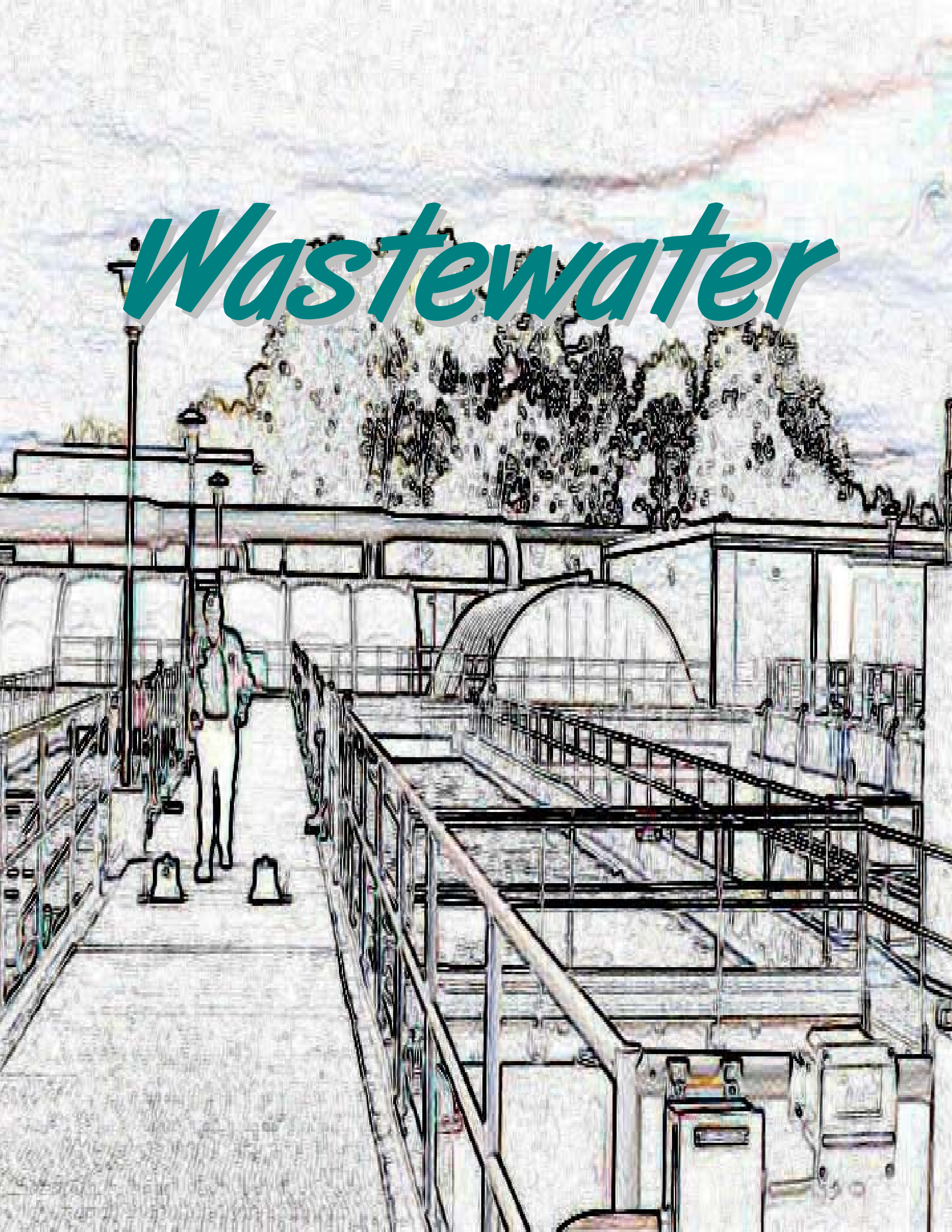
Wastewater



Wastewater

Wastewater management in Carroll County takes place via one of two general methods. The first is sewage collection at an individual home or business with treatment by a septic system or similar onsite facility. This type of method is considered to generate a discharge which is referred to as a nonpoint source (NPS). The second type of collection is implemented in DGAs. In these areas, the sewage is collected from numerous homes and businesses in a sewer system, transmitted to a wastewater treatment plant (WWTP), and processed utilizing various methods. This type of wastewater treatment is considered to generate a discharge which is referenced to as a point source.

This second wastewater treatment system, utilized by municipalities and the county in select areas, requires permitting via the NPDES. This federally required permit is administered and issued by the State of Maryland. Following treatment, the amount of potential pollutant which is allowed to be discharged from the WWTP to a receiving water body (in most cases a stream or river) is regulated by the permit. The specific amount of pollutants is allocated by the amount of flow discharged and the assimilative capacity of the receiving waterbody. Various caps or limits have been applied to wastewater discharges to maintain the theoretical water quality standards of the receiving waterbody. Ultimately, the limitations on wastewater discharge are applied in an attempt to achieve goals established to help clean up the Chesapeake Bay.

This section in the WRE looks at the existing and planned capacity limits associated with municipal wastewater system in Carroll County, as well as those individual NPS facilities.

Note: In addition to individual septics systems, other types of NPS pollution include stormwater runoff and agricultural runoff. These NPSs are further addressed in the section entitled Nonpoint Source.

13 Future Additional Wastewater Demand Based on Existing Planned Growth

Capacity Management Plan Worksheets – Methodology

To identify wastewater capacity needs, you must first determine current service capacity. MDE expects potential demand and wastewater capacity needs for a planning area to be estimated using the guidance document prepared by MDE, *Wastewater Capacity Management Plans* (WWCMP).

A WWCMP is required to contain information on sewage system capacity and the demand created by existing and projected growth and development. A WWCMP is required by MDE for municipalities operating at or above 80 percent of design capacity. However, MDE recommended using this tool to determine current capacity for purposes of the WRE as well.

Data was collected for each of the wastewater systems owned or operated by Carroll County or a municipality. Figure 2: Worksheet Style 2 (Pg 38) in MDE's Guidance Document: *Wastewater Capacity Management Plans* (2006) was used as a template and guide for collecting this data. A worksheet was prepared for each of these eight systems to capture a snapshot of the **current** capacity and projected demand, based on **existing** adopted land use plans, ordinances, and policies. (See the Appendices for copies of each individual worksheet, associated data, and any variations from the standard method.)

The current demand represents an average of the average daily flow for 2005, 2006, and 2007, less infiltration and inflow (I&I). I&I, for most systems, was estimated by subtracting the 2002 average daily flow (a particularly dry year) from the 2003 average daily flow (a particularly wet year) per MDE's worksheet. For efficiency and productivity, 2007 data was used for the CMP worksheets and wastewater information, so the process could continue without constant changing of data.

The S-1 Existing/Final Planning Sewer Service Areas (SSAs) were used to identify Existing and Encumbered S-1 Infill flow (numbers 6 through 10 on the worksheet). To estimate "future" flows, the Priority and Future Sewer Service Areas (S-3 and S-5) were used (number 11 on the worksheet). These were the required categories shown on MDE's worksheet. Demand for future flows from the No Planned Service areas that fall within the County's DGAs was also estimated.

The County's BLI data provides estimates of potential additional residential development based on either zoning or on adopted land use designations. Within the Existing/Final Planning Service Area, potential additional residential infill lots were based on the current zoning. Infill lots could potentially apply for a building permit and request to connect to the system at any time. For all other areas, future potential additional residential lots were estimated using the adopted land use designations, which would reflect the growth that is ultimately planned.

Potential additional residential lots were combined existing unserved residences to estimate the future residential demand for wastewater. The total demand then was estimated assuming residential lots would consume 250 gpd per household/lot, with the exception of Westminster. For Westminster, the usage is known to be closer to 235 gpd. Therefore, 235 gpd was used to estimate future residential demand for Westminster.

To arrive at future commercial and industrial demand, areas with adopted land use designations for commercial or industrial use were reviewed. Acreage was estimated for areas that are developed but not yet served. The buildable acreage of unimproved land was also estimated. Buildable acreage excludes streams, wetlands, and floodplains (see Appendix titled "Methodology to Estimate Future Commercial & Industrial Demand for Water & Sewer Service/Capacity" for more detailed methodology). Developed but not yet served acreage was added to buildable acreage to get a total acreage on which future demand was calculated. The combination of acreage from these two types of commercial land was multiplied by 700 gallons per acre per day. Industrial acreage was multiplied by 800 gallons per acre per day (based on MDE guidance and the Water and Sewerage Master Plan).

In Manchester's case, additional demand was added to the residential demand category to reflect projected demand from two new schools that were coming online during this process or shortly thereafter.

In Freedom's case, additional demand beyond the BLI estimates used for residential demand was added to account for allocations and reservations. An additional 21,488 gpd in allocations was added, and an additional 27,765 gpd in reservations. The infill demand numbers in the Wastewater Capacity table, therefore, will not exactly match the infill demand numbers shown in the Wastewater Demand table.

For the Freedom water and sewer service areas, allocations represent capacity set aside to accommodate development that has already paid its area connection charges. These are typically sites for which building permits have already been issued, a site plan has been approved, or a minor subdivision has been approved. The capacity is "set aside" for two years after the area connections charges are paid. After two years, it is assumed that they are connected to the system.

Reservations represent a capacity that is unofficially 'reserved' for development in the pipeline, and represents a known quantity, but has not yet paid area connection charges. Using both allocations and reservations likely results in double-counting capacity demand. However, these numbers were included in the demand and capacity calculations knowing that it would provide very conservative numbers for the Freedom system but ensures the demand is accounted for.

For Hampstead and Westminster, numbers for residential, commercial, and industrial demand were provided by the municipality rather than strictly using the BLI data.

Mount Airy demand and capacity numbers may not match the BLI estimates, as the County does not have BLI information for the portion of Mount Airy that lies within Frederick County. Therefore, where this is a factor in estimating figures used in these analyses, the Town used their own calculations to capture its entire area.

On the worksheets, total demand for Infill and Future flows were added. The I&I estimate was added to total demand to arrive at a total Future Capacity Need. The difference between total future capacity needed and the current permitted flow represented the excess capacity available or additional capacity needed to serve the current SSAs. The MDE worksheets did not address demand that would be generated by areas within the GAB that are not currently within the planned SSA. This additional demand, however, was evaluated as part of Carroll County's WRE process.

Additional demand is not expected for any of the smaller wastewater systems in the county, such as Pleasant Valley. These systems were designed to address a specific problem and were not intended to accommodate additional growth. The areas in which these small systems are located are not considered Designated Growth Areas. Therefore, per guidance from MDE, these systems were not included in the analysis of future wastewater capacity needs.

Demand for Each Municipal System & Designated Growth Area

The following table provides estimated future sewer demand, broken out by planned sewer service area, for each of the major community (public) sewerage systems that operate in the County. "Current Demand" represents actual sewer flows generated by residents, businesses, and industries. Demand is measured as the average number of gallons treated per day. "Planned Future Demand" and "Other Potential Demand" include both new, additional development as well as existing development that is currently unserved. For purposes of this plan document, properties that are currently designated in the "No Planned Sewer Service Area," which are represented under "Other Potential Demand," and are located within the GAB, are assumed to be served in the long term.

"Infill Demand" is based on current zoning, while "Future Demand" and "Other Potential Demand" are based on current land use designation.

Future Wastewater Demand by Service Category for Each Designated Growth Area (in Gallons per Day)

Community	Current Demand*	Planned Future Demand***		Other Potential Demand****	Total Demand
		Infill Demand	Future Demand		
Freedom/Sykesville	2,160,000	445,100	1,077,130	1,344,190	5,026,420
Hampstead	628,000	65,400	236,750	576,190	1,506,340
Manchester	292,519	69,650	139,040	370,520	871,729
Mount Airy**	640,000	87,500	221,750	114,750	1,064,000
New Windsor	91,716	21,950	287,020	3,800	404,486
Taneytown	853,333	72,000	1,215,030	750	2,141,113
Union Bridge	177,967	101,900	609,640	40,980	930,487
Westminster	4,430,000	828,500	788,330	673,840	6,720,670
Total	*9,273,535*	*1,692,000*	*4,574,690*	*3,125,020*	*18,665,245*

* These data represent, in general, the annual average daily demand over the 3-year period 2005-2007.
**Mount Airy performed a full system I&I camera inspection of the original 1971 sewer system. The inspection revealed three major problems that averaged 250,000 gpd I&I flow. The current demand is the two-year average since repairs were made in May 2007.
*** These data relate to areas located within the designated planned sewer service area. Infill demand is calculated for areas classified in the "Existing/Final Planning" service category; Future demand is calculated for the combined area classified in the "Priority" or "Future" service category.
**** These data relate to areas designated in the "No Planned Sewer Service Area" but located within the Community GAB.

Source: Carroll County Department of Planning, December 2008

The following table presents the same sewer demand estimates as the previous table, except that demand is broken out by type of land use: residential, commercial, and industrial.

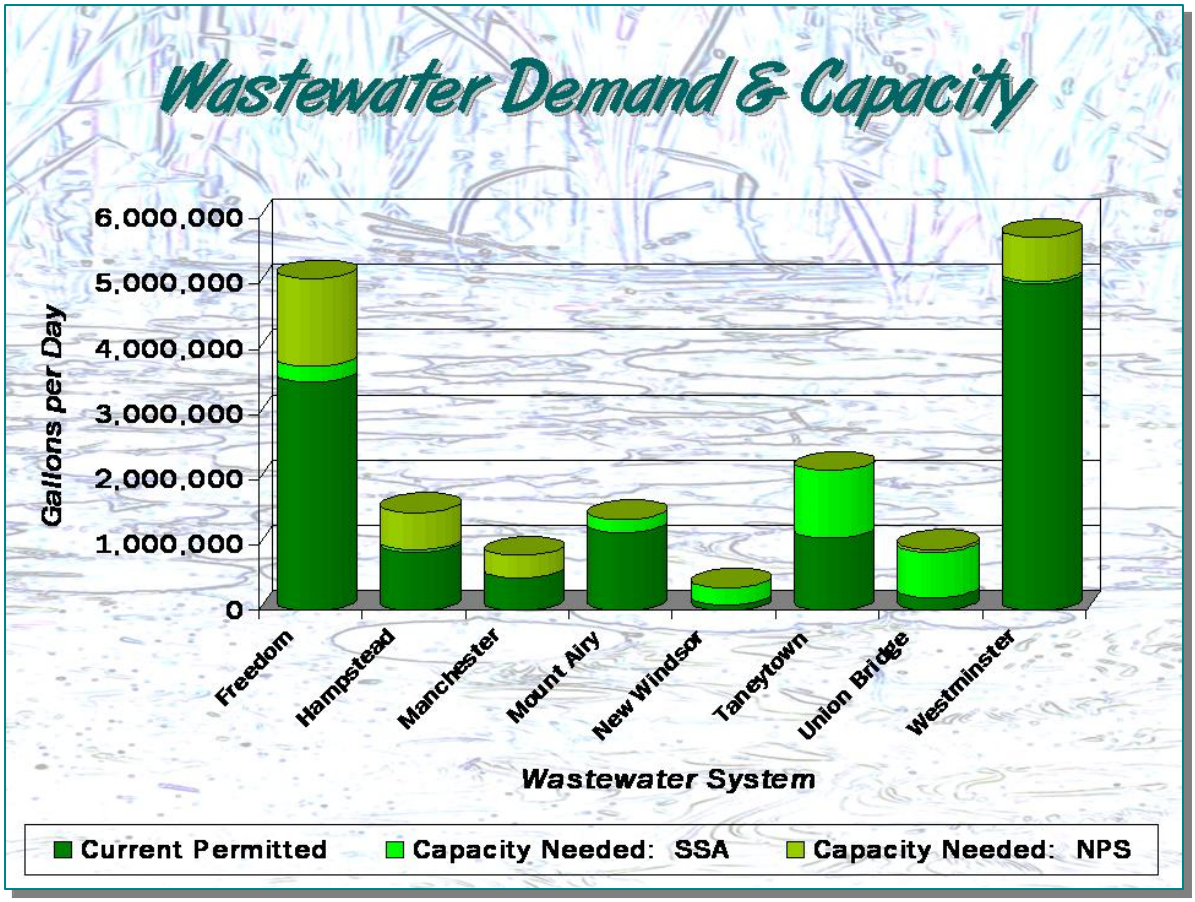
Future Wastewater Demand by Land Use for Each Designated Growth Area (in Gallons per Day)

Community	Current Demand*	Additional Demand by Land Use			Total Demand
		Residential	Commercial	Industrial	
Freedom/Sykesville	2,160,000	2,339,000	33,740	493,680	5,026,420
Hampstead	628,000	348,750	64,470	465,120	1,506,340
Manchester	292,519	530,000	49,210	0	871,729
Mount Airy**	640,000	285,000	85,250	53,250	1,064,000
New Windsor	91,716	162,250	2,520	148,000	404,486
Taneytown	853,333	714,750	100,310	472,720	2,141,113
Union Bridge	177,967	409,750	11,970	330,800	930,487
Westminster	4,430,000	1,501,000	49,910	739,760	6,720,670
Total	*9,273,535*	*6,290,500*	*397,380*	*2,703,330*	*18,665,245*

*These data represent, in general, the annual average daily demand over the 3-year period 2005-2007.

**Mount Airy performed a full system I&I camera inspection of the original 1971 sewer system. The inspection revealed three major problems that averaged 250,000 gpd I&I flow. The current demand is the two-year average since repairs were made in May 2007.

Source: Carroll County Department of Planning, December 2008



14 Current Capacity and Existing Wastewater Limitations

Capacity of Individual Municipal Systems by Watershed

The municipal wastewater systems serve the populations in the DGAs. Combined, existing flows totaled 6,239,685 gpd countywide. Population served by these systems countywide was about 69,839. The following table indicates the existing flows in 2007, based on CMP worksheet data, and the population estimated to be served, as indicated in the 2007 *Master Plan for Water & Sewerage*.

2007 Existing Flows and Population Served

Community/System	Existing Flows (from CMPs)	Population Served (from W&S Plan)
Freedom/Sykesville	2,160,000	19,051
Hampstead	628,000	5,520
Manchester	292,519	3,714
Mount Airy	896,000	8,631
New Windsor	91,716	1,114
Taneytown	853,333	6,200
Union Bridge	177,967	1,049
Westminster	4,430,000	24,560
Totals	*9,529,535*	*69,839*

Source: Carroll County Department of Planning, December 2008

In the following table, the "Current" figures identify the capacity that should be available ("Remaining Capacity") at each WWTP to serve existing and future demand once I&I is subtracted. The "Capacity Needed" represents the projected Infill and Future demand for undeveloped land and/or developed but unserved land. Areas designated for No Planned Service fall within the community's GAB, which generally represents the future annexation limit. However, provision of service is not anticipated to occur within a 10-year timeframe. For purposes of long-range planning, these areas are included in future demand projections for the buildout scenario. Remaining capacity minus the existing flows yields the amount of capacity available to serve future demand. If the future demand exceeds the capacity available, the difference between the capacity available to serve future demand and the projected future demand results in a negative number.

Based on the existing capacity of the community systems, all result in a negative available capacity at buildout. However, using the methodology from the MDE guidance documents for capacity management plans, these figures do not account for already identified system improvements that can be found in the Water and Sewerage Master Plan. Limitations that restrict expansion of design capacity are identified later in the text of this plan.

Wastewater Capacity for Each Designated Growth Area
(in Gallons per Day)

Community	Current			Existing Flows (2007)	Capacity Needed			Capacity Available at Buildout
	Permitted	I&I	Remaining Capacity		Infill	Future	No Planned Service	
Freedom/ Sykesville	3,500,000	630,000	2,870,000	1,530,000	494,123	1,077,130	1,344,190	(1,894,643)
Hampstead	900,000	231,000	669,000	397,000	38,856	259,011	576,190	(602,057)
Manchester	500,000	22,250	477,750	270,269	80,520	94,250	370,520	(337,809)
Mount Airy*	1,200,000	120,000	1,080,000	640,000	87,500	221,750	114,750	16,000
New Windsor	94,000	25,000	69,000	66,716	21,950	232,000	3,800	(255,466)
Taneytown	1,100,000	351,000	749,000	502,333	72,000	1,215,030	750	(1,041,113)
Union Bridge	200,000	50,600	149,400	127,367	101,900	609,640	40,980	(730,487)
Westminster	5,000,000	1,743,000	3,257,000	2,687,000	397,295	204,770	673,840	(705,905)
Total	*12,494,000*	*3,172,850*	*9,321,150*	*6,220,685*	*1,294,144*	*3,913,581*	*3,125,020*	*(5,541,480)*

*Mount Airy performed a full system I&I camera inspection of the original 1971 sewer system. The inspection revealed three major problems that averaged 250,000 gpd I&I flow. The current demand is the two-year average since repairs were made in May 2007.

Source: Carroll County Department of Planning, December 2008

Limitations of Individual Municipal Systems by Watershed

There are no major WWTP discharges to the Conewago Creek, Liberty Reservoir, Lower Monocacy River, or Lower North Branch Patapsco River watersheds. Therefore, these watersheds are not discussed in this section. "Infill+future" refers to the buildout of the entire planned sewer service area (SSA). For planning purposes, quantities reported as inflow, sewer demand, or discharge are considered comparable.

Double Pipe Creek

Westminster WWTP Summary of Wastewater Limitations: The existing controlling limitation for the WWTP is the current design capacity. By expanding to 6.5 mgd and upgrading to Enhanced Nutrient Removal (ENR), the Westminster WWTP will be able to accommodate all wastewater demands to buildout, and still have excess capacity, without exceeding loading limits imposed by the City's NPDES permit. The planned design capacity of the plant represents the controlling limitation.

Union Bridge WWTP Summary of Wastewater Limitations: The existing design capacity (0.2 mgd) of the Union Bridge WWTP represents the controlling limitation under current conditions. Longer-term, the Bay-related nitrogen loading cap represents a 0.67-mgd limit to surface water discharges. This limit is exceeded by the projected infill+future (entire planned sewer service area) and buildout (entire DGA) wastewater demands.

New Windsor WWTP Summary of Wastewater Limitations: The existing design capacity (0.094 mgd) of the New Windsor WWTP represents the controlling limitation under current conditions. As the plant expands and upgrades, the rated design capacity is likely to remain

the controlling limitation to discharge as long as advanced nutrient removal technology is employed. The Town plans to expand the capacity to 0.115 mgd as the WWTP is upgraded to sequencing batch reactor (SBR) technology.

Loch Raven Reservoir

Hampstead WWTP Summary of Wastewater Limitations: Until the effluent temperature issue is resolved, the current design capacity of 0.9 mgd will remain the controlling limitation. Given the high levels of treatment and large distance to the segment, the Western Run Tier II designation is not expected to represent a controlling limitation on the Hampstead WWTP discharge. Longer-term, the Bay-related nitrogen loading cap represents a 1.2-mgd limit to surface water discharges. As with plant expansion, no ENR upgrade is planned pending resolution of the temperature issue. With an ENR update, the WWTP could accommodate infill flows, but not the full 1.5-mgd wastewater demand projected at full buildout.

Prettyboy Reservoir

Manchester WWTP Summary of Wastewater Limitations: Given the limited land area to expand the plant and to spray irrigate, the existing design capacity (0.5 mgd) of the Manchester WWTP represents the effective wastewater limitation.

South Branch Patapsco River

Freedom WWTP Summary of Wastewater Limitations: The existing design capacity (3.5 mgd) of the Freedom District WWTP represents the controlling limitation under current conditions. The planned ENR upgrade project should achieve the loading limits. Longer-term, the Bay-related nitrogen loading cap represents a 4.67-mgd limit to surface water discharges.

Mount Airy WWTP Summary of Wastewater Limitations: The existing design capacity (1.2 mgd) of the Mount Airy WWTP represents the controlling limitation under current conditions. The approximate nitrogen-based capacity limitation of 1.6 mgd in discharge is larger than the maximum projected flows and is not anticipated to be a controlling limitation.

Upper Monocacy River

Taneytown WWTP Summary of Wastewater Limitations: The existing design capacity (1.1 mgd) of the Taneytown WWTP represents the controlling limitation under current conditions. Longer-term, the Bay-related nitrogen loading cap represents a 1.47-mgd limit to surface

water discharges. Both of these limitations are lower than the maximum projected flows at buildout of 1.74 mgd.

Summary of Capacity and Limitations Countywide

Most of the municipal WWTPs in Carroll County are projected to experience limitations to wastewater discharges, either under infill+future development or longer-term full buildout of the DGAs. "Infill+future" refers to the full projected buildout demand from development of the entire planned sewer service area (SSA), as of 2007 ("Infill+future" in this plan is referred to as "priority+future" in the supporting Malcolm Pirnie reports). "No Planned Service" refers to buildout development for the balance fo the DGA (full buildout).

Many of the municipalities in the county are already performing or planning activities to address wastewater limitations, such as WWTP expansions, ENR upgrades, and I&I reduction. Effluent reuse (*e.g.*, spray irrigation) has been implemented by one municipality (Manchester) and considered by others. The *Maryland Policy for Nutrient Cap Management and Trading in Maryland's Chesapeake Bay Watershed* presents several other options for reducing wastewater options, including nutrient trading and onsite disposal system (OSDS) hookup credits.

Infiltration and Inflow

Data from the CMP worksheets indicate that I&I is a major component of the total influent at most municipal WWTPs in Carroll County. Based on differences between 2002 (drought year) and 2003 (very wet year), I&I comprised a quarter to a third of the average influent flow at all of the larger WWTPs, except the Manchester WWTP, where it represented less than 10 percent. Representatives of municipal systems, such as Westminster, Sykesville/Freedom, Mount Airy, Taneytown, and Hampstead, report ongoing programs to identify and reduce I&I. These programs include elements such as smoke testing, camera surveys, pipe replacement, lining of pipes, and identification of inappropriate routing of stormwater into the sanitary sewer systems. The smaller municipalities, such as New Windsor and Union Bridge, appear to be resource-limited with regard to I&I reduction.

Wastewater Treatment Plant Expansion

Of the eight large WWTPs in Carroll County, only three (Freedom, Mount Airy, and Manchester) are projected to be able to accommodate infill+future wastewater demands without an expansion of treatment capacity. None is projected to be able to accommodate projected DGA full buildout wastewater demands without expansion. WWTP expansion projects are currently being planned for the Westminster and New Windsor. Other municipalities are likely to plan for WWTP expansions as wastewater demands increase, and as funding becomes available.

Several facilities face potential site limitations or other engineering challenges to expanding the plant at the current location, including the Freedom and Manchester WWTPs. The Freedom District WWTP has sufficient capacity to accommodate both existing and infill+future flows, so there is no near-term need to address site constraints. Challenges with expanding the Manchester WWTP represent a technical limitation to enlargement of the Manchester SSA, unless additional area for land application could be identified, or a new

WWTP were constructed outside of the Prettyboy Reservoir watershed. The Town currently does not plan to expand the SSA, and thus expansion might not be necessary.

The Taneytown WWTP is approaching its design capacity and has sufficient room to expand at the current location. However, the City's near-term strategy is focused on I&I reduction rather than plant expansion. The Union Bridge WWTP would need a major expansion—or construction of a new WWTP—in order to accommodate infill+future flows. Such a project would likely be contingent upon an agreement by developers to fund the majority of the expansion costs.

Regulatory Effect of Expansion on Minor Plant's Nutrient Allocations: Minor (≤0.5 mgd) plants that expand to an additional treatment capacity of more than 0.1 mgd will have their nutrient loading cap converted from goals to enforceable permit limits. In addition, when a minor plant expands, its nutrient loading caps will be assessed for adjustment to *no more than* 6,100 lbs/yr total nitrogen and 457 lbs/yr total phosphorus. Under this policy, the Manchester, Union Bridge, and New Windsor WWTPs would be susceptible to losing a portion of their nutrient allocations upon expansion.

Upgrades to Enhanced Nutrient Removal

ENR upgrades are the primary strategy being undertaken by Carroll County municipalities for complying with the Chesapeake Bay-related nutrient loading caps. The cost for most of these projects is eligible to be funded from Maryland's Bay Restoration Fund (BRF). All of the County's "major" (>0.5 mgd) facilities (Westminster, Freedom District, Mount Airy, Taneytown, and Hampstead WWTP) are likely to install ENR technology at some point. Most of these projects are already being planned or designed, although the unresolved effluent temperature issue at the Hampstead WWTP is likely to delay an ENR upgrade relative to the other WWTPs. The Town of Manchester has also applied for BRF funding of nutrient removal upgrades at the Manchester WWTP, primarily as a polishing step rather than a necessity for regulatory compliance. The expanded New Windsor WWTP will also use nutrient removal technology, although not at an ENR level.

The State of Maryland defines ENR as technology capable of achieving effluent concentrations of 3.0 mg/L total nitrogen and 0.3 mg/L total phosphorus. Although specific technologies differ, most ENR plants will employ a combination of biological nutrient removal and filtration. Phosphorus concentrations lower than 0.3 mg/L can often be achieved by chemical addition and filtration. However, many ENR plants cannot consistently achieve effluent total nitrogen concentrations that are significantly lower than 3.0 mg/L. Hence, the total nitrogen cap will be more limiting than the total phosphorus cap at most ENR facilities.

Of the County's five "major" WWTPs, three (Westminster, Freedom District, and Mount Airy) would be able to accommodate infill+future flows without exceeding nitrogen loading caps, assuming ENR upgrades were performed. The Taneytown WWTP could not discharge more than 1.47 mgd without exceeding the nitrogen cap. This flow is 0.27 mgd less than the projected infill+future flow of 1.74 mgd. All of the major WWTPs, except the Westminster, Mount Airy, and New Windsor WWTPs, would exceed nitrogen load caps under DGA buildout conditions and, even at ENR, would require offsets or no-discharge options.

ENR upgrades are not currently required for regulatory compliance at the Manchester and Union Bridge WWTPs, for which the Bay-related nutrient caps are goals rather than enforceable limits. However, advanced nutrient removal capability at the Manchester WWTP would help attain nutrient loading goals and further protect Prettyboy Reservoir. Improved nutrient removal capabilities are being designed for the New Windsor WWTP, for which the Bay-related nutrient caps will become enforceable permit limits upon completion of the planned expansion.

Summary of Long-Term Wastewater Limitations to Surface Water Discharge

WWTP	Long-Term Limitation to Surface Discharge (mgd)	Basis
Westminster	6.500	Design capacity after planned expansion; also close to nitrogen cap
Freedom District	4.700	Nitrogen cap, assuming eventual expansion
Mount Airy	1.200	Design capacity
Taneytown	1.470	Nitrogen cap, assuming eventual expansion
Hampstead	0.900	Design capacity, local water quality (temperature)
Manchester	0.500	Existing design capacity
Union Bridge	0.670	Nitrogen cap, assuming eventual expansion
New Windsor	0.115	Design capacity, assuming eventual expansion to meet future demand

15 Individual Private Septic Systems

Growth and development in Carroll County is concentrated in the DGAs where public water supply and wastewater services are available. Development outside the DGAs is generally served by individual private wells and septic systems. Existing development within the DGA but not yet annexed and served by the municipal system also is generally served by individual private wells and septic systems. The map titled “Estimated Existing Septic Systems” shows the estimated number and locations that may reasonably be assumed to be served by a private septic system. Each dot represents a lot that is likely served by a septic system based on its status as an improved lot and on its location outside of a public sewer service area.

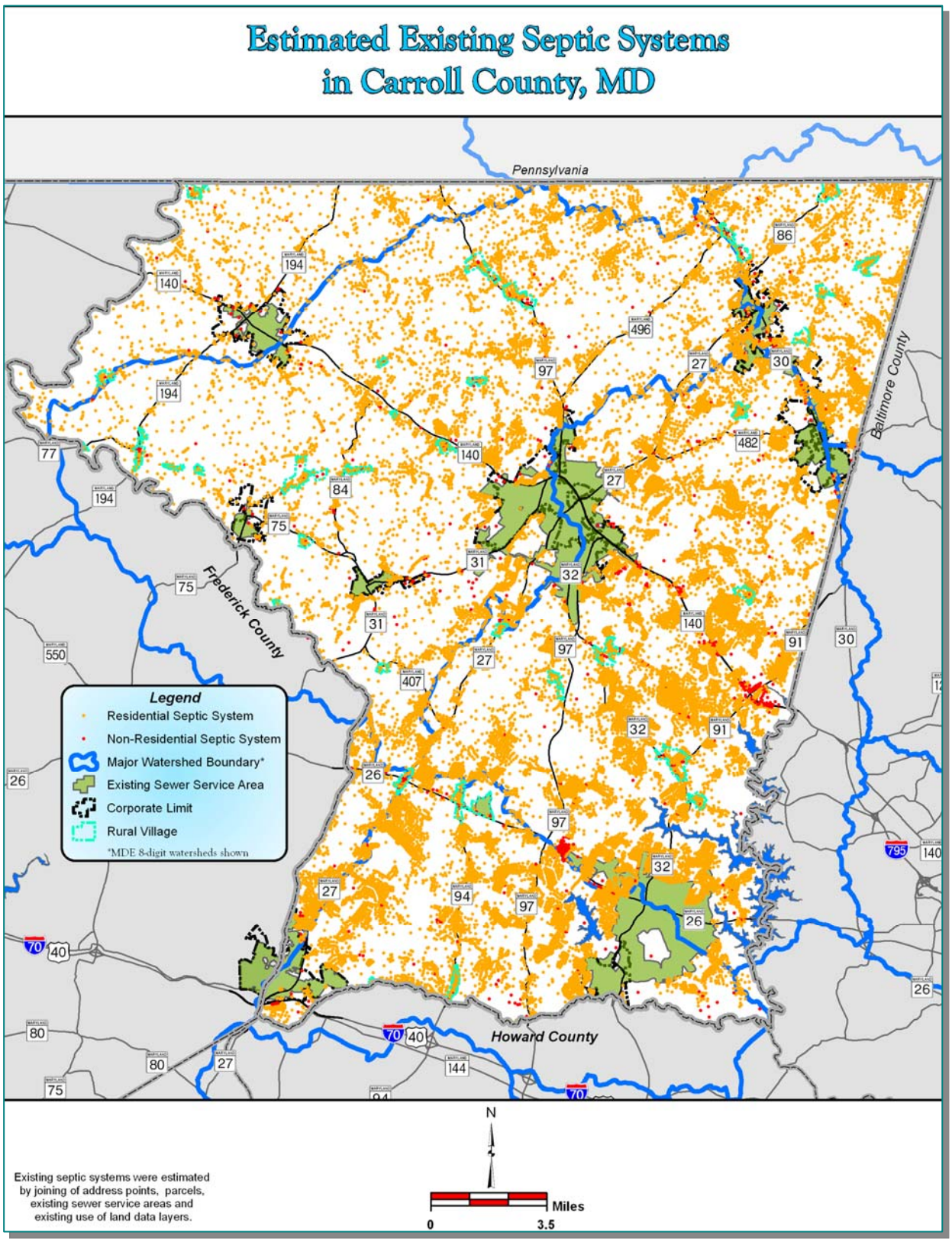
The total number of residential septic systems outside of GABs is estimated at 22,970, based on the total number of improved residential parcels outside of GABs. Residential septic systems within the GABs represent an additional 9,178 septic systems. These systems are anticipated to be replaced by public sewer service upon annexation of areas into the municipal limits or the addition of properties to the sewer service area.

The Carroll County Health Department has identified areas of the county where septic systems may be failing. Table 9 within the *Carroll County Master Plan for Water & Sewerage* provides an inventory of sewage problem areas, which includes areas with failing septic systems. Reference this table for specific locations.

Since the mid-1990s, the Carroll County Commissioners have provided funding to resolve the nature and seriousness of water and wastewater issues in about 36 small communities or groupings of homes in the county. These small communities, or Rural Villages, are unincorporated, primarily residential, include historic structures, are characterized by older communities with high potential for water/septic problems, and are not within a DGA. The issues with onsite water and sewer systems include poor soils, small lots, high groundwater table, low-yield wells, old systems, contamination threats, and limited replacement areas.

A committee was formed that included representatives from the Carroll County Health Department, Department of Public Works, Department of Planning, and the Grants Office. The Carroll County Health Department performed sanitary surveys on these small communities. Factors evaluated as part of these sanitary surveys included total number of households, average lot size, average age of septic and wells, inadequate replacement areas, condition of onsite water and sewer systems, and other demographic data.

The committee reviewed the surveys from the Health Department. The committee evaluated and prioritized the small communities with potential water and/or wastewater issues. The committee worked closely with the owners and residents of these communities to gage interest and socio-economic factors. As a result of these efforts, projects were completed in some of the communities to improve water and wastewater issues. These improvements included extending waterlines, building a wastewater treatment plant, and development of new community wells. Other communities were removed from the list for various reasons. For some, improvements were deemed unnecessary. For others, residents were not supportive, and/or the income survey results indicated that the community did not qualify for the Maryland Community Development Block Grant Program. The Small Communities Survey Locations map shows the small communities that have been considered during this ongoing effort.


Estimated Existing Septic Systems
in Carroll County, MD
Pennsylvania
Baltimore County
Frederick County
Howard County
Legend
Residential Septic System
Non-Residential Septic System
Major Watershed Boundary*
Existing Sewer Service Area
Corporate Limit
Rural Village
*MDE 8-digit watersheds shown
Existing septic systems were estimated by joining of address points, parcels, existing sewer service areas and existing use of land data layers.
N
Miles
0
3.5