



Kanawha County, WV

COMMUNITY PROFILE & TECHNICAL SUPPLEMENT

Purpose and Use of this Document

The community profile and technical supplement will serve as a companion document to *Kanawha County, WV: Twenty-twenty Vision, A Comprehensive Development Plan*, published under separate cover. This is a preliminary draft of that publication, still under development. Information presented in this document has been collected during the research phase of the planning process, and will be amended during the comprehensive plan element committee (CPEC) meetings. The purpose of this document is to support the findings, conclusions, proposed policies, alternative and recommended actions contained in the comprehensive plan.

This document, in accordance with Chapter 8, Article 24 of the Code of the State of West Virginia, provides technical support, evidence, information and key statistics regarding the past, present and future of Kanawha County, WV. This research is intended to promote an improved decision-making process within the community by assembling and analyzing these essential facts. It also serves as the rational basis for developing long-range strategies for future development.

In so doing, the community can be better prepared to address pressing social and economic issues, take full advantage of emerging opportunities, and create better places to live, to learn, to work and to play.

INTRODUCTION

Kanawha County, West Virginia is a unique and interesting collection of over a dozen riverfront municipalities and countless unincorporated and rural communities. It's strategic geographic location, mountainous terrain, mild climate, abundant natural resources, diverse economy, culture and history combine to create unique problems, strengths and opportunities.

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As a basic introduction and overview, the following information is intended to provide a quick, concise assessment of the various attributes and dimensions of Kanawha County. The balance of this technical supplement and statistical profile will provide a more detailed level of information on these and many other relevant topics. Graphic representation and thematic maps of relevant data are provided in both the main report (comprehensive development plan) and this supplemental document.

Location

Kanawha County is centrally located in the State of West Virginia and the upper South Atlantic region of the United States. Within a 500-mile radius are:

More than half of the nation's population;

Over 60% of the nation's manufacturing employment;

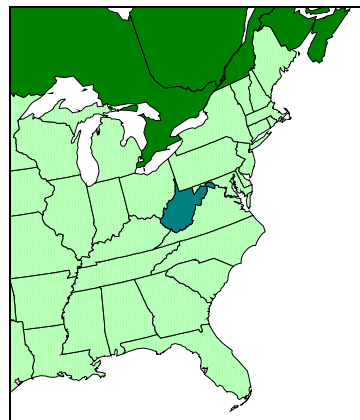
Over 55% of the nation's wholesale sales;

Over 50% of the nation's retail services;

Over 50% of the nation's disposable personal income.

- Kanawha is one of the 55 counties in West Virginia. It is part of the Charleston Metropolitan Area. Its 1990 population of 207,619 ranked 1st in the state.
- Kanawha County, West Virginia (WV) is one of two urbanized counties which make up the Charleston, WV Metropolitan Statistical Area (MSA).
- Kanawha and Putnam counties constitute the Charleston MSA.
- The Charleston MSA involves 1,254 square miles – 903 in Kanawha County and 351 in Putnam County.
- The capital city, Charleston, also serves as the county seat.
- Kanawha County is located within 500 highway miles of these major US cities:

Atlanta	499
Baltimore	361
Charlotte	285
Chicago	470
Cincinnati	205
Columbus	170
Detroit	399
Indianapolis	317
Nashville	419
Philadelphia	482
Pittsburgh	237
Washington, DC	342



Regional Intergovernmental Council

Climate - Annual Averages

- Daily Temperature (degrees Fahrenheit): 55.0
- High Temperature: 65.5
- Low Temperature: 44.0
- Rainfall (inches): 42.43
- Snowfall (inches): 31.90
- Heating Degree Days: 4,646
- Cooling Degree Days: 1,031
- Prevailing Winds (miles per hour): 6.2 SW

Population Trends and Projections

From 1900 to 1960, Kanawha County experienced tremendous and sustained growth in both population and employment. With a resident population of 54,696 at the turn of the century, the county grew to 252,926 by 1960; averaging over 3,300 new residents each year for over half a century. However, by the mid-sixties, growth **began** to taper off and changes in the population became apparent.

From 1960 to 1970, the population declined 32,410 persons to 229,410, as household size diminished. This was followed by a modest increase, reported by the 1980 dicennial census, when population grew to 231,414. By 1990, the population had declined to 207,619; a record low for Kanawha County since 1945. Many forecasters predicted this decline would continue into the next century. But 1995 estimates, published by the Bureau of the Census, indicated otherwise.

In 1995, the estimated population of Kanawha County showed only a modest decrease in population where a major loss was expected. As a direct result, many projections have subsequently been revised upward (see Figure 2).

Figure 1 - Recent Population Trends: 1980-1995

	1980	1990	1995
Charleston, WV MSA	269,595	250,454	255,139
Kanawha County, WV	231,414	207,619	206,195
City of Charleston	63,968	57,287	na
Putnam County, WV	38,181	42,835	48,944

Source: US Department of Commerce, Bureau of the Census.

Figure 2 - Population Projections: 2000-2020

	2000	2010	2020
Charleston, WV MSA	260,906	276,176	294,675
Kanawha County, WV	207,757	216,237	229,192
Putnam County, WV	53,149	59,939	65,483

Source: West Virginia University, Regional Research Institute, Series M Projections (25MAR96).

Past, Present, and Future Population: 1930-2020

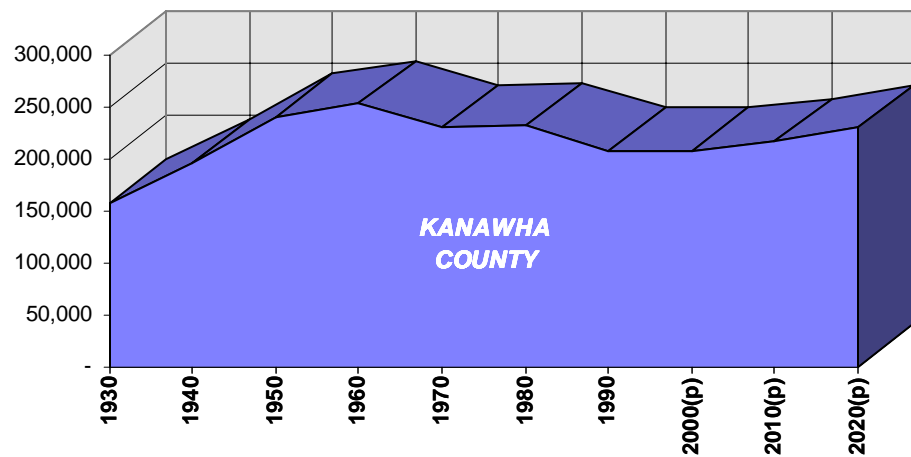


Figure 3 - General Characteristics of Persons: 1990

	Charleston MSA	Kanawha County	City of Charleston	Putnam County
<i>Percent male</i>	47.5	47.2	45.4	49.0
<i>Percent female</i>	52.5	52.8	54.6	51.0
<i>Percent white</i>	93.6	92.5	84.1	99.2
<i>Percent black</i>	6.4	6.6	14.3	0.3
<i>Total households</i>	100,408	84,713	55,807	15,695
<i>Average HH size</i>	2.46	2.42	2.21	2.71

Source: US Department of Commerce, Bureau of the Census.

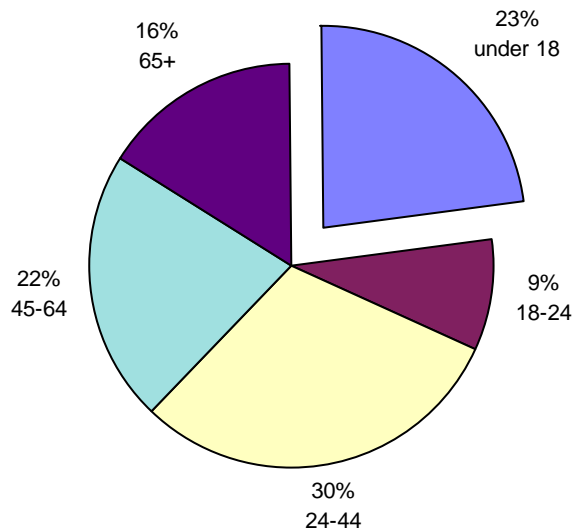
The Charleston MSA accounts for 14 percent of West Virginia's total population and 16 percent of statewide resident employment. While new jobs continue to grow in Kanawha County, most new residential growth occurs in Putnam County.

Figure 4 - Percentage of Population by Age Group: 1990

Age	Charleston MSA	Kanawha County	City of Charleston	Putnam County
Under 18 years	23.9	23.2	21.7	26.7
18 - 24	8.5	8.6	8.3	8.3
24 - 44	31.4	31.0	30.9	33.4
45 - 64	21.3	21.5	20.7	20.6
65 and over	14.9	15.7	18.4	11.0
Median age	37.6	38.2	39.4	34.7

Source: US Department of Commerce, Bureau of the Census.

Kanawha County Population by Age Group: 1990



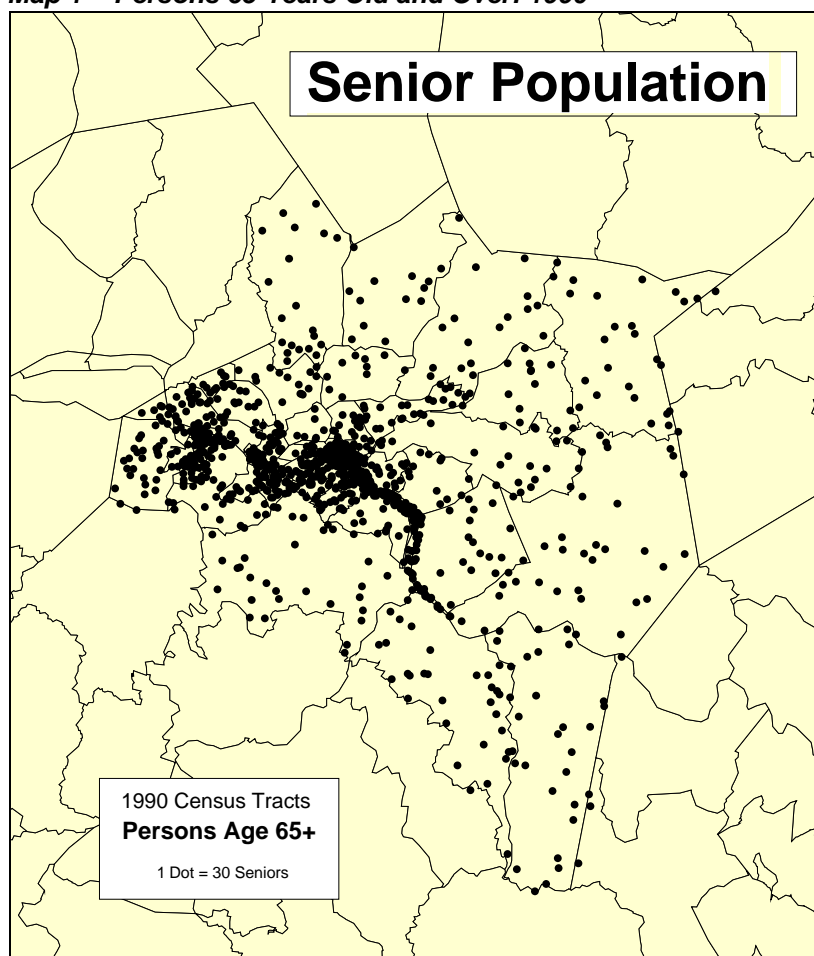
Source: US Department of Commerce, Bureau of the Census.

Senior Population

The nation, state, and county are all experiencing tremendous growth in the number and proportion of the population 65 years of age and older. In 1990, there were 32,562 seniors age 65 and over living in Kanawha County. Householders age 65 and over constitute 25,585 (30%) of the total 84,435 households in the county. Approximately 11%, or 3,731 of all seniors in Kanawha County, were living at or below poverty level in 1990.

Most senior households are owner-occupied (18,085 housing units). Nearly half of the total senior housing units (10,411) involve seniors living alone. 7,284 non-institutionalized seniors have a mobility or self-care limitation. 6,509 senior households have no vehicle available, and 634 housing units do not have a telephone. About the same number (590) do not have complete plumbing facilities.

Map 1 - Persons 65 Years Old and Over: 1990



Because the income of seniors is relatively stable, transfer payments continue to pour into the local economy even during a depression. The state is actively trying to recruit retirees. Each of about 1,000 new senior residents per year brings an average income of \$23,258 to West Virginia. Retirees can help create and retain jobs, stimulate the housing industry, expand the health-care industry, increase the tax base and increase retail sales. Conversely, large senior populations do not help attract employers that require a large work force, and dominate the housing market.

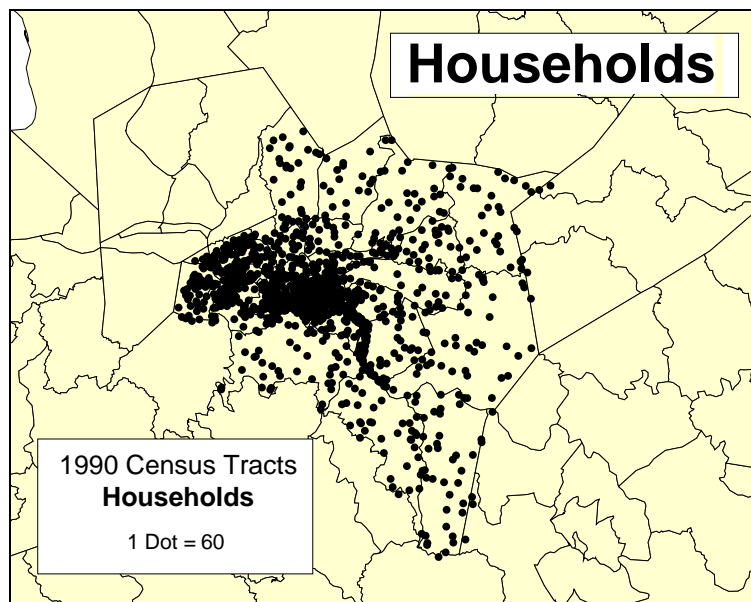
Housing

From 1970 to 1990, the number of occupied housing units increased from 74,511 to 84,713. During the same period, population declined from 229,515 to 207,619 and median household size dropped from 2.78 to 2.18; consistent with state and national trends. Average household size has been shrinking since 1950, when it was 3.65.

Figure 8 - General Characteristics of Housing Units: 1990

	<i>Charleston MSA</i>	<i>Kanawha County</i>	<i>Putnam County</i>
<i>All housing units</i>	109,631	92,747	16,884
<i>Built before 1960</i>	54,321	49,769	4,552
<i>Occupied housing units</i>	100,408	84,713	15,695
<i>Owner-occupied</i>	71,089	58,022	13,067
<i>Median value</i>	\$56,700	\$55,300	\$62,400
<i>Renter-occupied</i>	29,319	26,691	2,628
<i>Median contract rent</i>	\$258	\$258	\$264
<i>Gross rent (incl. utilities)</i>	\$339	\$338	\$345
<i>Vacant housing units</i>	9,223	8,034	1,189
<i>Mobile home or trailer</i>	12,194	9,065	3,129
<i>Householder 65 years & older</i>	25,912	22,585	3,327

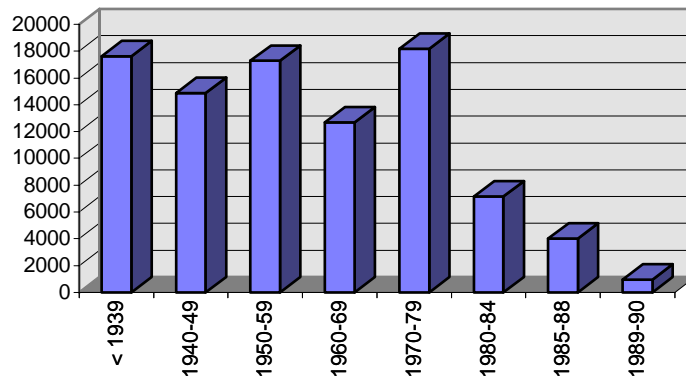
Source: US Department of Commerce, Bureau of the Census.



The vast majority of housing in Kanawha County is located within the corporate limits of fifteen riverfront municipalities.

Most of existing housing stock was built prior to 1960. Of the total 92,747 housing units in Kanawha County (1990), 49,769 were built before 1960. Over 19,000 (23%) of all occupied housing units were built before 1940. The majority of recent custom-built residential construction involves homes valued at \$250,000 and up. This price range is not well-matched to the income of area employees, especially those in the expanding service economy. Manufactured housing constitutes a significant and growing proportion of housing units produced during the last 30 years.

Year Structure Built: (stated by owner)1990



Over 68% of all occupied housing units are owner-occupied; 31.5% are renter occupied. The 1990 homeowner vacancy rate was only 2.2%, while rental units experienced a 10.7% vacancy rate.

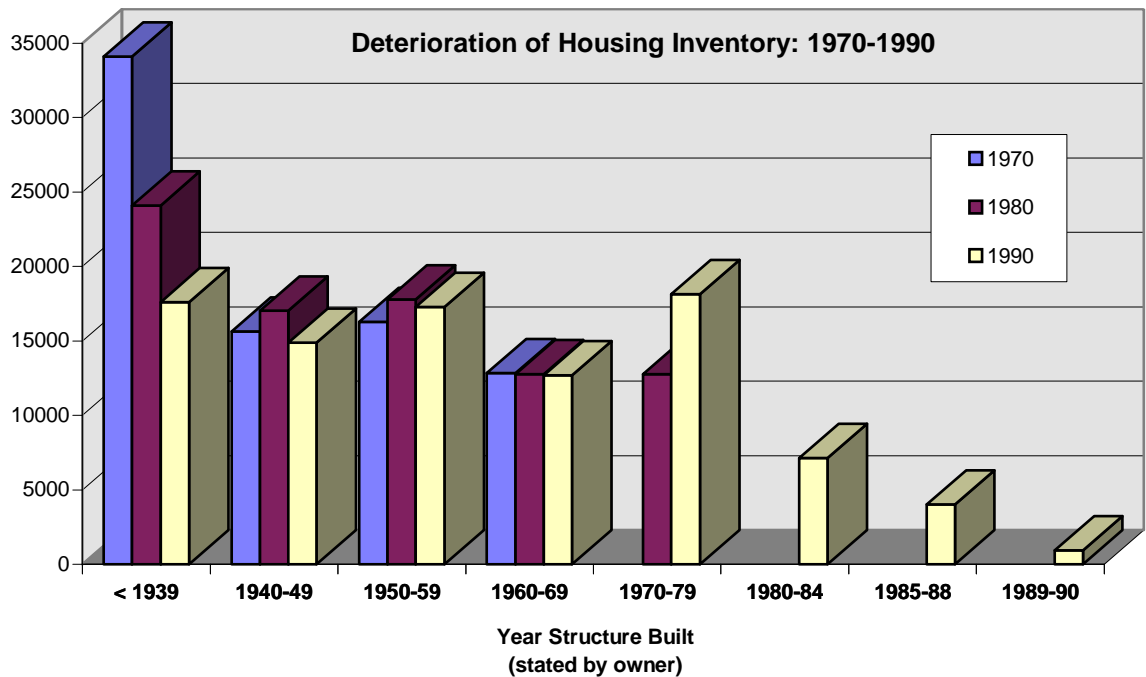
The (1989) mean household income for owner-occupied housing units was \$36,185, compared to a mean income of \$19,872 for renter-occupied units. Depending upon their location in Kanawha County, median monthly housing expenses for owner-occupied units range between 10% to 17% of total household income. (The national average is approximately 25%.) This is due, in part, to the fact that most homeowners (53%) no longer have a mortgage. Their only remaining housing expenses are utilities, insurance, maintenance and real estate property taxes. For those households, the median monthly owner costs were \$142.

Gross rent as a percentage of household income ranges between 12% to 49%, depending upon the location and condition of the rental property. For both owners and renters, the total (percentage of income) financial burden of housing increases for those households with lower incomes.

The average homeowner pays as little as 10% for housing expenses, while the average renter pays as much as 49% of their total household income for housing expenses.

DETERIORATION OF AFFORDABLE HOUSING STOCK

Generally speaking, the older, suburban and rural housing units are also the most affordable for residents of Kanawha County. This is especially true as the service sector of the economy expands and the number of higher-paying jobs in mining and manufacturing decline. But these housing units are deteriorating at an alarming rate, especially those built in 1939 or earlier, and the prices of both new and existing housing are skyrocketing. According to the *National Association of Realtors*, home sale prices in Kanawha County had the third highest increase in the nation from 1995 to 1996. This trend of gentrification causes displacement of the labor force.



Source: US Department of Commerce, Bureau of the Census.

BUILDABLE SITES & SUBURBAN SPRAWL

The high demand for affordable and up-market housing continues to grow due to the sparse supply of buildable sites. Nearly 20,000 non-residents commute to work in Kanawha County each weekday. Many of these employees would likely relocate their household if suitable housing were available.

Kanawha County has a very limited amount of land to locate new development, including residential uses. When any new tract is made available, it becomes a premier property. In the case of residential development, this directly translates into higher sales prices and rental rates. The new supply satisfies demand in the upper income ranges, but leaves the low-to-moderate income households without option.

HOUSING ASSISTANCE PAYMENTS

Until 1985, the US Department of Housing and Urban Development (HUD) was adding about 400,000 households per year to the rolls of Section 8 rental assistance payment recipients. This program limits total housing expense to about 30% of monthly household income. The number of new recipients was reduced to 40,000 per year during the Reagan administration, and to zero during the Clinton administration. Further reductions in federal subsidies are likely to occur, so action on the state and local levels will be needed to fill this new and expanding void.

Household Income

Household, family, personal and per capita incomes in Kanawha County have consistently been higher than that of the State of West Virginia, but often fall short of national levels. In 1990, the median household income was \$23,999 while the mean was \$31,422. 61,213 (72%) households had earned income, while 28,387 (34%) households received Social Security benefits. The mean household income for these two categories were \$33,264 and \$7,989, respectively.

Public assistance payments were made to 7,107 households in 1989, and retirement payments were made to 18,865 households. The mean household income for these two categories were \$3,527 and \$18,865, respectively.

Households made up of married couples with children under 18 earned the highest mean income (\$43,681), while female householders, no husband present, with children under 18, earned the lowest (\$13,407). 31,423 persons (15.3%) have incomes at or below the poverty level.

Figure 9 - Income, EBI and Sales

	Region III	Charleston MSA	Kanawha County	Putnam County
<i>1990 Median household income</i>	na	\$24,578	\$23,999	\$27,405
<i>1992 Total Personal Income (TPI)</i>	\$6,754,679	\$4,839,960	\$4,114,495	\$725,465
<i>1992 Per Capita Personal Income (PCPI)</i>	na	\$19,119	\$19,803	\$15,986
<i>1995 Median Effective Buying Index (EBI)</i>	na	\$31,863	\$29,005	\$32,592
<i>1995 Total Retail Sales (X000)</i>	\$2,545,450	\$2,020,995	\$1,829,076	\$912,861

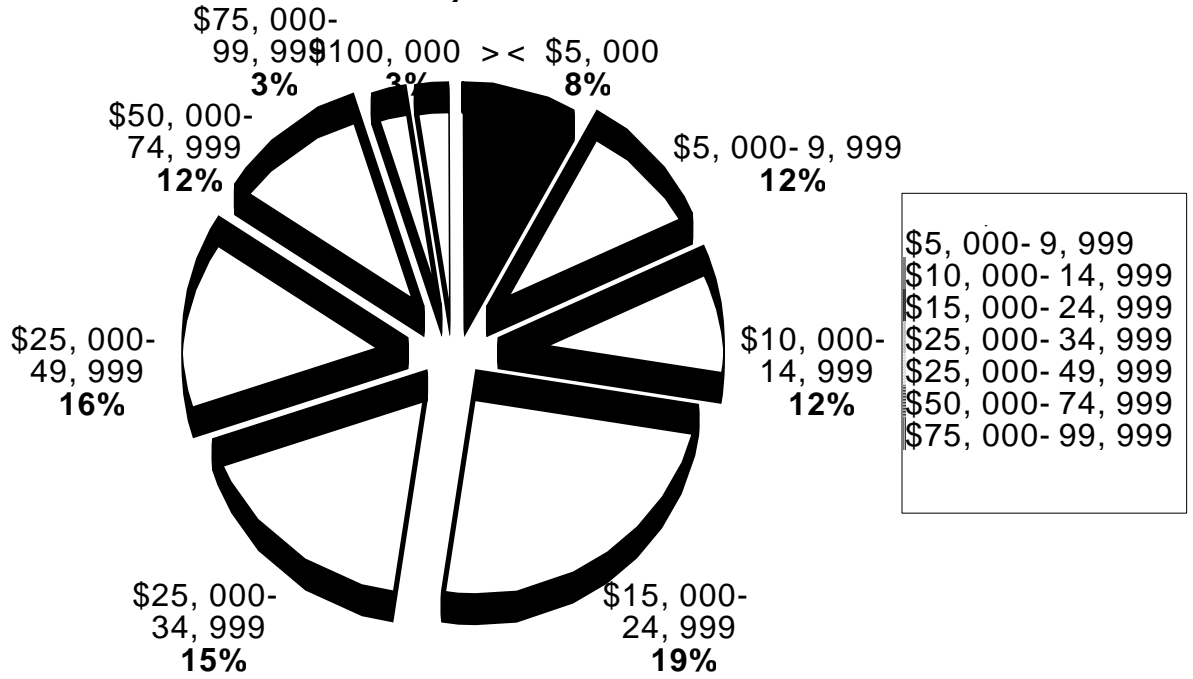
Source: Regional Intergovernmental Council.

Figure 10 - Change in Household, Family, & Personal Income: 1970 - 1990

KANAWHA COUNTY	1970	1980	1990
<i>Median Household income</i>	n/a	\$17,291	\$23,999
<i>Median Family Income</i>	\$8,699	\$20,367	\$30,030
<i>Per Capita Income</i>	\$2,829	\$7,541	\$12,887

Source: Regional Intergovernmental Council.

Kanawha County Household Income: 1989



Source: US Department of Commerce, Bureau of the Census



Per Capita Personal Income

In 1993, Kanawha County had personal income per person of \$20,861. This PCPI ranked 2nd in the state, and was 129 percent of the state average (\$16,169) and 100 percent of the national average (\$20,800). In 1983, Kanawha County's PCPI of \$11,762 ranked 1st in the state, up from \$9,882 in 1980.

At \$21,300 in 1994, the Charleston MSA had a per capita personal income (PCPI) 25 percent above the state average of \$17,100 and just 1.8 percent below the national average of \$21,700. In the same year, per capita income for Kanawha County grew to \$22,000. The average annual growth rate for PCPI in the Charleston MSA during the period 1990-1994 was 5.5 percent.

Per capita personal income (PCPI) growth in Kanawha County remains above both the state and nation.

PCPI in Kanawha County has grown more rapidly than that of the state or nation. The average annual growth rate of PCPI in Kanawha County over the past 10 years was 5.9 percent. The average annual growth rate for the state was 5.7 percent and for the nation was 5.5 percent. The PCPI growth rate in Kanawha County consistently outpaces both the state and nation.

Total Personal Income

In 1993, Kanawha County had a total personal income (TPI) of \$4,327,173*. This TPI ranked 1st in the state and accounted for 14.7 percent of the state total. In 1983, Kanawha County's TPI of \$2,678,387* also ranked 1st in the state.

The average annual growth rate of TPI over the past 10 years was 4.9 percent. The average annual growth rate for the state was 5.0 percent and for the nation was 6.5 percent. TPI in Kanawha County has grown at a slightly slower rate than that of the state and nation.

Components of Total Personal Income

Total personal income (TPI) includes the earnings (wages and salaries, other labor income, and proprietors' income); dividends, interest, and rent; and transfer payments (pensions and benefits) received by the residents of Kanawha County.

In 1993, earnings were 61.6 percent of TPI (compared with 66.0 percent in 1983); dividends, interest, and rent were 15.4 percent (compared with 15.8 percent in 1983); and transfer payments were 23.0 percent (compared with 18.2 percent in 1983). From 1983 to 1993, earnings increased on average 4.2 percent each year; dividends, interest, and rent increased on average 4.6 percent; and transfer payments increased on average 7.4 percent. Retirement and disability insurance and medical payments account for the majority of transfer payments in the county.

The majority of all transfer payments in Kanawha County will experience a slower rate of growth as annual increases in state and federal entitlements are reduced.

Earnings By Industry

Earnings of persons employed in Kanawha County increased from \$2,182,854* in 1983 to \$3,344,979* in 1993, an average annual growth rate of 4.4 percent. The largest industries in 1993 were services, which accounted for 30.3 percent of all earnings; state and local government, 13.0 percent; and non-durable goods manufacturing, 12.0 percent.

In 1983, the largest industries were services, with 20.9 percent of earnings; non-durable goods manufacturing, 17.2 percent; and state and local government, 12.8 percent. Of the industries that accounted for at least 5 percent of earnings in 1993, the slowest growing from 1983 to 1993 was non-durable goods manufacturing, which increased at an average annual rate of 0.6 percent; the fastest was services, which increased at an average annual rate of 8.3 percent.

Figure 5 - Average Annual Employment and Wages: 1995

	Boone County	Clay County	Kanawha County	Putnam County
Total Employment	7,604	1,508	106,386	14,563
Total wages (000)	\$260,685	\$37,257	\$2,763,591	\$362,547
Annual wages	\$34,282	\$24,706	\$25,977	\$24,895
Weekly wage	\$659.28	\$475.13	\$499.56	\$478.75

Source: WV Bureau of Employment Programs, Office of Labor and Economic Research.

Employment & Job Growth

Once dominated by the extractive coal and timber industries, Kanawha County now enjoys a much more stable and diverse economy. It serves as the economic heart of both the region and State. Kanawha County is the center of finance, commerce, health care, transportation, communication, and government. As such, there are more employment opportunities and new jobs created than any other county in the State of West Virginia. During the period 1990-95, the Charleston MSA recorded a much faster rate of job growth than the statewide average (2.3 percent per year versus state average annual job growth rate of 1.6 percent).

*During the first five years of the 1990s,
the Charleston MSA recorded a much faster rate of job
growth than the state or nation.*

Between 1980 and 1995, all employment sectors except mining and manufacturing posted employment gains. Over 14,000 new jobs were created, pushing Kanawha County employment to a record high. Growth within the service sector accounted for the vast majority of new jobs, with strong gains in business, health, engineering, social and management services. Strong construction job gains offset the 1990-95 losses in mining and manufacturing.

Figure 6 - Employment by Industry: 1995

	Region III	Charleston MSA	Kanawha County	Putnam County
Mining	6,772	1,779	1,725	54
Construction	8,526	6,909	4,833	2,076
Manufacturing	14,602	9,826	8,665	1,161
Transportation	10,513	9,042	7,692	1,350
Trade	49,488	31,301	26,273	5,028
Finance, IRE	7,628	6,581	6,279	302
Services	39,581	32,918	30,556	2,362
Government	30,280	22,000	19,912	2,088
TOTAL	157,471	120,949	106,386	14,563

Source: WV Bureau of Employment Programs, Labor and Economic Research

Trucking, warehousing, telecommunications and public utilities experienced somewhat slower rates of growth. New jobs in social services excelled during the period 1990-95, with an average annual growth rate of 10.5 percent.

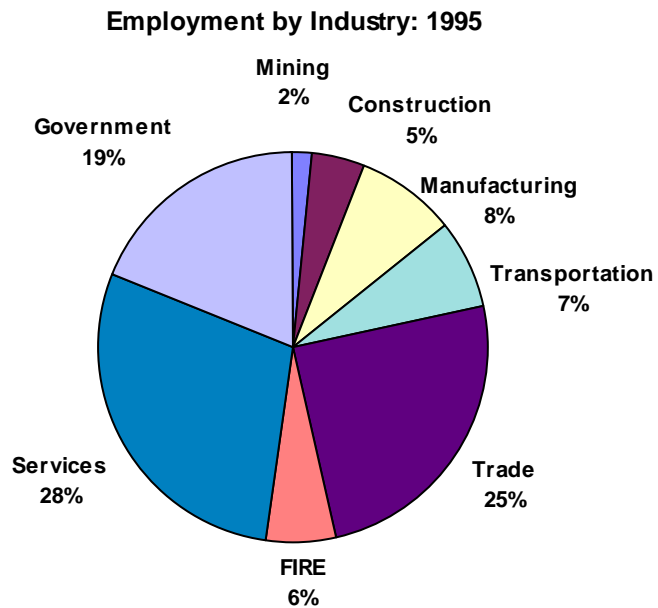


Figure 7 - Resident Labor Force Statistics: 1995

	Region III	Charleston MSA	Kanawha County	Putnam County
Total civilian labor force	138,960	127,010	103,250	23,760
Total number employed	130,380	119,810	97,380	22,430
Total number unemployed	8,580	7,200	5,870	1,330
Unemployment rate (percent)	6.2	5.7	5.7	5.6

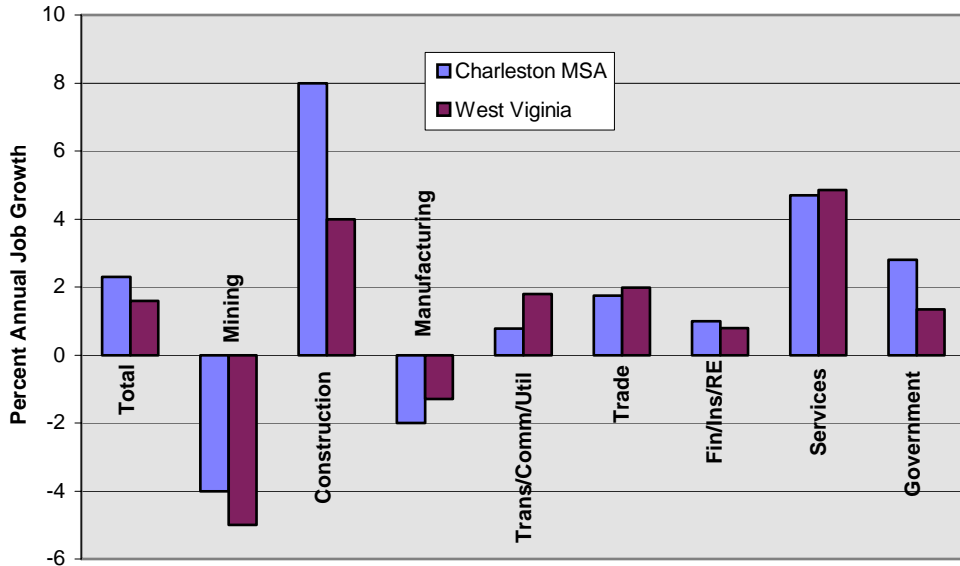
Source: WV Bureau of Employment Programs, Office of Labor and Economic Research.

Figure 8 - Resident Labor Force and Employment Changes: 1992 - 1995

KANAWHA COUNTY	1992	1993	1994	1995
Total civilian labor force	97,190	102,810	103,290	103,250
Total number employed	89,270	94,610	96,540	97,380
Total number unemployed	8,410	8,200	6,760	5,870
Unemployment rate (percent)	8.7	8.0	6.5	5.7

Source: WV Bureau of Employment Programs, Office of Labor and Economic Research.

Annual Nonfarm Job Growth: 1990-1995

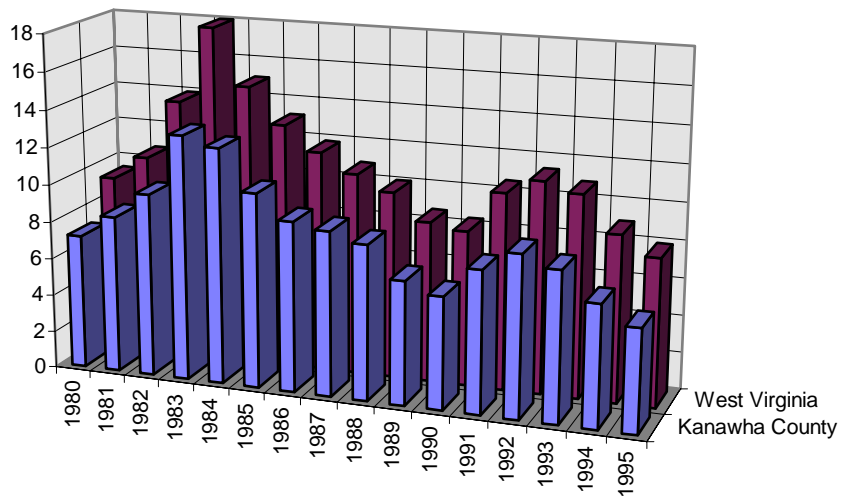


Source: Bureau of Business Research, West Virginia University.

Unemployment

With strong job growth comes a declining rate of unemployment for Kanawha County and the Charleston MSA. Since 1992, the unemployment rate for the MSA has dropped 3 percent; from 8.7 percent to 5.7 percent in 1995; In 1996, unemployment dipped below 5 percent for the first time in several decades.

Average Annual Unemployment Rate: 1980-1995



Source: WV Bureau of Employment Programs, Office of Labor and Economic Research.

Employment Shares

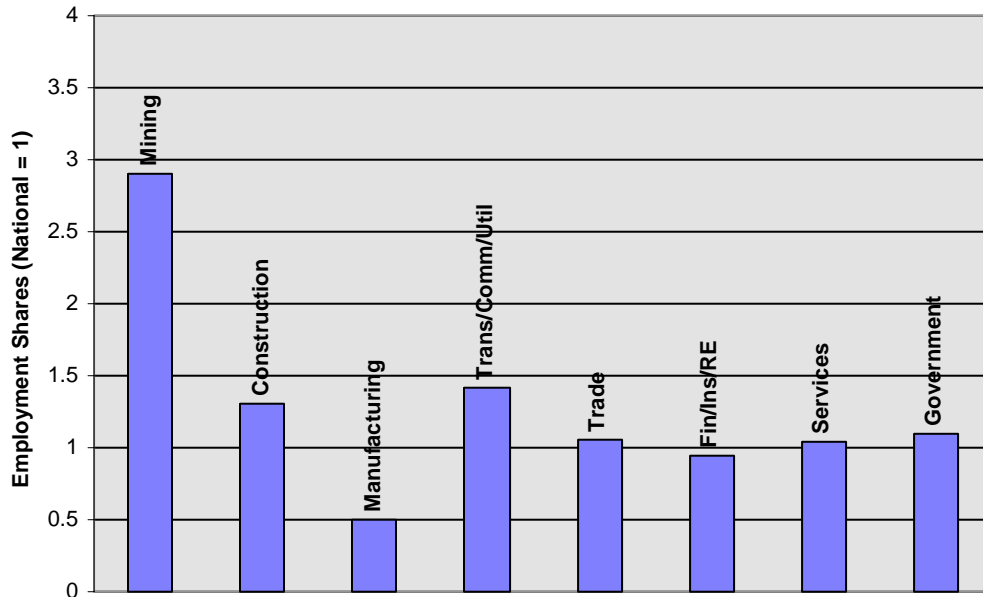
Like many regions of West Virginia, coal mining employment in Kanawha County accounts for a larger share of total employment than it does for the nation. Employment in oil and natural gas production and distribution is a mainstay of the local economy, as indicated by employment shares in transportation, communication, and public utilities. Natural gas production and distribution accounts for about 2 percent of total private-sector employment, compared to 0.2 percent for the nation.

As previously mentioned, rapid growth in construction registered larger employment shares for the Charleston MSA than the nation. Residential, nonresidential, and infrastructure improvements account for the majority of this employment sector, with the majority of residential construction located in Putnam County.

Manufacturing employment accounts for only 8 percent of the total MSA employment, compared to 16 percent for the nation. Chemical manufacturing dominates this sector with 5.4 percent of total MSA employment in 1994, compared to 0.9 percent for the nation. Employment shares in trade, services, and government slightly exceed the national average.

Government employment in the Charleston MSA is only slightly above the national average, even though Charleston is both the county seat and state capital. State government employment share greatly exceeds that of the nation. This is offset by much lower employment shares in federal, regional, county, and municipal government. These figures indicate that local governments have minimized their employment ranks.

Charleston MSA Employment Shares: 1995



Source: Bureau of Business Research, West Virginia University.

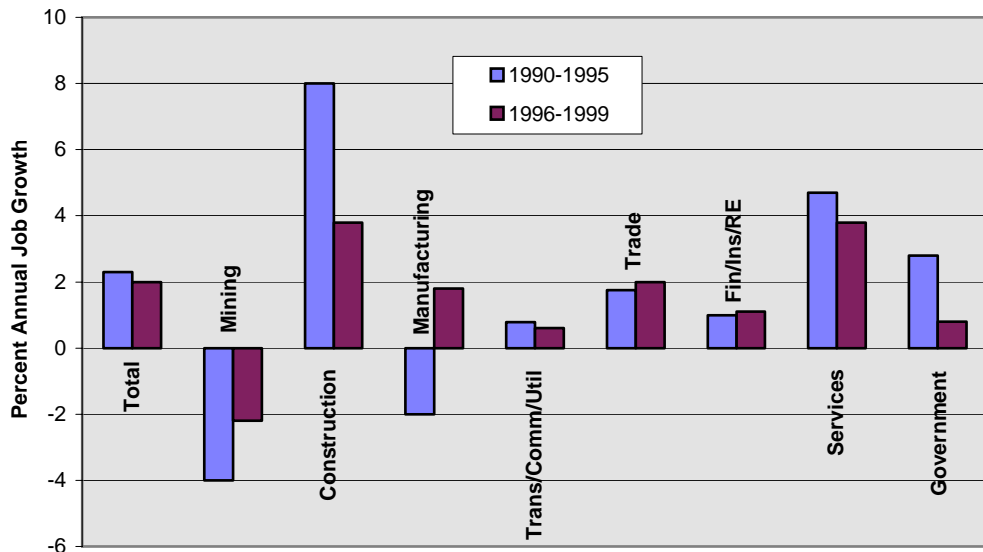
Employment, Population, Housing and Income Forecasts

With declining unemployment and strong job growth, Kanawha County and the Charleston MSA are expected to prosper and grow through the year 2000. Labor market conditions improve during the forecast period, with the unemployment rate continuing to decline. Population growth continues at a rate similar to that of the early 1990's, adding about 1,000 residents per year to the MSA. Most new households will locate in Putnam County, where the availability of building sites and new housing are more plentiful. Personal income will also continue to grow.

New investments by NGK Spark Plug Manufacturing (USA), Inc. in Sissonville, Toyota Motor Corporation and the Diamond Electric Manufacturing Corporation in Putnam County are expected to spur manufacturing employment.

Construction employment growth will slow down, but remain vigorous. The service sector is likely to experience substantial growth, especially in engineering, telemarketing, business and management services. Health care and social services job growth will slow, particularly in the hospital sector, as the annual growth rate of state and federal entitlement funds diminish.

Job Growth History & Forecast: 1990-1999
Charleston MSA



Source: Bureau of Business Research, West Virginia University.

Per capita personal income (PCPI) continues to grow during the next 10-20 years, which directly translates into a higher standard of living for county and MSA residents. Job gains mean greater total earnings, but employers are likely to reduce fringe benefit spending; slowing growth in other labor income (i.e.-health) categories.

Per capita personal income (PCPI) continues to grow, creating a higher standard of living in Kanawha County.

Growth rates for transfer payments, which include retirement and disability payments, Medicare, and Medicaid benefits, drop significantly as state and federal entitlement funding levels are reduced. Since transfer payments constitute nearly one-quarter of all personal income in Kanawha County, and 30 percent of all householders are age 65 or older, this reduction in growth rate will directly affect the senior population.

Growth rates for transfer payments drop significantly, which will directly affect the senior population and indirectly affect the regional economy.

Community Health, Fitness & Safety

The health of Kanawha County may be measured in a variety of ways. Public opinion about many health and fitness issues have been documented through a scientific telephone survey and key informant interviews. In the case of local issues, the Kanawha Coalition for Community Health Improvement (KCCHI) has conducted studies to determine the greatest health care needs in Kanawha County.

The West Virginia Bureau of Public Health, Health Statistics Center, annually updates statistical profiles for all 55 counties in the state. Various other organizations also collect information which helps define, benchmark, and monitor threats to community health and fitness.

LEADING CAUSES OF DEATH

The most significant public health concerns of our community can be identified by reviewing published statistics; comparing Kanawha County to the state and/or nation.

In comparison to the United States, Kanawha County has a higher rate of death from the following causes:

Diseases of the Heart

Cancer

Unintentional Injuries

Motor Vehicle Accidents

Cancer has been identified by the public (KCCHI survey) as the most significant problem in terms of health concerns in Kanawha County. In 1994, 596 of the 2,402 deaths in Kanawha County (24 percent) were caused by cancer.

Coincidentally, trend data from 1990-1994 indicates that more than one in four (26 percent) Kanawha County adults smoke cigarettes. West Virginia ranked fifth in adult smoking prevalence in the nation. A 1995 survey of students in grades 9-12 showed that 76 percent had tried cigarettes.

While cancer is the most significant health problem identified by Kanawha County residents, heart disease is actually the leading cause of death in the county, state,

and nation. Approximately 32 percent of all deaths in Kanawha County are caused by diseases of the heart.

Unintentional injuries (at home and work) and motor vehicle accidents are also leading causes of death in Kanawha County. In fact, when measured as a function of the years of potential life lost (before the age of 65), unintentional injuries exceed all other causes of death. During the period 1981-1990, unintentional deaths accounted for the loss of nearly 25,000 years of potential life in Kanawha County.

Motor vehicle accidents in Kanawha County claim the lives of about 55 persons per year. This exceeds the per capita national average, but can be partially explained by the high number of highway miles found in Kanawha County and the fact that many nonresidents travel daily through and to employment centers located in the Kanawha Valley. Over one in three local highway fatalities involve alcohol related crashes. Improved highway safety programs may help reduce this annual average death rate.

EXTRAORDINARY PUBLIC HEALTH CONCERNS

In addition to the leading causes of death in Kanawha County, there are other public concerns regarding community health and fitness. Each have social and economic costs which are interrelated with many other topics addressed in the comprehensive development plan, *Twenty-twenty Vision*.

Alcohol and Substance Abuse

Driving Under the Influence

High Blood Pressure

Sedentary Lifestyle

Teenage Pregnancy

Lack of Exercise

Lung Disease

Obesity

Cigarette Smoking

Poor Eating Habits

Air Pollution

Behavioral Health Risks

When compared to national statistics, Kanawha County residents have risky health behavior in several categories: smoking, hypertension, seat belt nonuse, sedentary lifestyle, and obesity. These lifestyle and health behaviors have been proven to have a negative effect on overall health. Each health condition, habit or lifestyle involves tremendous social and economic tolls.

In comparison to the United States, Kanawha County has a higher adult prevalence of the following:

<i>Cigarette Smoking</i>	<i>(29 percent)</i>
<i>Hypertension</i>	<i>(21 percent)</i>
<i>Nonuse of Automobile Safety Belts</i>	<i>(30 percent)</i>
<i>Sedentary Lifestyle</i>	<i>(66 percent)</i>
<i>Obesity</i>	<i>(27 percent)</i>

Public health and safety education, physical activity and therapy, policy and environmental programs can substantially reduce the risk of dying from heart disease, the leading cause of death in the county, state and nation. Such programs

can also reduce the risk of developing colon cancer, diabetes, and high blood pressure. Several local organizations have sponsored such programs.

CHILDREN & FAMILIES

Although Kanawha County has a growing senior population (age 65 or over), the number of families and children (under age 18) have rapidly diminished in recent years. With that decline has come significant changes in the geographic, social, and economic profile of families in Kanawha County. Most of these statistics are disturbing to community leaders, and document the deteriorating quality of life for many local children and families.

For example, during the period 1980 to 1993, the percentage of all families with related children who receive Aid to Families with Dependent Children (AFDC) benefits grew 109 percent (from 7.9 percent to 16.6 percent of all families). The percentage of births to unmarried teens (ages 10-19) changed 67 percent (from 6.6 percent to 11 percent of all births), and the percent of low-weight babies increased by an increment of 19 percent (from 6.5 percent to 7.7 percent) during the same period.

Infant & Child Welfare: 1980-1993

KANAWHA COUNTY	1980	1980 % Rate	1993	1993 % Rate	Percent Change
<i>Infant mortality (1000 births)</i>	37	10.6	18	6.9	34.4
<i>Families receiving AFDC benefits</i>	2,459	7.9	4,658	16.6	109.8
<i>High school dropouts</i>	797	21.6	477	16.9	-21.6
<i>Births to teens (15-19)</i>	614	62.5	433	63.7	1.9
<i>Births to unmarried teens</i>	231	6.6	286	11.0	66.9
<i>Low birth-weight babies</i>	227	6.5	201	7.7	19.3

Source: Kids Count in West Virginia

As previously mentioned, the total population under age 18 is rapidly declining. So, too, is their cumulative quality of life in Kanawha County. The percentage of children living in poverty grew 60 percent (from 14 percent to 22 percent), and proportion of single-parent families increased in excess of 52 percent from 1980 to 1990.

Teenagers & Family Welfare: 1980-1990

KANAWHA COUNTY	1980	1980 %	1993	1993 %	Percent Change
<i>Population under 18 years old</i>	60,714	26.2	48,250	23.2	-20.5
<i>Single parent families</i>	8,362	13.8	10,142	21.0	52.6
<i>Children living at or below poverty</i>	8,288	13.7	10,525	22.0	60.2

JUVENILE DELINQUENCY

The 1993 juvenile delinquency case rate (ages 10-19 per 1,000 youths) in Kanawha County was more than double the state rate of 32.2. At 67.9, Kanawha County juvenile delinquency ranks 53rd out of 55 counties in West Virginia. The teen injury

death rate (ages 15-19 per 100,000 youths) is also significantly above the state average (70.9) and still growing. In 1980, the teen injury death rate was 99.3. By 1993, it had grown to 102.6, for a county ranking of 44th in the state.

PUBLIC SAFETY

Public safety services are provided to protect life and property in three functional areas: 1) law enforcement, 2) fire protection, and 3) emergency medical services.

The West Virginia State Police, Kanawha County Sheriff, and various municipal police forces provide law enforcement services throughout Kanawha County. Highway road patrols, Emergency 911 response, criminal investigative, and special units cooperate to deliver their services to the general public.

Fire protection services are provided by municipal and/or Volunteer Fire Departments (VFDs) located throughout the county. Both life and property are protected by well-equipped and trained professionals. Each VFD is independently funded and managed.

Emergency medical response and transport services are provided by a variety of organizations, including the Kanawha County Emergency Ambulance Authority (KCEAA), several VFDs, and many independent, for-profit corporations.

EMERGENCY PREPAREDNESS

The Kanawha County Public Safety office has cosponsored and prepared a variety of response plans for catastrophic emergency situations. In particular, a working committee has developed a program and procedures for managing hazardous chemical spills. Contingency plans have also been drafted for response to flash flooding and other natural disasters.

PUBLIC HEALTH PROTECTION

A wide variety of essential services to protect the public health on an ongoing basis are provided by the Kanawha-Charleston Health Department. Medical and environmental health services are available to the general public. Licensing and permitting of new water and/or sanitary sewer service facilities and their operators, among other public services, are also managed through the consolidated health department.

PUBLIC HEALTH PROMOTION

The most recent strategy applied to individual and public health is referred to as preventive medicine. It involves early detection and mitigation of health risks, including a broad range of activities. Everything from public education and health screenings to medical examinations are used to promote physical health and fitness.

Many area employers have adopted proactive "Wellness Programs" as part of their employee benefits package. These programs also help reduce the number and dollar amount of health claims, as well as reduce the number of annual sick days taken by wellness program participants.

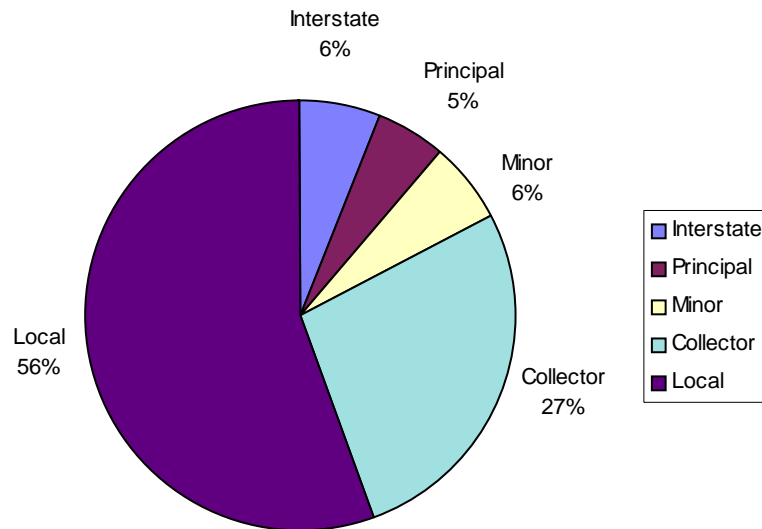
Transportation

Kanawha County is served by a well-developed multi-modal transportation network:

- highway system
- public transportation system
- bicycle and pedestrian facilities
- freight movement system
- intercity passenger service (air, Amtrak, and bus)

Three interstate highways (64, 77 and 79) converge in the city of Charleston and serve all of Kanawha County. The major east-west routes include I-64 and US Route 60. North-south travel is provided on I-77, I-79, US Route 35, and US Route 119 (Appalachian Corridor 'G'). Important minor arterials include WV Routes 34, 61, 62, and 622.

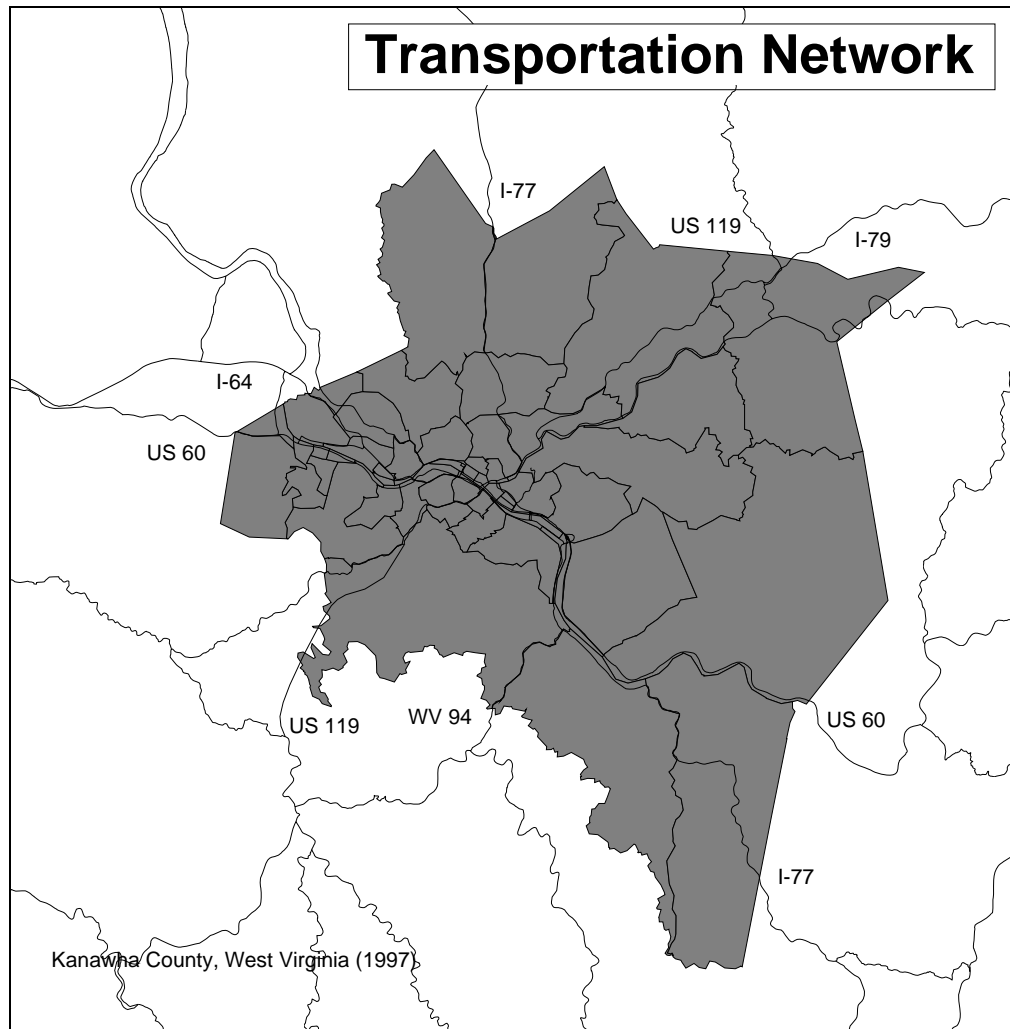
Kanawha County Route Miles: 1996



Industrial and commercial concerns have access to over 40 motor freight carriers, two rail freight lines (*CSX* and *Conrail*), and numerous river transport facilities.

Yeager Airport, with more than 35 daily non-stop flights to major US cities, includes a *US Customs Office* as an international Port of Entry (POE). Four major airlines, commuter and charter services, commercial and general aviation air service and maintenance facilities are based at Yeager. The airport is operated by the *Central West Virginia Regional Airport Authority (CWVRAA)*.

Public transportation is provided by the *Kanawha Valley Regional Transportation Authority (KVRTA)*, which operates over 200 miles of daily routes.



Source: Regional Intergovernmental Council

CHARLESTON METROPOLITAN TRANSPORTATION PLAN

A continuing, comprehensive, and cooperative planning effort results in development and adoption of the *Charleston Metropolitan Transportation Plan (CMTTP)*. The long-range transportation plan is for the Charleston Metropolitan Statistical Area (MSA), which includes all of Kanawha and Putnam Counties. Future investments by Federal, State, and local public agencies are based upon assessments of multimodal transportation needs.

The Boone-Clay-Kanawha-Putnam Regional Intergovernmental Council (RIC), Kanawha Valley Regional Transportation Authority (KVRTA), and West Virginia Department of Transportation (WVDOT) are the responsible agencies regarding transportation planning in Kanawha County. By law, the transportation plan must be updated at least once every three years, but can be amended as new needs are identified.

Since this special transportation planning process is well established, *Twenty-twenty Vision* does not attempt to duplicate the efforts of regional transportation planners. Instead, the findings and conclusions of the comprehensive planning process will take into account the recommendations of the Charleston Metropolitan

Transportation Plan. Likewise, future revisions of the CMTP will be based, in part, on the findings and recommendations of *Twenty-twenty Vision*.

PLAN RECOMMENDATIONS & IMPLEMENTATION

The CMTP is organized by individual transportation system element, with recommended highway elements staged in two time periods: 1) projects which should be implemented in the near term (by 2005), and 2) those which should be implemented in the longer term (2005 - 2020). The final plan recommendations take into consideration the cost of the proposed projects and the ability of the WVDOT and others to fund construction.

Transportation plan elements include recommendations for 5 functional areas: 1) highway, 2) public transportation, 3) intelligent transportation systems (ITS), 4) airport, and 5) bicycle facilities improvements.

PUBLIC PARTICIPATION

Three distinct groups of citizens are involved in the transportation planning process. These groups are involved in developing, reviewing, and approving the transportation plan:

Transportation Technical Advisory Committee: planners and engineers representing a variety of agencies in the area, and State traffic engineers, planners and managers.

Elected & Appointed Officials: elected county commissioners and municipal mayors, as well as special citizen representatives, who act as RIC's policy board.

Citizens & Coordinating Committee: various constituent groups review and comment on proposed plans, and two series of public meetings are held as the document is amended. Their action is forwarded to the RIC board.

TRAVEL FORECAST MODEL DEVELOPMENT

A full set of state-of-the-art travel demand forecasting models were developed and validated for the Charleston MSA during the period 1993 - 1995. Travel demand models are computer-based mathematical models that simulate existing roadway conditions and the vehicle demand on these roadways. Once a model is developed which replicates existing travel conditions, future conditions and the effect of proposed alternatives can be evaluated. Travel demand modeling for the Charleston MSA was performed using the EMME/2 transportation planning computer software package. Using projections of population and employment for the year 2020, the future demand on the transportation system was estimated.

HIGHWAY DEFICIENCY ANALYSIS - 2020

According to projections, 18 percent of the Charleston MSA freeway lane-miles and 10 percent of the total highway system will be near or over capacity by the year 2020. This identification of future deficiencies serves as the basis for developing transportation alternatives. One of the primary objectives of this process is to reduce or minimize the level of congestion, and increase or maximize the level of safety.

Analysis of highway deficiencies reveals that the major corridor deficiency is Interstate 64 from the Teays Valley (in Putnam County) to the Charleston Central

Business District (CBD). The section of I-64 between Dunbar and Nitro will experience traffic demands exceeding the capacity of the existing 4-lane freeway. Both I-64 bridges over the Kanawha River at Nitro and Charleston (Fort Hill) are also expected to exceed design capacity by 2020. The lack of alternative or parallel routes to the I-64 corridor contributes to the projected deficiency, and limits proposed solutions to major improvements on existing right-of-ways or construction of new highway alignments.

Several other highway deficiencies were also identified using the EMME/2 transportation planning computer software package. These projected problem areas in Kanawha County involve I-77 and WV routes 25, 114, 601, and 622, among other isolated locations. Potential roadway projects were identified to address the year 2020 deficiencies in the CMTP. These projects range from simply widening existing roadways to constructing new controlled-access highways on new right-of-ways.

To effectively test and evaluate projects, then recommend them for inclusion in the plan, multiple projects were combined in a variety of scenarios. Those deficiencies, alternative solutions, and scenarios are detailed in the *Charleston Metropolitan Transportation Plan*, available through the Regional Intergovernmental Council.

HIGHWAY ELEMENT

These projects recommended for Kanawha County are expected to have the greatest positive effect on regional travel. Additional CMTP elements are proposed for Putnam County. The short-range highway plan elements are proposed for implementation by the year 2005. The long-range plan elements are targeted for the year 2020. All of these recommended highway projects will require additional studies (planning, environmental, design and engineering) prior to implementation.

Recommended Highway Plan - Kanawha County - Implementation by 2005

Route	Location	Description	Cost (\$000)
WV 601	US 60 to US 119 Jefferson Road	Widen to 4 lanes Divided grade RR crossing	\$20,500
WV622	WV62 to I-64 Cross Lanes	Widen from 3 to 5 lanes	\$4,387
Northern Bypass 3rd Street	I-64 near Nitro to I-77 Edens Fork	New 4-lane freeway	\$173,401
	St. Albans CSX Underpass	Widen from 2 to 4 lanes	\$12,635
WV 25	Iowa Street to Charleston City Limits	Remove median and construct 5 lanes	\$5,114
I-64	Virginia to Lee Street Interchanges	Extend weaving lanes	\$6,843
WV 61	Southside Bridge CSX Ramp	Replace and realign	\$4,000

Source: Regional Intergovernmental Council (DEC96).

The total cost of recommended highway improvements through the year 2005 is estimated at \$405,067,000. (this total includes proposed projects in Putnam County). According to projections of expected Federal and State funding sources, these projects can be fully funded during the planning period.

In addition to short-range projects, long-range highway improvements for the Charleston MSA total \$200,356,000. Projects in Kanawha County include:

Recommended Highway Plan - Kanawha County - Implementation by 2020

Route	Location	Description	Cost (\$000)
I-64	Institute to MacCorkle Interchange	Widen from 4 to 6 lanes Widen bridge to 8 lanes	\$72,169
I-64	Nitro Interchange to Crooked Creek	Widen from 4 to 6 lanes Widen bridge to 8 lanes	\$59,753
WV 114	Airport Road to Rutledge Road	Widen to 4 lanes	\$7,864
WV 61	I-64 to Charleston City Limits (east)	Widen to 4 lanes	\$3,183
I-77	I-77/I-79 Junction to Edens Fork	Widen to 6 lanes	\$19,000

Source: Regional Intergovernmental Council (DEC96).

All of these highway plan elements have been selected based upon a cost-restricted model, or projections of available funds through the year 2020. Of the total \$605,423,000 in total cost for recommended highway improvements, there is a \$172,705,000 shortfall in estimated construction funds. These unfunded or unmet needs have been identified in the CMTP, but are not as cost-effective as recommended short- and long-range transportation projects. Nevertheless, these proposed projects can be programmed if and when funding becomes available:

Unmet Highway Needs - Kanawha County

Route	Location	Description	Cost (\$000)
CO 27	From I-77 to I-79 (to new connector)	Upgrade to 4 lane freeway	\$30,278
WV 25	10 th Street to Barron	Widen for turn lanes	\$1,710
US 119	I-64 to Southridge Centre	Widen to 6 lanes	\$83,649
WV 25	WV 25 Spur - Sattes Bridge	Widen bridge to 4 lanes	\$41,323

Source: Regional Intergovernmental Council (DEC96).

PUBLIC TRANSPORTATION ELEMENT

New development in the region is creating conditions more favorable to public transit use. Low population density and low trip volumes have made it difficult to serve many areas of Kanawha County. Recent developments have generated rapidly growing trip volumes in specific areas, high activity areas (including pedestrian facilities), and new opportunities to economically compete with the automobile. Trip time and cost for public transit will attract more and more patrons as these activity centers expand.

The two major generators of these new trips are expected to be 1) Teays Valley (Putnam County), and 2) the Charleston Central Business District (CBD). Rapid residential and commercial development is expected to continue in Putnam County, although the major employment centers will remain in Kanawha County. Because the Teays Valley lies parallel to the I-64 corridor, and sites are available for park-and-ride facilities, the area can readily be served by public transportation routes.

The existing public transit network already focuses on the Charleston CBD, including the Laidley Street Transit Mall, and is well-served by all other modes of transportation. However, existing and proposed activities in the CBD are expected to generate significantly higher volumes of traffic. This creates an opportunity to offer a new, more attractive type of transportation service. A people mover, electric vehicles, elevated walkways, or other alternative modes of transportation may be appropriate. The CMTP recommends a CBD transit circulation study be conducted.

INTELLIGENT TRANSPORTATION SYSTEMS ELEMENT

Formerly known as the Intelligent Vehicle Highway System (IVHS), Intelligent Transportation Systems (ITS) yield great promise in terms of maximizing the use of existing transportation facilities. The CMTP recommends that ITS be applied in Kanawha County, especially the I-64 corridor and the proposed Northern Bypass. In particular, the En Route Driver Information, Route Guidance, and Incident Management user services are appropriate for the I-64 corridor. These and other ITS applications help maximize safety and minimize traffic congestion.

AIRPORT ELEMENT

Yeager Airport currently serves Kanawha County and the region. The mountaintop site provides commercial air service, and supports limited aviation-related activities. Changing market conditions have dictated that plans for a new regional airport (with sufficient acreage to support additional aviation-related industry) be developed.

A feasibility study for a new regional airport to serve Charleston, Huntington, and Parkersburg was published in December 1995 (*Feasibility Update Study for a Western West Virginia Regional Airport - Final Technical Report*). An Environmental Impact Statement was initiated shortly thereafter. The CMTP will require amendment in order to accommodate the recommendations of the final airport plan.

BICYCLE ELEMENT

The bicycle facilities element of the CMTP is in the form of a public policy for development of a bikeway and trail network in Kanawha County. The policy recommends:

- Designation of bicycle routes along major corridors, primarily following the river valleys and/or paralleling the freeway system
- Provision of a feeder system on local roads and streets to provide access to major corridors
- Incorporate bicycle considerations into the design of new/upgraded roads and streets
- Provision of secure parking facilities at major activity centers
- Coordination with Kanawha County Schools to insure that bicycle safety is included in the education of every student

FUTURE STUDIES

Additional studies (planning, environmental, design and engineering) will be required prior to implementation of the recommended transportation elements. Projects that constitute a major new investment (i.e., Northern Connector) are required to be evaluated by means of a Major Investment Study (MIS). The use of Federal funds will

require compliance with the National Environmental Policy Act (NEPA). More detailed, subarea studies will be required for some of the recommended highway elements prior to design and construction. Based upon the recommendations of the CMTP, additional studies are needed in these Kanawha County communities:

- **Cross Lanes** - update of the 1981 detailed traffic study, alternatives, and recommendations.
- **St. Albans** - detailed traffic study to determine alternatives, placement, and recommendations for proposed railroad underpasses.

Energy & Public Utilities

Reliable, low-cost energy is available to residential, commercial and industrial users throughout Kanawha County. Both electricity and natural gas rates are consistently below the national average. Fossil fuels such as coal, fuel oil and propane are also available through local suppliers. In addition to providing energy at highly competitive rates, economic and industrial development incentives are offered through major electric power and natural gas utilities. These programs are intended to retain and encourage expansion of existing industries, as well as to recruit new industrial investors.

- Electricity is provided by *American Electric Power (AEP)*, which serves over 838,000 customers in southern West Virginia and nearly 7 million people in parts of seven states. Several electric generating plants are located in the Kanawha Valley.
- Natural gas is provided by *Mountaineer Gas, WV Power Gas Service, Union Oil & Gas Company, and Southern Public Service Company*. All offer competitive rates and dependable supplies.
- Domestic and industrial water is supplied by *West Virginia - American Water Company*, which is rapidly expanding its service area throughout Kanawha County and state of West Virginia.
- Municipalities, public service districts (PSD's) and private companies provide potable water treatment and distribution, wastewater collection and treatment (see next section).

Public Water and Sewage Treatment

Of the total 92,747 housing units in Kanawha County, 84,607 (91%) have potable water supplied by a public system or private service, and 71,439 (77%) have sewage disposal service from a public agency. According to the 1990 Census, 829 housing units lack complete plumbing facilities (371 owner-occupied and 219 renter-occupied). *West Virginia - American Water Company* provides water treatment and distribution services for most of the urbanized area of Kanawha County. Some towns and cities, including Cedar Grove, Clendenin, East Bank, Glasgow, Pratt, and St. Albans also maintain water systems.

Municipal sanitary boards provide sewerage collection and treatment for the incorporated communities of Belle, Charleston, Dunbar, East Bank, Glasgow, Marmet, Montgomery, Pratt, St. Albans, and South Charleston.

In addition to these 12 providers of public water or sewerage services, there have been created a total of 20 public service districts (PSDs) to serve unincorporated areas of Kanawha County:

- Big Sandy PSD*
- Chelyan PSD (water and sewer)*
- Cloverleaf Sanitary District*
- Elk-Pinch PSD*
- Elk-Two Mile PSD*
- Greater St. Albans PSD*
- Green Valley Community PSD*
- Guthrie PSD*
- London PSD*
- Malden PSD (water and sewer)*
- Morris Creek PSD*
- Mt. Tyler PSD*
- Paint Creek PSD*
- Pinch PSD*
- Riverside PSD*
- Ruthdale PSD*
- Sissonville PSD (water and sewer)*
- Union PSD (water and sewer)*
- Washington PSD*
- West Dunbar PSD*

WATER PROBLEMS

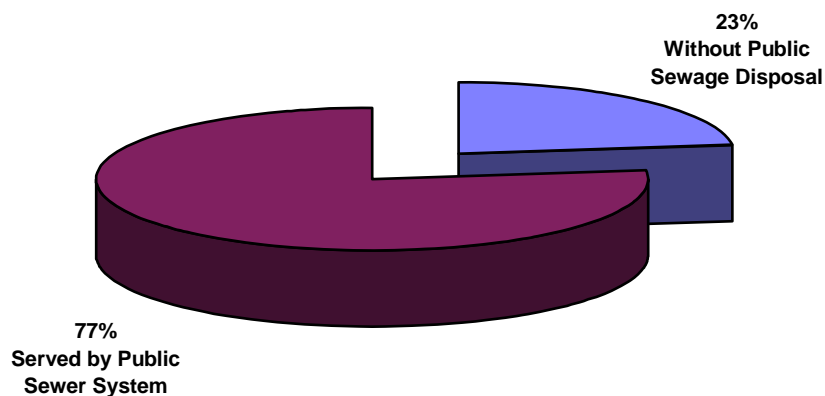
In order to enjoy an enhanced quality of life in Kanawha County and to be prepared for future community and economic growth, a safe, reliable and adequate supply of potable water is required. The most urgent needs to be satisfied are those of general public sanitation and fire protection. But a safe supply of drinking water is also critical to economic development activities, including manufacturing, food processing and preparation, beverage production, and other prospective employers.

Many otherwise developable sites in Kanawha County currently lack acceptable water service. Due to the number and dispersion of water systems with limited capacities, it is difficult to maintain, much less expand, these water systems. Like any infrastructure system, poor planning, operation and maintenance are among the problems faced by some communities served by public and private water systems. In response, *West Virginia - American Water Company* has recently been acquiring these problematic systems and consolidating service on a regional basis.

• Charleston Sanitary Board	Class 4	12.0 MGD
• Chelyan PSD	Class 2	0.825 MGD
• City of Dunbar	Class 3	2.25 MGD
• City of East Bank	Class 1	0.12 MGD
• Elk-Pinch PSD	Class 2	1.4 MGD
• City of Glasgow	Class 2	0.15 MGD
• Malden PSD	Class 3	1.5 MGD
• City of Marmet	Class 2	0.5 MGD
• City of Montgomery	Class 2	0.5 MGD
• Town of Pratt	Class 2	0.06 MGD
• Sissonville PSD	Class 2	0.6 MGD
• South Charleston Sewage Co.	Class 4	0.0 MGD
• City of St. Albans	Class 3	2.54 MGD
• Union PSD (1)	Class 2	1.5 MGD
• Union PSD (2)	Class 2	0.5 MGD

Source: West Virginia Public Service Commission

Housing Units by Sanitary Sewer Service: 1990



Source: US Department of Commerce, Bureau of the Census.

Entities having responsibility for sanitary sewage service are municipalities, public service districts (PSDs), and the Kanawha County Commission. The county commission is included because they have the legal authority to create PSDs and establish their authority for water service, sewer service, or both. The Kanawha

County Commission is also responsible for those areas that are not within the jurisdictional boundary of an existing PSD.

Telecommunications

Charleston and Kanawha County are leading the state, nation, and world with the installation of digital switching, digital trunking, Integrated Services Digital Network (ISDN), and state-of-the-art fiber optic cable systems.

The hair-thin fiber optic cable is both smaller and more efficient than the copper line it replaces, while providing higher quality transmission and exceptional broad-band facility capacity. Improved ISDN, frame relay data switching, Real Time Network Routing (RTNR), and Local Area Network (LAN) services provide business, industry and government with the modern tools required to manage daily operations.

The introduction of this new telecommunications technology makes Kanawha County much better prepared to compete in a global economy. Sophisticated, intelligent communication systems are essential to the economic health of the community. A comprehensive range of telecommunication services provides Kanawha County with a very wide “on ramp” to the global information highway.

- Local calling and short distance service for residential, commercial and government subscribers is provided by *Bell Atlantic-West Virginia*.
- Integrated information movement and management services, including long distance calling, is provided by *AT&T Corporation*.
- Fiber optic and cellular telecommunication services throughout Kanawha County are state-of-the-art.
- Digital switching, dual redundancy, microwave and satellite transmission facilities serve all of Kanawha County.
- Nearly 20 long-distance companies serve Kanawha County, including *AT&T, MCI, and US Sprint*.
- AT&T's 4ESS switching facility in downtown Charleston provides a significant advantage to Kanawha county businesses.

Education and Training

Four colleges and universities are located in Kanawha County, with additional services provided by *Marshall University*, located 50 miles west of Charleston. Each offers high quality undergraduate and graduate degree programs of various types.

The University of Charleston is a privately-supported, independent university offering both undergraduate and graduate degree programs. *West Virginia Graduate College* caters to the working professional by offering opportunities to earn advanced degrees. *West Virginia University Institute of Technology* emphasizes engineering and physical science programs. *West Virginia State College* is a four-year liberal arts and science institution.

Marshall University has recently expanded into the Charleston area from their campus in Huntington, WV. They, too, offer a broad range of degree programs. Annual enrollment at Marshall exceeds 12,000 students, for a combined average annual enrollment of nearly 24,000. Between the five institutions, over 3,500 degrees are conferred each academic year.

Kanawha County Schools offer a superior public educational program with traditional curriculum and progressive instructional approaches. Our children consistently score above the state averages on total basic skills tests. Special programs for gifted and learning impaired students are also offered through the public school system, along with School-to-Work and other special programs.

In order to better prepare students for their future, students choose from one of three learning pathways - College Prep, Tech Prep, or Occupational Prep. At the end of the eighth grade, Kanawha County students develop four-year study plans based upon one of three career clusters - business, health and human services, or technology. The student then further refines their selected career cluster to determine their precise area of specialty. Their curriculum is selected to match their course of study - Tech Prep, College Prep, or Occupational Prep.

Public schools in Kanawha County are governed by a five-member board. School Board members are elected on a non-partisan ballot to represent geographic regions of the county. Each board member serves a (staggered) six-year term.

Catholic, Christian and other private elementary and secondary schools further enhance the public education system in Kanawha County. Montessori and parochial schools have a reputation for excellence when compared to local, state, and national performance records.

Pre-employment, post-employment, and pre-trained personnel job training programs are available from a variety of public and private agencies in Kanawha County. Two vocational-technical schools and one adult career center are operated by Kanawha County Schools. Combined with programs through the WV Department of Vocational Education, the needs of business and industry are served.

The *Private Industry Council (PIC)* is comprised of 22 members representing business, education, public agencies, labor and the community. PIC helps local employers upgrade the skills of existing workers or new hires. PIC also implements job training programs funded through the *Job Training Partnership Act (JTPA)* and *On-Job-Training (OJT)* programs, among other special efforts.

Education and training resources in Kanawha County include:

- Four colleges and universities with total enrollment exceeding 11,000:

The University of Charleston

West Virginia Graduate College

West Virginia University Institute of Technology

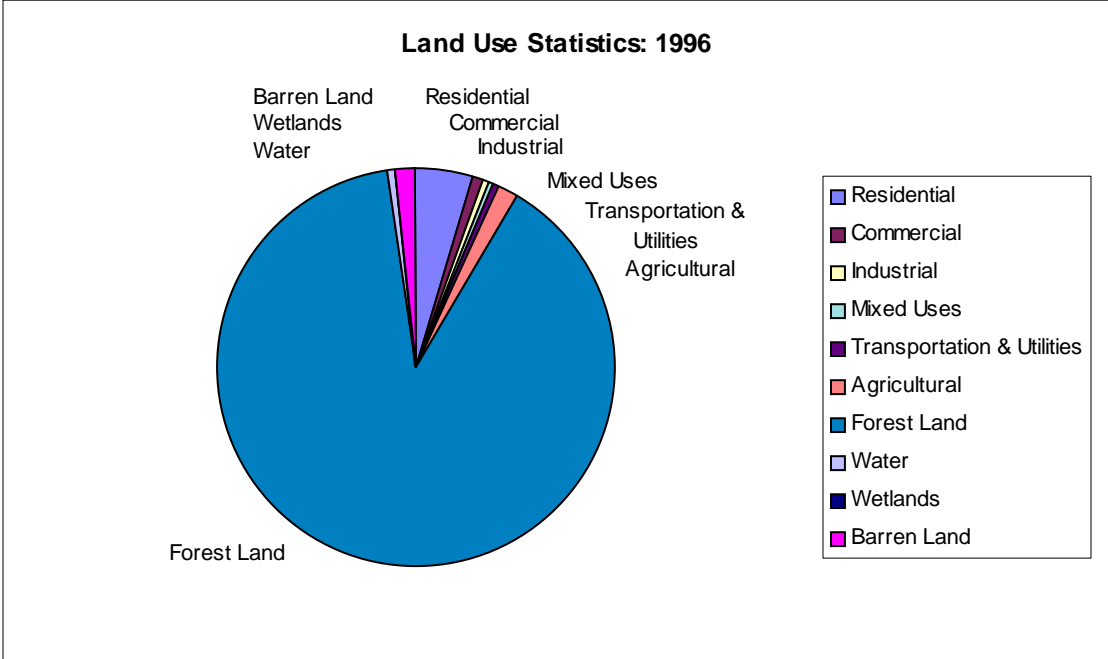
West Virginia State College

- 89 public elementary and secondary schools to serve Kanawha County: 62 elementary, 14 secondary, 9 high schools, 2 vocational, 1 adult career center and 1 specialized center. Total elementary and secondary school enrollment of nearly 31,000 for the 1996-97 school year.
- 15 private and parochial schools in Kanawha County with a 1996-97 enrollment of approximately 4,500.
- 11 libraries with a total of over 676,000 volumes.
- *Private Industry Council* job placement and training programs
- *Charleston Job Corps Center* provides training and placement programs for at-risk and urban youth.

Land Use Patterns

There are approximately 578,050 acres in Kanawha County. An estimated 40,000 acres (7%) is developed or built-up. The remainder is either agricultural, wetlands, waterways, barren or forest land. Existing land use patterns reflect the severe

physical constraints of adverse topography, soils, geology, and other barriers such as rivers, streams, and floodplains. Both the earliest human settlements and more recent urbanization have occurred along the Kanawha River Valley and adjacent areas. These lands have proven to be both the most accessible and buildable sites for new development and redevelopment. Land uses by category include:



Source: Regional Intergovernmental Council.

RESIDENTIAL

The majority of all urbanized or built-up land in Kanawha County is used for residential purposes. Approximately 27,000 acres (4.7%) are dedicated to single-family and multi-family dwellings. The greatest population densities are found in the Charleston-Dunbar-Nitro corridor on the north side of the Kanawha River, and Charleston-South Charleston-St. Albans corridor located on the south side of the valley. A total of sixteen riverfront municipalities are located on the Kanawha and Elk Rivers. Countless unincorporated communities are also found along the river courses and minor tributaries.

Low-density residential land development has also occurred on hillside and mountain tracts, adjacent to the river valleys. Most recently, ridgetop residential development has increased in frequency as the demand for new housing continues to exceed the supply of suitable building sites.

COMMERCIAL

Less than 5,000 acres (0.8%) in Kanawha County are dedicated to service and commercial land uses. Commercial development is predominantly located within the corporate boundaries of the river cities. The principal Central Business District (CBD) is located in the city of Charleston, with smaller CBD's located in the cities of Clendenin, Dunbar, Nitro, St. Albans, South Charleston. Strip commercial development can be found in the remaining municipalities, on all principal highways, most minor, and some collector routes.

A new, large-scale strip commercial development, *Southridge Centre*, is now open and expanding on US Route 119, south of Charleston. It is the first suburban shopping center of its kind in Kanawha County, built on an entirely man-made site. Another commercial center, located adjacent to the Cross Lanes interchange of I-64, is struggling to survive. Most anchor stores have closed. Ironically, a new and still larger commercial development is planned for a nearby site in the city of Nitro.

Unlike most US metropolitan areas, there has not been a proliferation of suburban shopping malls in Kanawha County. The largest enclosed inner-city shopping mall east of the Mississippi River is located in downtown Charleston. With nearly a million square feet under roof, and dedicated parking garages to accommodate over 4,000 cars, *Charleston Town Center* serves a regional market. Only one other enclosed center, *Kanawha City Mall*, serves Kanawha County, and is also located in Charleston. Hence, Charleston remains the center for the regional market.

INDUSTRIAL

Approximately 3,400 acres (.06%) have been or are being used for industrial purposes in Kanawha County. Again, such development has been limited to the river valleys due to the availability of highways, railways, and water-borne transportation facilities. The Civil War-era salt works, located at Malden, have been replaced by chemical manufacturing operations located throughout the Kanawha Valley. Union Carbide Corporation, Rhone-Poulec, DuPont and other major companies have plants sited at Belle, Charleston, Institute, Marmet, Nitro, and South Charleston.

Other industrial uses are located throughout the valley, including power generating stations at Glasgow, Handley and Chelyan, warehousing, distribution, and light manufacturing facilities in Charleston, Dunbar, Malden, Nitro, and South Charleston.

AGRICULTURAL

Agricultural uses, including cropland and pasture, remain the second-largest category of land use development in Kanawha County. Approximately 10,000 acres (1.7%) remain as farm operations, but that number has been declining rapidly. Suburban sprawl threatens to further erode this category of land use as the demand for new residential and commercial development sites grows over time.

BARREN LAND

Strip mine operations, quarries, gravel pits and transitional areas involve about 8,900 acres (1.5%) in Kanawha County. The majority of active mining operations are located in the eastern portion of the county, including Paint Creek, Cabin Creek, Kelly's Creek and Blue Creek. Most of these sites will be reclaimed during the next decade, and represent a tremendous opportunity to satisfy existing and future market demand for new, buildable sites for large-scale development.

FOREST LAND

By far the most dominant category of all existing land uses, undeveloped forest land involves over 515,000 acres, or 89% of the total area of Kanawha County. Only 150 acres are evergreen; 381,000 deciduous; and the balance is mixed growth.

Land Use Constraints

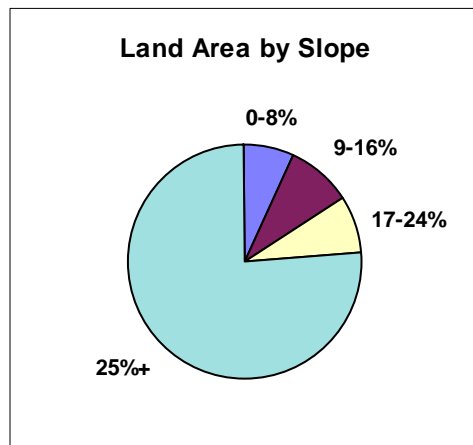
Natural and man-made constraints severely limit the supply of suitable building sites for new residential, commercial, and industrial development. Adverse topography, flood hazard areas, slide-prone areas, and jurisdictional wetlands are among the most significant barriers to development imposed by nature. Haphazard subdivision of land, substandard access or land-locked parcels, inappropriate deed restrictions, and inadequate infrastructure are common man-made constraints to new land development. The following is a brief overview of the most severe constraints.

TOPOGRAPHY

Since 7000 BC, suitable terrain has been the primary determinant of settlement patterns in Kanawha County. As a result, the existing urbanized area is a “linear city” which lies adjacent to the river valleys. The degree of slope, combined with the conditions of soil and subsurface geology, has dictated the location of nearly all existing land development. The adverse topography (soils, and geology) of remaining, undeveloped land is the main deterrent for new development. Four categories of slope (expressed as percentages) have been used to evaluate Kanawha County:

- **0 to 8% slope** developable for any suitable land use
- **9 to 16% slope** can be sparsely developed (low density)
- **17 to 24% slope** requires special foundation and stabilization
- **25% or greater** difficult and/or impossible to develop

Only 40,463 acres, or 7.0 percent of the total area of Kanawha County, involve average slopes less than 9%. This land is readily developable, and compares directly to the 40,000 acres of existing urban and built-up land use. An additional 52,024 acres (9.0 percent) have slopes ranging between 9% and 16%. These areas are suitable for sparse, low density, low intensity land uses. Approximately 46,244 acres (8.0 percent) involve slopes of 17% to 24%, which require substantial earth moving, foundation, stabilization, and storm water management improvements. Over three-quarters of the total area of Kanawha County (439,318 acres) lies on a 25% to 75% slope, and is considered to be either financially or physically undevelopable.



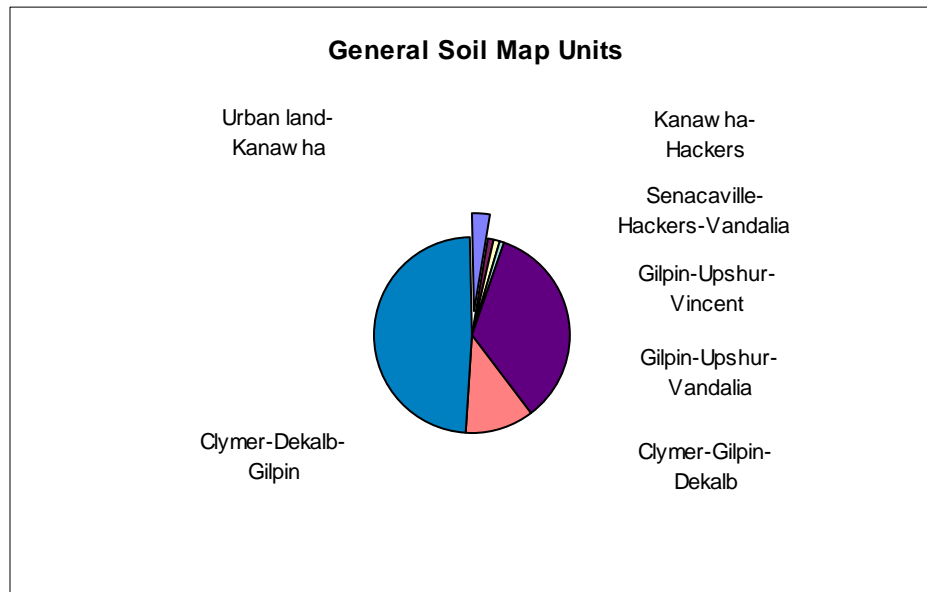
SOILS

The US Department of Agriculture, Soil Conservation Service, published the first "Soil Survey of Kanawha County, West Virginia" in October, 1981. This document provides information about the use of soils for building sites, sanitary facilities (i.e., septic tanks), agriculture, construction material and storm water management. Among those who can benefit from this information are farmers, foresters, conservationists, appraisers, architects, engineers, planners, land developers, land managers, builders, contractors, city and county administrators.

The general soil map of Kanawha County provides a broad perspective of the soils and landscape in the survey area. Areas that are well-suited for certain types of farming and other land uses can be identified using this map set. Likewise, areas of soils having properties or characteristics distinctly unfavorable for certain land uses can be located. There are seven major map units for soils found in Kanawha County:

- **1) Urban land-Kanawha** is nearly level and gently sloping, well drained, and located on high urban flood plains along the *Kanawha and Coal Rivers*. This map unit involves about 3 percent of the county, and is nearly saturated by existing land development. The flood hazard of these soils is the major limitation for nonfarm uses.
- **2) Kanawha-Hackers** is nearly level and gently sloping, well drained, and located on high flood plains adjacent to the *Elk River and Big Sandy Creek*. This map unit constitutes less than 1 percent of the total area of the county, and is mainly used for urban and suburban development. These soils are rarely flooded, but flood hazard remains the major limitation for nonfarm uses.
- **3) Senecaville-Hackers-Vandalia** is nearly level to moderately steep, well drained and moderately well drained, and located on flood plains and foot slopes adjacent to the *Pocatalico River*. This map unit involves less than 1 percent of the county, and is currently used for cultivated crops, hay, or pasture. Slope, permeability, depth to seasonal high water table, flood hazard, shrink-swell potential, and the slide-prone hazard are the limitations for nonfarm uses.
- **4) Gilpin-Upshur-Vincent** is gently sloping to very steep soils, well drained and moderately well drained, on uplands and old slackwater terraces in the *Cross Lanes* area of Kanawha County. Most of this map unit was cleared and farmed, then subsequently turned into homesites. It makes up less than 1 percent of the county. The soils on narrow flood plains are subject to frequent flooding. Slope, permeability, seasonal high water table, depth to bedrock, shrink-swell potential, slide-prone hazard, and flood hazard are the main limitations for nonfarm uses.
- **5) Gilpin-Upsur-Vandalia** is gently sloping to very steep, well drained, located on uplands and foot slopes in the northwestern portion of the county (north of the *Elk River* and *Appalachian Corridor G*). Much of this map unit has been cleared and used for pasture or hay. Much of the steeper and less accessible soils are idle or have reverted to trees. Slope, permeability, depth to bedrock, shrink-swell potential, slip hazard, and narrow flood plains are the main limitations to nonfarm use.

- **6) Clymer-Gilpin-Dekalb** is strongly sloping to very steep, well drained, located on uplands south of the *Elk River*. Rock outcrops are common in some areas. This map unit accounts for 11 percent of the county. The steeper hillsides have remained wooded, but broad ridgetops and less sloping hillsides were cleared and farmed. Many such areas have reverted to forest land. Slope, depth to bedrock, slow permeability, slide-prone hazard, shrink-swell potential, and flood hazard limit these soils for nonfarm uses.
- **7) Clymer-Dekalb-Gilpin** is strongly sloping to very steep, well drained, and located on rugged uplands in the *Upper Kanawha Valley* or southeastern portion of the county. This map unit constitutes 50 percent of the entire county. Most areas of this unit are wooded; incorporated communities are located on both sides of the Kanawha River; very little is farmed. The soils on narrow floodplains, where most unincorporated communities are located, and are subject to frequent flooding. Surface mining is the predominant land use throughout this unit. Slope, depth to bedrock, and flood hazard are the main limitations for nonfarm uses.



Source: Soil Survey of Kanawha County, US Department of Agriculture, Soil Conservation Service (OCT81).

FLOOD HAZARD AREAS

Although floods may be considered “acts of God,” flood losses in human life, property, economic and social disruption often result from improper use of flood-prone lands. Kanawha County and most local municipalities have adopted and enforce regulations to reduce flood losses for public and private land uses located in flood hazard areas.

However, most of Kanawha County was developed prior to the adoption of flood plain management regulations. Therefore, these regulations have the greatest potential in avoiding flood losses to new land uses, not in controlling losses to existing uses.

An estimated 11,000 acres in Kanawha County are located in Zone A, the 100-year flood hazard area. This area constitutes over one-fourth of all the existing developed acreage in the county. New projects and redeveloped properties must now be built in compliance with flood plain management regulations. In some cases, the flood hazard is so severe that nonfarm uses are cost-prohibitive to build and/or maintain.

Recreation & Entertainment

Public and private recreational facilities are provided throughout Kanawha County. State, county and municipal governments own and manage the majority of these facilities, including those associated with public education. Several private and semi-private recreational facilities are restricted to use by members and their guests.

All existing recreational and leisure facilities, public and private, are included in the following inventory:

• Auditoriums	40	• Stadiums	11
• Baseball Fields	43	Capacity: 36,000	
• Basketball Courts	122	• Tennis Courts	77
Indoor	42	Indoor	28
Outdoor	80	Outdoor	49
• Swimming Pools	30	• Theaters	14
• Country Clubs	4	• Amphitheaters	3
• Golf Courses	9	• Playgrounds	109
• Parks	10		

Source: WV Bureau of Employment Services, Office of Labor and Economic Research.

Kanawha County is noted for its diversity of cultural and entertainment activities.

Financial Institutions

Including branch offices, Kanawha County has 55 banks and 3 savings and loan associations.

Local Government

Kanawha County is governed by a three-member county commission. Each commissioner is elected to six-year terms by the voters at-large. The *Kanawha County Commission* has the primary budgetary and administrative responsibility for operation of all county government functions. Working in cooperation with other elected officials, the commission provides a broad range of services to the citizens of Kanawha County.

There are 15 municipalities with residents in Kanawha County, two of which are partially (p) located in adjoining counties. They range in population from 334 (Handley) to 57,287 (Charleston).

All have a mayor-council form of government, with the mayor serving as chief executive of the town or city. Each unit of government is a member of the *Regional Intergovernmental Council (RIC)*, which also serves Boone, Clay, and Putnam counties. The Kanawha County Commission annually contributes to public projects and programs located throughout the county, including those within municipal jurisdictions.

MUNICIPALITY	POPULATION - 1990	HOUSEHOLDS - 1990
<i>Belle, Town of</i>	1,421	617
<i>Cedar Grove, Town of</i>	1,213	479
<i>Charleston, City of</i>	57,287	25,306
<i>Chesapeake, Town of</i>	1,896	780
<i>Clendenin, Town of</i>	1,203	510
<i>Dunbar, City of</i>	8,697	3,931
<i>East Bank, Town of</i>	892	345
<i>Glasgow, Town of</i>	906	333
<i>Handley, Town of</i>	334	130
<i>Marmet, City of</i>	1,879	758
<i>Montgomery, City of (p)</i>	829	199
<i>Nitro, City of (p)</i>	5,528	1,652
<i>Pratt, City of</i>	640	248
<i>Saint Albans, City of</i>	11,194	4,853
<i>South Charleston, City of</i>	13,645	6,126

Source: US Department of Commerce, Bureau of the Census.

- The county is governed by a three-member *Kanawha County Commission* (3 commissioners, 9 employees). All unincorporated areas of the county are dependent upon State and county agencies for provision of services.
- The *Kanawha County Planning Commission* maintains and updates the comprehensive plan, administers subdivision and flood plain management regulations, issues building permits and street addresses (15 commissioners, 5 employees).
- The *Regional Development Authority* manages public water treatment and distribution, sanitary sewerage collection and treatment, and solid-waste projects within Kanawha County (15 commissioners; shares planning commission staff).
- The *Boone-Clay-Kanawha-Putnam Regional Intergovernmental Council* (RIC) is a regional planning and development organization made up of local units of government. RIC oversees the planning, programming, funding and management of public projects throughout the four-county region (8 employees).

Public Safety & Emergency Services

- Enhanced 911 telephone service is available throughout Kanawha County, although 6,036 housing units are without a telephone. The *Metro 911* dispatch center is located in Charleston (25 employees).
- The *Kanawha County Sheriff* provides tax collection and law enforcement services from detachments located in Charleston, Cross Lanes, Elkview, St. Albans, Sissonville and Quincy (59 employees).
- The *WV State Police* also provide law enforcement services throughout Kanawha County. The State Headquarters are located in South Charleston (146 employees).
- Emergency ambulance and non-emergency transport services are provided by the *Kanawha County Emergency Ambulance Authority*, as well as private and volunteer organizations. Air ambulance service is available through *Aero-Charter*, Incorporated and provided by *Charleston Area Medical Center* (CAMC).
- Fire protection services are provided by municipal governments and volunteer fire departments (VFD's) throughout Kanawha County.
- Chemical spills, natural disasters, catastrophic and other special emergency situations are managed through the *Kanawha County Public Safety* office (2 employees).