

Carroll County Master Plan for Water & Sewerage

CHAPTER FOUR **SEWERAGE FACILITIES**

Section I: General

General

At present, the vast majority of County residents are not connected to a community sewer system. Approximately 70,884 people, or about 42 percent of the County's estimated population of 167,546, are served by publicly or privately owned community treatment plants. The remainder of the County's population utilizes individual subsurface disposal systems.

This section contains a general overview of countywide sewage disposal now and in the future as it relates to treatment plant points of discharge, the quality of the streams, and soil conditions for individual disposal systems.

Drainage Areas

The County is subdivided into seven major drainage areas, three of which have their upper reaches in the State of Pennsylvania. The areas are tabulated below and include those areas in Pennsylvania (see Figure 7 for drainage patterns).

Major Drainage Areas	
Drainage Area	Square Miles
Alloway Creek (17.94 sq. mi. in PA)	24.04
Piney Creek (7.05 sq. mi. in PA)	34.59
Big Pipe Creek	106.63
Little Pipe Creek - Sams Creek	55.33
Gunpowder Falls (6.22 sq. mi. in PA)	40.11
South Branch Patapsco	60.59
Liberty Reservoir	130.93
<i>TOTAL</i>	<i>452.22</i>

A brief description of each drainage area follows, including general information on significant municipal sewage effluent discharges.

Alloway Creek (24.04 square miles)

This area is located in the extreme northwest portion of the County, and has the greater part of its area in Pennsylvania; in fact, Carroll County contains only 6 of the 24 square miles drained by Alloway Creek. Ground elevations vary from 380 feet at the Creek's discharge into the Monocacy River to 600 feet at White Hall, Pennsylvania, the northern-most reach of the drainage area.

The terrain is generally rolling, and the area is a sparsely populated agricultural district.

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Piney Creek (34.59 square miles)

The Piney Creek drainage area is located in the northwestern section of the County and has its upper reaches in the State of Pennsylvania.

The Creek is the main drainage area for Taneytown, passing immediately northwest of the City. The City's sewage treatment plant discharges to the Creek, just west of the corporate limits.

The terrain is gently rolling, and the area is basically agricultural. Ground elevations vary from 340 feet at the Monocacy River to 760 feet at the upper limits.

Big Pipe Creek (106.63 square miles)

Ranking second in size in the County, this drainage area includes the western part of the Town of Manchester.

There are three incorporated towns that can be expected to expand their development into the Big Pipe Creek watershed: Manchester expanding to the west, Westminster to the north, and Taneytown to the south.

Little Pipe Creek – Sam's Creek (55.33 square miles)

Located in the west-central portion of the County, this area drains in a west-northwest direction and discharges into Double Pipe Creek at the junction with Big Pipe Creek. The terrain is gently rolling and drains the incorporated towns of Union Bridge, New Windsor, and the western portion of Westminster.

The sewage treatment plants of Westminster, Union Bridge, and New Windsor discharge into this watershed.

Gunpowder Falls (40.11 square miles)

This area comprises the extreme northeastern section of the County and is the upper reach of a rather extensive drainage area which discharges into the Chesapeake Bay. There are a number of sub-basins within this drainage area, discharging to the Prettyboy Reservoir, along with sub-basins that are tributary to Loch Raven Reservoir.

The area contains the greater part of the incorporated Towns of Manchester and Hampstead, whose sewage treatment plants discharge into this watershed. The area drains generally to the east. Ground elevations vary from 580 feet at the Baltimore County line to 960 feet at the Pennsylvania line.

The Manchester wastewater treatment plant discharges to George's Run which is a tributary to Prettyboy Reservoir. The wastewater treatment plant serving Hampstead discharges to Piney Run, which flows to Loch Raven Reservoir.

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South Branch Patapsco (60.59 square miles)

This drainage area extends the length of the southern boundary of the County and extends northward to the vicinity of MD 26. The river drains an equal area of Howard County.

Within this area lie the Towns of Sykesville (County/Maryland Environmental Service jurisdiction) and Mount Airy, whose sewage treatment plants discharge to this river. In addition, the State operates two hospitals, Springfield and Henryton (the latter is currently closed), both of which are near Sykesville and are connected to the County/MES facility.

The Patapsco State Park extends from the confluence of the South Branch Patapsco and the North Branch Patapsco, to Sykesville and Liberty Dam, respectively.

Ground elevations of the portion of the watershed in Carroll County vary from 360 feet at its junction with the North Branch of the Patapsco River to 860 feet at Winfield.

North Branch Patapsco River and Liberty Reservoir (130.93 square miles)

This drainage area, the largest in the County, is located in the eastern part of the County and drains portions of two municipalities, Westminster and Hampstead.

The drainage area is presently a moderately populated agricultural district. The fringes of Hampstead, Westminster, and Eldersburg drain to this area. Finksburg is the only significant area which lies completely in the watershed.

No publicly owned community sewerage systems in Carroll County discharge to this river, which drains to Liberty Reservoir, an impoundment comprising a portion of Baltimore City's water supply.

There are two significant privately owned individual systems discharging treated effluent: Hampstead Industrial Center, which is the former Black and Decker manufacturing plant in Hampstead and Congoleum Industries in Finksburg.

Water Quality Standards

Treatment plant effluents for now and the future should have sufficient quality so that the receiving streams meet Department of the Environment requirements. In addition, facilities shall meet effluent limitations specified by the Department of the Environment.

Water quality standards are to be maintained at a low stream flow. This is defined as the mean seven-consecutive-day low flow having a frequency of recurrence of once in ten years. The State's standards separate all water uses in four specific classes, as follows:

- I - Water Contact Recreation and Aquatic Life
- II - Shellfish Harvesting
- III - Natural Trout Waters

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IV - Recreation Trout Waters

Each stream in the State has been assigned one or more of the water use groups. Each class has its own minimum bacteriological, dissolved oxygen, pH, and turbidity standards in keeping with the water uses intended. If a stream is designated for more than one use, which is usually the case, the quality parameters of the best quality water must be maintained.

Each watershed in the State falls into one of 18 sub-basins coded by the Federal Government and the State Department of Natural Resources. Each sub-basin is listed in Water Resources Administration Regulation 08.05.04.09 - Classification of the Waters of the State with the water class units requiring protection.

A treatment efficiency range has been developed for each plant. State regulations require a minimum of 85 percent removal of pollutants. Higher degrees of removal are indicated in Carroll County since most points of discharge are at the headwaters of drainage areas. Computations were based on the above water quality standards and the efficiencies were developed for preliminary guidance. Detailed stream quality analyses will be needed when detailed design is undertaken to expand the treatment plants.

Restriction on New Municipal Discharges

Within the Liberty, Prettyboy, and Loch Raven Reservoir drainage areas, new municipal discharges exceeding 1,000 gallons per day are prohibited except where failing septic systems must be corrected.

Soil Disposal System

The ability of the soil to absorb septic tank effluent on a long-range basis is important in the extensive use of individual disposal facilities.

Factors influencing the suitability of soils for soil-absorption systems are drainability of the effluent, groundwater level, ability to filter the effluent, and ground slope.

The October 1969 issue of "Soil Survey-Carroll County, Maryland" published by the U.S. Soil Conservation Service, is a detailed treatise on the nature and characteristics of the County's soil. Of particular significance for soil disposal of sewage effluent is the section on "Non-farm Uses of Soils", pages 55-83. This section can be a valuable guide and tool to aid in the development of septic systems in the County.

Problem Areas

As mentioned in Chapter Three, Water Supply Facilities, some of the County's older communities are experiencing groundwater contamination due to inadequate septic systems. In order to enhance the water quality in these problem areas, alternative or updated methods of sewage disposal must be implemented.

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Section II: Existing and Proposed Sewerage Facilities by Service Area

The following sections describe nine existing publicly owned community sewerage systems and the plan for serving the corresponding sewer service areas. Maps S-1 through S-8 and S-10 relate to the written text and detail the location of the various service area categories and existing and planned facilities.

Connection to Community Sewerage System

In Carroll County, properties within the Existing/Final Planning (S-1) and Priority (S-3) Service Areas will be connected to the community sewerage system at the time of development. It is the responsibility of the developer to arrange for the required engineering and needed lines and facilities to make the connections. Interim individual systems may not be permitted where the utility of record or municipality has an official connection policy and/or code requirement that precludes interim individual systems. Where the utility of record or municipality does not have a connection policy and/or code requirement which precludes new interim individual systems, such interim systems may be considered by the utility of record or municipality where it has been adequately demonstrated that extraordinary or unusual circumstances exist and that authorizing same will not compromise the integrity of the Water and Sewerage Master Plan or the County or Municipal Comprehensive Master Plan. It is the intention of the Water and Sewerage Master Plan that development in the Priority Service Area will not occur without connection to the community system. Development within the Future Service Area (S-5) will be permitted to develop on individual sewerage systems, unless connection to the community system is required by the utility of record or municipality, or is requested, in which case the service area category must be changed to the Priority Service Area (S-3) in order for the Maryland Department of the Environment to issue construction permits. Under the Annotated Code of Maryland, Environment Article, the Carroll County Board of Health has authority to grant exceptions to the County Water and Sewer Plan.

Mount Airy Sewer System Area (see Map S-1)

The Town of Mount Airy owns and operates the community sewer system, which is located in the southwest corner of the County. The existing and planned service area covers approximately 3,280 acres.

Current Sewer System

The Mount Airy sewerage system includes ten pumping stations, interceptor and collection lines ranging from 6" to 15", and a newly expanded wastewater treatment plant (WWTP). The WWTP is located one mile east of MD 27 and south of Watersville Road. The plant discharges treated wastewater into the South Branch of the Patapsco River. The plant was modernized and expanded to double its capacity to accommodate the growth of the Town. The project was completed in July of 1999, and the expanded plant was fully operational at that time. This expansion allowed the sewage flow capacity to go from 600,000 gpd to ultimately 1.2 million gpd capacity. This increase of capacity has required a more rigorous level of effluent

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testing from the State of Maryland and, therefore, stringent compliance to new standard for water quality.

The plant discharges treated wastewater into the South Branch of the Patapsco River. The average flow into the WWTP over the period from 1996 to 2004 was 663,000 gallons per day with an average in 2004 of 722,000 gallons per day. As of September 1, 2005, the WWTP will be permitted for the full capacity of 1.2 million gallons. As of August 2005, the WWTP serves 8,452 Town residents.

The treatment process consists of the following: a bar screen, grit removal, BNR aeration system, clarifiers, ultraviolet lights, post aeration tank, solids process, sludge holding tank, and belt-filter press with lime stabilization.

Future System

The Town intends to upgrade the existing WWTP to meet the Enhanced Nutrient Removal goals, - Total Nitrogen 3.0 mg/l and Total Phosphorus 0.3 mg/l. The design capacity of the WWTP will remain at 1.2 mgd.

The Town could potentially expand the current plant to 1.4 mgd to serve anticipated future growth within ten years and eventually expand the treatment plant to 1.7 mgd to serve development beyond the ten year horizon of this plan.

Allocation Procedure

As outlined in the water segment of this plan, the Town currently has five active residential subdivisions approved and under construction totaling 488.4 equivalent dwelling units (EDU's). Each of those subdivisions is limited to 24 building permits per construction year. In addition, the Town is presently considering an overall building permit cap which would limit the total number of permits the Town would issue per year.

The Town previously adopted an Adequate Public Facilities Ordinance (APFO), whereby upon submission by a developer of the first development plan filed for any proposed development project, the Planning and Zoning Commission shall review the adequacy of public facilities, including sewer. However, review of adequacy of facilities is not required for site plans for any lot contained within a commercial or industrial subdivision that received preliminary plan approval prior to April 5, 2005, unless such proposed development project is designated as a "large water user". (A "large water user" refers to any proposed use, which, according to water and use projections adopted by the Carroll County Health Department, will generate an average daily water consumption rate greater than 2,500 gallons per day.) If water supply for any particular development is not adequate, the project may not proceed until such water supply becomes available. The Town is currently reevaluating the definition of a "large water user" and is proposing changing

If sewer capacity for any particular development is not adequate, the project may not proceed until such demands can be met. There is currently adequate sewer supply for all of the housing in the approved residential pipeline.

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Sykesville/Freedom Sewer Service Area (see Map S-2)

Current Sewer System

The Freedom sewer service area is located in southeastern Carroll County and covers approximately 6,755 acres, which includes the Town of Sykesville. The Freedom Wastewater Treatment Plant (WWTP) is located near the South Branch of the Patapsco River off Raincliffe Road, approximately 2,000 feet east of the Town of Sykesville. The WWTP is owned by the State of Maryland. Operation and maintenance of the plant is the responsibility of MES. The County owns and operates the sewage collection and conveyance system, including gravity sewers, force mains, and 11 pumping stations. Maintenance and operation of the sewer lines within the Springfield Complex is the responsibility of MES.

The Freedom WWTP has a capacity of 3.5 mgd. In 2004, the average wastewater flow was 2.340 mgd as metered at the plant. An upgrade and expansion of the WWTP was completed in September 1992, and the County renewed allocations for new development at that time. MES is allocated 900,000 gpd for use by State institutions (Springfield complex), and the County is allocated the remaining 2.6 mgd.

The upgraded and expanded Freedom District WWTP consists of screening and grit removal, primary sedimentation, an activated sludge process for biological reduction of Biochemical Oxygen Demand (BOD), suspended solids and nitrogen, phosphorus reduction by chemicals, filtration, ultraviolet disinfection, and effluent aeration by a cascade. Combined primary and waste-activated sludge is thickened by gravity thickeners. The sludge is dewatered by a belt-filter press and stabilized by the addition of quicklime.

Future Sewer System

MES has applied for funding to upgrade the treatment process at the WWTP from Biological Nutrient Removal (BNR) to Enhanced Nutrient Removal (ENR) in order to meet more stringent discharge requirements.

In order to meet the future demands in the Freedom District, the County is planning an additional 0.6 mgd plant at the site of the existing WWTP. The addition of this plant, which will be funded by the County, will increase the total sewage treatment capacity in Freedom to 4.1 mgd.

In the Sykesville/Freedom area, the County is in general support of extending community sewer service to areas designated low density residential and zoned Residential "R-40,000" which are planned for cluster development. Extension of sewer service will include the small cluster lots only and will exclude the open space portion of the development. Providing community sewer service in this manner will promote environmental protection of Liberty Reservoir with increased open space areas while maintaining high levels of efficiency and cost-effectiveness of the public sewerage system.

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Allocation Procedure

Carroll County, with 85 percent (+/-) of flows through the Freedom Sewage Treatment Plant, administers sewer flow allocations for new development. All those seeking sewer flow allocation must have approval for all construction drawings. A final record plat mylar is submitted to the Department of Public Works, Bureau of Engineering. The Bureau places requests on a waiting list based on the date and time chronology of record plat mylars, site plans, and building permits. Allocation of flows to builders/developers is made in the order of the chronological list. Each builder/developer can request a maximum of 25 sewer hook-ups per quarter. The County maintains two separate lists, one for residential/commercial users and the other for industrial. The Director of Public Works determines flow allocations between lists. Flows are allocated based on meter size in accordance with the Code of Public Local Laws and Ordinances of Carroll County, Chapter 179 – Sewer and Water (formerly County Ordinance No. 46).

The Carroll County Board of Commissioners may reserve up to 15 percent of treatment plant capacity for industrial use. Also, Maryland Environmental Services (MES), operators of the Sewage Treatment Plant, reserves a flow of 20,000 gallons for its use.

Manchester Sewer Service Area (see Map S-3)

The Town of Manchester owns and operates the system which limits service to the corporate limits. The existing and planned service area comprises about 1,339 acres located in the northeast corner of the County along MD 30. The existing and planned sewer service area is consistent with the Comprehensive Plan for Manchester, as amended.

Current Sewer System

The existing sewerage system became operational in 1969 and consists of a collection system, nine pumping stations, and a sewage treatment plant located east of Beaver Street. A spray irrigation facility is also utilized in the waste treatment process, and is located south of Manchester on Maple Grove Road. Sewage flow is primarily domestic with a small amount of commercial waste.

The sewage treatment plant is a package secondary treatment facility utilizing contact stabilization with anaerobic digestion of sludge. The design capacity is .500 mgd with actual flows in 2004 averaging approximately 195,797 gpd. Effluent from the treatment plant is pumped from the treatment plant via a 14” force main to a five million-gallon storage lagoon, and in turn, spray irrigated onto farmland. The Town of Manchester utilizes and harvests a crop of Reed Canary Grass for nutrient uptake on the spray irrigation fields. The Town is allowed to spray irrigate March 1 through November 30. For the remaining 3 months, December 1 through February 28, the plant’s effluent is discharged into George’s Run, which is a tributary of Prettyboy Reservoir in Baltimore County. The stabilized sludge which is generated at the facility is dewatered via a belt-filter press. Dewatered sludge cake is then transported to the Carroll County Northern Landfill for disposal.

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The Manchester Wastewater Treatment Plant also incorporates chemical addition in the form of liquid alum for the control of phosphorus. The phosphorus removal facility was first constructed on site in 1978, and rehabilitated in the Phase I upgrade in 1991.

Manchester Wastewater Treatment System

The Town of Manchester Wastewater Treatment Plant Upgrade plans were approved in 1982. The planned upgrade was divided into three phases. Phase I, which was completed in 1991, increased the total capacity of the plant to .500 mgd and included the construction of an additional activated sludge tank, rehabilitation of existing activated sludge tank, mechanical bar screen, grit removal system, belt-filter press, rehabilitation of the phosphorus removal facilities, and an ultra-violet disinfection system.

Phase II of the upgrade consisted of the construction of two wastewater pumping stations. This phase of the upgrade was started in June of 1991. This phase of the project included the construction of a new wastewater pumping station at the south end of the Town, at MD 30 and Maple Grove Road. The second station was constructed at the north end of Town, at MD 30 and Michelle Road. This phase also included the installation of a 10" force main from both stations. When this construction was completed, the wastewater pumping station, designated the Rohrbaugh Station, was bypassed and abandoned, and a section of 8" gravity line was installed. Flow is handled by the pumping station at MD 30 and Michelle Road.

Phase III of the upgrade consisted of the construction of a spray irrigation system. With this method, the treated secondary effluent leaving the plant is pumped via a 14" force main from the treatment plant to a storage pond, chlorinated and then sprayed on farmland, which is maintained by Town personnel. The Town of Manchester in 1990-91 completed the purchase of the three tracts of land which consist of approximately 170 acres for the spray irrigation system operation. Spray irrigation occurs during nine months of the year and discharge into George's Run occurs during the three winter months. Construction of this phase was started in the spring of 1992 and was in operation the spring of 1993.

Future Sewer System

No further expansion of the existing .500 mgd wastewater treatment plant capacity is contemplated or planned. The planned service area has been scaled to the remaining capacity of the existing facility, consistent with the Comprehensive Plan for Manchester and Environs, as amended. A major effort to reduce infiltration and inflow is a priority project to make the most efficient use of the system and allow available capacity to be allocated to the planned service area. Estimates of projections for future sewage flows generated from areas not developed or yet connected to the system, but within the service area, are intended and expected to be higher than actual flows. That is because density multipliers applied to undeveloped land for facility planning purposes project somewhat greater density than will typically be achieved given variables such as family size, topography and wetlands, and infiltration and inflow. However, the average daily demand will not be, nor can it be, more than the legal capacity of the wastewater treatment facility which is 0.500 mgd.

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The Town of Manchester faced a situation, especially on the southern and western ends of Town, where there are existing homes and areas planned for development but public sewer service is unavailable due to the lack of a collection system. The Maple Grove Road (South Pump Station) was put into service June 2001 to accommodate the sewage flow from Manchester Farms as well as approximately 15 homes along the south side of Charmil Drive. The Town is currently exploring a solution to installing a collection system to serve the remaining existing homes in the Charmil Drive area, utilizing the South Sewer Pumping Station.

Allocation Procedure

Allocations are made on a “first-come, first-serve” basis following approval of a site plan or subdivision. Flows for residential development are calculated at 375 gallons per dwelling unit per day. Commercial and industrial flows are calculated by the applicant’s engineers and reviewed by the Town. Sewage flows are reserved for two future school sites.

In addition, Section 89 of the Town Code requires that public facilities, including sewer, be adequate in order for the Planning Commission to approve a project at each stage of the development approval process.

Hampstead Sewer Service Area (see Map S-4)

Carroll County owns and operates the public sewer system that serves both the Town of Hampstead and adjoining areas in the County. The existing and planned service area comprises approximately 1,470 acres, which are located in the northeast section of the County along MD 30.

Current Sewer System

The existing system, constructed in 1970, consists of a collection system, four pumping stations, and a sewage treatment plant. The treatment plant is located outside the Town of Hampstead, on the southeast side of Town near the boundary with Baltimore County. The treatment plant is accessed via a service road off of North Woods Trail.

The Hampstead Wastewater Treatment Plant provides advanced secondary treatment of domestic wastes using an activated sludge treatment process. Activated sludge plants use a variety of mechanisms and processes to use dissolved oxygen to promote the growth of biological floculants that substantially removes organic material. It also traps particulate material and can, under ideal conditions, convert ammonia to nitrite and nitrate ultimately to nitrogen gas. The plant has a permitted capacity of 0.900 mgd.

Since the early 1990’s, the plant has been the subject of a series of litigative actions focused on the affect that the temperature of the plant’s effluent may have on the receiving stream (Piney Run). As the plant was not previously subject to any temperature limitation, no compliance violations were found during this period. However, as a result of the litigation and resultant regulatory processes, Maryland Department of the Environment (MDE) placed a

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temperature limitation on the plant's effluent of 20° C as well as thermal monitoring requirements. Carroll County moved for a stay of the permit modification until a decision was reached by the Court of Special Appeals regarding the merits of its appeal. The stay request was granted by the Court, but expired on November 20, 2005. As a result, the Permit became effective on that date.

When the temperature rises during the summer months, past monitoring data has shown that the temperature of the plant's effluent may exceed the Permit limitation of the higher of 20° C or upstream ambient temperature. As technical response to compliance, Carroll County has designed, but has not installed, chiller equipment and has been issued a permit by MDE to construct the chiller system but has not taken any other measure to reduce the temperature of its sanitary wastewater to a level necessary to satisfy the Permit temperature limit. Desiring to pursue an alternative that was both less costly and less energy consumptive as well as potentially less environmentally invasive, Carroll County decided to perform an assessment of the condition of the Piney Run to determine if an Alternate Thermal Limit would be environmentally appropriate.

Carroll County submitted an application for an alternate effluent limit in connection with its application for a renewal discharge permit, and on, July 9, 2004, submitted a Study Plan for Alternate Effluent limitation (AEL) for review by MDE. On December 21, 2005, Carroll County submitted its Final Report in connection with its Study Plan to the MDE. MDE requested additional information resulting in Carroll County submitting a supplemental report to MDE on May 7, 2006.

Based on the analysis and documentation submitted to MDE requesting the Alternate Thermal Effluent Limit, Carroll County believes that it has demonstrated that the temperature of the wastewater discharged thus far has not disrupted the need for protection and propagation of a balanced, indigenous community of shellfish, fish, and wildlife in and on the Piney Run. MDE is currently reviewing Carroll County's request for an alternate effluent limit, thus it remains pending.

Currently, the plant is being operated under a Consent Judgment Agreement that places any violations in abeyance until the resolution of the AEL process. In conjunction with that agreement, Carroll County is implementing several projects designed to assess other impacts to the stream and any corrections that may be warranted:

1. A thermal study of stormwater discharges upstream of the treatment plant discharge location. This study is intended to identify potential retrofit opportunities.
2. The improvement of the streamside buffer along Piney Run on County property, and
3. The investigation of potential improvements to buffers downstream of the plant, including the establishment of new buffers.

In each case the intent is to make measurable improvements to the stream's ecology over time that will be long lasting.

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Future Sewer Needs

A *Hampstead Wastewater Treatment Plant Upgrades Evaluation Report* was completed in 2003 by Whitman, Requardt and Associates. The report identified process upgrades needed at the plant including:

- ▶ Rehabilitate Oxidation Ditch No. 1 / Place Oxidation Ditch No. 2 online;
- ▶ Polyaluminum chloride facility replacement;
- ▶ Dewatering facility improvements;
- ▶ Sludge tank upgrades;
- ▶ Control room renovations;
- ▶ Influent pumping station control upgrades;
- ▶ UV system rehabilitation;
- ▶ Generator replacement.

All of the above items are included in Carroll County's Community Investment Plan (CIP).

Allocation Procedure

Sewage capacity is allocated on a first come, first serve basis. The amount of the allocation is based on meter size (e.g., for residential units served by a $\frac{5}{8}$ -inch meter, the County allocates 270.72 gpd). Sewage flows are allocated to development following final approval of the record plat or site plan mylars by the County Bureau of Engineering. A maximum of 25 sewer hook-ups may be approved per quarter for each developer.

The County can reserve up to 15 percent of the treatment plant's capacity for industrial uses. In 2004, the Board of Commissioners has 41,210 gpd reserved for future use.

Westminster Sewer Service Area (see Map S-5)

The community sewerage system serving the Westminster area is owned and operated by the City of Westminster. Some of the sewer lines and pumping stations located in the unincorporated area were planned, designed, and installed by the Carroll County Department of Public Works and then turned over to the City for operation and maintenance. The existing and planned service area is located centrally in Carroll County and contains approximately 7,341 acres. The original system has been in existence since 1935. In 1973 a new plant was constructed along Little Pipe Creek, about three miles downstream from the old plant, which is no longer operational. The old plant is now utilized to store yard waste while being converted to mulch. Between 1991 and 1993, the new Wastewater Treatment Plant was upgraded and its capacity expanded to 5.0 mgd. In 1999, the Wastewater Treatment Plant was upgraded to include biological nutrient removal. Most recently, the plant was improved with liquid chlorination/dechlorination capability. The City is currently working with MDE to complete a project to install an Enhance Nutrient Removal system at the plant.

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Current Sewerage System

The sewage treatment plant is located on Little Pipe Creek near the intersection of Old New Windsor Road and MD 31. The plant provides secondary treatment through an activated sludge process and advanced treatment with the addition of biological nutrient removal. Treatment capacity was increased from 3.0 to 5.0 mgd in 1993.

The sewage collection system includes 11 pumping stations and approximately 65 miles of sewer mains. Infiltration and inflow problems have been evaluated through a Sewer System Evaluation Survey (SSES). Correction of these problems has reduced or stabilized (or both) the average daily flow at the plant. Additional work is anticipated to further reduce infiltration and inflow into the City sewerage system.

Sludge from the treatment plant is presently hauled from the plant by the City and applied to farmland or transported to the County landfill. As part of the upgrade of the plant, the volume of sludge is now reduced by a dewatering process. Options for disposal of the dewatered sludge include land application at specific times of the year or landfilling.

Future System Needs

The City system produces considerably less water compared to the average sewage flows at the WWTP. Much of the excess sewage flow can be attributed to infiltration and inflow. The City intends to further investigate and correct this problem. With average sewage flows of 4.249 mgd in 2004, the City anticipates that the capacity of the WWTP will have to be expanded again within the next six years by at least 0.6 mgd.

Allocation Procedure

Allocation of sewer services and available WWTP capacity for new development in and around the City of Westminster is regulated by an official policy which limits the number of building permits per year to 50 for each development project. There is no flow-based permit process in place. However, once the WWTP reaches 80 percent of capacity, the Mayor and Common Council is authorized to establish, by resolution, an allocation policy in accordance with the provisions of Section 124-11 of the Charter and Code of the City of Westminster.

Adequate Public Facilities certification is required for sewer system capacity at preliminary and final development plan approval stages. A sewer-benefit assessment fee is levied on each new residential lot to defray the costs associated with the development and maintenance of public sewerage facilities. In 2005, the sewer benefit-assessment fee was \$4,580 per residential lot. This is in addition to the minimum connection charge of \$1,200, or the actual cost, whichever is greater. The sewer benefit-assessment is also levied on multi-family dwellings, as well as industrial uses, commercial uses, and other non-residential uses.

In accordance with Ordinance No. 678, the City must receive a completed application for sewer service accompanied by the payment of all fees, after which the City will review the application. The City may accept the application provided that the property to be served is

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identified as S-1 or S-3 in the Carroll County Master Plan for Water and Sewerage. Additionally, the development of the property must be consistent with the current City/County Agreement, unless the Mayor and Common Council grant a waiver for good cause.

Union Bridge Sewer Service Area (see Map S-6)

The Town of Union Bridge owns and operates the community sewerage system serving approximately 1,049 persons within the Town limits.

The existing and planned service area is located in western Carroll County and covers approximately 1,406 acres. The first waste treatment system for the Town of Union Bridge was constructed in the 1960's and consisted of a collection system, wet well, and pumping facility, and used a five-acre lagoon for treatment. In 1971, the plant was modernized and upgraded to secondary treatment with an activated sludge process known as extended aeration. In 1983, improvements were made to the treatment process to improve final effluent quality and the lagoon was eliminated from the treatment process. The current treatment plant has a design capacity of 0.200 mgd. Flows averaged .137 mgd in 2004. Individual service is not metered.

The system for the entire Town is gravity fed to a wet well from which all sewerage is pumped into the plant. Final effluent is discharged into Little Pipe Creek.

Sludge is disposed of by transporting to another WWTP in Carroll County. The amount of wet sludge transported is 683.9 tons and 6.84 tons of dry sludge.

In 2004, the 2003 Carroll County Master Plan for Water and Sewerage was amended to include Francis Scott Key High School in the Union Bridge Sewer Service Area. Carroll County and the Board of Education have conducted a pump and haul operation since 1999 when the school was modernized and problems with waste disposal arose. The force main and pumping station from the school to connect to the Town of Union Bridge's system are under design and construction is expected to be completed by Summer 2007. An additional 8,000 gallons per day of flow is expected from the school to the Union Bridge system.

Future System Needs

The sewage treatment plant will not handle projected growth in the planned service area. The WWTP will need to be expanded after 100 additional dwelling units are hooked up to the public system.

A preliminary engineering expansion study was completed in February 2005. The study recommends that a new WWTP be constructed at a different location in order to locate the plant out of the floodplain. After reviewing four biological treatment processes, the Town will consider the Orbal System for final design consideration. In addition, the Town may conduct a flow monitoring program to determine peak hourly flows and the amount of inflow to the sewer main along Little Pipe Creek. The Town is also reviewing the feasibility of and need to replace and enlarge this sewer main to serve new development. The cost of these improvements will be

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borne primarily by developers. The final design for an expansion of the treatment plant to 0.800 mgd may begin in 2006.

Maintaining Development Density

The planned sewer service area for Union Bridge and its environs is comprised predominately of higher density residential, commercial, and industrial land use designations and zoning classifications. The Union Bridge community planning area also contains nearly 420 acres of Conservation zoning, located in the vicinity of Little Pipe Creek. Although planned to be served by both community water supply and sewerage systems, the Town has been successful in securing portions of the Conservation zone for public use. As areas are annexed or developed, the Town has acquired environmentally sensitive areas including wetlands, floodplains, streams, and forests. Union Bridge has promulgated a policy to create greenways surrounding the Town. These greenways will be protected and used for recreational enjoyment of the public. However, the Town may allow underground public water lines, sewer lines, and other public transmission lines, to be placed within the greenway areas.

The Conservation zoning classification permits a lower density of residential development (i.e., minimum three-acre lot size for conventional residential development) than is generally found in areas planned for community services. The Union Bridge Zoning Ordinance contains a provision for cluster subdivisions whereby conservation zoned land which is planned for both community water and sewer service may be subdivided into smaller lots. In order to cluster the lots, the number of proposed lots may not exceed the number that would be permitted with a conventional development, and the unlotted portion of the development, derived from the reduction of lot size, must be provided and maintained as “common open space”. The Town of Union Bridge anticipates that these conservation zoned areas will develop as cluster subdivisions so that small lots that will be served by community water and sewerage may be concentrated on the most developable land and the remaining land, comprising steep slopes, floodplains, and streams, may serve as open space. However, the Town will continue to call for the protection of sensitive areas and the preservation of open space and parkland, including the formation of municipal “greenways” and linear park systems along Little Pipe Creek and Cherry Branch.

Allocation Procedure

The allocation policy for available sewer service capacity in Union Bridge is similar to the allocation policy practiced for water service provision, i.e., first come, first serve. Costs for expansion of sewer capacity due to new development are the responsibility of the developer. The Town also charges a sewer benefit-assessment fee for every new unit.

The Town of Union Bridge will only approve sewer service up to .020 mgd less than what is allowed under the National Pollutant Discharge Elimination System (NPDES) permit. The purpose for this policy is to avoid planning to the limit of capacity. Improvements to the system’s capacity are required within .020 mgd of the NPDES permit. If system use reaches within .020 mgd of the capacity limit specified on the NPDES permit, developers of additional land will be responsible for providing and/or paying for the needed system improvements resulting from that development. No reservations or set-aside policies for businesses or

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residential developers are currently provided. However, such a policy may be considered by the Town.

New Windsor Sewer Service Area (see Map S-7)

Current Sewer System

The Town of New Windsor owns the community sewerage system, which is operated by the Maryland Environmental Service (MES). Located in the west-central portion of the County, the existing and planned service area covers approximately 945 acres. Generally, the Town limits service to the area located within the Town's corporate boundary. There is currently no service to the Tibbett's Industrial Park area.

Permitted capacity of the sewage treatment plant is .094 million gallons per day. Average flows are nearly .098 mgd, with peak flow being .150 mgd. The Town has applied to MDE for an increased allocation in permitted discharge.

The sewage treatment facility, which is located at the north end of Water Street, consists of four cells at the following sizes: 2.5 acres, 1.5 acres, .5 acres, and .5 acres. All are approximately five feet deep. The perimeter is lined with riprap. Cell separation curtains and an aeration system provide better treatment and greater capacity. Duckweed is used on the final cell during summer months to assist in proper treatment. The treated effluent is discharged to Dickenson Run.

A chlorination/dechlorination system is in place to disinfect the effluent prior to release. Upgraded laboratory facilities provide more effective monitoring of the treatment process, including a computerized effluent flow meter. A new force main was installed in 1994 on the east and west ends of Town at MD 31 and Church Street as well as in the Atlee Ridge subdivision.

Influent is metered, and sewer rates are based on metered water use.

Future System Needs

Currently, the Town of New Windsor's wastewater treatment plant is exceeding its permitted capacity. The existing facility has the physical capacity to handle 0.130 mgd. The Town is seeking a new discharge permit from MDE in this amount that will allow the Town to accommodate a small amount of planned growth in the near time frame. However, an expansion of the WWTP to about .374 mgd will be necessary to serve future planned development. Future development will be monitored by the Town to ensure adequate capacity is available.

As a result of the focus on economic development, extension of sewer service to the industrial park is included in the Priority Planning category.

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Allocation Procedure

The Town of New Windsor usually provides sewer capacity on a “first come, first served” basis. Available capacity has been allocated to provide for the current development. Any expansion of the Town’s sewer facilities necessitated by development will be paid for by the developer. No financial burden for the required sewer system expansion will be borne by Town residents.

In March 2005, the Town of New Windsor authorized ARRO Consulting, Inc. to determine the available water supply and sewer treatment capacity remaining for the Town. The report is being finalized and contains a comparison of current water and sewer needs, future needs, and available resources along with recommendations to manage and address capacity issues.

Taneytown Sewer Service Area (see Map S-8)

The City of Taneytown owns and operates the community sewerage system which generally limits service to the area located within the City’s corporate boundary. The entire planned sewer service area comprises approximately 3,135 acres and is situated in the northwest portion of the County.

Current Sewer System

Residents of Taneytown are served by the public community water supply and sewerage systems. In 2004, the community sewerage system served a residential population of approximately 5,421. Total sewerage demand (as metered at the wastewater treatment plant) from January 1, 2004 through December 31, 2004 was recorded to be approximately 305,060,000 gallons, or an average of 835,781 gpd. The City estimates that 80 percent of total demand is generated by the residential population.

The area served by the sewerage system is nearly the same as that served by the water supply system. The recorded sewage flows are substantially higher than the recorded water demand. This differential is the result of infiltration and inflow of stormwater and groundwater into the sewer collection system. Part of the problem stems from the fact that the original collection system was installed with terra cotta clay pipe, much of which still remains in the system. This material tends to form cracks over time, which invites the flow of water from saturated soil into the pipe during storm events. The City has taken several steps in recent years to address this problem.

The City brought on line its new sewage treatment plant in March of 2000. The new sewage treatment plant has a rated capacity of 1.1 mgd for average daily flows. Hydraulically, the plant can treat a peak flow of 5.0 mgd. Sewage is treated via the sequence batch reaction process. Sludge is dewatered and hauled offsite by a contracted hauler. The City will construct a sludge storage building to store dewatered sludge before the end of 2005.

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The treated effluent is discharged to Piney Creek. The City anticipates the need to construct filtration and chemical system improvements to achieve the State's new nutrient reduction requirements in accordance with the Chesapeake Bay Program. Those improvements will be designed and constructed over the next five years.

Future System Needs

As part of the MD SHA Baltimore Street Reconstruction project, the City will replace the existing vitrified clay sewer interceptor in Baltimore Street with a ten-inch SDR35 PVC line (~11,600-LF). The reconstruction project is anticipated to begin in Fall 2006 and coincide with the replacement of the water line in Baltimore Street.

The City is planning to install the Piney Creek interceptor, an 18-inch SDR35 PVC gravity sewer line (17,000-LF) that will extend from MD 194 along Piney Creek to the Wastewater Treatment Plant. The interceptor will replace the need for the City's York Street Sewage Pumping Station and Force Main which will be demolished and abandoned following completion of the Piney Creek Interceptor. Design of the interceptor is underway. The City is also considering alternative design options, routes, and parameters for this sewer line. Construction should begin during 2007. Access to portions of this interceptor located outside the planned service area is denied.

Depending on when and how much of the infiltration and inflow problem is corrected, in order to serve the planned sewer service area, a 0.64 mgd increase in permitted discharge from the treatment plant to 1.74 mgd may be necessary to serve the Priority Planning Area (0-6 year), and an additional 0.12 mgd increase in permitted discharge to 1.86 mgd may be necessary to serve the Future Planning Area (7-10 year).

Allocation Procedure

On November 9, 1992, the Mayor and City Council adopted Ordinance 9-92, which established a new sewer allocation procedure. The ordinance, which became effective November 30, 1992, requires that the property owner, developer, or individual seeking site plan or subdivision approval obtain a sewer allocation, prior to final approval by the City, for any part of a proposed development project that will be recorded in the Land Records of Carroll County. The sewer allocation will be based upon approved regulations of the Maryland Department of the Environment. Sewer allocations are assigned and held in reserve at no charge for one year following the effective date of plan approval. The allocation may be renewed once for a one-year period only upon payment of a sewer allocation reservation fee. The fee is \$250 per lot or dwelling unit that does not possess a valid building permit. The fee is in addition to any other fee or charge that the City may assign.

The sewer allocation is effective for one year from the date of allocation. If actual construction on the development project has not commenced by the end of the one-year period, as evidenced by the possession of a valid building permit, the allocation expires unless renewed for the additional year. Once an allocation has expired, the owner, developer, or individual must reapply for a sewer allocation.

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Pleasant Valley Sewer Service Area (see Map S-10)

Current Sewer System

The Pleasant Valley planned sewer service area, comprising approximately 35 acres, is located on both sides of Pleasant Valley Road between Richardson and Hughes Shop Roads. An estimated 50 residences, five businesses, and the Pleasant Valley Fire Department are located within the area.

In 1994, the County constructed a conventional gravity collection system. It consists of 2,850 linear feet of collection mains that intercept and convey flows from the individual house service laterals. Twelve manholes provide access to the collection mains for maintenance purposes. Flows are transported by gravity to the treatment plant.

The wastewater treatment facility is a Sequencing Batch Reactor (SBR). The facility is located on the west side of Halter Road, south of Bear Branch. Treated effluent is discharged to Bear Branch.

The SBR system relies on the biological digestion of wastes contained in the wastewater to meet effluent discharge criteria. The processes of equalization, aeration, and clarification are completed within one reactor basin. This system uses time-controlled phases to create aerobic and anaerobic cycles within the reactor basin. Particulate matter settles out of the wastewater during inactive phases of operation and is retained at the bottom of the reactor. Treated effluent is then decanted from the reactor, disinfected, and discharged.

A reactor tank will hold and treat wastewater and an equalization basin will hold influent flows while the reactor is completing its various treatment phases. The SBR system requires a sludge holding tank and a disinfection chamber to retain solids and to disinfect the reactor effluent.

The community sewerage system is owned by Carroll County and operated and maintained by the County Department of Public Works, Bureau of Utilities.

In 2004, an estimated 45 residential and five commercial accounts were connected to the sanitary sewer system; the WWTP treated an average of 6,000 gpd.

Future Use

The County has no plans to expand the service area to serve adjoining areas.

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Insert Table 6 Part 1 - Towns

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TABLE 6 PROJECTED SEWER SUPPLY DEMANDS AND PLANNED CAPACITY

SERVICE AREA	PRESENT YEAR						PRIORITY PLANNING (0-6 Year)						FUTURE PLANNING (7-10 Year)					
	POPULATION				CAPACITY MILLION GAL. DAILY (MGD)		POPULATION				CAPACITY MILLION GAL. DAILY (MGD)		POPULATION				CAPACITY MILLION GAL. DAILY (MGD)	
	TOT.	SER.	UNS.	GCPD	DEMAND	EXISTING CAPACITY	TOT.	SER.	UNS.	GCPD	DEMAND	PLANNED CAPACITY	TOT.	SER.	UNS.	GCPD	DEMAND	PLANNED CAPACITY
PUBLIC SCHOOLS*																		
Charles Carroll Elementary		379		6.6	0.0025	0.0100		393		10.0	0.0039	0.0100		413	0	10.0	0.0041	0.0100
Francis Scott Key High		1,260		6.5	0.0082	0.0170												
Mechanicsville Elementary		652		2.0	0.0017	0.0170		745		10.0	0.0075	0.0170		770		10.0	0.0077	0.0170
Sandymount Elementary		635		3.8	0.0024	0.0120		638		10.0	0.0064	0.0120		655		10.0	0.0066	0.0120
Runnymede Elementary		690		2.3	0.0016	0.0250		788		10.0	0.0079	0.0250		809		10.0	0.0081	0.0250
PRIVATE COMMUNITY, MULTI-USE, OR PRIVATE SCHOOL																		
Ashley Mobile Home Park	153	153	0	60	0.0092	0.0110	153	153	0	60	0.0092	0.0110	153	153	0	60	0.0092	0.0110
Bowling Brook Prep. School	149	149	0	53	0.0079	0.0250	523	523	0	66	0.0345	0.0350	523	523	0	66	0.0345	0.0350
Gaither Manor Apartments	400	400	0	60	0.0240	0.0450	400	400	0	60	0.0240	0.0450	400	400	0	60	0.0240	0.0450
Gerstell Academy	205	205	0	2.5	0.0005	0.0114	400	400	0	10	0.0040	0.0114	690	690	0	10	0.0059	0.0114
Golden Age Guest Home	50	50	0	100	0.0050	0.0056	50	50	0	100	0.0050	0.0056	50	50	0	100	0.0050	0.0056
Hilldale Mobile Home Park	438	438	0	60	0.0263	0.0326	438	438	0	60	0.0263	0.0326	438	438	0	60	0.0263	0.0326
Lakeview Mobile Home Park	99	99	0	75	0.0074	0.0074	99	99	0	75	0.0074	0.0074	99	99	0	75	0.0074	0.0074
Lakeview Nursing Home	60	60	0	100	0.0060	0.0070	60	60	0	100	0.0060	0.0070	60	60	0	100	0.0060	0.0070
Pheasant Ridge Estates Mobile Home Park	303	303	0	60	0.0182	0.1125	303	303	0	60	0.0182	0.1125	303	303	0	60	0.0182	0.1125
Pleasant View Nursing Home	100	100	0	90	0.0090		100	100	0	90	0.0090		100	100	0	90	0.0090	
Ramblin' Pines Campground**	468	468	0	57	0.0267	0.0267	468	468	0	57	0.0267	0.0267	468	468	0	57	0.0267	0.0267
Reservoir Mobile Home Park	84	84	0	60	0.0050	0.0070	84	84	0	60	0.0050	0.0070	84	84	0	60	0.0050	0.0070
River Valley Ranch	477	477	0	50	0.0239	0.0250	477	477	0	50	0.0239	0.0250	477	477	0	50	0.0239	0.0250
Rock Brook Mobile Home Park	123	123	0	60	0.0074	0.0090	123	123	0	60	0.0074	0.0090	123	123	0	60	0.0074	0.0090
Shields Todd Village Mobile Home Park	234	234	0	60	0.0140	0.0150	234	234	0	60	0.0140	0.0150	234	234	0	60	0.0140	0.0150
Sullivan's Mobile Home Park	123	123	0	60	0.0074	0.0090	123	123	0	60	0.0074	0.0090	123	123	0	60	0.0074	0.0090
Taylorville Mobile Home Park	60	60	0	60	0.0036	0.0050	60	60	0	60	0.0036	0.0050	60	60	0	60	0.0036	0.0050
Westminster First Church of the Nazarene							2,230	2,230	0	2.5	0.0055	0.0055	2,230	2,230	0	2.5	0.0055	0.0055
PARKS																		
Camp Hashawha	120	120	0	75	0.0090	0.0090	120	120	0	75	0.0090	0.0090	120	120	0	75	0.0090	0.0090
Gillis Falls							500	500	0	10	0.0050	0.0050	500	500	0	10	0.0050	0.0050
Patapsco State	1,000	1,000	0	10	0.0100	0.0100	1,000	1,000	0	10	0.0100	0.0100	1,000	1,000	0	10	0.0100	0.0100
Piney Run	500	500	0	10	0.0050	0.0050	500	500	0	10	0.0050	0.0050	500	500	0	10	0.0050	0.0050
INDUSTRIAL - COMMERCIAL																		
Congoleum Industries	230	230	0			0.6500	230	230	0			0.6500	230	230	0			0.6500
Development Co. of America	530	530	0	10	0.0053		530	530	0	10	0.0053		530	530	0	10	0.0053	
Finksburg Plaza	500	500	0	20	0.0100	0.0100	500	500	0	20	0.0100	0.0100	500	500	0	20	0.0100	0.0100
Joseph A. Banks	250	250	0	18	0.0050	0.0050	250	250	0	18	0.0050	0.0050	250	250	0	18	0.0050	0.0050
North Carroll Shopping Plaza	400	400	0	20	0.0080	0.0080												
South Carroll Swim Club	1,234	1,234	0	3	0.0037	0.0150	1,234	1,234	0	10	0.0123	0.0150	1,234	1,234	0	10	0.0123	0.0150
PUBLIC COMMUNITY																		
Pleasant Valley***	123	123	0	49	0.0060	0.0190	139	139	0	90	0.0154	****0.0190	139	139	0	90	0.0154	****0.0190
Winfield Elementary/South Carroll High Schools		1,880		3.2	0.005	0.0500		2,000		12.5	0.0250	0.0500		2,000		12.5	0.0250	0.0500
PRIVATE COMMUNITY																		
Hampstead Industrial Center	472	472	0	30	0.01425	0.1500	600	600	0	24	0.01425	0.1500	1,000	1,000	0	15	0.0150	0.1500

* Includes staff at school

** Data pertains to peak use generally during summer months

*** Demand includes Pleasant Valley Fire Dept. (assume 500 gpd demand by Pleasant Valley Fire Dept. for Priority and Future Planning)

**** Includes 4,000 gpd for infiltration/inflow (based on 200 gallons/acre); demand includes Pleasant Valley Fire Dept. (411 gpd Present Year demand; 500 gpd assumed for Priority and Future)

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Table 7
Inventory of Existing Sewerage Treatment Plants, Interceptors,
Sewage Pumping Stations, and Force Mains

Table 7a – Treatment Plants – Municipal					
Service Area and/or STP Name	STP Treatment Type	Points of Discharge	STP Design Capacity (mgd)	Flows Average/Peak	Method of Sludge Disposal
Mount Airy	BNR	South Branch Patapsco River	1.200	0.722/	Stabilized sludge is trucked to the Frederick and Carroll County landfills; land disposal
Sykesville/Freedom	Activated sludge	South Branch Patapsco River	3.5	2.378/	Land application and evaporation
Manchester	Land application via spray irrigation/activated sludge contact stabilization	Land application via spray irrigation/George's Run (winter)	.500	.238/.700 mgd	Stabilized sludge is dewatered onsite and is trucked to the C.C. Northern Landfill by the Town and by an independent hauler
Hampstead	Extended aeration	Piney Run	.900	.652/1.0 mgd	Sludge press; cake form is trucked to Northern Landfill
Westminster	Activated sludge	Little Pipe Creek	5.000	4.249/7.51 mgd	Land application; disposed of at Carroll County Landfill when weather conditions prohibit land application
Union Bridge	Activated sludge	Little Pipe Creek	.200	.137/.150 mgd	Transported to other WWTP
New Windsor	Lagoons (4)	Dickenson Run	.130	.097/.150 mgd	Lagoon only
Taneytown	Activated sludge/BNR	Piney Creek	1.1	0.825/2.895 mgd	Spread on fields; occasionally hauled to landfill

Table 7a – Treatment Plants – Industrial/Commercial						
Service Area and/or STP Name	STP Treatment Type	Points of Discharge	STP Design Capacity (mgd)	Flows Average/Peak	Method of Sludge Disposal	
Congoleum, Inc.	Trick filt. series, ponds	N. Branch Patapsco River	.65	.65		
Development Co. of America	Evap. Pond	.10 mg pond	Unknown	.01		
Finksburg Plaza		Sub-surface		.010		
Hampstead Industrial Center	Extended aeration & Activated sludge	East Branch Patapsco River	.15	.15		
Joseph A Bank		Sub-surface	.005	.005		
Lehigh Cement	Quarry holding	Little Pipe Creek	Unknown	.008		
North Carroll Plaza		Sub-surface		.008		
South Carroll Swim Club		Sub-surface		.004		

Table 7a – Treatment Plants – Private Community, Multi-Use, or Private School					
Service Area and/or STP Name	STP Treatment Type	Points of Discharge	STP Design Capacity (mgd)	Flows Average/Peak	Method of Sludge Disposal
Bowling Brook Prep. School	Package plant	Monocacy River	.025	.007/	
Gaither Manor Apartments	E.A. + sand	Trib. to S. Branch Patapsco River	.045	.019/.020	
Gerstell Academy		Sub-surface	.011	0.0005	
Golden Age Guest Home	Land disposal		.005		

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Table 7a – Treatment Plants – Mobile Home Parks

Service Area and/or STP Name	STP Treatment Type	Points of Discharge	STP Design Capacity (mgd)	Flows Average/Peak	Method of Sludge Disposal
Ashley Mobile Home Park	Land disposal		.011	Unknown	
Hillandale Mobile Home Park	Land disposal		.033	Unknown	
Lakeview Nursing Home	Land disposal		.007	Unknown	
Pheasant Ridge Estates Mobile Home Park	Package	S. Branch Patapsco	.112	.015/	
Ramblin' Pines Campground	Land disposal		.027	Unknown	
Reservoir Mobile Home Park	Land disposal		.007	Unknown	
River Valley Ranch	Land disposal		.025	Unknown	
Rock Brook Mobile Home Park	Land disposal		.009	Unknown	
Shields Todd Village Mobile Home Park	Land disposal		.015	Unknown	
Sullivan's Mobile Home Park	Land disposal		.009	Unknown	
Taylorsville Mobile Home Park	Land disposal		.005	Unknown	

Table 7a – Treatment Plants – Public Schools

Service Area and/or STP Name	STP Treatment Type	Points of Discharge	STP Design Capacity (mgd)	Flows Average/Peak	Method of Sludge Disposal
Winfield Elementary/ South Carroll High	Sequential Batch Reactor	Piney Run	.050	.005/.014	Transported to Sykesville/Freedom WWTP
Runnymede Elementary	Sequential Batch Reactor	Bear Branch	.025	.002/.018	Transported to Westminster WWTP
Charles Carroll Elem.	Land disposal		.010	.003	
Mechanicsville Elem.	Land disposal		.017	.002	
Sandymount Elem.	Land disposal		.012	.002	

Table 7b – Interceptors – Municipal

Service Area and/or STP Name	Interceptor	Diameter (inches)	Average Day Flow (mgd)	Design Flow (mgd)	
Mount Airy	Station 1 (2 interceptors)	8	.797		
	Station 2	8	.267		
	Station 3	8	.400		
	Station 4 (3 interceptors)	8	.533		
	Station 5 (3 interceptors)	(1) 10 (2) 8			
	Station 6	6			
	Station 7	8			
Sykesville/Freedom	Treatment Plant	15	.722	1.2	
	Piney Run – West	24	.300	4.10	
	Piney Run – East	18	.370	2.35	
	Piney Run – North	18	.321	2.35	
	Piney Run – South	30	.991	6.50	
Manchester	Main Influent line to WWTP	16	.239	2.0	
	Northern Line	8	.031		
	Westminster Street	8	Not metered		
	Hallie Hills	8	Not metered		
	Coachman Way	8	Not metered		
	Victory Street	6	Not metered		
	Southern Line	8	.020		
	Crossroads Overlook	8	Not metered		
	Hampstead	Main Interceptor	15	n/a	n/a
	Westminster	Copp's Branch	18-30	Not metered	
Meadow Branch		12	Not metered		
Maryland 27		24-48	Not metered		
Union Bridge	None				
New Windsor	None				
Taneytown	Main	12, 15, 18	.740	5.0	

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Table 7c – Sewage Pumping Stations – Municipal

Service Area and/or STP Name	Pumping Station	Coordinate Location*	# of Pumps	Capacity of Each Pump (mgd)	Normal Pumping Capacity (mgd)	Average Day Pumping (mgd)
Mount Airy	Station 1	N 617782.66 E 1270540.77	4	.936/24hrs.	n/a	.300
	Station 2	N 617320.16 E 1265265.77	2	.259/24hrs.	n/a	.002
	Station 3	N 619051.41 E 1262790.77	2	.720/24hrs.	n/a	.056
	Station 4	N 624213.91 E 1265703.27	4	.576/24hrs.	n/a	.157
	Station 5	N 624488.91 E 1267753.27	2	.936/24hrs.	n/a	.250
	Station 6	N 624632.66 E 1271809.52	2	.252/24hrs	n/a	.008
	Station 7	N 617782.66 E 1266084.52	2	.216/24hrs	n/a	.014
	Station 8	N 622676.41 E 1261740.77	2	.288/24hrs	n/a	.021
	Station 9	N 627882.66 E 1268847.02	2	.288/24hrs	n/a	.013
	Station 10		1			.001
Sykesville/Freedom	Piney Run #1	N 1331954.74 E 622066.11	3	7.35	10.972	
	Sykesville #2	N 1321049.53 E 618402.43	2	0.954	1.340	
	Carroll Highlands #3	N 1336546.93 E 628512.68	3	1.261	5.394	0.420
	Lake Forest #4	N 1336160.08 E 631389.92	3	0.860	4.806	n/a
	Snowdens Run #5	N 1336740.54 E 634314.80	3	0.757	3.888	0.164
	Pine Hill #6	N 1337589.35 E 626974.86	2	0.154	0.295	n/a
	Water's Edge #20	N 1321514.27 E 627441.73	2	0.201		
	Fairhaven (private)	N 1320315.91 E 623457.36	2	0.288	0.144	0.045
	Edgewood #15	N 1321313.83 E 637927.83	2	0.720		
	Patapsco Valley #16	N 1316330.09 E 618479.50	2	0.360		
Manchester	Stone Manor #17	N 1327247.96 E 640303.97	2	0.468		
	Woodsyde Estates #18	N 392413.97 W 765820.88	2	.187	.187	.005
	Manchester WWTP	N 725574.11 E 1346217.60	2	2.0	0.250	0.237
	Westminster Street	N 726009.53 E 1343736.75	2	0.144	Unknown (No Flow Meter)	0.030(Est.)
	Hallie Hills		2	.259	n/a No Flow Meter	n/a No Flow Meter
	Maple Grove Road (South Station)	N 725250.08 E 1346561.88	2	10	.006	.006
	Michelle Road (North Station)	N 729472.59 E 1343058.31	4	1.8	0.40	0.40
	Park Ave. Estates Station	N 725229.83 E 1342521.64	2	.144	Unknown (No Flow Meter)	0.10(Est.)
	Victory Street	N 727741.06 E 1347311.20	2	.036	Unknown (No Flow Meter)	.002 (Est.)
	Effluent P.S. to Lagoon	N 725270.33 E 1346551.75	2	2.1	.250	.237
Manchester Farms		N 1343199.85 W 718901.51	4	.430	n/a No Flow Meter	.006 (Est.)
	Crossroads Station #1	N 1341755.22 W 726143.27	2	.350	n/a No Flow Meter	.040 (Est.)

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	Crossroads Station #2		2	.144	n/a	n/a
					No Flow Meter	No Flow Meter
	Irrigation Pump Station (Spray Fields)	N 725857.64 E 1348779.45	3	1.6	.300	.366
Hampstead	Eagle Ridge	N 393817.83 W76 7154.74	2		.196	.004
	North Carroll Farms Station #20	N 713011.99 E 1352660.68	2	0.168	n/a	n/a
	North Station #8	N 710613.53 E 1352919.14	2	0.040	n/a	0.025
	Small Crossings Station #9	N 709347.37 E 1354734.57	2	0.018	n/a	n/a
	Shiloh Station #11	N 704552.54 E 1349785.75	2	0.500	n/a	n/a
	Roberts Field Station #14	N 701892.64 E 1358892.42	2	0.031	n/a	n/a
	Hampstead WWTP	N 703565.58 E 1358927.42	2		n/a	n/a
Westminster	1 Sullivan Avenue	N 699738.85 E 1312599.55	2	.374	0.051	0.051
	3 John Street and Railroad Avenue to Monroe	N 696845.29 E 1314524.55	2	.676	0.061	0.061
	4 John Street and Carroll Street to MD 140	N 695828.31 E 1313919.20	2	.640	0.036	0.036
	5 Cranberry	N 698394.98 E 1319778.95	2	3.168	1.900	1.900
	6 Vo-tech	N 681626.90 E 1315263.07	2	.518	0.050	0.050
	7 MD 140 to Hemlock Lane	N 687704.57 E 1323834.77	2	.180	0.020	0.020
	8 MD 140 and Old Baltimore Pike	N 690586.02 E 1320529.58	2	.432	0.051	0.051
	12 Airport Industrial Park	N 705925.48 E 1313822.35	2	.864	0.066	0.066
	13 Near Carroll Lutheran Village	N 690247.02 E 1300214.17	2	.720	0.032	0.032
	14 Near Roops Mill	N 699569.35 E 1301957.57	2	.720	0.275	0.275
	15 Poole Road	N 686433.34 E 1317793.41	2	.720	0.209	0.209
Union Bridge	WWTP (Locust Street)	N 1260314.15 E 692726.85	2	.375 (total)		
New Windsor	Coe Drive	N 1282398.94 E 682149.41	1	.086		
	Main Street	N 1281218.44 E 683323.49	1	.230		
	Blue Ridge	N 1284087.93 E 684060.74	1	.456		
	New Windsor Middle School	N 1280371.56 E 686114.35	2	.036		
	Atlee Ridge	N 1280737.26 E 682521.52	1	.344		
Taneytown	York Street	N 727513.92 E 1364630.26	2	.612		
	Wheatfields	N 720824.54 E 1263817.06	2	.140		
	Thunderhead Lanes	N 721163.79 E 1268426.85	2	.086		

*Coordinate locations are Maryland State Plane 1983 Datum.

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Table 7d – Force Mains – Municipal

Service Area and/or STP Name	Force Main	Maximum Day Pumpage in MGD (date)	Diameter (inches)	Design Flow (mgd)
Mount Airy	Station 1	.601 (1-30-01)	10	.936/24 hrs.
	Station 2	.003 (11-20-01)	6	.259/24 hrs.
	Station 3	.069 (3-6-01)	8	.720/24 hrs.
	Station 4	.245 (3-29-01)	6	.576/24 hrs.
	Station 5	.534 (9-24-01)	10	.936/24 hrs.
	Station 6	.012 (7-24-01)	6	.252/24 hrs.
	Station 7	.023 (7-27-01)	6	.216/24 hrs.
	Station 8	.028 (3-29-01)	8	.288/24 hrs.
	Station 9	.020 (12-27-01)	8	.288/24 hrs.
	Station 10	.002	6	.374/24 hrs.
Sykesville/Freedom	Sykesville (Sta #2)	0.315	10	1.340
	Water's Edge (Sta #20)	n/a	4	
	Snowdens Run (Sta #5)	0.156	14	3.888
	Lake Forest (Sta #4)	0.407	16	4.806
	Carroll Highlands (Sta #3)	0.439	18	5.394
	Pine Hill (Sta #6)	0.099	6	0.295
	Piney Run (Sta #1)	1.204	20	10.972
	Edgewood (Sta #15)	n/a	10	
	Stone Manor (Sta #17)	n/a	6	
	Patapsco Valley Overlook (PVO) (Sta #16)	n/a	6	
Manchester	Influent Line to WWTP	.476 (3/21/00)	8	2.0/pump
	Westminster Street	Unknown (No Flow Meter)	4	.144/pump
	Millie Way	Unknown (No Flow Meter)	4	.030
	Long Lane	.076 (9/12/99)	10	3.5
	Coachman Way	Unknown (No Flow Meter)	4	.144/pump
	Christmas Tree Lane (Victory St.)	Unknown (No Flow Meter)	2	.036
	Lagoon	.476 (3/21/00)	14	2.1
	Sprayfields	.498 (8/13/99)	10	1.6
	Hanover Pike	n/a	10	1.0
	Westminster Street (from Crossroads Station #1)	No Flow Meter	6	.350
	Susanann Drive	No Flow Meter	6	.430
	Main St. to Long Lane (North Station)	.048	10	2.0
	Westminster Street (Westminster St. Station)	Unknown	4	.144/pump
	Hallie Ave. to Millie Way (Hallie Hill Station)	Unknown	4 – 6	.259/pump
	Coachman Way (Park Ave. Station)	Unknown	4	.144/pump
	Christmas Tree Lane (Victory St. Station)	Unknown	2	.36
	Eff. Line to Lagoon (Eff. Pump Station)	.534	14	2.1
	Eff. Line to Sprayfields (Sprayfield Station)	.499	10	1.6
	Hanover Pike (South Station)	.052	10	1.0
	Westminster Street (Crossroads Station #1)	Unknown	6	.350/pump
	Overlook Court (Crossroads Station #2)	Unknown	6	.144/pump
	Susanann Drive (Manchester Farms Station)	Unknown	6	.430/pump
	Hampstead	Shiloh Station #11	No Flow Meter	10
North Station #8		No Flow Meter	6	
Small Crossings Station #9		No Flow Meter	4	
Roberts Field #14		No Flow Meter	4	
North Carroll Farms #20		No Flow Meter	4	
Westminster*	Eagle Ridge	No Flow Meter	6	
	Old Bachman Valley Road	Not metered as such. Unable to provide.	8	.124
	Bond St./MD 27	Not metered as such. Unable to provide.	16	3.168
	John Street (2)	Not metered as such. Unable to provide.	8 & 8	.097 & .092
	MD 140 (2)	Not metered as such. Unable to provide.	6 & 6	.026 & .062
	The Greens	Not metered as such. Unable to provide.	10	.103
	Vo-Tech	Not metered as such. Unable to provide.	10	.074
	Sullivan Avenue	Not metered as such.	6	.054

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	Poole Road	Unable to provide. Not metered as such.	10	.103
	Carroll Lutheran Village	Unable to provide. Not metered as such.	10	.062
Union Bridge	Locust Street	Unable to provide.	8	
New Windsor	Coe Drive		4	
	Main Street		6	
	Atlee Ridge		4	
	Blue Ridge		6	
	New Windsor Middle School		2	
Taneytown	York Street		8	1.440
	Wheatfield's		4	.173
	Thunderhead Lanes		4	.086

*Provided Design Average Daily Flow for Design Flow.

Table 7d – Force Mains– Schools

Service Area and/or STP Name	Force Main	Maximum Day Pumpage in MGD (date)	Diameter (inches)	Design Flow (mgd)
Winfield Elementary/ South Carroll High	Old Liberty Road	.080 (10/20/01)	4	.050

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Table 8
Inventory of Discharge Permits

Name	City	Permit	NPDES Number
Hampstead Industrial Center	Hampstead	02DP0022	MD0001881
Bowling Brook Preparatory School	Keymar	00DP3172	MD0067571
Congoleum Corporation	Finksburg	02DP0422	MD0001384
Cranberry WTP	Westminster	01DP3184	MD0067644
Freedom District Water Treatment Plant	Sykesville	01DP3186	MD0067652
Freedom District WWTP	Sykesville	98DP0670	MD0021512
Gaither Manor Apartments WWTP	Sykesville	01DP0779	MD0022845
Gerstell Academy	Finksburg	98DP3276	
Hampstead WWTP	Hampstead	88DP0594C	MD0022446
Manchester Water Distribution System	Manchester	00HT9507	MDG679507
Manchester WWTP	Manchester	00DP0642	MD0022578
Mount Airy WWTP	Mount Airy	00DP0641A	MD0022527A
New Windsor WWTP	New Windsor	00DP0640	MD0022586
North Carroll Shopping Plaza	Hampstead	00DP3154	
Pheasant Ridge WWTP	Mount Airy	99DP1016	MD0024546
Pleasant Valley WWTP	Pleasant Valley	04DP3044	MD0066745
Rivers Downs Development	Finksburg	97DP3222A	
Runnymede WWTP	Westminster	02DP2912	MD0065927
South Carroll High School WWTP	Eldersburg	98DP1028	MD0024589
South Carroll Swim Club	Westminster	01DP3382	
Taneytown WWTP	Taneytown	00DP0687A	MD0020672
Todd Village Mobile Home Park	Finksburg	04DP3268	
Town of Mount Airy - Water System	Mount Airy	00HT9535	MDG679535
Union Bridge WWTP	Union Bridge	00DP0774	MD0022454
Westminster Water System/Wakefield	Westminster	00HT9561	MDG679561
Westminster WWTP	Westminster	04DP0837	MD0021831

Source: Maryland Department of the Environment, 2005

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Table 9
Inventory of Sewage Problem Areas

AREA NAME	LOCATION	POPULATION (Where Applicable)	NATURE OF PROBLEM	PLANNED CORRECTION
Sykesville/Freedom Sewer Service Area	Southeastern Carroll County	N/a	Limited capacity	Expand WWTP to 4.1 mgd
Taneytown	South of MD 140/Baptist Church Road Intersection	N/a	Infiltration and inflow to sewer interceptor to WWTP	Replacement of existing sewer line
	York Street	N/a	Infiltration and inflow to sewer collection system	Replacement of existing sewer line
	Frederick Street	N/a	Infiltration and inflow to sewer collection system	Replacement of existing sewer line
	East Baltimore Street	N/a	Infiltration and inflow to sewer collection system	Replacement of existing sewer line
	Antrim Street	N/a	Infiltration and inflow to sewer collection system	Replacement of existing sewer line
	Fairview Avenue	N/a	Infiltration and inflow to sewer collection system	Replacement of existing sewer line
Manchester	Town of Manchester	3,714	Infiltration and inflow to the sewer collection system	Repairs to the system as funds become available
	Charmil Drive	171	Groundwater contamination from failing septic systems in the area	Extend community sewer service to this area
Tyrone	MD 832, E.D. #2	50	Failing septic systems; small lots; clay soils	Repair and replacement
Detour - Keymar - Bruceville	E.D. #10	160	Failing septic systems; small lots; clay soils	Repair and replacement
Middleburg - Feesersburg	E.D. #10	130	Failing septic systems; small lots; clay soils	Repair and replacement
Snydersburg	E.D. #8		Failing septic systems; limited soil capabilities; small lots	I & A
Key View (Bark Hill)	E.D. #2	36	Failing septic systems; too rapid infiltration	I & A
Twin Arch Road	E.D. #13	50	Failing septic systems; high groundwater	Community and/or I & A
Rockbrook Trailer Park - Fairmount Rd.	E.D. #6	120	Trailer park without replacement area	Unknown at this time

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The following communities have septic problems, small lots, and limited soil capabilities:

Area Name	Location	Area Name	Location
Carrollton	Carrollton Road near Dutrow Road	Melrose	Hanover Pike and Tracey's Mill Road
Cedarhurst	Cedarhurst Road adjacent to Patapsco River	Patapsco	Patapsco Road near Ridge Road
Frizzellburg	Old Taneytown Road and Frizzellburg Road	Priestland	Priestland and McKinstry's Mill Roads
Gaither	Near Howard Co. Line	Silver Run	Littlestown Pike and Cherrytown Road
Lineboro	Lineboro Road (Main Street)	Starner's Dam	Baptist Road near Monocacy River
Linwood	McKinstry's Mill Road	Union Mills	Littlestown Pike and Old Hanover Road
Marston	Marston and Wilt Roads	Uniontown	Uniontown Road near Trevanion Road
Mayberry	Mayberry and Basehores Mill Roads	Watersville	Near railroad adjacent to Patapsco River
		Woodbine	Woodbine Rd. near Howard Co. line

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**Table 10
Planned Public Sewerage Projects**

Project Name	Service Area Category	Description	Location
<i>Mount Airy</i>			
Infiltration/Inflow Reduction	Existing (S-1)	Study and Improvements	Entire System
Force Main	Priority (S-3)	6" diameter force main	Sterling Glen Subdivision-Carroll County
Pumping Station #11	Priority (S-3)	New	Sterling Glen Subdivision-Carroll County
Wastewater Treatment Plant Upgrades	Priority (S-3)	Improvements to meet Enhanced Nutrient Removal goal	Existing WWTP

Project Name	Service Area Category	Description	Location
<i>Sykesville/Freedom</i>			
Pumping Station #19	Future (S-5)	n/a	Erin Road (Merryman Manor)
Sewer Line	Priority (S-3)	8" collector line	Emerald Estates
Sewer Line #5	Priority (S-3)	8" collector line	Fairhaven to Springfield Hospital
Sewer Line #7	Priority (S-3)	8" collector line	West of MD 32, north of Placid Drive
Freedom Sewage Treatment Plant	Priority (S-3)	Enlarge sewage treatment plant to 4.1 mgd	1 mile east of Sykesville and south of Raincliffe Road
Sewer Lines	Priority (S-3)	8" collector lines	Existing communities along Gaither Road from Obrecht Rd. to County line
Pumping Station	Existing/Final Planning (S-1)	Private pumping station	Freedom District Water Treatment Plant
Pumping Station	Existing/Final Planning (S-1)	Bring online	New South Carroll Senior Center on Mineral Hill Rd.
Relief Gravity Sewer Replacement	Existing/Final Planning (S-1)	Replace gravity sewer lines	Various locations
Upgrade/Rehabilitate Pumping Stations	Existing/Final Planning (S-1)	Upgrade pumping stations	Lake Forest, Pine Hill, Piney Run, Snowden's Run, Sykesville
Upgrade WWTP	Existing/Final Planning (S-1)	Upgrade treatment process from BNR to ENR	1 mile east of Sykesville and south of Raincliffe Road

Project Name	Service Area Category	Description	Location
<i>Manchester</i>			
Infiltration/Inflow Improvements	Priority (S-3)	Continue I&I Study to locate and remedy areas experiencing problems	Various locations throughout the Town
Black Farm	Priority (S-3)	Bring online additional sewer pump station(s) to serve Black Farm Development	Black Farm (northeast side of Town)
Emergency Generator	Priority (S-3)	Install an emergency generator at Westminster Street Pump Station	West side of Town
Nutrient Reduction	Priority (S-3)	Develop innovative plan to reduce nutrient level limitations during stream discharge	WWTP
Computer Mapping	Priority (S-3)	Develop computer mapping of complete wastewater collection system	

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Project Name	Service Area Category	Description	Location
<i>Hampstead</i>			
Hoffman Property	Priority (S-3)	8" collector lines	East of MD 30 (South)
North Hampstead Business Drainage Area	Future (S-5)	Pumping station, 8" collector line, force main	Hampstead North Business Center
Oxidation Ditches	Priority (S-3)	Rehabilitate oxidation ditch #1/Place ditch #2 online	WWTP
Polyaluminum Chloride	Priority (S-3)	Replace/upgrade building and equipment	WWTP
Dewatering Facility	Priority (S-3)	Improvements to sludge dewatering facility	WWTP
Sludge Tank	Priority (S-3)	Upgrade facility and increase storage	WWTP
Control Room	Priority (S-3)	Renovate/upgrade control room	WWTP
Influent Pumping Station	Priority (S-3)	Upgrade controls	WWTP
UV System Renovation	Priority (S-3)	Rehab UV system	WWTP
Generator Replacement	Priority (S-3)	Replace generator with larger unit	WWTP
Discharge Chillers	Existing/Final Planning (S-1)	Install an air-cooled effluent chiller system	WWTP
North Station	Priority (S-3)	Replace force mains and add pumps	MD 30 (North)
Shiloh Pumping Station	Priority (S-3)	Renovations	Shiloh Road

Project Name	Service Area Category	Description	Location
<i>Westminster</i>			
Sewer System Rehabilitation	Priority (S-3)	Rehabilitate leaking mains	Throughout the City's 65 miles of sewerage collection system
Rehabilitate Pump Station 15	Priority (S-3)	Replace pumps	Poole Road off MD 97
Influent Pump	Priority (S-3)	Install an influent pump within the influent infrastructure at the WWTP in order to keep the main line from becoming surcharged	WWTP located on MD 31
Upgrade Pump Station 12	Priority (S-3)	Install two new submersible pumps, a new wet well, valve vault, and piping	Old Bachman's Valley Rd. adjacent to West Branch Trade Center Industrial Park
Enhanced Nutrient Removal	Priority (S-3)	Install new treatment technology	Wastewater Treatment Plant

Project Name	Service Area Category	Description	Location
<i>Union Bridge</i>			
Sewer Lines	Existing/Final Planning (S-1)	Construct 8" collector sewer lines	North of MD 75; Phillips property
WWTP Expansion	Priority (S-3)	Expand WWTP to .8 mgd using proposed Orbal System. Relocate WWTP to new site (away from current floodplain site). Secure land for the new WWTP facility and the acquisition of land for spray irrigation will be reviewed.	West Locust Street
Video Survey of Sewer Lines	Priority (S-3)	Conduct a video survey of sewer lines to detect areas of infiltration/inflow or other	Elger Street, Benedum Street, George Street

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		problems	
Interceptor (15")	Priority (S-3)	Replace existing 10" sewer with a new 15-inch sanitary interceptor sewer from the WWTP to Manhole No. 6	From WWTP to Manhole No. 6 (northwest quadrant of Town)
Infiltration/Inflow Reduction	Existing/Final Planning (S-1)	Begin an expanded program of infiltration/inflow reduction program	Throughout the system
Francis Scott Key High School Extension	Existing/Final Planning (S-1)	Construct 18,000 feet of force main and a pumping station to connect the school to the public system	Bark Hill Road, Hoff/Stem Road, MD 75

Project Name	Service Area Category	Description	Location
<i>New Windsor</i>			
Infrastructure Extension	Priority (S-3)	Extend infrastructure to serve current development	New Windsor Heights
Wastewater Treatment Plant Expansion	Future (S-5)	Expand WWTP to serve additional development	WWTP site – north end of Water Street
WWTP Upgrades	Priority (S-3)	Upgrade treatment process	WWTP site – north end of Water Street

Project Name	Service Area Category	Description	Location
<i>Taneytown</i>			
Sewer Lines	Priority (S-3) Future (S-5) Future (S-5) Future (S-5)	Replacement and repair of existing sewer lines	East Baltimore Street, Commerce Street, Windy Hills Drive, Roberts Mill Road
Pumping Station	Priority (S-3)	Install new pumping station	Hoffman property, north side of Sells Mill Road
Force Main	Priority (S-3)	Install 6" and 8" force main	Sells Mill Road to Stumptown Road to Kenan Street
Sewer Line	Priority (S-3)	Install 18" line	MD 194 to west boundary of Mountain Brook Farm property
Sewer Line	Priority (S-3)	Install 18" line	MD 194 along Piney Creek to sewer plant

Project Name	Service Area Category	Description	Location
<i>Pleasant Valley</i>			
None			

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Section III: Sludge Management

General

This section addresses existing and anticipated sludge production and management systems related to the operation of publicly owned community sewage treatment plants in Carroll County. Residual solids are a by-product of the treatment processes employed at the wastewater treatment facilities, and their ultimate disposal has become an increasingly large operating cost, as well as an environmental issue. Within Carroll County, advanced levels of waste treatment are beginning to produce increased quantities of sludge.

Sludge Disposal

A common method of sewage sludge handling employed by treatment plants in Carroll County is sand drying of sludge pumped from digester tanks. Dried sludge is removed from the drying beds and is hauled to landfills or is applied to agricultural lands as a soil conditioner. Another method used is the application of wet sludge to agricultural lands. Only those lands not used to produce crops for human consumption are acceptable for sludge application (e.g., lands planted in field corn, hay, or pastures).

According to the Carroll County Solid Waste Management Plan, the County is investigating the feasibility of sludge composting.

Table 11 shows how much sludge each jurisdiction is handling and how they are disposing of it.

Mount Airy

The Mount Airy Sewage Treatment Plant produces 1200 wet tons of sludge per year. The sludge is held in a 300,000-gallon aerobic digester. The sludge is then pumped to a belt-filter press. The sludge is then dewatered and lime stabilized.

The Town has a contract with Enviro-Organic Technologies to land apply the lime stabilized sludge. The Town also has permits to dispose of sludge at the Frederick (Permit #S-03-10-4982-L) and Carroll County (Permit #S-03-06-4513-l) landfills during times that it cannot be land applied.

Mount Airy Sludge Permit Data			
Permit Number	Expires	Location	Application Rate (dry tons per acre)
S-03-10-4982-L	06-05 2008	Frederick County Landfill	n/a
S-03-06-4513-L	04-22- 2008	Carroll County Landfill	n/a
S-01-06-4789-A	10-8 2006	Lease Site (Contract w/Enviro-Organic)	n/a

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Sykesville/Freedom

Solids removed from the process by the primary clarifier, aeration basins, and the secondary clarifiers are pumped from the gravity thickeners to either of two sludge storage tanks. The sludge storage tanks are converted aerobic digesters each with a volume of approximately 164,000 gallons. Each storage tank is equipped with an air diffusion system and vertical mechanical aerator, both useful in minimizing odor problems, preventing solids from settling, and improving the dewatering characteristics of the sludge. The air supply for the diffuser system originates in the blower building as described in Chapter IV. The sludge storage tanks are insufficient in volume and detention time to serve as digesters.

The discharge piping of the three sludge transfer pumps is manifolded together to pump sludge to either a belt-filter press, a tank truck loading connection, or to the sludge drying beds. The plant uses the lime stabilization process for production of stabilized sludge. Sludge discharged to the sludge drying bed is undigested, and requires stabilization prior to final disposal.

Of the various methods of sludge processing available, dewatered lime-stabilized sludge from the belt-filter presses is the primary method for this facility. Each belt-filter press is capable of processing 10,130 pounds of solids in a seven-hour shift having a minimum dry solid of 20 percent and a solids capture of 95 percent.

MES is currently permitted to dispose sludge from the Freedom WWTP at the following location:

Northern Landfill - Permit #S-99-06-3619-L (expires May 2007)
An estimated one percent of the sludge is disposed of at the Northern Landfill. The remainder is applied to farmland in various sites in Virginia.

Manchester

The Town of Manchester's Wastewater Treatment Plant generates approximately 1.6 million gallons of wet sludge per year. The plant conditions the sludge by means of an aerobic digester. The digested sludge is then dewatered by means of a belt-filter press. The dewatered sludge is then transported by truck for final disposal at the Carroll County Northern Landfill. The average amount of dewatered sludge transported is 23 tons per month, or 283.6 tons per year.

Hampstead

The Hampstead sewage treatment plant generates approximately 963 wet tons of sludge per year. The wet sludge is processed through a belt-filter press and deposited in rolloff dumpsters. Dry sludge is taken to the Northern Landfill for ultimate disposal. A new sludge press is planned in the future.

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Westminster

Modernization and expansion of the City of Westminster's Wastewater Treatment Plant was completed in 1993; the capacity of the plant was increased from 3.0 mgd to 5.0 mgd. The plant provides secondary treatment through an activated sludge process and advanced treatment by biological nutrient removal. Belt-filter presses are utilized to dewater the sludge so that the levels of digested sludge are increased from one percent to 15 percent. Sludge quality generally meets all State requirements and standards, and the sludge contains acceptable levels of heavy metals, making it appropriate for land application practices. The City currently disposes of its sludge through land applications at specific times of the year, which is the most cost-effective alternative. When land application is not feasible, the sludge is taken to a landfill.

Union Bridge

Sludge is disposed of by transporting to another WWTP in Carroll County. The amount of wet sludge transported is 684 tons and 6.94 tons of dry sludge.

New Windsor

The Town of New Windsor's lagoon wastewater treatment system has yet to generate an amount of sludge which would require dredging. The Town expects to apply for a disposal permit within the next six years. A study of sludge removal is now being prepared to determine the best disposal method. A fund will be established for monies set aside from the sewer rates in contemplation of this task.

Taneytown

The sewage treatment plant generated an estimated 1,211,200 gallons of wet sludge from January 1, 2000 to December 31, 2000. The sludge contains aerobically digested solids (1.23 percent solids).

Sludge is disposed of by land application (agronomic), principally by subsurface injection. Some surface application is made on pastureland. At those times when sludge cannot be adequately "wasted" or land application is infeasible, the City transports sludge to the Northern Landfill located east of Westminster.

Due to the ever increasing difficulty associated with sludge disposal, the City will be investigating alternatives to its present sludge disposal methods. The outcome of this investigation may result in the City pursuing additional sludge disposal methods.

Sewage Sludge Storage

The storage of sewage sludge is permitted in any zoning district at the site of a publicly owned wastewater treatment plant only. Sewage sludge storage is defined as the interim containment of sewage sludge, treated sewage sludge, or any other product containing these materials after removal from the wastewater and before disposal or utilization. It does not mean

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the storage of sewage sludge generated on site incidental to the operation and as part of a permitted and duly licensed wastewater treatment plant.

On November 1, 2005, the County Commissioners adopted Ordinance 05-09 that will be effective for one year unless extended. This ordinance permits the storage of pelletized or granular dried sewage sludge, or any derivative thereof, in any district as a temporary use certified by the Zoning Administrator and subject to numerous conditions. During this one-year time, a local industry will study the effects of burning biosolids as fuel.

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Table 11
Sludge Management By Service Area

Service Area	Quantity	Quality	Method of Disposal/Use	Permit #s	Future Disposal Method	Problems
Mount Airy	1200 wet tons/150 dry tons	Lime Stabilization	Agricultural land use, landfill application	S-03-06-4513-L S-03-10-4982-L S-01-06-4789-A	Same	None
Sykesville/ Freedom	705 dry tons/year 3323 wet tons/year	Lime stabilization	Agricultural land application in Virginia and County landfill	S-99-06-3619-L	Agricultural land application, landfill	None
Manchester	Average of 23 tons of dewatered sludge per month	Digested liquid sludge, 19% solids, aerobic digestion	Dewatered sludge transported to Carroll County Northern Landfill	S-02-06-4853L	Agricultural land application, composting	None
Hampstead	963 wet tons/164 dry tons	Digested liquid sludge, 1% solids, aerobic digestion	Dewatered sludge transported to Carroll County Northern Landfill	S-03-06-2596-L S-91-06-2595-BE	No change anticipated	None
Union Bridge	684 wet tons/year 6.94 dry tons/year	3% solids removed from digesters, no metal excess	Transported to another WWTP	S-92-06-3048-ABE S-92-06-3055-E		None
New Windsor	None					
Taneytown	1,211,200 gallons wet sludge/year	1.23% solids aerobic digesters	Land application (agronomic), principally by subsurface injection, some by surface application on pasture land. Occasionally, dried sludge is applied to pasture land. Infrequently, dried sludge is transported to Northern Landfill.	S-01-06-2283-L S-01-06-4121-A S-00-06-3797-A	The City will investigate alternatives to present sludge disposal methods; this may result in the City pursuing additional sludge disposal methods.	Inability to "waste" sludge in sufficient amounts. Being able to land apply and landfill the sludge relieves this problem.
Westminster	4456.76 wet tons/year	Digested and dewatered to 15% solids	Land application (March-November); Landfill disposal (December-February)	S-00-06-2424-L S-99-30-4608-T S-99-06-4530-A S-97-10-4318-A S-00-06-3823-A S-00-06-3820-A S-01-06-4066-A S-01-06-4085-A	No changes anticipated	None

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Section IV: Septage Management

Title 26, Subtitle 04, Sections 02 and 06 of the Maryland Department of the Environment's regulations for Water Supply, Sewage Disposal, and Solid Waste, as amended December 10, 1990, sets up new requirements the County must comply with, effective December 31, 1991, regarding the treatment and disposal of septage in the County. This amended regulation mandates that septage be treated by a pathogen-reduction process before land application and satisfy other technical standards presently required for sewage sludge. Carroll County, in anticipation of this change in regulations, entered into an Agreement with the City of Westminster in 1987 to construct, operate, and maintain a septage receiving and pre-treatment facility at the City of Westminster's Wastewater Treatment Plant. This facility opened January 11, 1993.

The septage facility receives and treats septage pumped from septic systems, holding tanks, and dry wells located throughout the County, and leachate removed from County landfills.

The septage and leachate is discharged by haulers who are authorized and licensed by the County. The receiving and pre-treatment facility is operated and maintained by the City of Westminster in accordance with Agreement No. 477. Each load of septage and leachate is tested by the City as it is received from the hauler to ensure that the material conforms with the City's Sewer Use Ordinance.

Following pre-treatment, which consists of removal of Biochemical Oxygen Demand (BOD), the solids are dewatered and the septage sludge cake is hauled by truck to the County Landfill. The liquid removed from the septage is treated in the City's Wastewater Treatment Plant and discharged in accordance with the City's NPDES permit.

All normal expenses associated with the operation of the septage facility are the County's responsibility.

Some of the septage generated in Carroll County is also transported by permitted haulers to receiving facilities located outside the County.

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Section V: Financial Management Plan

This section addresses the fiscal health of publicly owned community sewerage systems located throughout Carroll County.

The wastewater treatment systems serving Mount Airy, Manchester, Westminster, Union Bridge, New Windsor, and Taneytown are individually owned and operated by the respective municipalities. Costs and revenues are primarily generated by the users of each system.

The systems serving Hampstead and Pleasant Valley are owned and operated by Carroll County as an Enterprise Fund. For purposes of fiscal accounting provided in this Section, the Freedom system is divided into two segments. The Freedom Sewage Treatment Plant is owned by the State of Maryland and is operated by MES. The sewage collection and conveyance network is owned and operated by the County as an Enterprise Fund. Since a portion of the treatment plant's flows are used by MES (i.e., for State institutions), the costs (or revenues) are shared by the County and MES proportionate to the share of flows. Currently, approximately 85 percent of the flows are generated by the County, 15 percent by MES. Consequently, 85 percent of costs (or revenues) accruing to the Freedom Sewage Treatment Plant are generated by the County, 15 percent by MES (including the Springfield Hospital Complex).

The sewage treatment system serving South Carroll High School was replaced in 1992 by a sequential batch reactor (SBR) sewage treatment plant to serve Winfield Elementary School in addition to the high school. The system is owned and operated by the Carroll County Department of Public Works, Bureau of Utilities. Operating costs are paid by the Board of Education to the Bureau of Utilities and are based on standard user fees. The Winfield Volunteer Fire Department is also connecting to the system and will be charged standard user fees.