

Chapter II - Framework for the Local Plan

County Physical Characteristics

Carroll County is located in north-central Maryland, adjoining Frederick County to the west, Baltimore County to the east, and Howard County to the south, and the state of Pennsylvania to the north (see Regional Orientation Map). Carroll County lies in the Piedmont region of Maryland, divided in a southwesterly to northeasterly direction by Parr's Ridge. Parr's Ridge creates two major drainage basins in the County: one that flows west to the Monocacy River and on to the Potomac River; and, one that flows east to the Patapsco and Gunpowder Rivers. Eventually, all of these rivers empty into the Chesapeake Bay. Natural features such as steep slopes, wetlands, soils, and land cover, including forest land, cropland, and developed land, also contribute to the physical characteristics of Carroll County.

Water Bodies

Streams and Reservoirs

Many miles of streams traverse the county landscape (see Wetlands & Streams Map). Of these streams, the major ones are: Piney and Alloway Creeks, Double, Big and Little Pipe Creeks and the Monocacy River; Morgan Run, Gillis Falls and South Branch Patapsco River; South Branch Gunpowder Falls; and, North Branch Patapsco River. The utilization of these waterways is varied, ranging from agricultural uses such as irrigation and livestock watering to recreational uses such as fishing and boating. Gunpowder Falls, Morgan Run, Beaver Run, Snowdens Run, Stillwater Creek, East Branch Patapsco River, Carroll Highlands Run, Autumn Run, Piney Run, Gillis Falls, Aspen Run and South Branch Patapsco River are all Use III waters favorable to natural trout propagation because of their high water quality. Of these, all but Gillis Falls, Aspen Run and South Branch Patapsco River, are further classified as Use III-P waters, which flow into a public water supply. The remaining streams in the county are either Use IV or Use I waters offering recreational fishing opportunities as well.

Many of the waterways in Carroll County are within the watershed of drinking water reservoirs. A small section of northeastern Carroll County drains into Prettyboy Reservoir in Baltimore County. About 130 square miles, or 28% of the county, drains into Liberty Reservoir in the southeast, a major drinking water source for Baltimore City, Baltimore County, and parts of Carroll County. Part of the drainage basin of the South Branch Patapsco River also drains into Piney Run Reservoir in southeastern Carroll County. This reservoir is designed to serve future populations, and is not currently in use as a drinking water source. Two future reservoir sites are planned for Gillis Falls, in

southwestern Carroll, and Union Mills, in north-central Carroll County. Although unconstructed, nearly all of the land for the reservoirs has been purchased by the County Commissioners.

Due to the importance placed on protecting the quality of water entering these reservoirs, much of the land immediately surrounding the lakes are well forested and free from development. This has created an ideal opportunity for recreational activities such as hiking and bird watching. The reservoirs themselves offer additional recreational opportunities in the form of boating and fishing. The two unconstructed reservoirs provide recreation possibilities along many miles of hiking and equestrian trails.

Stream Buffers and Wetlands

Water quality is of great importance for those areas draining into the reservoirs, but it is also important throughout the county. Just as the reservoirs are buffered along their edges by undeveloped, forested lands to protect their water quality, the quality of water in streams can benefit from buffering along their edges. Stream buffering reduces sedimentation and erosion, slows runoff to allow for better filtration and percolation to ground water supplies, moderates water temperature, and provides habitat for wildlife along the shoreline and shallow stream edges. The value of stream buffers is particularly high in areas where the stream banks are characterized by steeply sloping land. Carroll County requires that a flexible-width stream buffer be calculated and applied to both sides of streams impacted by the subdivision process. This buffer must be a minimum of 50 feet in width plus two feet for every one percent of the average stream valley slope. County regulations also prohibit building in the floodplain, which often includes the stream buffer area.

Wetlands serve many of the same purposes as stream buffers, slowing runoff and filtering pollutants in addition to providing unique plant and animal habitat. However, wetlands also serve as natural catchment basins, allowing for increased percolation of water into the ground, a greater degree of pollutant filtration and sediment control, and better storage of waterborne nutrients. While Carroll County does not have any tidal wetlands due to its inland location, it does have numerous non-tidal wetland areas associated with streams and floodplains. As a result, wetlands play a significant role for the county's streams, ensuring a more consistent delivery of water to the streams, both during drought and flood periods.

The essential role stream buffers and wetlands play in stream water quality and habitat make them an important consideration in the overall protection of natural resources, particularly in the quality of water available for human consumption. They also can offer recreational opportunities in the form of low-impact trails, fishing, hunting and wildlife observation.

Land Cover

Composed of just less than 290,000 acres, Carroll County has a predominant land cover of crop and pasture land. According to the Maryland Department of Planning's Land Use/Land Cover project, in 2000 agriculture lands accounted for 159,199 acres, or 55% of the total land area in the county. For this reason, other types of land cover were much lower. In particular, forest cover accounted for about 24% of the total land area, or 68,358 acres. Developed land, including residential, commercial/industrial, and institutional/open, accounted for nearly 20% of the total county land area, or 56,652 acres.

Agricultural Land

Historically, a strong agricultural base has been the most significant characteristic of Carroll County. This continues today, as the land cover percentages show, though the county has continued to urbanize since mid-century.

The 2002 "Agriculture in Maryland" report showed Carroll to be one of the most significant counties in the state in terms of the diversity and production levels of both plant and animal products. Grain production placed the county 4th in corn, 4th in barley and 9th in wheat. In the production of corn silage and hay, Carroll was 3rd, behind Frederick and Washington counties. Soybean crops continue to increase, and now Carroll ranks 8th among counties in the state. According to the 2002 Census of Agriculture, other crops of significance included peaches (3rd in the state), apples (3rd in the state) and vegetables (4th in the state). Although only 31 acres in the county were devoted to the production of berries, this was the second highest number of acres in the state. Carroll County also had the most acres devoted to Christmas tree production, and the second highest number of trees cut in the state. Livestock are also extremely important agricultural products in the county. The county's mainstay industry, dairy farming, was ranked 3rd in the state in 2002. The value of all agricultural products sold by county farmers in 2002 was \$68,956,000.

The 2002 Census of Agriculture revealed a decrease in the number of farms in the county by almost 9 percent overall. The number of farms sized from 1-9 acres, 100-139 acres, 180-219 acres, and 260-499 acres all increased slightly in number, while the remaining farm sizes (10-49 acres, 50-69 acres, 70-99 acres, 140-179 acres, 220-259 acres, 500-999 acres, 1,000-1,999 acres, and 2,000 acres or more) decreased in number. Because of the varied distribution of these increases, it is difficult to analyze their significance. It could be assumed that the increases are the result of farms being subdivided. The reduction in acreage shifts them from a higher acreage category to a lower acreage category, thereby increasing the number of farms in that lower acreage category.

County Soils

Much of the county's outstanding agricultural production levels depend upon the quality of its soils. The northwestern part of the county, which is one of the most productive areas, is generally composed of the Penn-Klinesville-Abbottstown Association of soils. These soils, also called red lands, are varied in terms of depth, drainage, and slope, but are suitable for most general types of farming. Residential development can be difficult in certain areas due to drainage and depth characteristics of the soils.

About 2% of the county is composed of Mt. Airy-Linganore Association soils, which are found in scattered areas. These soils can be difficult to farm because of their inability to hold moisture. Residential development on these soils can be problematic as well, particularly in terms of foundation excavation and sighting of septic fields, but they are otherwise suitable for building upon. Another very small area, approximately 1%, of the county, contains the Conestoga-Hagerstown Association of soils. These soils primarily occur in the Union Bridge area, and are exceptionally fertile and excellent for farming due to their naturally high lime content. Almost all types of crops or building activity are suitable for these soils, except in the isolated areas where steep slopes, erosion, or floodplains create limitations.

About 20% of the county, generally in the east, contains the Glenelg-Chester-Manor Association of soils. The major soils in this association are all well drained and deep, and occur on generally rolling to hilly terrain. These soils lend themselves well to contour farming of row crops and hay, as well as orchards and the raising of dairy cattle, beef cattle, and other livestock. Some occurrence of steep slopes and erosion exists, and in these areas the land is usually more suitable for woodland, pastureland, or recreation land. Building opportunities are usually good.

A transitional zone of Glenelg-Manor-Mt. Airy Association soils exists between the Glenelg-Chester-Manor Association soils and shallow, stony soils to the west. These transitional soils are somewhat rough and can be limited by steep slopes, erosion, shallow depth, and rock fragments. Those areas that have severe limitations are best suited to woodland or grass, but other areas are suitable for livestock, orchards and some crops as long as soil and water conservation measures are enacted. The soils are generally good for building as well, though difficulties can be encountered with the shallower Mt. Airy soils.

The most extensive soil association in the county, accounting for 34% of the area, is the Mt. Airy-Glenelg Association. These soils occur in a large band running north to south through the west-central part of the county. The predominant soil in this association is Mt. Airy, which is characterized by little moisture retention and can be steeply sloping and highly erodible. In these areas, the most suitable use of the land is woodland, but in other areas hay crops, pasture land, and orchards are suitable. Other types of crop cultivation can be compatible as well,

as long as soil and water conservation measures are enacted. Building is generally not difficult, though some problems can arise with septic drainage.

As a percentage of total county land, Carroll County falls behind its neighbors in nearly every land cover category, primarily due to the larger percentage of land dedicated to agricultural use in Carroll. However, this does not necessarily mean that natural resources are imperiled or recreational opportunities diminished. Agriculture often serves a very important role as protector of natural resources, typically leaving steep slopes and wetlands undisturbed and providing sediment and erosion control through ground cover crops, nutrient management plans, and other soil conservation practices (see Forested Areas & Steep Slope Soils Map).

Traditional agricultural practices must be combined with wise management practices such as nutrient management and soil and water conservation if the mutually beneficial coexistence of agriculture and environmental resources is to occur. In terms of recreational opportunities in the agricultural areas of the county, the rural open space and less-traveled roads can provide places to fish, hunt, bicycle, walk, and observe wildlife. Although it is important to provide recreational facilities in these areas as well, rural residents should not expect the same level of services as residents within Priority Funding Areas.

Forest Land

Carroll County's natural forestlands are typical of upland Piedmont climax forests. The predominant species are oak and hickory; however, this is changing as the county continues to suburbanize. Land that had been cleared for agriculture but has been converted to another use in recent years is experiencing secondary growth consisting of species different from the natural forest cover. Through natural succession and reforestation programs, more maple, gum and bass trees are appearing as forested areas now.

Although Carroll County has a fairly low percentage of forestland, its forestland is most heavily concentrated along steep slopes and in those areas where the protection of resources, particularly water quality, is most important (see Forested Areas & Steep Slopes Map). This includes the reservoir areas, both existing and planned, and areas of exceptional natural importance such as Morgan Run Natural Environmental Area, South Branch Patapsco River, and several other major tributaries. These areas also provide recreational opportunities such as hiking, fishing & hunting, mountain biking, horseback riding and wildlife observation.

The land cover statistics for Carroll County indicate a fairly small amount of forestland, particularly when compared to neighboring counties. Again, this can be attributed primarily to the high percentage of land with crop and pasture cover. As discussed earlier, this cropland often can act to protect natural resources, but crop and pasture land do not retain the same type of filtration and erosion prevention capabilities as natural

forested areas. Forest land also has greater habitat potential, contains a wide array of biodiversity that crop and pasture land do not, and does not carry with it the same concerns for nutrient and pesticide leachate that are associated with crop land and animal waste. As a result, forestland provides possibly the greatest degree of protection for other natural resources, and merits protection and augmentation, when possible.

Developed Land

The land area that is covered by development is substantially less than in other counties as well. However, the type of development that exists is often the most land-consumptive, being of relatively low densities outside the eight incorporated municipalities. In 2000, 19.5% of the county was classified as developed. In terms of residential development, 14.4% of the county was occupied by low-density residential development and 3% was occupied by medium and high-density residential development. Low-density residential development accounted for 82.7% of all residential development in the county. Land devoted to commercial/industrial and institutional uses comprised only about 1% of the total land area in the county (see Existing Use of Land Map).

The implications of Carroll County's pattern of developed land for recreation and natural resource protection are many. While the high percentage of low-density residential development does include numerous farm households and other residences located in the rural portions of the county, much of this type of development is suburban in nature rather than rural. The result is 1 to 5 acre subdivision lots that are not large enough to provide substantial recreation opportunities in and of themselves, but are not small enough to necessitate gross expenditures on highly developed recreation areas. This poses a problem in the planning and delivery of recreational services. Additionally, lower densities mean that most recreational facilities must be accessed by automobiles because of the distance of travel required. Designing facilities that provide multiple recreational opportunities that can serve the needs of an entire family could help lessen the impact of these trips. If a family can combine its recreational trips, the impact of automobiles on natural resources and road congestion will be reduced.

Large lot subdivisions also hold the potential to imperil natural resources by clearing forested areas, increasing impervious surface areas which speed runoff into water bodies, and fragmenting the habitat, breeding areas, feeding sources, and migratory routes of wildlife. Forestation requirements and cluster development provisions in the county have attempted to address these concerns.

Unique Natural Features

Carbonate Rock and Wellheads/Springs

Carroll County contains approximately 5,850 acres of carbonate rock, a highly soluble geologic formation that occurs in a fragmented band running through the mid-section of the county between Westminster and Union Bridge (see Carbonate Rock Areas Map). Small lenses of carbonate rock also are found in the Silver Run area and between Manchester and Hampstead. Carbonate rock produces high-yield aquifers, from which three towns and numerous private homes derive their water, but also is extremely environmentally sensitive. The carbonate rock is characterized by high solubility, transmissivity and storativity, which makes it an excellent source of water but also makes it prone to subsidence (sinkholes) and the rapid contamination of groundwater by pollutants. As human activity increasingly impacts the sensitive characteristics of these areas, the occurrence or probability of devastating consequences increases as well. Clearly, protecting as much of the land in its natural state or for agriculture, and developing nutrient management plans that will reduce the potential for groundwater pollution, will serve to protect the county's most sensitive geologic areas and the people who live there.

Because of the generous yield of the carbonate rock aquifers, numerous wells and springs located throughout the county draw from this source (see Water Resources Management Area Guidance Map). In particular, the towns of Union Bridge, New Windsor, and Westminster utilize wells and/or springs located in carbonate rock areas to provide public water to their citizens. A number of potential well sites have also been identified in these areas as well. Because of the proliferation of existing and potential water source sites, 16,500 acres are in wellhead protection areas.

Threatened/Endangered Species

The destruction or significant despoilment of habitat that accompanies any change in the natural state of an ecosystem can endanger the survival of indigenous plant and animal species. This is particularly true for those species that cannot move easily, are dependent upon highly specific habitat for survival, or are fragile species to begin with due to unique breeding, migration, or feeding patterns. Although wise stewardship of the land and its resources would indicate that we should maintain the highest levels of biodiversity possible, there are other, more selfish, reasons for doing this as well. Only recently have we begun to realize the vast potential certain plants and animals have for benefiting human health, particularly in terms of pharmaceutical development.

Unfortunately, the number of species that have become extinct to this point is astoundingly high. In Maryland alone, over 200 plant and animal species have been lost in the past 350 years. Another 413 species are threatened or endangered in the state. In

Carroll County, 7 animals and 19 plants are considered highly rare, threatened or endangered species (see Sensitive Species Project Review Areas). Protecting these species from extinction essentially means protecting their natural habitat to the greatest extent possible. Currently, Carroll County requires that an environmental resources inventory, including the identification of threatened or endangered species habitat, be prepared for every property undergoing the subdivision process. Development Design Guidelines also encourage practices that would minimize the threat posed by changes in land use to sensitive species and their habitat.

**Table 1
Rare, Threatened and Endangered Species in Carroll County**

Plants			
Red Milkweed	Endangered	Wild Black Currant	Endangered/Extirpated
Buxbaum's Sedge	Threatened	Canada Burnet	Threatened
Field Sedge	Endangered	Smith's Clubrush	Endangered/Extirpated
Little Prickly Sedge		Bashful Bulrush	
Mead's Sedge	Endangered	Reticulated Nutrush	
Woolly Sedge		Swamp-oats	Threatened
Burr-reed Sedge		Fameflower	Threatened
Hairy-fruited Sedge		Graybark	
Indian Paintbrush	Endangered	Animals	
Small Waterwort	Endangered	Triangle Floater	Highly Rare
Darlington's Spurge	Endangered	Brook Floater	Endangered
Pumpkin Ash		Henslow's Sparrow	Highly Rare
Small Bedstraw		Bog Turtle	Threatened
Yellow Avens	Endangered	Atlantic Spike	
Potato Dandelion	Endangered	Loggerhead Shrike	Endangered
Canada Honeysuckle	Endangered	Golden-crowned Kinglet	
Wild Lupine	Threatened	Regal Fritillery	Endangered/Extirpated
Winged Loosestrife	Endangered	Squawfoot	In Need of Conservation
Ostrich Fern		Bewick's Wren	Endangered
Purple Fringeless Orchid	Threatened	Squawfoot	In Need of Conservation
Whorled Mountain-mint	Endangered		

Source: Maryland Department of Natural Resources Wildlife and Heritage Service, Current and Historical Rare, Threatened, and Endangered Species of Carroll County, Maryland report (May 10, 2004)

Current and Projected Demographic and Socioeconomic Characteristics

Existing and Projected Population

As of December 2004, Carroll County had an estimated population of 167,546. The most populous areas of the county included the Freedom election district (pop. 25,129), the Westminster election district (pop. 18,513), the Woolerys election district (pop. 17,742), and the City of Westminster (pop. 17,663). The next most populous area of the County

was the Berrett election district, with a population of 12,547. It is important to note that, other than the City of Westminster, none of the county's most heavily populated areas are in incorporated municipalities. In fact, four of the County's eight municipalities have populations far below that of the unincorporated part of their election districts. By the end of 2004, approximately 27% of the population lived in an incorporated municipality. However, 2004 estimates also indicate that nearly 63% of the population lived in a town or community planning area.

Reviewing current zoning is one way to have an indication of how many new homes and new residents the county can expect in future years. Demographic trends can also be used to project an increase or decrease in population due to natural birth/death rates and in-migration/out-migration. The table below contains the most recent population projections done by the Maryland Department of Planning using these techniques.

	2000	2005	2010	2015	2020	2025
Male	74,470	83,580	88,500	91,980	94,180	95,100
Female	76,427	85,920	91,190	95,070	97,720	99,060
Total	150,897	169,500	179,700	187,050	191,900	194,150

Source: Maryland Department of Planning

Population Characteristics

While the number of people expected to reside in Carroll County in future years is important to know, certain characteristics about this population that are relevant to land preservation and parks need to be considered as well. These include age, sex, ethnicity/race, urban/rural, income, and density/distribution.

Age

	2000	2005	2010	2015	2020	2025
0-4	10,110	10,830	11,120	11,870	12,000	11,510
5-19	35,513	39,650	40,430	39,830	39,750	39,860
20-44	52,889	55,740	53,840	53,870	54,310	55,650
45-64	36,118	43,850	51,170	53,270	52,630	48,500
+65	16,267	19,420	23,140	28,220	33,210	38,620
Total	150,897	169,500	179,700	187,050	191,900	194,150

Source: Maryland Department of Planning

The projected changes in age distribution over the 25-year period shown in Table 3 reveal several notable characteristics. It is obvious that if the current population remains in the

county and ages in place then the age structure of the population will see a dramatic shift. The group of people over 65 years of age will experience rapid growth over the next twenty years. This age group made up 10.7% of the total population in 2000. As the population ages, this group will continue to grow and is projected to make up 19.9% of the total population in 2025. The 45-64 age group will also experience significant growth until 2015, after which time it will begin to shrink in size. While the two older age groups are projected to become a larger portion of the total population, the other three age groups will experience minimal growth. As a result, the percentage of the total population that these groups make up will continue to shrink. The 20-44 age group will see the largest decrease, going from 35% of the 2000 population to 28.7% of the 2025 population. These projections are based on the assumption that the current population will remain in the county as they reach retirement age. If large numbers of people leave the county as they reach retirement age and are replaced by young families, then the age structure of the population could remain very similar to what it was in 2000.

Sex

Table 2 indicates that women outnumbered men in 2000 by about 2,000. As the population ages, the number of women in 2025 is projected to be almost 4,000 more than the number of men. This is the result of the aging of the population combined with the fact that women have longer life expectancies than do men.

Ethnicity and Race

Ethnic and racial groups are not diverse in Carroll County. According to the 2000 Census, 95.7% of the residents in Carroll County were white. The next largest racial group was black, with 2.3% of the county's residents falling into this category. People of Hispanic origin made up 1.0% of the population, while Asian and Pacific Islanders constituted 0.8% and American Indian, Eskimo and Aleuts accounted for 0.2% of the population. Population projections indicate that nonwhite residents in the county will go from making up 3.9% of the total population in 2000 to making up 5.4% of the total population in 2025.

Urban/Suburban/Rural

According to the 2000 Census, 86,055 people lived in an area characterized as Urban. This urban population was divided into two categories, with 65,034 people living inside urbanized areas and 21,021 living inside urban clusters. The Census defines an urbanized area as an area consisting of a central place and adjacent territory with a general population density of at least 1,000 people per square mile of land area that together have a minimum residential population of at least 50,000 people. It also defines an urban cluster as a densely settled territory that has at least 2,500 people but fewer than 50,000. The other 64,842 county residents lived in areas classified as Rural.

Income

Household income levels in Carroll County have been increasing steadily over the past two decades. Table 4 shows the distribution of income for households over a twenty-year period.

An examination of the income statistics for Carroll County since 1979 reveals much about the county's demographic and development trends. Since 1979, the county has been growing at steady rates, and the value of much of the new housing being constructed is fairly high. At the same time, newer residents of the county tend to have higher education levels and tend to make more money at their jobs than the majority of county residents in the past. This is evident in the income levels shown in Table 4. Households with income levels below \$50,000 continuously dropped in numbers through 2000, while those with income levels above \$50,000 continuously rose. The national trend towards more two-income families does explain some of the growth in households earning over \$50,000, however, the increasing per capita income indicates that Carroll County is also becoming a more affluent county.

Table 4
Household Income
1979, 1989, & 1999

Income Level	1979		1989		1999	
	Number	Percent	Number	Percent	Number	Percent
Less than \$10,000	2,804	9.2%	2,703	6.4%	1,866	3.5%
\$10,000 - \$14,999	2,084	6.8%	2,164	5.1%	1,865	3.5%
\$15,000 - \$24,999	4,156	13.6%	4,887	11.6%	4,379	8.3%
\$25,000 - \$34,999	5,808	19.0%	6,083	14.4%	4,663	8.9%
\$35,000 - \$49,999	7,719	25.2%	10,069	23.9%	7,813	14.9%
\$50,000 - \$74,999	5,813	19.0%	10,586	25.1%	13,603	25.9%
\$75,000 - \$99,999	1,245	4.1%	3,674	8.7%	8,933	17.0%
\$100,000 or More	955	3.1%	2,047	4.8%	9,479	18.0%
Total Households	30,584		42,213		52,601	
Median Household Income	\$35,789		\$42,378		\$60,021	
Per Capita Income	\$12,547		\$16,320		\$23,829	

Sources: U.S. Census Bureau

Density and Distribution

Historically, population concentrations in Carroll County have been centered around the eight municipalities and nine Community Planning Areas. More recently, the election districts south and east of Westminster (i.e., closer to Baltimore and Washington D.C.) have been increasing in population and density. Based upon projected zoning capacity, these areas will continue to become denser, as will the districts west of Westminster to a

lesser extent. However, the heaviest concentration of population will continue to be in the designated growth areas, where demand for services and facilities will be highest as well.

Relevance of Statistics to LPPRP

Demographic statistics relating to population increase, age, sex, ethnicity and race, income and density and distribution are relevant to the need for land preservation and recreation in many ways.

As noted in the first section on existing and projected population, Carroll County is expected to increase in population by about 25,000 over the next 20 years. Obviously, this numerical increase in population will mean that the provision of recreational facilities and programs will need to keep pace with the increase in demand that will be generated by the population. Chapter III describes in more detail the facilities that will be needed, but in general it is expected that the demand for facilities and programs will continue to be oriented towards organized sports and an increase in linear trails.

An increase in population also will mean increased pressure on undeveloped land to be converted to housing and businesses. If the lot rights on properties outside of the growth areas are developed, the result will be not only a reduction in open space and an increased threat to natural resource protection, but also a threat to land preservation efforts and the continued viability of preservation programs. Much of the county's success in land preservation, particularly agricultural land preservation, has occurred in areas where a "psychology of permanence" still exists. In other words, landowners are more willing to commit to land preservation when they feel that their individual property will contribute to a larger, regional system of preserved land that will help maintain the long-term viability of agriculture and natural systems. Areas in which the agricultural infrastructure and natural systems are fragmented by development have much less success with land preservation. Another by-product of dispersed, sprawl development is that recreation facilities are more difficult to locate central to the populations they serve. The result is that large, regional facilities will be needed in the future that are designed to draw from a broad geographic area so as to be financially feasible.

Projected age distributions of the county's population also have bearing on the number and types of recreation facilities that will be needed by the county in coming years. While the distribution of various age groups fluctuates throughout the 25-year period shown in Table 3, there is one very significant trend. It is clear that if the current population stays in place, the senior population (+65 years) will become a much larger portion of the total population. This means that senior facilities and programs will need to be constantly expanded to serve the increasing population, and that opportunities for participant input and participation will need to increase as well.

It is not expected that sex or ethnic/racial make-up will have a significant impact either on the types of recreational facilities or the amount of land preservation needed or demanded.

The distribution of urban/suburban/rural residents has an impact on the types of programs used to achieve County land preservation and recreation goals. According to the 2000 Census, 57% of the county's population lived in an area categorized as urban. This means that 43% of the population was living in an area considered rural. Because the county contains larger percentages of both urban and rural residents, the County must work to provide parks and recreational opportunities within the urbanized areas while also working to preserve agricultural and environmental sensitive lands located in the rural areas.

Table 4 shows that the county, as it suburbanizes, is increasing in affluence. An increasingly higher number of household incomes are in excess of \$50,000. This could mean that these households might demand a greater variety of recreational opportunities for which they are willing to pay. However, it is not believed that these statistics will alter the types or amounts of facilities that the county offers, except in the sense that a larger amount of money derived from income and property taxes might make more money available for recreation improvements. The county strives to make its facilities available and affordable to all households. It is not expected that land preservation would be affected significantly by higher household incomes, except in the sense that more money in the General Fund could be directed to land preservation. However, it is possible that a demand for bigger houses and/or more land for lots could be driven by an increasingly affluent population, thus creating more pressure to develop rural areas of the county.

As zoning capacity is reached, the density distribution of the population will remain highest in the eastern half of the county. This means that there will be a greater need for recreation and open space in this area to serve these people. While parts of the county that are not in growth areas will increase in population as well, the focus of growth also will continue to be in the CPAs. This means that the more traditional recreation facilities will need to be focused in these areas, while land preservation efforts will need to be increased outside of them. At the same time, open space opportunities in the areas of higher density should not be neglected. These areas can be created either as countywide open space areas, or as parts of subdivisions. Regardless, open space that is designed to offset higher density development should be accessible to a large number of people, so that its benefits can be enjoyed by as many as possible.

Comprehensive Plan Framework

Planning, Land Use, and Zoning

County Master Plan and Comprehensive Plans

For many years, the Carroll County Master Plan has functioned under two basic premises: that the majority of the county's growth will be directed to the towns and their designated growth areas; and that the remaining land outside the growth areas primarily will be agricultural and conservation lands. As a result, land use and zoning generally have been consistent with this concept. The small area comprehensive plans, which typically are developed jointly by the towns and the county and have at their center a municipality, establish the land use for the county's most intensively used areas (see Planning Context Map and Master Plan Map). These areas are called Community Planning Areas, or CPAs.

Carroll County has nine CPAs: Mt. Airy, Sykesville/Freedom, Finksburg, Westminster, New Windsor, Union Bridge, Taneytown, Manchester, and Hampstead. Except for the Finksburg CPA, each area is associated with an incorporated municipality. The Mt. Airy planning area is located in the extreme southwestern corner of the county, bordered by Frederick and Howard Counties. The Town of Mt. Airy occupies 1,504 acres, and the CPA occupies an additional 1,281 acres. The Sykesville/Freedom planning area is situated in the extreme southeastern corner of the county, bordered by Howard County and Baltimore County, the boundary of which is formed in part by Liberty Reservoir. The Town of Sykesville occupies 804 acres, while the CPA consists of 25,365 acres. This is the county's largest CPA, comprising nearly 1/10 of the land area in the county. The Finksburg CPA is named for the community of Finksburg, though this area is not incorporated. Encompassing 9,277 acres, the Finksburg CPA lies on the east-central edge of the county, at the northern end of Liberty Reservoir. The draft Finksburg Corridor Conservation Plan recommends the removal of the Finksburg Community Planning Area, since it primarily is a low-density, unincorporated area that is not in keeping with the concept of a CPA.

Westminster is the county seat of Carroll County, and is the largest of the eight towns. It is 3,626 acres in size, and is surrounded by 12,069 acres that make up its planning area. The town and CPA are located nearly in the center of the county. Just southwest of Westminster is the Town of New Windsor, the smallest town in the County. New Windsor is approximately 437 acres, while its CPA is 531 acres in size. The Town of Union Bridge, located along Sam's Creek in the west central part of the county, occupies 613 acres, and its CPA occupies an additional 999 acres. In the northwestern corner of Carroll County, the City of Taneytown is situated on 1,694 acres, while its CPA occupies 1,310 acres. The Town of Manchester is located in the northeastern corner of the county. It lies within 1,313 acres, and its CPA is 1,971 acres in size. Finally, the Town of

Hampstead and its planning area abut the Carroll County border with Baltimore County. The town is 1,589 acres in size and the CPA is 1,495 acres in size.

Each of the CPA Comprehensive Plans addresses open space and recreation needs particular to that area. The relevant goals of each comprehensive plan can be found in Appendix I. The County Master Plan also has a set of goals, policies, thresholds, and strategies that relate to parks, heritage resources, natural resource protection, and agriculture. Thresholds refer to numeric levels of service for facilities that the County wishes to attain, and many of the policies and strategies revolve around them. A listing of the relevant goals, policies, thresholds, and strategies contained in the Master Plan appear in Chapters III, IV, and V.

Land Use

The Existing Use of Land Map (see Existing Use of Land Map) shows the distribution of generalized land uses throughout the county. The distribution shows that the county as a whole is fairly sparsely developed, and that the most intense development typically occurs in and around the municipalities. It also shows that, despite concerted efforts to preserve land in the rural parts of the county, there is still a fair amount of rural development in these areas.

Except for one area in the southeastern part of the county, which is served with public water and sewer from a County-owned system, the towns provide most of the public water and sewer service. All of the towns except Westminster serve only those areas within their corporate limits with water and/or sewer. Westminster does extend water and sewer to areas outside the city limits, but these areas usually are still within the CPA. Therefore, most of the more intensive land uses occur within the municipalities and/or the CPAs. Since it is difficult to track acreage for specific land uses, because this can change frequently, acres of land use can be inferred best from zoning.

Zoning

The largest zoning category in Carroll County is Agricultural. Sixty-seven percent of the County is zoned Agricultural; very little of the Agricultural zoning is in the Community Planning Areas and none of it is in the towns. The Agricultural zone was designed as a reserve area where nearly all agriculturally oriented uses are permitted and other uses are limited. Agriculture has been, and continues to be, a major industry in the county. This fact is recognized by the County Master Plan in its efforts to focus growth so that the rural farming areas of the county can continue to be strong and unimpeded by the deterioration high levels of development can produce in the agricultural community. The County Master Plan has a goal of permanently preserving 100,000 acres of farmland by 2020.

Because agriculture and agri-business are so strong in Carroll County, efforts to preserve prime farmland here have been quite successful (see Agricultural Land Preservation Map). At the end of Fiscal Year 2004, Carroll County had permanently preserved 385 farms totaling 44,841 acres. Of that total, 313 farms totaling 38,076 acres had been preserved by easement through the Maryland Agriculture Land Preservation Foundation (MALPF). An additional 441 farms totaling 52,446 acres were in MALPF Districts awaiting easement sales. Approximately 39 easements totaling 3,967 acres have been preserved through the Rural Legacy Program within the Little Pipe Creek Watershed area and roughly 1,487 acres of farmland have been preserved through the Maryland Environmental Trust and/or Carroll County Land Trust. Thirteen easements totaling 1,311 acres have also been preserved through various other available programs.

Most of the easements, as well as quite a number of districts, are located in the northwestern sector of the county north of New Windsor and west of Westminster. Several other large blocks of easements and districts are found in the northeastern portion of the county between Westminster and Hampstead/Manchester. A scattering of other easements and districts are located in the southern half of the county, with most of the easements located in the southwest between Mt. Airy and New Windsor.

The Conservation zoning district is the next largest zone in the county, covering a total of 57,643 acres, 27,338 of which are in the towns and CPAs and 30,305 of which are in the remainder of the county. The purpose of the Conservation zone is to protect sensitive environmental features such as steep slopes, stream valleys, woodlands and water sources. Permitted uses are limited to those that are fairly low-impact, and design guidelines encourage clustering development away from environmental features to land that is more suitable for building upon. Unlike Agricultural zoning, Conservation zoning is prevalent in the towns and CPAs; nearly the same number of acres of Conservation zoning occur within the towns and CPAs as in the remaining parts of the county. The Freedom CPA has 13,875 acres and the Finksburg CPA has 6,007 acres of Conservation zoning, primarily due to their proximity to Morgan Run Natural Environmental Area, Liberty Reservoir, Piney Run Reservoir, and Patapsco State Park. The Westminster CPA also has a sizeable amount of Conservation-zoned land, with 4,789 acres. Those areas zoned Conservation outside of the CPA's are primarily areas around the planned reservoirs of Gillis Falls, in the southwest, and Union Mills, in the north central part of the county. Other Conservation areas include parts of Morgan Run Natural Environmental Area and the Monocacy River Valley, as well as some minor stream valleys and public open space.

The residential zoning districts are located primarily in the towns and CPAs. Seventy-eight percent of all residential zoning is within a town or its CPA; of this, 29% is in the towns. However, nearly 69% of the residential zoning in these growth areas has an equivalent density of one house per acre or half-acre. Combined with the Conservation zoning in the towns and CPAs, which has an equivalent density of one house per 3 acres, about 85% of the existing or potential residential lots in the county's major growth areas are zoned for ½ acre or larger. In relative terms, this results in fairly low-density growth areas.

Business zoning in Carroll County naturally occurs in the areas of heaviest population, which are the towns and CPA's. 83% of all Business zoning (general and local) is in one of the major growth areas. The remaining Business zoning in the county is typically located at major crossroads, vestiges of small communities that sprung up around the commerce attracted to these areas. Similarly, Industrial zoning (general and restricted) is heavily concentrated in the growth areas, with 90% of all Industrial zoning occurring in the towns and CPAs.

Effect of Changes in Land Use

When the Master Plan was updated in 2000, it recommended very little in the way of major land use changes. It maintained the emphasis of directing most of the growth to the CPAs and leaving the rest of the county rural. As the town and CPA Comprehensive Plans are updated, some CPAs are expanding, typically designating adjacent farmland for more intense uses. However, other CPAs are contracting as a result of the town's desire to remain small or need to scale back its future provision of services. As the CPAs grow and land uses convert to those designated by the plans, it will be important to provide adequate parks and recreational facilities to serve the increased populations and to offset the increase in density. Providing open space and recreation areas also is an essential element in keeping the towns and CPAs attractive places to live and work. This is the goal both of the Master Plan and the 1997 Smart Growth legislation.

Although the County aims to direct the majority of new growth to the CPAs, development rights still exist for properties outside of these areas. The land use changes that would occur if these lots developed are perhaps the greatest threat to resource lands and land preservation. Not only would an increase in impervious surface area that would be devoted to new development imperil the quality of the natural resources, but also an increase in new development would have a significant impact on the success of land preservation efforts. The experience in Carroll County has been that the more development there is in an area, the more resistant landowners are to preserving their property. New development brings conflict between residential/commercial and agricultural uses relating to the use of pesticides and fertilizers, the transport of equipment and supplies, and potential property damage. It also fragments natural and agricultural support systems that can affect the continued viability of these systems and, as a result, affect the desire of landowners to invest in their continued viability.

Community Facilities

Water and Sewer

Carroll County has no central regulating authority that provides water and sewer service. Instead, it has a number of municipal systems and several County-owned community

water and/or sewer systems. The towns of Manchester, Mount Airy, New Windsor, Taneytown, Union Bridge, and Westminster own and operate their own water and sewer supply systems. All but Westminster provide service only to residents and businesses within the incorporated area. Westminster services areas outside of the town boundaries, due to the precedent set when these facilities were privately owned and operated. The County owns and operates community water supply systems for the town of Sykesville (jointly owned with Maryland Environmental Service), Bark Hill and Pleasant Valley, and the community sewer systems for the towns of Sykesville (jointly owned and operated by Maryland Environmental Service) and Hampstead. Hampstead owns and operates its community water supply system. The remaining parts of the county are served by publicly and privately owned wells and septic systems.

Each town and Community Planning Area defines its planned service areas for water and sewer during the periodic comprehensive plan updates (see Countywide Water and Sewer Service Areas Map). The Carroll County Master Plan for Water and Sewerage, most recently adopted in April 2003, implements this portion of the comprehensive plan by determining existing and future capacity and facility needs based upon the land use plan and planned service areas. These areas are then translated onto maps that delineate the service area category, or the expected time period before service is to be provided. The Existing/Final Planning Service Area (W-1 or S-1) is an area that is currently being served, has service facilities under construction, or has completed final plans for facilities. The Priority Service Area (W-3 or S-3) is an area for which service is anticipated within the next six years. The Future Service Area (W-5 or S-5) is an area in which future growth is anticipated, at which point the extension of facilities may be deemed appropriate; this category does not imply service will be provided at any point, but does allow for planned future growth and the possibility of service. The No Planned Service Area (W-7 or S-7) is intended to be served solely by individual wells and septic systems. Increasingly, towns are reaching the limits of their ability to provide for water and sewer service due to physical limitations on the amount of water that can be withdrawn from aquifers or wastewater that can be discharged by a plant. Plant expansions can prove to be too costly for small towns, and as a result some towns are sizing their future growth areas to be only what the existing water and wastewater treatment plants can handle.

The water and sewer facilities in a given area affect recreation facilities and land preservation in several ways. Intensive use areas, such as regional parks, community centers or sports complexes will have a greater need for water and sewage systems to serve their users. Depending upon the unique site characteristics, these systems generally can be either public water and sewer or well and septic systems. It may be desirable to serve these intensively used areas with public systems that can handle the high volume of demand, especially if an area is not suited to well and septic due to soil and ground water characteristics. On the other hand, areas of the county that are not served by public water and sewer can be ideally suited to parks or land preservation because they tend to be lower density areas and/or areas rich in sensitive natural resources.

Roads and Transportation

The Carroll County transportation system is comprised primarily of roadways, with limited rail, air, pedestrian, and transit facilities. The county roadway system contains approximately 1,834 miles of roadway, the majority of which is classified as local road. The Carroll County Functional Classification Criteria and Assignment study developed in 1995 defined local roads as roads or streets that “provide for direct access to individual land uses. They discourage through traffic and are typically low in traffic volumes and speed.”

The percentage of the total roadway miles that are made up of interstate or principal arterials in the County is significantly less than that of surrounding counties and the region as a whole. Conversely, the number of miles and percentage of total miles attributed to the smallest roads (collector and local roads) in Carroll County is far more than in surrounding counties and the region. As a result, the county has very few main roadways along which large volumes of traffic can be routed. With a network dominated by local roads that “discourage through traffic and are typically low in traffic volumes and speed,” impeded circulation is to be expected. Consequently, major roads throughout the county and many intersections in the eastern half of the county operate at poor to extremely poor levels of service. Many of these roads are state highways, and improvements to remedy their operational problems may be a long time coming due to funding policies and shortages.

As with any land use, recreation areas and areas of land preservation need to be planned with the transportation system that will serve them in mind. Large recreation facilities can be extremely high traffic generators, though their peak hours of demand often do not coincide with the peak hours of demand for other land uses such as commercial or industrial. Convenient access to and within recreation areas is also very important, as is the safety of the roads and intersections for pedestrians and motorists using the facilities. Conversely, land preservation typically occurs in areas planned for little development and, therefore, with facilities designed for less capacity. As a result, the roads and transportation systems are of a less intense nature, which compliments the rural character of preservation areas.

The focus of this discussion primarily has been on roads and motor vehicle facilities because Carroll County has little in the way of alternative transportation facilities. Most land uses, including parks and recreation areas, are accessed via automobiles. The exception is in the dense municipalities, where pedestrian access is often more convenient than automobile access. The towns are the areas where the most highly developed pedestrian facilities exist. These facilities include sidewalks, paths, and proposed greenways that are designed to link residential neighborhoods with commercial areas, schools, community facilities, and recreational areas. Even in the towns, however, many parks and recreational areas require users to access them by car because of their location or because of the large geographical area from which they draw their users.

Greenways are becoming more common in communities as a result of an effort to implement the proposed Greenways, Bicycle, and Pedestrian Facilities Network Plan, (see Proposed Network Plan Map). During the development review process, areas that were identified in the plan as potential greenways are being reserved and/or developed as greenways with and without pedestrian or other access. Generally, these greenways occur in developments that are required, through the Zoning Ordinance, to reserve a certain amount of open space. These developments include Planned Unit Developments (PUDs), cluster subdivisions, and cluster subdivisions in the Conservation zoning district. To date, the county has: 7 PUDs, 2 of which have minimal path systems; 26 cluster subdivisions, 18 of which have minimal path systems; and 14 cluster conservation subdivisions, only 1 of which has a minimal path system. Despite recent increases in demand for linear parks and trail systems, attempts to implement the Greenways plan have met with resistance from both developers and residents. The county will continue to pursue these initiatives, however. The Master Plan calls for the creation of 5 miles of pedestrian, bicycle or equestrian facilities per year, which is accompanied by a set of strategies designed to help accomplish this. Included is the creation of an easement mechanism that can be applied to designated sections of greenway corridors during the development review process.

Carroll County has several small airports that not only serve as transportation facilities, but as recreational facilities as well. Recreational airplane flyers can take advantage of Clearview Airpark near Morgan Run N.E.A., Keymar Airport south of Taneytown, Reservoir Airport near Finksburg, Wolf Airport in Eldersburg, Woodbine Airfield near the Gillis Falls Reservoir site, or the largest airport, Carroll County Airport in Westminster.

The county has two paratransit options for transportation to specific sites. Carroll Transit provides point-to point service to all of the county's senior centers, 13 service agencies and 12 service providers. It also provides service for Westminster residents to local shopping areas, the public library, and the post office. Carroll transit system also provides non-emergency transportation to and from medical appointments for Medicaid recipients. There is no mass transit or paratransit service that is designed to service parks and recreation areas. Two local taxicab services provide service throughout the County.