

1 Introduction

■ Legislation

Legislation (HB 1141) passed by the 2006 Maryland General Assembly resulted in several significant changes to land use regulations controlled by Article 66B of the Annotated Code of the State of Maryland. New watershed-based planning requirements are among the more significant changes. Section 3.05 (a)(vi) of Article 66B of the Annotated Code of Maryland mandates that all Maryland counties and municipalities that exercise planning and zoning authority prepare and adopt a water resources element to their comprehensive plans. The legislation required the Water Resources Element (WRE) to be developed and adopted by all local governments on or before October 1, 2009. The legislation also provided for the granting of up to two six-month extensions of that deadline. Carroll County and all eight municipalities requested and were granted an extension of the deadline to April 1, 2010.

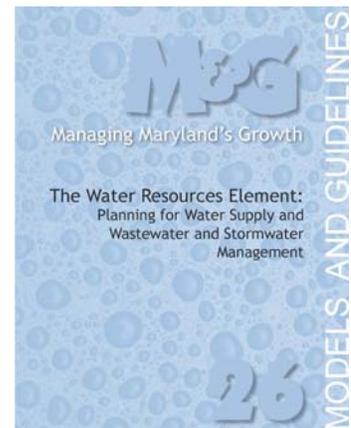
The purpose of the WRE is to ensure that future county and municipal comprehensive plans reflect the opportunities and limitations presented by local and regional water resources. WREs are intended to improve local jurisdictions' contribution to the protection of state land and water resources; to the protection of public health, safety and welfare; and to meet local and state smart growth policies.

■ Requirements

This WRE must address both water quantity and quality issues. Local jurisdictions must identify drinking water and other water resources needed to adequately address the needs of existing and future development proposed in the land use element of the plan. It also must identify suitable receiving waters (where stormwater and treated wastewater can be discharged) and land areas for NPS management and wastewater treatment. Pollutant loads from both stormwater and septic systems must be addressed. The WRE must indicate pollutant reductions, where needed, from both existing development and future growth. This legislation comes at a time when water quality and quantity planning is of utmost importance.

■ Models & Guidelines

The *Models and Guidelines* document was prepared by the Maryland Departments of Planning (MDP), Environment (MDE), and Natural Resources (DNR). Its purposes are to help local governments prepare the WRE in a manner that will not only meet the requirements of the law but will strengthen their planning efforts by ensuring that water resources will be adequate to support smart growth while meeting local economic, environmental and land use goals. The guidance document suggests assessments and methodologies to be used in completing the WRE plan document. Plans submitted to the State



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for review will be evaluated based on the inclusion of these components.

To achieve these purposes, planning must reflect the broader geographical context of watersheds. Successful WREs will be based on this perspective. The common goals for Maryland's water resources are reflected in the Chesapeake Bay Tributary Strategies, federal and state regulatory programs and smart growth policies.

■ Process

Carroll County and its municipalities are working collaboratively to develop one unified WRE document that can be adopted by all of Carroll County's jurisdictions to satisfy the requirements of HB 1141.

Since this process involved substantial technical information, a WRE Guidance Team was formed to discuss issues as they arise. This team included representatives of County staff, each municipality, the Carroll County Health Department, and the three relevant State agencies – MDE, MDP, and DNR. The Carroll County Water Resources Coordination Council served as the local body for guiding, directing, and reviewing the assessments and development of the plan document. All meetings of this group were open to the public. A WRE Work Group, consisting of the County and municipal representatives from the Water Resources Coordination Council (WRCC), met periodically to work through more specific issues related to data collection and technical background assessments.

The **Water Resources Coordination Council (WRCC)** was formed in March 2007 to serve as the lead intergovernmental agency for water resource planning, development, and protection in Carroll County. The Council consists of representatives from each of the municipalities, the County, and the Carroll County Health Department.

The WRE Work Group followed the Models and Guidelines (No. 26) developed jointly between MDE, MDP, and DNR for the development of this plan element.

The Group collected data on the current capacity of each community municipal water and wastewater system. This information helped identify additional capacity needs based on current and planned future demand/growth. If limitations were identified that could not be overcome, reductions in future demand were considered. The methodology and format for collecting this data were based on MDE's guidance documents for Water Supply Capacity Management Plans (2006) and Wastewater Capacity Management Plans (2006).

The County hired a consultant, Malcolm Pirnie, to provide technical assistance with several of the background assessments needed to inform decisions and develop strategies to be included in a plan element. The consultant provided a number of assessments/evaluations, including,

- Updating the 1988 water study completed by RE Wright
- Completing a water balance assessment for each 8-digit watershed (water available for future consumption, from both groundwater and surface water sources)
- Assessing overall limitations of wastewater

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- Evaluating options/alternatives for individual water and wastewater municipal systems as well as countywide
- Identifying strategies to address water and wastewater issues

Technical reports developed by Malcolm Pirnie and summarized in this plan document as needed and appropriate include the following:

- *Carroll County Water Demands and Availability, July 30, 2009*
- *Carroll County Wastewater Limitations, May 29, 2009*
- *Carroll County Alternatives Evaluation, September 28, 2009*

The nonpoint source (NPS) component of this plan addresses both stormwater and individual private septic systems. This component was completed by County staff. MDP and MDE provided a loading analysis model, the results of which are expected to be acceptable to the State. Recommended strategies needed to address the NPS contribution to or impact on impaired waters (303d), Total Maximum Daily Loads (TMDLs), Tier II waters (high quality), and Tributary Strategies, among other things.

The County participated in the Center for Watershed Protection's Builders for the Bay Better Site Design Standards assessment and consensus document. This project provided the stormwater programmatic assessment required in the WRE guidance document. The consensus document primarily provided recommendations for addressing impervious surfaces and reducing runoff. Many of the recommendations were implemented prior to completion of the draft WRE. Others will be incorporated into the County's comprehensive planning process.

Upon completion of these assessments, County and municipal staff worked together to draft the actual WRE plan document. The background assessments and resulting strategies for the WRE were based on **current conditions** – adopted plans, policies, and regulations in place at the time the assessments were completed and the plan was drafted. The assessments and strategies do not consider proposals or drafts **not** adopted at the time of the drafting of the WRE. However, recommendations to address or support some of the issues surrounding other proposals may be included in the strategies as appropriate.

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2 Vision

■ Vision

The land use and planned growth for the county and individual municipalities are balanced with and complementary to the water resources available in the county and the collective ability of all nine jurisdictions to maintain and protect water quality. Provision of public water supply and wastewater services continues to be concentrated in designated growth areas while protecting and preserving rural lands for continued agricultural use, open space, environmental protection, and recognition of the county's heritage.



■ Goals

- To restore water quality and protect it from pollution and encroachment
- To protect the habitat value of Carroll County's rivers, streams, and reservoirs
- To comply with applicable State and federal requirements related to water quality and quantity
- To maintain and protect adequate water supplies to serve current and planned population and development

3 Background

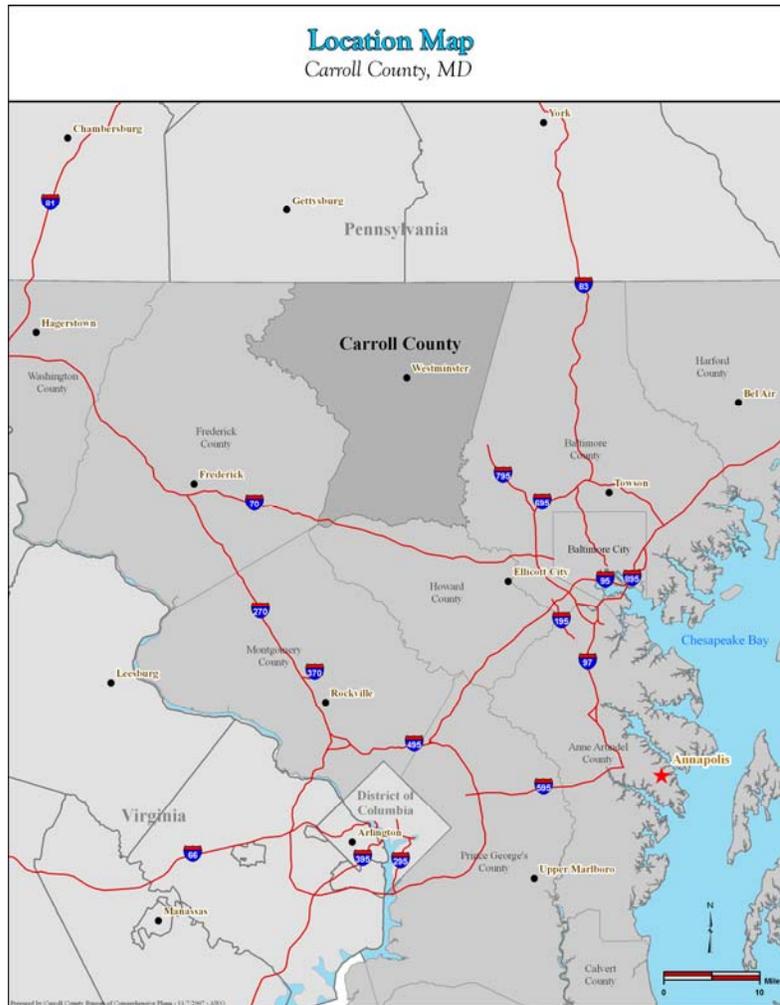
Eight municipalities reside within Carroll's borders – Hampstead, Manchester, Mount Airy, New Windsor, Sykesville, Taneytown, Union Bridge, and Westminster. All but Sykesville also own and operate their own water systems. All but Sykesville and Hampstead own and operate their own wastewater systems. The County provides public water and sewer service to Sykesville through the systems that serve the Freedom area. The County owns and operates the sewer system that serves Hampstead.

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In 2004, Carroll County adopted revisions to seven major environmental regulations to strengthen their implementation and impact on water resource and environmental protection. The stormwater management regulations were included. A Water Resource Management Ordinance was also adopted.

In the past decade, water quality and quantity issues have had a tremendous influence on growth and development policies. In the early part of the decade, many private wells and public water supplies were impacted due to drought conditions. These conditions brought about many changes to State policies and local development activity.

Three of Carroll County's municipalities – Mount Airy, Westminster, and Taneytown – entered into consent agreements with MDE to develop additional water supplies. Most of the county's public water supply systems have faced challenges of some sort conforming to State policies related to water quantity, which results in challenges to achieving Smart Growth.



■ Location

Carroll County is located in the Piedmont region of north-central Maryland, between Baltimore and Frederick Counties. Parr's Ridge, which runs roughly from Manchester to Mount Airy, diagonally divides Carroll County into two major drainage basins. Streams to the north and west drain into the Monocacy River and eventually the Potomac River. Streams to the south and east flow into the Patapsco and Gunpowder Rivers. The county is 289,678 acres in total size, or 452.6 square miles. See the "Location Map" for Carroll's location relative to the rest of the Baltimore metropolitan area.

■ Watersheds

At the most basic level a watershed is the total land area that drains surface water and/or groundwater into a common body of water. Because of the nature of gravity, watersheds (also known as drainage or catchment basins) are confined by their surrounding topography.

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Water, both above and below ground, originates at the highest point and drains downhill to the lowest ground area. As one waterbody flows into another, the flows gradually increase in size. A small spring turns into a run and progressively merges with ever-larger creeks, streams, and rivers. Ultimately, these flows collect into the largest water bodies, such as the Chesapeake Bay, and eventually feed into the world's oceans.

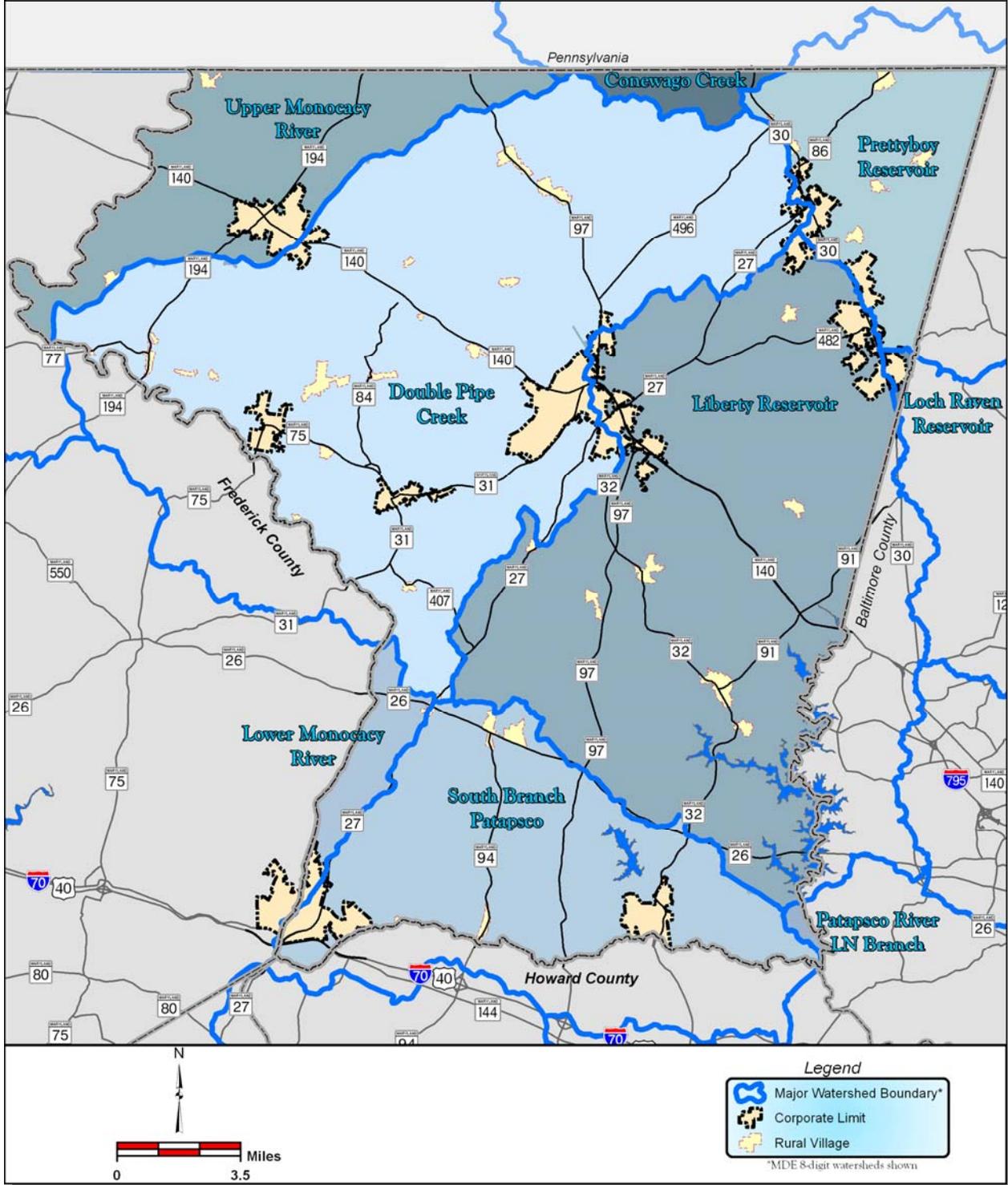
Watersheds can be defined at many different scales. The United States Geological Survey (USGS) developed a ranked system for mapping all of the nation's watersheds. They are grouped from largest to smallest. These areas are called Hydrologic Units and are assigned a number known as a Hydrologic Unit Code (HUC) based on size. Currently, the most detailed level of nationwide drainage basin mapping available from the USGS is the 8-digit HUC. This plan will utilize this system of 8-digit watersheds.



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Carroll County 8-Digit Watershed Boundaries

Carroll County, MD



Draft for Official 60-Day Review by State Agencies and for Adjoining Jurisdictions, & Public

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The political boundary of Carroll County includes lands which drain to nine different 8-digit watersheds. Two of these watersheds, Double Pipe Creek and Liberty Reservoir, cover most of Carroll County. Parr's Ridge, which is approximately followed by MD 27, is the east-west boundary between these two drainage basins. Their southern boundaries approximately follow MD 26. To the north, MD 30 roughly follows these watersheds' upper reaches.

The map titled "MDE 8-Digit Watershed Boundaries in Carroll County" depicts the nine watersheds found wholly or partially in Carroll County. Water throughout the county eventually flows to the Chesapeake Bay.

Following is a summary of the nine watersheds of Carroll County. The watersheds are listed from west to east beginning at the northernmost edge of the County. The information came from the MD DNR webpage titled "Maryland's Surf Your Watershed," which can be found at <http://www.dnr.state.md.us/watersheds/surf/index.html>.

Upper Monocacy River

This watershed is located in the northwestern-most portion of Carroll County and contains most of the City of Taneytown. The Monocacy River forms the border with Frederick County in this portion of Carroll and ultimately drains into the Potomac River. The majority of the 156,327 acres that bound this watershed are located in Frederick County. Roughly 57 percent of this watershed is used for agricultural purposes, such as dairy and cropland, and is the predominant land use.

Conewago Creek

This watershed abuts the Mason-Dixon Line in east central Carroll County, extending just east of MD 30 north of the village of Melrose. This watershed drains into the Susquehanna River. The vast majority of this watershed's lands are located in south central Pennsylvania, primarily York and Adams Counties. Only 3,431 acres of the watershed are within Carroll County. Approximately 55 percent of that land area is used for agriculture, and the remaining 30 percent is considered forested land.

Prettyboy Reservoir

This watershed is found in the northeast corner of Carroll County. It contains significant portions of both Manchester and Hampstead. It is considered to be part of the Upper Western Shore Tributary basin and drains to the Gunpowder River. The 44,903-acre land area of this watershed is predominantly divided between Carroll and Baltimore Counties, with a smaller portion in York County. About 45 percent of the watershed is located in Carroll County. Just over 10 percent of the total watershed area is classified as urbanized. Approximately 50 percent is devoted to agricultural purposes. Roughly 36 percent of the watershed retains its forest cover.

Double Pipe Creek

This watershed occupies the largest portion of land area within Carroll County. This land drain to the Upper Potomac River Tributary Basin on their way to the Chesapeake Bay. Nearly all (105,390 acres, or 85%) of the watershed's 123,366 acres are found in Carroll County with a relatively small section in Frederick County. The watershed spans MD 27 between approximately MD 30 in the north and MD 26 to the south (Taylorsville area). It

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extends from Manchester in the northeast to Detour in the west. This watershed includes portions of Taneytown, Manchester, Westminster and all of New Windsor and Union Bridge. More than 70 percent of the total acreage is devoted to farming pursuits. This watershed also contains the Little Pipe Creek Rural Legacy area. Significant urbanized areas account for more than 10 percent of the total land area. Approximately 15 percent of the watershed is forested.

Liberty Reservoir

This watershed is the second largest in land area within Carroll County. The total watershed contains 101,404 acres with the southeastern edge crossing into Baltimore County; 87,292 of those areas (83%) are located in Carroll. It is part of the larger Patapsco River - Back River Tributary drainage basin. It shares its western edge with Double Pipe Creek watershed. Its northeastern boundary begins in Manchester near the junction of MD 27 and MD 30. It extends south to the Eldersburg area. It runs west to Taylorsville, where it meets the Double Pipe Creek basin. This watershed contains portions of Manchester, Hampstead, and Westminster. It also contains the unincorporated areas of Finksburg and a portion of the Freedom Growth Area. The Liberty Reservoir watershed is among the most urbanized with nearly 20 percent of the land area developed. Nearly 50 percent of this basin is devoted to agricultural uses and includes the Upper Patapsco Rural Legacy area. The majority of the remaining land area of the watershed is forested.



Loch Raven Reservoir

The Carroll County portion of this watershed is the smallest land area of any of the County's nine watersheds. The watershed contains a total of 138,803 acres but only the westernmost tip (0.4%) crosses into Carroll County. This watershed is considered part of the Upper Western Shore Tributary drainage basin. This small section is entirely located within the Town of Hampstead. The western edge runs concurrent with the alignment of MD 30 at the southeastern corner of the community. Its northern edge roughly follows MD 88/Black Rock Road. The Carroll County portion of this watershed is considered urbanized. Within the total watershed area, slightly more than 40 percent is used for agricultural purposes. Roughly 40 percent is forested areas. The remainder is considered urbanized.

Lower Monocacy River

This watershed is found in the southwestern corner of Carroll County and also drains into the Potomac River via the Upper Potomac Tributary drainage basin. The Carroll County portion of this basin is a small wedge (3% of the watershed) along the eastern edge of the

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watershed. Its northern limits extend just north of MD 26 where it abuts the Double Pipe Creek watershed. Its eastern boundary nearly matches the course of MD 27 to its intersection with Buffalo Road in Mount Airy. The Carroll County – Frederick County border defines the western limits of the Carroll County portion. The watershed contains a portion of the Town of Mount Airy. The watershed covers a total of 194,397 acres. The remaining lands are classified as forested.

South Branch Patapsco River

This watershed spans most of the southern portions of Carroll County that lie south of MD 26. It is bounded to the west by the Lower Monocacy watershed along the MD 27 corridor and by the Liberty Reservoir watershed to the north. The South Branch watershed is part of the larger Patapsco River – Back River drainage basin. This watershed contains the largest portion of the Carroll County section of Mount Airy, the entire Town of Sykesville, and a portion of the Freedom Growth Area. The Piney Run Reservoir is located in the eastern section of the watershed. The planned Gillis Falls Reservoir will also be located in this watershed. The southern limits of this watershed cross over the main stem of the South Branch of the Patapsco River into northern Howard County. This watershed contains 54,616 acres of land; 70 percent of the watershed lies within Carroll. Approximately 10 percent is urbanized and about 50 percent devoted to agriculture. Slightly more than 30 percent of the watershed is forested.

Lower North Branch Patapsco River

This watershed is found at the extreme southeastern corner of Carroll County. Only a very small portion (555 acres, or 1%) of the watershed's 75,513 acres lies within the county's borders. The majority of the Carroll County portion of the watershed lies within Patapsco Valley State Park. More than 42 percent of the total land area is urbanized, and another 40 percent is forested. Roughly 12 percent of the basin's lands are in agricultural use.

It should be noted that the Town of Mount Airy is divided between two counties, Frederick and Carroll. Although this WRE is based on Carroll County, the Town of Mount Airy needs to be reported as a whole. The boundaries need to consider the entire limits, and, therefore, need to include the applicable Frederick County watersheds. In particular, the following Frederick County watersheds are within the Town of Mount Airy: Upper Bush Creek, Lower Linganore Creek, and Upper Linganore Creek. For the purposes of Mount Airy's requirements, additional information regarding these watersheds is found in the Frederick County WRE.

■ Designated Growth Areas (DGA)

Designated Growth Areas are the smaller geographic areas of the county where the majority of Carroll County's growth is planned to occur. Community comprehensive plans are prepared for these areas that are focused on these areas and evaluate land uses at a more local scale. Carroll's eight municipalities are at the heart of the DGAs, with the exception of Sykesville, which lies along the southern edge of the Freedom area. Additional land surrounding most of the municipalities is identified and planned for future annexation into the municipality to accommodate and serve planned growth. The limit to which a municipality plans to annex land in the future is referred to as the GAB. In most cases, the

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Freedom Growth Area Boundary (GAB) extends well beyond what Sykesville will ever annex. The Finksburg area is not considered a DGA. The municipal Priority Funding Areas (PFAs) can be found within these boundaries. These are the areas for which municipal public water and sewer services are provided. Each of these communities develops an individual community comprehensive plan.

Carroll County's DGAs and their associated GAB are shown on the map titled "Designated Growth Areas and Priority Funding Areas."

■ Priority Funding Areas (PFAs)

The PFA requirements were adopted in 1997 as part of a larger group of State Smart Growth implementation measures and became effective on October 1, 1998. The intent is to ensure that State funding and resources are directed to the most appropriate areas for growth and development. The measure established criteria to define PFA boundaries. Locations that were already developed (such as existing towns or rural villages) and could grow further, via infill development and residential or business development within planned growth areas, were targeted.



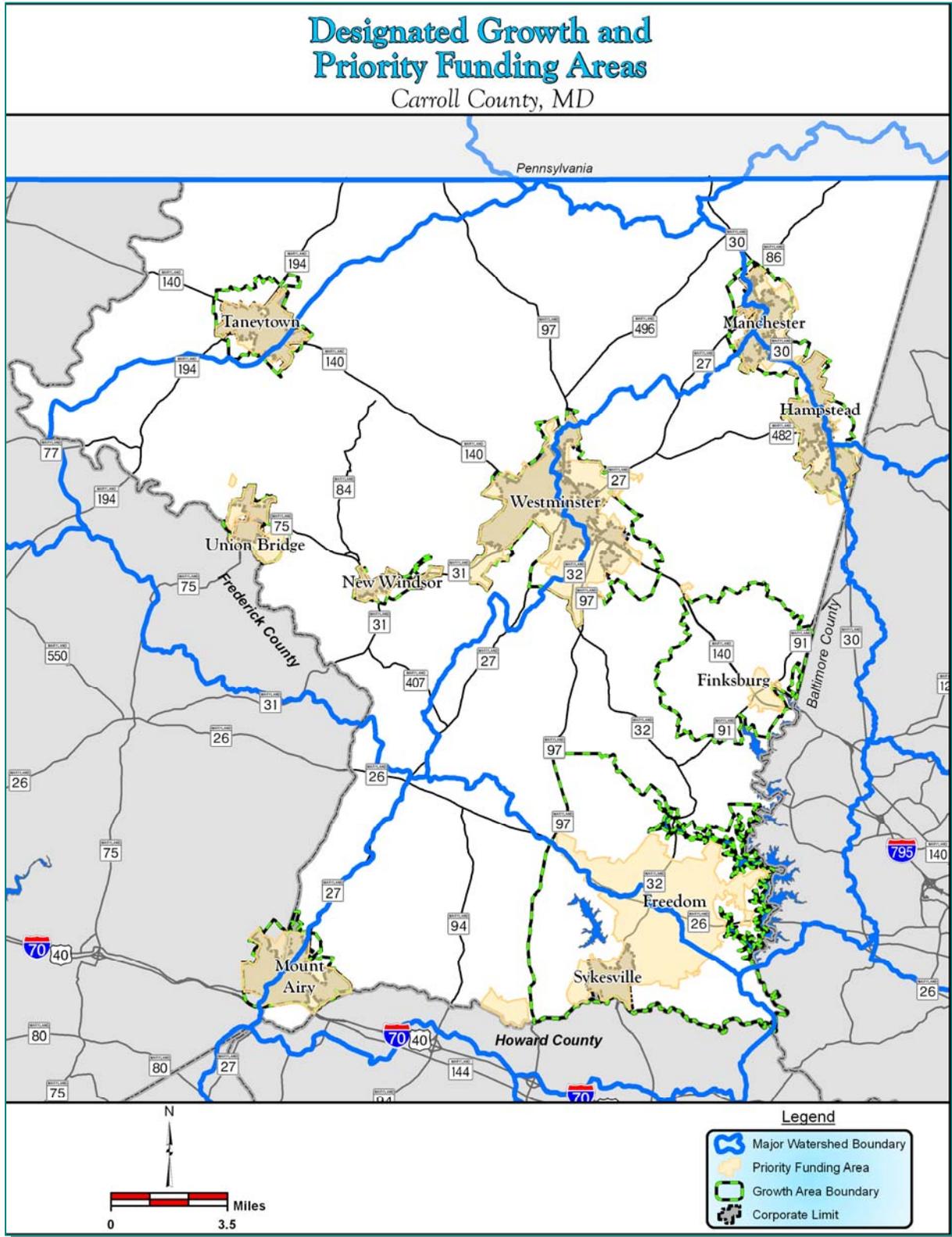
To be designated as a PFA, a residential area needed to meet minimum density requirements, already be served (or planned to be served) by public water and sewer facilities, and land use designations and/or development plans must satisfy Smart Growth guidelines for minimum density. Other land uses such as employment, industrial, commercial/business, or mixed-use or transit-oriented



developments may also be designated as a PFA as long as sewer service is (or will be) provided and these uses fall within DGAs. A PFA was originally designated for each of the municipalities or growth areas, eligible industrial areas, and the 35 rural villages in Carroll County.

The existing PFA boundaries for Carroll County are shown on the "Designated Growth and Priority Funding Areas" map.

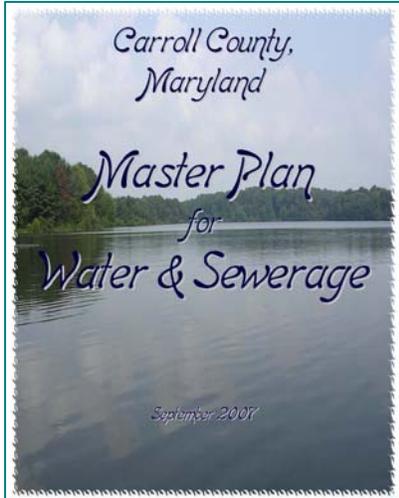
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■ Master Plan for Water and Sewerage



The Carroll County *Master Plan for Water & Sewerage* presents the goals for water and sewer planning for the entire county. Background information is provided for water and sewer planning and service in Carroll County and its municipalities, including legislative and policy decisions that have been made by local and state governments.

The *Master Plan for Water & Sewerage* is updated on a triennial basis. With the triennial updates, revisions are made to reflect changes that have occurred to various water and wastewater facilities or plans for improvement to these facilities around the county. Amendments to the plan are processed on a biannual basis – in the spring and fall each year.

Both the water and wastewater facilities are separated into service areas. Existing and planned facilities and associated infrastructure are detailed. In addition, the plan contains more specific information on the maintenance and operations of the public systems and associated infrastructure. Charts and maps illustrate where the specific water and sewer infrastructure is located, as well as the planned water service and sewer service areas. Information is included for specific privately and publicly owned systems. Carroll County has no combined stormwater sewer systems or overflows.

For more information and details regarding operations and management or specific improvements in design and capacity, please reference the *Carroll County Master Plan for Water & Sewerage*.

■ Water and Sewer Service Areas

The residents and businesses of Carroll County receive their water supplies and sewerage services from a mixture of public and private systems. The majority of Carroll's *land area* is served by individual wells and septic systems which are privately owned and operated. Most of these systems serve individual properties while some serve a small cluster of users. The majority of the County's *population* (89,545, or about 51%) is served by public water and/or sewerage systems. The current public systems serve Carroll's DGAs, in which the highest densities are located, including the County's eight municipalities. Four of the County's rural villages are also served by either public water and/or sewer systems, as a result of problems that occurred in those areas. These systems are not intended to accommodate additional growth beyond any infill potential.

Maryland law requires that operators of public water and/or sewerage systems develop and regularly update a master plan for these services. Operators are directed to describe not only the current systems components, capacities, service areas, and operational requirements, but also plans for future service needs, demands, and capacities. In Carroll

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County this plan, the *Master Plan for Water & Sewerage*, is updated by the County in cooperation and consultation with each of the municipalities every three years and is amended semi-annually. While the local governing bodies develop and adopt the plan, it cannot be implemented until reviewed and approved by MDE.

Among the most important components of this master plan are the planned service areas for each system. These system service areas describe the location where the service exists or is planned to be provided. They also establish a prioritized sequence for expanding the systems. The master plan establishes four categories for providing either water or sewer system services:

Existing/Final Planning Service Areas

These are locations where community systems are either in place, under construction, or have completed final plans and/or engineering specifications for that portion of the system.

Priority Service Areas

These are areas that are likely to be served by community systems and are anticipated to begin construction within two years or where major system components will likely either be funded or completed as part of the current six-year capital improvement program (CIP) budgeting cycle. Priority areas also include areas which are immediately adjacent to existing facilities. It is a standard requirement that any development projects occurring in a Priority Service Area will be required to connect to the community system(s).

Future Service Areas

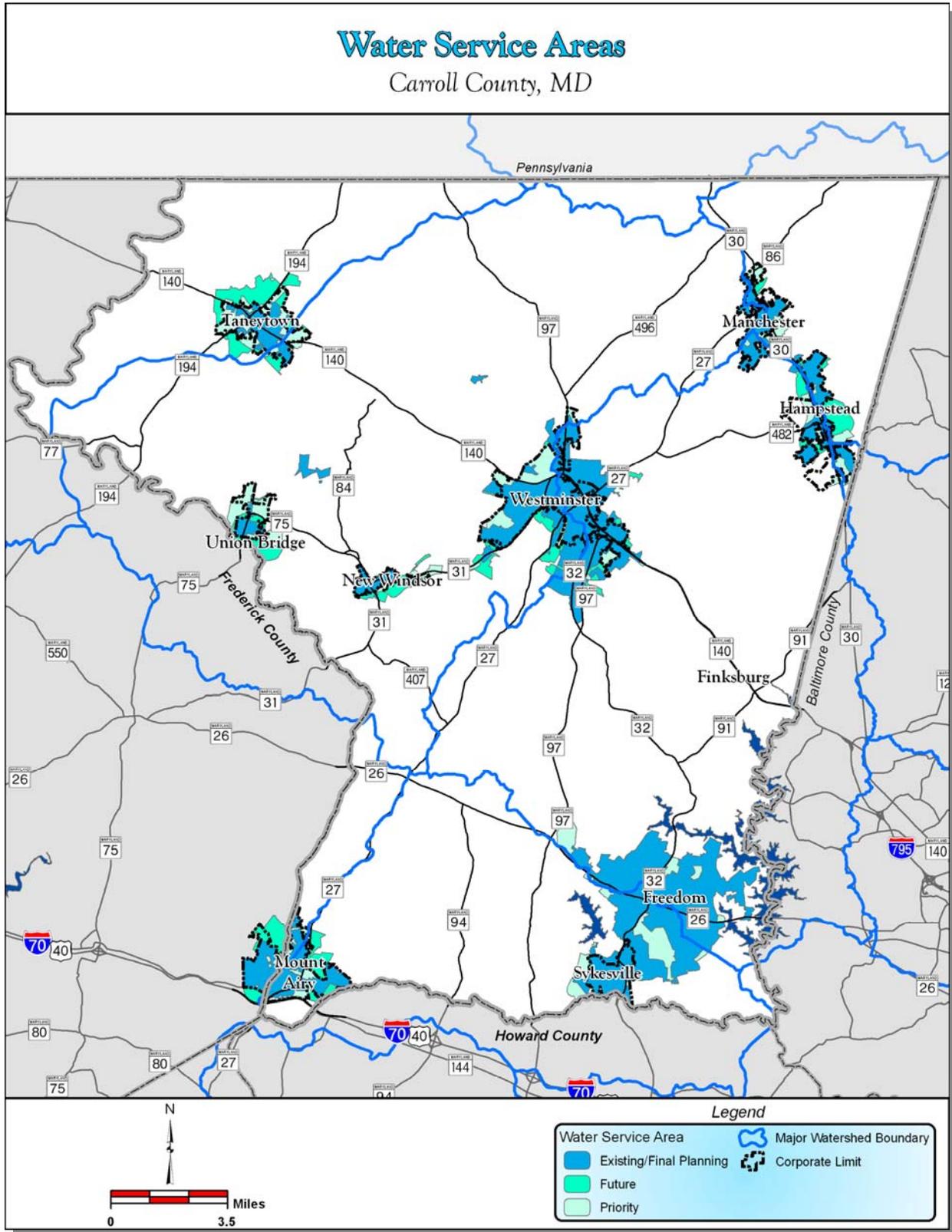
Future Service Areas are those regions where community systems are anticipated to expand and be served within a seven- to ten-year period. Location in the Future Service Area, however, does not guarantee that services will be provided within that time period or that the region will develop in any specified timeframe. Before a property can connect to the relevant community system(s), the master plan would need to be amended to place the property in at least the priority service area(s).

No Planned Service Areas

No Planned Service Areas are those locations which are not envisioned to be served by a public water and/or sewerage system within the current construction or CIP cycle or within a 10-year planning horizon.

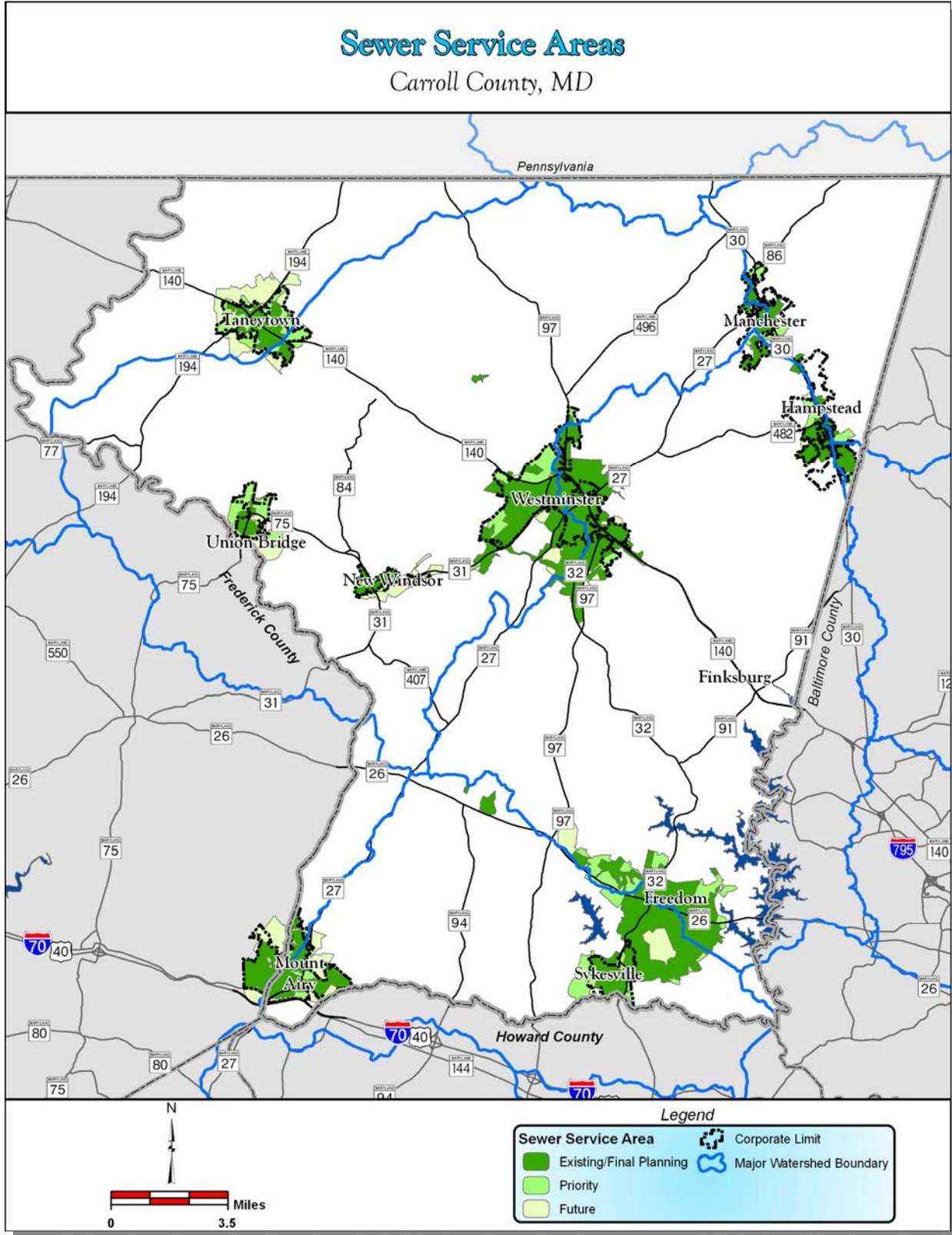
This delineation process helps individual communities direct their growth and development patterns. By planning for needed expansion, system operators seek to balance the rates of residential growth with needed commercial, employment or other business development while ensuring that appropriate capacity will be available for public facilities such as schools, libraries, and other community services. These prioritized rankings are also intended to aid system operators in budgeting for and seeking funding needed to ensure that planned capacity and system needs are met on a timely basis.

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Carroll County's existing public water and sewerage systems and their current planned service areas are shown on the maps titled "Water Service Areas" and "Sewer Service Areas." As depicted on these maps, planned service areas for public water do not always match planned service areas for public sewer.

The following tables detail the major public water and sewer systems within Carroll County. The data are organized by service area and relationship to the total area within a community's GAB. For each municipal system, the tables show the acreage for the planned service area within the GAB and outside it. The portion of the DGA that is in the No Planned Service Area is also reported by acreage. These acreages are summed for a countywide total.

2008 Existing and Planned Water Service Areas Acreage

System Name	Service Area (by category) Inside GAB			Service Area Outside GAB	No Planned Service Inside GAB
	Existing/Final Service	Priority Service	Future Service		
Freedom/Sykesville	8,460.5	1,576.1	0.0	0.0	17,612.4
Hampstead	1,422.1	708.4	812.2	22.7	501.9
Manchester	1,042.8	361.3	94.1	0.0	1,982.8
Mount Airy	2,047.9	388.8	1,172.7	10.3	73.7
New Windsor	424.2	330.8	293.4	0.0	14.6
Taneytown	1,014.2	1,053.3	1,255.3	10.9	7.7
Union Bridge	265.3	712.6	452.3	0.0	212.2
Westminster	6,566.7	1,011.5	965.3	178.0	2,486.2
Total Acreage	21,243.7	6,142.8	5,045.3	221.9	22,891.5

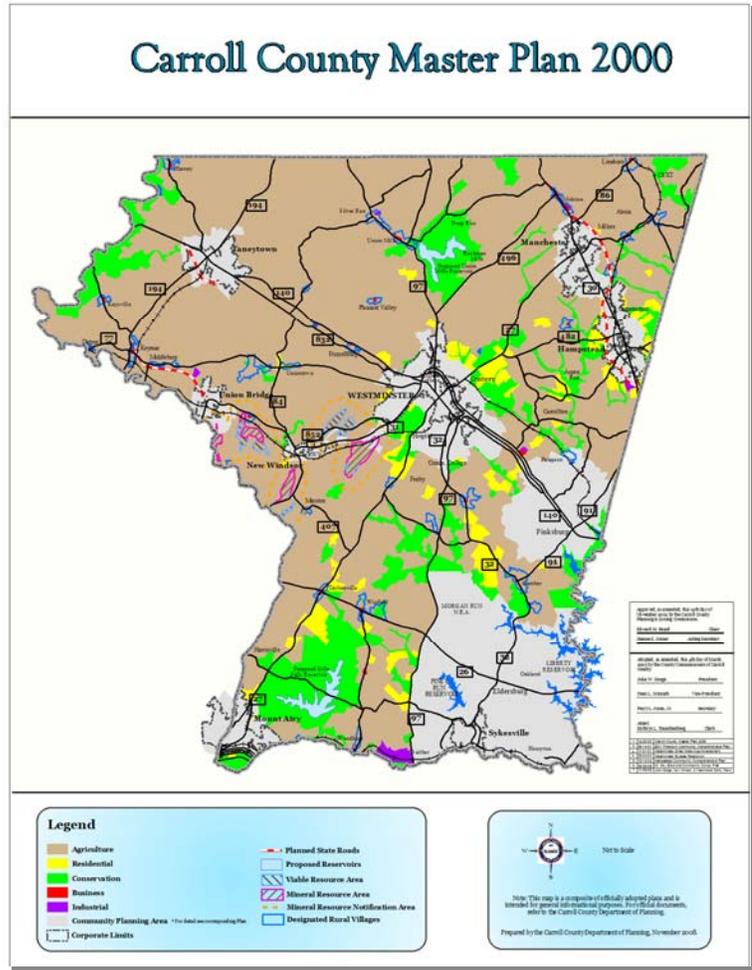
2008 Existing and Planned Sewer Service Areas Acreage

System Name	Service Area (by category) Inside GAB			Service Area Outside GAB	No Planned Service Inside GAB
	Existing/Final Service	Priority Service	Future Service		
Freedom/Sykesville	5,517.6	1,979.2	731.3	0	19,421.0
Hampstead	557.7	1,252.5	0.0	22.7	1,634.4
Manchester	796.3	351.0	115.1	0	2,218.6
Mount Airy	2,047.9	388.8	1,172.7	10.3	73.6
New Windsor	342.8	73.9	525.0	6.8	25.0
Taneytown	1,019.7	1,066.0	1,238.0	18.8	14.6
Union Bridge	280.7	744.3	406.8	0	210.5
Westminster	6,759.0	916.2	504.0	111.8	2,784.3
Total Acreage	17,321.7	6,771.9	4,692.9	170.4	26,382.0

4 Comprehensive Plan Overview

The 2000 Carroll County Master Plan represented the first review and revision of the direction set forth by the original 1964 Carroll County Master Plan. The 2000 plan essentially reaffirmed support for the basic premises, concepts, and development patterns charted in the 1964 Plan. There were two overriding goals of the 1964 plan. The first was to focus growth in and around existing population centers, primarily the incorporated towns, where public water and sewer service is already available. The second goal was to preserve farmland.

In the 2000 master plan, Carroll's eight municipalities and the Freedom area would continue to serve as the county's DGAs. These are the areas in which the majority of planned growth is focused. The rural character of the county is to be preserved through measures that protect our natural and cultural resources, minimize residential sprawl, and save farmland. The County would also continue to pursue the long-standing goal of preserving 100,000 acres of farmland. Employment growth and provision of adequate public facilities are also priorities. The implementation of the concurrency management program came about through the 2000 master plan process.



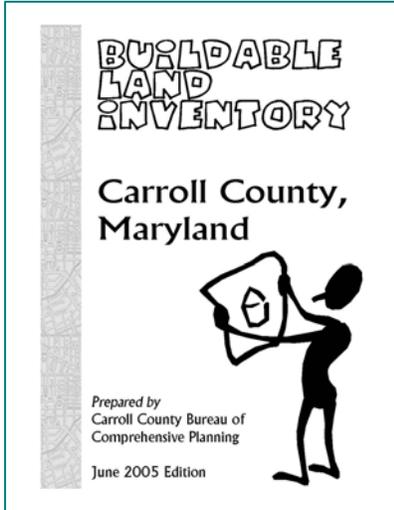
5 Existing Planned Growth

This section presents growth estimates for future residential, commercial, and industrial development that is based on the land use designations identified in the county's community comprehensive plans and countywide comprehensive plan as currently adopted. The tables provided report additional residential growth in *lots*. Additional commercial and industrial growth is reported in acres of *land*.

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■ Buildable Land Inventory

Methodology for calculating future growth is defined in the *Carroll County Buildable Land Inventory Report*. The buildable land inventory (BLI) is an inventory of potential additional residential lot yield that could result from unimproved lots and lots with further subdivision potential. Various factors influencing residential lot yield were considered, such as easements, ownership, certain environmental features, etc.



Each individual parcel that is designated Residential, Agriculture, or Conservation was calculated based on its residential development potential. Acreage of land zoned for commercial or industrial uses was included in the report, but an analysis of buildable acreage was not.

A subsequent analysis identified land designated for business or industrial use. Buildable acreage for each parcel was estimated and calculated. Various constraints were factored in to derive a net amount of land that is considered developable (i.e., buildable). Some of the factors included

size of the parcel, location of existing development on the parcel, availability of public water and sewer service, streams, wetlands, and floodplains.

■ Population Projections

Annual population projections produced by the Carroll County Planning Department are primarily derived from number of households. The number of use and occupancy (U&O) permits issued each year is used to determine population growth. Over the last decade, the County has experienced periods of both rapid growth and declines in development activity. Because of this inconsistency, a growth rate (.986%) was determined by examining the last eight years in total (instead of the typical last 5-year period) for the County's Round 7B submittal to the Baltimore Metropolitan Council in January 2009.

Based on current land use designations in the county, and an average household size of 2.79 persons, the entire county will grow to a total population of nearly 258,200 once all land is fully developed (i.e., at buildout). Using the average number of U&Os issued over the last 8 years, it was determined that the County would add approximately 13,700 additional households, or roughly 685 units per year, between 2010 and 2030. The table below shows the projected population for 2030 and the projected year the county would reach build out under current land use designations. At this rate of growth, the county would reach a buildout population of 258,187 around 2060.

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Carroll County Population Projections

	2010	2030	Buildout (2060)
Population	175,520	207,317	258,187
Households*	61,594	76,148	95,315
PPH*	2.79	2.67	2.65

Source: Carroll County Department of Planning (Round 7B submittal to BMC), January 2009

* excludes group quarters

The BLI data were used to estimate development capacity of each Census Block Group, essentially a smaller subdivision of Census Tracts and Election Districts. The number of future lots was determined by adding the number of existing lots to the number of potential lots. Under current conditions, population and household projections for Carroll County (Round 7B) show a number of Block Groups throughout the county reaching build out by 2030, some as early as 2015 assuming the 685 units per year is achieved. Once the number of potential lots was reached in a determined area, the growth rate was no longer applied and the population and household numbers remained static. If more development potential existed, the applicable growth rate continued to be applied.

■ Within Each Watershed

The following table provides estimated future residential, commercial, and industrial development within the county, broken down by watershed. The Liberty Reservoir and Double Pipe Creek watersheds represent the majority of the county's land area. Combined, therefore, it is not surprising that they account for almost two-thirds of the total number of additional residential lots. The same watersheds account for just over half of the developable acreage planned for commercial development. For industrial development, the Liberty Reservoir alone contains nearly 40 percent of all the developable industrial land in the county. Countywide, an additional 34,354 potential residential units are estimated.

Planned Additional Residential, Commercial, and Industrial Development for each Watershed

Watershed	Additional Residential Units (lots)	Developable Commercial Land (acres)	Developable Industrial Land (acres)
Prettyboy Reservoir	3,045	61	19
Loch Raven Reservoir	383	7	54
Lower North Branch Patapsco River	40	0	0
Liberty Reservoir	10,895	102	1,125
South Branch Patapsco River	5,172	68	640
Lower Monocacy River	372	13	0
Double Pipe Creek	11,214	118	589
Upper Monocacy River	3,057	58	483
Conewago Creek	176	0	0
County Total	34,354	427	2,910

Source: Carroll County Department of Planning, March 2009

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The following nine maps show potential additional residential lots and developable commercial and industrial land based on current land use plans. Each map provides this information within the confines of one of the nine watersheds that comprise Carroll County. As can be seen on the maps, much of the planned growth is concentrated within the planned growth areas and municipalities. However, substantial growth, particularly new residential units, would still occur outside these planned growth areas.

