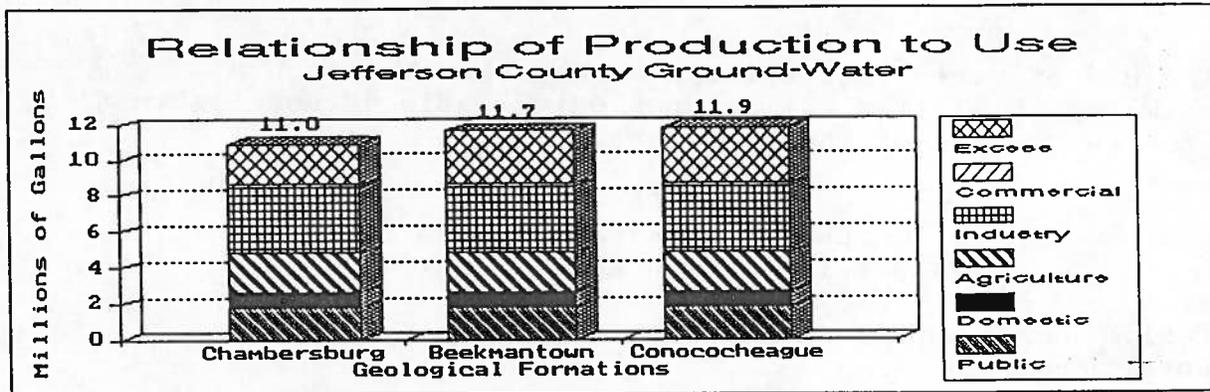
<u>Formation</u>	<u>Percent of County</u>	<u>Yield Range (galls/day/sq. mile)</u>
Chambersburg	4	1,300,000 - 1,500,000
Beekmantown	19	290,000 - 485,000
Conococheague	32	175,000 - 375,000

These formations alone conservatively produce 34.6 million gallons of water a day or an average yield of 300,000 gallons per day per square mile. The USGS study of the Potomac River Basin in West Virginia (Hobba and others, 1976) cites an average yield for the carbonate (limestone) aquifers (86% of the county) of 500,000 to 600,000 gallons per day (GPD) per square mile or 938 gallons per day per acre. This would suggest a total average yield from the carbonate aquifers of 90.7 million gallons per day.

Availability

Figure 2 below demonstrates that theoretically, when all the present uses of water are concentrated in one of the three geological formations, there is still an excess of available water.

FIGURE 2



This graph only shows how far these three aquifers could be stretched. It would be irresponsible for any planning body to base future growth on these figures.

Groundwater flow in the county is concentrated in secondary fractures in the rock, so there is a wide range of well yields depending, among other factors, on the depth of the wells and whether the well encounters significant fractures. It would not be possible or desirable to recover all of the available groundwater through wells. Under no circumstance should the groundwater withdrawal exceed the recharge rate to the aquifer. If the annual recharge to the carbonate aquifer is eight inches per year (Hobba and others, 1976), the total average daily groundwater recharge to the carbonate aquifers in Jefferson County is approximately 69.3 million gallons per day or 380,900 gallons per day per square mile. This is the figure that should be used to evaluate the impact of future development in 86% of the County.

The western flank of the Blue Ridge Mountain east of the Shenandoah River is an area where there are many residents. There is much less potential for continued growth based on utilizing groundwater for individual homes. Groundwater recharge is much less on the steep slopes and the poor aquifer of medasedimentary rocks. Hobba (1976) cites a yield of 100,000 to 200,000 gallons per day per square mile or 312 gallons per day per acre for these aquifers. A liberal estimate would suggest that this is only a third of the water that is available from the carbonate aquifers in Jefferson County (312 vs. 938). The West Virginia Department of Health uses 70 gallons per person per day as a design standard. This suggests a one acre lot on the Blue Ridge will have enough water for a family of 4 to 5 people. Just like in the carbonate aquifers, there is a wide range in the yield of wells drilled in these aquifers. It will not be possible to recover all of the available groundwater through wells.

Use

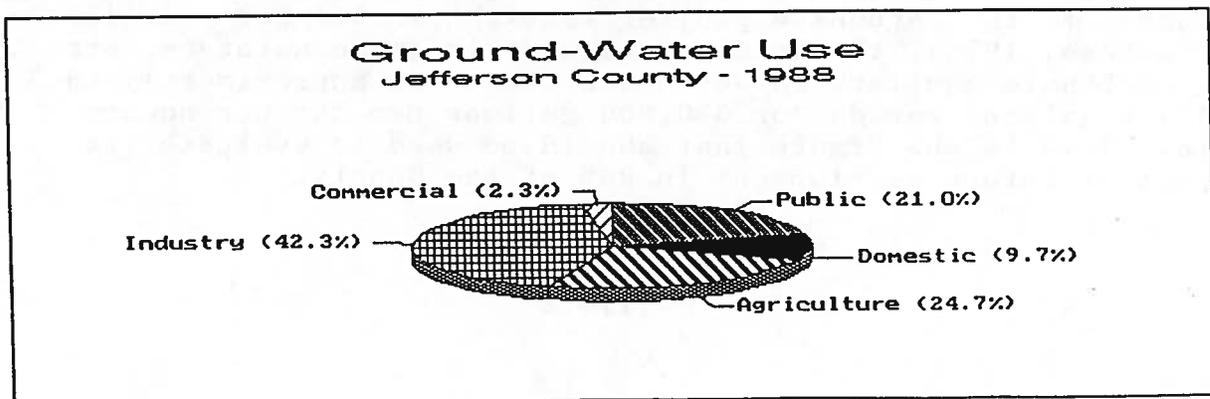
The use of water in Jefferson County was estimated at approximately 9 million gallons per day. Table 43 and Figure 3 show the categories of the end users:

TABLE 43  
GROUNDWATER USE IN 1988  
(values in million gallons per day)\*

Public water supply	1.83
Rural Domestic	.85
Agriculture	
Fisheries	1.10
Dairy Facilities	.47
Irrigation (spray arch)	.58
Industry	1.69
Mining	2.00
Commercial (motels, schools)	.20
TOTAL	8.72

\*Geohydrology, Water Availability and Water Quality  
of Jefferson County, 1991

FIGURE 3



## PUBLIC WATER SYSTEMS

### Systems

At present, the District Office of the West Virginia Health Department monitors 33 community systems and 10 transient water systems in Jefferson County. Map 4 shows the locations and Table 44 contains a list of these systems. Community systems are defined as those which provide a domestic water supply. Transient systems are those which provide water for at least 75 users at least 60 days per year. These include such systems as schools, federal installations and the County's industrial park. Community water systems serve a population of over 20,700. Three major public systems supply over 65% (13,380) of the population. These public-operated central water systems serve the municipalities of Charles Town/Ranson (7,280), Shepherdstown (4,500) and Harpers Ferry/Bolivar (1,500). Surface water is the source of their water. Water treatment by privately operated central systems constitutes the balance of the community systems. These thirty (30) systems serve approximately 7,400 people. They have an average population of only 245 people with a range of between 38 and 1500 persons per system. The smaller systems are generally limited to chlorination to eliminate pathogenic organisms.

Many of these systems were installed before the Planning Commission had design standards. Several of these systems are not providing an adequate and safe source of drinking water on a consistent basis. More than one has gone into receivership and will eventually be taken over by the Jefferson County Public Service District. These aging and poorly designed systems will need to be upgraded with little or no federal or state funds to lessen the financial burden on the Public Service District or the users of the water system.

### Safe Drinking Water Act and Other Rules

The 1986 Amendments to the Federal Safe Drinking Water Act will have major affects on these water systems and may create an economic hardship on the small systems. The following highlight these amendments:

#### Surface Water Treatment Rule

1. Water must be filtrated.
2. Wells that have certain characteristics will be considered surface water and must be filtrated.

#### Lead and Copper Rule

1. All systems are responsible for treating water so it is "nonaggressive" to the plumbing in the home and the distribution lines of the system.
2. Additional costs for treatment to change the pH are possible.

#### Monitoring

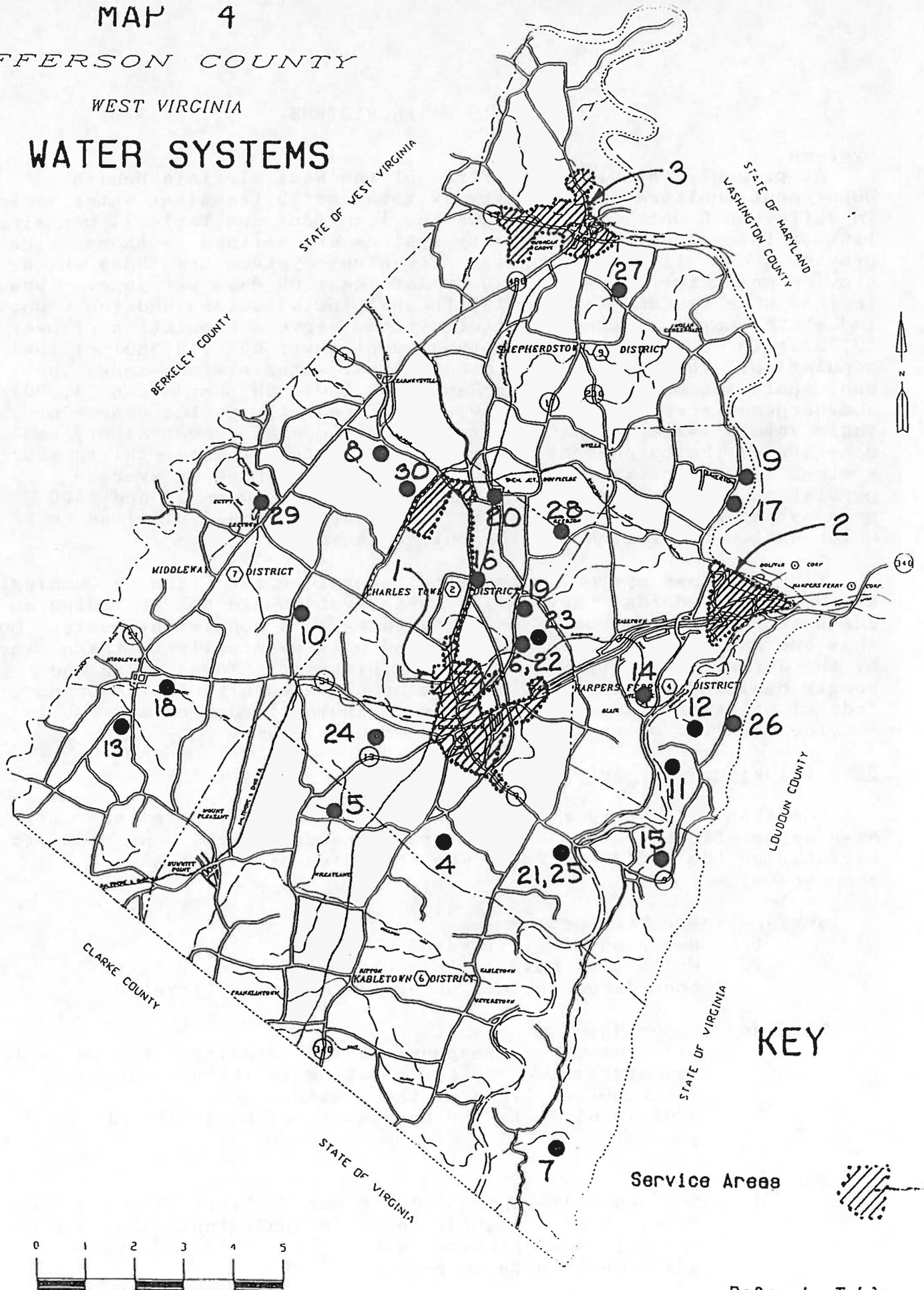
1. Systems will be required to monitor initially and possibly on a regular basis for pollutants that may be found in the drinking water. This will add some additional costs to providing water.

# MAP 4

## JEFFERSON COUNTY

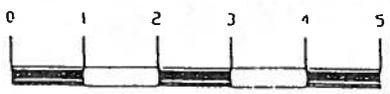
WEST VIRGINIA

# WATER SYSTEMS



### KEY

Service Areas



Refer to Table for Names

Non-transient, non-community systems will be required to meet these requirements as well. This includes such facilities as public schools, the County's industrial park, Charles Town Races and other facilities where twenty five (25) people consume water at least 60 days a year. Sanitary surveys will be completed once every five years for groundwater systems and once a year for surface water systems by the West Virginia Department of Health.

Water systems in Jefferson County must meet the requirements of the West Virginia Department of Health. The County Subdivision Regulations contain engineering design provisions for central water systems and also incorporate the State Health Department's requirements by reference. The largest problem with the installation of these systems is the lack of on site inspections during construction.

## WATER QUALITY

### Private Wells

The installation of private wells is regulated by the Health Department and the Planning Commission. Many wells, constructed before current regulations were in place, have a greater susceptibility to surface water contamination from pollutants such as fertilizer and pesticides. This not only applies to wells located on farms, but also to the average home owner who uses these same products to achieve a well maintained lawn and garden. In three separate studies, namely the National Survey of Pesticides in Drinking Wells, a study done by Dr. Henry Hogmire of the West Virginia Experiment Farm on water quality of wells in orchards and the results of well sampling by the U. S. Geological Survey (USGS) in Jefferson County, found that shallow, ungrouted wells had the greatest potential for contamination.

Although the County possesses substantial groundwater resources, they are easily accessible and susceptible to damage. The geological formations of the County which provide abundant water fail to provide adequate groundwater protection. Sinkholes, rock outcroppings and fissures provide open channels for animal and human wastes, petroleum products, and stormwater runoff to directly enter and contaminate groundwater resources. Nitrates have been mentioned in studies done by the USGS as a contaminant found in many of the wells surveyed. Other work done by the Jefferson County Extension Service in 1989 found nitrates in 31.6% of the wells tested over a short period of time. In other study of wells done by the Extension Service in cooperation with the District Health Office, samples of wells were taken over a year and a half on a quarterly basis. These results showed that a highly variable level of nitrates could be found in wells with no correlation to the time of year or rainfall. Levels above the drinking water standard for nitrates were found in grouted as well as ungrouted wells.

## USGS Study

The 1991 study by the USGS did not show significant change in the water quality between samples taken in 1974 and samples taken in 1988. This despite the fact that many of the wells surveyed were susceptible to surface water contamination.

## Protective Measures

The agriculture community, through the efforts of the Soil Conservation Service (SCS), has begun a program to visibly mark sinkholes in fields and create a buffer zone of permanent vegetation to filter contaminants and keep the application of fertilizers and pesticides away from the sinkhole. The SCS is also exploring a method of capping sinkholes to prevent infiltration of surface water. The Extension Service in cooperation with the SCS is also assisting agricultural producers to use less commercial fertilizers and give more credit to the nitrogen provided by the animal manures. One producer is lowering the potential for nitrate contamination by composting the animal manure which consumes a portion of the nitrogen in the breakdown of organic matter.

Groundwater has the greatest potential to be the primary water resource for the County's residents and businesses. Policies adopted by the County and other agencies should provide for the optimum management and protection of groundwater. In addition, County and state agencies must recognize that presently, the majority of residents rely on surface water and must be aggressive in protecting these water resources.

## FIRE PROTECTION

Adequate protection from fire is greatly dependent on the accessibility of adequate water supplies. At present, there are several parts of the county where adequate, easily accessible supplies are several miles away. Of the 33 public and private systems, only seven (7) have the capacity to provide fire protection for themselves or others by hauling the water. Other sources of water utilized in fighting fires include farm ponds and streams. A dry hydrant has been installed at Shannondale Lake which allows for fire equipment to pump directly from lake without a loss of pump efficiency. Further evaluation of a "pumping well" is being done by local fire fighters. This would be placed in water a source to create an area where efficient pumping could occur.

## ANALYSIS OF PROBLEMS

This section needs to be read in conjunction with the section on Wastewater Treatment. Both of these areas are closely related, and changes in one can produce profound effects in the other. For example, virtually all common methods of treating wastes require quantities of water to operate properly. Therefore, the availability of water resources must be considered as part of the process of identifying problems and developing methods of wastewater treatment. In addition, improperly constructed or poorly functioning wastewater treatment facilities will reduce the amount of clean water available for other uses. Finally, all methods of wastewater treatment, from the largest central facilities to the smallest residential drainage/septic fields, produce solid waste. These solids must be disposed of properly to ensure a safe drinking water supply in the future.

### Private Wells

- o Approximately 16,000 Jefferson County residents obtain their water from individual wells. Shallow, (less than 100 feet), ungrouted wells can be susceptible to contamination from surface pollutants and act as a channel to pollute groundwater. Wells, grouted or ungrouted, are also susceptible to groundwater degradation from contaminants entering from sinkholes, rock outcroppings, and other fissures. This hazard is particularly great in older communities and in homes with relatively shallow (less than 100 feet) wells.
- o The results of the USGS Study of 1991 shows that the groundwater supply in 86% of the county is adequate to sustain additional development with a reliance on individual wells for homeowners. The challenge is to utilize this study to monitor what portion of a particular aquifer is already committed to domestic or industrial use and how much may be an adequate buffer to ensure an adequate supply in times of severe drought or other natural disaster.
- o The use of private wells does have the potential to diminish groundwater resources, especially in small lot residential developments being served by aquifers (underground sources) of limited yield. This would be more prevalent in the Berkeley Shale near the Opequon and the West Flank of the Blue Ridge Mountain.

### Privately Operated Public Water Systems

- o Additional requirements to meet water quality standards spelled out in the Amendments to the Safe Water Drinking Act will add more financial burden to smaller, older systems. In some cases, the water system service area and the demand exceeds the system's design capacity, especially for systems installed before design standards were adopted. In some other instances, the actual construction of water systems may not have been consistent with the engineered construction plans approved by the public agency. Inadequate inspection during the construction phase of the system has led to problems as well. Failure of more of these systems to provide a safe and adequate source of drinking water is possible.
- o Central water systems permit more intensive (higher density) development than do private wells. Present regulations allow the use of central water systems on any site within the County as long as such systems comply with applicable design standards. The economic viability of small systems has been reduced due to the new regulations discussed earlier. This mix of approval and regulation could lead to an increase in the number of systems that must be taken over and managed by the county at a loss.
- o The current Subdivision regulations require that central water systems meeting certain minimum pressure and flow rate standards must also provide fire hydrants. This requirements may be an incentive for subdividers to construct inadequate systems. A more rational requirement would link the provision of fire hydrants to the density of development and fire/rescue station needs. (In addition, the threading and size of hydrant couplings is not presently standardized, which lessens the effectiveness of fire/rescue services.)

### Municipal Water Systems

- o The incorporated towns of Shepherdstown, Harpers Ferry/Bolivar, and Charles Town/Ranson rely heavily on surface water as their source of potable water. Surface water resources are much more susceptible to contamination from various sources, including urban stormwater runoff, agricultural field runoff, and septic system effluent.

## RECOMMENDATIONS

Many of the recommendations proposed below cannot be implemented without adequate manpower through volunteers or additional employees to monitor water quality and enforce regulations. One of the primary responsibilities of the County should be to develop a mechanism by which all county agencies responsible for ensuring adequate and safe drinking water share and provide information to each other. The agencies involved should be led by the Planning Commission and would include the West Virginia Department of Environmental Protection, West Virginia State Health Department, Jefferson County Health Department, Eastern Panhandle Soil Conservation District, West Virginia University Extension Service, and private citizens with expertise in this area. This group has multiple talents and multiple sources of information to assist decision makers in setting planning priorities by coordinating the vast amount of water quality and quantity data on Jefferson County. This group could also provide guidance on how to fill in the "gaps" of knowledge that might exist.

### Private Wells

- o The County should establish a program of periodically monitoring the quality and quantity of selected well water sources, especially those in potential problem areas. More specifically, a two to five year study should be done to evaluate water availability on the east flank of the Blue Ridge Mountain. An annual status report should be completed by the Planning Commission and submitted to the County Commission which provides updated information on the County's groundwater resources.
- o In agricultural areas served by private wells, the County should review minimum lot size requirements and setbacks to ensure the continued availability of potable groundwater.

### Privately Operated Public Water Systems

- o When persons proposed to subdivide lots within a development and add these new lots to the development's existing central water system, the County should continue to require such subdividers to adequately demonstrate that the additional lots can be served without a significant adverse effect on the quality and quantity of the water system.

- o The County should critically examine the design standards contained in Section 8.2(d) of the Subdivision Regulations to determine if revisions are necessary to assure that water system design standards are appropriate to the scale of proposed development.
- o To assure that central water systems are constructed in conformance with engineered construction plans, the County should provide professionally trained inspectors who have a civil engineering background.
- o The County should adopt a policy of permitting the construction and use of central water systems only in areas that are appropriate and designated for more intensive development by the land use plan.
- o The County needs to work cooperatively with volunteer fire departments to create appropriate fire suppression standards for all new development. The Subdivision Regulations should be amended to reflect accepted fire suppression standards. A committee, possibly including one representative from each volunteer fire company and the Emergency Services Director should be formed to examine fire suppression standards and make specific recommendations to the County Commission for ordinance amendments. This committee should also evaluate and identify potential water sources that could be upgraded to provide a more complete network of fire protection.

#### Municipal Water Systems

- o To protect areas that make use of surface water, the County should adopt and administer an effective stormwater management program/ordinance that maintains or improves the quality of the County's surface waters.
- o To protect areas that make use of surface water, the County should adopt a program in conjunction with the local Soil Conservation Service and Extension Service which encourages local farms to use the best management practices (BMP) in their agricultural operations. These practices include maintaining undisturbed/untilled strips of land adjoining stream and creek banks, siting manure management facilities to minimize discharges of raw water into stream channels, and the appropriate application of nutrients and pesticides to agricultural crops and fields.
- o An erosion and sediment control ordinance should be adopted.
- o The types of soils and the availability of groundwater supplies should be used to determine if a large subdivision should be required to use a central water system.

TABLE 44

## JEFFERSON COUNTY WATER SYSTEMS

System	Source	Treatment	Capacity	Service Area	Population	Fire Protection
<b>MUNICIPAL SYSTEMS</b>						
Charles Town	Shenandoah River	Complete	3,000,000	Charles Town/Ranson	7,000	Yes
Harpers Ferry/Ranson	Potomac River	Complete	700,000	Harpers Ferry, Bolivar Cliffside, Cavalier Heights	1,500	Yes
Shepherdstown	Elk Run Potomac River	Filtration Chlorination Carbon Feed Filtration	500,000	Shepherdstown, Rt. 45 N to Heatherfield, Mecklenberg, Willowdale, and Shepherd College	4,500	Yes
<b>PRIVATE SYSTEMS</b>						
Cave Quarter Estates	Well	Chlorination	2,000	Same	40	No
American Society for Continuous Education	Well	Chlorination	1,200	Same	100	No
Fox Glen	Well	Chlorination	1,500	Same	800	No
Glen Haven	Well & Spring	Chlorination	1,500	Same	1500	No
Green Acres Trailer Park	Well	Chlorination	--	Same	70	No
Harpers Ferry Mountain Club	4 Wells	Chlorination	20,000	H. F. Campsites	350	No
Keyes Ferry Acres	4 Wells	Chlorination	100,000	Same	530	No
Leights Trailer Court	2 Wells	Chlorination	--	Same	80	No
Millville Water System	Well	Chlorination	--	Same	87	No
Ott's Mobile Home Park	Well & Spring	Chlorination	1,000	Same	120	No
Parkview-Woodland	Well	Chlorination	700	Same	300	No
Potomac Farms	Well	Chlorination	30,000	Same	75	No
Security Hills/Walnut Grove	Well	Chlorination	20,000	Same	450	No
Shenandoah Junc. /Witch Hazel	Well	Chlorination	20,000	Witch Hazel & Part of Shenandoah Junction	400	Yes
Shenandoah Plantation	2 Wells	Chlorination	--	Same	200	No
Mobile Home Park	Well	None	--	Same	42	No
Shockey's Mobile Home Park	Well	Chlorination	20,000	Same	1350	Yes
Tuscawilla Hills	Well	Chlorination	--	Same	60	No
Valley View Mobile Home Park	Well	Chlorination	5,500	Same	275	No
Westridge Hills	Well	Chlorination	--	Same	117	No
South Cavaland	Well	Chlorination	10,000	Same	40	No
Russells Mobile Home Park	Well	Chlorination	1,500	Same	45	No
Potomac Terrace	Well	Chlorination	1,500	Same	68	No
Kratz Mobile Home Park	Well	Chlorination	2,000	Same	70	No
Dillows Mobile Home Park	Well	Chlorination	--	Same	280	Yes
Sanitary Association	Charles Town Water	--	2,000	Same	38	No
Graves	Well	Chlorination	--	Same		

## WASTEWATER TREATMENT

### INTRODUCTION

The following section presents an analysis of wastewater treatment, an overview of current and anticipated problems, and recommendations for the future. In this chapter, as in virtually every section, the problems and resources of the municipalities must be considered when a comprehensive plan for Jefferson County is formulated, even though these municipalities have independent systems of land use planning and regulation. Central wastewater treatment facilities are located in these towns and generally have the capacity to accommodate some adjacent development. Since future growth is expected to take place primarily outside the incorporated areas, municipal and County needs will have to be carefully coordinated.

In the survey conducted by the Citizen's Advisory Committee in 1985, groundwater quality was perceived as one of the top ten problems in the county, while failing septic systems and wastewater treatment were not perceived as serious concerns at the time. However, water may be unsafe to use even when it tastes, looks, and smells acceptable. Organic clogging of drainage/septic fields and contamination of groundwater can occur quietly and invisibly.

On the other hand, the 1991 USGS Groundwater Study indicates that groundwater quality improved slightly or remained unchanged since the 1981 study. During that time nearly 4,000 on site sewage systems were installed in Jefferson County. Fecal coliform/fecal streptococci ratios indicate that about 90% of bacterial contamination in the study samples were of animal not human origin.

However, many communities throughout the country have learned the hard way that clean water is one of their most valuable resources and that water quality cannot be maintained without adequate methods of wastewater treatment and solids disposal. Once groundwater becomes polluted, the condition is virtually irreversible. Growth and development may stop, the local economy may suffer, and public health may be jeopardized. For these reasons, future residential and commercial development must not take place at the expense of water quality, wastewater treatment, or solids disposal.

### EXISTING WASTEWATER COLLECTION AND TREATMENT SYSTEMS

#### Package Plants

Residential development in rural areas has increased substantially during the last 15 years and has made use of package treatment facilities. There are nineteen (19) of these private systems located throughout Jefferson County. Nine of nineteen would be considered transient systems if they were also providing water. These nine systems do not have permanent residents and fall into categories such as schools, motels and places of work.

## Municipal Systems

The three main population centers of our County--Charles Town/Ranson, Shepherdstown, and Harpers Ferry/Bolivar, all have excellent sewage treatment plants that serve the municipalities and some of the surrounding countryside. See Map 5 for locations and Table 45 for names of municipal and private sewage treatment plants.

## Public Service District

Jefferson County has a Public Service District (PSD) to collect sewage and wastewater outside of the municipalities. The PSD is presently made up of three board members appointed by the County Commission and a general manager and secretary selected by the board members. Presently the PSD has a collection line west of State Route 9 to the Burr and Bardane Industrial Parks. This line also serves the T. A. Lowery Elementary School. Another line extends north along State Route 17 towards Shepherdstown and serves a concentration of residences near Flowing Springs. A third line extends east on State Route 340 to the area near Charles Town Races. These collection lines will provide adequate service to these areas for future growth. The present lack of growth is placing a financial strain on the PSD, present users and those developers who would like to hook on. The PSD has one of the highest rates in West Virginia because of the lack of users and the cost of installing these extensions. Little state funds were available to install these lines leaving more than 25% local share to be paid in customer rates (approximately \$3 million).

## PRIVATE INDIVIDUAL TREATMENT

Traditionally, pit privies and septic/drainfield systems provided the exclusive means of wastewater treatment for Jefferson County. Given the agricultural nature of the County, these systems posed little or no danger to the community and natural environment.

## Potential for Malfunction

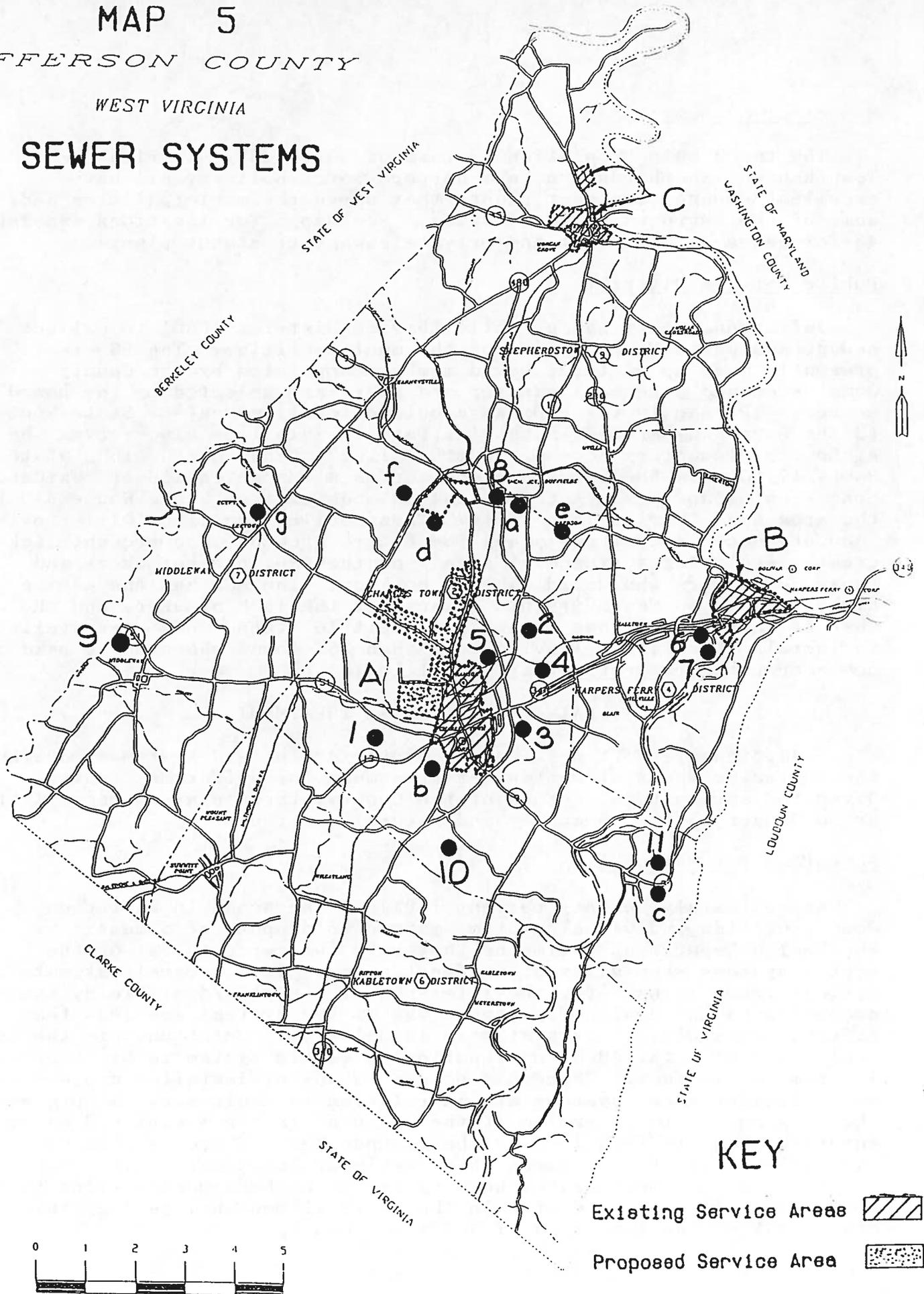
Approximately seventy percent (70%) of the homes in Jefferson County utilize individual septic systems to dispose of domestic waste. The Health Department estimates that only two percent (2%) of the septic systems show signs of malfunctioning. If a liberal estimate of fifteen years is used for the life span of a septic/drainfield, then according to the Health Department 98% of the systems are less than fifteen years old. This statistic is unlikely. Unfortunately the only evaluation of a failed or malfunctioning septic system is by observing it from the surface. There has been no study of installed systems and how efficient these systems are in relation to their age. At present there is no way to determine if the effluent in the drainfield may be entering channels that lead to the groundwater. There is also no available scientific research which would assist planners in determining how concentrated housing can be without compromising the potability of the groundwater in the Karst (limestone) geology that covers 86% of the land area of Jefferson County.

# MAP 5

## JEFFERSON COUNTY

### WEST VIRGINIA

# SEWER SYSTEMS



## KEY

- Existing Service Areas
- Proposed Service Area



## Soils Suitability and the Soils Survey

One of the resources that is available that has not been used to make decisions on the concentration of housing is the Soil Survey of Jefferson County. This document provides a listing of the suitability of soils for septic tank drainage fields. A map of Jefferson County with the soil suitability reveals that the areas with the greatest limitations (moderate to severe) are also areas where existing developments have lots of an acre or less. The largest area is the west flank of the Blue Ridge Mountain is approximately eighty percent (80%) severe with only a scattered twenty percent (20%) in a line from north to south. The second largest area is from the southern most corner of Jefferson County along Opequon Creek to just north of Leetown. The majority of this area is west of the Leetown/Middleway Road. This area includes the communities of Middleway and Leetown as well as several developments. The third area is north of Shepherdstown along the Potomac River. Almost all of Terrapin Neck is slight to severe in suitability. This area also has several developments of various lot sizes. Another area of the county that has a severe rating in suitability and has a concentration of homes is the community of Kearneysville.

### SOLIDS DISPOSAL

The West Virginia Department of Environmental Protection has taken over the responsibility of regulating the disposal of septage and sludge from wastewater treatment plants.

#### Septage

Septage (septic tank solids) has routinely been disposed of within the County by using the trench and fill method. Trench and fill involves dumping septage into 4- to 10-foot-deep trenches, adding lime, and eventually back filling after several applications. This methods will no longer be accepted as an approved method for disposal. While dumping septage at a larger sewage treatment plant is an approved method of disposal, Charles Town can handle a portion of the septage generated. Septage stabilized with lime will be applied to the land.

#### Sludge

Stabilized municipal sludge from Shepherdstown and Charles Town is utilized by the agricultural community as a plant nutrient. This method of disposal is monitored by the DEP and application recommendations are made by the WVU Extension Service. Other municipal and private plants may take advantage of this disposal methods as the costs of disposing in sanitary landfills increase.

## RECOMMENDATIONS

Specific recommendations related to wastewater treatment are discussed below. All methods of wastewater treatment, from the largest central facilities to the smallest residential drainage/septic fields, produce solids that must be disposed of properly. The agricultural community under the guidance of the DEP and the Extension Service can utilize these nutrients to replace commercial fertilizers.

The ability to access records of the County Health Department about well and septic tank installation may not be as easy as desirable. There is a need for better accessibility of these records with which to make long term decisions and look at trends. Another ability that would be desirable, is the ability to place each well and/or septic system on a map based on its latitude and longitude. This technology is available and should be utilized.

### Public Wastewater Treatment Plants

The number of residents that can be served by the Public Service District depends, in part, on the amount of water that is available. If water is wasted or not used efficiently, the PSD will be faced with either limiting service or finding new sources of water.

- o All new and remodeling construction in the County should be required to use water-saving shower nozzles and toilets. Water-saving devices would allow more homes to be added to the Public Service District system and user costs would be minimized.
- o Building central wastewater treatment plants involves large capital expenditures. The availability of State and Federal funding for public central wastewater treatment plants continues to be limited and will probably remain so indefinitely.
- o Jefferson County should actively seek Federal and State grants and matching funds, augmented by local bond issues which are repaid through user fees, to construct the facilities that the residents of Jefferson County will require. Such methods of financing should be continued to insure that localized projects are not a burden to the general taxpayers.

- o A capital improvement plan should be developed to set priorities for which areas of the county have failures of domestic disposal systems and would cause the largest risk to public health and groundwater. This plan should consider the latest technology to reduce installation and operating costs of any proposed system. The plan should also be conscious of the growth policies in Jefferson County. This means that public systems should not proliferate the farming districts.
- o Whenever existing municipal sewage treatment plants are expanded or new central treatment plants are built, facilities should be provided for some septage disposal. Funding should be actively sought to help municipalities build such facilities.

#### Private Treatment Plants

There are nineteen privately operated package treatment plants within the County. Many of these plants have a life span that may require costly maintenance or replacement.

- o Presently, the Department of Environmental Protection can approve a developer's industrial discharge permit (NPDES application) without the knowledge or approval of the County. The County should work with DEP to adopt a policy of forwarding all applications to the County for review and comment. The County currently has the authority to review the erosion and sediment control plan as well as the SWM NPDES application.
- o The County should support the adequate staffing of the State Department of Environmental Protection.
- o Since the Public Service District may take over some package treatment plants in the future, the County should require that performance and maintenance bonds be posted before approval is given to any subdivision to be served by a package treatment plant.

#### Residential Wells and Septic Systems

Small lot residential development using wells and septic systems presents potential problems because systems can be located near one another. At present, subdivision regulations permit a well and septic system to be installed in a lot of at least 40,000 square feet. (An acre is 43,560 square feet.)

- o The Jefferson County Soil Survey shows that there are several areas of the County that are not suitable for extensive concentration of residential septic systems. The limitations of the soil should play a role in determining how large lots should be so that adequate treatment and an accepted drainfield life span is obtained.
- o A study should be done to determine the relationship between housing density and the efficiency of septic drainage fields. This is most important in the limestone region of the county. At this point there is no scientific research to assist planners and others concerned with groundwater quality with this question.
- o The County should explore other methods of sewage discharge other than the "septic system only" approach.
- o The types of soils should dictate allowed lot size and when a central system should be required.

TABLE 45

## WASTEWATER TREATMENT PLANTS

FACILITY NAME	CAP MGD	RECEIVING STREAM	LOCATION	LATITUDE & LONGITUDE
Blue Ridge Elementary School	0.012	N. B. of Forge Run	Harpers Ferry	39° 14' 36"N 77° 47' 20"W
Cave Quarters Estates	0.123	Evitt's Run	Charles Town	39° 15' 25"N 77° 51' 32"W
Cliffside Motor Inn	0.03	Alstad's Br. of Shenandoah	Harpers Ferry	39° 18' 55"N 77° 46' 05"W
City of Charles Town Jefferson County PSD Town of Ranson	1.2	Evitt's Run	Charles Town	39° 16' 44"N 77° 51' 24"W
Harpers Ferry\Bolivar PSD	.3	Shenandoah River	Harpers Ferry	39° 19' 30"N 77° 44' 43"W
Harpers Ferry Job Corp	.01845	Elk Branch of the Potomac	Harpers Ferry	39° 02' 30"N 77° 48' 38"W
Harpers Ferry Caverns MHP	.03	Elk Run	Harpers Ferry	39° 02' 30"N 77° 46' 50"W
Harpers Ferry KOA Campground	.035	Shenandoah River	Harpers Ferry	39° 18' 48"N 77° 45' 48"W
Jefferson County High School	.025	Elk Branch	Charles Town	39° 21' 15"N 77° 50' 25"W
Jefferson County PSD		Charles Town Sewage Collection System	Ranson	
Locust Hill STP	(3) 100,000	Evitt's Run	Charles Town	
Ott's Mobile Home Park	.015	Forge Branch	Harpers Ferry	77° 47' 0"N 39° 14' 45"W
Page Jackson Elementary School	.012	Unnamed Tributary of Evitt's Run	Charles Town	39° 16' 28"N 77° 53' 25"W
Priest Field Pastoral Center	.017	Opequeon Creek	Kearneysville	33° 19' 08"N 77° 59' 22"W
Prospect Hall Shooting Club	.00272	N/P Pond	Kearneysville	39° 16' 41"N 78° 50' 41"W

TABLE 45 (Continued)

WASTEWATER TREATMENT PLANTS

FACILITY NAME	CAP MGD	RECEIVING STREAM	LOCATION	LATITUDE & LONGITUDE
Shenandoah Downs Race Track	0.1	Flowing Springs Run	Charles Town	39° 18' 06"N 78° 50' 41"W
Sanitary Associate's Limited Partnership	0.135	Flowing Springs Run	Charles Town	39° 18' 20"N 77° 49' 45"W
Shepherdstown STP	0.4	Potomac River	Shepherdstown	39° 25' 55"N 77° 47' 55"W
Tusawilla Utilities	0.196	Evitt's Run	Charles Town	39° 17' 45"N 77° 54' 03"W
USDA Appalachian Fruit	.006	None	Barbane	39° 21' 40"N 77° 52' 31"W
Willow Spring PSC	0.1	Cattail Run	Charles Town	39° 17' 30"N 77° 50' 17"W
Witch Hazel Mobile Home Park	0.018	Elk Run	Shenandoah Junction	39° 21' 30"N 77° 51' 40"W
WV Department of Highways	0.018	None	Leetown	39° 20' 13"N 77° 54' 54"W

Note: ^ = Degrees  
 ' = Minutes  
 " = Seconds

## SOLID WASTE

### INTRODUCTION

The Solid Waste chapter in the previous Comprehensive Plan dealt with the disposal of Jefferson County's solid wastes in a simple, traditional fashion. Its authors warned that by 1991 the Leetown landfill could be filled to capacity. They urged that by no later than early 1989, efforts be initiated to expand the existing landfill or acquire a new site.

Since the previous plan was drafted, there has been a widespread rapidly growing awareness of the need to more closely regulate the disposal of solid wastes to safeguard the public's health and safety. Two major developments in the fall of 1991 eliminated the options set forth in the previous Plan - expanding the existing landfill or acquiring and developing a new site.

#### Closure of Leetown Landfill

The first event occurred on September 3, 1991. On this date the West Virginia Division of Natural Resources (DNR), directed that the Leetown landfill "Cease and Desist" accepting solid wastes for burial. The closure order was based upon DNR's determination that continued operation of the unlined landfill created potential health and safety problems.

#### Senate Bill No. 18

The second event was the enactment of Senate Bill No. 18 in October, 1991. This comprehensive piece of legislation closely regulated every major aspect of solid waste collection and disposal. The legislation also set statewide standards and goals for recycling. Its most important feature, however, was that it established a closure assistance fund to be financed by a tax on tipping fees. The County Solid Waste Authority has been accepted for closure assistance and has begun engineering to monitor, cap and remediate the landfill. Construction is slated to begin in 1995 with monitoring programs to continue for thirty years.

### ANALYSIS OF PROBLEMS

#### Unsuitable Geology

For the above reasons, it is no longer realistic for the Government to talk about expanding the Leetown landfill or developing a new site somewhere else in the County. Because the limestone which underlies most of the County, contains many fractures which could allow surface liquids to reach the water table, it is inherently unsuitable for use even for a state of the art landfill. Further, the cost of constructing a new landfill

which met state standards, would be in the range of \$450,000 - \$500,000 per acre. Thus, even if a suitable site could be located, the construction cost for a modest 40 acre landfill would be around \$22-25 million. In short, it would be one of the costliest public facilities in the county.

### High Costs

With the closure of the Leetown landfill and the reality that we can neither find a suitable new site nor afford to construct a triple lined landfill, it is difficult to envisage a low cost stable solution to Jefferson County's solid waste disposal problems. For the foreseeable future, Jefferson County will be in the vulnerable position of having to dispose of its solid waste in out-of-county landfills. Due to our dependency upon the cooperation of out of area landfill operators whose charges are not subject to control by Jefferson County officials, it will be difficult to assure County residents that their waste disposal costs will be relatively reasonable and stable over the coming years.

### Future Costs

The fact is, that all landfills have limited capacity. The day will come when the landfills presently accepting wastes generated in Jefferson County, will be forced to close too. There is, therefore, little prospect that costs of disposing of wastes - anywhere- will decrease or even stay level. The opposite is much more likely. Currently, county wastes are trucked to the L.C.S. landfill in Hedgesville, West Virginia, at \$38.70 per ton costs which greatly exceeds the pre-closure tipping fees charged at the Leetown landfill.

### Recycling Program

If waste disposal costs are to remain relatively stable, we are going to have to continually reduce the tonnage of materials destined for burial in a landfill. An effective recycling program is one of the easiest and most direct ways of reducing the waste stream. The term, "effective recycling program" has at least two major elements. First, we must achieve a high level of participation by all generators of solid wastes. Second, we must maximize the range of materials which are recycled. It is hoped that the countywide recycling program unanimously approved by the County Commission on August 24, 1992 will result in the establishment of a program which meets these criteria.

The county-wide curbside recycling program was started in July, 1993. At present the program provides residents with the opportunity to recycle paper, most plastics, glass bottles, aluminum and bi-metal cans. Although modest tonnages were collected in 1993, the curbside program has great potential if all citizens on disposal service participate. The hauler estimated a 90% participation rate among customers on handling service in 1993. Waste generators that need to develop a full range of recycling programs participation is: the five municipalities, county, state and federal government agencies within the county, the county school system, and all commercial and industrial generators. To date no municipality in the County offers a curbside recycling pickup other than newspaper. Government agencies and commercial/industrial concerns are required to participate in a recycling program by Senate Bill 18 and the County's recycling ordinance.

The County's recycling program experienced a boost when in November of 1993 the Department of Natural Resources amended the Jefferson County Solid Waste Authority's recycling grant to allow the authority to use the \$100,000 state recycling grant to begin a regional wood and yard waste recycling program as well as a county-wide used motor oil collection program. The grant was used to purchase a large 300 HP industrial tub grinder to grind wood waste and yard waste into mulch and compost material. In addition the grant has purchased (ten) 275 gallon fuel tanks to be placed geographically throughout the county to collect used motor oil. The oil will be picked up by a used oil recycler and used to produce new oil products. The yard waste recycling program is estimated to potentially reduce the county's waste stream by 10 to 20%. All residential and commercial yard waste, wood, brush, and pallet producers must be encouraged to participate in this program that is located at the recycling site adjacent to the old county landfill. White goods, steel, and tires are collected and sent on to recyclers from the County's waste station at the old landfill on Route 15 east of Leetown.

As the complete program is successfully developed, the County should be able to meet the reasonable waste reduction goals of 30% by January 1, 2000 and 50% by January 1, 2010 compared to the waste tonnages generated in 1991.

Recyclable materials collected in Jefferson County will, in the short term at least, be processed and marketed at Waste Management Inc.'s facility in York, Pennsylvania. In the longer term, it is hoped that all recyclable materials could be processed at the Jefferson County Solid Waste Authority's material recovery facility at the Leetown landfill. Though the building needs to be finished and equipped, several firms have already expressed interest in operating the center. However, all interested parties agree that to justify the cost of equipping the plant they must have a regular, continuous supply of materials flowing through the plant.

## A Regional Approach

The generally recognized minimum volume for a profitable recycling operation is 100 tons of materials per day. Even if there was a 100% participation rate by residents, businesses, industry and all the public agencies in Jefferson County, the total amount collected would be around 30 to 40 tons per day - far short of the required minimum. The Jefferson County Solid Waste Authority (JCSWA) has therefore concluded that the only workable solution is to persuade our neighboring counties to participate in a joint regional effort.

Ideally, the regional approach would involve all the eight counties in West Virginia Economic Development Regions #8 and #9. Efforts are now underway and will be intensified in the coming months to establish a full scale regional recycling program. There are however, political, economic and administrative obstacles to overcome before an integrated regional program can be launched. For example, excessive transportation costs for hauling recyclable materials from the most remote counties, could preclude their participation.

Assuming a regional program can be organized, the Solid Waste Authority will work with staff from the Economic Development Commission to attract firms which could utilize recycled materials in their products. Success in this area would, of course, result in job creation. In the interests of fairness to participants in the regional recycling program, an effort would be made to apportion the jobs created in accordance with each county's tonnage contribution or some other jointly negotiated criterion.

## Other Problems

Challenging problems without our county-wide program still need to be solved by the Solid Waste Authority. For example, although the entire county is served by a waste hauler, only approximately 60% of the county's households subscribe to the service. Some of the non-subscribers haul their waste to the transfer station at the Leetown landfill. Others dump on their own land, on other people's land or along the county's roads. Littering and illegal dumping is a chronic and persistent problem in the County. While current West Virginia law provides that every household must either subscribe to a waste hauling service or furnish evidence that their wastes have been deposited in a legally established facility, it is a difficult law to enforce.

The Authority plans to develop a program by the end of 1993 to collect recyclable materials from households which do not subscribe to a waste hauling service. In addition to a drop-off center at the Leetown landfill, consideration will be given to locating additional fixed or mobile drop-off points at convenient sites in more remote areas of the County.

For all the above reasons, it is in the self-interest of every household, business and public agency in Jefferson County to fully participate in the recycling program. The only way of reducing the cost of disposing of solid wastes is by decreasing the amount of waste we generate in Jefferson County.

#### RECOMMENDATIONS

- o The County has created an effective recycling program. The remaining challenge is to maximize participation by residential, commercial, industrial, and governmental waste producers. The programs must remain responsive to changing trends in waste generation and recyclable end use markets.
- o The County land development laws should allow the Leetown facility to fully utilize its grounds for any related recycling or material recovery facility.
- o The County should allow the location of fixed or mobile drop-off points for recyclable materials throughout the County and should explore the possibility of green box locations for waste collection throughout the County to reduce illegal dumping.
- o The County should continue to support and endorse a regional approach for landfills and recycling.

## LAW ENFORCEMENT AND EMERGENCY SERVICES

### INTRODUCTION

This section presents (1) an analysis of the present police, fire, and rescue services, (2) an overview of current and anticipated problems, and (3) recommendations for the future. Although the municipalities of Charles Town, Ranson, Harpers Ferry/Bolivar, and Shepherdstown are not in themselves part of a comprehensive plan for Jefferson County, they provide County residents with essential services. In fact, most of the emergency services equipment and offices are located in these municipalities, while future growth is expected to take place primarily outside the incorporated areas. Thus, it would be logical to either (1) direct growth in areas where these services can be provided at reasonable cost or (2) require the provision of these services where growth occurs. This report strongly supports the first option.

#### Citizen Advisory Committee Survey

In a survey conducted by the Citizen Advisory Committee in 1985, public services were not among the top five problems identified by respondents. Police protection was seen as the 9th most important problem, although traffic congestion--a related problem--was ranked 4th. Fire and rescue services were not listed. This survey has not been updated.

#### Key Factors

Future emergency services needs will depend primarily on the age, location, and size of our future population and on changes in the road system. The effective delivery of emergency services will depend on several factors. First, close cooperation among State, County, and Municipal agencies is essential if citizens are to be provided adequate emergency services at a reasonable cost. Second, volunteerism is the backbone of Jefferson County's fire and rescue services and needs to be nurtured to ensure adequate staffing of the services. Third, State laws need to be modified so that counties have more flexibility in dealing with problems brought on by rapid development.

#### Emergency Services Communication

Emergency services communication in the County is provided through the Office of Emergency Services and Emergency Operating Center located at the Bardane Health Center. The Communications Center has a 100 foot antenna and is provided with auxiliary emergency power. Radiological monitoring teams are also available. All County emergency management activities are coordinated through this office. The office also has a 6 x 6 wildfire control unit and a mobile communications vehicle capable of communicating with local, State and Federal agencies and industrial and nonprofit organizations.

## LOCAL, STATE, AND COUNTY LAW ENFORCEMENT

Citizens of Jefferson County are served by the municipal police forces of Charles Town, Harpers Ferry/Bolivar, Ranson, and Shepherdstown, and the county-wide services of the State Police and the County Sheriff's Department. Depending upon the urgency of the request and the availability of the appropriate local personnel, municipal police will respond to emergencies outside their jurisdiction. Full protection for the entire County is provided through the informal cooperation of these State, County, and local police departments.

The County has a "911 Central Dispatch System," whereby all emergency calls are received by a communications center. This center was installed in 1980 and is responsible for dispatching the nearest available unit having jurisdiction.

### Municipal Services

#### Charles Town Police Department

The Charles Town Police Department is located at 105 South George Street. The Department has nine officers, a meter maid, a secretary, and four vehicles. Equipment includes radar and a K-9 unit. The building is in good condition. All officers are State certified.

#### Ranson Police Department

Located in the Town Hall, the Ranson Police Department has eight officers and four vehicles. The station is equipped with two radar units. All officers are State certified.

#### Shepherdstown Police Department

The Shepherdstown Police Department includes the Chief of Police, three patrolmen, and a secretary. The Chief of Police and two officers are currently certified by the State of West Virginia, and the other officer currently is attending the West Virginia Police Academy. Regular service is provided 8.5 hours on Sundays, 8 hours on Mondays, Tuesdays, and Wednesdays, and 21 hours of service on Fridays and Saturdays, when two officers are on duty from 8 pm to 3 am. An officer is on alert at all other times.

The Corporation of Shepherdstown is comparatively small, having a population of approximately 1,300. However, an additional 6,100 residents live within the Shepherdstown District.

Furthermore, Shepherd College has 3,600 students currently enrolled plus personnel. Approximately 2,600 of these students are commuters. The remaining 1,000 students live on-campus. Local traffic is occasionally heavy because of travel to and from the horse race track and because of activities sponsored by the college.

#### Harpers Ferry/Bolivar Police Department

The personnel includes a Chief, a Corporal and a patrolman. All of the officers are certified by the West Virginia Governor's Committee on Crime, Delinquency and Correction. Twenty-four hour coverage is normally provided by the department every day. Coverage until midnight is offered on Sundays, Mondays, and Tuesdays. The department has two vehicles, radios, radar units, and various emergency equipment.

This police department provides services not only to the residents of Harpers Ferry and Bolivar but also to the tourists that visit the areas adjacent to Harpers Ferry National Historic Park.

#### Analysis of Municipal Services

Table 46 includes a summary of municipal police protection for 1993 and projects personnel and vehicle requirements for the year 2005. It should be noted that the current "level of service" indicates the number of officers or vehicles per 1,000 town residents. Requirements for the year 2005 have been developed by estimating the future County population at 46,000 and determining the number of officers and vehicles that would be needed to provide the same levels of service present in 1993.

#### Level of Services

Current ranges in levels of service for the towns as shown on Table 46 (2.27 -3.24 for officers and 1.28 - 1.62 for vehicles) are substantially higher than those provided to the unincorporated areas. These differences are partly due to the different kinds of law enforcement services needed in urban and rural areas. They may also be related to the different structure of County and municipal governments and the ways they deal with issues related to law enforcement. In 1986 these ranges had wider spreads -- 1.67 to 3.88 for officers and 0.7 to 2.9 for vehicles.

TABLE 46 STATE, COUNTY AND LOCAL POLICE PROTECTION

Agency	Location	Existing Services(1998)		Future Services (2005)		Facility Needs
		Number Officers	Level of Service	Number Officers	Projection	
WV State Police	Health Services Center, Bardance	8	0.22	12	8	Larger offices are planned
Jefferson County Sheriff's Dept.	Jail Building, corner of George & Liberty St., Charles Town	8	0.22	28 e	16	More office space
Charles Town Police Dept.	105 S. George St.	9	2.88	10	5	Presently adequate
Ranson Police Dept.	Ranson Town Hall	8	3.24	10	5	Interior renovation
Shepherdstown Police Dept.	Shepherdstown	4	3.11c	d	d	Presently adequate
Harpers Ferry Police Dept.	Corner Washington	3	2.27	d	d	Presently adequate
<b>TOTALS</b>		<b>40</b>	<b>25</b>			

a. The level of service is based on the number of officers and vehicles per thousand population served at present and based on 1990 census population.

b. Projections are based on a County population of 48,000 by the 2005 assuming the same level of service. Greater or lesser levels of service may be desirable based on other factors such as existing deficiencies, number of calls or level of reported crimes.

c. Does not include the 1000 students who live within the Shepherdstown corporate limits during 9 months of the year.

d. Population declines are expected to either level off or continue. Thus no increased services are projected.

Source: Adjusted per Bureau of Justice Statistics Bulletin, LEMAS Report, February 1992

## Incidence of Calls

Table 47 shows incidences of calls for police services received by 911 in Jefferson County for 1983 through 1985 and 1987 through 1992. However, when data on the number of police officers and the population of the incorporated areas are also reviewed, the different levels of police coverage needed for urban and rural areas become apparent. For example, during 1992 the City of Charles Town, with 8.7% of the population of Jefferson County, was served by a municipal police force that represents 22.5% of all officers countywide and who responded to 18.3% of all police calls in the County. On the other hand, 76% of County residents currently live outside the incorporated areas and are served only by the State and County police departments. These two departments account for 40.0% of all officers in the County and responded to 48.6% of all police calls countywide. On a per capita basis, the incorporated areas had 0.85 calls per person whereas the unincorporated area had 0.37 calls per person.

The data in Table 47 shows that there was a change in the reporting criteria in 1988 and that since that time there have not been strong trends either in increases or decreases in the number of calls. Logic suggests that the number of calls would correlate with the population size. But the fact that the number of calls per capita varies significantly between incorporated and unincorporated areas indicates that other factors such as proximity to neighbors or demographic characteristics may influence the number of police calls as strongly as population size alone. Hence, projections of need probably should be made for both incorporated and unincorporated areas.

## Staffing Needs

Based on population projections alone, the unincorporated area would need a minimum increase in police officers of 28% by the year 2005. This does not account for any currently perceived shortfalls. Using the incorporated population trend between 1980 and 1990, the municipalities would need to increase their staffs by a minimum of 9%. On the other hand, using national averages, the Sheriff's department would need an increase of 375% to comply with these averages.

Over the period, 1987 to 1992, the percentage of all calls that were municipal police calls has been declining -- 58.5% to 51.4%. In 1991 the percentage was as low as 46.4%. This trend runs counter to the opinions expressed in the 1986 Comprehensive Plan which suggested that municipal police would be receiving more calls due to development of adjacent unincorporated areas, that traffic congestion and parking problems also would increase for the same reason and that the municipal police would experience a growing dependency on the State and County police departments thus placing added burdens on these departments.

TABLE 47 POLICE CALLS IN JEFFERSON COUNTY, 1983-1985  
1987-1991

Agency Responding	Number of Calls									
	1983	1984	1985	1987	1988	1989	1990	1991	1992	
Charles Town	4968	4404	5142	4290	3582	3580	3790	3644	3623	
Ranson	3259	4107	4230	4209	3394	3628	3832	3120	3440	
Harpers Ferry/ Bolivar	2378	1500	2224	1552	990	1159	928	1212	1426	
Shepherds- town	711	975	1368	1993	1046	1319	973	978	1703	
SUBTOTAL	11316	11461	13064	12044	9020	9686	9523	8554	10192	
				(58.5%)	(53.5%)	(51.8%)	(50.6%)	(46.4%)	(51.4)	
Jefferson Co. Sheriff's Department	4564	3980	4109	5097	3861	4346	4614	4503	5141	
WV State Police	4316	3908	4281	3447	3990	4642	4696	4967	4499	
TOTAL	20442	19474	21561	20588	16871	18692	18833	18424	19832	

Source: Jefferson County Emergency Communications Center

County-Wide Services

State Police

The State Police Barracks is located in the District Health Services Center at Bardane. This station has eight officers (one sergeant, one corporal, one trooper 1st Class and five troopers), four patrol vehicles, and one support vehicle assigned to it. The equipment at this station includes radios, breathalizers, radar units, and riot control apparatus.

State Police officers stationed within Jefferson County provide protection for the whole County, including the municipalities. In general, these services include patrolling state and interstate highways and responding to emergency calls on an as-needed basis. The State Police and Sheriff's office are on duty in the County after midnight.

According to State Police officials, an additional five patrolmen and five vehicles will be needed in the next 5 years. A larger office will be built at the Bardane Industrial Park within the next five years. The land has been obtained for this expansion.

## County Sheriff's Department

The County Sheriff's Law Enforcement department is located in the old jail on the corner of George and Liberty Street in Charles Town. the department has 12 officers (a Sheriff, 2 bailiffs, and 9 deputies) and 10 vehicles. Equipment at the station includes radar units, breathalyzer, video camera, 35mm camera, and surveillance equipment.

The County Sheriff's office shares with the State Police the responsibility of providing protective and investigative services throughout the County. In addition, the Sheriff's Deputies provide support services to the County court system, including serving subpoenas, writs, warrants, and transporting prisoners and juveniles. Staff at the Sheriff's Office Tax Department are responsible for issuing motor vehicle registrations and collecting taxes.

According to Sheriff Department officials, the office space is inadequate for the current staff. In addition, the burden to the Department of providing such a wide variety of services is likely to increase as more people move into the unincorporated areas.

Two other County-wide law enforcement groups, constables and justices of the peace, were abolished by the State in 1977 and their duties delegated to County officials.

### Analysis of County Wide Services

Most growth in the County is expected to take place in the unincorporated areas. Thus, the State and County police forces, who have jurisdiction outside the corporate limits, will bear the burden of providing police services in the future. Continued close cooperation between the State and County police departments will be essential as the demand for their services increase.

### Projections and Needs

Table 46 includes a summary of State and County police protection for 1993 and projects personnel and vehicle requirements for the year 2005. Unlike the estimates for local police protection, the current "level of service" indicates the number of officers or vehicles per 1,000 County residents. Population increases within the municipalities are included in this number since towns receive State and County police services. Requirements for the year 2005 have been developed by conservatively estimating the future population at 48,000 and determining the number of officers and vehicles that would be needed to provide the same levels of service present in 1993.

The data on State and County police services, like those for local police services, are not predictive. Many factors could change the desired levels of service, including changes in State funding for the State Police force and redefinition of the services performed by the County Sheriff's Department.

As shown in Table 46, current levels of service for State Police officers and vehicles (0.22 and 0.11) and for the County Sheriff's personnel and vehicles (0.22 and 0.25) are substantially below those for the municipalities (2.27 to 3.24 for officers and 1.28 to 1.62 for vehicles). However, the needs and size of the rural population must also be evaluated to determine if the current level of service is adequate. As noted earlier, 76% of County residents currently live outside the incorporated areas and are served only by the State and County police departments; these two departments account for 40% of all officers in the County and they responded to 48.6% of all police calls countywide. The rural sections of Jefferson County currently appear to need less police service per 1,000 residents than does the rest of the County.

If population growth alone is used to project law enforcement needs for the year 2005, the State Police would need 25% more officers and 7 more vehicles and the County sheriff would need 7 more officers and 5 more vehicles just to maintain the current levels of service. That is, the number of State and County officers and vehicles would have to double to provide the current levels of service to the unincorporated areas of the County while the number of officers and vehicles within the municipalities would increase slightly. However, the data in Table 47 suggest that the need for police services outside of the municipalities will increase substantially faster than the population because of the additional needs brought on by population density.

Residential developments outside the municipalities have already begun to experience law enforcement problems that are likely to grow as private roads and recreational areas proliferate. Heavy traffic and speeding on private roads are frequent concerns of property owners' associations in Jefferson County. Furthermore, the lack of public recreational areas in the County has encouraged nonresidents to use (and abuse) private recreational facilities. State and County police are being called increasingly for problems such as trespassing, littering, domestic situations, intoxication, and disturbing the peace in residential developments. At present, police patrol private subdivisions on a limited basis due to a lack of personnel unless a major crime has been committed.

## Accomplishments

Since the 1986 Comprehensive Plan, the following things have been accomplished:

- o Monthly tri-state meetings of law enforcement agencies are held to improve coordination.
- o A Special Operations Response Team (SORT) has been created in Jefferson County to deal with hostage situations, drug searches and other specialties. This is a cooperative effort between the law enforcement agencies.
- o The Neighborhood Watch program is active and growing.
- o The volunteer police reserve is soon to be fully implemented.

## FIRE AND RESCUE SERVICES

### Fire Companies

#### Background

Jefferson County has five fire companies and one substation. They are operated by volunteers. Map 6 shows the location and service area of each station. Fire and rescue calls are dispatched through the "911 Central Dispatch System."

Each fire department receives approximately \$7,500 per year from the Jefferson County Commission. Shepherdstown receives an additional \$1,000 for radio maintenance because they are not participating in the county radio maintenance program. All other funding of the fire companies is from voluntary contributions and the West Virginia Fire Commission. The municipalities within the County regularly make donations to their local fire companies. The remainder of the money is raised through private donations and fund-raising activities.

Although each company has a designated service area, many locations along the boundaries of the service areas are covered jointly by two or more departments. The fire stations are located in population centers. All companies have rescue as well as fire-fighting equipment. At present, representatives of the five companies believe their equipment is adequate. However, due to age some equipment needs to be replaced. Current replacement needs are as follows:

<u>Company</u>	<u>Tanker</u>	<u>Engine</u>	<u>Attack</u>	<u>Ambulance</u>	<u>Brush Unit</u>
Blue Ridge	2	1	-	-	-
Citizen's	-	1	1	-	-
Friendship	-	-	-	1	1
Independent	-	1	-	1	-

Friendship Fire Company, Inc. (Company One)

The Friendship Fire Company is located on Washington Street (adjacent to the new Post Office in Harpers Ferry and serves Harpers Ferry, Bolivar, and the neighboring areas. The 21-year-old fire station is in good condition. Equipment includes 2 engines, 1 tanker, 2 ambulances, 1 mini-pumper, and a boat and motor. The Friendship Fire Company has 40 active members, a number that is barely adequate for current needs. In 1992, Company One responded to 668 calls, including 507 ambulance and 161 fire calls.

Citizens' Fire Company, Inc. (Company Two)

Located on North West Street in Charles Town, the Citizen's Fire Company serves the southwest portion of Jefferson County jointly with Company Four. The fire station, built in 1958, is in good condition, but is not adequate for present needs. The equipment includes 2 engines, an 105-foot ladder truck, a rescue squad, a mini-pumper, and a boat. The company has 60 active members, which is not an adequate number at present. Company Two responded to 401 calls in 1992. Company Two also houses the County Air Cascade System.

Shepherdstown Fire Company, Inc. (Company Three)

The Shepherdstown Fire Company is located in a new building on Route 45, west of Shepherdstown. This company serves the northern section of Jefferson County. The complement of 50 active members is barely adequate to meet current needs. The equipment includes 2 engines, 1 tanker, 1 rescue, 2 ambulances, an 85 foot ladder, 1 board and 1 engine in reserve. In 1992, Company Three had 165 fire calls and 505 ambulance calls, a total of 670.

Independent Fire Company, Inc. (Company Four)

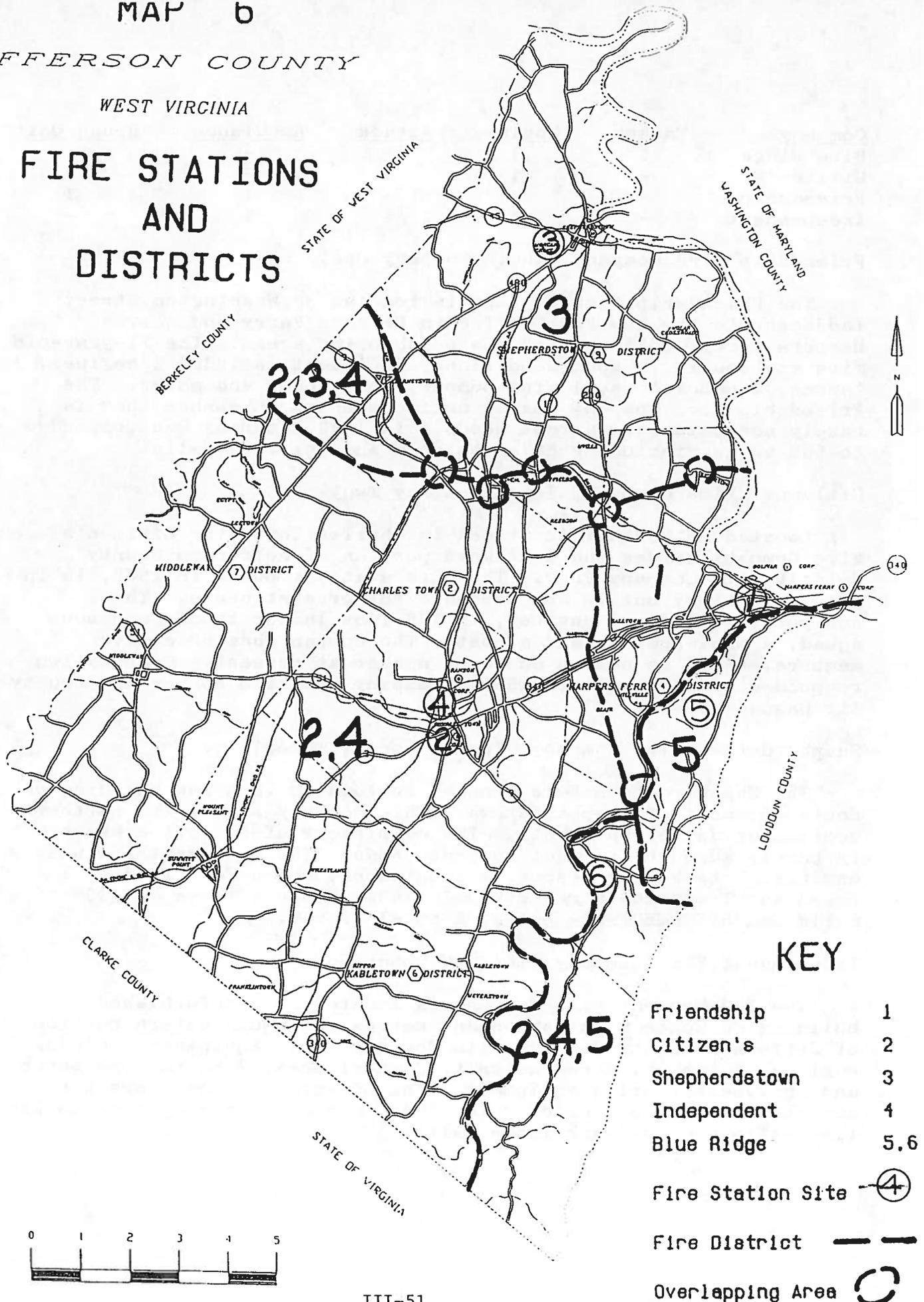
The Independent Fire Company is located in a refurbished building on Route 9 in Ranson and serves the southwestern portion of Jefferson County jointly with Company Two. Equipment includes 2 engines, a tanker, a rescue unit, 2 ambulances, 2 boats, one motor and heavy extrication equipment. The 55 active members are barely adequate for present needs. In 1992, Company Four responded to 385 fire calls and 1351 ambulance calls.

MAP b

JEFFERSON COUNTY

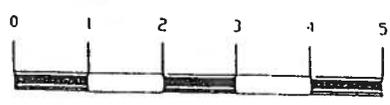
WEST VIRGINIA

FIRE STATIONS  
AND  
DISTRICTS



KEY

- Friendship 1
- Citizen's 2
- Shepherdstown 3
- Independent 4
- Blue Ridge 5, 6
- Fire Station Site (4 in a circle)
- Fire District (solid line)
- Overlapping Area (dashed line)



Blue Ridge Mountain Volunteer Fire Company, Inc. (Company Five)

The main station of this fire company is located on Keyes Ferry Road, is 18 years old and is being replaced. A substation is located on Mission Road. It is approximately 15 years old. Both stations are new brick structures in excellent condition. Together they serve all the area of Jefferson County east of the Shenandoah River. The equipment at both locations includes two engines, two tankers, two brush units, a rescue unit, 1 boat and a motor. Company Five's 25 active members were barely adequate to handle the 163 calls received in 1992.

Fire Marshal

The Fire Marshal has the responsibility for enforcing all State laws relating to fire safety, use of combustible materials, fire exits, fire suppression equipment, and the suppression of arson. The fire code, in general, applies to buildings used by the public and dwellings or rental units of three or more. There is little in the fire code or in the routine activities of the Fire Marshall that pertains to single family residences.

Fire and Ambulance Calls

Table 48 shows the actual numbers of calls and call locations for fire and ambulance for the years 1987 through 1992. Ambulance call data show an increasing trend, whereas the figures for fire calls do not.

TABLE 48  
EMERGENCY OPERATIONS

	1987 to 1991					
	1987	1988	1989	1990	1991	1992
*No. of Fire Company Calls	1,007	1,193	1,213	1,118	1,190	1,297
No. of Fire Call Locations	647	759	764	706	743	852
No. of Ambulance Co. Calls	N.D.	1,964	2,322	2,244	2,512	2,452
No. of Ambulance Call Locations	N.D.	1,857	N.D.	2,081	2,572	2,513

ND = No Data

\* The Independent and Citizens' companies respond to same calls a majority of the time. Hence, this number includes double counting. The ratio of company calls to call location is 1.5:1.

## Analysis of Fire Services

### Growing Demand

A summary of current fire services appears in Table 48. At present, two fire companies, Citizens' in Charles Town and Independent in Ranson, serve primarily the southern and western portions of the County. The availability of sewer and water services, the Charles Town Bypass and any future upgrading of Route 9 will influence the pattern of growth such that by the year 2005 an increase of approximately 7,000 residents can be expected to occur in the north, east, and central portions of the County. Requests for fire services in the areas now served by the Friendship, Blue Ridge and Shepherdstown Departments would be expected to grow substantially and the number of personnel and equipment needed to provide these services would proportionally increase. Additional demands for services would also be placed on other fire departments, primarily on the two located in Charles Town.

### Problem Factors

The increase in residential development and the influx of new residents has created other problems for both the fire departments and the police and rescue personnel. First, accurate and current maps of the county are not available and the names of many streets or developments are similar. Since new residents are often not familiar with their surroundings, fire, police, and rescue units can lose precious time trying to locate people who need help. Second, road conditions in the County affect not only the time it takes units to respond to calls but also the safety of the personnel answering a call. Roads with sharp curves, steep grades, limited visibility, and restricted access all decrease the ability of emergency service units to respond promptly. Poor maintenance or inadequate snow removal on some private roads also affect response time and the safety of both residents and emergency services personnel. Third, County residents living more than 6 miles from an accredited fire station must pay higher insurance premiums for their fire insurance and insurance carriers could refuse coverage on these homes if they determined the risk of fire was too great. Thus, many persons in Jefferson County are paying increased insurance premiums to cover the cost of losing their property when that money could more constructively be used to provide increased fire protection.

In addition, the lack of uniform local standards for fire hydrants has led to the use of various sizes of hydrants and fire hose threads, even within municipalities. Because of this situation, fire companies must carry additional equipment on their calls and precious time can be lost hooking up hoses. Furthermore, some of the subdivisions with fire hydrants may not have enough water capacity to accommodate fire-fighting equipment. Other areas in the County have virtually no water available to use in extinguishing fires.

## Restrictions of State Law

The present State fire code is not responsive to the fire safety problems encountered in single family residences situated in rural or semi-rural areas. Since the activities of the County fire departments are circumscribed by State regulations, the County is currently unable to institute many policies that would protect life and property. Life and property-saving measures currently beyond the authority of the State and County include mandatory periodic inspection of wood burning stoves and chimneys and required installation of smoke detectors and fire extinguishers.

Although some fire safety problems could be solved by instituting a building code, the County is once again hampered by State law, which specifies the exact code the County needs to use. This creates a problem in terms of what might work better in Jefferson County.

## Decline in Volunteerism

Volunteerism is generally on the decline in rural areas experiencing growth. Jefferson County is totally dependent on volunteers to provide fire, ambulance, and rescue services. These volunteers not only provide their services free of charge but also pay for their own personal protective gear. As more people choose to live in the County and work elsewhere, the number of residents available for emergency volunteer services decreases. When this phenomenon is coupled with a lack of business opportunities within the area, bedroom communities develop that are incapable of providing their own volunteer emergency services. This situation currently exists in several areas of the County and is likely to continue unless the local impact of each new development is carefully evaluated.

## Training

The Jefferson County Volunteer Fire and Rescue Association also maintains a fire and rescue service training center on Leetown Road. This group also coordinates county-wide standards for fire and rescue.

## EMERGENCY MEDICAL SERVICES

Emergency medical services are provided through four of the five fire departments. These include two ambulances at Friendship Fire Company, two ambulances at Shepherdstown Fire Company, two ambulances at the Independent Fire Company and first response EMT's from the Blue Ridge Company. These companies provide medical assistance at the scene of an emergency and transport persons to hospitals, and from nursing homes and residences.

To provide emergency medical care and ride in the back of an ambulance as an attendant in the patient compartment, fire company personnel must be Emergency Medical Technicians (EMTS). In addition, the County has approximately 15 paramedics trained through Shepherd College.

For the purposes of dispatching ambulances, the County is divided into three response areas. Dispatching is done through the 911 center, and the nearest available ambulance is dispatched. Persons suffering from an illness are transported to the hospital according to regional EMS protocol. Medical facilities regularly serviced by County ambulances include Jefferson Memorial Hospital (Ranson), City Hospital (Martinsburg), VA Center (Martinsburg), and Winchester Memorial Hospital (Winchester, Va.).

Emergency management services in the County are also provided through the Office of Emergency Services and Emergency Operating Center located at the Bardane Public Health Center. The Communications Center has a 100 foot antenna and is provided with auxiliary emergency power. Radiological monitoring teams are also available. All County emergency management activities are coordinated through this office.

The Jefferson County Volunteer Fireman's Association also maintains a fire and rescue service training center on Leetown Road.

#### Analysis of Emergency Medical Services

A summary of ambulance services is presented in Table 48. In 1992, County ambulances responded to approximately 2,513 calls. Of these, 1,351 were answered by the Independent Fire Company of Ranson. The rest of the calls were almost equally divided between the Shepherdstown and Friendship Companies. At present, the number of ambulances and trained personnel are not adequate to meet the County's needs. The all-volunteer system has occasionally proved to be insufficient and volunteerism in general may decline as people from urban areas move into the County.

If the growth pattern discussed under fire services occurs, then a substantial burden will be placed on the ambulance services provided by the Friendship and Shepherdstown Fire Companies. In addition, the general level of need for ambulance services is likely to increase as the general population becomes older. Because each service district provides backup service for the other two, a long-term increase in the need for ambulances in any one area will be felt throughout the County.

## RECOMMENDATIONS

### Law Enforcement

#### Municipal Services

The following recommendations are carried over from the 1986 Comprehensive Plan.

- o The resources and needs of local police departments should be an integral part of a County-wide, comprehensive plan for law enforcement services.
- o Since traffic control is a major aspect of law enforcement within the municipalities, towns should have a major role in the development of County, State, and Federal highway plans that affect traffic patterns and density in the incorporated areas.

In addition, the Eastern Regional Corrections Authority has stated that the development of a "criminal justice system that meets nationally and state accepted standards" should be an overall goal for all police departments operating within Jefferson County. Other goals include:

- o Develop standards for equipping and training police departments.
- o Develop ways to allow municipalities to retain personnel who have been trained.
- o Placing increased emphasis on the collection and publication of data on crimes committed, traffic density, and traffic-related problems so that trends can be examined and policies evaluated.

#### County-Wide Services

At present, State law limits the ways in which Jefferson County can deal with many law enforcement problems. Thus, one of the initial tasks undertaken by County officials should be a thorough investigation of the actual limitations imposed by State law and of ways in which the following recommendations can be implemented under existing conditions. At the same time, citizens and County officials should urge legislators to modify the appropriate laws so that counties have more flexibility in dealing with local problems.

A full-scale plan of law-enforcement services is beyond the scope of the present study. However, the services of a professional law enforcement planner should be obtained and a comprehensive plan for law enforcement services in the County should be prepared. The following recommendations need to be considered as part of such a comprehensive plan, although they can also be developed and implemented independently while more general guidelines are being formulated.

- o Developers should be required to set aside public use sites within new large subdivisions so that police, fire, and rescue services can be provided to these communities as needed. Where the need for such services will be generated primarily by a new large development, the developer should bear a substantial part of the financial burden for erecting public service buildings at the site.
- o Increased emphasis should be placed on collecting and publishing data on crimes committed, traffic density, and traffic-related problems so that trends can be examined and policies evaluated.
- o The state should be encouraged to evaluate the basis upon which state police personnel are assigned to the county. Such criteria should include such factors as size of resident population, level of crime, volume of traffic on state roads and level of tourism in the county.
- o The state should be encouraged to explore methods of improving the effectiveness and speed of the judicial system.
- o Every effort should be made to encourage the expansion of the juvenile detention center in Berkeley County.

#### Fire Services

- o Fire hydrants and fire hose threads should be standardized throughout the County.
- o All areas outside of the municipalities should be included in a County-wide identification system.
- o Insurance companies and lending institutions should be encouraged to formulate policies that ensure adequate fire protection for new residential and commercial developments.
- o Incentives should be offered to County residents to join volunteer fire companies.
- o Alternative sources of revenue to support existing and future fire protection services, such as fire fees, should be investigated. Such alternative sources should be carefully evaluated prior to adoption to insure that the revenues obtained exceed the present funding methods of donations and fund drives.

- o Funding for the training of fire personnel needs to be provided.
- o Existing and future land development regulations should be evaluated to insure that they promote rather than discourage the installation of fire hydrants.
- o The County should ask the legislature for more flexibility with respect to the Building Code which might be better suited for Jefferson County.

#### Emergency Medical Services

- o All ambulances should be replaced when they are 7 years old or have an odometer reading of 70,000 miles. These figures are based on requirements developed by the State of West Virginia.
- o A county-wide emergency plan should be devised which includes all hospitals, emergency equipment, and emergency physicians within the area.
- o County residents should be encouraged to receive training in CPR, lifesaving, and first-aid techniques.
- o Emergency Medical Services for the Blue Ridge area of the county should be developed.
- o Alternate sources of revenues and other funding need to be sought to provide paid EMS personnel.
- o The County should participate in the development of Enhanced 911.

## EDUCATION

### INTRODUCTION

Maintaining and improving Jefferson County's education system is one of the most important and urgent challenges we will face during the implementation of a comprehensive plan. Although educating Jefferson County residents is a responsibility that must be shared by all of us, the ultimate responsibility for implementing and administering educational programs rests with the Jefferson County Board of Education. In the area of facility planning, the basic goal of the Board is to develop schools that will provide a thorough and efficient system of education and educational opportunities for its public school students and also be in compliance with the MASTER PLAN FOR PUBLIC EDUCATION, WEST VIRGINIA BOARD OF EDUCATION POLICY 2510, and the CRITERIA FOR EXCELLENCE.

#### Elements of the System

##### Board of Education

The school system administered by the Board of Education includes twelve school buildings and approximately 200 acres of land which are listed in Table 38 and shown on Map 7 and Map 8. In addition to the public facilities within Jefferson County, the James Rumsey Vocational Technical School serves Jefferson, Berkeley, and Morgan counties and offers 18 vocational programs for high school students. The total 1993-94 student enrollment in Jefferson County was 6,509. The school budget for the 1992 school year was approximately \$25 million.

The "6-3-3" organization of grades in the elementary, junior high, and high schools was implemented when Jefferson High School was opened in 1972. It has been the historical intent of the Board of Education to comply with the "Facilities Plan Guidelines" developed by the State Department of Education which limits enrollment per school to 500 students at the elementary level and 1,500 students at the high school level.

At present, most schools are located in or near high density areas. Four schools are located within 2 miles of Charles Town, two within 2 miles of Harpers Ferry, and two within 2 miles of Shepherdstown. The other schools are located along roadways that serve other areas within the County. Approximately 490,000 miles were logged transporting students to and from schools.

##### Private Schools

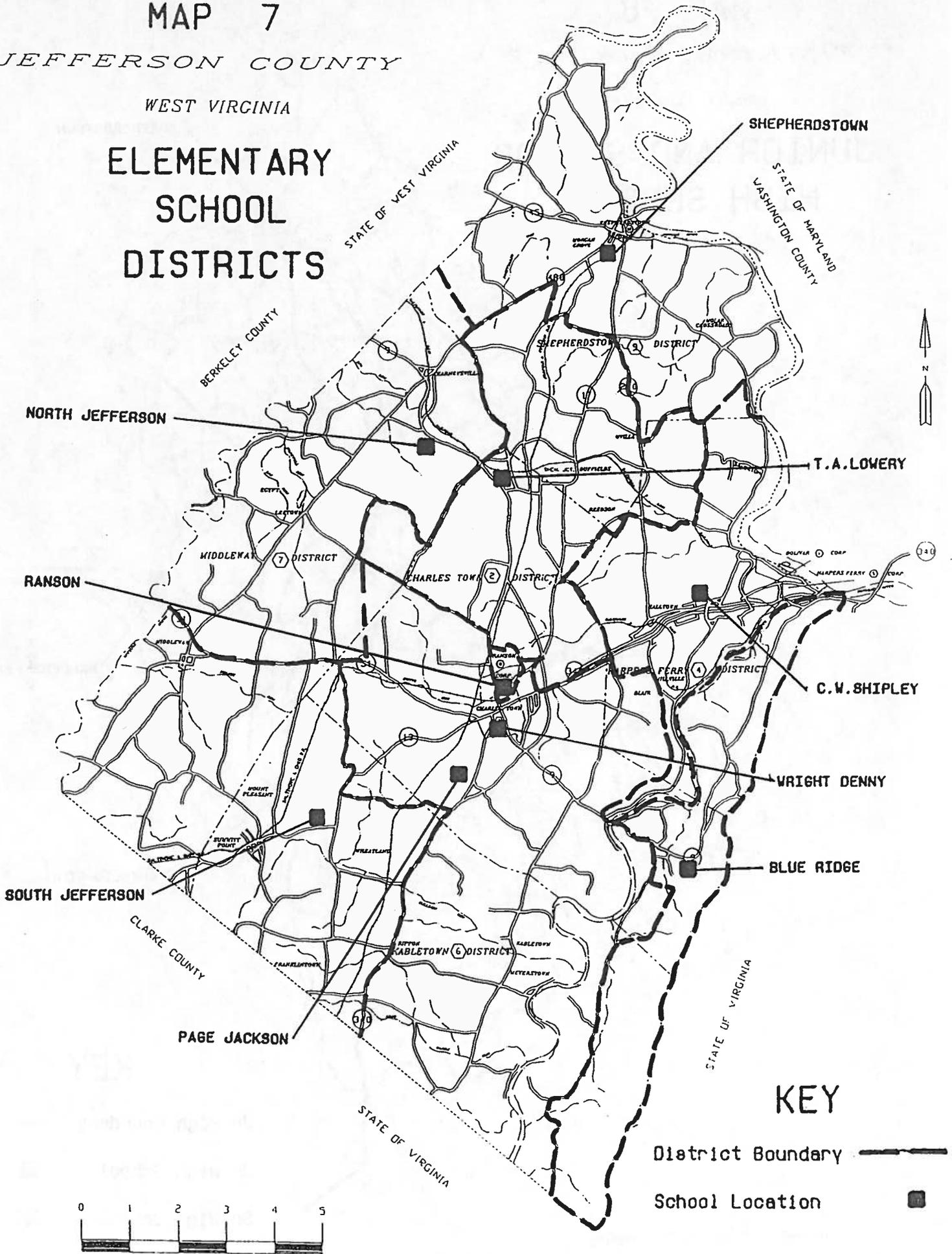
There are two private schools in Jefferson County, Country Day School and Claymont Children's School. Jefferson County is also served by Shepherd College and West Virginia University, both state-supported schools.

# MAP 7

## JEFFERSON COUNTY

WEST VIRGINIA

### ELEMENTARY SCHOOL DISTRICTS

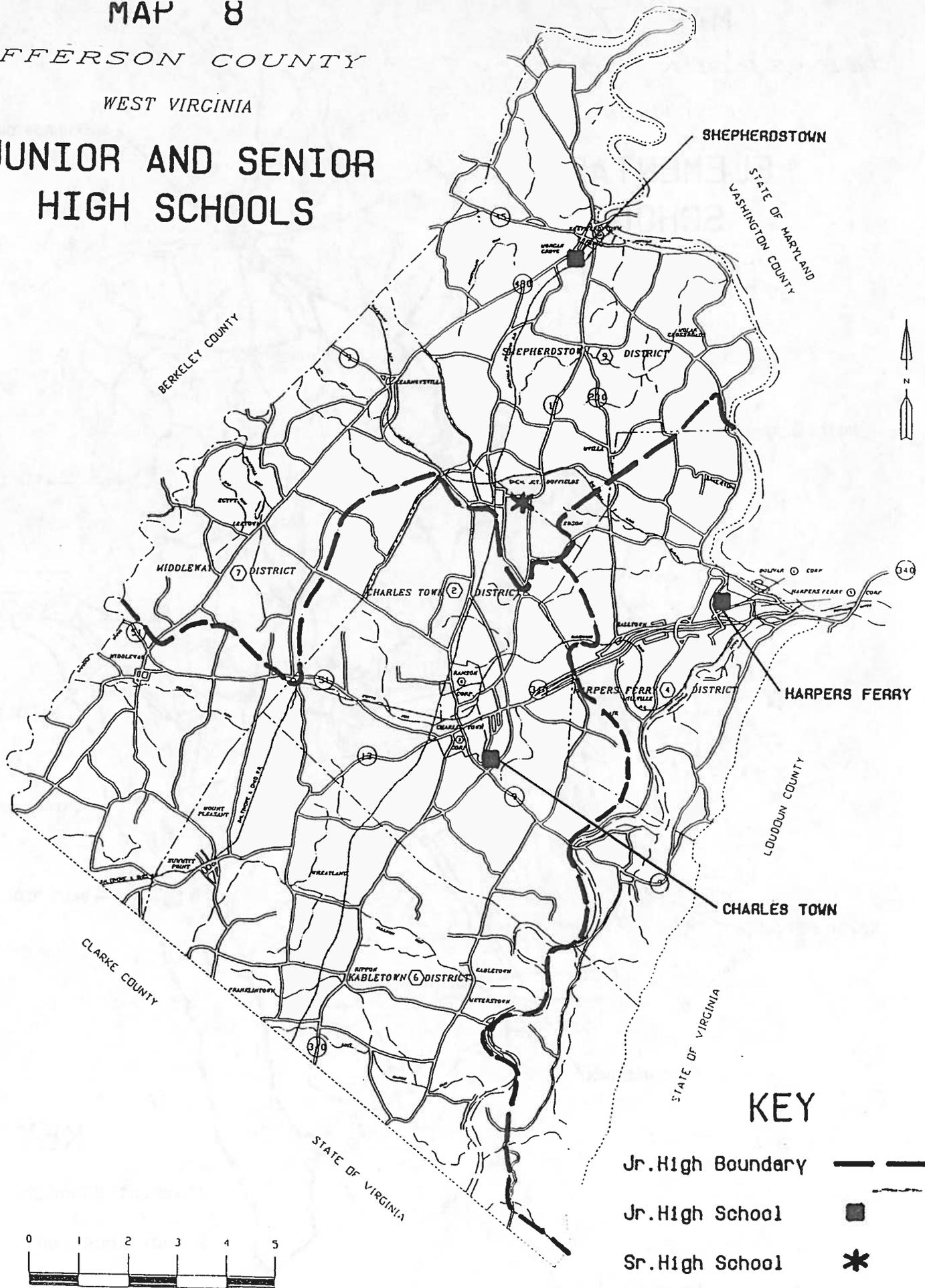


# MAP 8

## JEFFERSON COUNTY

WEST VIRGINIA

### JUNIOR AND SENIOR HIGH SCHOOLS



#### KEY

- Jr. High Boundary ———
- Jr. High School ■
- Sr. High School \*

Shepherd College is located in historic Shepherdstown. Shepherd College is profiled in Barron's 300 Best Buys in College Education. Only the top 10 percent of America's colleges and universities achieve that distinction. For the ninth year, Shepherd had been the only West Virginia college included in Peterson's Guide to Competitive Colleges.

Faculty members come to Shepherd from some of the country's most prestigious institutions. Most of them hold the most advanced degrees in their fields. Staff members are also available to help students.

Shepherd's close proximity to the Washington-Baltimore area allows students to combine educational opportunities and internships with cultural and social resources.

Shepherd offers more than 70 programs of study, including bachelor's degree programs, pre-professional studies and associate's degree programs and as such is a community resource of great value.

#### Problems and Issues

As the following pages will show, funding reductions, state-mandated regulations, inadequate planning of current schools, and scattered residential growth have all combined to produce a crisis in our schools. Problems with such a variety of complex causes do not have simple solutions. Several fundamental problems have been identified in other sections of this Comprehensive Plan and need to be faced when education is discussed.

- o Our past and current inability to solve the problems in our educational system is due, in part, to restrictions placed upon county governments by the state constitution and state code. Although these kinds of state controls and restrictions may be appropriate in counties with stable or declining populations and a need for minimal public services, they serve as major roadblocks to managing growth in Jefferson County--an area with an increasing population and most public services stretched to their capacity.
- o These state-imposed restrictions also limit the ways in which we can raise the money needed to improve our current schools, build new ones, and encourage our good teachers to continue teaching. Education currently accounts for more than 80% of the County's total tax revenues. As the largest proportion of these local revenues, our problems of raising money will be felt first in the area of education.

- o Historically, county governments and school boards in West Virginia have had to look to the state to solve their problems due to the limited powers at the county level. Some of the solutions to our problems may be available in the state code or in judicial decisions--if we make the effort to look. Other solutions will be found only after much research, discussion, and debate; if we don't do this work no one else will.

Finally, as we discuss dollars and numbers of students, we need to remember that education can easily become an emotional issue because it concerns the future of our children and grandchildren. Accurate planning does require facts and figures, and planning the educational future of our children requires clear thinking.

## ANALYSIS OF PROBLEMS

### Overcrowding

The school population in Jefferson County has increased very little (3.8%) during the last 10 years, yet there has been a perception by some that virtually all of the schools are "overcrowded." In some cases, the overcrowding appears to have been caused by the introduction of new state-mandated programs and building requirements. In others, scattered and unplanned growth has added to the problem. During the 1980's, school population increased approximately one child per every twenty persons increase in total population.

The term "overcrowded" has taken on a variety of meanings in discussions of our educational system, and it needs to be closely examined if we are to identify specific problems and find solutions. It has been used to mean that (1) The schools do not have enough places to accept more children; (2) The required ratios of students to teachers have been exceeded; (3) Schools do not have enough room to accommodate all of the classes they are supposed to teach (e.g., music and art); and (4) Schools have insufficient nonclassroom space (i.e., hallways, cafeterias, teachers' rooms, guidance counselors rooms, parking lots).

Comparing the design capacity of a school, which is the number of students for which the school was originally planned to accommodate, with the number of children it actually holds, is one of the criteria used to determine if a school is overcrowded. When the number of children in a school equals the design capacity, the school does not have enough physical space to efficiently accommodate more children. In most cases, it also means that efforts to provide more classrooms within the existing school building have been stretched to the limit. Schools where student enrollments have not reached the design capacity may still be seriously "overcrowded."

Student-teacher ratios are also used to determine if a classroom is "overcrowded." In theory, students' opportunities for learning within the classroom increase as the number of students per teacher decreases. Student-teacher ratios are partly mandated by the State and are currently set at 20:1 for kindergarten and 25:1 for elementary grades. Class sizes at the secondary level vary, but basic classes are limited to 20 students. Recommended student-teacher ratios have dropped during the past 10 years, forcing educators to find more teachers and classroom space to remain in compliance with requirements. Although decreasing student-teacher ratios may be desirable, it has caused other types of overcrowding in our school system.

During the past 10 years, the State has required schools to offer additional types of classes and offer students new types of services. These new requirements, plus the reductions in student-teacher ratios, have forced educators to add more classrooms to existing school buildings. The ability of Jefferson County schools to expand by adding classrooms is limited by the amount of usable ground available for expansion and the ability of each school's physical plant to handle the increased requirements for heat, ventilation, electricity, water, and sanitation. At present, Jefferson High School is the only school that may have usable space and physical plant facilities to handle new construction.

Since most of our schools cannot add new classes by expanding beyond the current size of their building, educators have had to change the ways space within their buildings is used. School personnel have been forced to conduct classes in inappropriate areas (Table 38). For example, schools now use areas for a variety of uses even though they were originally designed for a specific use (e.g., lunchrooms, gymnasiums, music rooms, teachers' workrooms, offices, storage closets, libraries, and art rooms). Virtually no space is available for support staff (such as psychologists, speech and gifted teachers), and many of these support activities have to be held in hallways, cafeterias, and even storage closets. According to surveys by the Board of Education, individual teachers, and CAC members, every school in the County lacks the space to accommodate all of the required classes or services.

The crowding of new classrooms into existing space is further complicated by the current arrangement of grades within schools. Jefferson County now uses the "6-3-3" arrangements of grades in elementary, junior high, and high schools, even though the state recommends that schools be divided into K-5, 6-8, and 9-12. This State recommendation may actually work in our favor, for it gives us the flexibility to alleviate crowding of new classrooms by shifting some grades from one school to another. Unfortunately, this solution cannot be implemented without building an additional middle school and adding to the existing high school or building a new one.

When classrooms are added to a school by expansion or by finding new uses for existing space, other types of "overcrowding" are often created. Hallways become unable to handle the increased traffic; parking lots for teachers and students reach their capacity; rest rooms receive more use; play areas for children and work areas for teachers may shrink; and classes that need quiet, concentration, or special equipment suffer. According to surveys by the Board of Education, individual teachers, and CAC members, every school in the County has problems with the availability of nonclassroom space or with single-use areas being used for several functions.

## Vocational Training

As previously mentioned, approximately 200 Jefferson County students currently attend James Rumsey Vocational Technical School in Berkeley County. Jefferson County's budget includes the costs of educating our vocational students in Berkeley County and of transporting them to and from James Rumsey. Students arrive at school after a lengthy bus ride, and the time spent during this commute reduces the amount of classroom time available and the number of credits they can earn toward graduation. In some cases, students have been unable to earn enough credits during the school year to graduate. Some teachers believe that the lengthy bus ride and the problem of earning sufficient credits are partly responsible for some students dropping out of school and for other students not taking vocational training.

## Future Problems

The population of Jefferson County (now 36,000) is projected to increase to at least 46,000 by the year 2005. Such an increase would be equivalent to the arrival of 670 new residents per year and an annual increase in the school population of at least 34 students. If the student-teacher ratio of 20:1 is maintained throughout this period, this population increase could translate into the need to add the equivalent of 2 classrooms per year to our educational system. If we follow this line of reasoning one step further, the school population (now about 6,400) will reach at least 6,808 by the year 2005. The school system would have to adjust to handle this 6% increase in enrollment. However, the maximum capacity of 6,860 would not be exceeded. If a worst case projection of 2005 population of 49,000 was used and an annual enrollment increase of 87 pupils is used (based on a assumed one student for every 10 new residents rather than 20 new residents), the projected 2005 enrollment would be 7,444. This exceeds the maximum school capacity of 7,610. This suggests that the worst case scenario that expanded classroom facilities may be needed by school year 1997-98 and that preliminary site selection and planning should begin soon. Site selection should be responsive to actual growth patterns which should be steered toward the growth under LESA. However, being the LESA system could permit a large development (new town) if the developer provided all the infrastructure, it would be wise to avoid premature site selection and to wait until the actual magnitude and course of development is known.

The interesting aspect of the growth in Jefferson County is that the majority of the population that is moving into the County are empty nesters and young people with no children. Table 50 reveals the average number of school age children per type of dwelling. This survey was done by the schools as a part of the impact fee study done in 1988.

The figures just mentioned are meant to illustrate our predicament; they are not predictive. However, they do point to the need to obtain adequate land and plan new school buildings for long term planning. According to our estimates, most new growth will occur in the northern and eastern portions of Jefferson County outside the incorporated areas. Furthermore, recommendations made in other chapters of this draft of the Comprehensive Plan suggest methods for channeling much of the growth into desirable areas.

Problems with current school buildings and sites should also be considered as new schools are planned. For example, the soil at some of our schools is not appropriate for expanding drainage fields and sewage treatment facilities. Most of the schools are uninsulated, which restricts our ability to use them during the summer months. Many of the schools were not designed to easily accommodate new construction or to adapt to changing needs for nonclassroom space.

In selecting new school sites, Jefferson County educators must also be aware that they will be competing with several other groups for land, including residential developers and other county officials seeking sites for parks, a landfill, and other public services. If we are to get the maximum value for our money, we need to consider the long-term potential of the land we acquire and the buildings we erect. However, as a principal permitted use in any zone, School Boards have the luxury of picking any location in Jefferson County, [as opposed to developers.]

### Funding

As mentioned in the Introduction, Jefferson County currently has limited options for raising money for public schools. Bond issues are the main option. For instance, in 1988 an \$18 million bond package was passed which included the construction of a new school (T. A. Lowery). This bond issue summarily allowed the perception of overcrowding to be alleviated.

Raising money through changes in property taxes is also difficult because of state laws. Even if these regulations can be changed, much thought needs to be given to what types of land use should be taxed for public education. Many current residents of Jefferson County feel that they should not be forced to pay for increased services generated by large numbers of new residents. Other options, such as assessing developers for the services they require, are probably not feasible without changes to the State code.

## RECOMMENDATIONS

The following recommendations are grouped according to the types of problems previously identified. Recommendations are not necessarily listed in the order of their priority. It is recognized that many of these recommendations deal with issues that are beyond the scope of a land use plan or land use regulations; that is, needed services. Nevertheless, these kinds of recommendations are included in the Education Section of the Comprehensive Plan in an attempt to provide planners with standards against which the future quality of education in Jefferson County can be measured.

### Overcrowding

- o Educational facilities should be designed and constructed to meet state standards and provide adequate space for educators, staff, and support personnel.
- o The present separation of grades between elementary and junior and senior high schools should be reevaluated to determine the most efficient and effective division of grades given the present and planned facilities, and anticipated enrollments.

### Vocational Training and Alternative Education

- o Jefferson County should provide area students with more opportunities for vocational-technical education. Building a vocational-technical facility within the County and offering pre-vocational programs in the middle schools should be a priority.
- o Shop facilities, apart from those used for vocational agriculture, should be provided at Jefferson High School.
- o An alternative school should be provided for students suspended for using drugs or exhibiting bad behavior.
- o The needs of the adolescent Educationally Mentally Impaired (EMI) must be addressed more thoroughly. At present, vocational programs and electives for EMI students at the junior high, high school, and vocational school levels are insufficient.

### Curriculum

- o The curriculum adopted by the schools should comply with the requirements of the state as well as meet the needs and desires of the community as a whole.

Also, the following are the criteria that should be considered when school renovation or new construction is being planned.

#### Present Needs

- o All library, music, physical education, and special program facilities (such as speech therapy and gifted education) should be of adequate size and should be available in each school.
- o Elementary schools should be equipped with adequate computer laboratories.
- o The need for school bus service in new subdivisions, as discussed in the Transportation Chapter of the Comprehensive Plan, should continue to be a consideration in the review and approval of new developments.

#### Short-Term Future Needs

- o The impact of new developments upon educational services should continue to be assessed when residential land use is being planned, and, where appropriate, revised to assist the Board of Education in future planning for facilities.
- o Enough information now exists on the current and future educational needs in the County for the Board of Education to begin the process of a long range capital improvements and land acquisition plan.
- o If impact fees are not passed, land dedication should be required.

#### Funding

- o Developers should be fairly assessed for the costs of the services they need. If necessary, legislation should be enacted toward this end.
- o Higher Bonding caps should be allowed so counties can respond to immediate facilities need.

The School Board has requested the State School Building Commission to approve and fund the facilities plan. That could greatly reduce any "overcrowding". This plan would include a large addition to the current High School. This plan also would allow the K-5, 6-8 and 9-12 separation of grades which the State prefers. This would also dictate that the next school to be built would be a Middle School.

TABLE 49 PUBLIC SCHOOL FACILITIES IN JEFFERSON COUNTY, WEST VIRGINIA

Name Schools	Grades	Student Enrollment												Adjusted Design Capacity	
		81- 82	82- 83	83- 84	84- 85	85- 86	86- 87	87- 88	88- 89	89- 90	90- 91	91- 92	92- 93		93- 94
Page Jackson Elementary	K-3	546	554	559	519	548	593	603	615	592	588	558	459	492	576
Wright Denny Inter.	4-6	442	431	436	433	414	440	453	440	395	446	461	429	399	450
North Jefferson Elem.	K-6	482	462	472	440	489	485	471	477	484	440	453	338	316	383
Blue Ridge Elem.	K-6	469	460	435	415	434	434	451	476	503	540	554	440	423	428
South Jefferson Elem.	K-6	427	390	373	369	385	390	380	390	375	366	363	371	370	405
C. W. Shipley Elem.	K-6	345	359	353	348	332	336	340	341	339	343	380	350	364	405
Shepherdstown Elem.	K-6	463	436	432	430	415	428	454	475	488	494	509	410	417	495
Ranson Elementary	K-6	394	407	411	407	430	402	413	431	436	416	439	433	434	450
T. A. Lowery Elem.	K-6											-	468	530	450
B. D. Center/Alternative	8-12											-	11	13	15
Shepherdstown Jr. High	7-9	375	364	406	412	420	405	374	361	374	388	421	423	446	468
Charles Town Jr. High	7-9	716	759	755	770	753	731	716	695	691	730	734	742	722	743
Harpers Ferry Jr. High	7-9	360	354	317	345	362	349	330	324	332	356	341	352	367	383
Jefferson High	10-12	1171	1188	1197	1166	1197	1232	1304	1245	1226	1236	1191	1170	1216	1215
TOTAL		6190	6164	6146	6054	6179	6225	6289	6270	6235	6343	6404	6396	6509	6866

Support Facilities  
 Administrative Offices  
 Maintenance  
 Transportation  
 Center for Exceptional Children

1/ Year 80-81 enrollment was 6239  
 2/ Adjusted Design Capacity--These figures were provided by the School Board and represent 90% of actual physical plant capacity

TABLE 50  
Average Number of Pupils Per Household

	Elementary 2-6	Junior High Grades 7-9	Senior High Grades 10-12	All
Single Family	.27	.12	.11	.5
Townhouse	.11	.04	.03	.18
Apartment	.18	.05	.05	.28
Mobile Home	.48	.13	.06	.67

Source: Tischler & Associates Study and Board of Education Survey (1990)

## PARKS, RECREATION, CULTURE AND THE ARTS

This Chapter is divided into two major sections:

- (1) parks and recreation and
- (2) culture and the arts

### PARKS

#### Introduction

The following sections present an analysis of the parks and recreation system in Jefferson County. They also address the recommendations and goals of Jefferson County Parks and Recreation Commission. Even though several parks are located within the incorporated areas of the County, they will be considered in this section to give a complete overview of all the available recreational resources in the County.

#### Jefferson County Parks and Recreation Commission

Most of the information on parks was written by the Jefferson County Parks and Recreation Commission. This Commission was formed on July 1, 1970, and when fully appointed contains 11 members. The Parks and Recreation Commission is generally authorized to establish, improve, develop, administer, operate, and maintain a County parks and recreation system. A concern of the County is the poor condition of existing facilities and their inability to meet future needs.

#### Growth and the Need for Parks

Presently the County is growing, and many of the new residents are coming from communities that may have resources for recreation. As Jefferson County becomes more urban, the need for larger facilities and more organized recreational programs will also grow. This will require additional facilities to be built and maintained and will require increased manpower to coordinate and supervise recreational opportunities.

The buzz word of the nineties is "cultural tourism." The culture of a region is the very essence of the past and present of its communities. Jefferson County, with its prominent historical sites and structures and exceptionally superior artists and craftspeople has the necessary resources to be a leader in cultural tourism.

It cannot be emphasized too strongly that the Parks and Recreation Commission can be a significant contributor to the well-being of the citizens of our county, both from a usage standpoint and from an economic standpoint.

#### Tourism

The capability of producing tourism revenues and increased attendance at various programs actually can help subsidize the existence and growth of the Parks and Recreation system, while

producing extra dollars for business in our county. The win/win appeal to this entire scenario is that the people of Jefferson County realize the benefits of a continually growing, expanding county park and recreation system. And it is with these people that our primary responsibility rests.

### The Current Park System

There are seven (7) county parks in Jefferson County. They are: Leetown park, Mount Mission Park, Sam Michael's Farm Park, Evitt's Run Mini-Park, Bolivar Park, Moulton Park, Summit Point Park (South Jefferson Park & Playground at Summit Point). What follows is a brief description of each county park:

#### Evitt's Run

A one acre park close to the historic center of Charles Town, located at the intersection of North Water and Liberty streets, has tennis, basketball and volleyball courts. A pavilion is also offered for county residents as well as for those visiting this heritage-rich community. It is bordered by the Evitt's Run, a stream often stocked with trout.

#### Summit Point

71 acres is offered at this recreational park located on the Middleway-Summit Point Road approximately 3 miles from both Summit Point and Middleway. Ball of all types is available here--basketball, t-ball, baseball, softball, etc. A pavilion overlooking the park and panoramic valley beyond is available for public use. (As of Summer of 1993, this park is in the sights of a community group known as the South Jefferson Rec. Council (SJRC). The SJRC is strongly considering taking on the challenge of raising funds and planning and developing this park. They are working in tandem with the Jefferson County Parks & Recreation Commission.)

#### Bolivar

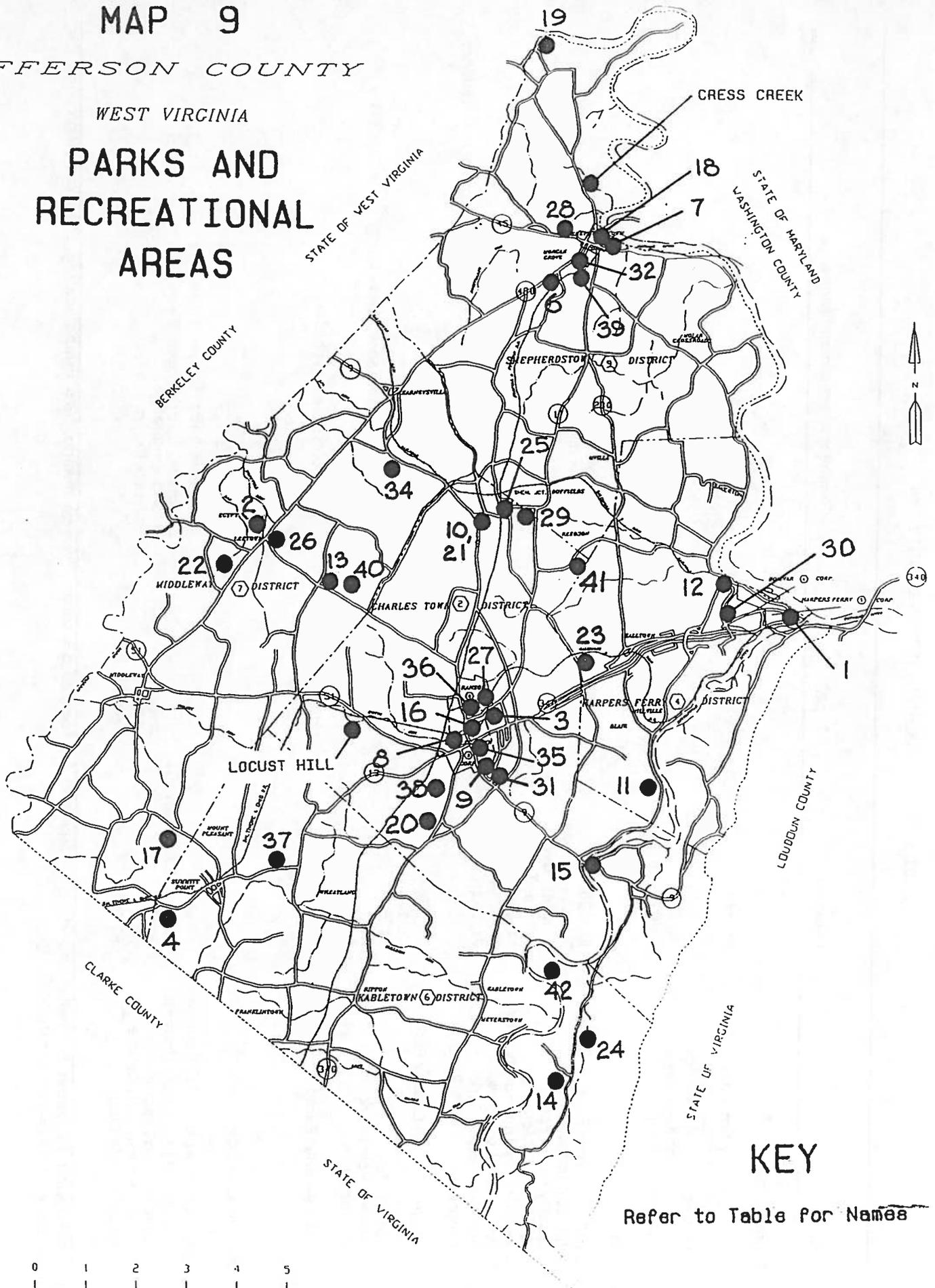
A natural and untapped seven acres filled with plentiful botanical delights, just a short distance from the historical landmarks of Harpers Ferry. Bolivar Park is located on Primrose Alley near the Comfort Inn in Bolivar. (Note: Summer 1993 - Members of the Bolivar community are uniting for the purpose of working in tandem with Jefferson County Parks and Recreation Commission for the purpose of planning and designing the Bolivar Park).

# MAP 9

## JEFFERSON COUNTY

WEST VIRGINIA

# PARKS AND RECREATIONAL AREAS



### KEY

Refer to Table for Names



TABLE 51 PARKS IN JEFFERSON COUNTY, WV

Map Ref.	Name	Location	Type <sup>a</sup>	Comments/Recommendations
<b>Major Tourist Sites</b>				
1.	HarpersFerry Nat. Park	Rt. 340	S/H	Hiking
2.	Leetown Fish Hatchery	Rt. 1	S/H	National fish lab.
3.	Charles Town Race Track	Rt. 340		Horse racing/paramutual betting
4.	Summit Point Raceway	Rt. 13		
5.	Appalachian Trail	Blue Ridge	C/H, S/H	Trail runs from Main to Georgia
<b>Local Parks</b>				
6.	Morgan Grove Park	Rt. 480	Pg, B, S, P	Add bike/foot paths from Shepherdstown
7.	James Rumsey Park	Shepherdstown	S/H	Repair facilities; utilize remaining land
8.	Liberty Street Park	Charles Town	T, Bb	
9.	Jeff. County Mem. Park	Charles Town	Pg, T, Bb, Sw, P	Pool often too crowded
10.	Jeff. County Community Cntr.	Rt. 9	P	Community facilities
11.	Potomac Edison Park	Rt. 27 (Millville)	F/B, P	Improve maintenance
12.	Potomac Edison Park	Rt. 27 (Harpers Ferry)	F/B, P	Improve maintenance
13.	Leetown County Park	Rt. 15	T, Bb, P	Concession stand and lighted field; improve maintenance and landscaping.
14.	Mount Mission County Park	Rt. 9/5	Pg, Bb, B	Activity building
15.	Riverside Park	Rt. 27	F/B	
16.	Ranson Park	Rt. 9	Pg, T, Bb	Improve maintenance, landscaping, water, toilets
17.	Summit Point Park	Rt. 1	Bb	
18.	Fishing Access	Princess St. (Shepherdstown)	F/B	
19.	Dam #4 Boat Ramp	Scrabble Rd.	F/B	Not accessible by vehicles
<b>Private Facilities</b>				
20.	Cress Creek Golf Course	Route 7	G	Snack Bar; Green Fees
21.	Locust Hill Golf Course	Route 13 & Rt. 51	G	Snack Bar; Green Fees
22.	Isaac Walton League	Rt. 1	F/B, P	Shooting range
23.	Sleepy Hollow Golf Course	Rt. 24	S/H	Snack bar; green fees
24.	Shannondale Club	Rt. 9/5	Sw/F/B, P	

a. Pg = playground, T = tennis, B = ball diamond, Bb = basketball, F = football, S = soccer, Sw = swimming, F/B = fishing/boating, C/H = camping/hiking, P = picnicing, G = golf, S/H = scenic/historical

TABLE 51 PARKS IN JEFFERSON COUNTY, WV (CONTINUED)

Name	Location	Type <sup>a</sup>	Comments/Recommendations
<b>Athletic Fields</b>			
25. Ruritan	B		
26. Leetown	B		
27. Ranson	B		
<b>Scenic Routes</b>			
River Road	Rt. 28 & 17/1	S/H	
Route 27	Milville/Bloomery	S/H	
Route 340	Through County	S/H	
Route 9 Overlook	SE of Mannings	S/H	Trash dumped on site
<b>Schools</b>			
28. Shepherd College	Shepherdstown	T, Bb, B, F, Sw, S/H	Facilities should be further opened to public
29. Jefferson High School	Rt. 17	T, Bb, B, F	Track; facilities should be open to public
30. Harpers Ferry Jr. High	Harpers Ferry		Backstop and goal posts
31. Charles Town Jr. High	Charles Town		Track
32. Shepherdstown Jr. High	Shepherdstown	Bb, F	Should be more parklike
33. Shipley Elementary	Rt. 340	Bb, B, F	Should be more parklike
34. North Jefferson Elementary	Rt. 9	P, Bb	Should be more parklike
35. Wright Denny Elementary	Charles Town	P, Bb, B	Should be more parklike
36. Ranson Elementary	Ranson	P, Bb, B	Should be more parklike
37. South Jefferson Elementary	Rt. 13	P, Bb, B	Should be more parklike
38. Page Jackson Elementary		P, Bb, F	Should be more parklike
39. Shepherdstown Elementary	Shepherdstown	P, Bb, B, F	Should be more parklike
40. Fairgrounds	Leetown Rd.		Facilities for cooking, outdoor meetings
<b>Potential Parks</b>			
41. Sam Michael's Farm	Rt. 22		County owned, 140 acres
42. Shannondale Springs	Rt. 9/5		State owned

a. Pg = playground, T = tennis, B = ball diamond, Bb = basketball, F = football, S = soccer, Sw = swimming, F/B = fishing/boating, C/H = camping/hiking, P = picnicing, G = golf, S/H = scenic/historical

### Leetown

Designed as a premier sports complex, this ten acre facility is complete with lighted baseball and softball fields, as well as tennis courts. Swings and other similar recreation are available for the younger set. There is a pavilion for public use. Located on Leetown Pike on Secondary Route 15 (4 miles east of Leetown).

### Moulton Park (River Way)

Situated on the picturesque Shenandoah River, this half mile of river frontage can be found just north of the Bloomery Bridge on Route 27 (Bloomery Road).

### Mount Mission

Aptly named since an historic church is located on its premises on Mission Road off of Route 9 at the intersection with John Brown Farm Road (about 5 miles), this three and one half acres provides grassy softball field and basketball area along with picnic areas as well. Perfect for some deserved R&R.

### Sam Michael's Farm

Considered the "crown jewel" of the Jefferson County Park system, this 130 acres of prime land of beauty, value and versatility is currently the home of the nationally recognized spring and fall Mountain Heritage Arts and Crafts Festival. A formidable stone fireplace and oversized kitchen are part of the pavilion that lends itself well to wedding receptions, reunions, and the like. Plans are underway to make this park land the showcase of Jefferson County. Sam Michael's Farm is located on Job Corp Road off of Route 230 North or Route 17 (Flowing Springs Road).

## Analysis of Current Problems and Recommendations

Included in this section is a table indicating the facilities available for public use at the different parks in Jefferson county (Table 51), and a map of their location (Map 9). A few of these places are available for use only if a fee is paid. These areas are the Cress Creek Golf Course, Locust Hill Golf Course, Isaac Walton League, Sleepy Hollow Golf Course, and the Shannondale Club. A discussion of problems and recommended actions follows.

There are no indoor facilities available to County residents for recreational purposes on a regular basis. The local schools and Shepherd College presently have a number of indoor and outdoor facilities which, when not used for school related events, are available for community activities organized only through the schools. They could, however, fill a greater part of this need.

Although picnic grounds and baseball/softball diamonds seem to be abundant, they receive minimal maintenance. Most facilities in the County fail to offer a variety of recreational opportunities at any given site. Providing both maintenance and variety would increase the desirability and function of the existing park system. In addition, trash and litter in recreational areas makes some of them unpleasant or dangerous to use. Other recreational areas are poorly maintained or generally unattractive.

Many residential developments are not located near existing parks and recreational facilities and have not supplied recreational space or facilities for the residents.

Because of the lack of public recreational facilities, private recreational areas are being over run with nonresident visitors who often leave these areas much worse than they found them.

Harpers Ferry National Historic Park, as well as numerous public and private areas along the Potomac and Shenandoah Rivers, are being used by large numbers of visitors for recreational purposes. In some areas, persons lay claim to public lands for the whole summer, preventing County residents from using these sites. In many cases, sanitary, trash, and general recreational facilities are not available at these areas. Furthermore, the frequent drownings and accidents along the rivers place a large burden on local police and rescue services.

The County lacks a countywide "greenway" linear park system.

The County should do the most they can with regard to the conservation and preservation of land, natural, and cultural resources through the implementation of effective park planning and management practices.

## CULTURE AND THE ARTS

### Introduction

The buzz word of the nineties is "cultural tourism." The culture of a region is the very essence of the past and present of its communities. Jefferson County, with its prominent historical sites and structures and exceptionally superior artists and craftspeople has the necessary resources to be a leader in cultural tourism.

It is important to recognize the basic premise that a vital active cultural life in an entegral component of our community.

Our villages, towns, farms, fields, orchards and forests are linked by unique historic events and traditions. The places that inspire our lives, work and play, and the written and visual expression of the past are an invaluable resource which guies us in defining our present day experiences. These traditions help us to enjoy our life as a community and to take pride in our heritage as citizens. They are a precious resource.

The written and visual expressions of our people through drama, dance, music, art, recreation, poetry, philosophy, literature, handcrafts and other associated cultural activities are the expression of the most basic human need to relate to one another. Our county must continue to encourage the creative spirit as it has in the past.

In a community where creativity is encouraged to flourish, we can better understand history's contributions and make our county a better place for future generations.

### Cultural Activities

Jefferson County has numerous opportunities for cultural enrichment, both for passive enjoyment and participation.

#### Music

Shepherd College offers an active arts department with concerts of instrumental and vocal music of many kinds, plays, lectures, and showings of art. Though not directly sponsored by the College, Millbrook Orchestra performs there, offering high-quality orchestral music with a professional director and players from all around the area. Excellent soloists are brought in for many of the concerts. New musical works have even been commissioned by the orchestra. Support is supplied by an active Orchestra Guild and private and corporate donations.

Also at Shepherd College are two community choruses, the Masterworks Chorale, which is open to all singers from the college and the area on a voluntary basis, and which performs two concerts a year of fine choral music. A small fee is charged for attendance at the concerts. A recent addition is the Masterworks Orchestra chorale, formed to sing with the Millbrook in major works. This group is selected by audition, and performs at certain regular concerts of the orchestra.

The schools of Jefferson County have busy music programs as well, with band and vocal music taught. There is an active thespian group at the high school, and dramatic offerings are performed by groups at other schools also. Art instruction is offered by all schools. Several annual beauty pageants are held, the various Queens reigning over parades at certain seasons. Miss Jefferson County may go on to be selected as Miss West Virginia and has a chance to participate in the Miss American contest.

Churches also provide an outlet for musicians for choral music, solos, and in several cases, handbell ringers. Frequently other instrumentalists perform at services as well, and some churches organize dramatic presentations.

Musical instruction outside the schools is available on a private basis.

#### Drama

For drama, besides the choices available at the college and in the schools, there is the Old Opera House in Charles Town, which provides several plays a year performed by amateur and semi-professional actors from the area at the newly restored Opera House on George Street in Charles Town. The building was the gift of Mr. and Mrs. Augustine Todd and has been repainted, repaired, and refurnished through the efforts of the Guild and private donations. A program of instruction for children is included in the work of the Theater group. Special musical programs, organized by local groups, are offered frequently.

#### Dance

Also available by private instruction is ballet. Some private groups are active in square dance and in contra dancing also.

#### Art

Occasional art exhibits by individuals or groups are held in Shepherdstown and Charles Town and such exhibits are regularly available at the Boarman House in Martinsburg.

## Other Activities

Other active agencies in the County include the Agricultural Extension Office, which oversees the programs of the Homemakers, Ruritan, and Four-H clubs. Besides educational programs and craft instruction, these groups offer travel opportunities to sites of interest both in the immediate area and farther afield.

Each of the major communities has a public library, supported partly by donation and partly by public funds. Charles Town has a fine small museum and an auditorium in its library building, which also houses the Chamber of Commerce offices. Several other small private museums are available in other communities, such as the Entler Hotel and the Old Mill house in Shepherdstown.

A women's Book Club meets regularly in Charles Town. The American Association of University Women and other education-based and professional groups also are active.

Chief among historic attractions, besides the numerous houses and public buildings dating back to the time of the Washington family, is the Harpers Ferry National Park. This Federal installation has carefully restored the old town of Harpers Ferry as it was in Civil War times. Besides the many exhibits, the town offers periodic interpretive sessions of great historic interest, such as the Old Time Christmas and Hallowe'en ghost stories.

Garden Clubs of the area sponsor a House and Garden Tour each spring, when some of the choicest old (and sometimes new) homes and private gardens are open to the public for a small fee.

Other clubs in the county with emphasis on various cultural aspects include the Audubon Club with bird tours, nature lectures and trips to natural sites of interest in the area. Sierra Club is also active in the Panhandle, and The Nature Conservancy has taken the lead in efforts to preserve choice natural sites. The Historical Society is a very active group, identifying historical sites and researching information on the famous old homes of the area. Groups such as the 40 and 8, DAR, and United Daughters of the Confederacy preserve special aspects of local history. Service Clubs such as Rotary and Kiwanis are active.

Scout troops for boys and girls are organized in many of the churches.

Several local travel agencies exist. With major airports within easy reach of the county, travel is a popular activity. Of course, with so many historical, aesthetic, and cultural opportunities within a day's drive, such as Washington, D.C., Williamsburg, Mount Vernon, Baltimore, Philadelphia, Charlottesville, the Skyline Drive, the Chesapeake Bay, the National Forests and mountains of West Virginia with numerous parks, ski areas and resorts such as Coalfont and the Greenbrier, automotive travel is equally tempting.

## RECOMMENDATIONS

### General Park Planning

- o Consistent directions of programs and acquisition of available State and Federal funding would be more feasible with a part or full time Parks and Recreation Manager.
- o A coordinator of recreational services should be appointed to develop programs and to keep abreast of the grants and monies available to the County.
- o Materials should be prepared to inform County residents of the existing recreational opportunities within Jefferson County.
- o The existing and future recreational needs of County residents should be evaluated to determine what types of facilities are needed. As part of this study, County and State officials should examine the potential for developing State land within the County into public parks or recreational areas. From this effort, a master plan with a feasible time table should be formulated with respect to development of parks and to the procurements of additional park land.
- o In general, recreational planning and management activities should consider the potential resources available from the Park Administration program at Shepherd College, where appropriate.

### Park Needs

- o The Board of Education, Shepherd College, Churches, Job Corps, etc., should be approached to check the feasibility (i.e., cost, maintenance, supervisions, etc.) of opening their facilities to County residents.
- o A private association of recreational groups should be formed to assist in the planning and funding of County recreational programs and park facilities.
- o Adequate space for recreational facilities should be considered if new property for schools is to be acquired.
- o Should future expansion be required, parts of these recreational areas could be used for new buildings. County or regional indoor recreational facilities that can be used year-round should be studied, planned, and developed.

## Park Maintenance

- o County-owned parks should be regularly maintained, improved with landscaping, and expanded to provide greater variety. To support these improvements, alternative forms of financing should be explored, such as user fees, to offset costs.

## Park Lands in New Subdivisions

- o Residential developers should be required to set aside lands for the recreational use of residents or contribute to the construction and maintenance of nearby public recreational facilities.

## Use of Private Recreational Areas

- o Private recreational areas being used (or misused) by the public should be identified so that new public facilities can be developed to meet the local needs. In addition, the Subdivision Ordinance should ensure that newly formed subdivisions have a mechanism to assess residents for the security, maintenance, and improvement of the subdivision's private recreational areas.

## Future Programs

- o The status and future plans for Shannondale Springs (the approximately 580-acre tract along the Shenandoah River) should be sought from the State. This area could be developed to supplement the recreational needs of tourists and residents.
- o Public property along rivers and other potential recreational areas should be cleared of squatters and health regulations should be strictly applied.
- o Sam Michael's Farm should be developed into a large County park. Therefore, a citizen's group should be appointed to check on cost, fund raising, the type of functions needed, etc.
- o The County lacks hiking trails or bike paths that would allow people to enjoy the scenic beauty of our area in safety.
- o A system of bicycling and walking paths, capitalizing on the scenic and historic sites in Jefferson County, should be planned and developed for the use of residents and tourists alike.

- o No organized programs are available for young teenagers.
- o A comprehensive year-round recreational program should be developed for teens as well as for all other age groups.
- o Plan to develop a bicycling systems which connects the population centers of the County by designating and signing/painting certain existing State and local roadways.

#### Greenway

- o Inventory the potential greenway connections, such as abandoned railways, utility rights-of-way, existing and future parks, along rivers, and likely connections to greenway systems in adjacent jurisdictions.
- o Plan for developing an open space trail system for which the primary objective is resources protection and the secondary objective is recreation/pedestrian movement.
- o Reserve potential greenway corridors as identified in the countywide inventory through designation as open space during subdivision, property acquisition or easement (purchase or gift).

#### Land Preservation

- o Encourage the development and enhancement of parks and recreational facilities within the corporate limits of Jefferson County to maintain the respective towns' community character and small town appeal.
- o Advocate the most effective means of preservation for sensitive natural environment areas, such as waterways, wetlands, floodplains, and forested areas, through the coordinated efforts of appropriate County, State, and Federal agencies.
- o Develop an inventory/identification system for land in Jefferson County with high recreational potential. Give these areas a realistic score or value for the purposes of future development decision making and zoning restrictions allowances, or waivers.

#### Other Park Related Recommendations

- o Tourists should be enticed to remain in Jefferson County for longer periods possibly by the park system developing low cost packages with tour groups and local motels that integrate our existing parks systems into them.

- o Development Authority should work with the Parks and Recreation Board to explore how an effective park system will entice businesses to locate in the Industrial Park.
- o Cluster subdivision, small town planning guidelines and community character studies should be promoted as a means of preserving open space and providing close to home parks and recreation areas with connections to public open space corridors.
- o Examine the feasibility of Cultural Arts Center, to include performance and display areas, which could be used for multiple recreational and cultural events. The Cultural Arts Center study should consider the construction of an outdoor amphitheater as part of the overall facility.
- o More facilities should be available for handicapped individuals as required by the American with Disabilities Act of 1992.
- o Local individuals must be encouraged to utilize the County Parks so that they remain in Jefferson County for recreation.

## NATURAL RESOURCES

### Introduction

Jefferson County has geologic and topographic variety from which springs one of the most biologically diverse regions in the State. This same geology and topography also have contributed to the growth of industry and urbanization. Through careful land use planning and control a balance between preservation and utilization of natural resources needs to be sought.

As the eastern gateway to West Virginia, Jefferson County should present an attractive, inviting impression to tourists of the beauty, history, and recreational diversity of the state, as well as its potential for industrial development.

During the 19th Century the scales were tipped heavily in favor of use rather than preservation. During the 20th Century, as forests have regenerated and as the public has developed more of a conscience for natural resource concerns, the pendulum has been moving in the direction of preservation. The County has responded with amendments to its Ordinances to protect flood plains, wetlands, streams, hillsides and other sensitive natural areas. This chapter presents refined objectives based on public testimony presented over a one year period beginning in the summer of 1992, the Guidelines report by the West Virginia Natural Heritage Program in 1988, data from the Soil Conservation Service on wetlands and farmlands, the report on Springs of West Virginia by the U. S. Geological Service, and other materials collected by the Planning Commission. Natural resources for purposes of this plan are defined within the following outline:

#### 1. Habitats

Caves

Floodplains

Limestone Cliffs

Mesic\* limestone forests

Mesic greenstone forests

Phyllite\*\* Riverside Rock outcrops and cliffs

Wetlands

Streams and Rivers

\* -- requiring a moderate amount of moisture

\*\* -- ancient greenish-gray rock

#### 2. Rare and Endangered Species

Animals

Plants

3. Usable Resources

Quarry stone  
Agricultural land  
Timber  
Fish and Game  
Natural Pharmacology  
Ground Water  
Caves and Cliffs  
Sinkholes  
Scenic Views  
River front access

4. Related Issues

Open space preservation  
Energy conservation  
Rural county roads  
Conservation tax benefits  
Special natural areas

HABITATS

Caves in limestone support some rare species, primarily invertebrates. In some cases, a species may exist only in a single cave. Caves need to be protected from (1) penetration from the surface, (2) blockage of entrances with garbage and (3) intrusion of septic tank effluent or other groundwater pollution. See Map 10 for general locations of eleven (11) caves.

Floodplains serve as routes for dispersing certain species and in maintaining the quality of habitats along stream and river edges. Floodplain forests are very productive and contain a wide range of tree species. Large floodplains also may support wetlands. Flood plains need to be protected from (1) development, (2) deforestation, (3) siltation from adjoining uses and (4) draining or filling of wetland areas.

Limestone cliffs support rare organisms, primarily plants, and are objects of aesthetic importance. Limestone cliffs left in their natural condition are not subject to destruction, but need to be protected from (1) deforestation and (2) active use.

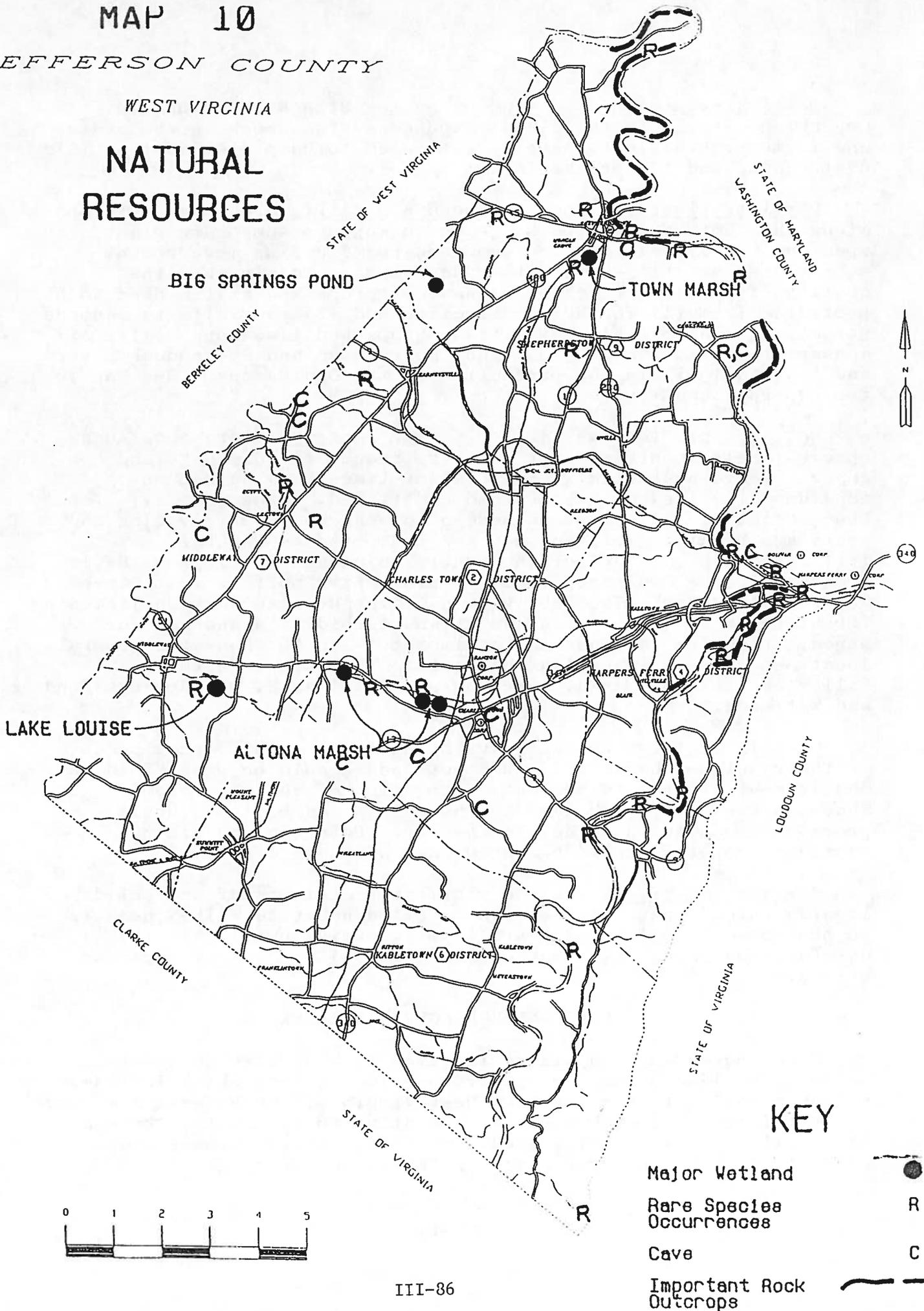
Mesic limestone forests are among the most diverse and productive in tree species and are rich in wild flowers. They can support diverse bird populations if critical acreage can be maintained, but they generally only occur as second-growth remnants smaller than the critical acreage. These forests need to be protected from (1) further segmenting, (2) disproportionate expansion of forest edge habitat, (3) unnecessary clearing on forested lots, and (4) discontinuance of forest corridors.

# MAP 10

## JEFFERSON COUNTY

WEST VIRGINIA

# NATURAL RESOURCES



### KEY

- Major Wetland 
- Rare Species Occurrences 
- Cave 
- Important Rock Outcrops 

Mesic greenstone forests occur on the Blue Ridge Mountain. Greenstone itself is the oldest exposed surface rock in the State and forms rich soils. These forests need to be protected from (1) disturbance and (2) breaks in the canopy.

Phyllite riverside rock outcrops and cliffs are large outcrops along the foot of the Blue Ridge which support some rare plant species. Early railroad and dam construction plus more recent subdivision activity have either destroyed or diminished the quality of phyllite outcrops. These outcrops and cliffs need to be protected from (1) further destruction and (2) proximity to manmade structures. Almost all phyllite outcrops and limestone cliffs of conservation importance are along the Potomac and Shenandoah Rivers and thus fall within the protection of the Ordinances. See Map 10 for general locations.

Wetlands provide habitat for a wide range of flora and fauna species, help maintain water quality, reduce flood damage and generally are aesthetic. Until recent times they have been considered useless unless drained and filled. Consequently, it has been estimated that only ten percent of the wetlands existing 250 years ago remain. Wetlands now are protected by Federal legislation and the Jefferson County Zoning and Development Review Ordinance. The Ordinance requires protective buffers that exceed Federal standards. The Subdivision Ordinance also has requirements for storm water quality management and turbidity standards for streams relative to construction impact. Map 10 shows the general locations of several wetland habitats. These include the following: Altona Marsh, Lake Louise, Town Marsh, Big Springs Pond and Wetlands.

Certain of these wetlands are of national significance because of their unique character. Such wetlands should be predefined and development limited to prevent destruction of the ecosystem. Thorough study of their geology, hydrology and biology should precede any decision to develop nearby. Potential buyers of adjacent property should be forewarned of these limits.

Streams and rivers are the ultimate recipients of any solids or liquids which runoff from the above-cited habitats. They need to be protected from (1) sediments, (2) excessive nutrients, (3) harmful substances, (4) bank erosion and (5) removal of riparian strips.

#### RARE AND ENDANGERED SPECIES

Rare and endangered status is given to a species on several bases. The 1988 Guidelines report provides a list which includes status relative to the State of West Virginia, the Federal list and the total range of each species. Relative to the State, there are 25 animals and 40 plants listed. Of these only 2 animals and 3 plants are on the Federal list. Relative to the rangewide

status only 4 animals and 7 plants are uncommon, rare or very rare. This indicates that Jefferson County habitats tend to be on the fringes of species ranges which generally are not found in a majority of West Virginia. In other words, a majority of the species listed are common or abundant within their ranges, but their ranges do not include very much of West Virginia. Hence, in terms of West Virginia they are uncommon, rare or very rare. Table 52 lists those species which are either on the Federal list or uncommon, rare or very rare relative to rangewide status. Map 10 shows the location of sitings of rare species.

TABLE 52  
 RARE AND ENDANGERED SPECIES  
 From either the Federal List or Rangewide Status

Scientific Name	English Name
ANIMALS	
Lanius ludovicianus	Loggerhead shrike
Thryomanes bewickii	Bewicks wren
StygoBromus gracilipes	Shenandoah Valley Cave Amphipod
Caecidotea pricei	Shenandoah Valley Cave isopod
PLANTS	
Cheilanthes castanea	Chestnut lipfern
Parnassia grandifolia	Grass-of-parnassus
Paronychia virginica	Yellow nailwort
Ptilimnium nodosum	Harperella
Pycnanthemum torrei	Torrey's mountain mint
Stachys hispida	Hedge nettle
Thalictrum steeleanum	Steele's meadow-rue

Source: West Virginia Natural Heritage Program. "Guidelines for the Conservation of Significant Natural Features in Jefferson County, West Virginia", West Virginia Department of Natural Resources, Elkins, West Virginia, 1988.

The key to species protection, regardless of status, is habitat preservation and extension. Inventories which pinpoint locations of various species and rare habitats would be helpful in this effort. Groups with interest in natural resources could develop inventories on a volunteer basis. A coordinating body would be needed to oversee this effort.

An inventory should also include animals and plants which are not necessarily rare or endangered, but which are uncommon enough in the area to be of interest to amateur and professional nature lovers. Fauna such as wild turkey, pheasant, and osprey are unusual enough to attract birders, while the sight of deer, fox, and even opossums and raccoons can be exciting to city dwellers. Location of stands of lady's slipper, trillium, and other native plants of interest might be a project for garden or nature clubs of the county.

Preservation of the stand of Paulonia trees bordering the Shenandoah River across from Harpers Ferry should be a county project. This road could be designated a scenic road.

Identification of unusual habitats and locations of such flora and fauna as those mentioned could provide the basis for nature trails in the county and outdoor classrooms to teach youngsters appreciation of native plants and animals. Homeowners could be encouraged to use attractive native plants such as dogwood, gum and sugar maple as ornamentals (as many do already). Shepherd College might be instrumental in developing information on these subjects.

Another possible project for Garden Clubs or individual landowners would be a registry of unusually large, ancient native trees.

The beauty of the orchards in the county and the pastoral scenery of the dairy farms and horse pastures should be recognized and preserved wherever possible for their inherent value to the quality of life in this area.

#### USUABLE RESOURCES

Quarry stone is a natural resource which has been a portion of the County's economic base for most of the County's history. As residential growth has progressed around the County further development of quarry stone has been opposed as being incompatible with residential uses. There also is a potential conflict between economic good from use of quarry stone and the potential for unknown modifications to the County's extensive ground water aquifer. On the other hand, old abandoned quarries usually become lakes. These lakes constitute a habitat not previously studied, but with potential as either recreational area, nature preserves or a mix of both. A review of U.S. Geological Survey topographic maps indicates that six quarry lakes exist with potential for several more as working quarries are retired.

Currently the County has no control over location of new quarries. Since this has led to bitter litigation, the county should petition the State for the right to determine where quarries can be sited with the least damage to existing uses of the land. Such development should be guided into areas where good resources exist but pre-existing development would not be damaged and future uses of adjacent areas would not be limited.

Agricultural land has been recognized as the primary natural resource of the County by the original Comprehensive Plan and by the Land Evaluation and Site Assessment (LESA) system. Twenty-five percent of the LESA points are allocated to the Soils Assessment. This is more than twice as much as the most heavily weighted amenities criteria, proximity to schools (residential only), size of site (non-residential only) and roadway adequacy

(non-residential only). There are differences in opinion regarding the extent to which agricultural land should be protected from conversion to non-agricultural uses. The primary argument against protection is predicated on the supposition that agriculture in Jefferson County has become less economically feasible and that farmers face economic disaster without other options for using or disposing of their land. On the other side of the issue are those in the farming community who are satisfied with the current protections and who see continuing viability in agriculture as a Jefferson County industry. See the Agricultural Land Use section for a more complete discussion of this issue.

Farmland currently is taxed at low rates which constitutes an incentive to preserve the farmland status. A farm preservation program whereby public funds are used to compensate farmers for not developing their farms for periods ranging from 20 to 30 years is another approach to farmland preservations.

A system for assisting younger farmers to take up lands being vacated by older, retiring farms who have no heirs interested in continuing to farm the property could be developed. Financial arrangements advantageous to both parties could be worked out.

Such arrangements would have the advantage of preserving good farmland in agriculture, which may become vital as the population of the nation and of the world increases.

The detailed soils map of the Soil Conservation Service identifies areas of unique and most desirable farmland. Efforts should be made to retain these areas in agricultural use, through land trusts or other preservation arrangements.

Timber harvesting is only done on a very small scale. This statement is based on a review of data from the Center for Economic Research, West Virginia University, which shows that employment and earnings from this industry are very low. The Hillside development provisions of the Subdivision Ordinance discourage clearing of properties in order to get around the intent of the provisions by restricting development for five years after the clearing activity takes place.

Fish and game are natural resources the use of which is controlled by State hunting and fishing regulation. However, hunting and fishing do not constitute a major industry. The level of these activities currently could be described as population control which contributes to habitat preservation.

The only public hunting area in the County is Shannondale Springs. Other than that, hunters and fishermen either use their own property or seek permission for hunting on others' land. Fishing access to the major rivers is limited by boating and wading access. One fee-for-fishing trout business is available.

The natural pharmacology of local plants has been referred to by example -- bloodroot is the sole source of sanguinarine, a dental plaque formation inhibitor -- and as another reason to protect biological diversity.

The abundant ground water supply results in numerous quality springs. The US Geological Survey has identified 93 springs of varying size in Jefferson County. (Map) Some of these are being utilized for such purposes as raising trout and hydroponic vegetables. Several supply the US Fish and Wildlife Service's fish hatchery at Leetown. The feeder areas of such springs should be identified and protected from contamination.

In recent years several persons have proposed the bottling of spring water as a cottage industry. Such proposals have raised questions concerning land use and protection of the ground water supply. To date none of these proposals have been carried forth and none of the questions have been answered. But certainly some sort of quantity monitoring would be desirable as well as wellhead protection to preserve quality. The need for wellhead protection for major wells in the county should also be assessed.

Caves and Cliffs besides being separate ecosystems of their own are also attractive to recreationalists with an adventuresome spirit. And as with other uses of natural resources, controls are needed to prevent the active recreational use from destroying the less obvious natural uses.

Sinkholes normally are not viewed as a usable natural resource. However, the Soil Conservation Service (SCS) and the Jefferson County Planning Commission (JCPC) both recognize that sinkholes receive much surface runoff into the great aquifer and as such afford an opportunity to filter and otherwise treat surface waters before they enter the aquifer. SCS currently is conducting research to this end and the Planning Commission checks development plans for sinkholes and requires protection from or filtering of runoff to sinkholes. Sinkholes large enough to cause concern for safety should be identified and registered so that new owners could be made aware of them. Warning signs could be installed. (See example).

Scenic Views of the rivers, the Gap and the Blue Ridge are part of the attraction of Jefferson County and are important to tourism. These need to be protected through scenic easements. The existing hillside development article in the Subdivision Ordinance and related buffers are designed to preserve the objects of these views.

Choice viewing points (such as the scenic view point on Route 9 on the Blue Ridge overlooking the Shenandoah) need to be protected

through scenic easements and the grounds around such viewing points need to be maintained free of litter. In the absence of an agency assigned to this task, volunteer help should be sought. Other viewpoints that might be considered for protection would be sites with the best unimpeded views of the Gap and of the mountains, scenic roads along the rivers, the view to the west from Cliffside Motel of the valley which serves as the entry point to the county and other entry points along the major highways.

River front access is another recreational feature. However, it is relatively limited when compared to the amount of shoreline along the Potomac and Shenandoah Rivers and Opequon Creek. A plan for improving and expanding the number of access points would be useful.

#### RELATED ISSUES

Open space preservation can be accomplished using numerous mechanisms. Current property tax rates and LESA points discourage the use of farmland for higher intensity uses. Other mechanisms such as land trusts, additional tax benefits, cluster concept trade-offs need to be explored.

Energy conservation can result from various natural resource features of the County's land planning ordinances and standards. Any requirements that result in reduced vehicle trip lengths, increased landscaping for shade and wind screening, encouragement to use walking or bicycling as travel modes or preservation of wood lots and other woodlands will save energy. Encouraging walking and bicycling may require development of bicycle paths and walkways along the roads for the safety of non-automobile traffic. In many cases, a small extension of the blacktop beyond the edge of the road would suffice to form a bicycle path. These could be added gradually as the roads are repaired. Unused railroad rights of way may also serve as excellent walking trails. The Appalachian Trail is a nationally-known footpath along the Blue Ridge, protected and maintained by the Appalachian Trail Club. Other trails that may be developed in the future could intersect with this. Future changes in ordinances and standards should include consideration of these kinds of provisions.

Buffering of selected rural country roads to preserve the rural flavor of these roads could be accomplished by (1) designating certain roads for this treatment and (2) with appropriate associated ordinance modifications.

Although farmers currently enjoy tax relief by virtue of their activity, non-farm owners of properties in natural conditions do not. Hence, it has been suggested that conservation tax benefits be developed and instituted.

The Ordinances currently define "natural, undisturbed condition", "natural vegetation" and "sensitive natural area". It has been recommended that an additional category of "special natural area" be defined.

#### RECOMMENDATIONS

- o Develop a program for preidentification and registration of natural resource features.
- o Develop incentives, such as the cluster concept, to encourage preservation of the natural habitats.
- o Establish conservation districts to protect the most significant natural areas.
- o Develop policies and procedures for mitigation of habitat damage.
- o Encourage State legislature to pass enabling legislation for local Erosion and Sediment Control Ordinances.
- o Draft an Erosion and Sediment Control Ordinance to include small site developments.
- o Work to secure passage of State legislation permitting greater local control of the siting of quarries, timbering operations and other mineral extraction.
- o Establish policies and procedures for the protection of sink holes in cooperation with state and federal programs.

## HISTORIC PRESERVATION

### INTRODUCTION

Jefferson County is an area rich in historical and archaeological interest. Part of our country's first western frontier, it was settled by Europeans before 1720 and was probably inhabited by Indians for at least 10,000 years. Parts of the county were surveyed by George Washington. In addition to containing the homes of seven members of the Washington family and three Revolutionary Generals, Jefferson County played an important part in the development of early transportation, farming, and industry. Our county was the site not only of John Brown's raid, trial, and execution but also of numerous skirmishes during the Civil War. Although many residents and visitors in Jefferson County are not aware of the historic significance of many of its structures, these buildings and landmarks enhance our quality of life. They are part of what draws people to our county and makes them want to stay.

#### Jefferson County Historical Society

The County has a small but committed group of people actively involved in historic preservation and local history and a larger part of the population that is interested in and appreciative of our local heritage. The Jefferson County Historical Society has played a major role in generating interest in preservation and local history, and the museum, the arts and crafts festivals, and the annual house and garden tours have also done their share to acquaint both residents and tourists with our tradition. In addition, several towns and villages have formed their own historic preservation groups.

#### Significant Progress in Preservation

These groups and individuals have made several significant steps in historic preservation:

- o In the early 1970's, the Jefferson County Historical Society and the County Planning Commission jointly paid for a Historical Architect to survey the County and identify sites of historical significance. This was the County's first and major step in the direction of historic preservation.
- o Forty sites in the county have been placed on the National Register of Historic Places.
- o Middleway, Shepherdstown, and Harpers Ferry have recognized National Register historic districts. Charles Town is now actively trying to be designated as a historic district. And, Shepherdstown is working on expanding the boundaries of its historic district.

- o The Jefferson County Historic Landmarks Commission, the first in the state, has identified 74 sites as local county historic landmarks.
- o Concrete markers of 25 sites of Civil War skirmishes, originally erected in 1910, have been restored and the written guide to these sites is currently being readied for republication.
- o Most of the graveyards and burial lots in the county have been examined and the data on tombstones recorded.
- o Shepherd College, one of the few colleges in the state with a professional archaeologist, is taking an active role in identifying and excavating local archaeological sites.

### Concerns

Between 1970 and 1988, development was occurring steadily, but primarily in the more rural areas. During this time, although not directly threatened by this development, many historic structures had fallen into disrepair. The agricultural nature of our county has helped to leave many historical and archaeological sites relatively undisturbed. However, with the adoption of zoning and since development primarily takes place where the services are located, growth is being channelled into designated areas. Early forts and scores of Indian villages may lie just below the surface waiting to be discovered or destroyed. Some of the less famous pre-Revolutionary structures are on the verge of collapse and some antebellum buildings are approaching the same condition.

Sites and buildings that record our county's "blue-collar" history are disappearing. Until zoning was adopted the agricultural heritage of the county was being slowly converted into subdivisions. Many of the graveyards that have been carefully surveyed in years past have now become the victims of vandalism and neglect.

Balanced against this need to preserve part of our past is the equally important need to accommodate growth and change. The recommendations in the following section attempt to maintain this balance.

## RECOMMENDATIONS

In addition to the specific recommendations listed below, there is a general need to encourage historical research and archival activities at the local level. Through these activities, many of the less obvious sites worthy of preservation or exploration can be identified and the significance of other, more visible, sites can be better appreciated.

- o Utilize the studies done by the Jefferson County Historic Landmark Commission in land use planning.
- o Promote accessibility to and tourist awareness of historic sites with due regard for the privacy to the owner of the landmark. One way to accomplish this is to encourage walking and bike paths throughout the County.
- o Where historic sites have been identified, new development should be harmonious with existing architecture. This includes public buildings and "street furniture" constructed in historic areas.
- o Promote the establishment of Architectural and Historic Site Review Committees in subdivisions to help ensure that all parts of our cultural heritage are preserved.
- o When opportunities arise, do not discourage nonprofit organizations, industry, as part of their public relations programs, and other organizations and individuals interested in historic preservation, to contribute funds for the restoration of our county historic landmarks.
- o Recommend conveyance of architectural and historical easements to the County to protect historic areas.
- o Do not discourage the development of tax incentives to preserve or maintain structures of historic interest.
- o Alert residents and developers to the incentives and resources available to preserve historic sites and structures.
- o Develop and adopt regulations for renovation of historic buildings to require that structures be externally preserved in their original form.
- o Develop and adopt regulations relating to the preservation, restoration, and landscaping of sites identified as national, state or owner agreed county historic landmarks.

- o Through the Main Street Program (National Trust for Historic Preservation) recommend to towns that they encourage the use of second stories, attract desirable tenants, improve parking, and remove undesirable facades.
- o Recommend that adequate space is allotted for storage, use and preservation of county records when new space for county services is being planned.
- o Identify archaeological resources as part of community impact statements.
- o County historic Landmarks as determined by the Historic Landmarks Commission which are intervisible with development should be buffered if they agree that they need protected.
- o Encourage discussion of historical and archeological significance at the compatibility stage of a project.
- o Make the Historical Maps available to the general public.
- o When reviewing the LESA Point System study the feasibility of increasing the weight of historical significance.

Since 1986, when the Comprehensive Plan was written, the Planning Commission has begun to require the preservation and protection of graveyards on subdivision property.

## GENERAL LAND USE

In 1988 Jefferson County adopted a County wide Comprehensive Zoning Ordinance. This Ordinance establishes four zones in the County. These zones are shown on the Zoning Map which is incorporated into this document.

The Conditional Use Land Evaluation Site Assessment Point evaluation system (LESA) is used as the basis for eligible growth outside of the identified growth corridors. This system generally allows the County to grow from the inside to the outside as services come on line. The LESA system of zoning is still the best method of zoning for Jefferson County. Some of the problems that the County has experienced with this system are as follows:

- o Misunderstanding of the Rural/Agricultural Zone.
- o The possibility exists for high density growth in areas far from the Towns.
- o Limitation on expansion for existing industries outside the Commercial/Industrial zones.
- o The possibility of development in areas where there are not services but have poor farming soils.
- o The possibility of no development in areas that have some services but have excellent farming soils.
- o Threat still exists for unwanted commercial activities.
- o Due to lack of services communities (villages) cannot expand.
- o Lack of cottage industry standards.
- o Ambiguous Home Occupation provisions.

Some solutions to these problems may be the following:

- o Allow more lots in the Rural Zone provided they are less dense. This would include clustering development based on a required minimum lot size and the size of original parcel.
- o Rename Rural/Agricultural Zone to simply Rural Zone or Conditional Use Zone.

- o Allow preexisting industry to expand (Specialty Book Binding, Lowe Products, Burch Manufacturing, Activ Industries and Summit Point Raceway).
- o Allow limited (specific) expansion of villages.
- o Expand services in areas that have poor farming soils but lack the services.
- o Prohibit or intensely regulate the location of the following:
  - Exotic Dancers
  - Casino type gambling and games of chance
  - Jails/prisons
  - Quarries
- o Draft Cottage Industry Standards
- o Revise Home Occupation Standards.

## AGRICULTURAL LAND USE

### INTRODUCTION

Until recent times, the agricultural history of Jefferson County, in the Shenandoah Valley of West Virginia, has reflected the bountiful harvests worked from and provided by the soils, forests, and clear streams of the area. These were the qualities that attracted the first inhabitants to the vicinity and that eventually interested settlers from the east, who sought land that could produce wheat for the growing export market to Europe.

Our first settlers recognized that the quality of the soil in Jefferson County was superior to that found in the Tidewater area and in the settlements along the coast. At the same time, many families such as the Washingtons realized that competition for good land was increasing along the seaboard and in Pennsylvania.

Modern residents of Jefferson County are still influenced by many of the factors that inspired our ancestors to locate here. Although the Washingtons were farmers, they were also land speculators. Charles Washington realized very early that all of his land would be worth more if he could develop part of it into a town. The same process of development continues today; however, the farmland and farming are being threatened by accelerated growth and the decreasing supply of open space for agriculture.

On the technical side, everything is right for farming in Jefferson County. We have good soils, adequate water supplies, excellent markets, a fine growing season, and a good support system. The Valley has always had a diversified crop base which presently includes dairy farming, beef and hog production, wheat and small grains, soybeans, hay, apple and peach orchards, and horse farms. In addition, we have the management skills to assure the success of agriculture in the future and to solve some of the problems facing this industry.

People who work the land have always divided farming problems into two groups. The first are the problems they can do something about, such as fertility, education, and better machinery. The second are the problems that are beyond the control of the average farmer or local government. Sophisticated technology and the free enterprise support system have created an agricultural industry that has few scientific limits, yet the independent farmer's ability to compete is limited by politics, population growth, and world economics. Modern specialized farming has become so efficient that each year almost every product is over produced by fewer farmers working larger farms. Today, less than 3% of our total population raises our food.

Since farming now faces severe economic problems, some people feel that this industry should no longer be protected. However, economic conditions can change rapidly, and it may be unwise to allow our production capability to deteriorate. We should always plan to raise most of the food we need right here at home. To rely on another system, or on imports, would be a mistake.

The 1982 U. S. Census indicated that Jefferson County produced \$22 million worth of agricultural products for that year, and by conservative estimates this value was at least tripled through business provided to the community. In general, agriculture is economically beneficial to communities because it recycles money through the local economy. In addition, agriculture demands fewer services than other types of development and thus helps keep taxes low.

Most citizens recognize that if farms in Jefferson County are forced to liquidate and urbanization happens too quickly, we will permanently lose our "rural way of life." Most County residents, even those who are not farmers, want to preserve the farming tradition for aesthetic and environmental reasons. Therefore, we need to recognize that the issues related to agricultural land use are not only economic but also cultural.

In the end, the future of agriculture in Jefferson County will be decided by a variety of forces such as politics, economics, and environmental concerns. Fortunately, our democratic system lets us influence the result of planning for the future as a community.

#### ANALYSIS OF PROBLEMS

When the 1986 Comprehensive Plan was written, a series of "kitchen conferences" was organized by the County Agent and the Planning Director to give local farmers a chance to participate in the drafting of this plan. In developing the following sections of the draft, the Citizen Advisory Committee has considered the concerns and recommendations of these participants, as well as other factors that influence land use.

#### Land Use

Present and future priorities for land use will be a factor, along with those mentioned above, in ultimately determining if farming will survive in Jefferson County. The remaining farmers in our County have survived many years of rapid change, and they can be expected to continue farming as long as economic considerations and common sense dictate. Members of the farm community recognize that economic sacrifices are needed to protect their industry, and they will have to bear their share of the responsibility for continuing the farming tradition in the valley.

A balanced approach to all forms of land use in the County will provide the best protection to individual farmers, and it is the only way in which all of the competing sectors of the community can be protected. For example, it may be beneficial to agriculture if we encourage controlled commercial, industrial and residential growth in the County. At the same time, the water resources needed for industrial, commercial, and residential growth may not be available if open space is not preserved for collecting rain and reducing contamination.

The population of Jefferson County is currently 36,000 and it is expected to reach a minimum of 46,000 by the year 2005. Although most of the new residential growth has occurred in the unincorporated areas, provisions of the Zoning Ordinance, specifically, the LESA system should slow down the conversion of farm land to residential use. Under the LESA system development needs to be located where there are or will be water, sewer, roads, and other services, thus to encourage corrective growth patterns and protect the environment. As one farmer said, we should have "more homes per acre instead of more acres per home."

Federal laws that inadequately define agricultural land use also encourage the subdivision of farmland. According to most farmers, the federal definition of a farm (an operation of at least 5 acres and \$1,000 income) is too liberal. These requirements are so minimal that many landowners are able to receive tax benefits, and other agricultural services, for an unreasonably small commitment. The State also assesses land as agricultural based on similar criteria. Using agricultural reasons to reduce assessments on residential property is an inequity to those who depend on their land for a living. In addition, property purchased on speculation and later converted to nonagricultural use often benefits from agricultural assessments. A roll back tax, which would require repayment to the community of the savings between market assessments and agricultural assessments, plus a penalty fee, could address this inequity.

If farming is to continue, the best agricultural land needs to be preserved. Unfortunately, some of the most effective ways, such as controlling the way farmland is bought and sold, are also the least acceptable approaches at this time. However, measures which minimize the conversion of farmland to urban uses prematurely, such as consolidating urban growth and creating agricultural districts as special resource areas would begin to address this problem. A more innovative technique would be the Transfer of Development Rights (TDR's). This measure would allow farmers to sell their development rights on their land to a developer who could apply them to building at a higher density in

designated growth areas. In this way a farmer obtains some return for the development potential of his land while maintaining valuable farmland.

Another way would be to allow the clustering of a farmers advanced development rights under the current zoning system.

### Urban Development

For the past 20 years, people have been moving from the cities to the country because they feel that the benefits of a more rural environment outweigh the inconveniences of commuting to their jobs or of working locally at lower wages. As more people move to the area, competition between developers and farms for good land has become acute. The best farmland is often best suited for development because it is level and clear and provides the cheapest start-up costs.

In 1980, the Farmland Advisory Committee to the County Commission established preservation agreements between the County and property owners which were contracts that protected the farmers from nuisance laws in exchange for self preservation of their farms. This system used the Land Evaluation and Site Assessment (LESA) system to rate the quality of the farm. However, since these agreements lacked teeth and since the County adopted a zoning ordinance based on the LESA system, they were abandoned in 1990.

Unregulated growth is one of the major problems for local farmers, particularly strips and islands of residential development in remote areas of the County. This type of scattered development often creates conflicts between residents and farmers. These conflicts include complaints about farmers operating equipment late at night, spreading manure on fields adjoining residences, and obstructing traffic on public roads with farm equipment, while farmers often complain of damage to fences and crops adjoining residential areas. Isolated development may also raise the value of adjacent agricultural land.

A possible solution to the scattered growth into the farmland areas is to allow existing villages in Jefferson County to expand their boundaries. This would include the allowance of small village commercial and cottage industry operation. These villages include: Rippon, Summit Point, Middleway, Kearneysville, Mannings, Millville, Bakerton, Shenandoah Junction and Leetown. The prerequisites of this village concept would be an established residential density and pre-existing commercial uses. However, this type of idea should not endorse strip development everywhere several houses and a State Road is located.

## World Economy

The most serious problems facing Jefferson County farmers are beyond the ability of local government to change. Today, most of the prices for locally produced agricultural products are controlled by world markets or special interest groups. Our form of capital intensive agriculture is particularly vulnerable to changes in the world economy, and, therefore, the individual farmer in West Virginia can have only limited success in controlling the forces that affect his economic life.

At present, low prices for agricultural products are forcing many farmers to reduce their operations or work off the farm. Although farm prices are cyclical, the general trend is for continued decreases, and little help is expected from the federal government or through international cooperation. To help farming survive, it must be protected at the national and international levels from unreasonable competition at times when it is least able to protect itself.

## Land Ownership

When farmland is removed from production by being used for nonagricultural purposes, the change is usually permanent. Such a change is cultural as well as economical because it alters an established way of life. After studying and mapping the various types of land use in Jefferson County, the Citizen Advisory Committee has determined that there is no simple way to isolate large blocks of good agricultural land because residential development is already scattered throughout the County. In some cases, commercial activity has also followed residential growth to these scattered areas. At present, most land in the County has an agricultural tradition but is increasingly open to development by non-farmers.

Although some of these land use problems may never be solved, they would not be as serious if it were easier for young people to become farmers. Land prices are now so high that it is almost impossible to buy a farm and pay off the debt from profits. In addition, farmers' children often cannot carry on the family business because inheritance taxes leave them with little operating capital.

## Labor

Ensuring an adequate labor supply on the farm is a growing problem, particularly in the fall during orchard harvest season. The scarcity of farm labor is partly caused by the low level of wages and few benefits when compared with other sectors of the economy. In addition, many agricultural jobs are not attractive to people looking for work. Many people consider farm work too difficult because it often consists of strenuous outside labor and long hours.

Many young people are discouraged from taking agricultural jobs because of the lack of benefits such as health insurance, life insurance, vacations, and retirement plans. Even when farm wages and housing are competitive with those of industry, most farmers cannot match the benefits provided by big business. In many cases, small farmers do not have the resources to fund or administer these kinds of benefits.

Although the use of migrant labor has become one of the most important methods of harvesting crops, it has also proven to be a source of frustration to farmers and orchardists because of government control and regulation of the labor supply. Methods need to be devised to ensure that farmers can hire the laborers they need and to maintain the workers' rights to fair treatment.

### Taxes

Few farmers are put out of business by high taxes, yet most farmers believe that they pay a higher share of the taxes than the urban dweller. On an acre-to-acre basis, farmers use fewer services than do suburban dwellers. Yet they pay a much higher property tax proportionally. In effect, the current method of assessing property taxes for new development may not be paying for their fair share of the costs for services.

Estate taxes also threaten the family farm system. Although state and federal inheritance laws have recently been liberalized, many farmers have trouble paying estate taxes and they are forced to discourage their children from farming. However, proper estate planning may alleviate this burden.

## RECOMMENDATIONS

Recommended solutions to the problems just identified are presented below. In addition to these specific recommendations, we have identified four general goals that should be used as guidelines to control land use in Jefferson County.

### General Goals

- o To preserve the farm industry and tradition to ensure that Jefferson County has enough agricultural land and services to maintain economically viable farm units.
- o To encourage a balance between residential growth and the rural economy.
- o To promote the concept of protecting farmers from unreasonable restraints while they are doing their work and managing their land ("right to farm" concept).

- o To encourage conservation and to avoid pollution of our County's natural resources, in cooperation with existing agencies and organizations.

### Recommendations

- o A County agricultural district should be created. Farms in such an agricultural district need not be adjacent to each other.
- o The use of Transferable Development Rights (TDR's) should be considered in Jefferson County and, if feasible, should be implemented.
- o The clustering of lots on the less farmable portions of farms should be encouraged. This may require the borrowing of future land rights under the current system to make it economically feasible.
- o Residential and commercial/industrial developments should be required to pay the cost of providing the services they need.
- o New development should be encouraged to locate near existing or planned public services and should be designed for higher density to preserve open land.
- o The LESA development system should be revised to encourage the development of less dense lots in the rural zone as opposed to all high density development.
- o State aid should be sought to promote the development of alternative crops and more effective access to regional markets.
- o A farmer should be appointed to the Development Authority to represent the agricultural industry as a vital part of the County's economy.
- o Elected and appointed officials should encourage harmony in labor relations between orchardists, the State, the Department of Human Services and public legal services.
- o Industrial Development Authority rules should be reviewed to determine if new possibilities for agricultural assistance can be found.

- o County officials and residents should work for changes in tax laws at the federal, state, and local levels, including roll back provisions, so that landowners can receive incentives for long-term agricultural development rather than for short-term land speculation.
- o The County should support periodic seminars on current estate planning procedures concerning farm sales and federal tax benefits.
- o The LESA system of farmland evaluation should be continued and modified so that the most valuable farmland is preserved while allowing some rural land to be developed into low density.
- o The County should explore forming an agricultural trust fund into which residential developers would contribute money that could be used to purchase conservation easements on agricultural lands.
- o Craft and cottage type industries have existed in Jefferson County in the rural areas for many years. Ways should be explored to allow our historic crafts industries to remain and expand in the agricultural zone.
- o Expansion of villages should be encouraged to assure that the smaller communities can adequately serve the agricultural community and remain economically viable.
- o More latitude should be given to working farms for processing their goods. This includes milk bottling and meat packing.
- o The County should explore ways to allow housing for farm employees and migrant workers.

## RESIDENTIAL LAND USE

### INTRODUCTION

Future residential land use will be influenced by regional population growth, trends in the local housing inventory, local population growth, market forces and government regulation of land use and related areas. According to the Housing Analysis chapter prepared by the Staff of the Jefferson County Planning Commission and contained in Part II of this Plan, housing trends may be summarized as follows:

1. The total number of housing units increased from 11,542 in 1980 to 14,606 in 1990, an increase of 26.5%.
2. In 1990, 88.4% of all housing units were occupied, down from 90.4% in 1980.
3. The majority of new housing units continued to be single family detached units. However, mobile homes and multi-family dwelling units, as a percentage of all housing units, increased from 20.6% in 1980 to 26.4% in 1990.
4. Approximately 75% of all housing units were located outside corporate limits in 1990, a slight increase from 74% in 1980.
5. Household size measured in persons per household continued to decrease. In 1980 it was 2.89. In 1990 it was 2.68.
6. Of the 14,606 housing units standing in 1990, 8,219 (56.3%) were built since 1970 and 11,707 (80.2%) since 1940.
7. Over 50 percent of total housing units in 1990 are on public or private community water systems and 40 percent are on public sewer systems, up from 33 percent in 1980. Fifty-eight percent of housing units are served by septic tank sewer systems.
8. 3.4% of existing occupied housing units are substandard, 2.6% on the basis of crowding (down from 4.8% in 1980) and 1.7% on the basis of plumbing deficiencies (down from 6.6% in 1980).
9. The estimated value of new single family detached residential units exclusive of land and finance costs has grown from \$50,770 in 1980 to \$91,900 in 1990.

10. Based on a projected year 2005 population of 46,000, approximately 5400 housing units will need to be built to accommodate this population at the 1990 rate of occupancy.

The 1986 Comprehensive Plan indicated that sprawl is to be avoided due to the cost of providing local government services and increased pressure on farms to convert to residential uses. The adoption of the Zoning and Development Review Ordinance addressed this concern and has proven to be a significant deterrent to sprawl. However, the avoidance of sprawl continues to be a concern of this updated plan.

Current population density is approximately 3.78 persons per acre. Using this density, approximately 4,100 acres (3% of the County) will be required in the next 21 years (by year 2015) to meet residential needs for a population of 51,500. This growth can be accommodated within the growth corridors designated on the current Zoning Map. This amount of acreage, as long as it is substantially confined to the growth area, can be converted to residential uses without affecting the County's rural/agricultural character.

Many of the problems identified and recommendations made in the following section have been previously identified in other sections of the Comprehensive Plan. For this reason, this chapter on residential development should be read in conjunction with the other land use sections, the chapters on population and housing, and the sections on public services.

#### ANALYSIS OF PROBLEMS AND RECOMMENDATIONS

General goals for residential land use have been identified as follows:

- o To attract new residents of all economic levels by encouraging a variety of housing types throughout the county at a wide range of costs.
- o To provide a choice of suburban, semi-rural, and rural living environments.
- o To continue to promote the separation of residential areas from conflicting land uses (such as industrial and large commercial developments).
- o To continue encouraging new residential developments to be located so as to maximize the use of existing public facilities and service investments such as schools, parks, sewer, and water.

- o To actively support state legislation allowing counties to implement local building codes.
- o To establish sewer and water service areas in concert with higher density residential areas.

Rapid, scattered residential development in the County is inefficient and costly in terms of providing public services (e.g., roads, school busses, garbage pickup, utilities). As noted in other sections of the Comprehensive Plan dealing with water and wastewater treatment, outlying residential areas must be served by either individual or package systems. If these systems are overburdened or if developments are crowded onto poorly drained land, groundwater may become polluted. In addition, overloading water systems may lead to an inadequate supply. To avoid these problems:

- o Residential land use policies should build on the Zoning Ordinance and continue to create orderly development patterns and discourage scattered development.
- o The extension of public facilities such as water, sewers, and treatment plants should be consistent with residential land use policies.
- o Impact fees and other methods of financing should be considered as a means of providing uniform fire hydrants, adequate roads, a safe and adequate water supply, effective sewage disposal, proper access to highways, and school construction necessitated by new development.
- o The Zoning Ordinance protects residential land areas from incompatible uses. However, the Ordinance needs to be periodically assessed to ensure that where residential development abuts nonresidential land, setbacks and screening are adequate to buffer users.
- o Subdivision regulations need to be reviewed and updated periodically to meet present demands. One area needing review is cluster provisions.

Since the rural character and scenic beauty of the county are features that have attracted many new residents and retained many of the older ones, Jefferson County must make a commitment to preserve agricultural land if it is to maintain its quality of life. Hence, the County needs to continue to do the following things.

- o Channel new development into designated "growth areas" designated by the Zoning Map.
- o Enforce buffer zones, setbacks, and density controls.

The County should have a building code, licensing requirements for building tradesmen, and control over the use of package treatment plants, the extension of municipal services, or the types of housing being built. Lack of building codes provides no protection against shoddy construction and penalizes builders who want to construct good quality, higher cost housing. In addition, the Subdivision Ordinance only allows the Planning Commission to examine the internal arrangement of lots and other site improvements.

- o As part of land use regulation, developers could be given incentives to provide amenities and services (e.g., higher density housing might be permitted if certain types of roads were provided or recreational features developed).
- o Every effort should be made to adopt and implement a building code for Jefferson County.
- o The county needs to promote adequate housing for people at a broad spectrum of economic levels.
- o The cost of providing the infrastructure needed to serve new housing in the County should be equitably distributed among those who create the need. This might be done by instituting impact fee assessments for new developments.
- o The areas of substandard housing should be identified and programs should address the rehabilitation of these units to improve the standard to at least the State level.

Finally, land use regulation and planning and the prompt, effective enforcement of ordinance and future building codes will require Jefferson County to expand its professional planning staff and to add building plan reviewers and inspectors to keep pace with the increasing need for these services. Provisions need to be made to finance this expansion in the near future.

- o Existing villages should be recognized as viable residential areas with small supporting commercial and industrial uses.

## INDUSTRIAL AND COMMERCIAL LAND USE

### INTRODUCTION

Jefferson County has a substantial history of both agricultural and industrial land use, including viable iron and limestone industries and flourishing grist mills and saw mills. Depletion of natural resources and changes in markets and technology have reduced or eliminated the roles played by these industries in our local economy. In general, Jefferson County has not attracted enough new industry to make up for the social and economic benefits that were lost when these earlier industries diminished or disappeared.

During the past 15 or 20 years, residential development and population growth have created increased demands on transportation systems, educational facilities, and other services. In a community with healthy industry and commerce, these operations provide not only employment opportunities but also the tax base required to help pay for those services needed by the residential sector.

Part of the challenge facing Jefferson County is to create a healthy industrial/commercial economy while preserving the rural atmosphere and quality of life that has drawn many people to this area. The following section identifies problems related to industrial/commercial development and provides guidelines for establishing a well-managed, rational plan for economic development and land use in Jefferson County.

Many of the problems identified and recommendations proposed in this Chapter grew out of issues that have been discussed in other sections of the Comprehensive Plan. It is recommended that the Agricultural and Residential land use sections, as well as the Transportation Section, also be reviewed when issues relating to commercial/industrial development are considered.

### ANALYSIS OF CURRENT PROBLEMS AND RECOMMENDATIONS

We need only to look at suburban areas in many nearby states to know that scattered commercial development and commercial strip development can radically affect the quality of life in a community, produce congestion and pollution, and place large demands on public services. To avoid the problems caused by scattered and strip development, we need to:

- o Concentrate most future commercial growth near the existing main retail centers (Charles Town/Ranson and Shepherdstown). Some additional growth will also be needed in the areas in and around the small villages.

- o Retain or encourage some small commercial growth areas in the County's smaller communities so that needed services can be provided to local residents.
- o Locate commercial development along or near adequate transportation routes and in areas where future sewer and water construction is most likely to occur. Property adjacent to interchanges of the Charles Town Bypass should be considered for commercial development. In addition, signs should be located at access points on the Bypass indicating the businesses and services available nearby.
- o Maximize land use adjacent to highways and reduce traffic congestion by developing parallel set back feeder roads and limiting access from high speed highways. Traffic controls and circulation patterns should be instituted where appropriate.
- o Establish site planning policies that would encourage or require setbacks, landscaping and allowance for "greenspaces," and architectural designs that harmonize with the surrounding area.

The potential also exists in the County for scattered industrial development. Although efforts are currently being made to channel growth into appropriate areas, additional efforts need to be made to:

- o Identify adequate land for future industrial development. These new industrial areas should be directed toward logical growth areas. An ideal location would be one that provided both rail service and access to the Charles Town Bypass.
- o Existing industries located in zones outside the business zones should be allowed to expand provided they can meet the site plan standards.
- o Locate industrial land use areas along or near adequate highway and/or rail transportation routes and in areas where future sewer and water construction is most likely to occur.
- o Encourage further industrial development in recommended industrial areas by giving them the highest priority for public service extensions.
- o Encourage the County Development Authority to focus on expanding existing industrial firms since most new jobs in the area have come from expansion of existing operations.

- o Help provide a stable economic base for the County by attracting medium sized companies that produce a diverse range of products.
- o Encourage the growth of tourism as an industry in ways that are compatible with historic and environmental preservation and with the availability of public services.
- o Continue to work for the upgrading and expansion of Route 9 so that industries needing access to I-81 will be encouraged to locate in Jefferson County.
- o Legislative action should be initiated and supported which allows more flexible building codes to be implemented. Counties should have the option of implementing a code suitable to their County.
- o Once a building code is in place, adherence to the code should be enforced with final inspections and the issuance of certificates of occupancy upon completion of construction.
- o Development of signs and support structures as an integral part of commercial design and in harmony with adjacent land use.
- o Locating and focusing commercial/industrial lighting so that it is directed away from residential neighborhoods.
- o Improving or maintaining traffic flow and safety at optimum levels through regulation of traffic access, circulation, and parking.

Jefferson County needs to carefully consider both the costs and the benefits associated with specific kinds of commercial and industrial development. If the benefits of a business greatly outweigh the costs, the County should consider providing economic incentives to attract or retain it. On the other hand, if potential businesses will place a strain on public services they should be required to pay their fair share of the costs of providing those services.

