

WATER AND SEWERAGE PLAN



Washington County, Maryland

2009 Update

Prepared by the Washington County Planning Department

RESOLUTION NO. RS-2010-24

**ADOPTION OF 2009 UPDATED
WATER AND SEWERAGE PLAN
FOR
WASHINGTON COUNTY, MARYLAND
(WS-10-001)**

RECITALS

Section 9-503 of the Environment Article of the Annotated Code of Maryland and COMAR 26.03.01.00 requires the governing body of each county to have a water and sewerage plan that deals with water supply systems, sewerage systems, solid waste disposal systems, solid waste acceptance facilities, and the systematic collection of solid waste, including litter, in order to protect the health, safety and welfare of the citizens of the county.

Section 9-503 of the Environment Article of the Annotated Code of Maryland also provides that the plan be approved by the Maryland Department of the Environment and covers at least the 10-year period next following adoption by the county governing body. The plan shall be reviewed by the county governing body at least every 3 years.

On May 15, 1975, the Board of County Commissioners of Washington County, Maryland (the "Board") adopted a Water and Sewerage Plan (the "Plan") and on May 17, 1994, the Board adopted text and map amendments to the Plan.

Since May 17, 1994, numerous other individual text and map amendments have been made to the Plan and the Board believes it to be in the best interest of the citizens of Washington County that the 2009 Updated Water and Sewerage Plan for Washington County, Maryland (the "2009 Updated Plan") be adopted which also includes updated material provided by other service providing agencies and municipalities in Washington County as well as information updated by the Washington County Planning Department, Washington County Health Department, and the Division of Environmental Management.

The principal elected official of each municipal corporation in Washington County has been notified of the 2009 Updated Plan Amendment.

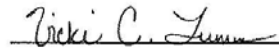
A joint public hearing was held on August 30, 2010 by the Board of County Commissioners of Washington County, Maryland and the Washington County Planning Commission.

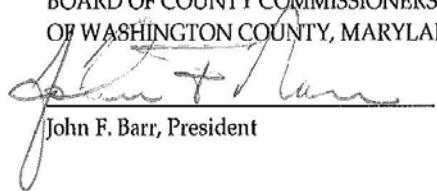
The Washington County Planning Commission has certified that the 2009 Updated Plan is consistent with the County's Comprehensive Plan.

NOW, THEREFORE, BE IT ORDAINED AND ENACTED by the Board of County Commissioners of Washington County, Maryland, that the attached 2009 Updated Water and Sewerage Plan for Washington County, Maryland is hereby adopted.

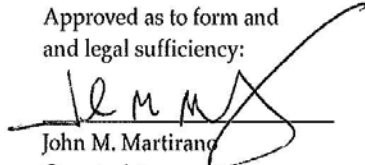
Adopted and effective this 9th day of November, 2010.

ATTEST:


Vicki C. Lumm, Clerk

BOARD OF COUNTY COMMISSIONERS
OF WASHINGTON COUNTY, MARYLAND

John F. Barr, President

Approved as to form and
and legal sufficiency:


John M. Martirano
County Attorney

Mail to:
County Attorney's Office
100 W. Washington Street, Room 202
Hagerstown, MD 21740

IN ACCORDANCE WITH SECTION 9-506(A)(1)(II) OF THE ENVIRONMENT ARTICLE OF THE ANNOTATED CODE OF MARYLAND, AND COMAR 26.03.01.02, NOTICE HAS BEEN GIVEN TO ALL MUNICIPAL CORPORATIONS REGARDING THE PREPARATION OF THE 2009 WATER AND SEWERAGE PLAN FOR WASHINGTON COUNTY, MARYLAND (THE "2009 PLAN"), AND SUCH OFFICIALS OR ENTITIES HAVE BEEN GIVEN AN OPPORTUNITY TO BE HEARD WITH RESPECT TO THE PREPARATION OF THE PLAN. THE 2009 PLAN IS CONSISTENT WITH THE COMPREHENSIVE PLAN FOR THE COUNTY ADOPTED BY THE BOARD OF COUNTY COMMISSIONERS OF WASHINGTON COUNTY, MARYLAND ON AUGUST 27, 2002.


George Anikis, Chair
Washington County Planning Commission

PREFACE

Washington County Water & Sewerage Plan 2009 Update

The attached document is the 2009 Update to the Washington County Water and Sewerage Plan. The Plan was last comprehensively updated in 1994. The drafting of this Update began in 2004 with the notification to all of the municipalities and service providers affected by the Plan. The vast majority of the information contained in the Plan is based on information provided by the municipalities and other service providers.

The information presented in the plan is updated as of January 1, 2009 unless otherwise noted. All requests involving information compiled after January 1, 2009 will be addressed as necessary in subsequent individual amendments or as part of the next comprehensive update.

The following is a synopsis of the content of the 2009 Plan Update:

- Includes all individual map and text amendments since the adoption of the previous Update in 1994.
- The Plan contains updated information provided by the municipalities and service providers. In those cases where service providers did not provide updated information, information from the 1994 Plan and subsequent amendments is carried over.
- Contains updated land use, population, and physical features information based on the 2002 Washington County Comprehensive Plan for the County.
- Provides information and links in regard to the status of water quality in Washington County, the Federal Clean Water Act, development of TMDLs, Source Water Assessments and water quality plans.
- Filters information regarding locations of major facilities to address home land security concerns.
- Incorporates the text of the Plan into an electronic format as well as providing updated service area and priority designation mapping based on GIS

technologies. The new text provides internet links to up to date information by regulatory authorities.

- Lays groundwork for future updates by providing references to plans and strategies for Enhanced Nutrient Removal, bubble permitting, nutrient trading, maximum loading, as well as other options in order to address Chesapeake Bay initiatives and to maximize service to meet the needs to serve the Urban and Town Growth Areas.
- Includes reference to Washington County's sewer capacity management plan.

It is anticipated that another update to the Water & Sewerage Plan will occur in the near future to address Water Resources Element requirements once studies are completed by the County and municipalities and upon additional Comprehensive Plan updates.

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CHAPTER I - GOALS AND ORGANIZATION

A. PURPOSE

The State of Maryland's fundamental purpose in establishing regulations which require the governing body of each County to develop an on-going plan for water supply and sewage systems is to achieve a consistency with the County's adopted Comprehensive Plan for guiding development. Inherent in this purpose is the realization that the planning and implementation of water and sewerage facilities constitute the most physically direct method of guiding development within the County.

In virtually every instance growth is contingent upon the availability of the necessary facilities to sustain the higher orders of development. The installation of water distribution lines, sewage collection lines, and adequate transportation net works serve as a magnet for the location of new residential projects, employment centers and supportive commercial activities. Although the exact timing and magnitude of the higher development forms will be determined in part by much more regional economic conditions, the fact remains that their location will directly manifest the development policies of Washington County and its incorporated municipalities.

Consequently, it becomes well apparent that a Water and Sewerage Plan, in order to be truly comprehensive, must go beyond merely the crisis oriented approach of abating existing problems, and strive to contribute and reinforce the overall planning objectives of the study area. While zoning establishes the developmental guidelines for primarily private sector initiatives, the process of implementing water and sewerage plans is a direct, more immediately public effort to move from plan to reality.

This plan provides information in the form of maps, charts, and tables which give a general overall picture of the current and projected status of water and sewerage systems in Washington County. The plan is intended to provide the basis for more detailed planning at the projected level. The general level of information and the scale of mapping within the plan do not reflect such details as the specific location of all water and sewer infrastructure, or the availability or economic feasibility of service to particular parcels of land. For such

information, the applicable agencies and municipalities providing these services must be contacted.

Plan maps within this document do not represent a commitment by the Board of County Commissioners or by any agency or municipality to provide water and sewer service by a specified time. Service priority designations shown on the plan maps indicate the general time frame in which it can be reasonably expected that these services will be provided and are based upon the Comprehensive Land Use Plan for The County, and the current intentions of service providers and of private land owners and developers to the extent that they are known. The actual construction of facilities and extension of services will depend upon a number of factors such as economic feasibility, availability of adequate capacity based on capacity management plans, availability of funds, and initiative on the part of private land owners and developers.

B. GOALS

It is the purpose of the Comprehensive Water and Sewerage Plan to provide for the continued health and well-being of Washington Countians and our downstream neighbors through extensive, thorough public and private sector cooperation in the formation of long range plans for adequate water supply and effective sewerage disposal and treatment for Washington County. To this end, the following goals are hereby established.

1. To protect the health, safety and welfare of the people of Washington County by providing acceptable and adequate water supply and sanitary sewerage facilities to all areas of the County.
2. To coordinate the policies and plans relative to land use and the provision of water and sewerage facilities to assure a logical growth pattern in Washington County.
3. To identify and analyze all sources of pollution within the County and devise the means by which the adverse impact can be minimized or eliminated.
4. To provide for the qualified management of water resources in the County in cooperation with the municipalities of the County, in order to effectively cope with water pollution and to conserve and/or improve the quality of streams and groundwater within and adjacent to the County.
5. To establish plan priorities which can be directly related to the programming and budgetary processes of Washington County, the City of Hagerstown and other municipalities.

6. To provide for the periodic amendment of the Comprehensive Water and Sewerage Plan as required by changes in need or conditions within the County.

C. OBJECTIVES

In refinement of the overall goals for Washington County, the following itemizes the objectives which specifically encompass the policy guidelines relative to water and sewerage planning.

1. Develop a plan for water and sewerage facilities which is fiscally and environmentally responsible and reasonable and at the same time provide facilities which will eliminate the extraordinary problems of groundwater pollution caused by existing development as well as following the implementation policies of the Comprehensive Plan for the County.
2. On-lot septic disposal systems in Washington County have, in many cases, proven inadequate in terms of implementing the goals of this plan. As a result, a primary objective is to provide to the greatest extent possible, alternatives to these systems without encouraging increases in development density in those areas designated in the Plan for the County.
3. To seek the closest possible cooperation between all service providers in the implementation, operation and management of applicable existing and planned water and sewerage systems.
4. To encourage and guide residential growth to those areas which are served or planned to be served with community water and sewerage systems to provide opportunities for new and adequate housing at reasonable costs for the citizens of Washington County consistent with the plan for the County.
5. To assure a logical development pattern and continued ability of the County and municipalities to provide the other necessary public facilities and services in accordance with existing land use plans and controls.
6. Encourage development of an organizational framework which will result in coordinated county and municipal planning, programming and implementation of the plan.
7. Provide for adequate water supply, storage, treatment and distribution on a regional basis.
8. Encourage resource conservation by particularly large water users through cooperative recycling programs.
9. To manage the extension and expansion of existing water and sewer lines and facilities to serve the land which is considered to be within the

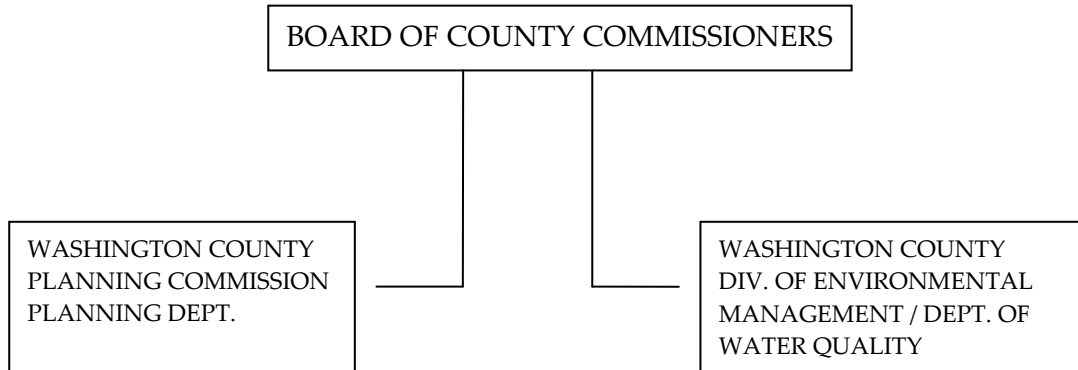
designated urban and town growth areas and Priority Funding Areas in accordance with capacity analysis.

10. To assure that the Water and Sewerage Plan and any amendments will take into consideration the "seven visions" of the Maryland Economic Growth, Resource Protection and Planning Act of 1992 as well as an additional vision added to the State law in 1997 under the Smart Growth Act related to adequate public facilities and Priority Funding Areas

D. ORGANIZATION

The following charts illustrate the existing organizational framework relative to planning and implementing the public water and sewerage infrastructure within the County and incorporated municipalities.

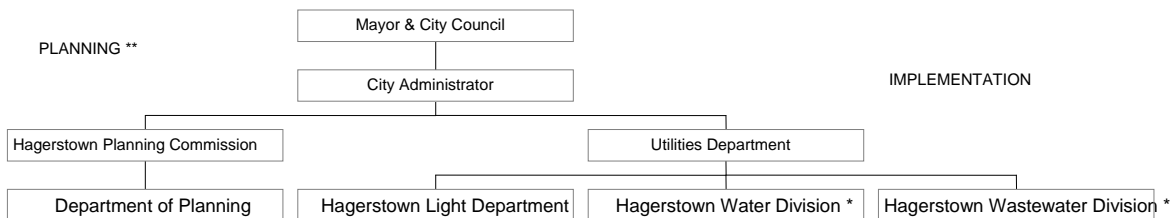
WASHINGTON COUNTY



* Sewerage system responsibility currently includes the Towns of Sharpsburg and Keedysville (Service Area No. 4-1), Smithsburg (included in Service Area No. 12), and other service areas within the County - Service Area No. 1 Halfway; No. 5 Potomac (Tammany/Van Lear), No. 5-1 Cloverton/Greenlawn; No. 6 Fountainhead; No. 9-1 Highfield/Cascade/Pen Mar; No. 12 Rolling Hills (Pangborn/Cavetown); No. 14 Sharpsburg Pike; No. 15 Maugansville/Orchard Hills; No. 16 St. James; No. 18 Conococheague; and No. 19 Sandy Hook).

Water Systems responsibility currently includes the Town of Sharpsburg and adjacent areas (Service Area No. 4) and other service areas within the County (Service Area No. 9 Highfield/Cascade/Pen Mar; No. 17 Elk Ridge; No. 19-1 Sandy Hook and No. 7 Mt. Aetna).

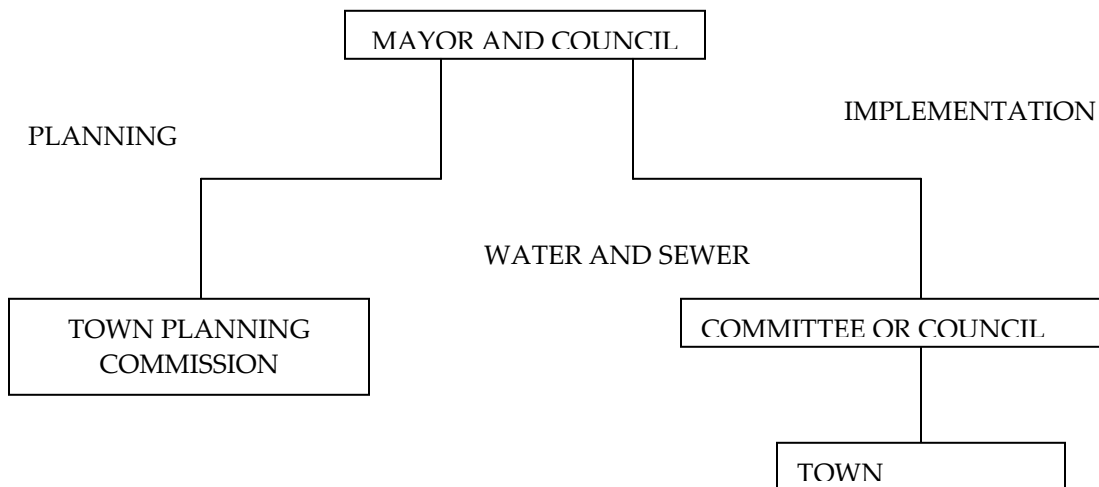
CITY OF HAGERSTOWN



* Water & Wastewater System responsibility includes both City and non-subdistrict, unincorporated areas of the County.

** Planning responsibilities (directly) only City. Substantial input to County Planning process.

TOWNS OF HANCOCK, CLEAR SPRING
WILLIAMSPORT, KEEDYSVILLE¹
BOONSBORO, SMITHSBURG AND FUNKSTOWN



¹ The Washington County Department of Water Quality is responsible for the sewer system in Keedysville.

E. DEVELOPMENT REVIEW PROCEDURES

The following are brief descriptions of development review procedures within Washington County unincorporated areas and within the limits of municipal incorporations. For developments planned for unincorporated areas, the review procedures of the Washington County Planning Commission are applicable. However, where such developments are dependent upon municipal water or sewerage service, the municipalities concerned should be consulted early in the process. The following descriptions are intended to assist citizens and prospective developers in becoming familiar with the organizational and procedural relationships between approving authorities and water and sewer service agencies.

1. Washington County (Unincorporated Areas)

Proposals for development within unincorporated areas are submitted for review and approval to the Washington County Planning Commission. The Commission meets on the first Monday of each month at 7:00 p.m. at the County Administrative Annex, 80 W. Baltimore Street, Hagerstown, Maryland.

Initial contact may be made with the Washington County Planning Commission staff. At this stage the proposed development is reviewed for conformance with the County Comprehensive Plan, Zoning Ordinance, Subdivision Ordinance and Water and Sewerage Plan. Upon request, the staff will arrange for a preliminary consultation at which the developer can informally discuss the proposal with representatives from the applicable review agencies including the Health Department and water and sewer service providers.

In lieu of a preliminary consultation, the appropriate water and sewer authorities should be contacted individually. Developments which are proposed for wells and septic systems should be discussed with the Division of Environmental Health of the Washington County Health Department. Developments which are proposed for service by means of the extension of existing community water and sewerage systems should be discussed with the responsible municipality or with the Washington County Department of Water Quality as applicable.

Any development which is proposed for an unincorporated area which is intended for service by a new community water or sewerage system or by an extension of Department of Water Quality facilities should be reviewed by the Washington County Planning Commission staff to determine if the proposal is consistent with the adopted plan for the County. The Development proposed should then be brought to the attention of the Washington County Department of Water Quality. Such development shall first be included in the Washington County Water and Sewerage Plan, then must be located within the boundaries of a Service Area. Procedures for inclusion of an area within an established Service Area or for the creation of a new Service Area are provided for in the Code of Public Laws of Washington County, Maryland, Title 6 – Water, Sewer and Drainage Systems.

Formal application for development is made to the Washington County Planning Commission in the form of a subdivision plat or site plan. Water and sewerage system construction drawings are submitted along with the application for final plat or site plan approval. Copies of submitted plats, site plans, and construction drawings are circulated to the appropriate agencies and municipalities for information, review and approval.

Approval of water and sewerage construction drawings by the Washington County Department of Water Quality does not guarantee availability of sewer and/or water service. Sewer and/or water service availability is subject to the conformance with all rules, policies, and regulations established by the County and in effect at the time application for service is made and/or the availability of allocation approval which shall be valid for a period of one year. Approval of final plat or site plan submittals for County full service areas does constitute inclusion in the County Capacity Management Plan, but not allocation approval. Developments in areas served by the City of Hagerstown's Wastewater Treatment Plant will be subject to the current policies, rules and regulations in effect at the time of site plan and/or construction drawing approval. The Washington County Health Department also issues an approval for water and sewer service when the development is to be served by a community system.

Upon receipt of correspondence from all applicable review agencies, the plat or site plan is reviewed for approval by the Planning Commission at the regular monthly meeting.

CONTACT: Washington County Planning Department 240-313-2430
Washington County Health Department 240-313-3400
Washington County Department of Water Quality 240-313-2600

2. Town of Boonsboro

For developments proposed within the municipal limits, a tentative sketch plan may be submitted to the Town Planner in the Planning and Zoning Department located at Town Hall. The tentative sketch plan procedure is optional but strongly recommended as an early and informal method of consulting with the Boonsboro Planning Commission.

Preliminary and final plat submittals are also made through the Town Planner who circulates plat copies to the appropriate review and approval agencies including the Boonsboro Municipal Utilities Commission for availability of water and sewer services. Upon receipt and consideration of the comments of the review and approval agencies, the Boonsboro Planning Commission considers the plat at its regular monthly meeting at Town Hall.

Proposed developments located outside the Town limits but within the Town’s service area which desire water or sewer service should contact the Town Manager to discuss annexation procedures.

CONTACT: Town Manager 301-432-5141
Town Planner 301-432-5690

3. Town of Clear Spring

Water and sewer facilities are constructed within a development at the developer's expense and dedicated to the Town of Clear Spring. Initial proposals are made to the Mayor and Council which meets on the second Monday of each month at 7:00 p.m. in the Town Hall. Proposed developments located outside the Town limits but within the Town’s service area which desire water or sewer service should contact the Town Clerk to discuss annexation procedures if applicable.

CONTACT: Town Clerk 301-842-2252

4. Town of Funkstown

All areas within the corporate limits of Funkstown are considered physically capable of being served by the Town water and sewer systems. Proposed developments located outside the Town limits but within the Town's service area which desire water or sewer service should contact Public Works personnel to discuss annexation procedures if applicable.

CONTACT: Public Works Personnel 301-797-3228 or 301-791-0948

For proposed developments within the Town limits, application must be made to the Funkstown Zoning Administrator who reviews plans for conformance with the Comprehensive Plan, Zoning Ordinance, and Subdivision Ordinance. Town water and sewer personnel then review the plans for placement of utilities. The Planning Commission considers the application at its regular meeting on the first Tuesday of each month at 6:30 p.m. in the Town Hall.

CONTACT: Town Clerk 301-791-0948

5. City of Hagerstown

Proposals for large developments intended to be served by the City of Hagerstown water and wastewater systems should be brought to the attention of the City Planning Department. Developments proposed within the municipal limits will receive guidance from the Planning Department on the City of Hagerstown's development review process and wastewater allocation process. Developments proposed for outside the municipal limits will receive guidance on annexation procedures, if applicable, as required in the City's Annexation Policy.

CONTACT: City Planning Department 301-739-8577, Ext. 138
City Water Division 301-739-8577, Ext. 680
City Wastewater Division 301-739-8577, Ext. 651
City Engineer 301-739-8577, Ext. 125

6. Town of Hancock

The Town Manager issues individual water and sewer connection permits from the Town Office. Development proposals are submitted for review

to the Town Planning Commission which meets the first Wednesday of each month at 7:00 p.m. on the Town Hall. The proposal must include the proposed water and sewer layout and the number of people to be served. Based upon this proposal, a tentative commitment is made by the Town to serve the proposed development. Proposed developments located outside the Town limits but within the Town's service area which desire water or sewer service should contact the Town Manager to discuss annexation procedures if applicable.

Water and sewer design is reviewed and approved by the Town Engineer and the M.D.E. The Town Planning Commission recommends plat approval to the Mayor and Council. With Mayor and Council approval, the proposed development receives a firm commitment for water and sewer service.

CONTACT: Town Manager 301-678-5622

7. Town of Keedysville

For developments proposed within the municipal limits, a tentative sketch plan may be submitted to the Planning and Zoning Commission. The tentative sketch plan procedure is optional but strongly recommended as an early and informal method of consulting with the Keedysville Planning and Zoning Commission.

Preliminary and final plat submittals are made through the Keedysville Planning and Zoning Commission which circulates plat copies to the appropriate review and approval agencies including the Keedysville Water Board for availability of water and other municipal services.

Upon receipt and consideration of the comments of the review and approval process, the Planning and Zoning Commission considers the plat at its regular monthly meeting.

Development located outside the town limits but within the Town's service area which desire water service should contact the Town Clerk to discuss annexation procedures if applicable

Contacts: Planning & Zoning Commission and Town Clerk
301-432-5795

8. Town of Smithsburg

Land development proposals are first discussed in concept with the Smithsburg Planning Commission. The Commission meets on the second Tuesday of each month at 7:00 p.m. in the Town Hall. The Commission then refers the applicant to the Smithsburg Mayor and Council for a determination on the provision of water and sewer services. The applicant may then submit a preliminary plat to the Smithsburg Planning Commission for developments within the corporate limits, or to the Washington County Planning Commission for developments outside the corporate limits. Proposed developments located outside the Town limits but within the Town's service area which desire water or sewer service should contact the Town Manager to discuss annexation procedures if applicable.

CONTACT: Town Manager 301-824-7234

9. Town of Williamsport

Development proposals should be discussed initially in concept with the Williamsport Planning Commission. The Commission meets on an "as needed" basis. At the time of the initial meeting a tentative agreement will be made on the allocation of sewer capacity for the proposed development. This allocation is subtracted from the total allocation granted to the Town of Williamsport by the Washington County Department of Water Quality.

The developer will then meet to advise the Town Mayor and Council of the proposed development. If the development is located within the Town limits, a development plat is submitted to the Williamsport Planning Commission for approval. Current Town policy requires annexation for any development located outside the corporate limits that will connect to the Town of Williamsport sewage collection system or water distribution system.

CONTACT: Town Manager 301-223-7711

CHAPTER II - BACKGROUND INFORMATION

In order to establish parameters for the planning of water and sewerage facilities, it is necessary to determine the physical, social, economic, and land use factors which, in part, dictate the needs and priorities for such systems. The following discussion of background information attempts to summarize the relevant factors which have been previously developed and analyzed through the preparation of the County's Comprehensive Plan, Solid Waste Plan, and prior Water and Sewerage Plan.

A. PHYSICAL FEATURES

An analysis of the physical features of Washington County provides a framework whereby planning and future engineering decisions can be made in part based upon environmental characteristics.

1. Topography

The Physiographic characteristics of Washington County are formed largely from the western slope of the Blue Ridge Mountains, the wide Hagerstown Valley which is in turn a portion of the expansive Great Limestone Valley network of the east; and the eastern ridge of the Appalachian Mountain system. Elevations within the County range from a high of 2,145 feet at the crest of Quirack Mountain of the Blue Ridge to a low of approximately 300 feet near the Potomac River.

Topographic features are rather steep at the Blue Ridge, gently rolling within the broad and shallow valley to Fairview Mountain, and with sharp ridges and intervening small valleys or ravines differentiating the westward portion of the County. Slopes are steepest along both the eastern and western boundaries of the County and within the area between Licking Creek and the Little Conococheague Creek. Approximately 35% of the County's land area has slopes in excess of 15% while the Hagerstown Valley portion of the County comprising slightly more than half of the land area is essentially level or very gently rolling.

2. Sensitive Areas

The Planning Act of 1992 required that the Comprehensive Plan include a "Sensitive Area Element". The adopted Sensitive Area Element may be

found in Chapter 7 of the 2002 Comprehensive Plan for the County and addresses five areas of concern. The state required sensitive areas are: floodplains, steep slopes, habitat of threatened and endangered species, and stream buffers. The County added sensitive area, labeled as “Special Planning Areas”, includes the Edgemont and Smithsburg Reservoir Watersheds, Appalachian Trail Corridor, and the Upper Beaver Creek Basin and Trout Hatchery. Map I – Sensitive Areas, shows the identified Sensitive Areas in Washington County. A more detailed description of Sensitive Areas may be found in Chapter 7 of the 2002 Comprehensive Plan for the County.

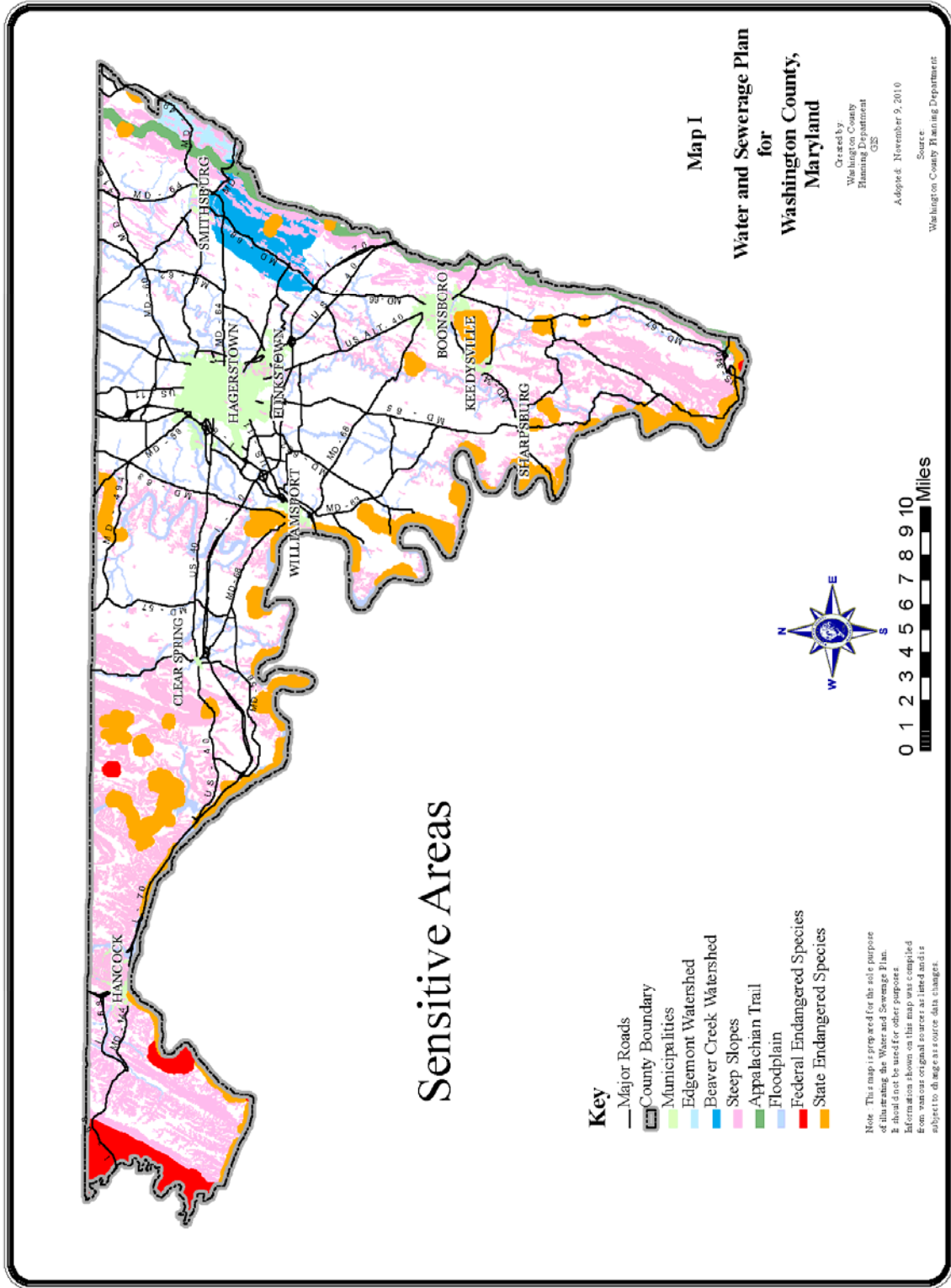
3. Soil Characteristics

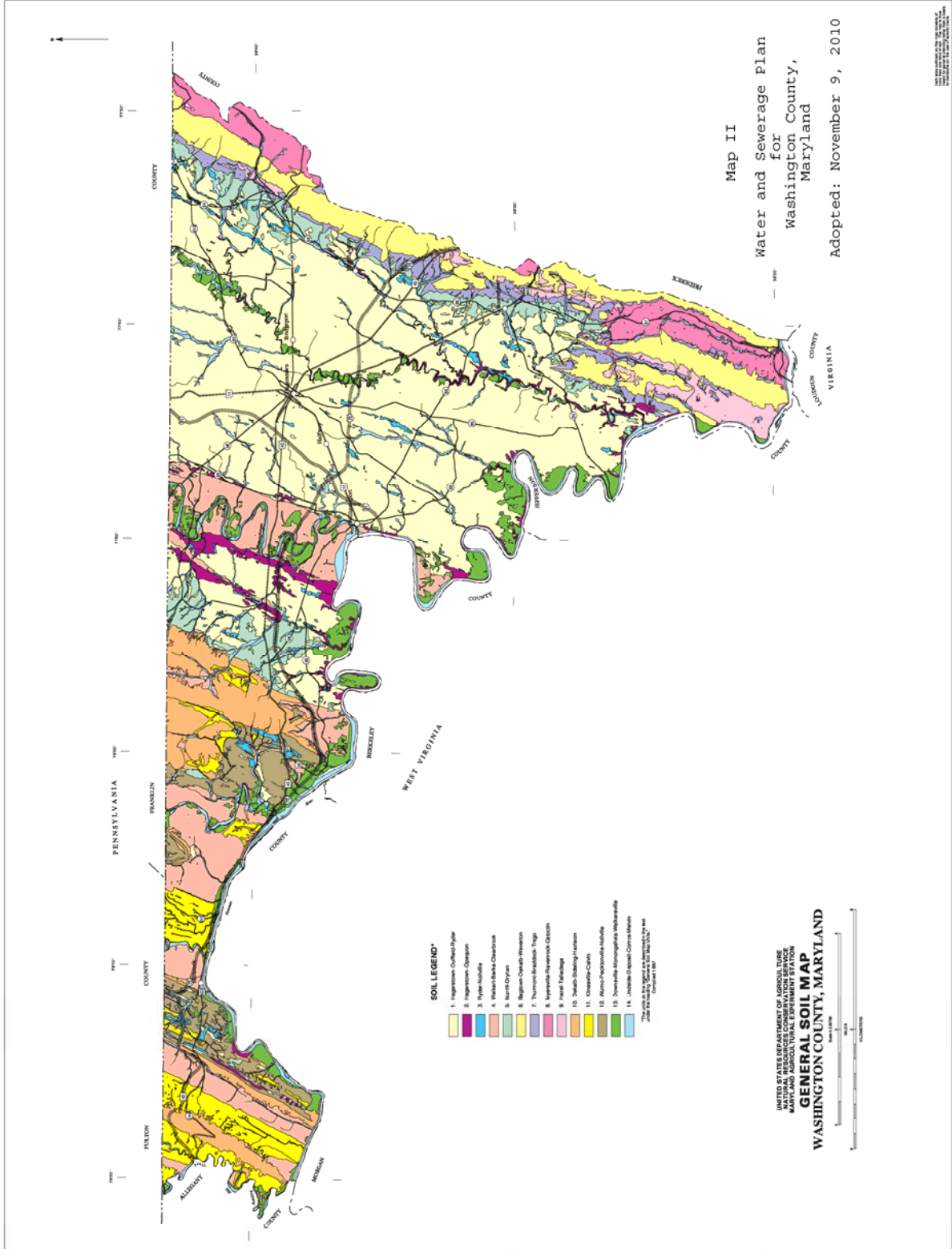
In 2001, The United States Department of Agriculture, Natural Resources Conservation Service in cooperation with the Board of County Commissioners of Washington County, Washington County Soil Conservation District and the Maryland Agricultural Experiment Station issued a new Soil Survey of Washington County. The soil survey contains information that affects land use planning. It contains predictions of soil behavior for selected land uses. The survey also highlights soil limitations, improvements needed to overcome limitations, and the impact of selected land uses on the environment including septic system suitability.

Map II – General Soils Map shows the County divided into 14 groups of associated soils called general mapping units. This map is useful in planning the use and management of large areas. The location of each individual soil type is shown on the detailed soils maps that are part of the Soil Survey. Each map unit on the general soil map is a unique natural landscape and has a distinctive pattern of soils, relief and drainage. Each soil type in the county is described and information provided on specific uses for each soil in the Soil Survey. The Soil Survey of Washington County is available on the World Wide Web. The address is:

http://soildatamart.nrcs.usda.gov/Manuscripts/MD043/0/MD_Washington.pdf

The soil maps are also available as a digital spatial database that can be used in a Geographic Information System or GIS.





Map II
 Water and Sewerage Plan
 for
 Washington County,
 Maryland
 Adopted: November 9, 2010

- SOIL LEGEND***
- 1. Hagerstown - Colfax-Pyle
 - 2. Hagerstown - Otterburn
 - 3. Hyattsville
 - 4. Walnut Branch - Chestnut
 - 5. North Dryden
 - 6. Burgess - Chatham - Westport
 - 7. Thurston - Blackfoot - Tige
 - 8. Lymanville - Rosewood - Caydon
 - 9. Inland - Fairhope
 - 10. Deale - Shiloh - Harmon
 - 11. Chewahatchee
 - 12. Arden - Parkersville - Nollville
 - 13. Dentonsville - Montpelier - Mankinville
 - 14. Litchfield - Pleasant Corners - Lakeside
- *Based on the Soil Survey of Washington County, Maryland, 1987, by the United States Department of Agriculture, Agricultural Research Service, Agricultural Experiment Station, Beltsville, Maryland.

UNITED STATES DEPARTMENT OF AGRICULTURE
 AGRICULTURAL RESEARCH SERVICE
GENERAL SOIL MAP
 WASHINGTON COUNTY, MARYLAND

100 Feet
 0 100 200
 Feet

For the purpose of planning water and sewerage facilities an analysis of the soils is fundamental. With both water supply and quality discussed later in this Chapter, attention is directed here to the suitability of the soils to accommodate (properly) on-lot subsurface disposal systems.

The most common on-site sewage disposal method used in areas where central sewage systems are unavailable is the septic tank system. Successful operation of the system depends upon the ability of the soil to absorb and filter the liquid or effluent once it passes through the tile field. The presence of a soil characteristic which impairs proper absorption and filtering of the effluent will cause health hazards as well as public nuisance situations. Soil characteristics affecting the operation of the tile disposal field include permeability rates, depth to bedrock, depth to seasonal high water table, slope, stoniness, and flood hazard.

4. Suitability for on-lot sub-surface disposal systems

It is important to have a basic understanding of the sewage decomposition processes that take place within a septic system in order to fully appreciate the serious health hazards which can potentially exist. A septic tank is a watertight receptacle which receives sewage and is designed and constructed to provide for sludge storage, sludge decomposition, and to separate solids from the liquid through a period of detention before allowing the liquid to be discharged to a subsurface absorption area.

The sewage is broken down through an oxygen-less process called anaerobic decomposition in which anaerobic bacteria digest suspended solids, liquefying much of the material and reducing the rest to inert masses of sludge and scum. This primary treatment stage removes solids so that the effluent or clarified liquid which is discharged from the tank does not clog the distribution system.

Septic tanks do not remove pathogenic organisms (harmful bacteria and viruses). The removal of pathogens from the effluent is affected only by percolation through the soil after the effluent is distributed through the tile field. Therefore..., "septic tank effluents cannot be considered safe. The liquid that is discharged from a tank is, in some respects, more

objectionable than that which goes in, it is septic and malodorous."² The bacteria are removed from the effluent by filtration and because the soil presents an unfavorable environment for their existence.

In an efficient system, pathogens and other waste products are completely removed from the effluent before it recharges the groundwater table. In an inefficient and unsafe system, the effluent may drain rapidly into solution channels and fractures in the bedrock and may reach the groundwater table before complete purification occurs. The untreated sewage will then flow with the groundwater to pollute wells and streams with disease causing bacteria. "Studies in the Nittany Valley, Pennsylvania, a hydrogeologic environment similar to that of the study area (the Hagerstown Valley) show, on the basis of dye tracings, (Jacobson and Langmuir, 1970) that the groundwater moves roughly 4,000 feet in 2 to 6 days."³

In another type of malfunctioning system, more obvious to the homeowner, the effluent flows through the drainage bed until it reaches an impermeable layer such as clay or a fragipan (a compact, brittle layer of soil) or bedrock in which case it is forced to the surface where it becomes an immediate health hazard. A third type of pollution hazard can develop when too many septic systems are constructed within a given area.

Permits issued for the repair of failing systems constitute a large share of the installation process of the Health Department. Approximately 20 percent of the permits issued for the septic system installation are for repairs. These repairs generally require the complete replacement of all parts of the system except the septic tank itself, including the replacement of drain tiles and distribution box and the relocation of the drain field or seepage pit to another area. These kinds of repairs become necessary when drain tiles are clogged or drain fields are saturated resulting in the back up of effluent to the house or the appearance of effluent on the surface of the ground. Such problems may be caused by poor initial

² Public Health Service, U.S. Department of Health, Education and Welfare, Manual of Septic Tank Practice, 1969, p. 29.

³ Nutter, Larry J. Hydrogeology of the Carbonate Rocks, Frederick and Hagerstown Valleys, Maryland, Maryland Geological Survey Department of Natural Resources, 1973.

installation, by inadequate maintenance by the homeowner, or by overuse resulting in saturation of the absorption area.

In an effort to minimize the risks of septic system failure and groundwater contamination, the Washington County Health Department has established standards and instituted procedures for the planning and installation of new on-lot and sub-surface disposal systems. Prior to the approval of such systems for use on building lots, percolation tests are conducted to evaluate the renovative capabilities of on-site soils. Trenches are excavated to ensure that a minimum filterable soil cover exists between drain tiles and bedrock or groundwater. A reserve area is set aside to allow for the use of alternate drain fields in the event that the first field becomes saturated. The location of septic systems and reserve areas are limited to a minimum distance from on-lot and adjacent well water supplies. Where a number of on-lot sub-surface systems are planned for a given area, a geohydrologic study is conducted for the entire area of the proposed development in an effort to evaluate the cumulative effect such systems might have on sub-surface geology and groundwater.

The above standards and procedures have their limitations however, percolation and trench tests are limited to relatively small areas and conclusions drawn from these tests must be generalized to the larger areas of the absorption fields where they may or may not be valid. Even the percolation (absorption) test is seen by some authorities as an incomplete testing procedure: "The principal weaknesses of the absorption test are that it is made in a short time and with clear water. It should be recognized that two processes take place during the test—infiltration, or entrance of the liquid into the soil, and percolation through the soil. The infiltration rate is largely dependent upon the characteristics of the liquid, while speed or percolation depends upon the soil characteristics.

When clear liquid is applied continuously to a soil, there is first a drop in the infiltration rate for one to several days. As air escapes from the soil, the rate rises to a maximum after a time measured in days, and thereafter it slowly decreases to a small percentage of the original rate. The slow decrease is caused by the following phenomena, which are dependent upon soil characteristics migration of fine particles with water movement to accumulate and clog pore spaces; ion exchange, which affects the cohesive force between particles and deflocculates materials, and the continued swelling or colloidal materials. Even with water as the liquid,

there will be microbial growths that will clog soil pores and interfere with infiltration and percolation. Obviously, substitution of septic sewage for water will increase the number of fine particles and will encourage microbial growth. Ion exchange and colloidal swelling will depend upon the chemical activity of the soil. So far, no soil test or examination method has been devised that will indicate the suitability of a soil for absorption of sewage over a long period... In the absence of a more effective procedure than the absorption test, precautions should be applied that will prevent disposal-field failures or at least postpone them for a long period. Important is resting, which permits air penetration, the establishment of aerobic conditions in clogged areas, and digestion of solid accumulations. With food no longer available, the bacteria will also die. This housecleaning requires days, not the hours that will be provided by the usual sewerage-flow variations of a residence..."⁴

As part of the continuing effort to improve on-lot testing reliability and to guard against groundwater contamination by on-lot systems, a County-wide Geohydrologic Study was conducted by the consulting firm of R. W. Wright and Associates. This study was jointly funded by the Washington County Board of County Commissioners and by a grant from the U. S. Environmental Protection Agency administered through the Maryland Water Resources Administration. By means of on-site testing and evaluation within three prototype study areas of the County, three remote sensing techniques which are pinnacle-type weathering, bedrock outcrops, and backhoe test pit probing were found to be valid in determining shallow bedrock within prospective septic disposal areas. Pinnacle-type weathering occurs in highly erodible limestone where the spires or pinnacles represent the rock that are more resistant to weathering, and is significant because the limestone bedrock can be considered to be an extension of the water table and not all pinnacles extend above the surface. Bedrock outcrops occur where the overlying soil cover has been removed through erosion or tectonic uplift therefore exposing the underlying bedrock or outcrop. Backhoe test pit probing utilizes a backhoe or similar equipment to excavate a pit to a depth of seven to ten feet below the original grade of the surface exposing the soil profile, season water tables, rock formations, open voids or any other

⁴ Ehlers, Victor M., C.E., and Steel, Ernest W., C.E., Municipal and Rural Sanitarian, Sixth Edition, McGraw-Hill Co., 1966, (p. 126)

limiting zone that may hinder the downward movement or renovation of the sewage effluent. However, the consultant report concluded that the use of these methods “will require the continuation of the conventional site investigation (slit trench evaluation).”

A further product of the study was the development of a comprehensive County On-site Sewerage Disposal and Individual Water Supply Policy, Washington County, Maryland dated May 1998 in accord with minimum State requirements which includes (a) subsurface sewage disposal planning requirements, (b) site investigatory procedures, (c) system design criteria, (d) comprehensive inspection program, (e) legal enforcement procedures, (f) designated enforcement personnel and training program, (g) monitoring of the functionality of subsurface disposal system, and (h) procedures for modifying design criteria. The Washington County Health Department administers the Policy with guidance from the companion Technical Manual.

The Policy also encouraged the use of innovative and alternative sewage disposal methods in light of the County's limestone geology. Pursuant to Health-Environmental Article, Subtitle 9-14 and a Memorandum of Understanding, Washington County participated in the Innovative and Alternative On-Site Sewerage Disposal Grant Program. Subsequent evaluation of this program resulted in the acceptance of certain innovative and alternative systems as being conventional when percolation rates are within specified limits.

Even the use of the traditional septic system is seen by some authorities as a viable wastewater treatment alternative to a wastewater treatment facility. A report by the Comptroller General of the United States concludes that, “if properly designed, constructed, operated, and maintained, septic systems

- should not fail
- can be as permanent as central treatment facilities (meaning a wastewater treatment facility).
- are often more ecologically sound than sewers and central facilities, and

- can provide a high degree of sewage treatment as good or better than the effluent produced by conventional central treatment processes” (meaning a wastewater treatment facility)⁵

The report emphasizes, however, that the key to good septic system performance is a system for public supervision and management of septic systems and recommends that the Environmental Protection Agency establish minimum standards for such public management. The report does not address septage disposal. A management system and criteria which are uniquely suited to the Washington County natural-physical environment in the form of the On-Site Sewage Disposal Ordinance is an important product of the geohydrologic study mentioned above.

The Chesapeake Bay Program has determined that Onsite Sewage Disposal Systems contribute on average 12.2 pounds of nitrogen a year to both local and downstream water quality including the Chesapeake Bay and other surface water systems. In recognition of this impact to water quality, the Maryland Tributary Strategies has established a goal for 100% of all new OSDS systems beginning in 2010 have enhanced denitrification technology which will reduce the amount of nitrogen being discharge from these systems. The Tributary Strategy also has established a goal to upgrade all existing OSDS system with this technology as well. The Maryland Bay Restoration Fund has established Bay Restoration Fee which contributes to a grant fund which is utilized to upgrade these existing with denitrification technology. The grant funds are available to both local agencies for upgrade programs and to individual homeowners to upgrade their system. Information on this program can be obtained from the Maryland Department of the Environment on their website at: www.mde.state.md.us .

5. Surface Water Characteristics

Washington County lies totally within the Potomac River Basin and is drained by the Conococheague Creek in the western portion of the Great Valley and by the Antietam Creek in the eastern section as both Creeks

⁵ The Comptroller General of the United States, Report to the Congress, Community-Managed Septic Systems: A Viable Alternative to Sewage Treatment Plants, United States General Accounting Office, November 3, 1978, (p.i.)

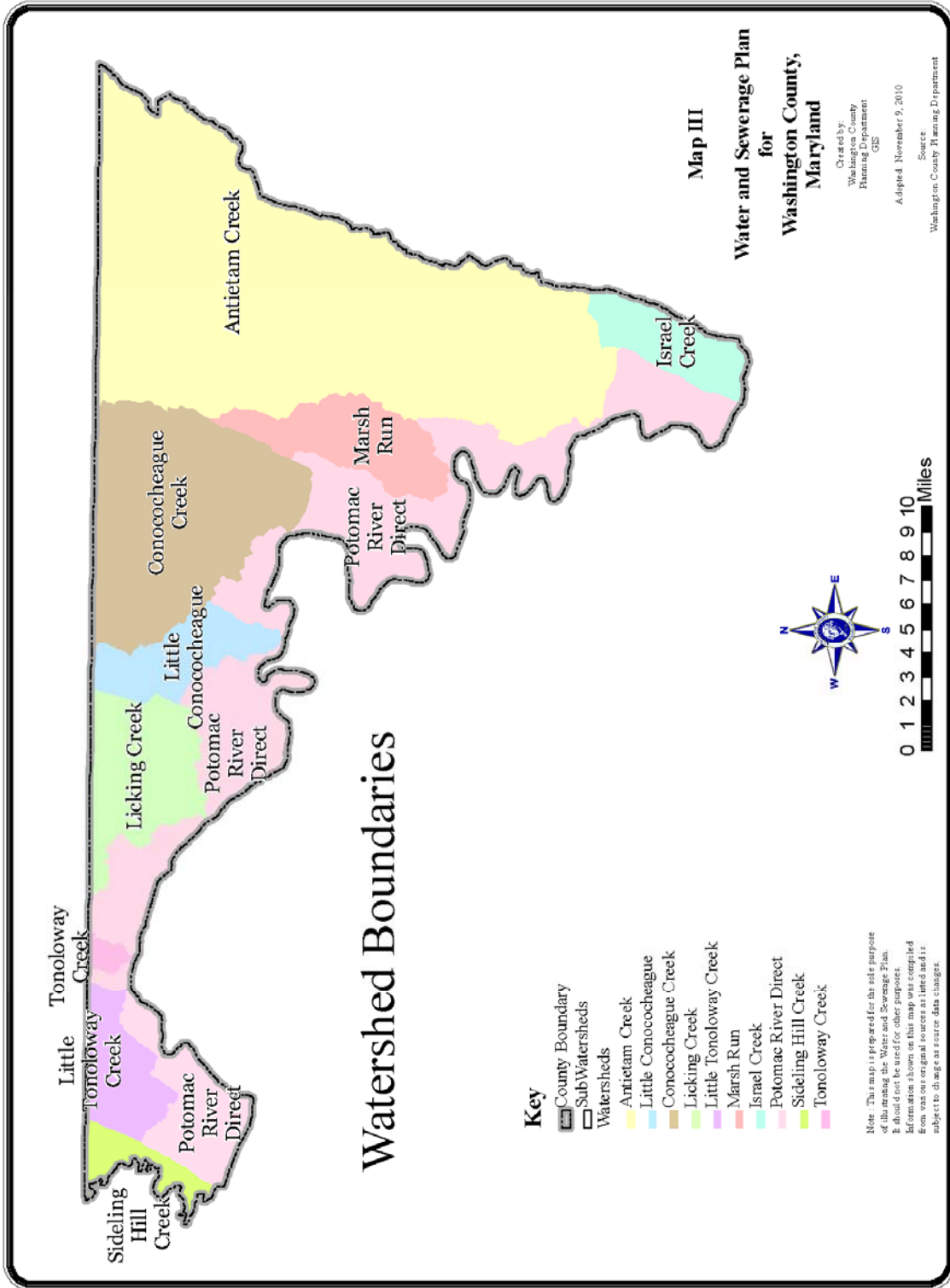
flow southward into the Potomac River. The majority of the County lies within the Upper Potomac River Sub-basin. The remainder, a small section in southeastern Washington County, lies within the limits of the middle Potomac River Sub-basin. The tributaries of the Potomac River drain approximately 342 square miles in Washington County. The pattern and intensity of surface water drainage is dictated by the County's location in the Valley and Ridge physiographic province which is characterized by long, ridge-like, parallel mountains and intervening valleys. In the western, more mountainous area of the County, the streams have rather flashy runoff as a result of the steeply sloping terrain and rough topography. Moving eastward into the valleys, the relief is gentle and slightly rolling; hence, the streams are less flashy and meandering.

6. Drainage Sheds

Washington County is divided into nine major watersheds, as indicated on Map III- Watershed Boundaries, in addition to those areas draining directly into the Potomac River. The Antietam Watershed, which drains approximately 187 square miles or about 40% of Washington County, is by far the largest drainage area. The following table indicates the drainage area of each major watershed in the County.

WASHINGTON COUNTY WATERSHED AREAS⁶		
WATERSHED	DRAINAGE AREA (Sq. Mi.)	
	Washington County	Total
Antietam Creek	187	292
Conococheague	65	563
Israel Creek	14	14
Licking Creek	27	214
Little Conococheague Creek	16	18
Little Tonoloway	16	26
St. James – Marsh Run	20	20
Sideling Hill Creek	9	104
Tonoloway	2	114

⁶ Source: Washington County, Plan for the County



7. Water Quality

Water quality of Washington County's surface water is monitored and studied by the Maryland Department of the Environment in accordance with the Federal Clean Water Act. This act requires MDE to develop water quality standards for all surface waters in the State of Maryland; monitor the waters of the State in accordance with these standards and after identification prepare a list of waters not meeting water quality standards. A water quality standard is the combination of its designated use and the water quality criteria designed to protect that use. The list prepared by MDE is referred to as the 303d list referencing the section of the Clean Water Act it is prepared in compliance with. The 303d list can be found on the MDE website at:

<http://www.mde.maryland.gov/PROGRAMS/WATER/TMDL/INTEGRATED303DREPO RTS/Pages/Programs/WaterPrograms/TMDL/Maryland%20303%20dlist/index.aspx>

For up to date information on the water quality status of the surface water bodies in Washington County this website should be referenced.

"Historically, the 303(d) list has been a report of a jurisdiction's (i.e., State, territory or authorized tribe's) impaired surface waters. An impairment is identified when water quality monitoring data suggest that a water body (river, lake, estuary or ocean) does not meet or is not expected to meet water quality standards. When a water body is listed, the cause (pollutant) and the priority of the impairment are identified. Waters scheduled for total maximum daily load (TMDL) development in the next two years are also identified in the list."

"In accordance with recent U.S. Environmental Protection Agency Guidance, Maryland's current List of Impaired Surface Waters [303(d) List] is contained in an Integrated Report that describes five different categories of water quality, including: Category 1 - waters attaining all standards; Category 2 - waters attaining some standards; Category 3 - waters with insufficient information to determine if water quality standards are attained; Category 4 - impaired or threatened waters that do not need or have already completed a TMDL; Category 5 [the historical 303(d) List] - impaired waters for which a TMDL is required."

“All impairing substances or pollutants identified in Category 5 of Maryland's Integrated 303(d) List must generally be addressed by either a water quality analysis (WQA) or a TMDL. A WQA is completed when new water quality monitoring data suggest that a water body is meeting water quality standards (i.e., belongs on Category 2 of the Integrated List). TMDLs are completed when a water body continues to violate water quality standards. A TMDL establishes the amount of pollution, plus a margin of safety, that a water body can assimilate and still attain water quality standards. Local jurisdictions or responsible parties determine specifically where pollutant loading reductions will be made. In some cases, listings can be removed with an explanation, which may include application of inappropriate water quality criteria, delineation of impairment and/or additional data [under the Good Cause Provision (40CFR130.7)]. These listing changes may not require a WQA or TMDL. Maryland is also pursuing alternative approaches to TMDLs that result in more rapid implementation measures to address water body impairments.”

Quotes in the section are from:

<http://www.mde.maryland.gov/PROGRAMS/WATER/TMDL/INTEGRATED303DREPORTS/Pages/Programs/WaterPrograms/TMDL/Maryland%20303%20dlist/index.aspx>

The following sections list the main surface water bodies and drainage areas in Washington County and provide general information on each (see Map IV). For updated water quality status of these surface water bodies the MDE website should be referenced at:

<http://www.mde.maryland.gov/PROGRAMS/WATER/TMDL/INTEGRATED303DREPORTS/Pages/Programs/WaterPrograms/TMDL/Maryland%20303%20dlist/index.aspx>

8. Potomac River Mainstem

The mainstem of the Potomac River is 112.3 miles in length. It follows a sinuous course through most of its length. Upstream reaches flow through primarily forested land, while the land draining the lower reaches is principally agricultural. Several small towns are located along the River's banks.

In the Hancock area, the wastewater treatment plant for the town is discharged into Tonoloway Creek a short distance above its mouth. At Williamsport, the Nicodemus Wastewater Treatment Plant formerly

discharged into the Potomac but on November 1, 2001 this flow was permanently diverted to the Conococheague Wastewater Treatment Plant. The Sandy Hook Wastewater Treatment Plant owned by the County serves the Sandy Hook area and discharges into Martins Run just above its mouth. Martins Run is in the Israel Creek Drainage Area.

In addition to the Maryland discharges, the West Virginia towns of Shepherdstown, Bolivar, and Harpers Ferry, as well as other small discharges have domestic waste discharges to the main stem of the Potomac River on the other side of the Potomac River.

9. Antietam Creek

The Antietam Creek segment lies east of the center of Hagerstown, Maryland having drainage areas in Maryland of 187.0 square miles. Another 104.9 square miles of the Antietam Creek drainage is contained in Pennsylvania. The principal cities in the watershed are Waynesboro, Pennsylvania and Hagerstown, Maryland. Little Antietam Creek, Beaver Creek, and Marsh Run are all classified as Class III (natural) trout waters while the remaining surface waters are classified as Class IV (recreational) trout waters.

The waters of Antietam Creek and its tributaries are used by several industries and municipalities for cooling purposes and sewerage disposal. Hagerstown and Funkstown sewerage treatment plants are located south of Hagerstown about 1½ miles apart and discharge directly into the stream's main stem. The Antietam Wastewater Treatment plant owned by the County discharges into the main stem of the Antietam just south of Sharpsburg. This facility serves the Sharpsburg and Keedysville areas.

10. Conococheague Creek

The Conococheague Creek segment lies to the west of Hagerstown, Maryland. The drainage area consists of 65.8 square miles with a main stream length of 22.0 miles. The great majority of the stream's drainage, 497.6 square miles, is contained in Pennsylvania. Most of the segment is agricultural or forest, except for the eastern edge which drains the western urban fringe area surrounding Hagerstown. Few small towns are found in the segment, the largest being the greater part of Williamsport.

Conococheague Creek upstream of the Maryland/Pennsylvania line receives a large variety of domestic and industrial wastes. The Towns of Chambersburg and Mercersburg, Pennsylvania discharge sewage treatment plant wastes into the stream. The Conococheague Wastewater Treatment Plant owned by the County discharges into the Conococheague Creek at a point near Kemps Mill. This facility serves the Williamsport, Halfway, Tammany, Van Lear, Cloverton, Greenlawn, and large portions of the Hagerstown Urban Growth Area west of Hagerstown.

11. Little Conococheague

Little Conococheague Creek is located just west of Conococheague Creek. Its total drainage area of 18.0 square miles, 16.7 square miles are contained in Maryland. A large tract of land in the upper segment, the Indian Springs Wildlife Management Area, is forested. The watershed is generally sparsely populated with some farm land in the lower section. Clear Spring, the only Town in the watershed, is located on Tom's Run, which is the largest tributary.

12. Licking Creek

Licking Creek is located west of Little Conococheague Creek. Its largest drainage area is mostly in Pennsylvania (185.5 square miles), and only 27.6 square miles are included in the Maryland segment. Most of this area is forest. Part of the Indian Springs Wildlife Management Area is located in the western segment of the drainage area. One small town (Pectonville) lies on the stream's western bank approximately two miles above the stream's mouth.

13. Tonoloway Creek

The Tonoloway Creek drainage segment is located just east and northeast of Hancock, Maryland. This segment is quite small consisting of only 2.1 square miles. The remainder of the watershed is in Pennsylvania and is 111.5 square miles in size. Several orchards are found in the segment, but no towns and very few dwellings.

14. Little Tonoloway

The State of Maryland recently constructed a package wastewater treatment plant to serve the Sideling Hill Interpretive Center located off of I-68 on Sideling Hill Mountain. Discharge from this plant is into Munson Spring Branch, a tributary of the Little Tonoloway.

15. Sideling Hill Creek

The Sideling Hill Creek segment includes 23.1 square miles. The total drainage area includes an additional 80.5 square miles in Pennsylvania. Sideling Hill Creek and all tributaries are classified as Class IV waters (to be protected for use as recreational trout waters).

16. Dargan Area Drainage

The Dargan Area Drainage is located just above the Town of Harpers Ferry between Antietam Creek and Israel Creek. It consists of 11.1 square miles of drainage, and includes several small unnamed tributaries which enter the Potomac River directly.

17. Downsville Area Drainage

The Downsville area segment lies to the west of Antietam Creek between Williamsport and Shepherdstown, and contains many streams directly tributary to the Potomac River. The area is 52.4 square miles in size. The largest stream in the segment is St. James-Marsh Run whose headwaters originate at St. James, a suburb of Hagerstown.

18. Pinesburg Station Area Drainage

Pinesburg Station Area Drainage is a small segment (6.3 square miles) being at the southwest of the Conococheague Creek. It consists of a few small unnamed tributaries.

19. Greenspring Area Drainage

This segment which drains 20.5 square miles is located between the Conococheague Creek and Licking Creek watersheds. Fort Frederick

State Park adjoining Big Pool, a large lake, on the C & O Canal, is found near the Potomac River.

20. Timber Ridge Drainage Area

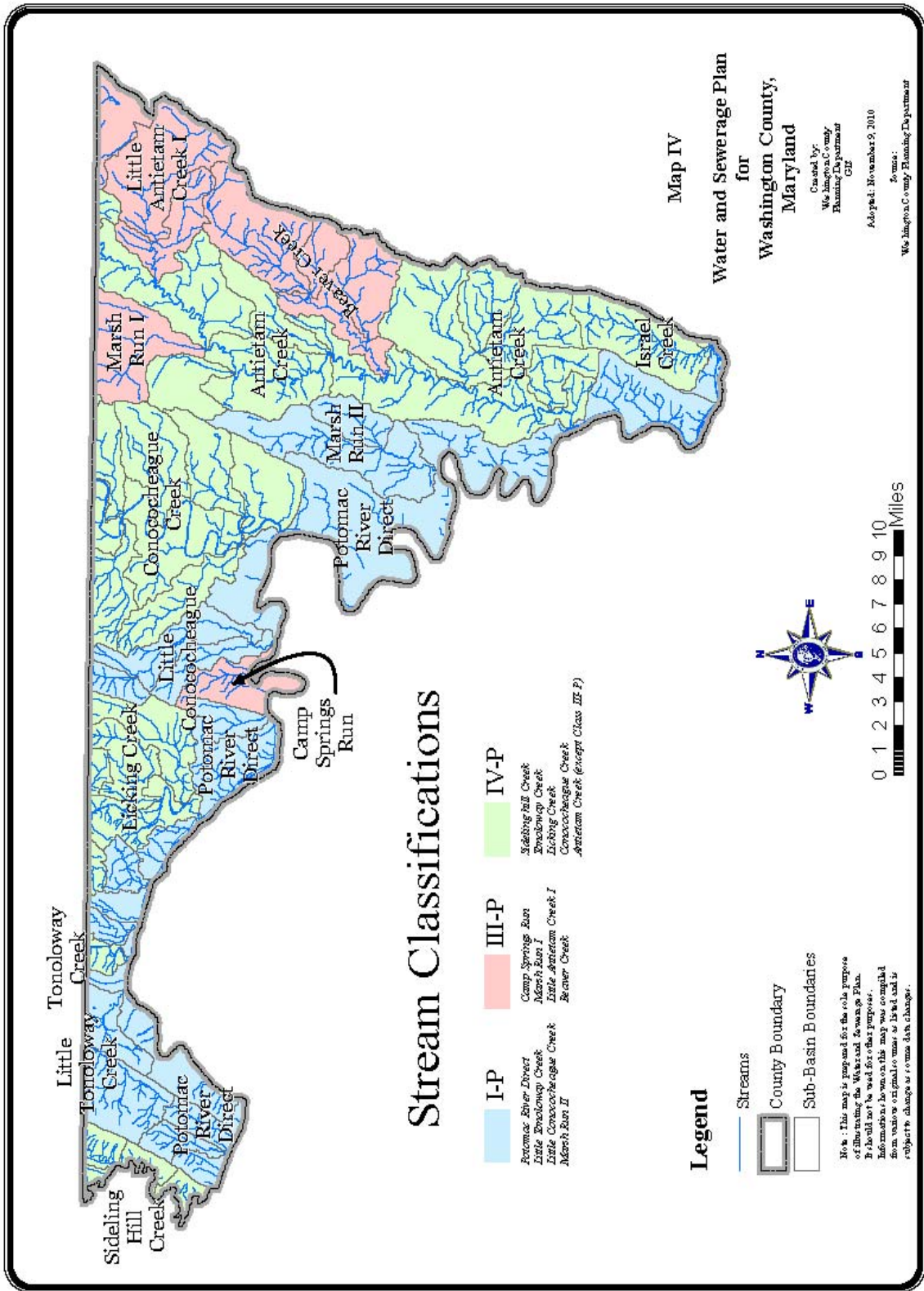
The Timber Ridge segment (11.0 square miles) lies to the west of Licking Creek. Ditch Run and several small tributaries drain this area.

21. Tonoloway Ridge Drainage Area

Tonoloway Ridge Area Drainage (20.8 square miles) is located west of Tonoloway Creek and east of Sideling Hill Creek. Little Tonoloway Creek contained almost entirely within Maryland is the largest stream in the segment. Package wastewater treatment plant serves a campground along the Potomac River on the east side of Tonoloway Ridge. Discharge is into an unnamed tributary. The Town of Hancock, Maryland is found within the Little Tonoloway drainage area, although the Town’s wastewater treatment plant discharges into Tonoloway Creek, another watershed.

CLASSIFICATION OF THE WATERS OF WASHINGTON COUNTY		
UNIT CODE	NAME	DESCRIPTION
Class II Waters Shellfish Harvesting (NONE)	None	None
Class III Waters-Natural Trout Waters	Beaver Creek	Mainstem only, in Antietam Creek Watershed
	Marsh Run	Mainstem only, in Antietam Creek Watershed
Class IV Waters-Recreational Trout Waters	Sideling Hill Creek and all Tributaries	Entire Sideling Hill Creek Watershed
	Tonoloway Creek and all Tributaries	Entire Tonoloway Watershed
	Licking Creek and all Tributaries	Entire Licking Creek Watershed
	Conococheague Creek and all Tributaries	Entire Conococheague Creek Watershed
	Antietam Creek and Tributaries, Except Classified Above as Natural Trout Waters	Entire Antietam Creek Watershed Except Those Designated Natural Trout Waters

Source: Water Resources Administration



22. Groundwater Characteristics and Aquifers

Washington County is divided generally into four water provinces based upon physiographic formations as illustrated on Map No. V – Generalized Hydrologic Unit Map. The division includes the South Mountain-Elk Ridge province averaging three miles in width along the eastern boundary of the County; the Hagerstown Valley province extending approximately 18 miles in width to the base of Fairview and Powell Mountains; the Hancock-Indian Springs province reaching westward from the Fairview and Powell Mountains nearly 19 miles to the base of Sideling Hill Mountain; and the Sideling Hill-Town Creek province extending to the County line.

- a. Within the South Mountain-Elk Ridge water province, only small differences exist in the water-bearing capacities of the geologic formations. According to compiled data, the mean yield from wells is less than 10 gpm with a range from 1 to 60 gpm. The best yields appear to be located in the Catoctin metabasalt formation in the Cascade-Highfield-Fort Ritchie area. Springs in this water province, although numerous, are generally small with discharges ranging from less than 10 to 100 gpm. The chemical quality of groundwater is considered suitable for most uses with spring water lower in mineral content, but slightly more acidic than well water.
- b. The Hagerstown Valley water province covering an area of approximately 300 square miles is considered hydrogeologically complex because of the broken and folded characteristics of the limestone and similar carbonate rocks such as dolomite. “In consolidated carbonate rocks, most of the water is stored in joints, bedding planes, irregular fractures, and solution openings and at many places in the intergranular pores of the residuum (soil derived from weathered rock)...The number, size and degree of interconnection of the joints, solution cavities and other secondary openings of the carbonate rocks determine their capacity to transmit water.”⁷

⁷ Nutter, Larry J., Ibid, p.13

The major direction of groundwater movement in the Hagerstown Valley province is southward to the Potomac River. Although local variations may exist in rock permeability, the water table contours within the Hagerstown Valley closely parallel the topographic patterns.

Groundwater recharge in this province occurs primarily by precipitation filtering through the soil and subsoil. "Streams that flow off South Mountain to the east...and Powell and Fairview Mountains to the west are major sources of recharge."⁸ Surface depressions and sags acts as efficient basins to collect rain water and a sinkhole at Jugtown, Washington County is known to have "captured" a perennial stream with a flow of 220 gallons per minute.⁹

The quantity of groundwater available in the limestone and dolomite aquifers of the Hagerstown Valley is quite large. As Nutter has noted, "Carbonate rocks...are often excellent sources of water because the interstices (fractures and solution cavities) are large and hence yield freely nearly all the water being held against gravity."¹⁰ Wells drilled in the Hagerstown Valley yield from 2 to 400 gpm with the Tomstown dolomite, Conococheague limestone, and Stonehenge limestone evidencing respectively the highest yields. Springs also occur throughout the Hagerstown Valley water province and have a discharge range from 25-100 gpm to 2000-3000 gpm.

- c. The third major water province in Washington County, the Hancock-Indian Springs province, extends westward from the Fairview-Powell Mountains to the eastern base of Sideling Hill. With shale as the dominant rock type in this province, groundwater recharge is low. Shale soils evidence a low to moderate moisture holding capacity and a relatively high direct surface runoff results. Hydrogeologic conditions, therefore, are unfavorable for large capacity wells of any sustained yield. Springs occur in all of the

⁸ Ibid, p.13

⁹ Ibid, p.13

¹⁰ Ibid, p.32

formations in the Hancock-Indian Springs water province, and are for the most part, gravity fed. Although sufficient amounts of water may be available for modest domestic and farm use, test results indicate rather poor aquifers are present. The quality of water in this province is generally satisfactory. However, both a high iron content and a hardness factor prevail. One of the least desirable water supply areas is along the Tonoloway Ridge west of Hancock where hardness and nitrate content were significantly high.

- d. The Sideling Hill-Town Creek water province occupies the small portion of Washington County between Sideling Hill and Sideling Hill Creek. The best well in the province yields only 36 gpm which indicates the absence of any significant groundwater supplies. Also in the province hardness and iron content may necessitate treatment of water supplies. Additionally, high sulfur and nitrate contents have been found in certain wells in the Jennings formation.

Map V generally illustrates the aquifer characteristics in Washington County in terms of the following three Hydrologic Units.

Hydrologic Unit I - Contains the most productive aquifers. Average yields and specific capacities fall in the upper 25%. Well yields range from 1 to 580 gpm. There is approximately a 20% chance of getting a well yielding 50 gpm or more.

Hydrologic Unit II - Aquifers are of intermediate productivity. There is approximately a 6% chance of getting a well yield of 50 gpm or more.

Hydrologic Unit III - Contains the poorest aquifers within the County. Well yields range from 1 to 200 gpm with only a 2% chance of getting 50 gpm or more.

Note: The above referenced yields are tested yields, not necessarily sustained yields which are generally substantially lower.

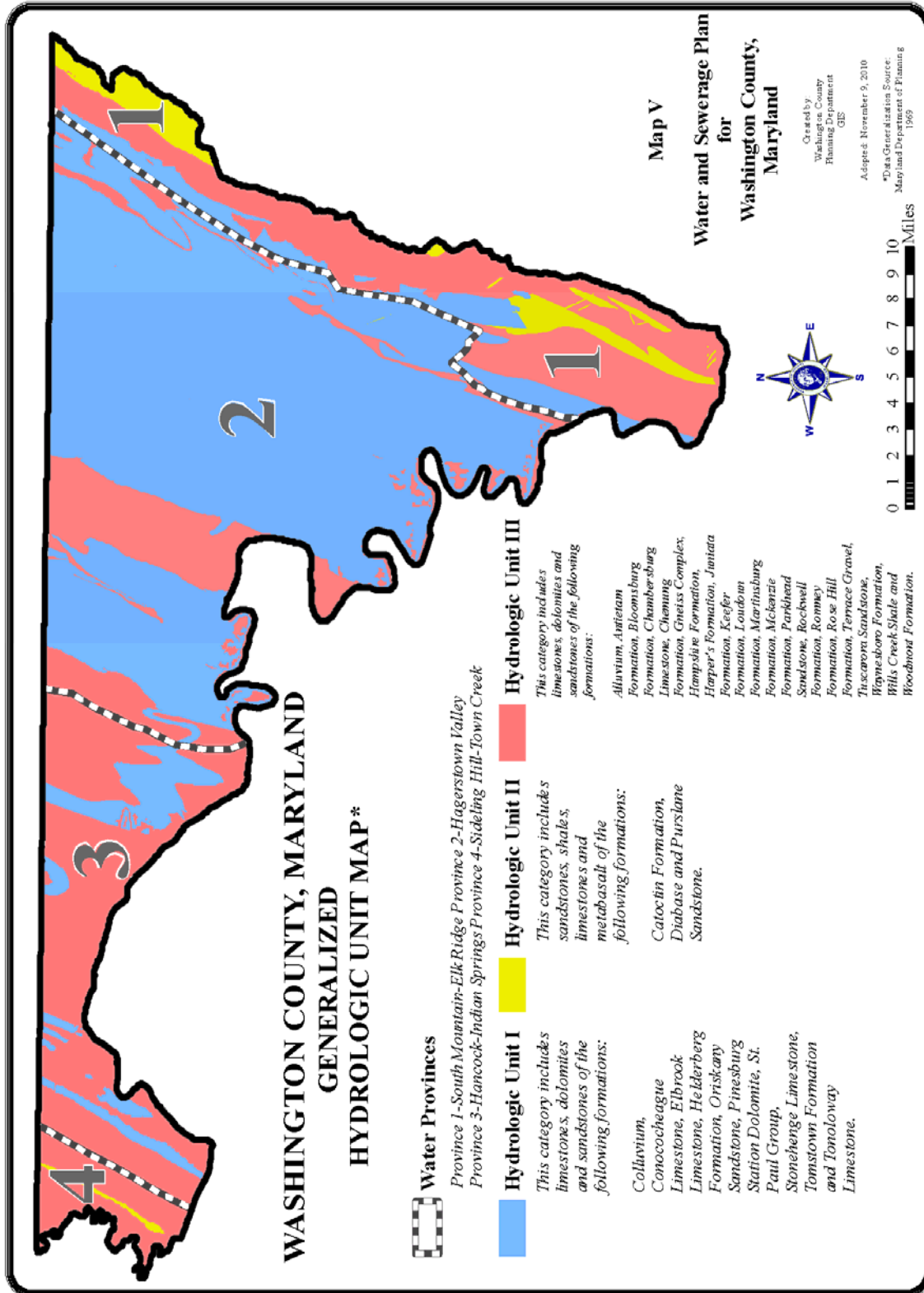
23. Groundwater Quality

Groundwater quality has been monitored in Washington County for many years pursuant to requirements of various projects and regulatory programs. Although ample groundwater quantity is apparent, groundwater quality continues to be a problem due to the predominant karst topography.

To understand the water quality in Washington County, one needs to understand the geology and hydrology of this area. The majority of this area is located over unconfined carbonate aquifers. According to Duigon (2001), about 89% of the Hagerstown Valley is underlain by carbonate rock. The hydrology of carbonate rock is unique because the dissolution of bedrock has resulted in karst terrain. In karst terrain, water creates solution channels in the rock through the solution process. This process results in unusual surface and subsurface features. For example, sinkholes, rock outcrops, sinking streams, caverns, and many fissures often occur in the underlying rock. It has been well documented by the United States Geological Survey (USGS), the Maryland Geological Survey (MGS) and MDE that sinkholes and sinking streams are direct pathways to the groundwater and springs (Duigon 2001).

Nearly half of the sources of water supply wells in Washington County are in subsurface karst areas. The density of perennial streams can be significantly less than in non-karst areas. Blocks of sparsely fractured rock may occupy some of the areas between ground-water-carrying conduits. Due to the large amount of subsurface karst, a vast majority of wells are susceptible to surface water runoff and various land uses.

While karst aquifers may be subject to numerous types of contaminants, one method of determining the pollution level of groundwater is to count the coliform organisms. Total coliform bacteria are readily available in the environment and are harmless, but their presence indicates the groundwater may be contaminated by pathogenic organisms. Fecal coliform bacteria, of which one type is *E. coli*, are found in the excreta of warm blooded animals, and some strains cause disease. Simple and inexpensive laboratory analyses are available for presence-absence testing of fecal coliform bacteria. It is more difficult and expensive to test for other pathogenic micro-organisms. However, these tests may be routinely used depending on the need.



All public water systems are required to perform routine monitoring, including for acute contaminants such as fecal coliform. Maryland Department of the Environment (MDE) has regulatory oversight of the community and non-transient non-community (schools, businesses, etc.) public water systems. MDE also supports the County Health Department in an oversight capacity of the transient non-community water systems. In addition, all new and existing wells serving public water systems must be evaluated to determine whether the groundwater is under the direct influence of surface water (GWUDI), which includes sampling for fecal coliform in both dry and wet weather. All public wells confirmed to be GWUDI must install treatment similar to that used by surface water systems in order to protect public health.

Wet weather and dry weather testing allows both MDE and the County Health Department to isolate wells which are found to be GWUDI. The GWUDI sampling protocol calls for wells to be sampled for four consecutive days following a rain event greater than a half an inch. Water samples are examined for bacteriological counts and turbidity levels. Additionally, wells are sampled when there has been no occurrence of rain, hence dry weather samples. The bacteriological and turbidity results are examined and a well is then considered to be under the direct influence of surface water. These wells are highly susceptible to what occurs on the surface of the ground regardless if it is weather related, land use related or a combination thereof. As a result, the GWUDI public water supplies are sampled more frequently for biological contaminants. They are also monitored for turbidity as a parameter for the pathogenic micro-organisms *Giardia* and *Cryptosporidium*, which present a significant health risk and are resistant to common disinfection technologies. Sampling for iron or color can discount color-related turbidity. Systems with GWUDI wells must have treatment in the form of chlorination, an ultraviolet light, and one micrometer filtration. Additionally, they are required to have a certified operator to maintain and monitor their system. In addition to bacteria and turbidity, pH and temperature are also measured for GWUDI sampling, in order to evaluate changes in water quality that might indicate that ground water is influenced by surface water.

The GWUDI systems and the Surface water systems are also subject to more stringent regulations such as the Long-Term 2 Enhanced Surface Water Treatment Rule (LT2 Rule). The LT2 Rule targets drinking water

systems that rely on surface water as their water source. This rule specifically is aimed at protecting drinking water from the threat of protozoan pathogens such as *Cryptosporidium parvum* and *Giardia lamblia*. Under the LT2 Rule, many filtered systems will need to collect E. coli samples at least once every 2 weeks for 12 months from every surface water or GWUDI source. Additional information on the LT2 Rule may be found at:

www.epa.gov/safewater/disinfection/lt2/regulations.html#prepub

Groundwater in karst areas often intercept enlarged openings, which are directly connected to sinkholes, rock outcrops, and/or sinking streams. These direct pathways do not provide a treatment zone to remove pathogens present in the surface water before the water reaches a well. Therefore, anything on the surface, such as fertilizers, pesticides, surface water, or any other contaminants can wash into these features, which are direct channels to the groundwater. When this occurs, potentially harmful pathogens that could cause human illness, such as infectious Hepatitis, Giardia, Cryptosporidium, Legionella, etc. The water carrying the contaminants which may come from pesticides, application of fertilizers or animal wastes and failing or improperly treated septic effluent can carry pathogens which can travel long distances very quickly, possibly intersecting many wells. Across the Hagerstown Valley, you can visibly see in several areas the many sink holes, rock outcroppings, and sinking streams.

The ground water in karst areas often flows at very high volumes and velocities as well. One dye test study conducted by MDE in July of 1997 was noted in Duigon (2001). Results provided ground water velocities based on time the dye was injected into a sinkhole until it was detected at a spring more than two miles to the northeast. The dye test indicated that the water traveled at a rate of approximately fifty feet per hour.

As stated above, nearly 89% of the Hagerstown Valley area is predominately underlain by carbonate rock or karst terrain. The remaining areas within the Hagerstown Valley are underlain by predominately non-carbonate rocks such as sandstone and shale. This area of non-carbonate rock runs mainly along the Conococheague Creek. Outside of the Hagerstown Valley, in the Ridge Areas, the underlying rock tends to be non-carbonate rocks such as shale, siltstone, and sandstone formations.

Taken from Source Water Assessment Report, Washington County Maryland April 2006

24. Well Construction

Deeper wells along with improved construction practices generally have a lower incidence of bacteriological contamination in the non-carbonate rock areas. Casing should be set in bedrock, indicating that where the casing is set is a function of the depth to bedrock. However, in fractured rock aquifers, the potential for contamination depends primarily on the degree of hydraulic connection between the weathered zone and bedrock portion of an aquifer and the well bore itself. The vulnerability of aquifers to contamination from the surface, however, continues to be a risk even for properly constructed wells.

The closer a well is to the on-site or neighboring septic system, the more likely it is to be contaminated. Conversely, the greater the isolation distance between well and septic system, the less likely the well is to be contaminated.

In the non-carbonate rock areas improved well construction practices as well as improved septic system planning, design, and enforcement procedures that have been put into practice in recent years help in lowering the incidence of bacteriological contamination. However, in areas of karst terrain, while properly constructed wells can help in preventing contamination from entering the water supply, another factor that must be considered is the vulnerability of the source to surface water contamination.

The greater the depth to the static water level, the less likely a well is to be contaminated. Conversely, the shallower the static water level, the more likely the well is to be contaminated.

Well casings extended well below the static water level will provide an added degree of sanitary protection to the subject well.

25. Groundwater Quality Planning, Design and Management

Certain aquifer units in the County appear to be more sensitive to groundwater contamination. Specifically, the Beekmantown (48%) and Metamorphic Aquifer (36%) are much more likely to have wells which are contaminated. This conclusion is relative to the average rate of contamination across the three prototype areas (24%). For this reason, special planning and other protective measures may be especially warranted for these aquifer units.

Wells (and septic systems) are no more likely to be contaminated when placed upon hydrogeologic and soils with limitations than are those which are placed upon more ideal sites. This does not, however, refute the fact that sites characterized by bedrock outcroppings or shallow and rocky soils generally provide incomplete renovation of infiltrating sewage effluent.

Improvements in planning and design standards for the following criteria will result in improved groundwater quality.¹¹

- a. Well depth.
- b. Length of well casing.
- c. Isolation distances.
- d. Soils and hydrogeologic conditions.
- e. Depth to static water level.
- f. Wells drilled in the Beekmantown and Metamorphic Aquifer Units.

Any groundwater quality management plan which succeeds in significantly improving groundwater quality must be multi-faceted, designed to address and regulate point and non-point sources of surficial bacteriological contamination and to require appropriate well siting and construction standards.

In 1990 and 1991, Washington County Health Department's Division of Environmental Health conducted a survey in an attempt to assess the quality of groundwater, specifically, any change which could be noted

¹¹ Editorial Note: Any changes to design standards for wells could only be made by, and with the cooperation of, the Maryland Department of the Environment.

from the parameters presented in the 1981 study. In an attempt to do this, a random sampling was conducted of 50 percent of the sites originally used by R. E. Wright and Associates.

The results of the resurvey of the 1981 R.E. Wright and Associates, Inc. report indicate that while there has been a seemingly minor decrease in groundwater quality, especially in the shale aquifer unit, on the whole the overall water quality in the County (within the parameters tested) has remained relatively constant. Rates of contamination for these two studies are also consistent with results of other sampling which has been done by the Washington County Health Department. The hope for an *increase* in groundwater quality due to a more stringent on-site water and sewer regulation has not been seen; however, it should be noted that in the ten-year period 1981 through 1991, 3,834 permits for the installation of new septic systems were issued by the Washington County Health Department. This growth has occurred during a period of increased stringency for construction and siting of on-site systems and it may well be that the regulations imposed by the Washington County Commissioners in 1983 has had the effect of stemming ground water contamination at earlier levels.

Currently, studies continue on the ground water quality within the County with the County Health Department modifying study methods and attempting to assess the effect of external variables, e.g. seasonal, agricultural activity, on water quality. Additionally, there are other studies that have been conducted by the Maryland Geological Survey, one of which focuses on sinkholes in Washington County. However, these studies have not yet been put into publication at the time of this writing. Much of the results are based on individual results such as new well sampling results and transient non-community water supply sampling, are not compiled, and can vary significantly from one property to another, as it can from one day to another. Sampling is on-going based on the Safe Drinking Water Act, as is the data gathered by MDE for non-transient non-community water supplies and community water.

One study conducted by MDE investigated the source of bacterial contamination of community drinking water systems near Boonsboro using fluorescein or rhodamine dyes. Dye was inoculated into multiple points, mainly sinkholes, around the Boonsboro area. The results of the study indicated that several of the public water systems were influenced

by surface water and by septic systems. One system seemed unaffected by either, and conclusions were unable to be drawn on other systems due to an already high background of fluorescence. This study led to a State-funded project in which Boonsboro's water distribution line will be extended to public water systems and individual wells in an area of poor water quality.

All of the historic and recent water quality data seems to yield the same conclusions. A successful groundwater quality management plan will need to be designed to regulate point and non-point sources of surface bacteriological and chemical contaminants. Of course one of the foremost facets of the plan will focus on appropriate well siting and construction standards.

26. Source Water Assessments

The Maryland Department of the Environment began a program to assess the vulnerability to contamination of all public drinking water sources in 1999. The program used three main tools for assessing drinking water sources: source water delineation, contaminant surveys, and susceptibility analysis to collect data on each water sources. The information gained through these tools was then used to evaluate the susceptibility of a water supply source to contaminants that may affect the safety of the drinking water and prepare a final Source Water Assessment report for each public drinking water source in Washington County. This information allows water suppliers and MDE to work in partnership with other agencies to develop source water protections programs. Copies of the Source Water Assessments are on file at the Washington County Planning Department and are available for public review upon request.

27. Water Quality Plans

The Federal Water Pollution Control Act of 1977 made improved water quality a national priority and authorized funding for the planning, design and construction of sewerage facilities. The planning and construction grants programs established by this Act have provided the means by which the County and municipalities can meet many of the local objectives for the development of wastewater facilities. Under Section 303(e) of the Water Pollution Control Act, the Water Resources Administration of the State of Maryland prepared the Upper Potomac

River Basin Water Quality Management Plan in 1976. The Plan evaluates existing water quality, sources of pollution, and recommends management approaches for the Basin, which includes all of Washington County. The scope of the Plan is much broader than the need for sewerage facilities.

While the Basin Plan prepared under Section 303(e) deals primarily with pollution which can be traced to point discharges to surface waters, the Basin Plan prepared pursuant to Section 208 deals with non-point sources. The 208 Plan, completed in 1979, identifies non-point sources of water pollution and current management activities in the areas of storm water runoff, sediment control, surface mining, residuals management, failing septic systems, forestry operations, agriculture, and snow and ice controls. Section 201 of the Water Pollution Control Act established a construction grants program for public sewerage facilities. Until 1989, funds were allocated by EPA to local areas on the basis of state-wide priorities in a three step process. In step 1, Facilities Planning, the specific sewerage requirements of a planning area designed by the State are investigated, alternatives evaluated, and a particular solution recommended. The Antietam Basin Facilities Plan for Hagerstown metropolitan area, including the incorporated towns of Funkstown, Williamsport and Smithsburg, was prepared with a Step 1 grant. The 201 Plan for Boonsboro-Keedysville-Sharpsburg was originally prepared in 1981 and updated in 1985. Steps 2 and 3 of the construction grant program funded the preparation of detailed engineering plans and specifications and the construction of facilities respectively. There was a tendency to consolidate steps 2 and 3 into 'step 4.' EPA grants also funded facilities planning for Clear Spring, Highfield-Cascade-PenMar, Hancock, and Sandy Hook.

28. TMDL

TMDLs (Total Maximum Daily Load) are completed when a water body continues to violate water quality standards. A TMDL establishes the amount of pollution, plus a margin of safety, that a water body can assimilate and still attain water quality standards. MDE prepares the TMDL in accordance with the 303d list. For a complete and update to date listing of completed TMDLs for water bodies in Washington County and the current schedule for development of future TMDLs reference should be made to the MDE website at:

B. POPULATION ANALYSIS & PROJECTIONS

According to the US Census Bureau the population of Washington County in 2000 was 131,393 persons. Maryland Department of Planning estimated the population of Washington County in 2008 at 145,384.

Chapter 3 of the adopted Comprehensive Plan for Washington County provides a detailed description of Washington County's demographics including population and housing units.

Between 1940 and 1990 the population of Washington County grew by 52,555 people. This is an annual rate of approximately 0.76% per year. By the year 2000 the population grew by an additional 10,530 persons to 131,923 persons. This represents an annual growth rate of approximately 0.86% per year for the 1990s. The County estimates the population to increase to 149,835 by the year 2020 and 176,868 by 2050. These numbers are based on trends in new housing unit permits issued throughout the County as well as extrapolation of group quarter projections from the State. For projection purposes the County has used an annual permit issuance rate of 600 per year. It also anticipates a decrease in the average household size in accordance with State projections. (See Table No. 1) The average annual growth rate between 1940 and 1990 and projected through 2020 shows a peak during the 1950s, and another smaller peak during the 1990s. From 2000 to 2020 the average annual growth rate is projected to average less than 0.7%. (See Table No. 2)

It is obvious that the projected growth rate for the County will not be distributed evenly over the entire County. Some areas may experience higher growth rates and other areas lower. Chapter 12 of the 2002 Comprehensive Plan for Washington County provides a detailed plan of how the community should develop in the future and where it is anticipated that this growth will be distributed.

The Land Use Plan illustrates how development consistent with the goals and objectives for the County can be achieved. To be effective, a land use plan should be based on the assumption that there will be growth and therefore planning for it should be on an integrated, comprehensive manner.

In addition, the Land Use Plan must fit the community's needs by preserving its unique character, protecting the environment and enhancing economic opportunities. Recognition of the key role that public facilities play in determining the pattern of development is a significant factor in the development of the plan. Projections of population and housing growth, as well as allocation of space for economic development, are all factors that played a significant role in development of the Land Use Plan.

Housing unit projections were based on the analysis done previously for the fiscal impact study by Tischler & Associates and the study for designation of Priority Funding Areas. Land consumption calculations use methodology employed in the Priority Funding Area study, as well as procedures and assumptions developed to account for new land use scenarios. Taken together, they were used to analyze the impact of potential residential growth.

Four primary housing unit projection scenarios were analyzed for potential impact on available land area: current trends, State planning projection, County composite (between current trends and State Planning), and "Wave" which depicts substantial development above current trends. In addition, a fifth scenario, "Super Wave", was reviewed to insure that adequate area for residential development existed if massive amounts of new residents poured over South Mountain. The County Composite scenario along with the Wave scenario are the two cases that are basically used to analyze residential growth impact. The Composite scenario is the primary scenario used for planning purposes. The Composite scenario anticipates 9,925 residential units being added to the housing stock in the County over the next 20 years while the Wave scenario anticipates 14,888 housing units. Portions of these units have been allocated to the urban and rural areas, including the municipalities, based on historic development trends. With the institution of the policy areas it is anticipated that the 80/20 urban versus rural development ratio should gradual move toward a target ratio of 90/10 toward the end of the twenty-year horizon period as existing lots in the rural area are used up and fewer new lots are plated in the rural area. The Land Use Plan is designed to have enough capacity available to address the needs of both the County composite projection and Wave scenarios without major revisions to the policy areas.

Table No. 1

Population

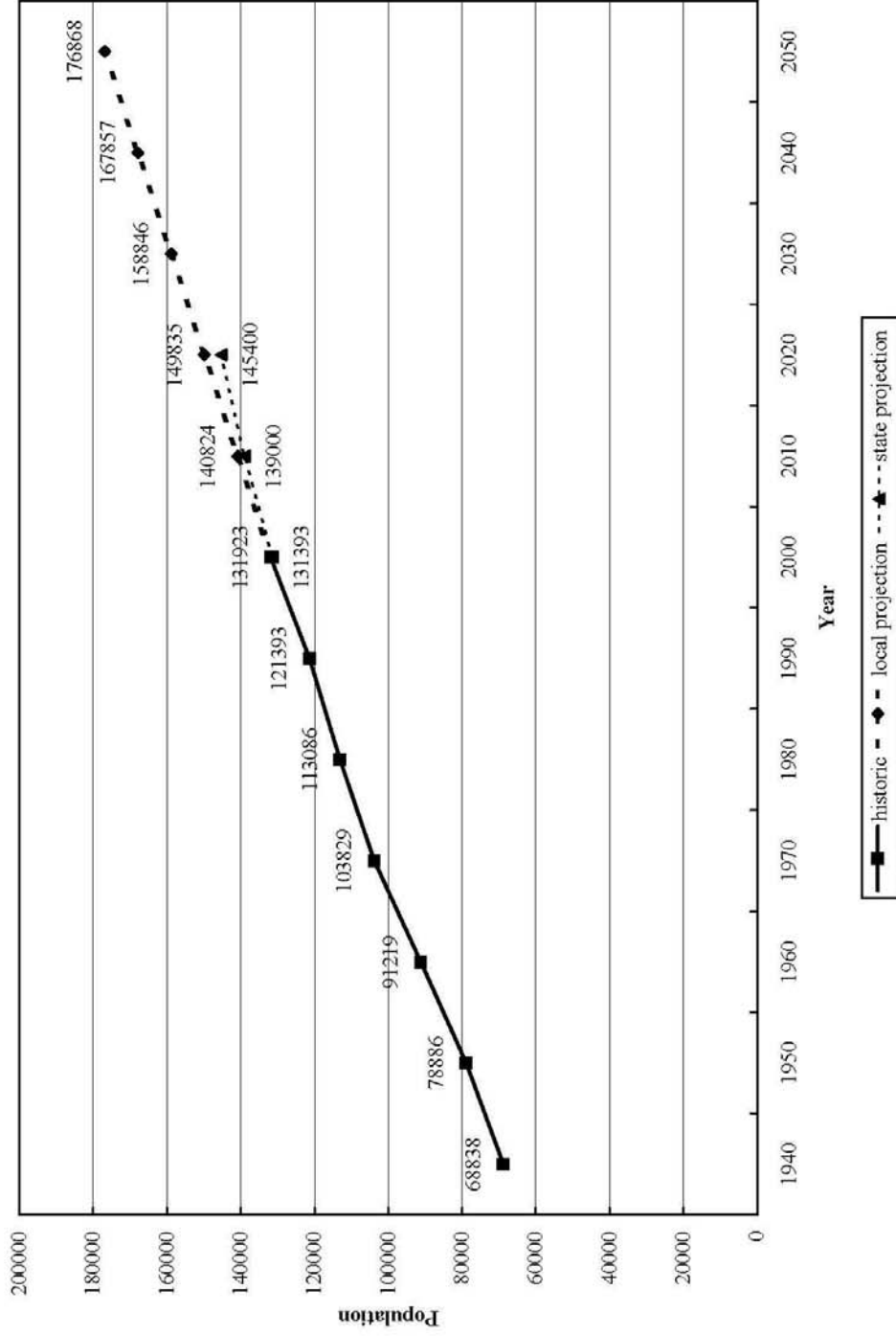
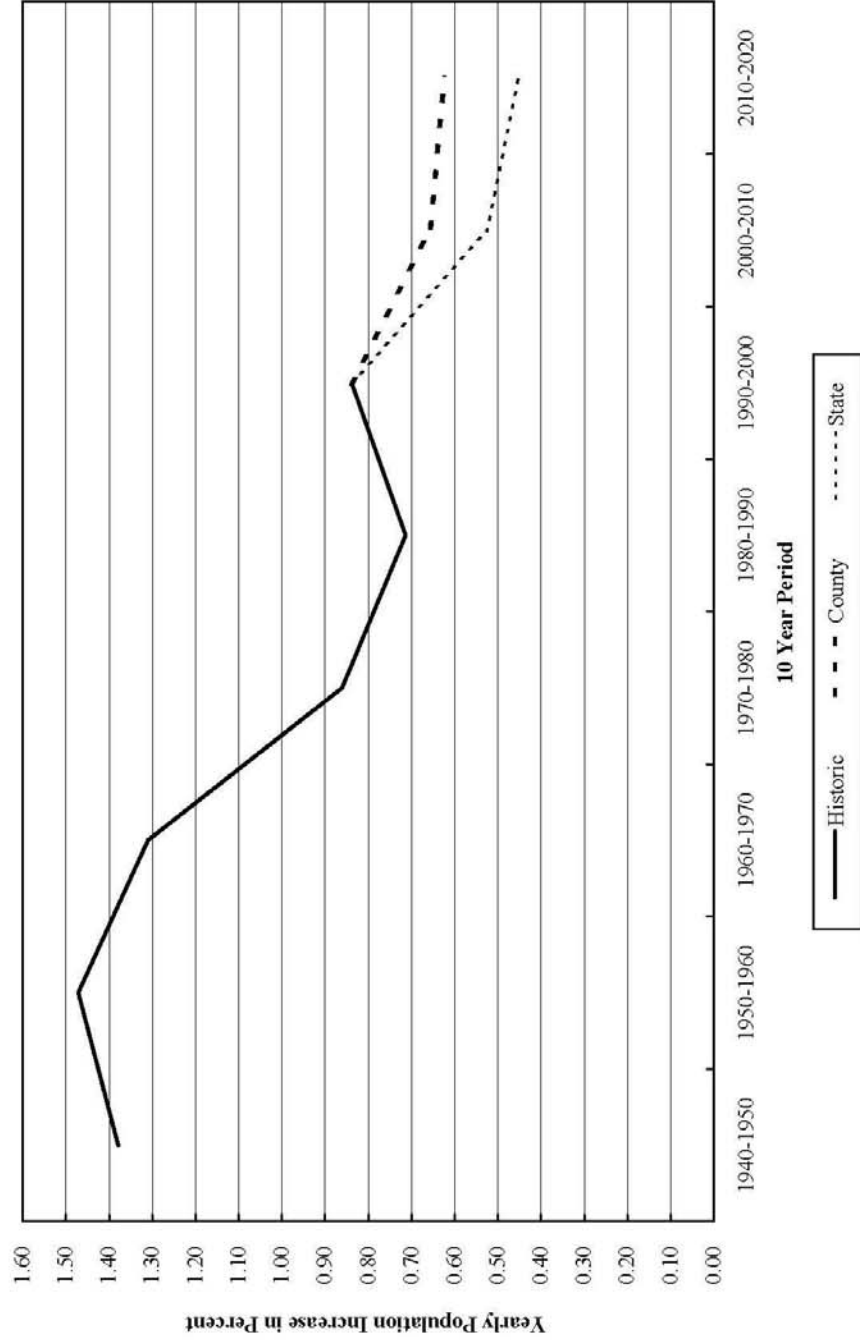


Table No. 2

Average Annual Growth Rates Historic and Projected



C. LAND USE & GROWTH MANAGEMENT STRATEGY

A generalized land use analysis of Washington County indicates that the highest orders of development are located in the Hagerstown Valley. In particular, the City of Hagerstown and the surrounding adjacent communities evidence the most intense residential, commercial, and industrial land use activities. With the Hagerstown Metropolitan Area as the virtual hub of the County, small incorporated towns and communities are situated along almost every primary corridor emanating from the City. Considerable strip development has taken place along those roadways between the Hagerstown Metropolitan Area and the established communities.

Outside the Hagerstown Valley, land use patterns are manifested largely by open space/agricultural uses and sporadic residential clusters.

The 2002 Comprehensive Plan for Washington County provides a detailed analysis of current land use in Washington County. The 2002 Comprehensive Plan also includes a Land Use Plan (Map VI - Land Use Plan). This Land Use Plan as well as identifying growth and non-growth areas, recommends specific land use policy for specific areas. In addition, it identifies through the use of overlays, specific areas of the County that may need additional development coordination or regulation because of environmental, cultural or economic development sensitivity.

Thirteen (13) different land use policy classifications are blended together with three (3) policy overlay classifications and six (6) special program areas to create the Land Use Plan. Future land use decision locations should be based on how well a land use fits into a policy area. Rezoning applications, comprehensive rezoning proposals, Water and Sewerage Plan revisions as well as other land use planning actions should take these policies into consideration.

The "Smart Growth Act of 1997" required the County to establish "Priority Funding Areas" or "PFA's". They are areas where State funding would be targeted to support State growth management policies. The criterion for designation of PFA's is included in the "Smart Growth Act" with the counties completing the designations. In many instances state policy and program guidelines restrict funding to designated PFA's. In accordance with the "Smart Growth Act", Washington County has adopted a PFA map designating County Certified PFA's. Map VII - Priority Funding Areas. It is anticipated that in the

future, changes will be needed to the PFA map to better reflect development patterns associated with the Land Use Plan and the Water and Sewerage Plan.

The Washington County 2002 Comprehensive Plan, Land Use Plan re-establishes the "Urban Growth Area" boundary around the City of Hagerstown and the Towns of Williamsport and Funkstown. "Town Growth Area" boundaries are also re-established around Boonsboro, Hancock and Smithsburg. A new Town Growth Area has been designed for the Town of Clear Spring and mirrors the area established by the comprehensive rezoning of the highway interchange area.

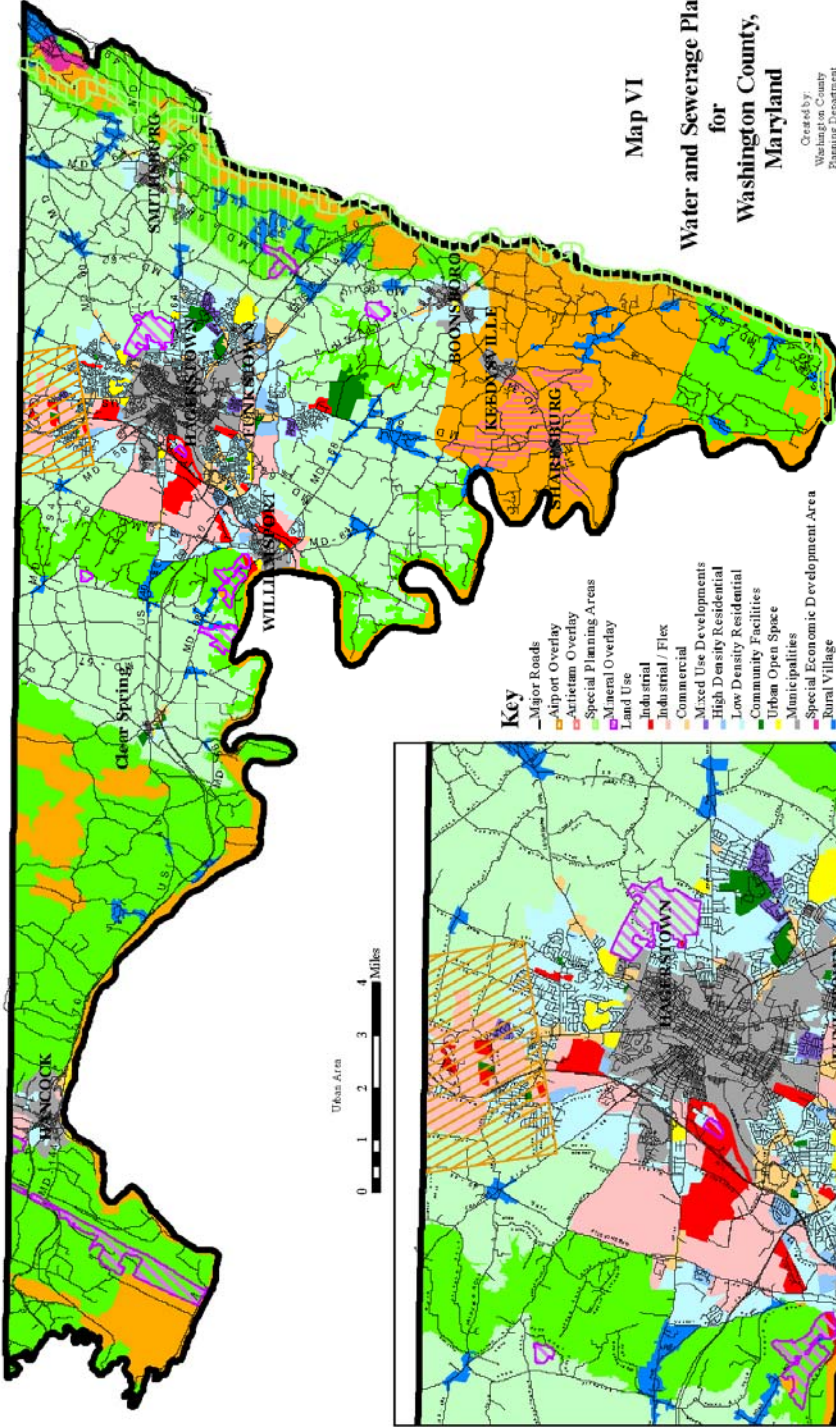
The areas not inside a growth boundary constitute the non-growth or "rural" areas. Development policy associated with the rural areas is primarily focused on maintaining the rural-agricultural and historical heritage of the area. Within the "rural area" are "rural villages" The formal designation of "Rural Villages" is an outgrowth of Maryland's Smart Growth Act of 1997. By law, a designated Rural Village is considered a "Priority Funding Area" (PFA). Many such villages have existed in Washington County since colonial times while newer urban settlements at junctions in roads or along creeks and railroads have evolved in the recent past. Rural Villages are defined by something other than incorporation or governing structure. They are definable on the landscape and contribute to the unique character of Washington County. They usually include a small core of a residential neighborhood associated with a retail establishment or an institution such as a post office, elementary school, church or fire station. Most are located in the rural areas some distance from other towns or facilities. A few are close enough to an urban center to be associated with the Urban Growth Area or a Town Growth Area. Many have vacant lots that are suitable for infill development. The location of these Rural Villages is identified on the Priority Funding area Map VII.

Major public investment by the County in public facilities and services to encourage substantial new development should not be made in Rural Villages. Priority should be given to correcting existing public health and safety problems that result from failing septic systems or contaminated wells. In 2005 the Washington County Commissioners adopted new Zoning designations for all of the unincorporated rural areas of the county. These new zoning designations were based on the policy area recommendations of the Land Use Plan and significantly lowered the development density in these areas with new zoning districts ranging in maximum residential development density from one dwelling unit per acre up to one dwelling unit per thirty acres.

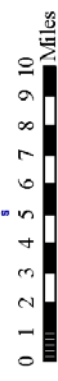
The 2002 Comprehensive Plan for Washington County provides the following information including charts and graphs regarding land use that may be considered relative to Water and Sewerage Planning.

- Land use categories and the acreage in each category.
- Listing of current zoning classifications in the County and the acreage in each zoning district.
- Map showing community facilities and services within the County.
- Planned distribution of new housing units 2000-2020 within specific policy areas based on growth scenarios.
- Vacant land analysis within specific policy areas.
- Acreage and planned consumption of land within specific policy areas based on growth scenarios.

Land Use Plan



- Key**
- Major Roads
 - Airport Overlay
 - Arterial Overlay
 - Special Planning Areas
 - Mineral Overlay
 - Land Use
 - Mixed Use Developments
 - Industrial / Flex
 - Commercial
 - High Density Residential
 - Low Density Residential
 - Urban Open Space
 - Community Facilities
 - Municipalities
 - Special Economic Development Area
 - Rural Village
 - Preservation
 - Environmental Conservation
 - Agriculture



Map VI Water and Sewerage Plan for Washington County, Maryland

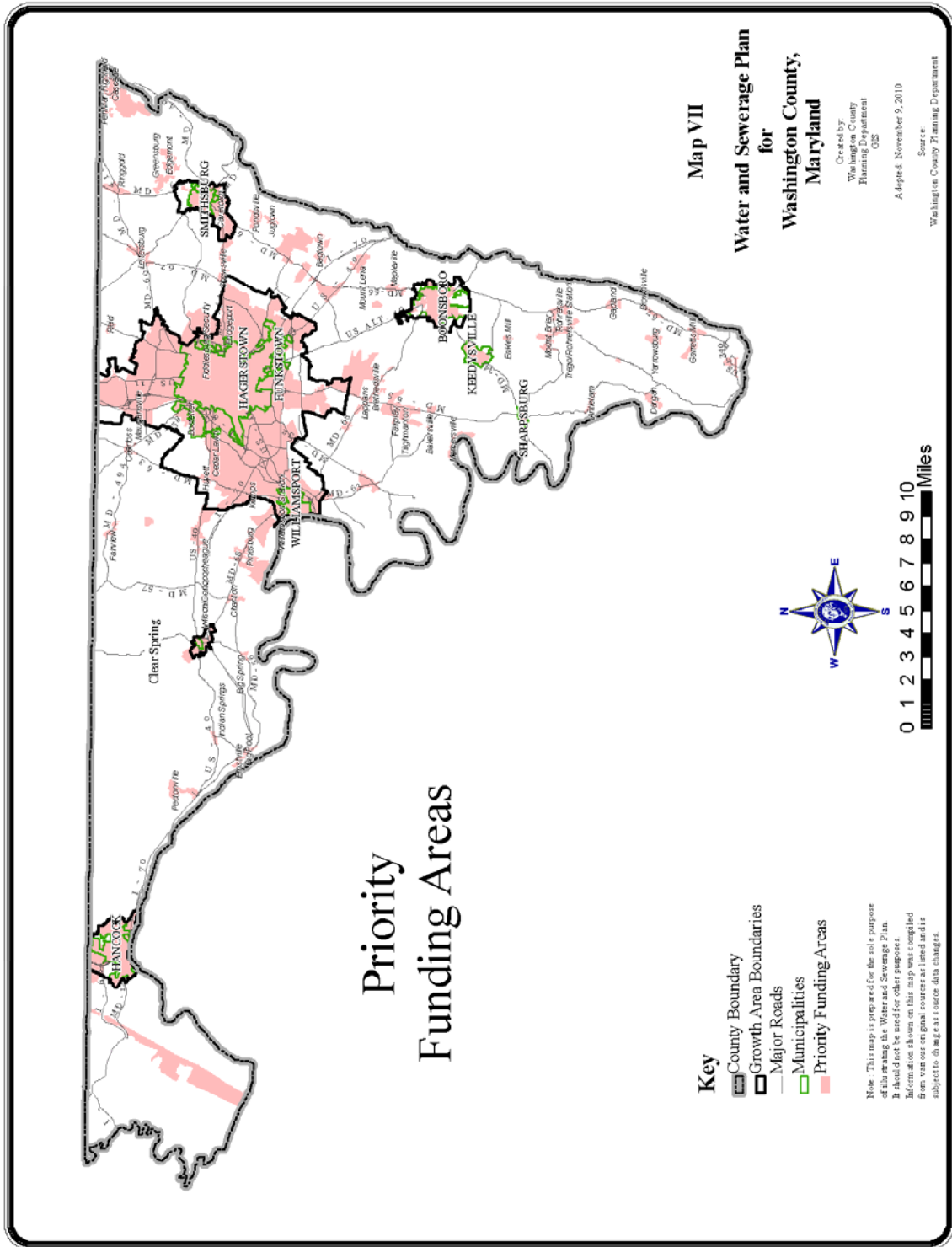
Created by:
Washington County
Planning Department
GIS

Adopted: November 9, 2010

Source:
Washington County Planning Department

Note: This map is prepared for the sole purpose of illustrating the Water and Sewerage Plan. It should not be used for other purposes. Information shown on this map was compiled from various original sources and is subject to change as source data changes.

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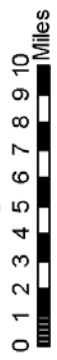
Priority Funding Areas

- Key**
- County Boundary
 - Growth Area Boundaries
 - Major Roads
 - Municipalities
 - Priority Funding Areas

Note: This map is prepared for the sole purpose of illustrating the Water and Sewerage Plan. It should not be used for other purposes. Information shown on this map was compiled from various official sources as listed and is subject to change as source data changes.

Map VII Water and Sewerage Plan for Washington County, Maryland

Created by:
Washington County
Planning Department
GIS
Adopted: November 9, 2010
Source:
Washington County Planning Department



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CHAPTER III - EXISTING AND PLANNED WATER SUPPLY SYSTEMS

A. WASHINGTON COUNTY DEPARTMENT OF WATER QUALITY

The Washington County Department of Water Quality operates and maintains several water distribution systems and water treatment plants within Washington County. These systems serve the communities of Service Area No. 4 – Sharpsburg, Service Area No. 7 – Mt. Aetna, Service Area No. 9 – Highfield/Cascade/Pen Mar, Service Area No. 17 – Elk Ridge and Service Area No. 19-1 – Sandy Hook.

The Department of Water Quality originally constructed the water distribution system, which serves the former Service Areas known as No. 15-1 – Martins Crossroads/Cearfoss, and No. 18-1 – Conococheague, and the City of Hagerstown provided operations, maintenance and billing including the collection of debt fees which were forwarded to the County. Effective February 28, 2002, ownership of these water distribution systems was transferred to the City of Hagerstown along with debt repayment responsibilities.

The following information will provide data on each of the existing water service areas owned and operated by the Department of Water Quality.

1. EXISTING WATER SERVICE AREAS:

a. Sharpsburg Area – Service Area No. 4:

The Town of Sharpsburg is situated 12 miles south of Hagerstown. The Department of Water Quality owns, operates and maintains the water filtration plant and water distribution system, which extends through the corporate boundaries of the Town of Sharpsburg and to adjacent subdivisions. The water distribution system also serves the Antietam Battlefield Visitors Center and extends west of Maryland Route 34 to the end of the developed area.

The water filtration plant is situated along the Potomac River, which is the raw water source. The District processes and chemically treats the raw water and adds fluoride prior to distribution. The water system also includes a 200,000 gallon

elevated storage tank. The capacity of the filtration plant is 230,000 gpd. This water system presently serves approximately 643 residential and 61 commercial Equivalent Dwelling Units. This is considered a Rural Village Service area.

The Department of Water Quality has upgraded the Sharpsburg Water Treatment Plant with two new filtration package water treatment plants and has provided additional storage at the treatment plant facility.

b. **Mt. Aetna Area – Service Area No. 7:**

At the request of the Mt. Aetna Water Association, Inc. the Department of Water Quality in 1994 took over ownership of the Mt. Aetna Water System. Various improvements to the water system have been completed to bring the water supply and distribution system into compliance with State regulations. The Department of Water Quality has constructed a new reservoir for this water system. In addition, a new water source and appurtenances is being planned for the system to supplement water supply during low water table conditions. This water system serves approximately 134 residential and 63 commercial Equivalent Dwelling Units. This is considered a Rural Village Service area.

c. **Highfield /Cascade Area – Service Area No. 9:**

The Washington County Department of Water Quality began operating the Highfield/Cascade Water System (previously know as the Blue Ridge Water Company) October 1, 1978 following revocation of the franchise by the Maryland Public Utilities Commission and a subsequent Washington County Court Order sought by the Maryland State Health Department. In 2006, the Highfield/Cascade water distribution system was extended into the Pen Mar area. The Highfield/Cascade/Pen Mar area is located in the northeast portion of Washington County. As of January 2009, this water system presently serves 542 residential and 34 commercial Equivalent Dwelling Units (EDU's). This area is considered a Rural Village Service area.

d. **Elk Ridge Area – Service Area No. 17:**

In November 1987 the Washington County Department of Water Quality assumed the operations and maintenance, and in April of 1989 assumed ownership of the Ridge Water Corporation, which was privately owned by the citizens of the community known as Elk Ridge located adjacent to Chestnut Grove Road in South Washington County. As of January 2009, this water system supplies 38 residential Equivalent Dwelling Units (EDU's). The Department of Water Quality has completed improvements to the system, which generally includes installation of water meters, additional storage, a new well, and equipment to improve the water quality. This is considered a Rural Village Service area.

e. **Sandy Hook Area – Service Area No. 19-1:**

The Department of Water Quality placed the water supply and distribution system for the Sandy Hook community into service in March 1993. As of January 2009, this system serves 6 commercial and 64 residential Equivalent Dwelling Units (EDU's). This is considered a Rural Village System.

2. **DEPARTMENT OF WATER QUALITY PLANS AND POLICIES TO IMPROVE WATER SERVICE AND ADDRESS STATE POLICY, STRATEGIES AND PROCEDURES**

The Department of Water Quality is working on different plans and strategies to address new State policies, strategies, and procedures being implemented on water service providers. These actions are as follows:

a. **Wellhead Protection Plan**

The Department of Water Quality is working with other applicable agencies in developing a Wellhead Protection Plan to address the issues raised in the Source Water Assessments for the each of the County's water systems. This plan will designate policies and actions to be taken by the County to protect these sources from potential contamination. The Washington County Board of County Commissioners will be required to adopt this plan. It is the goal of the Washington County Department of Water Quality to have this

plan adopted by 2015. Upon its adoption, the Wellhead Protection Plan will automatically become a part of the Water and Sewerage Plan and all designated policies and actions will be considered a part of this plan.

b. **Water Reuse**

Commercial applications in the County currently utilize public water systems or wells for non-potable uses such as water-cooling and lawn irrigation. The Department of Water Quality is developing policies to replace these water sources with high quality wastewater treatment plant effluent. This policy will promote water conservation of drinking water sources and decrease water withdrawal demands on well aquifers. The Department of Water Quality will begin implementation of water reuse practices once all State and local approvals are received and cost effective users are identified. MDE is currently developing new regulations that will cover the use of reclaimed wastewater for lawn irrigation at individual residences.

B. CITY OF HAGERSTOWN

1. HAGERSTOWN WATER PRODUCTION AND DISTRIBUTION SYSTEM

The City of Hagerstown Water Department has a service population of approximately 88,000. The service population is located within the corporate limits of the City of Hagerstown, in unincorporated areas and in adjoining municipalities. The Hagerstown system is the sole provider of potable water to the towns of Funkstown, Smithsburg and Williamsport. These towns purchase their water from Hagerstown but are fully responsible for the operation and maintenance of their distribution systems to include water lines, pumps, storage, etc. The Hagerstown water system also serves numerous industrial and institutional customers to include Mack Truck, Citi Corp, the Maryland Correctional Institute, Washington County Hospital, etc.

The Hagerstown Water System is served by the R.C. Willson Water Treatment Plant on the Potomac River. The Potomac River provides a reliable and adequate source of drinking water for the Hagerstown water

service area. The R.C. Willson Plant has a design capacity of 20 MGD and currently has a permitted water allocation of 15 MGD.

Hagerstown also owns and operates the Edgemont Reservoir and the W.M. Breichner Water Treatment Plant. This Breichner Plant was completed and dedicated in 1997 and is operated during emergencies and when system demand exceeds the distribution system limitations. In November 2006, Hagerstown began operating the Breichner Plant 2 days per week and supplies the Smithsburg zone.

2. PLANNED WATER SERVICE AREA IMPROVEMENTS

The City of Hagerstown developed a prioritized Capital Improvement Program which includes, but is not limited to, major upgrades to the Willson and Breichner Treatment Plants, replacement of the two 24-inch transmission mains, replacement of distribution mains throughout the Hagerstown water service area, improvements to the existing storage and pumping facilities, addition of new storage and pumping facilities, improvements to the Edgemont Reservoir, upgrade and/or replacement of large and small meters, etc.

Planned improvements to the Hagerstown Water System (as they appear in the Capital Improvement Program) are identified in Table 6A of this Plan. Projects not identified on Table 6A are as follows:

a. **Western Maryland Parkway:**

Extend 16" waterline north from the intersection of Underpass Way and Railway Lane to Western Maryland Parkway at the County Detention Center — this will complete a major interconnection between the 24-inch transmission mains.

b. **Southern transmission Mains (also the East End Tank Project:**

Install a 16-inch transmission main along the southern portion of the water system to meet demand to the east and to facilitate a proposed water tank site near I-70 and Route 40.

c. **Eastern Transmission Main:**

Install a 16-inch water main from the Londontowne-Brightwood area to Jefferson Boulevard and Eastern Boulevard to the north to deliver water to the northeastern portion of the system.

d. **Robinwood Drive:**

Extend a 12-inch waterline from Route 64 to Hagerstown Community College to complete a major loop to the Dual Highway and a proposed elevated storage tank near the same.

e. **Oak Ridge Industrial Area – Oakmont Drive:**

Oakmont Drive area is presently being served by a 12-inch waterline. Provisions should be included to extend the water system along East Oakridge Drive to Roadway Express. This line should be interconnected with the mains in the Ravenswood Lutheran Home area.

f. **Paramount Loop and Tank:**

The distribution system should be looped with a 12-inch main from West Longmeadow Road to Marsh Pike in the vicinity of Avalon Manor to eliminate a long stretch of single source piping. A tank should be located in the Avalon Manor area to increase supply capabilities.

Project summary is updated annually in response to promulgated regulations, customer demand, service area expansion, raw water quality, etc.

C. FUNKSTOWN

The Town of Funkstown purchases water from the City of Hagerstown. The town owns operates and maintains the water distribution lines within the town. The Town falls within the Urban Growth Area identified in the 2002 Comprehensive Plan for Washington County

D. WILLIAMSPORT

The Town of Williamsport purchases water from the City of Hagerstown. The town owns operates and maintains a finished water storage tank and water distribution lines within the town. The Town falls within the Urban Growth Area identified in the 2002 Comprehensive Plan for Washington County.

E. SMITHSBURG

The Town purchases water from the City of Hagerstown. The Town does not currently operate water supply and treatment facilities as it purchases all of its water directly from the nearby City of Hagerstown system.

The Town has a designated Growth Area according to the 2002 Comprehensive Plan for Washington County.

The Town of Smithsburg currently operates and maintains a water pumping station, water distribution lines, and finished water storage facilities. Purchased water is pumped from the nearby City of Hagerstown storage tank near the Town, to the Town of Smithsburg Water Boosting Station and then through the distribution mains, to the finished water storage facilities. Original storage capacity of 0.36 MG is provided by two (2) ground storage tanks/reservoirs. The Town's Water Boosting Station was recently upgraded with two (2) 500 gallon per minute (gpm) pumps and an emergency generator.

In 2009 the Town completed a major project involving construction of a 0.36 MG ground water storage tank to supplement the previous 0.36 MG storage capacity to provide sufficient fire and emergency reserve storage for the next planning period. This new tank brings the total Town storage capacity to 0.72 MG.

The Town has completed an engineering study to determine the cost of replacing the existing 8" transmission line with a 16" line. The Town is currently seeking funding for this project.

F. FORT RITCHIE

The Fort Ritchie system is permitted as a 250,000 gallon per day system and serves properties within the boundaries of the former Fort Ritchie Army base along with Camp Louise summer camp. Water for this system is provided by a spring that requires treatment to feed the system and seven wells that feed two

reservoirs having a total capacity of 1,300,000 gallons. As a result of a groundwater study and report made by the Army Environmental Hygiene Administration, well number three was permanently closed in early 1992.

It is expected that the system will be transferred to Washington County upon redevelopment of the property by the Pen Mar Development Corporation.

According to the 2002 Comprehensive Plan for Washington County, Fort Ritchie is located in the Lakeside Corporate Center/Cascade Area Special Planning Area. This Special Planning Area is viewed as a growth area for development purposes. This area was developed with a view toward fostering economic development of the former military base facility and revitalization of the surrounding area

G. BOONSBORO-KEEDYSVILLE

The Boonsboro-Keedysville water system is supplied by two active springs and two wells—Keedysville Spring located outside the Town of Keedysville, Warrenfeltz Spring located within the Town of Boonsboro, Well #8 and Shafer Park Well both located inside the Town of Boonsboro. The water is treated with chlorine disinfection by the Town of Boonsboro at each location. Excess water is stored in a 1.4 million gallon reservoir located east of Boonsboro. The Town of Keedysville purchases water from the Town of Boonsboro, but owns and operates its own distribution system. By agreement, the Keedysville water system is operated by the Town of Boonsboro Department of Public Works. The Towns of Boonsboro and Keedysville have a Board that jointly oversees the water system. Much of the maintenance of the Keedysville system is performed on a cost reimbursement basis by the Town of Boonsboro.

To address the impact of growth on the water supply, the Boonsboro Utilities Commission adopted a policy requiring each developer (except minor subdivisions of 5 or less units) to provide a minimum new water supply of 108,800 gpd (70 gpm) in the form of a new well to be connected to the existing distribution system.

Also, to address the impact of growth of the Town of Boonsboro, the Mayor and Council has adopted an updated Comprehensive Plan which provides policies and implementation actions related to growth and the impacts it has on water and sewer infrastructure.

In an effort to upgrade and improve the Town of Keedysville's aging water infrastructure to accommodate new growth and improve fire flow, the Town plans to replace the 12-inch water main that will extend along Main Street from Wyand Drive to a point north of Keedy Road along with a water booster pumping station to transfer water to the Boonsboro reservoir. A future elevated water storage tank in Keedysville is also planned. Funding for the project may come from a number of sources including loans from the Maryland Department of the Environment and U.S. Department of Agriculture Rural Development.

As a result of testing by the Washington County Health Department and the Maryland Department of the Environment which found serious water quality problems with wells in an area located west of the Town of Boonsboro in the vicinity of US Route 40A and Mill Point Road. The Boonsboro Utilities Commission agreed to design and construct an extension of 8-inch water main along Alternate Route 40 from its current termination in the vicinity of Bast-Stouffer Funeral Home to Mill Point Road and along Scenic View Court and Mill Point Road. The project involved the extension of service connections from the main to approximately sixty-one properties which are included in the Town Growth Area Boundary

H. WEAVERTON

The Pleasant Valley Elementary School, two churches, one business and approximately twelve residences in southern Washington County are served by the water system for the City of Brunswick in Frederick County. Service is provided via the transmission main leading from the Yourtee Springs to the City of Brunswick. This is considered a Denied Access water main and water system.

The City of Brunswick utilizes Yourtee Springs to provide a portion of the potable water for use within the City. Additionally, service has been provided to a number of properties along transmission mains in both Frederick and Washington Counties. Since the City does not consider itself a Utility Company, steps have been taken to prevent additional connections to water mains outside the municipal boundary. The Mayor and council adopted Ordinance 430 on August 9, 2005 to be able to further restrict new or expanded connections to these water mains. The City of Brunswick considers the Yourtee Springs water main a Denied Access main for areas outside of the municipal boundary.

The City is currently making improvements at the spring to conform with Clean Water Act requirements. These improvements involve enclosing the spring in a

building and placing a liner in the clay slope to divert rainwater away from the spring. Additionally, a covered water storage facility is anticipated for the site in the future.

I. CLEAR SPRING

The Town of Clear Spring and a few residences outside of Town are supplied by wells with an above ground storage tank.

The 2002 Comprehensive Plan for Washington County recognizes Clear Spring as a Town Growth Area.

The Town of Clear Spring's water supply system is owned by the Town, but operated, under contract by the Washington County Water Quality Department.

There is an existing transmission line located outside of the PFA. With the exception of existing customers that are currently connected to this line, no new development outside of the PFA can be allowed to hook up to this line. This line is considered a Denied access facility.

Denied access water facility means designated components or sections of the distribution system to which access is prohibited. Exceptions may be permitted on a case-by-case basis only through amendment of the Water and Sewerage Plan. Exceptions may be granted for remediation of public health hazards or for residential or commercial properties that were improved and occupied as of the date of issuance of the construction permit for the facility and that are contiguous to the facility.

J. HANCOCK

The Hancock water system provides water for approximately 1926 people who are mostly located within the municipal limits. The principal source is two wells with three storage tanks providing a total storage capacity of 1.4 million gallons. A modular water treatment plant provides treatment.

The Town has a designated Growth Area according to the 2002 Comprehensive Plan for Washington County.

K. FAHRNEY KEEDY HOME AND VILLAGE (private system)

The Fahrney Keedy Home and Village is located approximately 2 miles north of the Town of Boonsboro on the east side of MD Route 66. It is a privately owned retirement and assisted living facility located on a single lot consisting of a main building with central support facilities, 90 nursing rooms, 12 assisted living rooms, and 12 apartments. Also on the property are 37 individual 2 and 3 bedroom cottages.

The existing privately owned water system operated by Maryland Environmental Services includes one active well, a second well under temporary repair and a third one, which is awaiting MDE approval for use pending installation of a water treatment plant. Water from the active well is pumped to the maintenance building where sodium hypochlorite solution, which is produced on site, is added for disinfection and stored in two clear wells (10,000 gallons each) adjacent to the building. The system demand activates high service pumps (two units) to pump the water from the clear wells to a 2000-gallon capacity hydro pneumatic tank. The distribution system is not designed to provide emergency water needs for fire suppression. A static tank provides emergency water storage. The average water demand for 2006 was 28,530 gallons per day.

The ground water source for the Fahrney Keedy system has been classified by the Maryland Department of the Environment (MDE) as ground water under the direct influence of surface water (GWUDI) and requires advanced treatment to remove harmful bacteria and viruses. Furthermore, only one well is available for continuous use at the present time since the other two wells are unusable due to the GWUDI condition.

The Home has applied for a State Revolving Loan to finance the proposed improvements and approval is likely to be received soon. The Maryland Environmental Service (MES) is providing engineering services for the project. The proposed treatment system will consist of two membrane trains capable of treating 50,000 gallons per day each with 100% redundancy. Raw water from the wells will pass through the membranes and disinfected prior to distribution via the existing high service pumps and hydro pneumatic tank.

The estimated cost of the improvements is \$ 1.25 Million.

L. PROJECTED DEMANDS

Projected water supply demands for existing water service areas are shown in Table No. 3. Note that present year per capita water consumption in each service area was used as a factor in determining future supply requirements (See Note #9). As a result, Table No. 3 reflects projected water supply demands for the future assuming present consumption rates remain the same. It is anticipated that some service area consumption rates will decrease in the future due to system improvements. It is assumed that present water consumption rates will not appreciably increase due to current conservation trends, especially for hot water.

Notes for Table No. 3

- (1) Water Service Area – The area served, or potentially served, by a single distribution system under control of a single utility, or, in a very large system, sub-areas as delineated by the County.
- (2) Population Served – From service providing agencies. Projections for 2015, 2020 and 2030 based on projected growth trends provided by the service providing agency.
- (3) Domestic Consumption – (Million Gallons per Day) – Water consumed for domestic or residential purposes.
- (4) Other Consumption – (Million Gallons per Day) – Water consumed for other than domestic purposes such as industrial, commercial, and institutional uses.
- (5) Total Consumption – (Million Gallons per Day) – The sum of Domestic and Other Consumption. Figures provided by agency or municipality concerned.
- (6) System Capacity – (Million Gallons per Day) – Based upon 'design capacity' information supplied by the service providing agency. Unless indicated otherwise, projected SYSTEM CAPACITY for future years will be considered the same as for the present year.
- (7) Domestic Per Capita Consumption (Gallons Per Capita per Day) – Determined by dividing DOMESTIC CONSUMPTION (3) by POPULATION SERVED (2). This is a more realistic figure for water use per person than TOTAL PER CAPITA CONSUMPTION (8), but it may include 'unaccounted for' losses.
- (8) Total Per Capita Consumption – (Gallons Per Capita per Day) – Determined by dividing TOTAL CONSUMPTION (5), by POPULATION SERVED (2). This is an overall figure for water use per person which includes water use by businesses, industry, institutions, and 'accounted for' losses.

- (9) Total Consumption – (Million Gallons per Day) – A projected figure determined by multiplying the projected POPULATION SERVED (2) by TOTAL PER CAPITA CONSUMPTION (8).

TABLE NO. 3

PROJECTED WATER SUPPLY DEMANDS AND PLANNED CAPACITY

SERVICE AREA	CURRENT YEAR DATA										5 Year Planning (2015)			5-10 Year Planning (2020)			10-20 Year Planning (2030)		
	Population served	Domestic Consumption (MGD)	Other Consumption (MGD)	Total Consumption (MGD)	System Capacity (MGD)	Per Capita Consumption		Population Served	Total Consumption (MGD)	System Capacity (MGD)	Population Served	Total Consumption (MGD)	System Capacity (MGD)	Population Served	Total Consumption (MGD)	System Capacity (MGD)			
						Domestic (GPCPD)	Total (GPCPD)												
Hagerstown	39,640						41,455				44,554			51,237					
Funkstown	1,193						1,318				1,417			1,630					
Williamsport	2,095						2,315				2,488			2,862					
Smithsburg	2,200						2,431				3,033			3,450					
Unincorporated	31,226						34,504				37,093			42,657					
MCI/MCTC/RCI	6,600						6,650				6,700			6,750					
TOTAL	82,954	5.0	3.3	8.3	15.0	68	89,564	5.5	9.1	6.0	95,285	6.0	9.8	108,586	6.9	11.1			
Highfield/Cascade/ Pen Mar	1,333			0.078	0.100		1,436	0.086	0.100	0.092	1,513	0.092	0.13	1,680	0.106	0.130			
Ft. Ritchie	400			0.045	0.350	113	800	0.088	0.350	0.106	1,600	0.106	0.350	2,900	0.160	0.350			
Boonsboro/ Keedysville	3,900			0.209	0.683	68	4,100	0.273			4,337	0.286		5,339	0.338				
Sharpsburg	1,582			0.092	0.100		1,707	0.102	0.130	0.140	1,800	0.110	0.140	2,005	0.126	0.150			
Weverton	40				0.350		40				40			40					
Clear Spring	660			0.123	0.200	186	685	0.104			702	0.106		727	0.110				
Hancock	1,743	0.083	0.1	0.190	0.380		1,850	0.150			2,000	0.163		2,250	0.183				
Mt. Aetna	330			0.032	0.077		365	0.035	0.077	0.077	391	0.037	0.077	448	0.041	0.077			
Elk Ridge	93			0.005	0.011		101	0.005	0.011	0.011	106	0.006	0.011	115	0.007	0.011			
Sandy Hook	157			0.007	0.015		170	0.008	0.015	0.015	180	0.009	0.015	200	0.011	0.015			
Fahney Keedy	300			0.029	0.050	95	315	0.030	0.050	0.033	350	0.033	0.050	435	0.041	0.050			

- NOTES:
- Population served reflects number of EDUs being served times Census data reporting and average of 2.46 persons per household.
 - Current year system capacity reflects the water withdrawal permitted by MDE not system capabilities. Quantities exceeding this amount are equivalent to what will be requested from MDE for permitted withdrawal to meet system demand projections.
 - Based system capacity on consumption being at 80% of permitted capacity.
 - The growth projections for DWQ facilities reflects maximum growth rate based on actual service area growth per year during periods of peak demand.
 - This allows for conservative estimates when calculating maximum needed long-term capacities reserved for future growth.

**TABLE 4
INVENTORY OF EXISTING COMMUNITY WATER SUPPLIES**

PWSID	PUBLIC WATER SUPPLY NAME	WATER APPROPRIATION PERMIT NO	AQUIFER	PERMITTED DAILY AVG (GPD)	PERMITTED MAX AVG (GPD)	REPORTED DAILY AVG PUMPAGE (2007)	POPULATION	
0210002	BOONSBORO - KEEDYSVILLE	WA1979G012, WA1979G013, WA1988G006	TOMSTOWN DOLOMITE	220,000, 130,000, 332,000	250,000, 150,000, 415,000	192,553, 9,383, 232,838	3,840	
0210004	BROOK LANE PSYCH. CENTER	WA1955G002	CONOCOHEAGUE LIMESTONE	7,200	12,500		175	
0210020	CEDAR RIDGE CHILDREN'S HOME	WA1965G008	ROCKDALE RUN FORMATION	4,000	5,600		45	
0210010	CITY OF HAGERSTOWN	WA1928S001, WA2003S006	POTOMAC RIVER, ANTIETAM CREEK	15,000,000, 700,000	18,000,000, 4,800,000	10,942,505, no reported use	75,000	
0210003	CONOCOHEAGUE APTS	WA1991G030	MARTINSBURG SHALE	4,000	6,000		50	
0210202	DEER LODGE MOBILE HOME PARK	WA1963GO10	MARTINSBURG SHALE	8,000	12,000		96	
0210204	EL RANCHO MOBILE HOME PARK	WA1967GOO3	ELBROOK LIMESTONE	6,400	10,700		86	
0210006	ELK RIDGE LAKE	WA1960G005	HARPERS FORMATION	7,500	10,500		93	
0210213	FAHRNEY-KEEDY HOME AND VILLAGE	WA1997G003	TOWNSTOWN DOLOMITE	38,000	57,000	31,555	250	
0210007	FORT RITCHIE	WA1982G200	CATOCTIN METABASALT	200,000	300,000	48,705	400	
0210001	HIGHFIELD	WA1988G032	CATOCTIN METABASALT	100,000	150,000	71,663	964	
0210015	MOUNT AETNA	WA1975G101, WA1994G003, WA1999S004	HARPERS FM, ANTIETAM FM, ANTIETAM CREEK	80,000, 7,200, 10,000	125,000, 27,400, 18,000	33,000	688	
0210209	SAINT JAMES SCHOOL	WA1968G010	CONOCOHEAGUE LIMESTONE	14,000	21,000	28,435	200	
0210214	SAN MAR CHILDREN'S HOME	WA1997G017	TOMSTOWN DOLOMITE	7,200	11,000		51	
0210019	SANDY HOOK	WA1989G043	PRECAMBRIAN ERATHEM	15,000	22,000	7,928	172	
0210208	SCENIC VIEW TRAILER PARK	WA1963G009	TOMSTOWN DOLOMITE	4,600	7,700		42	
0210005	TOWN OF CLEAR SPRING	WA1967G001	HELDERSBURG GROUP	200,000	300,000	89,106	499	
0210012	TOWN OF HANCOCK	WA1994G016	ORISKANY GROUP	300,000	350,000	256,545	1,921	
0210017	TOWN OF SHARPSBURG	WA1967S002	POTOMAC RIVER	100,000	200,000	118,571	1,360	
0210018	TOWN OF SMITHSBURG DISTRIBUTION SYSTEM	PURCHASES WATER FROM HAGERSTOWN					2,500	
0210205	WOODLAND TRAILER PARK	WA1959G002	CONOCOHEAGUE LIMESTONE	8,000	12,000		99	
021008	Funkstown		PURCHASES WATER FROM HAGERSTOWN					
0210021	Williamsport		PURCHASES WATER FROM HAGERSTOWN					

Source: Maryland Dept. of Environment, Water Supply Program

**TABLE NO. 5
INVENTORY OF WATER SUPPLY PROBLEM AREAS**

GEOGRAPHIC AREA	POPULATION	COORDINATE LOCATION	NATURE OF PROBLEM (WATER QUALITY PROBLEMS)	PLANNED CORRECTION
Mt. Lena and San Mar	400		Inadequate individual supplies (cisterns). Small lot sizes afford no buffer zone between sewage disposal and water supplies. Contamination of groundwater.	Currently addressed as required on an individual case by case basis.
Leitersburg	400		Cisterns unsafe. Bacteria, unsafe wells.	Investigations of hookup to public lines in MD Route 64 or community wells. Problem continues but opposition to proposals.
Wilson-Shady Bower Conococheague	400		Wilson-Shady Bower corridor "possessed the poorest groundwater quality of any area" which was sampled by R.E. Wright & Associates in 1981. High percentage of homes with bacteriological contamination. Also high chlorides and nitrate-nitrogen.	Currently addressed as required on an individual case by case basis.
Rohrersville	100		Gasoline in shallow wells. Small lots and hand-dug wells. R.E. Wright & Associates noted nitrate-nitrogen and coliform contamination.	Currently addressed as required on an individual case by case basis.
Tilghmanton	N620-E590		Groundwater contamination. Some lots have inadequate supply. R.E. Wright & Associates found no coliform but did find that "nitrate-nitrogen" concentrations approach the maximum contamination level in many of these wells.	Currently addressed as required on an individual case by case basis.
Antietam Drive	N665-E605		Contaminated wells from Security to Northern Avenue.	Currently addressed as required on an individual case by case basis.
HCC-Youngstown	N655-E613		Inadequate fire flow. Flow tests in 1991 indicated only 800 gpm available for fire protection. Area served by dead-end water main which is undesirable from hydraulic and reliability standpoint.	Looping system within pressure zone boundary.

TABLE NO. 5 INVENTORY OF WATER SUPPLY PROBLEM AREAS					
GEOGRAPHIC AREA	POPULATION	COORDINATE LOCATION	NATURE OF PROBLEM (WATER QUALITY PROBLEMS)	PLANNED CORRECTION	
Brownsville			Groundwater contamination.	Currently addressed as required on an individual case by case basis.	
Gapland			Groundwater contamination.	Currently addressed as required on an individual case by case basis.	
Ringgold			Groundwater contamination.	Currently addressed as required on an individual case by case basis.	
Yarrowsburg			Groundwater contamination.	Currently addressed as required on an individual case by case basis.	

M. WATER PROBLEM AREAS

1. WATER CONSERVATION

a. **Compliance with the Maryland Water Conservation Plumbing Fixtures Act ("MWCPFA")**

Water Conservation fixtures as referred to in COMAR 09.20.01.02.h(1) requires water closets to use 1.6 gallons or less and urinals 1 gallon or less. Current County plumbing code 2006 International Plumbing Code section 604.4 complies with this requirement. COMAR also requires that all fixtures currently available for sale and installation in Washington County comply with MWCPFA.

Other water conservation efforts are noted below.

b. **Hagerstown**

By far the largest water provider in Washington County, the Hagerstown Water Department does not have a formal program of educating its customers about water conservation, but utilizes an increasing block rate in the residential rate structure to promote conservation. The City's ongoing program of water line rehabilitation and leak protection does qualify as a conservation effort. Also, the Department advises that encouraging the customer to rehabilitate private water lines is accomplished through billing for water used, even when high consumption is the result of leakage. This promotes correction and conservation rather than waste.

c. **Washington County Department of Water Quality**

The Department of Water Quality provides a potable water supply to the incorporated municipality of Sharpsburg (Service Area No. 4), Mt. Aetna (Service Area No. 7), Elk Ridge (Service Area No. 17), Sandy Hook (Service Area No. 19-1), and the Highfield/Cascade/Pen Mar Area (Service Area No. 9). Presently, the Department of Water Quality does not have a formal

conservation plan. During low water emergencies, the Department employs the news media to advise consumers of a ban on all non-essential water uses such as watering lawns and washing cars. The Department also utilizes hand delivered notices during times of an emergency. The Department of Water Quality has an ongoing program of water line rehabilitation and leak detection, which does qualify as a conservation effort. By billing for actual water usage, the Department of Water Quality encourages customers to conserve water and to rehabilitate private water lines when high consumption is the result of leakage.

d. **Boonsboro**

The Utilities Commission has adopted a low-flow plumbing fixtures ordinance which requires low-flow toilets and other water saving devices in all new construction.

The Commission has encouraged active conservation through an aggressive public information campaign on water conservation with the help of the University of Maryland Extension Service.

e. **Clear Spring, Funkstown, Hancock, Williamsport and Smithsburg**

The other small towns in Washington County have indicated that they do not have formal or continuing programs on water conservation. All have indicated that in the event of a need to conserve or any other need to advise customers regarding water use, they have or would use media campaigns on local radio stations and newspapers.

2. **IDENTIFICATION**

It can be reasonably assumed that the pollution of groundwater is a direct result of the introduction of contamination from numerous non-point sources in the County. Washington County's topography, underlain by karst limestone, contributes not only to the introduction of contaminants to the groundwater, but also to their rapid and unpredictable dissemination. Extensions to and improvements in public water systems will partially alleviate the problem.

Table No. 5 lists Water Problem Areas in terms of water quality problems and water quantity problems. First, water quality problems have been identified by the Washington County Health Department. The areas listed in Table No. 5 do not represent all water quality problem areas in Washington County, only those judged by the Health Department as being the most serious and in the most need of immediate attention. Secondly, water quantity problems have been identified by municipalities and service providers.

N. PROGRAM FOR CORRECTION

A multi-faceted approach is proposed for the solution of water quality problems in Washington County. The approach for water quality problems will follow the headings listed below:

1. Geohydrologic Study

This initial study had been conducted by R. E. Wright Associates and funded jointly by the Washington County Board of County Commissioners and the U.S. Environmental Protection Agency in 1981. Specific aquifer units and water problem areas were evaluated by the study and the results published and presented to the County Commissioners.

In an effort to supplement and update the R. E. Wright Study, the Washington County Health Department, in conjunction with the Washington County Department of Water Quality, has initiated a groundwater sampling program that has resulted in the collection of well samples from across the County. The results are available to County and State agencies for consideration in planning and policy formulation. New problem areas may be identified and added to Table 5 in the future as a result of this program.

2. Data Collection

The Washington County Health Department will compile all relevant data including recent water sample reports for the problem areas listed. Data collection work will be performed on a county-wide basis as well as in targeted problem areas. In each case, the Health Department will

determine the need for conducting a house-to-house water sampling survey for the affected area. When available data indicates that a listed area is no longer a problem, the area will be removed from the list. Where available data indicates a current and potentially hazardous water quality problem, the Health Department will present its findings to the Board of County Commissioners, sitting as the Board of Health.

In an effort to address problems of groundwater quality for individual homeowners, several approaches will be applied. First, and already in effect, is the attempt to guarantee adequate potable water for new subdivision proposals by the drilling of test wells as the site with the intent of ensuring that water quality meets all applicable requirements. Two other alternatives currently being used by the Washington County Health Department in conjunction with the Maryland Department of Environment and the Washington County Planning Commission are (1) the use of public water supplies as an alternative to individual private wells for developments in the Rural-Agricultural area. Such systems would be restrictive as to conform with growth and development policies outlined in the Comprehensive Plan and (2) the incorporation of continuous on-site disinfection systems onto individual private supplies. Both of these alternatives, offering definite and obvious benefits, also involve considerable coordination between agencies for both development and implementation.

3. Feasibility Study

For each problem area so identified to the Board of County Commissioners by the Health Department, the Board will take such action as it deems appropriate. Such action may include the funding of a feasibility study to determine possible abatement measures and the feasibility of a community water system for the affected area. The Board will be assisted in this effort by the Washington County Department of Water Quality and by the Washington County Planning Commission.

4. Code of the Public Local Laws of Washington County, Maryland

As long-term measure, the law for utility operations in Washington County will be evaluated for possible amendment as needed to facilitate the future management of community water systems by the Washington County Department of Water Quality, its successors or assigns. Planned

measures or changes will be listed, not as intentions, but when specific action has been taken, such as the actual appropriation of funds for a project, the undertaking or completion of the project itself, or a wholesale change in utility operations in the County.

5. Outreach & Education

A significant number of residences rely on well water from the karst or limestone formations in the County. Due to the karst geology of the area, wells in this region are at a much higher risk of being susceptible to runoff from surface water contaminants at both point and non-point sources. These direct pathways do not provide a treatment zone to remove pathogens present in the surface water before the water reaches a well. Therefore, anything on the surface, such as bacteria, viruses, fertilizers, pesticides, or any other contaminants can wash into these geologic features, which provide direct channels or conduits into the groundwater supply.

It is important to maintain the sanitary integrity of these private water supplies where ever possible. Some measures include replacing old well caps with a newer two-piece insect-proof cap or installing water-tight well caps in areas subject to flooding. Additionally, older wells may be rehabilitated by extending (or re-sleeving) the casing deeper into the bedrock and grouting the well to deeper depths, and extending the casing for wells in pits to above grade. Home owners can inspect their property for potential sources of contaminants such as leaking oil tanks, taking care not to apply fertilizers or pesticides around well heads, etc.

Periodic water testing for coliform bacteria can provide a good indicator of the sanitary integrity of the system. All positive bacteria results should be investigated to determine a possible cause for contamination. Contaminated sources should then be disinfected and flushed as a means to help correct the problem. The County Health Department is taking steps to help ensure the health of individuals and ensure the safety of the water supply by requiring additional testing of wells in sensitive areas. The development of areas in and around Boonsboro and Cearfoss, which are supplied by wells, are required to complete Ground Water Under the Direct Influence (GWUDI) sampling prior to placing those wells into service. Sources which do not meet the minimum regulatory standards are required to have enhanced treatment systems in place. In some areas, the

best possible well construction will not be sufficient to prevent contaminants from entering the water supply. The GWUDI testing was adopted from Environmental Protection Agency (EPA) requirements for public water systems. Ideally, extending public water to these and other areas of the county is important though not always feasible due to cost prohibitions and available infrastructure. Therefore, testing and ensuring adequate treatment is in place is of the utmost importance for all private water supplies. As is ensuring new wells and on-site septic areas are sited appropriately. Any concerns citizens have about private water supplies and on-site septic areas should be addressed with the County Health Department for assistance and guidance.

Under Maryland's Source Water Assessment Program several GWUDI (Ground Water Under The Direct Influence of Surface Water) community, non-transient non-community, and transient non-community systems have been identified. Due to facility closures, relocation, and availability of public facilities this list of water supplies is ever changing. Proper identification, monitoring, and treatment of these supplies are of utmost importance. Identification of these vulnerable supplies have resulted in extensive source water assessment studies, and dye studies conducted by the Washington County Health Department and Maryland Department of the Environment, concluding that in addition to septic systems, sinkholes and streams influence some wells that are currently used as potable sources. The Hauver's spring dye trace in Smithsburg resulted in the Town's connection to the Hagerstown community water supply and abandonment of the spring. The dye trace study performed along the Alternate Route 40 corridor resulted in the expansion of the Boonsboro distribution area to serve affected public and private wells, many of which were determined to be GWUDI

Notes for Table No. 6

- (1) RESPONSIBLE AGENCY, MUNICIPALITY, OR DEVELOPER – Responsibilities include project initiation and management, but not necessarily financing.
- (2) WATER SERVICE AREA – That area served, or potentially served, by a single distribution system under control of a single utility, or, in a very large system, sub-areas as delineated by the County.
- (3) LOCATION – In accordance with the Maryland Grid System.
- (4) GRANTS ELIGIBLE – Dollars amounts indicate funds for which the project may be eligible from sources shown in parentheses. Source abbreviations represent agencies and programs as follows:

EPA	-	Environmental Protection Agency
EDA	-	Economic Development Administration
UDAG	-	Urban Development Action Grant
CDBG	-	Community Development Block Grant
FmHA	-	Farmers Home Administration
ARC	-	Appalachian Regional Commission
MDE	-	Maryland Department of the Environment

The local cost for any project may be assumed to be the total cost estimate less any amount shown as grants eligible.

**TABLE NO. 6
IMMEDIATE FIVE AND TEN YEAR PRIORITIES FOR WATER DEVELOPMENT**

Responsible Agency, Municipality or Developer (1)	Service Area (2)	Project Description	Total Cost Estimate	Grants Eligible (4)	Completion Schedule		
					Planning	Design	Construction
Washington County Dept. of Water Quality	Sharpsburg	Replace/relocate transit pipeline as necessary from water intake plant & from plant to MD Rt 34	710,000	Seeking MDE Funds	Contingent on Funding		
Washington County Dept. of Water Quality	All water service areas	Replace water mains and meters as required for system improvements	346,000	Seeking MDE Funds	Contingent on Funding		
Washington County Dept. of Water Quality	Highfield	Upgrade water treatment plants	275,000	Seeking MDE Funds	Contingent on Funding		
Washington County Dept. of Water Quality	Mt. Aetna	Upgrade and replace equipment	385,000	Seeking MDE Funds	Contingent on Funding		
Washington County Dept. of Water Quality	Elk Ridge	Water distribution line improvements	100,000	Seeking MDE Funds	Contingent on Funding		
Washington County Dept. of Water Quality	Sandy Hook	Upgrade and replace equipment	100,000	Seeking MDE Funds	Contingent on Funding		
Washington County Dept. of Water Quality	All water service areas	General water treatment plant improvements	100,000	Seeking MDE Funds	Contingent on Funding		
Hagerstown Water Dept.	Hagerstown	R.C. Wilson Improvements-Phase IV-Upgrade to address backwash water recycling, chemical storage, residual management to include dewatering and lagoon modifications	4,170,000		FY 09	FY11	FY13
Hagerstown Water Dept.	Hagerstown	R.C. Wilson Improvements-Phase V-Upgrade to electrical equipment and service; Phase V- Evaluate the potable water treatment process to include chemical addition, isolation of the clearwell and the need for enhanced treatment to include membrane filtration and UV disinfection	1,910.00		FY09	FY 09	FY 09
Hagerstown Water Dept.	Hagerstown	Breichner WPT Improvements-Study to determine operating deficiencies to include tank, mixing, new clarifier, new clearwell, SCADA and the overall treatment train	2,100,000		FY11		
Hagerstown Water Dept.	Hagerstown	Pump Station Improvements-Design and construction of new PS2 (Potomac Ave. transmission main in Rt. 60 and Marsh Pike vicinity); construction new suction and discharge mains at PS6	1,175,000		FY11	FY12	FY12
Hagerstown Water Dept.	Hagerstown	Zone 3 Standpipe-Construction of water main and storage tank near Industry Drive to serve Zone 3 and the airport	1,850,000		FY12	FY12	FY12

Responsible Agency, Municipality or Developer (1)	Service Area (2)	Project Description	Total Cost Estimate	Grants Eligible (4)	Completion Schedule		
					Planning	Design	Construction
Hagerstown Water Dept.	Hagerstown	West Hagerstown Tank and Transmission Main New tank to all for the demo of the existing West End Reservoir. Construction of a 16" transmission main along the southern portion of the water system to meet system demand	5,150,000		FY08	FY08	FY09-10
Hagerstown Water Dept.	Hagerstown	Watershed land acquisition in vicinity of Edgemont Reservoir	200,000		N/A	N/A	N/A
Hagerstown Water Dept.	Hagerstown	Distribution Main Rehabilitation and Intersection Upgrades-Replace existing water mains to include Sharpsburg Pike, Edgewood/Dual, Jefferson Blvd., etc.	200,00 per year		FY08	FY09	FY09
Hagerstown Water Dept.	Hagerstown	Edgemont and Smithsburg Improvements- Design and construction for improvements to address leaks at the toe drain and under the emergency spillway. Improvements will also include a new intake to address raw water quality.	1,325,000		FY08	FY09	FY09
Hagerstown Water Dept.	Hagerstown	CONRAIL Site-Water distribution improvements Phase 1A - Willson Transmission Mains-	720,000		Contingent upon development		
Hagerstown Water Dept.	Hagerstown	Replace the existing 24" transmission mains (2) with 2-30" transmission mains. Approximately 6-miles of water main to be replaced for total project.	2,500,000		FY08	FY08	FY09-10
Town of Funkstown	Funkstown	Water distribution line improvements	100,000	MDE, USDA	Contingent on Funding		
Town of Williamsport	Williamsport	Water distribution line improvements	100,000	MDE, USDA	Contingent on Funding		
Town of Smithsburg	Smithsburg	Water distribution line improvements	200,000	MDE, USDA	Contingent on Funding		
Town of Smithsburg	Smithsburg	Replace waterline feeding Storage tank	1,000,000	USDA/RUS MDE	Contingent upon funding		
Ft. Ritchie/COPT	Fort Ritchie	Review wellhead protection	N/A	N/A	Contingent upon development		
Ft. Ritchie/COPT	Fort Ritchie	Install/Relocate mains in Historic District	N/A	N/A	Contingent upon development		
Ft. Ritchie/COPT	Fort Ritchie	Install/Relocate mains in North Lake Area	N/A	N/A	Contingent upon development		
Ft. Ritchie/COPT	Fort Ritchie	Install/Relocate mains in Secure Campus	N/A	N/A	Contingent upon development		
Ft. Ritchie/COPT	Fort Ritchie	Improve spring #1 for use	N/A	N/A	Contingent upon development		

Responsible Agency, Municipality or Developer (1)	Service Area (2)	Project Description	Total Cost Estimate	Grants Eligible (4)	Completion Schedule		
					Planning	Design	Construction
Ft. Ritchie/COPT	Fort Ritchie	Supplement water supply with 1 new well in west end; Install supply main to reservoir	N/A	N/A	Contingent upon development		
Ft. Ritchie/COPT	Fort Ritchie	Automate system	N/A	N/A	Contingent upon development		
Ft. Ritchie/COPT	Fort Ritchie	Improve well #4 quality for use	N/A	N/A	Contingent upon development		
Town of Boonsboro	Boonsboro	Install 2,150 L.F. of 12-inch waterline on Rt. 34 from square to King Road replacing existing waterline	250,000		Contingent upon funding		
Town of Boonsboro	Boonsboro	Abandon 2-inch main and bore new service lines under Rt. 40A north to the existing water line from Stouffer Ave. to Knobe Circle	123,000		Contingent upon funding		
Town of Boonsboro	Boonsboro	Install 2,000 L.F. of 12-inch waterline on Rt. 40A south from Church to Town Limits replacing existing waterline	300,000		Contingent upon funding		
Town of Boonsboro	Boonsboro	Install 3,100 L.F. of 12-inch waterline on Rt. 66 north from Rt. 40A to Kinsey Heights replacing existing waterline	400,000		Contingent upon funding		
Town of Boonsboro	Boonsboro	Water Distribution rehabilitation and improvements	150,000		Contingent upon funding		
Town of Boonsboro	Boonsboro	Develop Boonsboro West Well and Filtration plant	2,300,000		Contingent upon funding		
Boonsboro Utilities Commission	Boonsboro	7,600 ft. of 4-inch ductile iron water line from current termination in the vicinity of Bast Funeral Home to Mill Point Rd. and along Mill Point Rd. and Scenic View Court	1,091,000	Grants and/or loans from MDE	To be completed by 03/2010		
CrestView Developer	Boonsboro	Extend waterline in Crestview Development South of Rt. 34. Construct a well house and connect well to the Town's water system	unknown	N/A	Contingent upon developer		
Town of Keedysville	Keedysville	Replacement of approximately 6,000 ft. of water line, new 300,000 gal. storage tank and new intermediate pumping station	1,930,000	MDE, USDA-RUS Loans	Planning: Complete Design: 95% Complete Construction: Contingent upon design Completion		
Town of Keedysville	Keedysville	Replacement of 1 water lateral, Antietam Drive	60,000	N/A	Planning: Complete, Design: Complete Construction: Contingent on Funding		
Town of Keedysville	Keedysville	Replacement of water main on Mount Hebron Road	Unknown	N/A	Planning: pending		
City of Brunswick	Weverton	Water Storage Structure	N/A	N/A	Improvements to be determined after Feasibility Study		

Responsible Agency, Municipality or Developer (1)	Service Area (2)	Project Description	Total Cost Estimate	Grants Eligible (4)	Completion Schedule		
					Planning	Design	Construction
Town of Clear Spring	Clear Spring	Water distribution line improvements	200,000	MDE, USDA	Contingent on Funding		
Town of Clear Spring	Clear Spring	New water Source	300,000	MDE, USDA	Contingent on Funding		
Town of Hancock	Hancock	Upgrade waterline on Rte 144 and adjacent areas	800,000	MDE, USDA	Contingent on Funding		
Town of Hancock	Hancock	Water Treatment Plant Upgrades	500,000	MDE, USDA	Contingent upon funding		
Town of Hancock	Hancock	Waterline rehabilitation.	100,000	MDE, USDA	Contingent upon funding		
Town of Hancock	Hancock	New well and storage tank to increase water supply and storage.	N/A	N/A	Contingent upon development		
Town of Hancock	Hancock	Complete study of water system possible water plant upgrade	20,000 (study)	N/A	Improvements to be determined after water study		
Fahmney-Keedy Home and Village	Fahmney-Keedy	Interconnect three existing wells, treatment plant	1,300,000	No	Complete	Dec-08	Apr-09

O. POLICY FOR WATER LINE INSTALLATION IN AREAS WHERE SERVICE IS NOT AVAILABLE

All new development shall be served by an adequate water supply and distribution system which provides sufficient water and service pressure for domestic consumption and fire protection pursuant to Article VII of the adopted Adequate Public Facilities Ordinance of Washington County.

In order to prevent street and other damage encountered in providing public water service to developed areas, and to provide for efficient and effective connection to public water service, the following policy is presented for water line installation in areas where water service is not available at the time of street and residential construction but will be made available at some future time:

1. Requests for such installation will only be accepted where interim systems are permitted by the Water and Sewerage Plan.
2. Each application for a water construction permit must be accompanied by a letter from the County Health Officer requesting that such installation be permitted.
3. Building permits, subdivision plats, and well approvals shall include a provision requiring the connection of the premises to community water within twelve (12) months of announced availability.
4. Water lines shall be designed and installed in accordance with all applicable governing specifications.
5. The connection of the "dry" system shall be plugged with a visible and readily inspectable plug at the future point of connection to the existing system.
6. New commercial and industrial development in adopted Urban or Town Growth areas where public water is not currently available shall comply with Article VIII of the adopted Adequate Public Facilities Ordinance of Washington County regarding interim fire protection systems.

P. SERVICE AREA REQUIREMENTS

The following shall be applicable to each respective designated service area. Criteria for creation and amendment of service areas are outline in Appendix B.

1. Urban and Town Growth Area Service Areas

The provision of community water and sewer facilities within the designated Growth Areas of Washington County is encouraged. Growth Areas were established by the 2002 Comprehensive Plan for the County. These areas are designated as Planned Service (W-5 and S-5). Development proposals which involve the extension of water and sewer lines within the boundaries of the Growth Areas will be considered to be consistent with the policies of the Comprehensive Plan for the County, and will therefore not require an individual amendment to the Water and Sewerage Plan in order to proceed with the review and approval process. Specific arrangements between the developer and the appropriate service providing agencies including verification of sufficient capacity shall be finalized prior to the development receiving approval. An appropriate Service Priority Classification of Programmed Service (W-3 and S-3) will then be assigned to the property as part of the triennial update of this plan. Determinations as to whether or not a property is considered to be within the influence of a Growth Area will be made by the Washington County Planning Commission.

2. Rural Village Service Areas

Existing or planned community water and sewer facilities located within areas considered as Rural Villages by the Comprehensive Plan or Washington County Zoning Ordinance may be designated as a Rural Village Service Area. While primarily designed to serve the existing development in the village, a service area established in these villages may allow for in-fill development on existing lots of record and limited growth. Proposals for new subdivision lots and development within existing Rural Village Service Areas will require Planning Commission review and approval to determine if the proposal is consistent with policies of the Comprehensive Plan dealing with Rural Villages and the Washington County Zoning Ordinance.

3. Restricted Use Service Area

Community Water and/or sewer service areas associated with facilities that are located outside of a designated Growth Area and not within a Rural Village may be considered as Restricted Use service areas. These service areas are created to correct documented public health problems generally associated with contaminated wells or failing septic systems. The use of the facilities within these service areas is limited to the following conditions:

- a. To provide service to existing uses or new uses on existing lots of record which are directly adjacent to the right-of-way containing the water or sewer line.
- b. To provide service, where sufficient capacity is available, to new subdivision lots that can be served by the line without extension. Density shall be no greater than what could occur without public facilities.
- c. To provide service to areas where the Health Department determines that access is necessary to solve an existing Health related problem and the County Commissioners agree to permit access to the line.
- d. To provide service to properties where a written agreement with the service providing agency, executed prior to the restricted access designation, obligated the service providing agency to permit access to the particular line to provide service to a specific property or a specific use or provide a specific number of taps.

4. Denied Access Facilities

In those locations where there are existing water and/or sewer facilities and no service area has been established, these facilities shall be considered Denied Access. Denied access facilities means designated components or sections of the collection or distribution system to which access is prohibited. Exceptions may be permitted on a case by case basis only through amendment of the Water and Sewerage Plan. Exceptions may be granted for remediation of public health hazards, or for residential or commercial properties that were improved and occupied as of the date

of issuance of the construction permit for the facility and that are contiguous to the facility.

Q. PRIORITY CLASSIFICATION REQUIREMENTS

The following requirements shall be applicable to each respective designated priority classification within established service areas:

1. W-1 Priority (Existing Service or Under Construction)

a. Individual water systems shall not be permitted, except as follows:

If an existing community water facility is inadequate or is not available,¹² an interim individual water system may be used subject to the following conditions:

- (1) Such interim systems are adjudged by the local health department to be adequate, safe, and in compliance with pertinent State and local regulations.
- (2) Permits for such interim systems shall bear a notice regarding the interim nature of the permit and stating that connection to a future community system shall be made within 1 year or less after such system becomes available.
- (3) Provisions shall be made, whenever possible to locate such systems so as to permit connection to the public facilities in a most economical and convenient manner.

b. Extensions of existing community water systems shall be permitted and encouraged.

¹² The adequacy or availability of community water service to a particular parcel of land is a judgment which must be made in each case through consultation among the responsible agencies and cannot be made on the basis of this Plan alone.

2. W-3 Priority (Programmed Service)

- a. Individual water systems may be permitted on an interim basis provided that:
 - (1) Such interim systems are adjudged by the local health department to be adequate, safe, and in compliance with pertinent State and local regulations.
 - (2) Permits for such interim systems shall bear a notice regarding the interim nature of the permit and stating that connection to a future community system shall be made within 1 year or less after such system becomes available.
 - (3) Provisions shall be made, whenever possible, to locate such systems so as to permit connection to the public facilities in a most economical and convenient manner.
- b. Extensions of existing community water or sewerage systems shall be permitted and encouraged.

3. W-5 Priority (Planned Service)

- a. Individual water systems shall be permitted.
- b. Extensions of existing community water systems shall not be permitted, except as provided by Policy for Water Line Installation in Areas Where Service is Not Available.
- c. New, permanent community water systems shall not be permitted.

4. NPS Designation (No Planned Service)

This designation is not applied within established service areas.

- a. Individual water systems shall be permitted.
- b. Extensions of existing community water systems shall not be permitted.

- c. New, permanent community water supply systems shall not be permitted.

In all cases where interim or permanent community water systems are permitted, they shall be subject to the standards and regulations of the applicable State and Federal agencies. Adequate documentation that the State and Federal standards can be complied with shall be evidenced prior to County Plan amendment consideration. All interim or permanent community water systems, or multi-use water supply systems in Washington County, excluding municipal systems, shall be approved by and when applicable dedicated to the appropriate agency for ownership, and/or operation, and maintenance in accordance with established County and State standards and procedures.

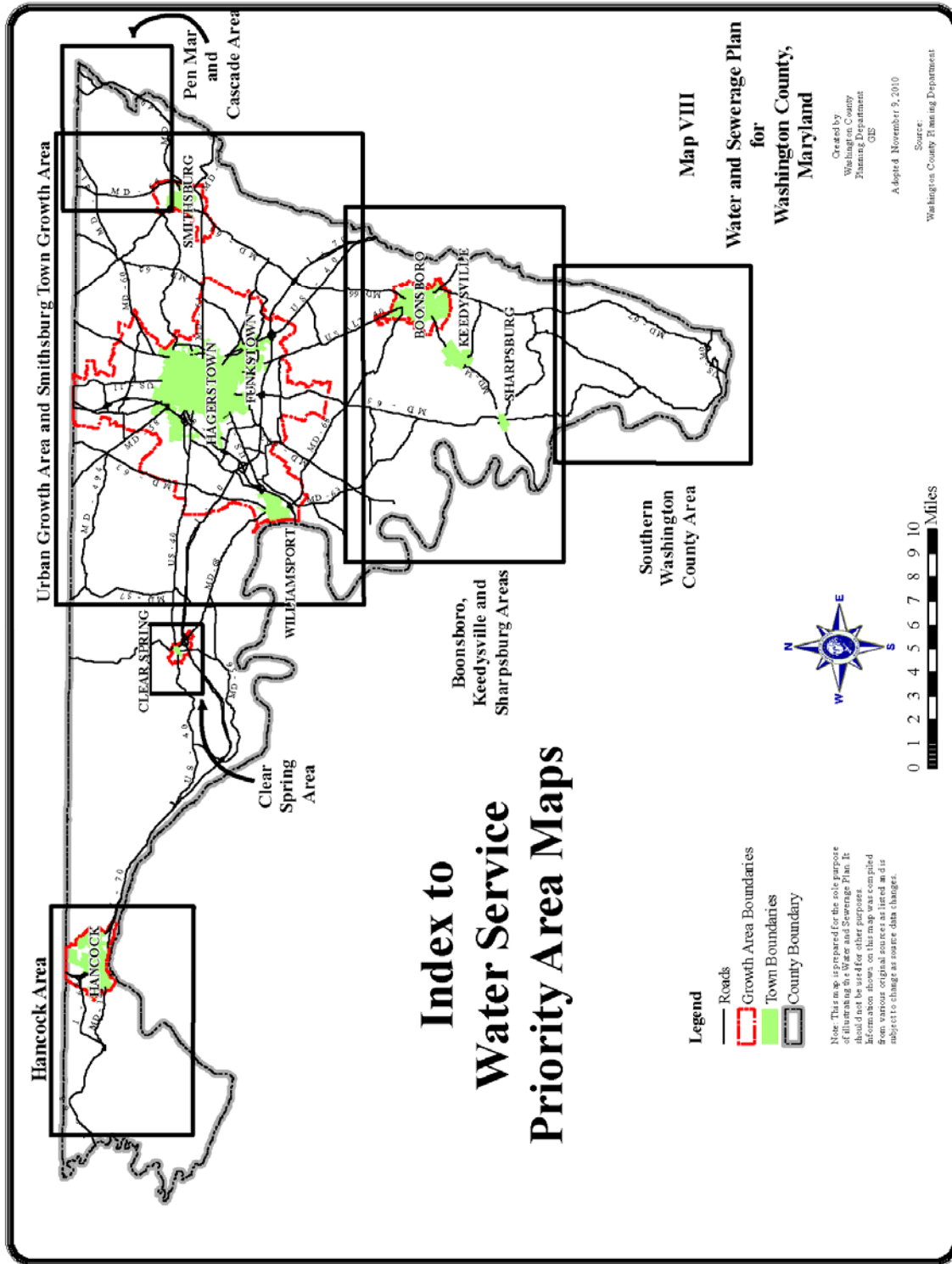
R. WATER SERVICE PRIORITY AREA MAPS

Map VIII is an Index Map to the Water Service Priority Area Maps which are included in Appendix G of this plan and show existing and planned service areas that have priority designations of W-1, W-3, or W-5. The name of the service providing agency is indicated in those areas having existing service and in planned areas where the service providing agency has been determined

While every effort was made to insure accuracy in the preparation of these maps, errors may have resulted from the transfer of information from maps at different scales. The classifications of parcels of land as having either existing service or programmed service was based upon the location of existing service lines and upon the best estimates for future service by the service providing agencies. The delineation of the boundary for the W-5 (Planned Service) classification is based on the land use policies of the adopted Comprehensive Plan for Washington County. W-5 priority classifications within the Urban and Town Growth Area service area are based on the established growth area boundaries. Determinations as to whether or not a particular parcel of land is considered to be within the influence of a Growth Area shall be made by the Washington County Planning Commission and when applicable, the Planning Commission of the affected incorporated municipality.

Because of these inherent accuracy limitations, these maps should be used for general planning purposes only. For certainty as to the exact location of all existing facilities or to the status of particular parcels of land, the Washington County Planning Department and the service providing agencies should be

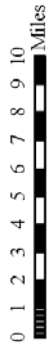
contacted. Changes to these maps which may be required by errors or inaccuracies may be made in accordance with the administrative procedures set forth in Appendix B of this Plan.



Index to Water Service Priority Area Maps

Legend
 — Roads
 [Red outline] Growth Area Boundaries
 [Green outline] Town Boundaries
 [Grey outline] County Boundary

Note: This map is prepared for the sole purpose of illustrating the Water and Sewerage Plan. It should not be used for other purposes. The information contained herein was compiled from various original sources as listed in this subject to change as source data changes.



Map VIII
Water and Sewerage Plan
for
Washington County,
Maryland

Created by
 Washington County
 Planning Department
 GIS

Adapted November 9, 2010

Source:
 Washington County Planning Department

1. Unfina Win ESRI software is copyright by esri.com

CHAPTER IV

A. EXISTING AND PLANNED SEWERAGE SYSTEMS

1. WASHINGTON COUNTY DEPARTMENT OF WATER QUALITY

By resolution of the Board of County Commissioners of Washington County on July 1, 1995, the Washington County Sanitary District was abolished and the Washington County Department of Water Quality, originally known as the Washington County Water and Sewer Department, was created. The Washington County Department of Water Quality, operating under the Washington County Division of Environmental Management within the Washington County Government structure, owns, operates and maintains wastewater collections systems, wastewater treatment plants and appurtenances throughout Washington County. The Department of Water Quality has jurisdiction to serve any areas in Washington County, which are not incorporated or served by an incorporated municipality with public wastewater facilities.

A listing of the wastewater treatment plants, the service area for which treatment is provided, the treatment plant capacity, the average daily flows, and the discharge parameters are described as follows:

Wastewater Treatment Plant	Service Areas	Capacity as of Jan. 1, 2009	Average Daily flow for 2008	Discharge Parameters*
Conococheague	Halfway Potomac (Tammany/Van Lear) Cloverton/Greenlawn Town of Williamsport Conococheague St. James Sharpsburg Pike Interconnection with the City of Hagerstown	4.1 MGD	2.897 MGD	20 mg/L BOD 10 mg/L SS
Antietam	Sharpsburg/Keedysville	0.163 MGD	0.107 MGD	30 mg/L BOD 30 mg/L SS
Sandy Hook	Sandy Hook	0.030 MGD	0.007 MGD	30 mg/L BOD 30 mg/L SS 2.1 mg/L NH3
Smithsburg	Town of Smithsburg Rolling Hills – Cavetown	0.333 MGD	0.291 MGD	10 mg/L BOD 30 mg/L SS
Winebrenner	Highfield/Cascade/Pen Mar	0.600 MGD	0.183 MGD	10 mg/L BOD 10 mg/L SS 3.3 mg/L NH3

*Monthly Average of

BOD = Biochemical Oxygen Demand

SS = Suspended Solids

NH₃ = Ammonia Nitrogen

Note that some parameters are seasonal with the most stringent limit listed. NPDES permits for these facilities should be consulted for the most current and detailed information on permit parameters.

2. JOHN "AL" NICODEMUS WASTEWATER TREATMENT PLANT

The decommissioned John "Al" Nicodemus Wastewater Treatment Plant (formerly called Halfway) is located along the Potomac River on Lockwood Road at the edge of the corporate boundary of Williamsport, Maryland. The Plant was a secondary treatment facility and the plant's process included primary clarification, high rate trickling filters, secondary clarification, disinfection and a solids handling facility. The plant discharged into the Potomac River.

The plant was decommissioned on November 1, 2001 when the flow from this facility was transferred to the Conococheague WwTP. Due to Maryland BNR initiatives, the Department of Water Quality determined that it was more cost effective to upgrade the Conococheague WwTP to handle the flow from both facilities than to upgrade each facility individually. In addition to transferring the flow, septage, raw sewage from holding tanks and chemical toilet waste was transferred to the Conococheague Industrial Pretreatment Facility on November 1, 2001.

In February of 2006, this facility was transferred to a private company through a long-term lease arrangement.

3. CONOCOCHEAGUE WASTEWATER TREATMENT PLANT

The Conococheague Wastewater Treatment Plant is located in Williamsport. The treatment process includes off line influent equalization; mechanical bar screens; grit removal; MLE BNR processes (activated sludge); secondary clarification; tertiary filtration; and UV disinfection. The BNR process is designed to remove nitrogen to a yearly average of 8 mg/L. Solids Handling is by belt filter press with capabilities of lime addition for bulking or stabilization. Sludge generated at other WwTP facilities throughout Washington County are processed at this facility. The plant also incorporates advanced odor control systems to address air quality issues. The Conococheague WwTP currently processes

wastewater received through conventional gravity and low pressure/grinder pump collection systems.

The Department of Water Quality will be upgrading the Conococheague Wastewater Treatment Plant with Enhanced Nutrient Removal Capabilities (ENR). This upgrade will include an expansion to 6.5 MGD. This expansion is to accommodate build out of the Hagerstown Urban Growth Area and Economic Development projects. Additional information regarding this upgrade and the applicable polices, strategies and regulations is located under Department of Water Quality Plans and Polices to Address Sewer Service Needs and State Policies, Strategies and Procedures.

4. ANTIETAM WASTEWATER TREATMENT PLANT

The Antietam Wastewater Treatment Plant is located in Sharpsburg. Wastewater received in this facility is from a grinder pump pressure collection system.

The WwTP utilizes a multi-channel oxidation ditch process (activated sludge), secondary clarification and UV disinfection to process the wastewater. Odor control measures are also utilized at this facility. Sludge generated at this WwTP are transported and processed at the Conococheague WwTP. Effluent is discharged into the Antietam Creek.

The Department of Water Quality has future plans to upgrade the Antietam Wastewater Treatment Plant with Enhanced Nutrient Removal Capabilities. This upgrade will include an expansion to 0.275 MGD, which is anticipated to serve future additional projected wastewater flows. Additional information regarding this upgrade and the applicable polices, strategies and regulations is located under Department of Water Quality Plans and Polices to Address Sewer Service Needs and State Policies, Strategies and Procedures.

5. SANDY HOOK WASTEWATER TREATMENT PLANT

The Sandy Hook WwTP is located in the south Washington County community of Sandy Hook. Wastewater received at this WwTP is from a low pressure/grinder pump collection system.

The Department of Water Quality upgraded the WwTP process to an extended aeration facility with nutrient removal capabilities. The process includes extended aeration, secondary clarification, UV disinfection, odor control and UV disinfection. The Sandy Hook WwTP site limits any enlargement or expansion projects. Sludge generated at this WwTP is transported to and processed at the Conococheague WwTP. Effluent is discharged into Martins Run.

6. C. Wm. WINEBRENNER WASTEWATER TREATMENT PLANT

The C. William Winebrenner Wastewater Treatment Plant (formerly Ft. Ritchie Wastewater Treatment Plant) is located in the northeast Washington County Community of Highfield/Cascade. Wastewater into this facility is from conventional gravity and septic tank effluent pump (STEP) collection systems.

The WwTP utilizes primary clarifiers, Rotating Biological Contactors (RBCs) for secondary biological treatment, secondary clarifiers, chlorination for disinfection and sulfur dioxide for disinfection. Sludge generated on-site can either be dried on site in the sand drying beds or transported and processed at the Conococheague WwTP. Effluent is discharged into Falls Creek.

The Department of Water Quality will be upgrading the Winebrenner Wastewater Treatment Plant with Enhanced Nutrient Removal Capabilities. This upgrade will include an expansion to 0.600 MGD, which is anticipated to serve future additional projected wastewater flows. Additional information regarding this upgrade and the applicable polices, strategies and regulations is located under Department of Water Quality Plans and Polices to Address Sewer Service Needs and State Policies, Strategies and Procedures.

7. SMITHSBURG WASTEWATER TREATMENT PLANT

The Smithsburg WwTP is located in Smithsburg.

The WwTP utilizes Sequence Batch Reactors (activated sludge process), tertiary filters and UV disinfection. Sludge generated at this WwTP is transported and processed at the Conococheague WwTP. Wastewater into

this facility is primarily from conventional gravity sewage collection systems. Effluent is discharged into the Little Grove Creek.

The Department of Water Quality will be upgrading the Smithsburg Wastewater Treatment Plant with Enhanced Nutrient Removal Capabilities. This upgrade will include an expansion to 0.600 MGD, which is anticipated to serve future additional projected wastewater flows. Additional information regarding this upgrade and the applicable polices, strategies and regulations is located under Department of Water Quality Plans and Polices to Address Sewer Service Needs and State Policies, Strategies and Procedures.

8. CONOCOCHEAGUE INDUSTRIAL PRETREATMENT FACILITY

New Federal and State regulations governing Centralized Waste Treatment (Pretreatment) Facilities have prevented local governments from being able to provide pretreatment services for categorically classified waste streams. Therefore, the County transferred this facility to a private company through a long-term lease arrangement and no longer directly provides these services.

B. EXISTING SEWER SERVICE AREAS

The Department of Water Quality currently provides service in twelve (12) sanitary sewer service areas described as follows:

1. Service Area No. 1 – Halfway

The Halfway area is situated approximately three (3) miles south of Hagerstown and three (3) miles north of Williamsport. This service area is within the Hagerstown Urban Growth Area. The Halfway area consists of primarily conventional gravity collection system with a small amount of grinder pumps. Wastewater from this service area is treated at the Conococheague Wastewater Treatment Plant.

The Halfway Service Area as of January 2009 served a total of 3,604 residential and 1,119 commercial Equivalent Dwelling Units (EDUs).

The Department of Water Quality will be completing Inflow and Infiltration (I&I) correction work on the Halfway Wastewater Collection

System in 2009. Additional I&I projects will be completed as areas requiring repair are identified. This work is part of an ongoing effort by the Department of Water Quality to improve collection system operations.

2. Service Area No. 4 – Sharpsburg/Keedysville

A low pressure/grinder pump sewer collection system with two conventional pumping stations serves the Sharpsburg/Keedysville service area and surrounding subdivisions. This service area as of January 2006 served approximately 967 residential and 65 commercial Equivalent Dwelling Units (EDUs). Wastewater from this service area is treated at the Antietam Wastewater Treatment Plant.

This is considered a Rural Village Service Area.

3. Service Area No. 5 – Potomac (Tammany/Van Lear)

The Potomac Service Area is situated south of the Halfway area and north of the Town of Williamsport's corporate limits. This service area is located within the Hagerstown Urban Growth Area. The collection system is a conventional gravity system. Wastewater from this service area is treated at the Conococheague WwTP. Sewer Service as of January 2009 was provided to 1,148 residential and 352 commercial Equivalent Dwelling Units (EDUs).

4. Service Area No. 5-1 Cloverton/Green Lawn

The Cloverton/Greenlawn service area is located adjacent to the Town of Williamsport's corporate boundaries. This service area is located within the Hagerstown Urban Growth Area. The collection system is a small diameter gravity sewer system with two conventional pumping stations. Wastewater and solids from the septic tanks on this collections system are treated at the Conococheague Wastewater Treatment Plant. Sewer service as of January 2009 was provided to 169 residential and 1 commercial Equivalent Dwelling Units (EDUs).

5. Service Area No. 6 – Fountainhead

The Fountainhead service area serves the Fountainhead Development and surrounding area located north of the City of Hagerstown's city limits.

This service area is located with the Hagerstown Urban Growth Area. The collection system is a conventional gravity system. Wastewater from this service area flows into the City of Hagerstown Collection System and is treated at the City of Hagerstown Wastewater Treatment Plant. Sewer service as of January 2009 was provided to 1,078 residential and 199 commercial Equivalent Dwelling Units.

6. Service Area No. 9- 1 – Highfield/Cascade/Pen Mar

The Highfield/Cascade/Pen Mar service area is located in the northeastern section of Washington County. This area is a Rural Village community. The collection system is a combination of a small diameter gravity sewer system and a septic tank effluent pump pressure system with two conventional pumping stations. Wastewater from this area is treated at the Winebrenner Wastewater Treatment Plant. As of January 2009, sewer service is provided to 528 residential and 34 commercial Equivalent Dwelling Units and the former Fort Ritchie Military Base.

7. Service Area 12 – Rolling Hills

The Rolling Hills service area generally includes the Cavetown Area adjacent to the Town of Smithsburg and the Pangborn area adjacent to the City of Hagerstown. The collection system is primarily a low pressure/grinder pump system and has one conventional pumping station. Wastewater flow from the Cavetown area is treated at the Smithsburg Wastewater Treatment Plant, and flow from the Pangborn area is conveyed by the City of Hagerstown’s Sewer Collection System to the City of Hagerstown’s Wastewater Treatment Plant for treatment. As of January 2009, sewer service is provided to 267 residential and 44 commercial Equivalent Dwelling Units.

8. Service Area No. 14 - Sharpsburg Pike

The Sharpsburg Pike Service Area serves the general vicinity of the Sharpsburg Pike exit of 1-70 on Maryland Route 65. This service area is located within the Hagerstown Urban Growth Area. The collection system is a conventional gravity system with two pump stations. Wastewater from this area is treated at the Conococheague Wastewater Treatment Plant. As of January 2009, sewer service is provided to 264 residential and 357 commercial Equivalent Dwelling Units.

9. Sewer Area No. 15 – Maugansville/Orchard Hills

The Maugansville/Orchard Hills Service Area generally serves the areas located along Maryland Route 11 from the Fountainhead Service area to the Pennsylvania State Line and the Maugansville area including the adjacent subdivisions. This service area is located within the Hagerstown Urban Growth Area. The collection system is a conventional gravity system. Wastewater from this area is conveyed to the City of Hagerstown Sewer Collection system and treated at the City of Hagerstown's Wastewater Treatment Plant. As of January 2009, sewer service was provided to 2,328 residential and 709 commercial Equivalent Dwelling Units.

10. Sewer Service Area No. 16 – St. James

The St. James Sewer Service Area generally includes the developments located along Maryland Route 65 from the intersection with Rensch Road to Roxbury Road and the areas along College Road from Route 65 to St. James School. This Service Area is primarily located in the Hagerstown Urban Growth Area. The collection system is a conventional gravity sewer system. Wastewater from this area is treated at the Conococheague Wastewater Treatment Plant. As of January 2009, sewer service was provided to 453 residential and 125 commercial Equivalent Dwelling Units.

11. Sewer Service Area No. 18 – Conococheague

The Conococheague Service Area generally serves the Maryland Route 63 corridor from Town of Williamsport's corporate boundary, bordered to the West by Walnut Point Road, bordered to the East by Interstate 81, bordered to the northeast by the subdivision known as Cedar Lawn, and bordered to the northwest and running concurrent with the Hagerstown Urban Growth Area and the former GST industrial site. The collection system is primarily conventional gravity with some grinder pump units. Wastewater from this area is treated at the Conococheague Wastewater Treatment Plant. As of January 2009, sewer service is provided to 431 residential and 407 commercial Equivalent Dwelling Units (EDUs).

12. Sewer Service Area No. 19 – Sandy Hook

The Sandy Hook Service Area serves the rural village of Sandy Hook. The collection system is a grinder pump system with the wastewater being treated at the Sandy Hook Wastewater Treatment Plant. As of January 2009, sewer service is provided to 64 residential and 6 commercial Equivalent Dwelling Units.

C. PLANNED SEWERAGE SERVICE AREAS

The Department of Water Quality actively pursues wastewater projects to address health and water quality issues in the County. As these projects are developed, they are included in the County's Capital Improvement Plan and incorporated into the Water and Sewerage Plan.

Department of Water Quality Plans and Policies

The Department of Water Quality is working on plans and strategies to address the new State policies, guidance, strategies, and procedures being imposed on wastewater service providers. Development, completion, and implementation of these plans and strategies will be dependent on State policy adoption and when the County will need to utilize them to meet the requirements of State requirements. This initiative and associated Department strategies are described as follows.

1. Maryland Enhanced Nutrient Removal Strategy

The Maryland Department of the Environment (MDE) has developed an Enhanced Nutrient Removal Strategy to reduce the amount of nitrogen and phosphorus loading entering the Chesapeake Bay from Wastewater treatment plants. This policy establishes nitrogen and phosphorus loading allocations for all wastewater treatment plants in the State. These loading allocations can only be increased for a wastewater treatment plant by transferring, offsetting or decreasing the loading from another source or through the use of spray irrigation. The Department is working on multiple strategies to increase loading allocations where additional loading is demanded to address growth and EDC initiatives. These strategies include but are not limited to the following, and will be implemented upon approval by MDE and as required to meet the nutrient loading strategy of the State and the local loading requirements.

2. Bubble Permit Strategy

This strategy also known as watershed Permitting consolidates the nutrient loading allocations for multiple wastewater treatment plants into one NPDES permit, resulting in a cumulative loading from all the facilities under this permit, which are treated as one water quality loading parameter for each nutrient included in the permit. This strategy is subject to Federal and State NPDES permitting regulations.

3. Nutrient Trading

This strategy allows the County and its Department of Water Quality to acquire loading allocation for nutrients from a point or non-point source and transfer it to a wastewater treatment plant or to an Economic Development (ED Nutrient Loading bank. The ED Nutrient Loading bank would be a reserve of loading allocation that could be used at a wastewater treatment plant to accommodate future economic development in Washington County. Acquisition of this loading through trading could include but is not limited to purchasing of loading from point sources, reallocation from industrial sites and associated nutrient loading, paying for restoration of wetlands, installation of forest buffer, etc. An additional trading opportunity that the Department will pursue as necessary is the upgrading of existing on site disposal systems with Enhanced Nutrient Removal technology. The Department of Water Quality's trading policy will be in accordance with applicable State Nutrient Trading policies, strategies and regulations. In addition, the Maryland Tributary Strategy targets specific load reductions for various point and non-point sources, some of which were previously discussed in this paragraph. The Department of Water Quality is working to maximize potential reductions identified in the Strategy in concert with other ENR initiatives in order to minimize nutrient discharges from sources other than wastewater treatment facilities, and maximize potential available loading at these facilities through voluntary reduction assistance at the other sources identified. It is anticipated that a local "nutrient reduction strategy team" will be required in the future to manage local initiatives required by State mandates. This team, when created, and the subsequent proceedings of the team will be considered as part of the County Water and Sewerage Plan.

4. Water Reuse

Commercial applications in the County currently utilize public water systems or wells to for non-potable uses such as water-cooling and lawn irrigation. The Department of Water Quality is developing policies to replace these water sources with high quality wastewater treatment plant effluent. This policy would decrease the amount of nutrients entering the receiving stream and thereby offset wastewater treatment plant loading allocation for other uses. The Department of Water Quality will begin implementation of water reuse practices once all State and local approvals are received and cost effective users are identified.

5. ENR Upgrades

The Department of Water Quality will upgrade the Conococheague; Winebrenner; Antietam and Smithsburg Wastewater Treatment Plants with Enhanced Nutrient Removal technology. By upgrading the two minors (Antietam and Smithsburg), additional flow capacity can be recognized for increasing the capacity at the Conococheague and Smithsburg Facilities. Request for Proposals to obtain Engineering Services for the planning, design and construction management of these upgrades has been issued with award of this contract in mid 2006. These projects are included in the County's FY 10 Capitol Improvement Plan; the proposed schedules in the plan are contingent upon State agency approval and grant funding availability.

6. System Interconnections and Interceptors

In order to serve areas of the Hagerstown Urban Growth Area outside the City of Hagerstown and not within the drainage basin of the Conococheague Wastewater Treatment Facility, the Department of Water Quality will investigate and install interceptors and/or upon agreement with the City of Hagerstown interconnectors to serve these areas. An example of this would be the Newgate Interconnector Project, which connects the City of Hagerstown collection system at Pump Station No. 13 with the Conococheague collection system. The Hagerstown Urban Growth Area Water and Sewer Study prepared by BCM in 1992 is a planning document which outlines the general locations and concepts of this strategy.

7. Maryland Guidance on Capacity Management

The Maryland Department of the Environment has developed and issued guidance to water and sewer providers. The purpose of this guidance is to ensure that providers properly monitor and track their system capacities to avoid allocating out more capacity than their systems can handle.

8. Capacity Management Plan

The Department of Water Quality has a capacity management plan for each of its wastewater facilities. This plan accounts for the all sources of allocation needs such as new developments, commercial allocation increases, and existing service area infill growth. The plan establishes yearly the amount of connections which will be allowed on the system to maintain an adequate growth plan for the facility. New developments are added into the appropriate plan at the time of site plan approval. Inclusion into the capacity management plan and site plan approval does not guarantee the developer allocation at the facility. Allocation at the facility is applied for at the time of building permit application and once approved is only valid for one year from the issuance date. The allocation is approved based on prior appropriation in the Capacity Management Plan. Once allocation is included into the capacity management plan it is prorated according to the current policy over the appropriate years, so that future growth from a development can be accounted for up front. If allocation for a particular category is not used in the current year, it will be carried over each year in the plan. Any agreements with developers with designated allocation schedules are also included in the plan.

D. CITY OF HAGERSTOWN

Hagerstown Wastewater Treatment Plant and Collection System

The City of Hagerstown's wastewater collection and treatment system serves approximately 40,000 persons and numerous commercial and industrial customers within the city. Outside the corporate limits, approximately 19,000 people are served from area's known as Joint Service Area (JSA) customers. JSA customer's wastewater is processed at the Hagerstown Wastewater Facility, but the collection systems are maintained by Washington County's Department of Water Quality. Service is also provided to industrial, commercial, residential

and institutional customers located within Washington County. All of these service areas are located within the Urban Growth Area.

The Hagerstown Wastewater Treatment Plant is located in the southern part of the City along the Antietam Creek. It provides secondary treatment to both domestic and industrial waste. The plants present capacity is 8 MGD (million gallons per day). On September 21, 2004, a resolution was adopted to amend the County Water and Sewer Plan to allow the facility to expand capacity from 8 MGD to 10.5 MGD by the year 2010. The expansion is contingent on the City meeting nitrogen and phosphorous reductions goals based on Maryland's Enhanced Nutrient Removal Strategy.

The treatment process includes mechanical bar screens; grit removal; primary clarifiers; BNR process; pure oxygen activated sludge process; secondary clarification and ozone disinfection. The plant also has capabilities of blending primary effluent with secondary effluent during periods of high flows caused by inflow and infiltration. The blended flow is then disinfected prior to discharge to the receiving stream. The BNR process is designed to biologically remove nitrogen to yearly averages of 8mg/l and total phosphorous to monthly averages of 2 mg/l. Chemical addition is also available to reduce phosphorous levels when the biological process becomes overloaded. Solids removal is handled by a subcontractor who is currently working under contract for the City of Hagerstown. The sludge process includes chemical addition; belt filter press and heat drying (Pelletizing). The final solids are then used as fertilizer by various local or national farmers. The Wastewater Treatment Plant and Pelletizer also include odor control systems to address air quality issues. The Hagerstown Wastewater Treatment facility currently processes wastewater received through conventional gravity; high volume pump stations and low pressure grinder pump collection systems.

The City of Hagerstown is currently upgrading the Hagerstown Wastewater Treatment Plant with Enhanced Nutrient Removal capabilities; the City is also be upgrading head works equipment; pure oxygen process equipment and evaluating alternative disinfection methods for use at the facility. Upgrades to ENR designed to meet permit limits of 3 mg/L of Nitrogen and 0.2 mg/L of Phosphorus. Construction is scheduled to be completed by January 2011. The Pelletizing facility continuously evaluates process and equipment upgrades to keep the plant operating efficiently and within compliance regulations.

The City of Hagerstown Collection System is comprised of approximately 140 miles of pipe and 27 pumping/lift stations. The City of Hagerstown has completed a Sanitary Sewer Evaluation Survey and Capacity Management Operation and Maintenance Study (CMOM). With the completion of these elements, the City has developed a plan for reducing inflow and infiltration with the system, this plan will include upgrades, repairs and replacement of collection system infrastructure.

E. FUNKSTOWN

The Town of Funkstown operates a wastewater collection and treatment system which serves approximately 1,100 residents, the Funkstown Elementary School east of town, and a business along Alternate Route 40. The Town is located in the Urban Growth Area established by the 2002 Comprehensive Plan for Washington County.

In 2008 the Town completed a major project involving construction of a new SBR type sewage treatment plant to replace the leaking lagoon system. (See Table 14) This new plant increased the Town's treatment capacity from 0.15 MGD to 0.20 MGD, thereby providing adequate capacity for existing flows and a small portion for future growth.

F. SMITHSBURG

The Town of Smithsburg and its surrounding Growth Area are served by a wastewater treatment system that is owned and operated by the Washington County Department of Water Quality.

The Town has established a plan to locate and make all necessary repairs to the collection system. The Town is currently televising the entire system one section at a time. The Town has also started an annual inspection program of all manholes. The Town has installed no-flow dishes in all manholes to help reduce the amount of inflow.

G. MARYLAND CORRECTIONAL INSTITUTION

The present treatment facility is operated by the Maryland Environmental Service and has a rated capacity of 1.6 MGD. MCI is utilizing an Eimco 4 Stage Bardenpho advanced waste water treatment plant serving approximately 6,600

persons. The collection system only serves the prison and has no plans to expand.

H. BOONSBORO

The Town of Boonsboro provides public sewerage to a population of about 3,400 people residing within the town limits.

The Town recently upgraded its wastewater treatment which increased the design capacity to 0.56 mgd. The two driving forces for the plant upgrade were population growth from increased development and more stringent effluent nutrient regulations. The plant upgrades included sequencing batch reactors with ability to achieve enhanced nutrient removal.

The Boonsboro Town Growth Area Study, adopted in 1986 by the Town and the County, identifies an area surrounding Boonsboro where growth and extension of public utilities is encouraged. Service priority designations for property within the Growth Area will be assigned once development proposals are reviewed and approved by the County and Town. The Boonsboro Utilities Commission is willing to make extensions of the sewer system within the Growth Area but only for annexed properties. It remains the Town's policy that public sewerage will not be extended beyond corporate boundaries.

I. CLEAR SPRING

The Town of Clear Spring's wastewater collection and treatment system serves a population of approximately 663 people mostly located within the town limits. By contractual agreement, the Washington County Department of Water Quality provides operation and maintenance of the system.

The Town's treatment facility consists of a 0.2 mgd capacity oxidation ditch wastewater treatment plant.

In 1991, at the request of the Mayor and Council, an engineering study of the Clear Spring waste water treatment plant was completed by a private consultant. The study concluded that: "The Clear Spring treatment plant has been operated at a high level of efficiency during the study period (July 1, 1989 to May 31, 1991). The plant treatment capacity is limited by the low concentration of the waste sludge from the existing settling tank which results in reduced hydraulic detention time in the aerobic sludge digester. The plant is capable of handling

up to 200,000 gallons per day from both a hydraulic and organic loading perspective. The plant influent flow cannot be increased to the full 200,000 gallons per day level until the sludge digestion capacity is increased by addition sludge thickeners or additional digestion capacity."

The Town of Clear Spring is identified in the 2002 Comprehensive Plan for the County as a "Town Growth Area".

J. HANCOCK

The Town of Hancock owns and operates a wastewater collection and treatment system which serves a population of about 1,926 people mostly located within the Town limits. The Town has a designated growth area according to the 2002 Comprehensive Plan for Washington County. Treatment is afforded by 12.8 acre aerated lagoon from which the treated effluent is discharged to the Tonoloway Creek. The lagoon has a maximum design capacity of 0.38 mgd and has an average daily flow of 0.24.

K. FORT RITCHIE

Fort Ritchie, a former US Military installation located in Cascade, Maryland, was closed in 1998 as a result of the 1995 Base Realignment and Closure program, or BRAC. The PenMar Development Corporation (PMDC) was established as a public instrumentality of the State of Maryland in May 1997. Its purpose is to oversee the development of Fort Ritchie from a U.S. Army base to civilian uses. On Oct. 4, 2006, the U.S. Army transferred ownership of 500 of the 591 acres of Fort Ritchie to PMDC. The following day, PMDC sold it to Corporate Office Properties Trust (COPT). In 2007, the U.S. Army transferred the remaining 91 acres of Fort Ritchie to PMDC; with PMDC immediately transferring same to COPT. PMDC is to remain active in overseeing the development of the project by COPT for seven years.

COPT is a fully integrated, self-managed real estate investment trust (REIT) that focuses on the acquisition, development, ownership, management and leasing of suburban office properties primarily in select Mid-Atlantic submarkets. Re-development of Fort Ritchie is planned to occur over a 20 year time period and will involve preservation and re-use of many existing building including those that have been identified as historic. The re-development will also involve the construction of many new structures. At completion, Fort Ritchie will have 1.7 million square feet of office and retail space, including approximately 850,000

square feet in a restricted business campus. The community will include a historic district, a community area with recreational amenities, and several residential neighborhoods offering 673 homes including condominiums, townhomes, and single family homes.

Wastewater treatment for Ft Ritchie is provided at the Winebrenner wastewater treatment plant operated by the Washington County Department of Water Quality. This Plant also serves the Highfield, Cascade, and Pen Mar Service area. A description of this system can be found outlined in the Water Quality Department's section of this chapter.

COPT owns and operates the wastewater collection system serving Fort Ritchie. COPT will replace/repair/upgrade the entire collection system to accommodate existing facility renovation and reuse, new commercial, retail and residential development. It is expected that COPT will turn ownership of the collection system over to the County upon completion of the upgrades required to meet County standards and redevelopment needs.

COPT is committed to Environmental Stewardship and will build all new facilities to LEED (Leadership in Energy and Environmental Design) certification standards. This effort will result in decreased overall water consumption by 30-50% per bldg, and likewise, wastewater generation.

L. WILLIAMSPORT

Wastewater treatment for the Town of Williamsport is provided by the Washington County Department of Water Quality at its Conococheague wastewater treatment plant. The town owns and operates the collection system within the Town boundaries serving a population of approximately 2000 persons. The Town of Williamsport falls within the Urban Growth area established by the 2002 Comprehensive Plan for Washington County.

M. FAHRNEY KEEDY HOME AND VILLAGE (private system)

The Fahrney Keedy Home and Village is located approximately 2 miles north of the Town of Boonsboro on the east side of MD Route 66. It is a privately owned retirement and assisted living facility located on a single lot consisting of a main building with central support facilities, 90 nursing rooms, 12 assisted living

rooms, and 12 apartments. Also on the property are 37 individual 2 and 3 bedroom cottages.

The existing privately owned wastewater treatment facility operated by Maryland Environmental Services is designed to treat an average daily flow of 50,000 gallons and is located on the Home's property at the corner of Rt. 66 and Mountain View Drive. The treatment units are located inside a ranch style dwelling. Odor control equipment and a diesel powered standby unit are located behind the building.

The treatment train consists of a 10,000 gallon capacity flow equalization tank, a sludge holding tank, one 12 foot diameter primary settling tank, three fixed film geo-form reactors filled with plastic media rotating partially submerged in a steel tank, two final settling tanks followed by an ultra violet disinfection system and a post aeration tank. The final effluent is discharged to a tributary to the Little Beaver Creek just west of the Rt.66 crossing.

The plant as it exists today was upgraded in 1999/2000 to meet NPDES permit limits for BOD and Ammonia. Wastewater from the Fahrney Keedy collection system enters the flow equalization tank by gravity flow where it is aerated and pumped to a flow distribution box on top of the primary settling tank. After primary settling, the flow then enters the geo-form reactor basin where bacteria consume nutrients to reduce BOD. The wastewater then enters the final settling tanks to remove remaining suspended solids and the clarified effluent is disinfected by ultra violet radiation and aerated in a small chamber to increase dissolved oxygen to comply with the permit compliance limits.

The NPDES 2005 permit revision further lowered the compliance limit for Ammonia, which triggered the need for additional upgrades to the facility.

The Home has applied for a loan under the USDA Rural Development Program to fund the upgrade of the facility. The proposed upgrade will replace the existing geo-form reactors with a Sequential Batch Reactor (SBR) while retaining most of the remaining unit processes to comply with the stringent ammonia limits. The existing building will be expanded to accommodate the SBR and other ancillary equipment such as blowers, controls, and denitrification filter/s. The capacity of the facility will remain unchanged at 50,000 gallons per day after the upgrades are completed. The new limits are effective March 1, 2008.

The estimated cost of the upgrade is \$ 2.4 Million.

N. PROJECTED DEMANDS

Projected demands for existing service areas are shown in Table No. 7. Future demand projections presented in this table are based upon future population projections for each area and a figure for TOTAL PER CAPITA FLOW in gallons per capita per day

NOTES FOR TABLE 7

- (1) SEWAGE TREATMENT PLANT – The facility which serves specific service areas within the County and municipalities.
- (2) POPULATION SERVED – From agency or municipality. Interpolated for 2015-2030
- (3) DOMESTIC FLOW (Million Gallons per Day) – Sewage flows from domestic or residential sources. Figures provided by the agency or municipality.
- (4) INDUSTRIAL/COMMERCIAL FLOW (Million Gallons per Day) – Sewage flows from industrial and commercial uses. Figures provided by the agency or municipality.
- (5) INFILTRATION/INFLOW (Million Gallons per Day) – Infiltration is groundwater entering a sewer system and service connections through such means as defective pipes, pipe joints, connections, or manhole walls. Inflow is water discharged into a sewer system from such sources as roof leaders, drains, cooling water discharges, manhole covers, catch basins, surface runoff, and street washers. Figures provided by the agency or municipality.
- (6) TOTAL FLOW (Million Gallons per Day) – Based upon information supplied by the service providing agency.
- (7) DOMESTIC PER CAPITA FLOW (Gallons Per Capita per Day) – Determined by dividing DOMESTIC FLOW by POPULATION SERVED.
- (8) TOTAL PER CAPITA FLOW (Gallons Per Capita per Day) – Determined by dividing TOTAL FLOW by POPULATION SERVED.
- (9) TOTAL FLOW (Million Gallons per Day) – These projected figures are determined by multiplying TOTAL PER CAPITAL FLOW for the present year by POPULATION SERVED for the planning year.
- (10) SYSTEM CAPACITY (Million Gallons per Day) – based on information supplied by the service providing agency.

**TABLE NO. 7
PROJECTED SEWERAGE DEMANDS AND PLANNED CAPACITY**

SEWAGE TREATMENT PLANT (1)	PRESENT YEAR										5 Year Planning (2015)			5-10 Year Planning (2020)			10-20 Year Planning (2030)		
	(2)	(3)	(4)	(5)	(6)	(7)	(8)	5 Year Planning (2015)			5-10 Year Planning (2020)			10-20 Year Planning (2030)					
	Population served		Domestic Consumption (MGD)	Industrial/Commercial Flow (MGD)	Infiltration/Inflow (MGD)	Total Flow (MGD)	System Capacity (MGD)	Domestic (GPCPD)	Total (GPCPD)	Population Served	Total Flow (MGD)	System Capacity (MGD)	Population Served	Total Flow (MGD)	System Capacity (MGD)	Population Served	Total Flow (MGD)	System Capacity (MGD)	
Hagerstown	40,000																		
Joint Service Area	19,000																		
2009 TOTALS	59,000	3.25	1.11	2.15	6.510	8.000	55.080	0.11	64,188	7.060	10.500	69,833	7.680	10.50	82,655	9.090	10.500		
Smithsburg *	3,629				0.291	0.333			4,464	0.3390	0.6000	5,177	0.4010	0.6000	6,955	0.557	0.600		
Conococheague	17,017				2.897	4.100			18,700	3.0340	6.5000	26,200	4.1420	6.5000	34,200	5.783	6.500		
Winebrenner	1,299				0.19	0.600			1,950	0.2630	0.6000	2,500	0.3410	0.6000	4,800	0.565	0.600		
Sandy Hook	157				0.007	0.030			246	0.0150	0.0300	279	0.0180	0.0300	313	0.021	0.030		
Antietam	2,374				0.108	0.163			3,637	0.2366	0.2750	4,228	0.2904	0.2750	4,041	0.274	0.275		
Boonsboro	3,400				0.35	0.530			3,909	0.3850		4	0.4250		5,339	0.530			
Funkstown **	1,141				0.148	0.200		130	1,164	0.1540		1,214	0.1580		1,258	0.164			
Clear Spring	663				0.115	0.200		173	688	0.1190		705	0.1220		730	0.127			
Hancock	1,743	0.083	0.1		0.19	0.380			1,850	0.1500		2,000	0.1630		2,250	0.183			
Greenbrier	1,046				0.011				1,046	0.0110		1,046	0.0110		1,046	0.0110			
Albert Powell	N/A				N/A				N/A	N/A		N/A	N/A		N/A	N/A			
Lamb's Knoll	15				0.000051				15	0.000051		15	0.000051		15	0.000051			
Fahmy Keedy	300				0.0230	0.050		78	315	0.0270	0.0500	350	0.0300	0.0500	435	0.038	0.050		
Sideling Hill	27				0.00319				27	0.00319		27	0.00319		27	0.00319			
Fort Frederick	50				N/A				50	N/A		50	N/A		50	N/A			
Happy Hills	N/A				N/A				N/A	N/A		N/A	N/A		N/A	N/A			
St. Lawrence Cement (Holcsm)	N/A				N/A				N/A	N/A		N/A	N/A		N/A	N/A			
MCI	6,600				1.143				6,600	1.143		6,600	1.143		6,600	1.143			

* Includes Cavetown service area
 ** Data based on 2004 text amendment WS-04-004.

NOTES FOR TABLE NO. 8

- (1) TREATMENT TYPE is described more fully in the text of this Plan. Both TREATMENT TYPE and STP DESIGN CAPACITY information has been extracted from the applicable Facilities Plans.
- (2) RECEIVING WATERS – The stream or river into which the treated effluent is discharged.

**TABLE NO. 8
INVENTORY OF EXISTING SEWAGE TREATMENT PLANTS**

Sewage Treatment Plant	Treatment Type (1)	STP Design Capacity (1) MGD	Receiving Waters (2)
**** Hagerstown	Oxygen Activated Sludge/BNR/Ozone	8.00	Antietam Creek
Funkstown	SBRs	0.15	Antietam Creek
*** Smithsburg	Extended Aeration	0.333	Grove Creek
** MCI	Einco Bardenpho Advanced Treatment Plant	1.60	Antietam Creek
Boonsboro	SBRs	0.47	Tributary Little Antietam Creek
Clear Spring	Oxidation, Chlorination, Ditch	0.20	Toms Run
Hancock	lagoon, Chlorination, Aeration	0.380	Tonoloway Creek
*** Winebrenner	Rotating Biological Contractors	0.600	Falls Creek
Broadfording Church	Aeration, Chlorination	0.010	Tributary Conococheague
Doubleday Co.	Aeration, Chlorination	0.006	Beaver Creek
* Fahrney Keedy Home	Fixed growth - moving bed reactor (Package Plant)	0.050	Little Beaver Creek
Fairchild Republic Corp.	Trickling Filter	0.114	Marsh Run
Greenbriar State Park	Extended Aeration, Chlorination	0.050	Tributary Little Antietam Creek
Highland View	Extended Aeration, Chlorination	0.030	Tributary Beaver Creek
Hunter Hill Apartments	Extended Aeration, Chlorination	0.030	Tributary Marsh Run
Roadway Express	Aeration, drain fields	0.015	Underground
South Mountain Inn	Aeration, Chlorination		Stream in Frederick County
Washington Center	Aeration, drain fields	0.011	Underground
*** Conococheague	BNR MLE System	4.100	Conococheague Creek
Brooklane	Activated Sludge (Package Plant)	0.01	Grove Creek
*** Sandy Hook	Activated Sludge	0.030	Martin's Run
*** Antietam	Oxidation Ditch	0.163	Antietam Creek
Cedar Ridge Home & School	Rotating Biological Contractors	0.010	Meadow Brook
Albert Powell WWTP	Septic system with underground sand filter, UV and post aeration		Unnamed Tributary Little Beaver Creek
Lambs Knoll WWTP	Activated sludge Plant (Package plant) Discharging via overland flow	0.0015	Ground water of the state

Sewage Treatment Plant	Treatment Type (1)	STP Design Capacity (1) MGD	Receiving Waters (2)
Fahrney Keedy WWTP (future plant)	(Future Plant) Sequential Batch Reactor SBR (Package Plant)	0.050	Unnamed Tributary Little Beaver Creek
Sideling Hill WWTP	Activated Sludge Plant (Package Plant)		
Fort Frederick WWTP	Lagoon, sand mound	0.001	Ground water of the State
Happy Hills WWTP	Activated Sludge Plant (Package Plant)	0.025	Unnamed Tributary Potomac River
St. Lawrence Cement	Fixed growth - moving bed reactor (package plant)	0.15	Antietam Creek

TABLE NO. 9
INVENTORY OF MPDES (DISCHARGE) PERMITS

COUNTY	FAC. NUM.	FAC. NAME	PTYPE	DESCRPT	APP_DESC	CUR. STATUS	PERMIT_NUM	NPDES_NUM
24043	23042	ACT1 - BIG POOL EXXON	WASST	GENERAL TERMINAL DISCHARGE		IR	23042	MD0342304
24043	2102	ACT1 - FREDERICK STREET	WASST	GENERAL TERMINAL DISCHARGE		IR	2008-0GT-2102	MD0342102
24043	3101	GALBERT POWELL FISH HATCHERY	WMA1	SURFACE INDUSTRIAL DISCHARGE	FOR RENEWAL, APPROX. 30,000 GPD FROM TROUT HATCHERY	IE	00DP1326	MD0054054
24043	1566	ANTLETAM RECREATION	WMA5	GENERAL PERMITS		IR	07S16667	MD076667
24043	3697	ANTLETAM WWTP	WMA2	SURFACE MUNICIPAL DISCHARGE	FOR RENEWAL, 0.163 MGD DESIGN FLOW, 111 MGD AVERAGE, UV DISINFECTION	IR	03DP2354	MD0162308
24043	6802	BEST BUILDING COMPONENTS, LLC	WASST	GENERAL TERMINAL DISCHARGE		IR	2008-0GT-6802	MD0346802
24043	3614	BOONSBORO WWTP	WMA2	SURFACE MUNICIPAL DISCHARGE	FOR MOD TO INCREASE FLOW FROM 0.460 MGD TO 0.530 MGD	IM	00DP126A	MD0020231
24043	3619	BROADFORDING BIBLE CHURCH WWTP	WMA2	SURFACE MUNICIPAL DISCHARGE	FOR RENEWAL, 2500 GPD DESIGN FLOW	IR	00DP1006	MD0051373
24043	3622	BROOK LANE PSYCHIATRIC CENTER WWTP	WMA2	SURFACE MUNICIPAL DISCHARGE	FOR MOD TO CHANGE FLOW FROM FECAL COLIFORM TO E. COLI METHOD	IF	90DP1245A	MD0053198
24043	6164C	WILLIAM HETZER, INC. - SHALE PIT	WMA5	GENERAL PERMITS	FOR RENEWAL, SHALE MINE	IR	00MM9932	MD049932
24043	13152	CAMP LOUISE	WMA5	GENERAL PERMITS	DISCHARGE TO GW, DMR FOR CLEANING ONLY, 1 EVENT	IR	07S16220	MD076220
24043	4190	CASCADE TISSUE GROUP - MARYLAND, LLC	WMA1M	MAJOR SURFACE INDUSTRIAL DISCH	FOR RENEWAL, INACTIVE PAPER MILL	IF	04DP3077	MD0166874
24043	597	CEDAR RIDGE CHILDREN'S HOME & SCHOOL	WMA2	SURFACE MUNICIPAL DISCHARGE	RENEWAL, 010 MGD	IF	03DP-3229	MD0167881
24043	5612	CITY OF HAGERSTOWN - W.M. BRECHNER WTP	WMA2	SURFACE MUNICIPAL DISCHARGE	FOR RENEWAL, 206,200 GPD	IF	02DP1198	MD0167741
24043	15864	CLEAR SPRING WTP	WMA2	SURFACE MUNICIPAL DISCHARGE	20000 GPD	IF	03DP-446	MD01668132
24043	3647	CLEAR SPRING WWTP	WMA2M	SURFACE MUNICIPAL DISCHARGE	0.2 MGD DESIGN FLOW, 0.073 AVERAGE	IR	00DP1254	MD0165325
24043	1742	CONOCOHEAGUE WWTP	WMA2M	MAJOR SURFACE MUNICIPAL DISCH	FOR RENEWAL, 4.1 MGD DESIGN FLOW, 1.5 AVG	IR	03DP2563	MD0165309
24043	2801	ELK RIDGE WATER TREATMENT PLANT	WMA2	SURFACE MUNICIPAL DISCHARGE	WATER TREATMENT PLANT - 0.02 MGD	IR	03DP2550	MD0667962
24043	4126	EWING OIL COMPANY, INC. - HAGERSTOWN	WASST	GENERAL TERMINAL DISCHARGE		IF	2008-0GT-4126	MD0344126
24043	3678	FAHRNEY-KEEY MEMORIAL HOME	WMA2	SURFACE MUNICIPAL DISCHARGE	0.05 MGD DESIGN FLOW	IF	04DP1229	MD0053086
24043	13365	FOUNTAIN HEAD COUNTRY CLUB	WMA5	GENERAL PERMITS	DMR FOR BACKWASH, CLEANING, & DRAINAGE TO SURFACE WATER	IF	07S16301	MD076301
24043	3697	FUNKSTOWN WWTP	WMA2	SURFACE MUNICIPAL DISCHARGE	MOD TO INCREASE FLOW FROM 0.15 TO 0.2 MGD, SBR PLANT TO REPLACE LAGOONS	IF	00DP169A	MD0202632
24043	3710	GREENBRIER STATE PARK	WMA2	SURFACE MUNICIPAL DISCHARGE	FOR RENEWAL, 25,000 GALLONS PER DAY AVERAGE PROJECTED FLOW	IF	90DP0753	MD0228688
24043	4187H & J	STORAGE LTD.	WMA1	SURFACE INDUSTRIAL DISCHARGE	FOR RENEWAL, CONDENSATE FROM PRODUCE COLD STORAGE FACILITY	IF	00DP0372	MD0028028
24043	13300	HAGERSTOWN KOA	WMA5	GENERAL PERMITS	DISCHARGE TO GW, DMR FOR CLEANING ONLY, 1 EVENT	IR	07S16276	MD076276
24043	3541	HAGERSTOWN WWTP	WMA2M	MAJOR SURFACE MUNICIPAL DISCH	8 MGD DESIGN FLOW, 9.4 AVG. IN 2004	IR	97DP0788	MD01021776
24043	3714	HANCOCK WWTP	WMA2	SURFACE MUNICIPAL DISCHARGE	0.380 MGD DESIGN FLOW, .359 AVERAGE	IR	04DP0832	MD01024582
24043	1060	HAPPY HILLS CAMPGROUND WWTP	WMA2	SURFACE MUNICIPAL DISCHARGE	FOR RENEWAL	IR	03DP2886	MD0069757
24043	4194	HARDELL CORPORATION	WASST	GENERAL TERMINAL DISCHARGE		IR	2008-0GT-4194	MD0344194
24043	4208	HESCO, INC.	WMA1	SURFACE INDUSTRIAL DISCHARGE		IF	00DP2073	MD0660267
24043	371	HIGHLAND VIEW ACADEMY WWTP	WMA1	SURFACE MUNICIPAL DISCHARGE	FOR RENEWAL, <1,000 GPD OF COOLING WATER	IF	00DP1034	MD0024827
24043	3258	HOLCIM INC.	WMA1	SURFACE INDUSTRIAL DISCHARGE	FOR RENEWAL, 15,000 GALLONS PER DAY AVERAGE PROJECT FLOW	IF	00DP0356	MD0020151
24043	3725	HUNTER HILL APARTMENTS WWTP	WMA2	SURFACE MUNICIPAL DISCHARGE	COOLING WATER, QUARRY DEWATERING, STORMWATER, SEWAGE TREATMENT	IF	04DP0610	MD0029236
24043	5117	JOHN YOUNG PROPERTY WWTP	WMA2	SURFACE MUNICIPAL DISCHARGE	0.014 MGD	IF	00DP1065A	MD0051365
24043	4310	LAFARGE - BEAVER CREEK CONCRETE PLANT	WMA5	GENERAL PERMITS	FOR MOD TO TRANSFER PERMIT FROM GENERAL RECREATION, INC TO JOHN YOUNG	IE	00MM1367	MD0491367
24043	4311	LAFARGE NORTH AMERICA - HANCOCK QUARRY	WMA5	GENERAL PERMITS	FOR QUARRY DISCHARGE <1000 GPD	IR	00MM2086	MD0492086
24043	3443	LAFARGE NORTH AMERICA - ROCKDALE QUARRY	WMA5	GENERAL PERMITS	FOR RENEWAL	IR	00MM3039	MD0493039
24043	3286	MACK TRUCKS	WASBR	GENERAL OIL CONTAM GW REMPER		IN	2008-0GR-3286	MD0313286
24043	3291	MARTIN MARIETTA - BOONSBORO QUARRY	WMA5	GENERAL PERMITS	FOR QUARRY, 680,000 GPD	IN	00MM0588	MD0490588
24043	3292	MARTIN MARIETTA - PINESBURG QUARRY	WMA5	GENERAL PERMITS	FOR QUARRY, 590,000 GPD	IR	00MM1405	MD0491405
24043	19096	MES - MARYLAND CORRECTIONAL INSTITUTE WWTP	WMA2M	MAJOR SURFACE MUNICIPAL DISCH	1.6 MGD DESIGN FLOW, 1 MGD AVERAGE	IR	90DP0759	MD0102857
24043	13176	MT. LENA RECREATION CLUB	WMA5	GENERAL PERMITS	DISCHARGE TO GW, DMR FOR CLEANING ONLY, 1 EVENT	IR	07S16209	MD076209
24043	16290	POTOMAC CENTER	WMA5	GENERAL PERMITS	DMR FOR BACKWASH, DRINKING, CLEANING DUE 10/15, 1/HR	IR	07S16786	MD076786
24043	1631R	C. WILLSON WATER FILTRATION PLANT	WMA2	SURFACE MUNICIPAL DISCHARGE	FOR SURFACE AND GROUNDWATER DISCHARGE FROM WATER FILTRATION PLANT	IE	00DP0626	MD0003484
24043	3395R	PAUL SMITH POWER STATION	WMA1M	MAJOR SURFACE INDUSTRIAL DISCH	FOR RENEWAL, POWER PLANT	IR	03DP0026A	MD0006582
24043	3395R	PAUL SMITH POWER STATION	WMA1M	MAJOR SURFACE INDUSTRIAL DISCH	FOR MOD TO ALLOW CHLORINATION TO CONTROL BIOFOULING	IM	03DP0026A	MD0006582
24043	9963	REHOBOTH UNITED METHODIST CHURCH	WMA2	SURFACE MUNICIPAL DISCHARGE	1500 GPD DESIGN FLOW	IN	03DP3441	MD0169078
24043	3840	SANDY HOOK WWTP	WMA2	SURFACE MUNICIPAL DISCHARGE	FOR MOD TO CHANGE FLOW FROM FECAL COLIFORM TO E. COLI METHOD	IE	01DP278A	MD0064530
24043	4234	SAPUTO CHEESE USA, INC.	WMA1	SURFACE INDUSTRIAL DISCHARGE	FOR RENEWAL, 44,872 GPD AVERAGE DISCHARGE COOLING WATER AND COW WATER	IF	01DP2576	MD0064592
24043	3846	SHA - SIBELING HILL REST AREA WWTP & WTP	WMA2	SURFACE MUNICIPAL DISCHARGE	0.0125 MGD PERMITTED FLOW	IF	00DP2434	MD0062821
24043	5594	SHARPSBURG WTP	WMA2	SURFACE MUNICIPAL DISCHARGE	17000 GPD DESIGN FLOW, 13000 PROJECTED	IF	02DP1361	MD0067784
24043	12744	SHEPHERD'S SPRING OUTDOOR MINISTRY CENTER	WMA5	GENERAL PERMITS	MOD TO CHANGE FROM FECAL COLIFORM TO E. COLI METHOD	IM	03DP1029A	MD0102437
24043	4490	SUN CHEMICAL CORPORATION	WMA1G	SURFACE INDUS. WITH GW	FOR RENEWAL, 380 GPD AVERAGE OF NONCONTACT COOLING WATER, STEAM COND.	IR	07DP2638	MD0068931
24043	14477	THE BRADFORD APARTMENTS	WMA5	GENERAL PERMITS	FOR POOL - DISCHARGE TO GROUNDWATER, DMR FOR CLEANING ONLY	IF	01S16535	MD0765535
24043	14477	THE BRADFORD APARTMENTS	WMA5	GENERAL PERMITS	FOR RENEWAL, CONCRETE PLANT	IF	07S16535	MD0765535
24043	2059	THOMAS, BENNETT & HUNTER, INC. - HAGERSTOWN CONCRETE PLANT	WMA5	GENERAL PERMITS	05-0619WA	IR	00MM8125	MD0493125
24043	5091	TRUCK ENTERPRISES	WASBR	GENERAL OIL CONTAM GW REMPER	DMR FOR CLEANING ONLY, BACKWASH & DRAINING TO GW, DUE 10/15, 1/HR.	IR	2008-0GR-5091	MD0315091
24043	4939	VILLAGE AT ROBINWOOD	WMA5	GENERAL PERMITS	FOR MOD TO CHANGE FROM FECAL COLIFORM TO E. COLI METHOD	IR	07S16056	MD076056
24043	3626	WINEBRENNER WATER RECLAMATION FACILITY	WMA2	SURFACE MUNICIPAL DISCHARGE	FOR MOD TO CHANGE FROM FECAL COLIFORM TO E. COLI METHOD	IF	03DP2516A	MD003221
24043	13368	WOODMONT QUIK STOP	WMA2	SURFACE MUNICIPAL DISCHARGE	1100 GPD - NOT DISCHARGING AS OF 11/22/04	IF	03DP3420	MD0069116
24043	13301	YOBI BEAR'S JELLYSTONE CAMP RESORT	WMA5	GENERAL PERMITS	FOR POOL - DISCHARGES TO GROUNDWATER, DMR FOR CLEANING ONLY	IN	01S16224	MD0766224

TABLE 10 INVENTORY OF SEWAGE PROBLEM AREAS			
SERVICE AREA	POPULATION	NATURE OF PROBLEM	PLANNED CORRECTION
St. James (Subdistrict 16)	980	Failing septic systems	Public sewer to be provided
Spring Valley (Subdistrict 15)		Failing septic systems	Area to be evaluated and studies for possible public sewer
Rolling Hills (Subdistrict 12)		Failing septic systems	Public sewer to be provided to Jefferson Boulevard corridor
West Oak Ridge Drive area (Subdistrict 1)			Public sewer to be provided
		Failing septic systems	Pangborn area 1994
			Cavetown area 1995
			Holiday Acres 1996
Mt. Lena / San Mar		Failing septic systems	Currently addressed as required
Leitersburg		Failing septic systems	Currently addressed as required
Downsville Wilson-Shady / Bower		Failing septic systems	Currently addressed as required
Conococheague			
Falling Water and Neck Road		Failing septic systems	Currently addressed as required
Rohrersville		Failing septic systems	Currently addressed as required
Tilghmanton		Failing septic systems	Currently addressed as required
Antietam Drive		Failing septic systems	Currently addressed as required
Brownsville		Failing septic systems	Currently addressed as required
Gapland		Failing septic systems	Currently addressed as required
Ringgold		Failing septic systems	Currently addressed as required
Yarrowburg		Failing septic systems	Currently addressed as required
Cedar Lawn		Failing septic systems	Currently addressed as required
Rocky Springs		Failing septic systems	Currently addressed as required

NOTES FOR TABLE NO. 11

- (1) RESPONSIBLE AGENCY, MUNICIPALITY, OR DEVELOPER – Responsibilities may include project initiation and management but no necessarily financing.
- (2) SEWER SERVICE AREA – That area served, or potentially served, by a system of sanitary sewers connected to a treatment plant, or, in a very large system, sub-areas as delineated by the County.
- (3) GRANTS ELIGIBLE – Dollar amounts indicate funds for which the project may be eligible from sources shown in parentheses. Source abbreviations represent agencies and programs as follows:
 - EPA – Environmental Protection Agency
 - MDE – Department of the Environment
 - EDA – Economic Development Administration
 - UDAG – Urban Development Action Grant
 - CDBG – Community Development Block Grant
 - FmHA – Farmers Home Administration
 - ARC – Appalachian Regional Commission
 - HUD – Housing and Urban Development Grant
 - SRL – State Revolving Loan Fund

The local cost for any project may be assumed to be the total cost estimate less any amount shown for grants eligible.

**TABLE NO. 11
IMMEDIATE FIVE AND TEN YEAR PRIORITIES FOR SEWERAGE DEVELOPMENT**

Responsible Agency, Municipality or Developer (1)	Service Area (2)	Project Description	Total Cost Estimate	Grants Eligible (4)	Completion Schedule		
					Planning	Design	Construction
Washington County Dept. of Water Quality	St. James	Provide sewerage facilities for existing residential community	N/A	N/A	Contingent upon results from request for proposal		
Washington County Dept. of Water Quality	Holiday Acres	Extension of sewer lines, force main and pump station					
Washington County Dept. of Water Quality	Subdistrict 16 St. James	Phase III - Collection system / Industrial Park	1.0 million	SRL	Complete		
Washington County Dept. of Water Quality	Subdistrict 18 Honeyfield Rd.	Extension of public sewer to service 41 residential units	\$600,000	SRL	Complete		
Washington County Dept. of Water Quality	Subdistrict 15 Spring Valley	Pump station and collection system	N/A	N/A	Contingent upon study findings		
Washington County Dept. of Water Quality	Halfway (Williamsport)	Halfway interceptor upgrade	\$2,400,000		Under design with construction anticipated in 2010		
Washington County Dept. of Water Quality	Sharpsburg Pike	Sharpsburg Pump Station upgrades and forcemain relocation	N/A	N/A	Contingent upon development		
Washington County Dept. of Water Quality	All service areas	Inflow and Infiltration Correction	\$50,000	Seeking MDE funding	Contingent upon funding		
Washington County Dept. of Water Quality	Conococheague WWTP	Expand capacity and upgrade to ENR Technology	TBD	Seeking MDE funding	Contingent upon funding		
Washington County Dept. of Water Quality	Winebrenner WWTP	Expand capacity and upgrade to ENR Technology	TBD	Seeking MDE funding	Contingent upon funding		
Washington County Dept. of Water Quality	Antietam WWTP	Expand capacity and upgrade to ENR Technology	TBD	Seeking MDE funding	Contingent upon funding		
Washington County Dept. of Water Quality	Smithsburg WWTP	Expand capacity and upgrade to ENR Technology	TBD	Seeking MDE funding	Contingent upon funding		
Washington County Dept. of Water Quality	Pump Station PO. 1	Rehabilitate and upgrade pumping station		Seeking MDE funding	Contingent upon funding		
Washington County Dept. of Water Quality	Wright Road Pump Station	Rehabilitate and upgrade pumping station		Seeking MDE funding	Contingent upon funding		
Washington County Dept. of Water Quality	Keeydsville Pump Station	Rehabilitate and upgrade pumping station	\$150,000	Seeking MDE funding	Contingent upon funding		
Washington County Dept. of Water Quality	Cedar Springs Pump Station	Installation of a new pumping station and forcemain to serve the Newgate area	\$1,900,000	Seeking MDE funding	Contingent upon funding		
Washington County Dept. of Water Quality	Pump Station PO. 2	Rehabilitate and upgrade pumping station	\$1,200,000	Seeking MDE funding	Contingent upon funding		
Washington County Dept. of Water Quality	Potomac Edison Pump Station and Force Main	Relocate and upgrade PS and force main	\$4,000,000	Seeking MDE funding	Contingent upon funding		

Responsible Agency, Municipality or Developer (1)	Service Area (2)	Project Description	Total Cost Estimate	Grants Eligible (4)	Completion Schedule				
					Planning	Design	Construction		
City of Hagerstown	City of Hagerstown Approved Joint Service Areas & Antietam Drainage Basin areas inside the UGA	Collection System Rehabilitation	\$15,000,000	Seeking MDE funding	Contingent upon funding	Contingent upon funding			
		Pump Station Improvements	\$190,000						
		Phase 3-A, ENR Improvements	\$10,430,000	Fund Grant & SRL	2006	2007	2008		
		Phase 3-B, Disinfection Improvements	\$7,600,000	MDE Funding	2007	2007	2010		
		Phase 4 - Headworks	\$3,000,000	MDE Funding	2007	2007	2010		
		Electrical System Upgrades	\$1,000,050	MDE funding	Contingent upon funding				
		Oxygen System Improvements	\$500,000		Continuous Improvement Project				
		WWTP Equipment Upgrades	\$520,000		Contingent upon study findings				
		Buildings & Structure Upgrades	\$300,000		Contingent upon funding				
		Solids Processing & Pelletizer Improvements	\$500,000		Continuous Improvement Project				
Town of Funkstown	Funkstown	Jonathan Street - Main Replacement	\$375,000		Contingent upon funding				
		Collection System Equipment	\$200,000		Continuous Improvement Project				
		Wastewater GIS - Hydraulic Model	\$25,000	Seeking MDE funding	Contingent upon funding				
		Edgewood Drive Intersection (SHA)	\$250,000		Contingent upon funding				
		East End Pump Station	\$400,000		Contingent upon funding				
		Rehabilitation of sewer collection lines and pump stations	\$100,000	N/A	Contingent upon funding				
		Town of Smithsburg	Smithsburg	Sewer system rehabilitation & improvements	N/A	MDE / USDA	On-going		
				ENR enhancement/filter/UV/fermentation zone addition	3.4 million	No	Dec-08	Jul-09	Dec-10
		Town of Boonsboro	Boonsboro	Upgrade pump station on Route 34	unknown		Contingent upon funding		
				Extend sewer north along Route 40A	unknown		Contingent upon funding		
Develop pump station on King Rd. property	unknown				Contingent upon funding				
Conduct I & I reduction measures	unknown				Contingent upon funding				
Sewer distribution rehabilitation and improvements	unknown				Contingent upon funding				
Pump Station upgrade (South Main St.)	unknown				Contingent upon funding				
Pump Station upgrade (Young Ave.)	unknown				Contingent upon funding				
Upgrades to WWTP	\$1,000,000			N/A	Contingent upon funding				
Town of Hancock	Hancock	Rehabilitation of sewer collection lines	\$100,000	N/A	Contingent upon funding				
		Rehabilitation of sewer collection lines and pump stations	\$100,000	N/A	Contingent upon funding				
Town of Hancock	Hancock	Pump Station odor control system	\$100,000		Contingent upon funding				
Town of Hancock	Hancock	Sewerage treatment plant	\$2,900,000	N/A	Contingent upon funding				

Responsible Agency, Municipality or Developer (1)	Service Area (2)	Project Description	Total Cost Estimate	Grants Eligible (4)	Completion Schedule		
					Planning	Design	Construction
COPT - Ft. Ritchie	Winebrenner	Historic Area - collection system rehabilitation	N/A	N/A	Contingent upon development	Contingent upon development	
COPT - Ft. Ritchie	Winebrenner	Secure campus (south) - collection system rehabilitation	N/A	N/A	Contingent upon development	Contingent upon development	
COPT - Ft. Ritchie	Winebrenner	North Lake area - collection system rehabilitation	N/A	N/A	Contingent upon development	Contingent upon development	
COPT - Ft. Ritchie	Winebrenner	Ritchie Road Housing area - collection system rehabilitation	N/A	N/A	Contingent upon development	Contingent upon development	
COPT - Ft. Ritchie	Winebrenner	Mountain Housing area - collection system rehabilitation	N/A	N/A	Contingent upon development	Contingent upon development	
Town of Williamsport	Halfway	Pump station rehabilitation and inflow and infiltration correction	\$12,000,000	MDE / USDA	Complete	Contingent upon funding	
Fahmney-Keedy WWTP	Fahmney-Keedy retirement home	Replace existing treatment plant with an SBR	2,400,000	Not seeking USDA funding	Complete	Dec. 08	Apr-09
MES - Greenbrier WWTP	Park and state property only	Collection system upgrades and rehab	\$600,000	No	Complete	Complete	Apr-08
Washington County Dept. of Housing & Community Development	Halfway (Williamsport)	Extend sewerage lines to Fenton Avenue area west of Conococheague Creek	\$150,000	\$150,000 (CDBG)	Contingent upon funding	Contingent upon funding	

O. SLUDGE MANAGEMENT

Sludge is defined as the solid residuals of sewage treatment. Primary or raw sludge is obtained in the primary state of a treatment plant by collecting solids that have settled. Sludge is stabilized after the organic matter has been decomposed into a relatively stable material. A common method of stabilization is anaerobic digestion.

Sludge management is an integral part of the sewage treatment and disposal process. The disposal of treatment plant sludge is regulated by the Maryland Department of the Environment in accordance with the Code of Maryland Regulations 10.03.48. Sludge disposal sites are approved after an analysis of such factors as the site surface drainage, soil type, depth to bedrock and sludge composition.

On November 25, 1992, the Environmental Protection Agency (EPA) adopted the National Sewerage Sludge Use and Disposal Regulation (Chapter 40 Code of Federal Regulations Part 503). The rule addresses three general categories of use and disposal practices for sludge that is; (1) land-applied, distributed, or marketed; (2) disposed of at dedicated sites or in sludge-only landfills; and (3) incinerated in sludge-only incinerators. The new rule includes standards that apply to generators, processors, beneficial users, or disposers of sludge or septic wastes. The rule sets standards in two areas. First, it sets standards for 10 heavy metals, pathogens, and total hydrocarbon emissions from incinerators. Second, it sets standards for managing sewage sludge use and disposal. The prescribed management practices have been designed to limit human and ecological exposure to any contaminants and ensure that sewage sludge is used on the land or disposed of in ways that are protective of human health and the environment.

Several methods of sludge disposal are described in the Upper Potomac River Basin Water Quality Management Plan. The methods include land spreading, incineration, ocean disposal, sanitary landfilling, and composting. The key methods of sludge disposal in Washington County are land spreading and landfill.

1. Land Spreading

Land spreading refers to the process of sludge application to lands used for farming, forestry, or recreational purposes. Sewage sludge is generally not as easily handled nor as high in nutrient content as commercial

fertilizers. However, it does greatly enhance soil physical fertility when applied to marginal lands.

Sludge may contain pathogenic bacteria or viral organisms. They may also contain heavy metals which could pose a threat to public health through transmission of toxic levels in crops grown on treated land or through leaching into groundwater. For these reasons, sludge must be stabilized prior to land spreading to reduce public health hazards and to prevent nuisance odor conditions.

In order to ensure that harmful contaminants do not enter the human food chain, sludge application rates are controlled and crops grown on sludge treated land are restricted based upon recommendations by the University of Maryland.

The University of Maryland warns that "sewage sludge should not be considered an innocuous or harmless product. The implications of the uptake by plants of heavy metals and persistent organics from sludge, their intake by grazing animals, and their ingestion by humans are not entirely understood. Therefore, the University of Maryland cannot predict the long term effects of sewage sludge on the environment and does not accept responsibility for any such effects."¹³

The Upper Potomac River Water Quality Management Plan described further implications of land spreading. "When contemplating instituting a land spreading program, municipalities must consider the availability of land, the time frame within which that land can be leased or otherwise controlled and potential alternative sites. Should public pressure or public health considerations cause termination of land spreading activities, municipalities must be prepared to undertake interim sludge disposal operations until more acceptable permanent solutions can be devised. Similarly, it must be recognized that land for sludge spreading may have a finite useful lifetime. Thus, additional land should be available nearby. Gaining access to large tracts of land is always difficult near urban areas. Hence, land spreading of sludge may not be a realistic

¹³ From Sewage Procedures for Approval, Division of Solid Waste Control, January 25, 1977.

alternative for most large metropolitan areas, especially on a long-term basis.

"When land is to be leased, or sludge is to sold to private landowners, municipal officials will have to deal with problems of general acceptance. The extra time and costs associated with transporting and spreading sludge, a natural reluctance to work with sewage sludge, and the limited nutrient value compared to commercial fertilizers may make it difficult to sell sludge to farmers. Where sludge spreading is an attractive sludge disposal alternative, wastewater officials will need to have the flexibility to offer additional incentives. These would be most effective in the form of indirect subsidies such as free delivery of bulk lots of processed sludge and low cost rental of spreading devices. Municipalities should also consider the possibilities for nutrient enrichment of sludge to enhance their value to the farmer. This could be contracted out to a private fertilizer concern."¹⁴

2. Sanitary Landfilling

Sanitary landfill of sludge containing no free moisture, either separately or along with mixed municipal solid waste, is an environmentally acceptable method for disposal of sludge. The sludge must be stabilized as described for land spreading in order to prevent nuisance odors and reduce hazards to those working in the area.

The relative benefits of sanitary landfill disposal are discussed in the Upper Potomac River Water Quality Management Plan as follows:

"Many of the considerations that must be taken into account in evaluating the land spreading option such as protection of groundwater are pertinent to the discussion of sanitary landfills. Typically, however, sanitary landfills have less problems with surface runoff, and uptake by crops is generally not a prime consideration. Further, sanitary landfill obviously requires less land than land spreading.

¹⁴ Upper Potomac River Basin Water Quality Management Plan, Maryland Water Resources Administration, September 2, 1976 (Section 12).

The trade-off required to obtain this added protection and decreased land requirement is the loss of most of the advantages of resource recovery realized in land spreading. Landfill offers little more than the use of a solid material to fill natural depressions or replace soils or gravel that can be used elsewhere. Areas where landfill has been practiced can be reclaimed for recreational or other purposes."

3. Sludge Management Practices in Washington County

Table No. 12 provides an inventory of current sewerage sludge generation and how it is utilized. All municipal and non-municipal treatment plants that generate sludge and have a sludge utilization permit are listed. Sewerage treatment plants for the Towns of Boonsboro, Hancock and Funkstown utilize lagoons and therefore produce no sludge.

The majority of the sludge produced in Washington County is disposed of in the Washington County sanitary landfill. The remainder of the sludge is disposed of by land spreading. Non-municipal treatment facilities which transport sludge to large plants generally do not have the facilities to adequately de-water the sludge. De-watering is provided at the receiving treatment plant and is either disposed of at the Washington County sanitary landfill or land spread. All sludge transported to the Conococheague Wastewater Treatment Plant is disposed of at the landfill. Some non-municipal, package treatment plants produce insignificant amounts of sludge and are required to have permits for disposal.

The method for utilizing or disposing of sludge generated by proposed sewerage treatment plants is discussed in the narrative for each new project addressed in this Plan.

The City of Hagerstown utilizes a sludge pelletization plant. The plant is operated and maintained by Synagro Technologies, Inc. under a operations agreement with the City of Hagerstown. The following is a general explanation of the sludge pelletization process.

Sludge produced by the treatment plant is collected and thickened by a dissolved air flotation thickener and is then pumped to an aerated sludge holding tank. Sludge is delivered to the pelletization plant for processing. Currently the plant operates twenty four (24) hours per day approximately four (4) days per week. Once the sludge is conditioned

with a polymer additive, the conditioned sludge is pressed in a belt press and placed in a rotary kiln where it is heat dried. Sludge pellets are produced in the kiln and then deposited in a silo for storage. The pellets are then used as fertilizer by local and national farmers.

TABLE NO. 12
SEWAGE SLUDGE UTILIZATION IN WASHINGTON COUNTY, MARYLAND
 All figures in terms of wet tons of sludge

WWTP	TOTAL GENERATED	HAULED TO ANOTHER WWTP	APPLIED TO AGRICULTURAL LAND	DISTRIBUTED AND MARKETED	DISPOSED IN LANDFILL
Antietam	493	335	0	0	158
Blue Plains	835	0	835	0	0
Brook Lane Psychiatric	8	0	0	0	8
Clear Spring	627	168	419	0	40
Conococheague	932	0	0	0	932
Fort Ritchie	535	0	517	0	18
Greenbriar State Park	42	42	0	0	0
Hagerstown	1,429	0	0	1,429	0
Highland Manor	136	133	0	0	3
Maryland Correctional Institute	8,444	0	8,444	0	0
Nicodemus (Halfway)	734	0	0	0	734
Sideling Hill	17	17	0	0	0
Smithsburg	109	0	0	0	109
TOTALS	14,341	695	10,215	1,429	2,002

SOURCE: Maryland Department of the Environment
 Waste Management Administration - Solid Waste Program
 Updated as of 2006

P. POLICY FOR SEWER LINE INSTALLATION IN AREAS WHERE SERVICE IS NOT AVAILABLE

All new subdivisions shall be served by adequate sewerage disposal systems pursuant to Article VI of the adopted Adequate Public Facilities Ordinance for Washington County.

In order to prevent street and other damage encountered in providing public sewer service to developed areas, and to provide for efficient and effective connection to public sewer service, the following policy is presented for sewer line installation in areas where public sewerage service is not available at the time of street and residential construction, but will be made available at some future time:

1. Requests for such installation will only be accepted where interim systems are permitted and public sewer service is programmed by the Water and Sewerage Plan (S-1, S-3, S-5).
2. Each application for a sewer construction permit must be accompanied by a letter from the county Health Officer requesting that such installation be permitted.
3. Building permits, subdivision plats, and septic tank approvals shall include a provision requiring the connection of the premises to community sewerage within twelve (12) months of announced availability.
4. Sewer lines shall be designed and installed in accordance with applicable municipal or Commission specifications.
5. The connection of a "dry" system shall be plugged with a visible and readily inspected plug at the future point of connection to the existing system.

Q. POLICY ON SEWAGE DISPOSAL ALTERNATIVE

1. Individual On-Lot Systems

When a community sewage system is not available or until such time that a community sewerage system has been made available, an on-site sewage

disposal system may be permitted on an interim basis. Such systems must be properly designed in accordance with C.O.M.A.R. 26.04.02

A number of alternatives to the standard septic system for on-lot sewage disposal have been identified and shown to be operationally sound under appropriate circumstances. Such systems include improved septic tank-tile field systems, mound systems, and systems with toilet sewage separated from wash water (composting toilets, incinerating toilets, and liquid recycling toilets). The high cost of central sewerage systems and the fact that on-lot systems are currently failing in some areas is sufficient justification to experiment with alternative techniques.¹⁵

Alternative on-lot systems should be preferred in rural areas where there are existing sewage disposal problems and where they are found to be economically and environmentally sound methods of correcting such problems in these areas should incorporate measures to assure adequate maintenance of new facilities and to reduce sewage generation.

2. Community Systems

Every effort should be made to investigate the reliability and desirability of community sewerage systems which could serve as appropriate alternatives to conventional central sewerage systems. Such systems may be used as corrective measures to solve existing sewage disposal problems and as interim or permanent measure to serve new development under appropriate circumstances.

Within growth areas, pressure sewers and vacuum sewers may be more appropriate and cost-effective than conventional gravity sewers to provide permanent service to a given development. Such measures as dry sewers should be evaluated as an appropriate interim measure until sewer lines are extended to a given development.

Within the Rural/Agricultural Area, community sewerage system alternatives acceptable to all approving state and county agencies should

¹⁵ Upper Potomac River Basin Water Quality Management Plan, Maryland Water Resources Administration, September 2, 1976 (Section 12).

be considered for development proposals utilizing innovative planning techniques such as clustering of rural housing to preserve agricultural land the rural character. Some alternative systems which are appropriate for on-lot disposal may lend themselves to the clustering approach. The use of package treatment plants may also be considered to serve cluster developments and rural villages within the Rural/Agricultural area. The appropriateness of such development and its associated sewerage system shall be determined by the Planning Commission based on the policies of the adopted Comprehensive Plan for Washington County. The use of such facilities shall be approved by all appropriate state and local authorities as well as meeting all applicable health and water quality requirements.

R. POLICY ON INTERIM TREATMENT PLANTS¹⁶

1. An interim treatment plant is acceptable as long as it is an interim step in a regional long-range sewerage treatment plant with a specific date by which permanent facilities will be provided. No permit will be granted for an interim treatment plant which is planned to be in operation longer than five years.
2. The State will issue a permit for such a plant only if it has been included by the County as part of an approved 10-year Water and Sewer Plan, and adequate measures have been taken by the County to assure that growth will be limited to the capacity of such treatment plant. The State will approve only a limited number of such plants and only where they are compatible with appropriate regional plans for such sewerage service.
3. Any such plant must meet all applicable health and water quality requirements.
4. Privately finance interim treatment plants must be publicly owned and operated.

¹⁶ See the Washington County Department Water Quality's POLICY ON ITERIM AND PERMANENT COMMUNITY WATER AND SEWERAGE SYSTEMS IN Appendix D of this Plan.

5. When such a plant is proposed for a sewer system from which raw sewerage overflows are presently occurring or threatened, the State may require the capacity of the plant to be enlarged to provide capacity to alleviate or prevent the overflows, where practicable. Financing arrangements for such enlargements must be approved by the Department of Health and Mental Hygiene.

S. SERVICE AREA REQUIREMENTS

The following shall be applicable to each respective designated service area. Criteria for creation and amendment of service areas are outlined in Appendix B.

1. Urban and Town Growth Area Service Areas

The provision of community water and sewer facilities within the designated Growth Areas of Washington County is encouraged. The Growth Areas established by the 2002 Comprehensive Plan for the County are designated as Planned Service (W-5 and S-5). Development proposals which involve the extension of water and sewer lines within the boundaries of the Growth Areas will be considered to be consistent with the policies of the Comprehensive Plan for the County and will therefore not require an individual amendment to the Water and Sewerage Plan in order to proceed with the development review and approval process. Specific arrangements between the developer and the appropriate service providing agencies including verification of sufficient capacity shall be finalized prior to the development receiving approval. An appropriate Service Priority Classification of Programmed Service (W-3 and S-3) will then be assigned to the property as part of the triennial update of this plan. Determinations as to whether or not a property is considered to be within the influence of a Growth Area will be made by the Washington County Planning Commission.

2. Rural Village Service Areas

Existing or planned community water and sewer facilities located within areas considered as Rural Villages by the Comprehensive Plan or Washington County Zoning Ordinance may be designated as a Rural Village Service Area. While primarily designed to serve the existing development in the village, a service area established around these villages could allow for in-fill development on existing lots of record and

limited growth. Development proposals for new subdivision lots and development within existing Rural Village Service Areas will require Planning Commission review and approval to determine if the proposal is consistent with policies of the Comprehensive Plan dealing with Rural Villages and the Washington County Zoning Ordinance.

3. Restricted Use Service Areas

Community Water and/or sewer service areas associated with facilities that are located outside of a designated Growth Area and not within a Rural Village may be considered as Restricted Use service areas. These service areas are created to correct documented public health problems generally associated with contaminated wells or failing septic systems. The use of the facilities within these service areas is limited to the following conditions:

- a. To provide service to existing uses or new uses on existing lots of record which are directly adjacent to the right-of-way containing the water or sewer line.
- b. To provide service, where sufficient capacity is available, to new subdivision lots that can be served by the line without extension. Density shall be no greater than what could occur without public facilities.
- c. To provide service to areas where the Health Department determines that access is necessary to solve an existing Health related problem and the County Commissioners agree to permit access to the line.
- d. To provide service to properties where a written agreement with the service providing agency, executed prior to the restricted access designation, obligated, the service providing agency to permit access to the particular line to provide service to a specific property for a specific use or provide a specific number of taps.

T. PRIORITY CLASSIFICATION REQUIREMENTS

The following requirements shall be applicable to each respective designated priority classification within established service areas:

1. S-1 Priority (Existing Service or Under Construction)

- a. Individual on-lot disposal systems including approved alternate on-lot sewerage treatment systems shall on-lot sewerage treatment systems shall not be permitted, except as follows:

If an existing community sewerage facility is inadequate or is not available,¹⁷ an interim individual sewerage system may be used subject to the following conditions:

- (1) Such interim systems are adjudged by the local health department to be adequate, safe, and in compliance with pertinent State and local regulations, including minimum lot ownership as set forth in Regulation 10.03.28.02 and .03;
- (2) Permits for such interim systems shall bear a notice regarding the interim nature of the permit and stating that connection to a future community system shall be made within one (1) year or less after such system becomes available;
- (3) Provisions shall be made, whenever possible, to locate such systems so as to permit connection to the public facilities in a most economical and convenient manner.

- b. Extensions of existing community sewerage systems shall be permitted and encouraged.

2. S-3 Priority (Programmed Service)

- a. Individual on-lot disposal systems including approved alternate on-lot sewage treatment systems may be permitted on an interim basis provided that:

¹⁷ The adequacy or availability of community sewerage service to a particular parcel of land is a judgment which must be made in each case through consultation among the responsible agencies and cannot be made on the basis of this Plan alone.

- (1) Such interim systems are adjudged by the local health department to be adequate, safe, and in compliance with pertinent State and local regulations, including minimum lot ownership as set forth in Regulation 10.02.28.02 and 0.3;
 - (2) Permits for such interim systems shall bear a notice regarding the interim nature of the permit and stating that connection to a future community system shall be made within one (1) year or less after such system becomes available;
 - (3) Provisions shall be made, whenever possible, to locate such systems so as to permit connection to the public facilities in a most economical and convenient manner;
- b. Extensions of existing community sewerage systems shall be permitted and encouraged.

3. S-5 Priority (Planned Service)

- a. Individual on-lot disposal systems including approved alternate on-lot sewerage treatment systems shall be permitted.
- b. Extensions of existing community sewerage systems shall not be permitted, except as provided by Policy for Sewer Line Installation in Areas Where Service is Not Available.
- c. New, permanent community sewerage systems shall not be permitted.

4. NPS Designation (No Planned Service)

This designation is not applied within established service areas.

- a. Individual on-lot disposal systems including approved alternate on-lot sewerage treatment systems shall be permitted;
- b. Extensions of existing community sewerage systems shall not be permitted;

- c. New, permanent community sewerage systems shall not be permitted.

In all cases where interim or permanent community sewerage systems are permitted, they shall be subject to the standards and regulations of the applicable State and Federal agencies. Adequate documentation that the State and Federal standards and regulations can be complied with shall be evidenced prior to County Plan amendment consideration. ALL INTERIM OR PERMANENT COMMUNITY SEWERAGE SYSTEMS, OR MULTI-USE SEWERAGE SYSTEMS SHALL BE APPROVED BY AND WHEN APPLICABLE DEDICATED TO THE APPROPRIATE AGENCY FOR OWNERSHIP AND/OR OPERATION AND MAINTENANCE IN ACCORDANCE WITH ESTABLISHED COUNTY AND STATE STANDARDS AND PROCEDURES.

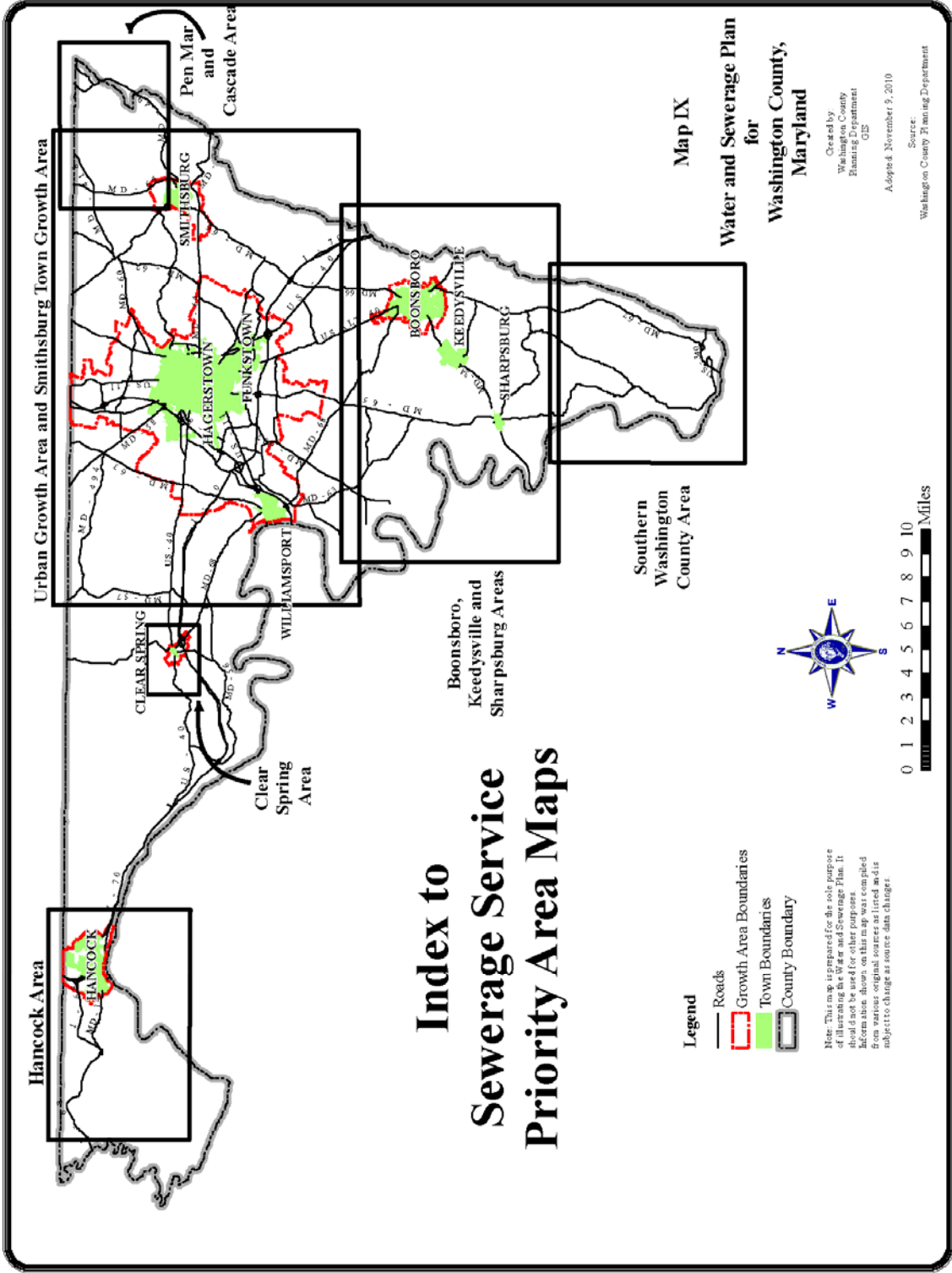
U. SEWERAGE SERVICE PRIORITY AREA MAPS

Map IX is an Index Map to the Sewerage Service Priority Area Maps which are included in Appendix H of this plan and show service areas having priority designations of S-1, S-3, or S-5. The name of the service providing agency is indicated in those areas having existing service and in planned areas where the service providing agency has been determined

While every effort was made to insure accuracy in the preparation of these maps, errors may have resulted from the transfer of information from maps at different scales. The classifications of parcels of land as having either existing service or programmed service was based upon the location of existing service lines and upon the best estimates for future service by the service providing agencies. The delineation of the boundary for the S-5 (Planned Service) classification is based on the land use policies of the adopted Comprehensive Plan for Washington County. S-5 priority classifications within the Urban and Town Growth Area service area are based on the established growth area boundaries. Determinations as to whether or not a particular parcel of land is considered to be within the influence of a Growth Area shall be made by the Washington County Planning Commission and when applicable, the Planning Commission of the affected incorporated municipality.

Because of these inherent accuracy limitations, these maps should be used for general planning purposes only. For certainty as to the exact location of all existing facilities or to the status of particular parcels of land, the Washington

County Planning Department and the service providing agencies should be contacted. Changes to these maps which may be required by errors or inaccuracies may be made in accordance with the administrative procedures set forth in Appendix B of this Plan.



CHAPTER V - ADMINISTRATION AND IMPLEMENTATION

A. INTRODUCTION

The key to the on-going success of providing adequate water and sewerage facilities in Washington County is the positive, cooperative action between the County and the government bodies of the incorporated municipalities—particularly the City of Hagerstown. Because of the significant role planned for the water and sewerage facilities of the City of Hagerstown in the realization of this Plan, it is paramount that an equitable, clearly defined management structure between the City and County be established. At the basis of the eventual management agreement should be the fundamental purpose to adequately and effectively serve those residents and those areas where water and sewerage facilities are needed.

In this pursuit, it is important to recognize that we no longer live in an era where governmental responsibilities abruptly terminate at corporate boundaries. Both subtle and overt municipal interrelationships demand a high degree of communication and cooperation between governments in an effort to achieve the best possible communities. To further this objective, it only seems realistic that limitations resulting from either statutory restrictions or long standing precedents must be actively resolved. With this in mind, the following ownership and operational structures are strongly recommended.

B. WATER FACILITIES

As previously discussed, the City of Hagerstown supplies water to approximately 38,000 residents outside its corporate boundaries. Since the majority of these residents reside in the County, the City does not have the necessary voice in terms of plumbing codes, guaranteed users, or comprehensive service area formations. Nevertheless, the City has embarked upon an aggressive program to increase plant capacity to meet the water needs largely brought upon by the growing demands in the County. However, it is rather inequitable for the Water Department to ask the City to bear the total bonded indebtedness for improvements which will proportionately serve more residents outside of the City. Furthermore, the County without having any direct role in the implementation of water facilities other than through zoning and subdivision provisions cannot achieve a thorough coordination of development activities.

In an effort to achieve a high level of cooperation between the City and County and proportionate obligations for bonded indebtedness, it is recommended that future distribution systems be financed by the County and constructed, operated, and maintained by the City. Additionally, supply and transmission expenditures should be proportionately financed by City and County as well as outstanding indebtedness on existing transmission. More specifically, the County's involvement would be essentially for appropriate funding responsibility. Design and construction would be performed by the City with County review and approval. Rates would be jointly established by the City and County to cover bonded indebtedness and operation and maintenance costs. The actual operation, maintenance, billing and collection functions would be performed by the City. Ownership of the system should eventually be under a unified agency so that the system would remain more comprehensive rather than fragmented. To further the degree of cooperation and mutual decision-making the Hagerstown Board of Water Commissioners should have County representation.

For those portions of the County outside the Hagerstown service area, and adjacent to the other incorporated municipalities, the County should cooperate with the towns in extending water service based upon adopted plans and policies.

C. SEWERAGE FACILITIES

The City of Hagerstown's sewerage facilities are essential to effective plan implementation. The strategic location of the City's sewerage treatment plant enables the County to achieve most economically a concentrated development pattern around the northern and eastern quadrants of the City while correcting significant environmental concerns and health hazards. Obviously, this achievement requires a high degree of cooperation between the City and County in a manner which equitably addresses the needs of all residents. Furthermore, it should be well apparent that the Environmental Protection Agency is becoming increasingly more involved not only in establishing design criteria but also in determining rate schedules and operation and maintenance procedures. Consequently, local governments – both the County and the City – should not become too preoccupied with the concern for complete and ultimate control in the sense that it hinders adequate service to its residents.

To this end, it is recommended that the County shall be responsible for the feasibility studies, designs, rights-of-way acquisition, construction, and financing of the proposed interceptor and collector systems in those areas planned to be serviced by the Hagerstown sewerage treatment plant. The City shall have the

benefit of review, inspection, and approval of all phases of the planning, design, and construction of the proposed systems in order to assure consistency with the engineering and construction standards of the City.

Although the County shall retain ownership of its portion of the system, operation and maintenance responsibilities shall be accomplished by the City through a management agreement mechanism. Obviously, such a management agreement must be established in a manner to assure that all portions of the system both in the County as well as in the City receive thorough, efficient, and prompt operation and maintenance service. One method to be considered would be for the County to be responsible for the operation and maintenance of its portion of the system and to perform this function by subcontracting the services of the City's Water Pollution Control Department. Theoretically, in the event the Water Pollution Control Department personnel would be unable to respond to a specific service need, because of scheduling or other prior commitments, the County would have the alternative of seeking assistance elsewhere. Regardless of the final contractual agreement for operation and maintenance responsibilities, both parties should cooperatively attempt to assure a high degree of service so as to maintain the integrity of the complete system.

The County shall be responsible for establishing its rates based upon its financial obligations; conveyance to and treatment by the Hagerstown facility; the City's operation, maintenance, and administrative services; and other equitably related costs. The City's administrative services shall also include billings and collections which would be further refined in the management agreement with the County having auditing privileges. To further the degree of cooperation and mutual decision making, the Hagerstown Sewer Board should have County representation.

For those portions of the County outside the Hagerstown service area, and adjacent to other incorporated municipalities, the County should consider similar arrangements in extending sewerage service based upon adopted plans and policies.

D. MANAGEMENT OF CONNECTION ALLOCATIONS

This plan proposes an aggressive program of immediately providing sewerage facilities to considerably large portions of the County. However, it is not

intended that the availability of sewerage facilities be solely a commodity which can be secured and controlled by the private sector. Consequently, efforts shall be made to allocate and assess connections based upon both prevailing zoning and the entire service area. Sanitary Sewerage Connection Permits, Industrial Waste Permits and any Benefit Charges should be carefully administered to assure equitable development opportunities. Additionally, users should be required to connect to the system within one year from application approval so that permits do not become a speculative resource.

E. COUNTY-WIDE WATER AND SEWER AUTHORITY

Recommendations have been made in this plan to evaluate the feasibility of community water systems in water problem areas throughout the County. Recommendations have also been made to consider the use of enhanced on-site disposal systems and alternative community sewerage systems to serve areas of failing septic systems. Key to both recommendations will be the efficient management and operation of such systems by a public agency.

Participation by the Washington County Department of Water Quality in the management and operation of water and sewerage systems is presently limited to areas within established service areas. As the number and necessity of such systems increase, so increases the administrative complexity and cost of managing an increased number of relatively small, geographically unrelated, service areas and/or facilities.

The costs of providing water and sewerage service to some area of the County may be prohibitively expensive to consumers in those areas. It is often the case that those areas with the greatest need may also be the most expensive to serve or have a population which the lowest income levels. For this reason, a County-wide approach which provides for wider distribution of costs by means of a uniform schedule may facilitate service to many areas of need, as well as provide a cooperative approach to the many issues facing public utilities as they strive to comply with mandated initiatives.

In 2004, the Washington County Water and Sewer Infrastructure Commission was legislated to evaluate needs such as this, as well as the overall water and sewer needs of Washington County into the foreseeable future. This included any potential benefits of County-wide agencies. Their final report was presented to the Delegation in June of 2006 and is incorporated into this document by reference.

APPENDIX A

DEFINITIONS

The terms defined below are used throughout this plan. Definitions are consistent with those in Maryland Agency Regulation 10.17.01 except where indicated (*) as peculiarly applicable to Washington County.

1. "Approving authority" means one or more officials, agents, or agencies of local government designated by the local governing body or specified by other provisions of Article 43, 387C to take certain actions as a part of implementing these regulations.
2. "Board" means The Board of County Commissioners for Washington County.
3. "Community sewerage system" means any system, whether publicly or privately owned, serving two or more individual lots, for the collection and disposal of sewage or industrial wastes of a liquid nature, including various devices for the treatment of the sewage and industrial wastes.
4. "Community water supply system" means a source of water and a distribution system, including treatment and storage facilities, whether publicly or privately owned, serving two or more individual lots.
5. "County plan" means a plan for the provision of adequate water supply systems and sewerage systems, whether publicly or privately owned, throughout the County including its incorporated municipalities and all amendments and revisions to it.
6. "Department" means the Maryland Department of the Environment.
7. "Service Area Designation" means a designation of Urban/Town Growth Area, Rural Village, or Restricted Use, assigned to a service area to assure that development associated with the provision of water or sewer facilities is consistent with the policies of the adopted Comprehensive Plan for Washington County and where applicable, the Comprehensive Plan for the affected municipality.

8. "Sewerage service area" is that area served, or potentially served, by a system of sanitary sewers connected to a treatment plant, or, in a very large system, sub-areas as delineated by the County.
9. "Water service area" means that area served, or potentially served, by a single distribution system under control of a single utility, or, in a very large system, sub-areas as delineated by the County.
10. "Service Priority Classification" is a classification assigned to a service area indicating the current implementation phase for provision of water or sewer service by means of a community system. The first phase being Planned Service, followed by Programmed Service, then Existing/Under construction.
11. "Existing or under construction" means the service priority classification which is assigned within a service area that is currently served or where actual work is progressing or where a notice to proceed with a contract for this work has been let as of the effective date of the plan. The symbol for this classification shall be W-1, S-1.
12. "Programmed Service Priority" is a classification assigned to property within a service area indicating that the necessary approvals have been obtained to proceed with the provision of public water and/or sewage service. Such approvals may include where applicable, establishment of a Dept of Water Quality Service Area, approval of a Preliminary Subdivision Plat or Site Plan and inclusion of any capital projects in the municipality's Capital Improvements Program. The symbol for this classification shall be W-3, S-3.
13. "Planned Service Priority" is a classification assigned to property within a service area indicating that the provision of public water and sewage service is considered to be consistent with the policies of the Comprehensive Plan for Washington County. The symbol for this classification shall be W-5, S-5.
14. "No Planned Service" is a designation assigned to property that is not located within a water or sewer service area indicating that community water and sewer service is not planned for the area.
15. "Marina" means a dock, wharf, or basin providing mooring for boats which contain on-board toilet facilities, operated under public or private ownership, either free or on a fee basis, for the convenience of the public or club membership.

16. "Individual water supply system" means a single system of piping, pumps, tanks, or other facilities utilizing a source of ground or surface water to supply only a single lot.
17. "Individual sewerage system" means a single system of sewers and piping, treatment tanks or other facilities serving only a single lot and disposing of sewage or individual wastes of a liquid nature, in whole or in part, on or in the soil of the property, into any waters of this State or by other methods.
18. "Multi-use sewerage system" means a single system serving a single lot, whether owned or operated by an individual or group of individuals under private or collective ownership and serving a group of individuals for the collection and disposal of sewage or industrial wastes of a liquid nature, including various devices for the treatment of sewage and industrial wastes having a treatment capacity in excess of 5,000 GPD.
19. "Multi-use water supply system" means a single system of piping pumps, tanks, or other facilities utilizing a source of ground or surface water to supply a group of individuals on a single lot and having a capacity in excess of 1,500 GPD.
20. "Non-point source" means pollution originating from land run-off where no specific outfall can be identified.
21. "Interim Plant" means a sewage or water treatment plant that is designed to temporarily serve all of, or a portion of a designated service area established in the Washington County Water and Sewerage Plan.
22. "Major Facilities" mean the principal components of a community or multi-use water or sewerage system. The characteristics of various systems may differ in size, capacity and method of conveyance and treatment of water or wastewater. However, generally, the term is meant to exclude house connections, smaller water distribution lines, and sewer laterals designed as part of a residential development.

Examples of major facilities include:

- a. Interceptors, trunk and outfall sewer lines; and water transmission, feeder mains and storage facilities.

- b. Community or multi-use wells or impoundments, water storage or treatment facilities.
- c. Sewage treatment plants (permanent or interim).
- d. Pumping stations or water filtration plants.

APPENDIX B

POLICIES, PROCEDURES AND CRITERIA FOR AMENDMENT TO THE COUNTY PLAN FOR WATER AND SEWERAGE

I. GENERAL POLICIES

- A. An application for amendment to the Water and Sewerage Plan shall be initiated whenever any person, firm, private agency, public agency, or municipal corporation wishes to:
1. Create major new water and sewer facilities.
 2. Change the location, type, size or capacity of existing or planned facilities.
 3. Establish new water or sewerage service areas or change the boundaries of existing service areas.
 4. Change the priority classification of an area for water or sewerage service.
- B. It shall be the responsibility of the Washington County Planning Department to coordinate the review of amendments to the Water and Sewerage Plan in cooperation with the staffs of the service providing agencies, the Washington County Health Department and the effected municipality when applicable. Amendments proposed within a municipality or served by a municipality's system must be proposed by that municipality or be accompanied by a letter from the Mayor or a designated municipal official that the municipality has been notified that the amendment application is being submitted. Criteria for amendment of service area/priority classifications and eligibility for priority classifications are outlined in Section II. Applications for amendments to the County Water and Sewerage Plan shall be considered via four different methods:

1. Triennial Review and Update. State Law Title 9, Subtitle 5 of the Environmental Article of the Annotated Code of Maryland requires the governing body of the County, after reasonable opportunity for public hearing, to review the Water and Sewerage Plan at least once every three years. Requests for Individual amendments to the Water and Sewerage Plan may be considered at that time. Procedures for the Triennial Review and Update are listed in Section III.
2. Individual Amendment: Applications for individual amendments to the Water and Sewerage Plan may be accepted by the Planning Department at any time. Public hearings to consider individual applications shall be held at least semi-annually (twice a year). Procedures for the review of Individual Amendment applications and requirements for information to be include in the application are listed in Section VIII. Modifications in facilities design by public agencies should be reported at the Triennial Review, rather than by Individual Application.
3. Administrative Amendment. The Water and Sewerage Plan may be amended to correct errors, omissions, or inaccuracies which may be discovered from time to time in the Plan text or Plan maps. Such amendments shall be initiated by the Planning Department based upon a request and presentation of more accurate information by the service providing agency. Procedures for Administrative Amendments are provided in Section V.
4. Special Amendment. The County Commissioners may at their discretion initiate amendments to the Water and Sewerage Plan outside of the semi-annual review sequence when necessary; (1) To allow service to an existing structure when a potential health hazard has been declared by the Health Department, (2) to allow requests submitted by a government agency for capital projects to proceed. Procedures for special amendments are provided in Section VI.

II. CRITERIA FOR AMENDMENT OF SERVICE AREA AND SERVICE PRIORITY CLASSIFICATIONS

A. Existing Service Areas

The Water and Sewerage plan shall define the areas planned to be served by community water and sewerage systems within the next twenty years. In order to assure conformance with the policies of the adopted Comprehensive Plan for the County and if applicable, the effected municipality, one of the following designations shall be assigned to all service areas: Urban and Town Growth Area, Rural Village or Restricted. A description of these designations is given in Chapter Three for water service areas and Chapter Four for sewer service areas. Potential service areas established in '201 Facilities Plans' may be taken into consideration, however, the service area designated by the Water and Sewerage Plan shall not be dictated by '201' Plan boundaries and may in fact be larger or smaller. Within the boundaries of defined service areas an assignment of a priority classification of W-5 and S-5 will be given to indicate that extension of water and sewer lines is possible and desirable and that provision of service is considered consistent with the Comprehensive Plan. Priority classifications from W-3 and S-3 to W-1 and S-1 will be assigned at such time as plans to provide service are initiated, either in response to a request from private developer or by the service providing agency. The assigned classification will be based upon the project schedule and satisfactory compliance with eligibility requirements described in paragraph C of this section. A designation of NPS (No Planned Service) shall be assigned to all lands located outside of existing service areas. This designation shall mean that these lands are not included within a service area and not planned to be served in the future.

B. Planned New Service Areas

Proposals by property owners to establish new service areas or to extend collection or transmission facilities beyond the boundaries of existing service areas shall be submitted to the Planning Department in the form of a development proposal. Proposals which involve the establishment of a new Washington County Department Of Water Quality service area or the enlargement of an existing service area shall be included in the Water and Sewerage plan prior to creation of the service area.

The development proposal shall be submitted with an application for establishment of new service area boundaries and shall be consistent with the policies of the adopted Comprehensive Plan for Washington County. The proposal shall describe the facilities proposed and define the drainage area which could potentially be served if the proposed facilities were established. A Preliminary Consultation shall be held and the development project area shall be identified, with a description of the proposed land use, density and location of the development. The application shall contain all of the required information outlined in Section VIII. In the process of considering proposals to establish new service areas or expansions of existing service areas, the County Commissioners upon the recommendation of the Planning Commission shall also determine the appropriate designation for the service area in order to assure compatibility with the Policies of the Comprehensive Plan as well as providing for the most environmentally sound method of water supply and sewerage disposal within all areas of the County.

C. **Service Priority Classification**

The criteria listed below shall apply to requests for amendment of priority classifications for water and sewerage service where major water and/or sewerage facilities are proposed by property owners. It is the intent of these procedures that, within service areas established by the Water and Sewerage Plan, satisfactory compliance by developers with the established criteria should result in appropriate changes to the service priority classification. Once a priority classification of S-5 or W-5 has been obtained, it may not be necessary to initiate an individual amendment request for a higher classification or wait for the Triennial Review of the Plan before proceeding with the development of facilities. A letter of intent to the appropriate State agency issued by the County Commissioners will satisfy interim approval with formal amendment of the classification being made at the Triennial Review, provided all criteria have been satisfied. It is the responsibility of the developer to satisfy the criteria in each step of the process.

1. Eligibility for S-5/W-5 (Planned Service) Classification:
 - (a) The provision of service has been determined to be consistent with the policies of the Comprehensive Plan for the County and if applicable, the appropriate municipality.

- (b) The method of service has been determined satisfactory and has received written acknowledgment by the appropriate public agencies such as the Health Department, Department of Water Quality, and municipalities. Agency acknowledgment will be for the method of service in concept and not in design.
- (c) A Preliminary Consultation has been held with the Planning Commission.
- (d) If necessary, the Planning Commission has determined that the property is located within an Urban or Town Growth Area and has determined an appropriate service area designation, i.e. Urban/Town Growth Area, Rural Village, or Restricted service.

2. Eligibility for S-3/W-3 (Programmed Service) Classification:

- (a) All of the requirements for S-5/W-5 have been met.
- (b) Arrangements have been made with the appropriate agency for acceptance of facilities, operating and maintenance responsibility, allocation of capacity, and/or connections to the public system.
- (c) When the proposed development is located within an area that is under the jurisdiction of the Washington County Department of Water Quality, the developer shall have obtained approval of the establishment of a Dept of Water Quality Service Area or expansion of an existing WCDWQ Service Area pursuant to WCDWQ Policy and Procedures.
- (d) Adequate capacity shall be existing or be programmed by the service providing agency responsible for the system that will serve the site. Any capital costs to be incurred by public agencies should be included in the Capital Improvements Program of the appropriate jurisdiction.

- (e) Preliminary plat and/or site plan approval has been obtained from the Planning Commission and other appropriate public agencies responsible for approval of plans, or future operating maintenance costs of sanitary facilities.
 - (f) A discharge permit, where appropriate, has been approved by appropriate State agencies.
 - (g) A hydrogeologic study, where appropriate, supports the establishment of a community water system which will not be detrimental to adjoining wells.
3. Eligibility for S-1/W-1 (Service Existing or Under Construction) Classification:
- (a) All requirements for S-3/W-3 have been met and,
 - (b) Facilities are under construction or completed.

III. PROCEDURES FOR THE TRIENNIAL REVIEW AND UPDATE

In the Triennial review year, the Planning Department shall notify the appropriate service providing agencies and municipalities that the Water and Sewerage Plan is being reviewed and updated. The service providing agencies, municipalities and Health Department will be asked to provide information to be included in the draft updated plan. This may include changes to text, maps, tables, charts, or other information to be included in the draft updated plan. This may include changes to text, maps, tables, charts, or other information within the Plan to reflect changes that have occurred since the previous update or new proposals expected to occur within the planning period. Applications for individual amendments by property owners will also be considered during the Triennial Update.

The Planning Department will prepare a Draft Updated Plan to be submitted to the Planning Commission for their review and comments.

Copies of the Draft Updated Plan will be made available to the Public and to the Municipalities and service providing agencies.

Public Hearing(s) by the Board of County Commissioners and the Planning shall be scheduled.

The principle elected official of each municipal corporation that is affected shall be notified of the Plan Update at least 14 days prior to the public hearing.

The Planning Department shall publish notice of the time and place of the public hearing, with a summary of the update in at least one newspaper of general circulation, once each week for two successive weeks with the first notification appearing at least 14 days prior to the hearing.

Following the public hearing the Planning Commission shall review any testimony presented.

The Planning Commission shall certify that the Updated Plan as presented or modified is consistent with the County Comprehensive Plan.

Following the Planning Commission's certification, the Board of County Commissioners shall adopt the updated plan.

Following the adoption of the updated plan by the County Commissioners, the Plan shall then be sent to the Maryland Department of the Environment for its review and final approval. The State has at least 90 days and may extend its review period.

IV. **PROCEDURE FOR INDIVIDUAL AMENDMENT APPLICATION REVIEW**

Applications for individual amendments to the Water and Sewerage Plan shall be considered at public hearings by the Board of County Commissioners and the Planning Commission at least twice a year.

Requests for proposed amendments to the Water and Sewerage Plan may be submitted to the Washington County Planning Department, County Administration Building, 80 West Baltimore Street, Hagerstown, Maryland. Requests for proposed amendments will be processed in at least two cycles a year. Closing dates, application fees, and procedures for public hearings for amendment requests are treated the same as re-zoning applications and shall be available at the Washington County Planning Department and on the Washington County website at:

http://www.washco-md.net/planning/comp_rezoning.shtm

Requests for amendments must contain all of the applicable information listed in Section VIII. Incomplete applications or applications that do not meet the applicable criteria listed in Section II will not be accepted.

V. **PROCEDURES FOR ADMINISTRATIVE AMENDMENTS**

Administrative amendments need not be formally adopted by the Board of County Commissioners via the public hearing process. Such amendments are to correct errors and are for informational purposes. Such amendments do not represent changes in policy or future plans. Administrative amendments should generally be limited to existing conditions which fall within the following categories:

1. To correct omitted or inaccurate locations of existing facilities on the Plan maps.
2. To correct erroneous service priority classifications which indicate no service provided when in fact service is being provided to a particular area.
3. To correct erroneous data on existing population served, flow and capacity data on existing facilities, and similar information which is a matter of record.

Once an administrative amendment is made by the Planning Commission, copies of amended maps or text will be forwarded to all applicable agencies to replace maps or text which have been found to be in error.

VI. **PROCEDURES FOR SPECIAL AMENDMENTS**

Special amendments outside of the triennial review sequence may only be initiated by the Board of County Commissioners upon the request of the Washington County Health Department or a Municipality or Service providing agency.

Special amendments should be limited to: a) allowing service to an existing structure when a potential health hazard has been declared by the Health Department, b) allowing requests submitted by government agency for capital projects to proceed.

Special Amendments shall be considered, following public notification, at a joint public hearing held by the Planning Commission and County Commissioners.

VII. **FEES**

A fee schedule established by the County Commissioners is to be applied to all applicants, other than municipalities or public agencies, requesting individual amendments to the Water and Sewerage Plan.

VIII. **DATA TO BE INCLUDED IN APPLICATIONS FOR AMENDMENT TO THE COUNTY PLAN**

The following data, as applicable, shall be included in an application for amendment of the Water and Sewerage Plan for the creation of a new service area, expansion of an existing service and the establishment of a priority classification of S-5 or W-5 or higher.

Applications for amendment shall address the interrelationship of water supply and waste water disposal.

Applications for the establishment of new service areas or the creation of new or improved major facilities must include the following as appropriate to the project:

1. Proposed type, capacity, size and location of facilities (new or proposed for use) and map.
2. Name and location of development or service area (boundary, drainage area, acreage and map).
3. Number of people (existing in drainage or service area, density of development).
4. Number of people to be served in drainage or service area by planned staged development.
5. Design, average and peak flows.
6. Degree and type of treatment given.

7. Sludge disposal plans.
8. Transmission facilities (size of pipe).
9. Effluent disposal plans (spray irrigation, discharge to stream, etc.).
10. Classification of stream receiving discharge.
11. Operation and maintenance costs.
12. Proposed means of financing improvement.
13. Description of ground and surface water resources within the service or development area, including the quantity and quality of these resources.
14. Sources of pollution or contamination of groundwater resources within the development or service area.
15. Source and amount of water to be withdrawn.
16. Relationship to Comprehensive Plan.
17. Relationship to Water and Sewer Plan.
18. Reason for change.
19. Alternatives and the rationale used in determining the means of providing water supply.
20. Rationale for selecting a particular design and alternatives for any proposed treatment facility, pumping station or interceptor.

Applications which would extend collection or transmission facilities beyond the boundaries of existing ten-year service areas should include:

1. Location of the proposed development or service area (boundaries, acreage, map) and relationship to existing service area and facilities.
2. Number of people existing in development or service area.

3. Number of people to be served in development or service area by planned staged development.
4. Relationship to Comprehensive Plan.
5. Relationship to Water and Sewerage Plan.

All maps included in applications for amendment which delineate the boundaries of the service area, or show the location of facilities shall be based on the official County or municipal zoning map utilizing a tax map base at a scale that will show the property subject to the amendment as well as the surrounding area.

APPENDIX C

LISTING OF SERVICE AGREEMENTS

- Consolidated General Service Agreement for the Provision of Sanitary Sewer Service By and Between the City of Hagerstown, MD and the Board of County Commissioners of Washington County dated 9/16/1997
- Joint Resolution of the Board of County Commissioners of Washington County and the Mayor and Council of the City of Hagerstown, Maryland Amending the Consolidated General Service Agreement for the Provision of Sanitary Sewer Service Amendment No. 1
- Joint Resolution of the Board of County Commissioners of Washington County and the Mayor and Council of the City of Hagerstown, Maryland Amending the Consolidated General Service Agreement for the Provision of Sanitary Sewer Service Amendment No. 2
- Joint Resolution of the Board of County Commissioners of Washington County and the Mayor and Council of the City of Hagerstown, Maryland Amending the Consolidated General Service Agreement for the Provision of Sanitary Sewer Service Amendment No. 3
- Joint Resolution of the Board of County Commissioners of Washington County and the Mayor and Council of the City of Hagerstown, Maryland Amending the Consolidated General Service Agreement for the Provision of Sanitary Sewer Service Amendment No. 4
- Joint Resolution of the Board of County Commissioners of Washington County and the Mayor and Council of the City of Hagerstown, Maryland Amending the Consolidated General Service Agreement for the Provision of Sanitary Sewer Service Amendment No. 6
- Joint Resolution of the Board of County Commissioners of Washington County and the Mayor and Council of the City of Hagerstown, Maryland Amending the Consolidated General Service Agreement for the Provision of Sanitary Sewer Service Amendment No. 7

- Flow Transfer Agreement By and Between the City of Hagerstown, Maryland and the Board of County Commissioners of Washington County
- Flow Transfer Agreement By and Between the City of Hagerstown, Mayor and the Board of County Commissioners of Washington County - Flow Transfer Agreement By and Between the City of Hagerstown, Maryland and the Board of County Commissioners of Washington County – for the Transfer of Flows from the City of Hagerstown’s Wastewater System to Washington County’s Wastewater System in an amount equivalent to that approved for the new Washington County Hospital.

Copies of the above listed agreements are available from the Washington County Department of Water Quality.

APPENDIX D

WASHINGTON COUNTY GOVERNMENT POLICY ON INTERIM AND PERMANENT COMMUNITY WATER AND SEWERAGE SYSTEMS

The Washington County Government (County) through its Department of Water Quality shall own and operate all interim and permanent water and sewerage facilities within the County, except those within an incorporated area or an approved existing system, under the following conditions:

1. The County shall be the sole judge as to whether a community water or sewerage facility can be approved and accepted for ownership and operation by the Department of Water Quality within the framework of the Washington County Code of Public Local Laws. It shall be the sole right to determine the conditions of approval and acceptance necessary to satisfy said law.
2. The County shall have the sole right to determine what facilities are interim or permanent; as when the installed facilities shall be modified, enlarged or abandoned; and whom, may use said installed facilities. However, in making such decisions, the County shall be governed by all applicable County and State regulations and requirements.
3. All applications for community water or sewerage facilities shall be filed with the Washington County Planning Commission. All such applications must include an engineering report prepared by a Maryland registered professional engineer with sufficient experience in sanitary work satisfactory to the County. This report must include estimated construction and operation costs, together with all necessary design and technical data required by the State for effluent discharges and/or water appropriation permits.
4. The Department of Water Quality will approve no community water or sewerage system for ownership, operation or maintenance unless such ownership, operation or maintenance jurisdiction encompasses the entire system, including treatment, collection, distribution, storage, etc. except

as may be covered by special agreement with applicant at the discretion of the County.

5. Construction plans and specifications for all interim and permanent community water and sewerage systems must be prepared in accordance with State requirements but must be reviewed and approved by the Department of Water Quality prior to submittal to the State for a construction permit. All construction shall be in compliance with applicable Department of Water Quality Construction Standards.
6. Interim and permanent sewerage and water facilities shall be designed and constructed at no cost to the Department of Water Quality. Construction costs to be borne by others include inspection during construction deemed necessary by the Department of Water Quality to protect its ownership and operational interest in the project.
7. The Department of Water Quality will accept no water or sewerage facility for ownership, operation and maintenance until a mutually acceptable agreement or contract between the County and the applicant has been consummated and put into effect.
8. The effective date of this policy or its predecessors is April 17, 1976 and it shall apply to all applications submitted subsequent to that date.

APPENDIX E

**REVISED POLICY STATEMENT FOR CITY OF HAGERSTOWN WATER
POLLUTION CONTROL PLANT CAPACITY ALLOCATION**

On file with the Washington County Planning Department.

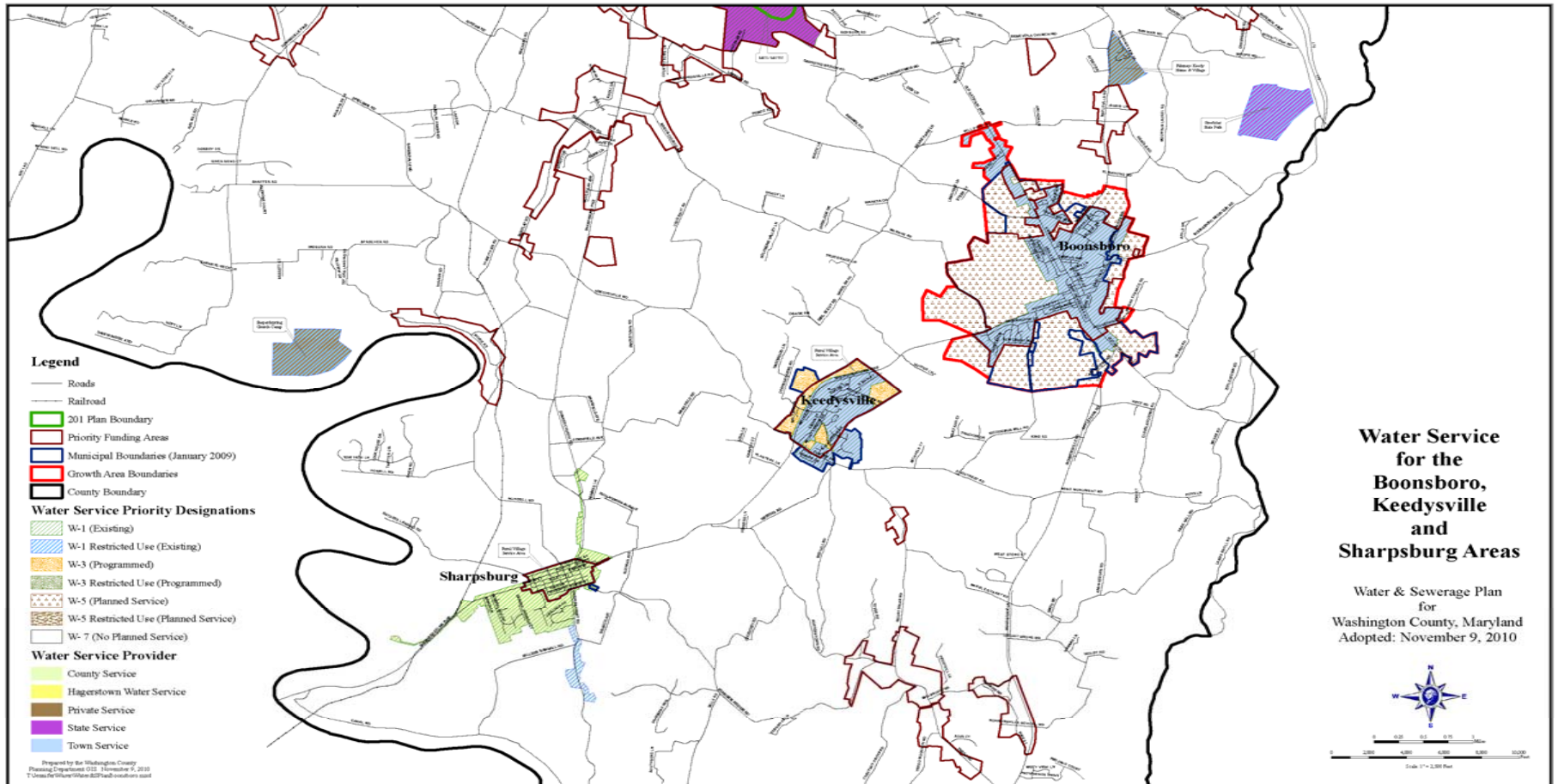
APPENDIX F

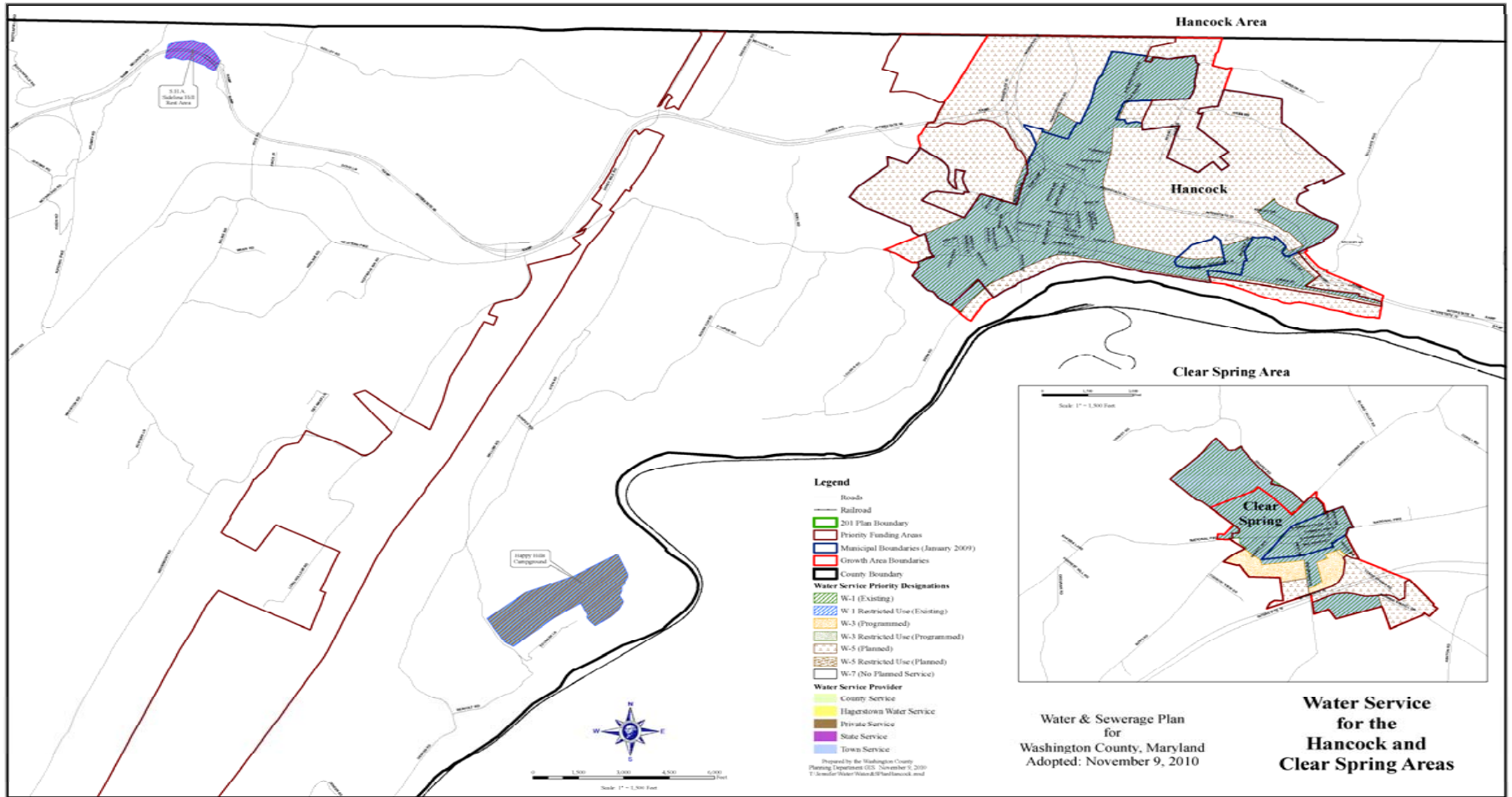
**RESOLUTIONS ADOPTED BY THE BOARD OF COUNTY
COMMISSIONERS OF WASHINGTON COUNTY AND THE MAYOR AND
COUNCIL OF THE CITY OF HAGERSTOWN RELATING TO THE
HAGERSTOWN URBAN GROWTH AREA, WATER AND SEWER STUDY
PREPARED BY BCM ENGINEERS, INC.**

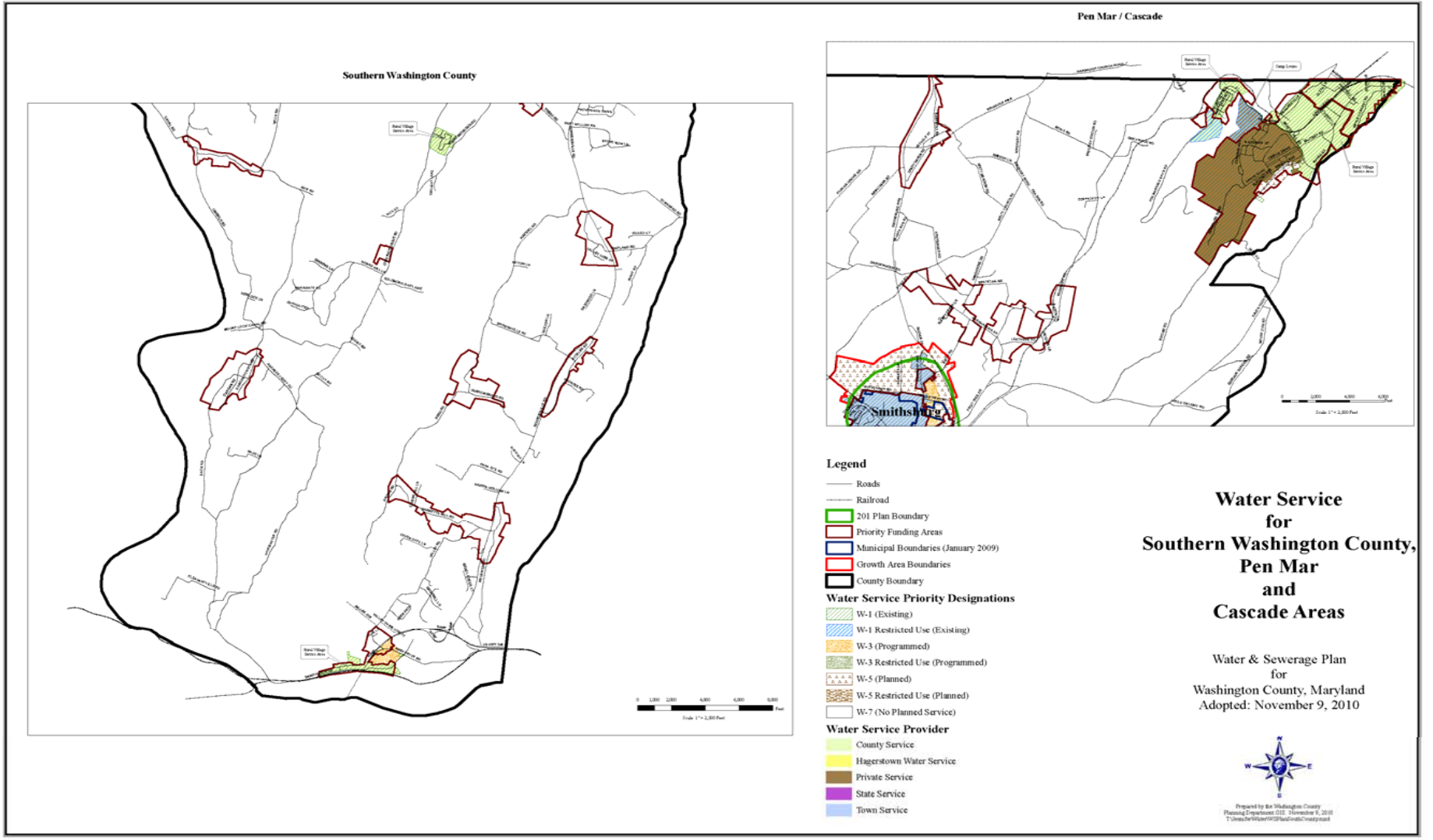
On file with the Washington County Planning Department.

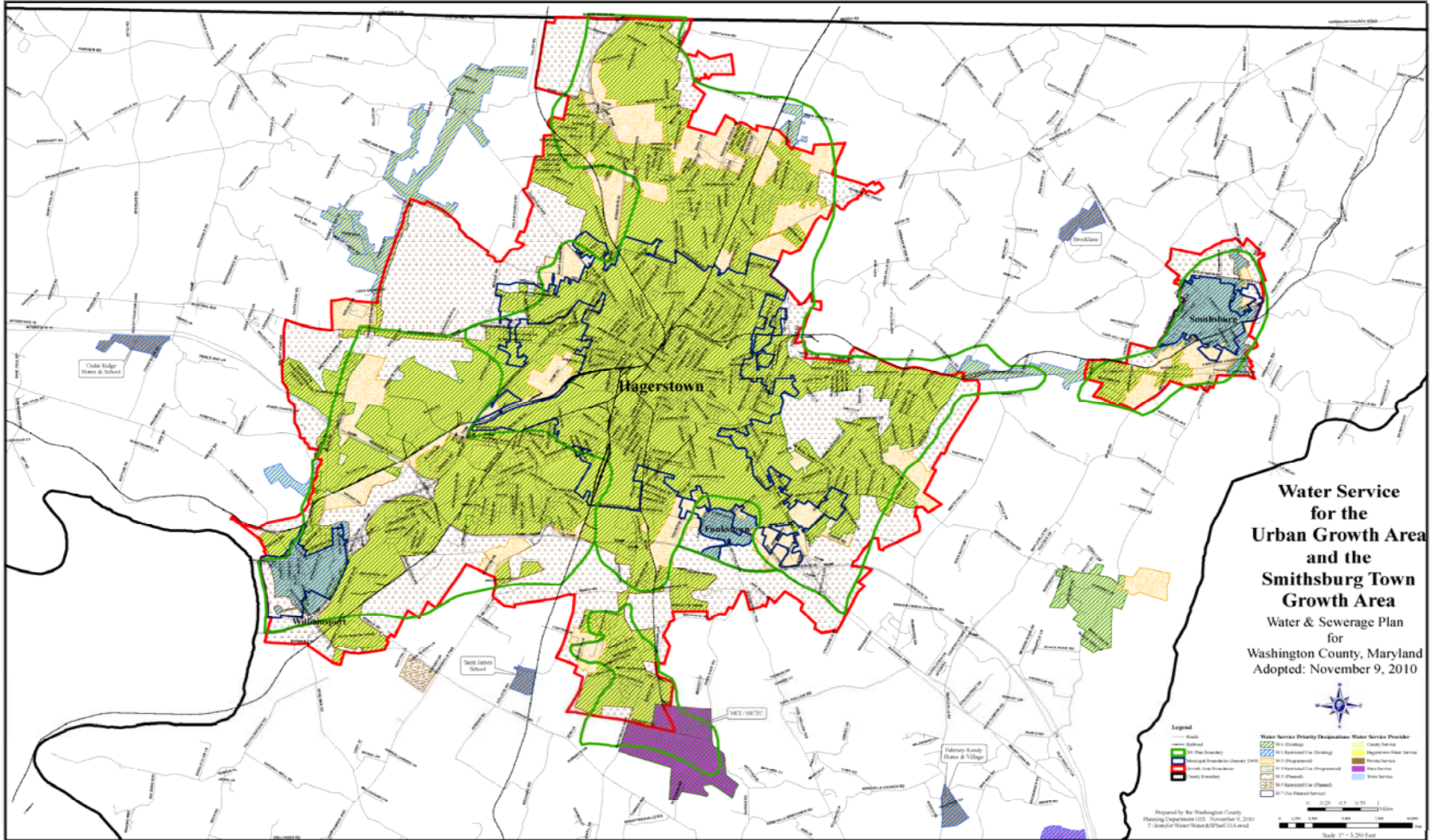
APPENDIX G

WATER SERVICE PRIORITY AREA MAPS









APPENDIX H

SEWER SERVICE PRIORITY AREA MAPS

