

### **3. CHARACTERISTICS OF THE PLANNING AREA**

#### **3.1 Physical Characteristics**

##### **Topography**

Manchester is situated on Parr's Ridge, a major divide between the Potomac River and the Patapsco River drainage basins, and has the highest elevation of any town in the County. The Community Planning Area is located within the fertile Piedmont Plateau, which extends between southeastern Pennsylvania and northeastern Alabama. The undulating topography characteristic of the Piedmont region is present in the Manchester CPA.

The Town is built at the junction of two ridges. Generally perpendicular to Parr's Ridge, the lower ridge runs under Maryland Route 30 (Main Street) (see Map 6). Elevations in the CPA range from a low of approximately 775 feet along Maryland Route 27 to a high of 1,108 feet off of Park Avenue.

Another significant topographical feature in the area is Dug Hill Ridge. The highest elevation found on Dug Hill within the CPA is 1,035 feet, west of Maryland Route 30 and south of Ebbvale Road.

##### **Soils**

The majority of the planning area is comprised of the Glenelg-Chester Manor soil association. This association is characterized by well-drained, chiefly rolling and hilly, micaceous soils that are deep over mica schist. The main limitations that affect land use on these soils are steep slopes and erosion. The major soils which comprise this soil group generally make good sites for buildings. Excavating is normally not difficult and is not limited by wetness.

A section of the northwest, and a small area in the southwest part of the CPA, are comprised of the Mt. Airy-Linganore soil association. These soils are characterized as somewhat excessively drained, nearly level to steep, channery soils that are moderately deep to deep over schist. Hard bedrock generally occurs within a depth of 2 to 3 feet. Land use limitations of this association include moderate difficulty in excavation for building foundations and basements, shallowness to bedrock for septic tanks, and steep slopes in some locations.

In the eastern section of the planning area, there is a small amount of the Glenelg-Manor-Mt. Airy soil association. This association is characterized by well-drained to somewhat excessively drained, mainly hilly soils that are deep to moderately deep over schist. The chief limitations affecting land use on soils of this association are strong slopes, erosion hazards, and limited depth to bedrock. Except for areas where slopes are too strong, the major soils make good sites for building. However, the shallow Mt. Airy soils may be difficult to excavate and have severe limitations that restrict the use of septic tanks.

**TABLE 1  
MANCHESTER AND ENVIRONS COMPREHENSIVE PLAN  
SEVERE SOIL LIMITATIONS BY SELECTED TYPE OF USE**

<i>Map Symbol</i>	<i>Mapping Unit</i>	<i>Percent Slopes</i>	<i>Degree Eroded 1</i>	<b>Type of Use</b>		
				<i>Filter Fields</i>	<i>Homes with Basements</i>	<i>Streets &amp; Parking Lots</i>
BaA (2)	Baile silt loam	0-3	---	X	X	X
BaB (2)	Baile silt loam	3-8	---	X	X	X
CeC2	Chester silt loam	8-15	M			X
Ch (2)	Codorus silt loam	---	---	X		
CoA	Conestoga silt loam	0-3	---	X		
CoB2	Conestoga silt loam	3-8	M	X		
DeA (2)	Delanco silt loam	0-3	---	X		
EsC2	Elsinboro silt loam	8-15	M			X
GcC2	Glenelg channery loam	8-15	M			X
GcC3	Glenelg channery loam	8-15	S			X
GcD2	Glenelg channery loam	15-25	M	X	X	X
GcD3	Glenelg channery loam	15-25	S	X	X	X
GIC2	Glenelg loam	8-15	M			X
GIC3	Glenelg loam	8-15	S			X
GvA (2)	Glenville silt loam	0-3	---	X		
GvB (2)	Glenville silt loam	3-8	---	X		
Ht (2)	Hatboro silt loam	---	---	X	X	X
LnB2	Linganore channery silt loam	3-8	M	X	X	X
LnC2	Linganore channery silt loam	8-15	M	X	X	X
LnE (3)	Linganore channery silt loam	25-45	---	X	X	X
Md	Made land	---	---	(Limitations variable. On-site investigation necessary.)		
MgC2	Manor gravelly loam	8-15	M			X

**TABLE 1  
MANCHESTER AND ENVIRONS COMPREHENSIVE PLAN  
SEVERE SOIL LIMITATIONS BY SELECTED TYPE OF USE**

<i>Map Symbol</i>	<i>Mapping Unit</i>	<i>Percent Slopes</i>	<i>Degree Eroded 1</i>	<i>Type of Use</i>		
				<i>Filter Fields</i>	<i>Homes with Basements</i>	<i>Streets &amp; Parking Lots</i>
MgC3	Manor gravelly loam	8-15	S			X
MgD2	Manor gravelly loam	15-25	M	X	X	X
MgD3	Manor gravelly loam	15-25	S	X	X	X
MIC2	Manor loam	8-15	M			X
MIC3	Manor loam	8-15	S			X
MID2	Manor loam	15-25	M	X	X	X
MID3	Manor loam	15-25	S	X	X	X
MIE (3)	Manor loam	25-45	---	X	X	X
MnE (3)	Manor loam	25-45	---	X	X	X
MnC	Manor very stony loam	3-15	---	X	X	X
MnD	Manor very stony loam	15-25	---	X	X	X
MnE (3)	Manor very stony loam	25-45	---	X	X	X
MnF (3)	Manor very stony loam	45-75	---	X	X	X
MtA	Mt. Airy channery loam	0-3	---		X	X
MtB2	Mt. Airy channery loam	3-8	M		X	X
MtC2	Mt. Airy channery loam	8-15	M		X	X
MtC3	Mt. Airy channery loam	8-15	S		X	X
MtD2	Mt. Airy channery loam	15-25	M	X	X	X
MtE (3)	Mt. Airy channery loam	25-45	---	X	X	X

Notes:

- (1) M - Moderate, S - Severe
- (2) Hydric Soils
- (3) Steep Slopes

Source: Soil Survey of Carroll County, Maryland  
U.S. Dept. Of Agriculture  
October 1969.

A small area in the southern part of the CPA along Maryland Route 30 is comprised of the Mt. Airy-Glenelg soil association. These soils are characterized as somewhat excessively drained, rolling to very steep, channery soils that are moderately deep to deep over schist. The major soils of this association are generally suitable as building sites, but may have limited depth to bedrock and be difficult to excavate. In addition, the soils are commonly too shallow or too steep for the use of septic tanks.

soil constraints map

(not available on Internet)

The limitations of different soil types can have varying impacts on development. Soils with slight limitations are relatively free of problems, or the problems can be easily overcome. Soils with moderate limitations have problems that can be overcome with good management and careful design. Soils with severe limitations make use of those soils for development questionable. Table 1 lists each soil type in the Manchester CPA where severe limitations to development are found.

The soils limitations Map 4 delineates the boundaries of the soil types located in the planning area. These constraints are based on the Soil Survey of Carroll County. **Actual conditions may vary in the field.** Associated with each soil type is a rating of suitability for specific uses. Uses related to development are: disposal of sewage effluent for septic tanks (filter fields), homes with basements (building foundations), and streets and parking lots. The following are the chief properties that limit soil suitability for each use:

**Filter fields for sewage disposal:** Permeability of the soil, depth to a seasonally high water table, depth to bedrock or other impervious layer, slope, and hazard of flooding.

**Homes with basements:** Depth to water table, depth to bedrock (assuming a 5-foot excavation for the basement), kind or hardness of bedrock, hazard of flooding, and stoniness or rockiness.

**Streets and parking lots:** Wetness and depth of water table, slope, hazard of flooding, depth to bedrock, and kind of bedrock.

Because of the relative ease with which slight or moderate limitations can be resolved, Map 4, like Table 1, addresses severe limitations only. Soils can have severe constraints for more than one type of risk. The more limitations a soil has, the less suitable it is for community development. Soils that have all three limitations are located primarily along the planning area's stream valleys.

Also present in the Manchester area are the hydric soils noted in Table 1. While any soil type must be considered before development, the hydric soils are of particular concern. Hydric soils may be one indicator of wetlands, which would require special permits from the Department of Natural Resources and the Army Corps of Engineers prior to disturbing the soil.

## **Geology**

The Manchester Community Planning Area lies within the Piedmont Physiographic Province and the Piedmont Uplands Subprovince. An area of moderate relief and rounded hills, with relatively gentle slopes, the planning area is formed by underlying, deeply weathered, Lower Paleozoic to Precambrian-aged metamorphic rock. A thick mantle of unconsolidated weathered material (saprolite) overlays the metamorphosed sedimentary and volcanic rocks.

The CPA is predominantly underlain by rocks of the Marburg Formation, as shown on Map 5. These rocks are characterized as green to greenish-gray to gray phyllite, commonly with lenses and clots of vein quartz, and limonitized pyrite cubes. Also present are rocks of the Bachman Valley Formation, which are characterized as green to greenish-gray to gray phyllite, locally with disseminated calcite or quartzose laminae and massive limonite in localized concentration.

geology map

(not available on Internet)

environ. constraints map

(not available on Internet)

The geologic characteristics of the Manchester area are major determinants of ground water supplies and conditions as to quantity and quality.

The mineral resources associated with the geological formations found in the Manchester CPA are discussed in Chapter 7 - Mineral Resources Plan.

### **3.2 Environmental Characteristics**

#### **Wetlands and Floodplains**

Wetlands provide natural flood protection through storage and conveyance, filter sediment, control pollutants, in some cases provide groundwater recharge, and provide wildlife habitat and recreational opportunities. **Development in non-tidal wetlands**, under the Federal Clean Water Act, is subject to the U.S. Army Corps of Engineers (**404 Permit**) and the Maryland Department of the Environment (**401 Water Quality Certification**) permitting requirements and certifications. Both approvals are necessary for dredging or filling activities such as road and bridge construction, culvert placement, filling and the placement of structures if these activities occur in non-tidal wetlands.

In addition, a **Waterway Construction Permit** from the Maryland Department of Natural Resources may be required for work activity in the 100-year floodplain.

**Development in areas defined as floodplains** is also subject to the U.S. Army Corps of Engineers and the Maryland Department of the Environment permitting requirements and certifications. Approval from both agencies is required prior to any disturbance of the soil.

The approximate location and extent of wetlands and 100-year floodplains are shown on Map 6. The wetlands information was derived from National Wetlands Inventory maps (U.S. Department of the Interior), while floodplains were taken from the Flood Boundary and Floodway Maps (Federal Emergency Management Agency). **Actual conditions may vary in the field.** Areas of concern in the Manchester Community Planning Area can be found along the banks of George's Run to the east and along the headwaters of the tributaries of Big Pipe Creek in the western section of the planning area. The Carroll County Planning Commission will not grant final approval for development activities in wetland areas until all state and federal requirements have been satisfied.

#### **Watersheds and Streams**

Several streams and their tributaries flow within the limits of the Manchester planning area. They are: South Branch (of the Gunpowder River), George's Run, Grave Run, Murphy Run, Big Pipe Creek, and the East Branch (of the Patapsco River). The planning area is part of three major watershed areas: North Branch of the Patapsco River watershed, the Gunpowder Falls watershed and the Big Pipe Creek watershed. The streams and watershed areas are also shown on Map 6.

As can be seen from Map 6, the junction of major ridges or divides occurs within Town along Park Avenue near Hill Top Drive. At this junction point, the three major watershed areas--the Gunpowder Falls, North Branch of the Patapsco, and Big Pipe Creek Watersheds all come together, and the upper reaches of stream tributaries in each watershed are very close to one another. As a result, there exists a unique opportunity to arrange for open space links and corridors which could give a

unique “overland” connection to these separate stream and natural greenway systems that are part of a vast network within their respective watersheds.

The North Branch of the Patapsco River watershed, in the southwest section of the planning area, contains tributaries which are Class I streams, meaning these waters are suitable for public, agricultural and industrial water supplies. Class I streams are also suitable for aquatic life (other than trout), wildlife, and play and leisure-time activities where individuals may come in contact with the surface water. Streams in this watershed flow into the Liberty Reservoir (a public water supply reservoir), the head of which is located in the Finksburg area of Carroll County.

The Gunpowder Falls watershed, located in the eastern section of the planning area, contains tributaries which are Class III Natural Trout streams. A Class III stream is defined as being suitable for the growth and reproduction of trout, and is also capable of supporting natural trout populations and the food organisms they need to survive. Streams in this watershed flow into the Prettyboy Reservoir and then to the Loch Raven Reservoir (public water supply reservoirs).

The watershed in the western section of the planning area, the Big Pipe Creek watershed, contains Class IV streams. Class IV streams are defined as recreational trout waters. While Class III streams support the reproduction of trout, a Class IV stream can only support the holding or maintaining of adult trout for a use such as put-and-take trout fishing. A Class IV stream can be managed as a special fishery by seasonal stocking and catching. Typically, the reasons the streams cannot support trout reproduction are: (1) warm water temperatures due to thermal pollution or a lack of shade trees along a stream bank, and (2) a lack of sufficient dissolved oxygen. Land for a future water supply reservoir was acquired along Big Pipe Creek near Union Mills by Carroll County in the 1970's. Currently considered a long range project, construction would be programmed in advance of need.

## **Water Resources**

Development in and around the Manchester planning area is creating an ever-increasing water demand. Additional water sources must be developed in compatibility with existing and planned land use patterns and the local water budget. The County Bureau of Water Resource Management has developed water resource protection standards to ensure that existing and future water sources are adequately protected. **Additional discussion on water resources can be found in Section 6.2.**

## **Groundwater**

According to the Carroll County Water Resources Study, completed by R.E. Wright and Associates, Inc. in 1988, the Manchester area has an estimated recharge rate within the limits of the planning area of approximately 1.48 million gallons per day. Within 2,000 feet of the limits of the planning area, the available supply is reported to be an additional 1.0 mgd. The inclusion of the Corollary Amendment Areas in 1991 added another 138,000 gallons per day, for a total estimated drought-year recharge rate of 2.618 million gallons per day. While the water production record of the saprolite-type aquifer, which underlays almost the entire Manchester planning area, is generally poor, a small lens of carbonate rock, a prolific aquifer, occurs just west of Town. Another carbonate rock lens may occur in the southeastern section of the planning area in the Maple Grove Road area; however, it lies near the spray irrigation fields for the sewerage treatment plant's treated effluent (see Section 6.3 for additional discussion). Both of these potentially excellent water sources are untapped.

The overall groundwater quality is generally of low pH, very soft, and corrosive. Various naturally-occurring metals have been detected in the area also. High nitrate levels, as well as low levels of coliform, have been detected in the past. The nitrates and coliform bacteria may be a result of the use of on-lot wastewater disposal systems and agricultural practices. Currently, no documented point sources of groundwater contamination are found in the planning area. There are, however, potential sources in Town (i.e., gas stations, agricultural chemical retail establishments, etc.)

### **Reservoir Watershed Protection Agreement**

In June of 1984, an agreement was signed by Baltimore City, Baltimore County, Carroll County, Baltimore County Soil Conservation District, Carroll Soil Conservation District, the State Departments of Agriculture, Health and Mental Hygiene, and the Baltimore Regional Council of Governments (formally the Regional Planning Council and now the Baltimore Metropolitan Council). The agreement, entitled the "Reservoir Watershed Management Agreement", established a cooperative interagency review and management procedure for protecting water quality in the Prettyboy, Loch Raven and Liberty Reservoirs. This agreement was reaffirmed in June of 1990.

The goals of the 1984 agreement, as amended, are: to immediately prevent increased phosphorus and sediment loadings to all three reservoirs; to restore phosphorous loadings in the Loch Raven Reservoir to pre-1970 levels as quickly as possible; and to reduce phosphorous loadings in Liberty and Prettyboy Reservoirs to acceptable levels as quickly as possible.

By 1991, Manchester had taken major steps toward meeting the goals of the 1984 agreement, as amended. The most recent expansion and upgrade of the Manchester Wastewater Treatment Plant, through the land application process, has significantly decreased phosphorous discharged into George's Run. Additionally in 1997, the Interagency Reservoir Technical Group on behalf of the Baltimore Metropolitan Council, supported Manchester's determination to hold the Wastewater Treatment Facility at .5 mgd and to amend the Planned Sewer Service Area in scale with the capacity of the treatment facility. It was recognized that this action would reduce the quantity of future effluent and its constituents, especially phosphorous, that would be discharged and disposed of within the watershed.

### **3.3 Demographic and Housing Characteristics**

According to 1990 U.S. Census, the population in the Town of Manchester (as of April 1990) was 2,810. This figure, when compared to the population at the time of the 1980 Census, represents a 53 percent increase since the preceding decennial census. The 1997 population estimate for the Town is 3,120. (County Planning Department) and if 3,300 by the year 2000 would represent a more moderate 17.5% increase for the Town, during the decade of the '90's.

The housing stock is varied and mixed, but single-family dwellings predominate. Most of the oldest homes are found along Main Street. A number could use some repair, although several have been improved since 1991. Collectively these older buildings represent the historic fabric of Manchester. Many of these structures date back well into the 19th century. Frequently they house a small business in the front or downstairs, and a residence in the back or upstairs. Because most of the buildings on Main Street are set at the front lot line, there are relatively deep rear yards which extend to the paralleling Long Lane and Maiden Lane. Many of these yards are nicely landscaped. These rear yard spaces are real assets to historic Manchester and offer great possibilities for enhancements, as do these old historic lanes, paralleling Main Street.

Revitalization of many of these old structures would certainly be an asset to the community. Other towns in Carroll County, such as Westminster and Sykesville, have sought out and received grants to assist financially. A key element in this kind of endeavor is “a driving force” (a modern-day Richard Richards), to organize the available resources: human, financial, and material.

Housing along York Street and Park Avenue appears generally to be comprised of early to middle 20th century structures. With a few exceptions, much of the remainder of the community housing stock is comprised of more recent vintage suburban houses.

**Community Survey**

A Manchester Community Planning Survey was conducted in April 1989 in an effort to gain some insight into the characteristics of the citizenry of Manchester. At that time, a total of 1,419 surveys were distributed, with 1,264 being mailed out to property owners within the Manchester planning area and 180 being handed out to apartment dwellers by Town staff and volunteers. There were 362 responses received for a 25 percent response rate. A copy of the survey form can be found in Appendix 2. As expected, the survey results revealed a dynamic population.

Nearly half of the respondents (45%) were between the ages of 25 and 49 years. The 65-and-over age group, 10 percent of the respondents, mirrors the County-wide percent figure for the same age group. The remaining age groups and their respective percentages are shown on the following table:

<b><u>AGE SURVEY</u></b>		
<b><u>Age</u></b>	<b><u>Number</u></b>	<b><u>% of Total</u></b>
<5	58	11
5-19	107	20
19-24	18	3
25-34	105	20
35-49	127	25
50-64	59	11
<u>65+</u>	<u>52</u>	<u>10</u>
TOTAL	526	100

Source: Manchester Survey  
 Carroll County Department of Planning  
 April 1989.

The survey revealed that one-quarter (25%) of the respondents reported household incomes over \$50,000. Another 59 percent reported incomes between \$20,000 and \$50,000. The income ranges and their respective percentages are shown below:

**INCOME SURVEY**

<b><u>Household Income</u></b>	<b><u>Number</u></b>	<b><u>% of Total</u></b>
\$0 - 10,000	17	5
10 - 20,000	32	11
20 - 30,000	39	13
30 - 40,000	77	26
40 - 50,000	58	20
50 - 75,000	60	20
<u>75,000+</u>	<u>14</u>	<u>5</u>
TOTAL	297	100

Source: Manchester Survey  
Carroll County Department of Planning  
April 1989.

Concerning housing, the overwhelming majority of those who responded own their home (97%) and live in single-family residences (88%). The number and percent of respondents who occupy the specific housing types are shown below:

**HOUSING SURVEY**

<b><u>Dwelling Type</u></b>	<b><u>Number</u></b>	<b><u>% of Total</u></b>
Single-Family	312	88
Duplex	12	3
Townhouse	2	1
Apartment	11	3
Trailer	0	0
Farm	10	3
<u>Other</u>	<u>7</u>	<u>2</u>
TOTAL	354	100

Source: Manchester Survey  
Carroll County Department of Planning  
April 1989.

The Manchester Survey also polled residents in the area on the question of employment and employment location. Of those surveyed, 31 percent listed their occupation as “Professional”. The second most frequent occupation reported was “Clerical” (13%). As shown in the table below, the least reported occupation was “Unemployed”, supported by the County-wide unemployment rate of approximately 3 percent. The remaining occupations and their respective number of responses are listed below:

<b><u>EMPLOYMENT SURVEY</u></b>		
<b><u>Occupation</u></b>	<b><u>Number</u></b>	<b><u>% of Total</u></b>
Professional	148	31
Retired	51	10
Craftsman	44	9
Laborer	31	6
Salesworker	24	5
Clerical	65	13
Operative	8	2
Private Household	7	2
Service	55	11
Unemployed	3	1
Farmer	4	1
<u>Other</u>	<u>45</u>	<u>9</u>
TOTAL	485	100

Source: Manchester Survey  
 Carroll County Department of Planning  
 April 1989.

As anticipated, a large number of those surveyed worked outside of Manchester. In fact, over half (62%) reported that they worked outside of Carroll County, with a total of 44 percent stating they worked in Baltimore County or Baltimore City. The employment locations and their corresponding percentages are shown below:

**EMPLOYMENT LOCATION SURVEY**

<u>Location</u>	<u>Number</u>	<u>% of Total</u>
Hampstead	43	11
Westminster	71	18
Carroll County	36	9
Frederick County	3	1
Baltimore County	123	31
Baltimore City	53	13
Howard County	13	3
Pennsylvania	9	2
<u>Other</u>	<u>40</u>	<u>12</u>
TOTAL	391	100

Source: Manchester Survey  
 Carroll County Department of Planning  
 April 1989.