

1. Goals, Policies and Related Plans

1.1 GOALS AND POLICIES OF THE COMPREHENSIVE WATER AND SEWERAGE PLAN:

The Comprehensive Water and Sewerage Plan is a growth-management tool of the land planning process. State planning legislation has identified various visions for future growth, and charged local governments with the responsibility for managing growth and ensuring that infrastructure will support its anticipated development. Accordingly, the comprehensive land use plan has been adopted to preserve and enhance the quality of life by recognizing and protecting the unique character of St. Mary's County as a rural Chesapeake Bay peninsula, to foster economic growth and to create an atmosphere of excellence by focusing and managing growth to create vibrant, attractive communities, by protecting the rural character and economy of the countryside, by nurturing the shoreline and adjacent waters and by preserving and capitalizing on the other natural resources and historical quality of the county.

Because the nature of this water and sewerage plan is a continuing planning process, it has been and will continue to be changed, modified, and revised to meet the evolving needs of St. Mary's County. In this regard, the policies that are presented in this plan reflect current realities and anticipations, but, in terms of the county's responsibility in land use planning, the scope of the water and sewerage plan looks beyond the minimum ten year horizon stipulated in the laws which mandate such planning.

Although St. Mary's County remains on the fringe of the Washington and Baltimore metropolitan corridor, it has long been affected by the rapid growth within that corridor. It has and will continue to become increasingly suburban and, in places, urban in character. This comprehensive water and sewerage plan represents an important component of the county's strategy and coordination of efforts of the Board of County Commissioners, the Leonardtown Commissioners, the Planning Commission, the Metropolitan Commission, and the Health Department to meet the needs of an ever growing population.

It is critically important to St. Mary's County to plan for its future water supply in secure, permanent, and protected sources in areas available to serve anticipated long-range growth. The county must continue 1) identifying strategic resources of water supply, 2) implementing strategies to protect the water supply, and 3) monitoring the geological picture of the water supply. Options to consider include monitoring wells, desalinization, the establishment and preservation of impoundment areas and clustering of development.

The goals on which this plan is based are summarized as follows:

1.1.1 Protection of the health, safety, and welfare of the people of St. Mary's County and its neighbors through improving sanitary conditions in every way possible.

1.1.2 Protection and enhancement of environmental qualities, recognizing nature as a primary component of physical and social design.

1.1.3 Protection of areas of significant natural beauty and resources.

1.1.4 Protection of ground water resources and the establishment and preservation of surface water resources.

1.1.5 Adequate implementation of this Comprehensive Water and Sewerage Plan through preparation and adoption of such ordinances, rules and regulations as may be necessary.

1.1.6 Development guided to areas where water and sewerage systems exist or may be installed both economically and in conformance with the land use plan (because both the - St. Mary's County Comprehensive Plan and this St. Mary's County Comprehensive Water and Sewerage Plan include the term "comprehensive" in their respective titles, the former is cited herein as the "county land use plan").

1.1.7 Public ownership of all community water and sewerage systems.

1.1.8 Reduction of existing and potential pollution, and achievement of state water quality standards.

1.1.9 A citizenry informed as to pollution problems and solicited for its advice and cooperation.

1.1.10 Careful management of water resources by all cognizant agencies.

1.1.11 Conformance of all county government programs with the goals set forth in this plan.

In order to meet these goals and policies, the county has prepared and adopted a comprehensive land use plan, a comprehensive zoning ordinance, a sewer use ordinance, and standard specifications for water and sewerage construction in addition to this comprehensive water and sewerage plan.

1.2 RELATED PLANS, POLICIES AND ORDINANCES

1.2.1 Comprehensive Land Use Plan: The Board of County Commissioners has adopted a plan for locating land use (types, amounts, relationships), community facilities (parks, libraries, schools, fire stations, health and emergency medical services), roads and utilities over a twenty to thirty year period. The plan also addresses the protection of wildlife and natural resources, particularly the Chesapeake Bay and its tributaries. The plan's fundamental concept is focusing development and the expenditure of public dollars on community facilities and transportation in areas where these things already exist or can be economically provided, and preserving the rural character of the remainder of the county. Identified as development districts or primary growth areas are Lexington Park and Leonardtown. Identified as town centers or secondary growth areas are Charlotte Hall, New Market, Mechanicsville, Hollywood and Piney Point. The village centers within the county are Callaway, Chaptico, Clements, Loveville, Valley Lee, St. Inigoes and Ridge. The remainder of the county is identified as a rural preservation area where development densities are to be kept lower than in the growth areas, and the expenditure of public dollars for water and sewerage is to be devoted to maintenance of existing facilities and not new facilities, unless justified by health issues.

The land use plan provides specific policies for water supply and sewerage facilities, which are reflected below. In addition to the zoning ordinance, this water and sewerage plan is an important means of implementing the land use plan.

The St. Mary's County comprehensive plan, entitled "Quality of Life in St. Mary's County – A Strategy for the 21st Century", provides the following goals, policies and guidelines governing the provision water and sewerage facilities:

3.1.2.A.i Provide planned SEWERAGE SERVICE

- a. Extend new sewerage service only to planned growth areas.
- b. Direct sewerage service to village centers and neighborhood conservation districts as needed to remedy the failure of existing septic systems or to serve expanding populations. Small local land treatment systems are the preferred means of providing sewerage service to such areas. Avoid discharge of treated wastewater into local waters.
- c. Require all sewage collection systems to be designed and constructed to St. Mary's County Standard Specification for Water and Sewerage Construction.
- d. Ensure that all interceptors are sized to meet the needs of the planned growth of the drainage area or sanitary district in which the projects are located.
- e. Discharge treated effluent only through outfalls in the Chesapeake Bay or Potomac River or disposed on land. Long-term discharges into other water bodies are prohibited.

- f. Do not extend new sewerage service to rural areas unless it corrects an existing health hazard or environmental threat.
- g. Provide central sewage collection systems in the development districts. As collection systems are extended into service areas, require connection of all structures with plumbing on property, within the service area, which is located 200 feet or less from any collection line.

3.1.2.A.ii Limit impacts of SEPTIC SYSTEMS.

- a. Encourage regular maintenance, including pump out, of septic systems.
- b. Promote use of approved alternative septic system technologies to:
 - i). Retrofit existing systems to reduce risk of failure;
 - ii) Correct system failures where connection to central collection systems is not feasible;
 - iii) Allow expansion of existing structures where use of a conventional septic system is not feasible; and
 - iv) Minimize environmental impacts wherever conventional systems are currently feasible.
- c. Developments in minor subdivisions in the rural preservation district (RPD) where shared septic easement use is proposed, require clustering when such clustering may improve system performance, reduce impacts from clearing and land disturbing activities and allow more efficient use of the land.

3.1.2.A.iii Provide planned WATER SERVICE

- a. Protect and manage groundwater resources to maintain a safe and adequate water supply
 - i) Monitor groundwater withdrawal rates and aquifer depth to assure adequate levels of service for both public and private systems and wells.
 - ii) Support statewide policies which protect groundwater recharge areas from contamination and from increases in imperviousness that might limit replenishment of the supply.
 - iii) Establish thresholds of development warranting community water systems to avoid negative impacts of concentrating individual wells in rural areas, expressed as number of dwelling units or businesses located within a certain distance of each other.
 - iv) Encourage and promote educating the public on water conservation.

- b. Protect surface water supply areas.
 - i) Establish and enforce land use policies to protect these areas from adverse impacts of development on water quality and on the ability to construct the impoundment area.
 - ii) Protect existing surface waters from, and support cleanup of, contamination by toxic chemicals, heavy metals, pesticides, and from human and animal waste.
- c. Provide phased distribution systems matched to growth in the county.
 - i) Provide central water supply systems in the development districts and town centers. As supply systems are extended in these growth areas, require connection of all structures with plumbing on property within the service area which are located 200 feet or less from any distribution line.
 - ii) Upgrade community water systems as needed to meet appropriate standards (including fire protection) and to keep pace with increasing capacity needs.
 - iii) Provide central water systems to serve expanding populations in existing village centers, neighborhood conservation districts, and areas meeting development thresholds.
 - iv) Provide central water systems to supply areas with failing wells in village centers, neighborhood conservation districts, and areas meeting development thresholds.
 - v) Require shared wells as defined in the Comprehensive Water and Sewerage Plan (CWSP) to be supervised or operated by the St. Mary's County Metropolitan Commission (MetCom). Require dedication of all new central water systems to the MetCom for ownership, operation, and maintenance in accordance with MetCom standards and specifications.

1.2.2 Comprehensive Zoning Ordinance: The purpose of a zoning ordinance is to promote the health, safety, order, convenience, and general welfare of the citizens of the county. The ordinance divides the county's territory into residential, commercial, marine, industrial, and rural preservation planning districts. It also includes requirements for the provision of facilities that are adequate to the sewerage, fire protection and water supply needs of new development.

The intent of the adequate facilities requirements of the ordinance is to control phasing and timing of development approval by conditioning such approval upon a finding that sufficient infrastructure and public facilities are present or will be provided to serve proposed development. Provision of adequate facilities is a joint responsibility of county government and the developer. As such, it is accomplished only in conjunction with additional planning tools including the land use plan and the capital improvements program.

Benefits to the county and developers which accrue from these provisions include 1) a mechanism for coordinating the timing and location of development; 2) a mechanism for the orderly expansion of public capital facilities; 3) consistency among new development, capital improvements, and the land use plan; 4) a reduced likelihood of environmental damage from overburdened facilities; and 5) a mechanism for stabilizing necessary capital expenditures and associated financing mechanisms. Adequate facilities are required to maintain and improve the quality of life within the county.

1.2.3 St. Mary's County Standard Specifications for Water and Sewerage

Construction: This ordinance was adopted in accordance with Chapter 113 of the Public Laws of St. Mary's County for the purpose of ensuring quality control. All public and private community water and sewerage systems must comply with these specifications. They are available for purchase from the St. Mary's County Metropolitan Commission.

1.2.4 Private Water and Sewerage Systems:

- A. *Water:* A private individual water system or well means a source of water that serves no more than one user. A ground water appropriation permit must be obtained from the Maryland Department of the Environment prior to well construction. Individual water supply systems are regulated by the Health Department under COMAR 26.04.02 through .04. These systems are permitted in NPS (no planned service) or W-6/S-6 areas, or they may be used elsewhere as interim systems.
- B. *Sewer:* A private individual sewerage disposal system means an on-site system that serves no more than one (1) dwelling unit of equivalent dwelling unit (EDU). Individual sewerage systems are regulated by the Health Department under COMAR 26.04.02 through .04. A percolation test must be performed on the subject property prior to the issuance of a permit to construct an on-site septic system. An application must be submitted to the Saint Mary's County Department of Environmental Health. A sanitarian will schedule a percolation test based on whether the system will require a "wet" or "dry" test. "Wet" tests are done in the wet-season as determined by the state. The wet season is usually between the months of January and April when significant rainfalls occur and water consumption by plants is at a minimum. However the wet season is subject to change. The on-site sewerage systems must be located within the Health Department's specifications in order to minimize the potential negative effects to ground water supplies and the natural environment.

1.2.5 Interim systems: Private water and sewerage systems may be constructed on properties located in the W-6/S-6 service areas on an interim basis upon the recommendation of the Health Department, provided that the owners of such properties enter into a public works agreement with the Metropolitan Commission to construct a “dry” system in accordance with the St. Mary’s County Standard Specifications for Water and Sewerage Construction and the standards of the the Health Department. The “dry” systems should be plugged with a visible and readily inspectable plug at the point where it will be connected to the public system when it becomes available. Building permits, septic tank approvals, subdivision plats, and the Public Works Agreement should contain provisions to require connection of the “dry” system and the properties serviced by that system, to the public system within six (6) months of the date of the Metropolitan Commission’s issuance of a “Notice to Connect”.

1.2.6 Shared Facilities: Maryland Department of the Environment regulations governing shared facilities (COMAR 26.04.05) define a "shared facility" as a water or sewerage system which serves more than one lot of land or more than one user on a single lot of land with water or sewerage systems located on the individual lots or on parcels owned in common by the users or the controlling authority. The controlling authority for shared facilities in St. Mary's County is the St. Mary's County Metropolitan Commission. The approving authority for shared facilities in St. Mary's County is the St. Mary's County Health Department, with the concurrence of the Maryland Department of the Environment. The Metropolitan Commission may purchase, hold, lease, build, construct, own, operate, repair, maintain and improve a shared facility or enter into contractual agreements with the federal government, the State, a municipality, person or individual to provide such services. All shared facilities should be designed, constructed and operated in accordance with COMAR 26.04.05 and should comply with all other applicable State and local laws and regulations.

Shared facilities may be administratively amended into this Comprehensive Water and Sewerage Plan pursuant to section E(4)(c) *infra*. *Sewer*. The following standards apply to shared systems:

- (1) Only subsurface sewage disposal systems (including septic system drain fields, mound systems, or infiltration systems) may be used to provide treatment as shared facilities.
- (2) Shared sewage treatment and disposal facilities may be utilized in Rural Preservation Districts only for
 - (a) On-site (i.e., served dwelling units and the facility must be located within the same parent parcel or a contiguous parcel), clustered new development as defined by the St. Mary’s County zoning ordinance;
or
 - (b) Off-site correction of failed septic systems.

- (3) On at least an annual basis, the Health Department shall inspect the performance of the shared facility, and if necessary may require that the accumulated sludge be removed and that repairs be effected as provided for in a recorded agreement between affected property owners and the controlling authority.
- (4) The interconnecting of two or more shared facilities shall be prohibited unless approved by the Health Department and the Metropolitan Commission.
- (5) Each dwelling unit served by a shared facility shall be served by its own sewer service line installed in accordance with the St. Mary's County Plumbing Code and the St. Mary's County Standard Specifications for Water and Sewerage Construction.
- (6) The costs associated with the installation, operation, maintenance and repair of such shared facilities should be borne jointly by the owners or users of the system.
- (7) Plans and specifications for these shared facilities shall be submitted to the Health Department and, as appropriate, the Metropolitan Commission for approval and shall be constructed in conformance with the current Plumbing Code for St. Mary's County or the St. Mary's County Standard Specifications for Water and Sewerage Construction.
- (8) A public works agreement shall be entered into and recorded to run with and bind upon the land served by the shared facility. This agreement between the Health Department, the Metropolitan Commission and the landowner(s) shall define the respective role and responsibilities of each agency and the successors and assigns in title to the property in the administration of these shared systems.

1.2.7 Community Systems:

- A. *Water:* A community water system means a source of water and a distribution system, including treatment and storage facilities, whether publicly or privately owned, serving two (2) or more EDU's. All new Subdivisions which consist of 25 lots or more and all subdivisions located within the Downtown Mixed Use Zone (DMX) shall connect to a community water system. All new developments located in Town Centers and Village Centers within 1,750 feet of an existing public water system with sufficient capacity must connect to the public water system.

B. *Sewerage*: A community sewerage system means any system, whether publicly or privately owned, established for the collection, transportation, and disposal of sewage or industrial wastes of a liquid nature, including various devices for the treatment of such sewage and industrial wastes serving two or more EDU's within a growth area designated by the land use plan. Public community sewerage systems include the wastewater treatment plants at Marlay-Taylor, Leonardtown, St. Clements Shores and Wicomico Shores. Community sewerage systems may not serve the rural preservation district except to alleviate health hazards. All new development located within the Lexington Park Development District shall be required to connect to a public community sewerage system.

1.3 Water and Sewerage Service Areas: To implement the county and town land use plans this water and sewerage plan provides the following service priorities. The numeral in the service classification does not guarantee the timeframe for which service may be realized. For example an S-6 or W-6 category does not guarantee that service will be available on site within 6-10 years.

1.3.1 W-1, S-1 - Existing and Under Construction Service Area: A water or sewer line is assumed to be existing if it is in operation or under construction (notice to proceed and a contract has been let) and will be placed in operation immediately after construction is completed. Parcels or lots assigned this service area must be in a development district, a town center, a village center or a neighborhood conservation district as defined by the land use plan and must abut a road, easement, right of way, or alley in which an existing water main or sewer is located. W-1 and S-1 indicate that service is available to structures located on the property or means that undeveloped property is entitled to a maximum of one EDU, unless additional EDU's are duly allocated.

1.3.2 W-3 D, S-3 D: Areas to be Served Within Three to Five Years: A parcel assigned to this service area must be located in a development district, a town center, a village center or a neighborhood conservation district as defined by the land use plan, and the proposed development thereof must in all other respects comply with that plan. Properties located within this category are expected to be served within five years. An initial submission of a plan of subdivision or a site development plan must have been reviewed and approved by the Planning Commission for a property to be eligible for inclusion in this category. A final record plat may not be approved unless the subdivision or site development has been appropriately amended into this water and sewerage plan if required. The suffix "D" may be used in conjunction with this category to indicate that the proposed construction of the developer's share of new facilities is to be financed by the developer of the property. Amending a development project into a W-3D or S-3D service area does not ensure allocation of capacity from its affected community water or sewerage system.

1.3.3 W-6 D, S-6 D - Potential Area for Future Service: A parcel assigned to this service area must be located in a development district, a town center, a village center or a neighborhood conservation district as defined by the land use plan, and the proposed development thereof must in all other respects comply with that plan. These are areas where there is a potential for future service. Classification in this area represents anticipated development and does not indicate concept approval for the development of specific properties.

Areas shown as W-6 D or S-6 D will not necessarily be entirely developed because of the resource protection requirements of the land use plan (i.e., restrictions exist on open space and resource protection). Nor will all properties shown as W-6 D or S-6 D necessarily be provided with public water or sewerage service within the next 10 years, but rather this service area category is provided to facilitate the planning and staging of capital improvements to meet the needs of projected population increases.

1.3.4 RW (rural water service), RSe (rural sanitary service – environmental hazard), and RSs (rural shared septic service) Service Areas: Properties within Rural Preservation Districts as designated in the land use plan may be assigned these service categories. The associated population densities and land uses in a rural area are typically accommodated by private individual systems, but the RPD zoning district does allow for clustered low density residential development. Rural water systems may be comprised of shared wells. A community water system is necessary to supplement fire prevention and preventing possible ground water contamination by limiting the number of penetrations into the aquifer's confining beds. Shared septic systems help facilitate clustering and preservation of open space. Per direction by the Maryland Department of Environment, the designation of rural shared septic service also applies to onsite septic systems that treat more than 5,000 gallons per day (GPD). The creation of such a system requires an amendment to the Comprehensive Water and Sewerage Plan.

Community water systems for two or more EDU's may locate only within a public water service area, including an RW service area. If a proposed development project for which a community water system is required is located in an RPD zoning district, but not within an RW water service area, then this Comprehensive Water and Sewerage Plan must be amended to appropriately establish an RW service area. All new residential subdivisions of twenty-five (25) lots or more shall connect to a community water system.

The land use plan allows community sewerage systems outside of development districts, town centers or village centers only to alleviate health hazards or to serve neighborhood conservation districts. Community sewerage systems, including wastewater treatment plants, may not be considered as shared systems. Specifically, wastewater treatment plants at Marlay-Taylor, Leonardtown, St. Clements Shores and Wicomico Shores are not shared systems per this definition. Areas outside of designated districts and centers that are served by these wastewater treatment plants are categorized RSe (rural service – environmental hazard). Properties within NPS areas or within such RSe service areas which are not certified by the health department as experiencing septic system failure shall be denied access to the sewerage facilities passing through such RSe or NPS categorized areas.

1.3.5 NPS - No Planned Service Areas: These are all other areas of the county for which no community water or sewerage service is planned within ten years. While this plan may appear to prefer individual wells and septic tanks for development outside of development districts, the designation of an area as NPS does not mean that a community water system or shared septic system may not be approved within a rural preservation district upon consideration and amendment by the Planning Director.. Service from a public water system may be extended into the RPD only upon due consideration by the Planning Commission and the County Commissioners. Such approval will require amending this plan to replace the NPS classification of the affected area with an appropriate classification. All amendment request are subject to review by the Maryland Department of Environment and the Maryland Department of Planning.

1.4 ORGANIZATION OF AGENCIES AND COMMISSIONS

1.4.1 County

- A. *The St. Mary's County Board of County Commissioners* acts as the local approving authority for the comprehensive water and sewerage plan. The Board of County Commissioners enact and amend resolutions which direct water and sewerage policies within the County and approve amendments to the CWSP which involve the expansion of public water and sewerage systems into the RPD zoning district. The Maryland Department of the Environment has final approval authority.
- B. *The St. Mary's County Planning Commission* prepares and recommends land use policies and controls, reviews development plans and makes recommendations on amendments to this water and sewerage plan to the Board of County Commissioners, reviews capital improvement programs, approves subdivisions, site plans, and procedural processes. The Planning Commission is also responsible under Title 9, Subtitle 5, Section 506, Paragraph (a)(3) of the Annotated Code of Maryland to hold hearings, make certain findings, and completely review this Comprehensive Water and Sewerage Plan for proposed new water or sewerage systems or expansions of existing systems. See section 1.5.2 A regarding definition of "expansion."
- C. *The Board of Appeals* is the conditional use approving authority for public utilities and public service uses and structures. Permits issued may vary in requirements so as to protect surrounding properties or the health, safety, and welfare of the residents in the county.
- D. *The Metropolitan Commission* designs, constructs and operates public water and sewerage systems, reviews plans for community water and sewerage systems, and advises regarding proposed amendments to this Comprehensive Water and Sewerage Plan.
- E. *The St. Mary's County Health Department, Office of Environmental Health* enforces health standards, issues permits for on site septic systems and individual wells, recommends areas for water supply and sewerage systems and advises regarding proposed amendments to this Comprehensive Water and Sewerage Plan.

- F. *The Department of Planning and Zoning* coordinates the process of amending this Comprehensive Water and Sewerage Plan at the local level and monitors state agency review of locally approved reviews and amendments, approves subdivision plats, and proposes and implements development policies of the land use plan. The Planning Commission allocates capacity of all wastewater facilities operated by the Metropolitan Commission. This responsibility may be delegated to Planning Department staff.

1.4.2 Town of Leonardtown:

- A. *The Commissioners of Leonardtown*, the only incorporated municipality in St. Mary's County, operates its own water and sewerage facilities. Water service is allocated pursuant to current town policies which prohibit extension of water service outside of town limits. Sewer service is allocated from the Leonardtown treatment plant in accordance with an interjurisdictional agreement executed in 1986. The town submits amendments to this Comprehensive Water and Sewerage Plan to the St. Mary's County Board of County Commissioners.

1.4.3 State of Maryland

- A. *The Maryland Department of the Environment (MDE), Water Management Administration* regulates the construction of water and sewerage facilities. A person may not install, materially alter or materially extend a water supply system or a sewerage system within the State of Maryland except in accordance with a water and sewerage construction permit issued by MDE.
- B. *The Maryland Department of Planning (MDP)*, reviews the proposed amendments to determine congruity with the County's Comprehensive Plan and the State of Maryland's growth policies.

1.5 PLAN AMENDMENTS: Paragraph (a)(3) to Section 506 of Title 9 of the Environment Article of the Annotated Code of Maryland (enacted per House Bill 601 of 1991), pertains specifically to St. Mary's County and reads as follows:

(a)(3)(I) This paragraph applies only in St. Mary's County

(II) A new public sewerage system or an expansion of an existing public sewerage system may not be allowed in St. Mary's County unless the adoption, revision, or amendment to the county plan containing the public sewerage system:

1. Is reviewed by the St. Mary's County Planning Commission in conformity with the provisions of this paragraph; and
2. Is approved by the Board of County Commissioners.

(III) The County Commissioners may not approve the adoption, revision, or amendment of the county plan that contains a new public sewerage system or an expansion of an existing public sewerage system until the Planning Commission:

1. Conducts a complete review of the county plan; and
2. Holds at least one public hearing on the county plan.

(IV) In its review and recommendation to the County Commissioners, the St. Mary's County Planning Commission should consider and make specific findings of fact with respect to the following objectives and policies of the county plan that contains a new public sewerage system or an expansion of an existing public sewerage system:

1. Compatibility with the comprehensive land use plan;
2. Planning and zoning issues;
3. Population estimates
4. Engineering;
5. Economics;
6. State, regional, and municipal plans: and
7. Comments received from other agencies in the county.

A. The following definitions clarify the scope of Paragraph 9-506(a)(3):

- (1) "New public sewerage system" means any such system which has not been:
 - a) incorporated into the comprehensive water and sewerage plan as of the date of its adoption or
 - b) for which the amendment process has not begun by such date of adoption.
- (2) "Expansion of an existing sewerage system" means initiating a CWSP amendment for:
 - a) increasing the service area of such a system or
 - b) increasing the capacity of such a system.
- (3) "Expansion" does not mean connecting a dwelling unit or equivalent dwelling unit to such a system where the unit is located within a legal lot of record and does not require increasing the service area of such a system.

1.5.1 Comprehensive Water and Sewerage Plan Triennial Review and Report

Title 9, Subtitle 5, Section 503 of the Environment Article of the Annotated Code of Maryland requires St. Mary's County to review the comprehensive water and sewerage plan at least every three years. Responsibility for implementation of Title 9 has been assigned to the State of Maryland's Department of the Environment which has adopted Regulation Number 26.03.01 - Regulations for Planning Water Supply and Sewerage Systems. Pursuant thereto, this plan should be reviewed at least every three years, and a report of the review should be duly prepared and adopted.

A review and report may be initiated as needed to facilitate amendments to the plan for expansions of existing systems or for new systems as defined in the previous section. A full amendment process involving both the Planning Commission and the Board of County Commissioners is required for new wastewater treatment plants or for extending the service area of an existing wastewater treatment plant beyond the limits of a development district, town center or village center to accommodate the correction of a certified health hazard. Such full process is necessary to ensure that access to the expanded facility will be denied to properties outside of designated growth areas for which a health hazard has not been certified. An administrative amendment process is available for qualifying systems as described below.

Amendments to this plan to accommodate new subdivisions, planned unit developments or nonresidential developments should be processed as follows.

1.5.2 Amendment Application Requirements – Full Amendment Process

- A. Preconditions:* a control file must be created at the department of planning and zoning if one does not already exist.
- B. Submission requirements (to be prepared by the applicant)*
 - 1) Six (6) completed application forms
 - 2) Exhibits
 - (a) Preliminary plat as submitted for approval or as approved by the Planning Commission
 - (a) Preliminary construction drawings
 - 3) Narrative
 - (a) Description of the property in question and of the dwelling units or equivalent dwelling units which require the amendment.
 - (b) Description of proposed water and sewerage facilities
 - (c) Maximum dwelling units or equivalent dwelling units to be served
 - (d) Projected initial, 5-year and 10-year water demand and/or waste water flow
 - (e) Facilities within the development to accommodate those projections
 - (f) Facilities outside the development to accommodate those projections. I.e., discuss discharge points, connections to public water or sewerage systems, and the current and subsequent capacities of those systems.

- 4) §9-506(a)(3) (a.k.a. HB601 of 1991) analysis
 - (a) Compatibility with the comprehensive land use plan
 - (b) Planning and zoning issues
 - (c) Population estimates
 - (d) Engineering
 - (e) Economics
 - (f) State, regional and municipal plans, and
 - (g) Comments received from other agencies in the county
- 5) TEC Review (Coordinated by the Department of Planning and Zoning).
 - (a) Full submission package provided in timely fashion to all TEC participants by the Department of Planning and Zoning
 - (b) Principal comment from Environmental Health and the Metropolitan Commission, The comment will:
 - (i) identify sources and capacities of affected water and sewerage facilities
 - (ii) calculate the reduction in capacity from those facilities required for the proposed amendment;
 - (iii) briefly describe and certify the adequacy of the proposed new facilities; and
 - (c) Draft replacement map prepared by the Department of Planning and Zoning

C. Planning Commission Review and Administrative Hearing:

- 1) Public hearing scheduled and advertised. Notice of public hearing shall conform to the requirements set forth by Section 21.3 in the St. Mary's County Comprehensive Zoning Ordinance.
- 2) Per COMAR 26.03.01.02, the Department of Planning and Zoning, on behalf of the Planning Commission and the Board of County Commissioners, will:
 - (a) Consult every official planning agency having any immediate jurisdiction in the county, including those with multi-county or regional jurisdiction, and
 - (b) Provide to the Maryland Department of the Environment (MDE) a statement that the above agencies have been consulted.
 - (c) Provide MDE with prior written notice of the hearing.
- 3) Staff report, including §9-506(a)(3) analysis, will be provided to the members of the Planning Commission.

- 4) Decision and recommendation for consideration by the Board of County Commissioners should issue within 30 days of the public hearing. A recommendation for approval should include certification of compliance with the land use plan.
- D. *Board of County Commissioners Review:* (Required only in cases involving the expansion of public water or sewerage service into area designated as RPD (Rural Preservation District) or when the expansion of a system is **not** at the request of an affected landowner and connection to such service is required.)
- (1) Planning Commission recommendation is transmitted to the Board of County Commissioners.
 - (2) The Board of County Commissioners may schedule an optional second public hearing as deemed necessary.
 - (3) The Board of County Commissioners should approve or disapprove the proposed amendment within a reasonable period of time. Approval should be in the form of a resolution.
- E. *Follow up:*
- (1) County Staff
 - (a) Four copies each should be sent to MDE:
 - (i) Resolution of adoption
 - (ii) Certification of compliance with the land use plan
 - (iii) Draft replacement detailed map
 - (iv) Detailed staff report, including §9-506(a)(3) analysis
 - (v) Final copies of all replacement maps and tables should be prepared for insertion into the plan upon approval by MDE
 - (2) MDE
 - (a) Circulate preliminary and final drafts of the amendments to appropriate state agencies for comment.
 - (b) Return comments to the county.
 - (c) Approve, disapprove, or approve in part the amendment in its final form within six (6) months of receipt
 - (3) Planning Commission or designee
 - (a) Formally grant an allocation of capacity when a project requires service from facilities which are subject to allocation policies or consent agreements.
 - (4) Applicant
 - (a) Enter into a public works agreement with the Metropolitan Commission
 - (b) Apply for an MDE construction permit

- (c) Transfer ownership of newly constructed facilities to the Metropolitan Commission

1.53 Administrative Delegation

- A. Per county commissioners resolution W/S 96-03, The planning director of the has the authority to approve community water and/or sewerage service under the following circumstances:
 - (1) Public health problems – water and sewerage service may be extended to existing structures to alleviate or eliminate existing or anticipated public health problems, upon certification of such by the county health department approving authority. However, such extensions generally shall not be used as justification for the connections of intervening or nearby parcels if they would not otherwise be entitled to connect to the system.
 - (2) Developments located within the county’s designated development district, town center and village center and this water and sewerage plan and which are unopposed by reviewing agencies. Specifically, for such properties to qualify for administrative delegation, the proposed sewer and water category change must be consistent with the comprehensive plan as determined by the planning director.
 - (3) Rural Water Systems that serve developments located within the rural preservation district.
 - (4) Shared facilities as defined in Section 1.2.6.
- B. *Procedures for amendments under administrative delegation*
 - (1) Such a review may be held on the first and fourth Monday of any month.
 - (2) Submission requirements are the same as per section 1.5.2 above and shall be made to the TEC as with any development proposal.
 - (3) The planning director determines eligibility of the proposed amendment pursuant to this section.
 - (4) The planning director then circulates the amendment requests for review by the TEC agencies. Notice of such amendment shall be published in the legal notices of a paper of local circulation for 2 weeks prior to the hearing and decision. Notice of the filing of the application shall be provided to all adjoining property owners by the applicant on a form provided by DPZ. The applicant shall post property in accordance with criteria set forth by the St. Mary’s County Comprehensive Zoning Ordinance.
 - (5) Per COMAR 26.03.01.02, the planning director will:
 - (a) Consult every official planning agency having any immediate jurisdiction in the county, including those with multi-county or regional jurisdiction, and

- (b) Provide to the Maryland Department of the Environment (MDE) a statement that the above agencies have been consulted.
- (c) Provide MDE with prior written notice of the hearing.
- (6) Upon receipt of recommendations from the TEC, and upon finding the proposed sewer and water category consistent with this 10 year water and sewerage plan, and with section 9-506(a)(3) of the Environment Article of the Annotated Code of Maryland, the planning director shall conduct an administrative public hearing and change the category designations.
- (7) The Maryland Department of the Environment has 180 days to comment on the administrative approvals granted.
- C. *Appeals:* Appeals under administrative delegation within 30 days of the planning director decision, any person, firm, or corporation aggrieved by any action hereunder by the planning director may within 30 days:
 - (1) Apply for a plan amendment per section 1.5.2 above (semi-annual amendments), or
 - (2) Appeal to the Planning Commission for reconsideration of the planning director's determination, stating the rationale for such appeal.

1.54 Subdivision Plan Review Process and Site Plan Submission Standards:

Plans for water and sewerage facilities must be included with initial submissions for basic, minor, and major subdivisions and final site plans.

- 1.6 ALLOCATION OF SEWER CAPACITY:** Recorded tracts or parcels of land abutting a public sewer and upon which a benefit assessment charge is being levied may be entitled to one (1) sewer connection for each such tract or parcel as applied for, provided that all applicable regulations and requirements which are prerequisite for building permit issuance have been met. A list of such properties shall be maintained by the county government. Subdivisions and developments which are located within the service area of a public sewerage facility as defined by the Comprehensive Water and Sewerage Plan may obtain sewerage capacity and building permits on a first come, first served basis pursuant to a realistic build-out schedule stipulated by the Planning Commission. The potential number of EDU's for a development should be determined at the time of submission of an adequate public facilities report for major subdivisions and site plans as required by Chapter 70 (Adequate Public Facilities) of the Comprehensive Zoning Ordinance. For all other developments, potential EDU determination should be made at TEC. Issuance should occur at the time of record plat approval or final site plan approval in conjunction with the determination of adequacy of public facilities described in Chapter 70 of the Comprehensive Zoning Ordinance. If there is no capacity available in a water or sewerage system, the applicant shall be placed on a waiting list. The applicant positioned at the top of the list may receive allocations as a result of relinquishment of EDU's from an existing account or if additional capacity is generated through system design or recalculation of EDU values.

1.6.1 In Growth Areas: (development districts, town centers, village centers and neighborhood conservation areas defined by the comprehensive land use plan)

Treatment capacity for wastewater treatment plants at Marlay- Taylor (serving the Lexington Park development district, the Hollywood and Piney Point town centers, and the Valley Lee and Callaway village centers), Leonardtown (serving the Leonardtown development district beyond town corporate limits), St. Clements Shores (as serving RNC zoned properties only) and Wicomico Shores (as serving RNC zoned properties only) may be allocated as follows:

- A. *One EDU per zoning lot abutting public sewer or within 200 ft. thereof.*
- B. *Additional EDUs may be allocated where:*
 - (1.) Plant capacity is available (first come first served).
 - (2.) A final subdivision plat or site plan has been approved.
 - (3.) The service area category is S-1 or S-3D.
 - (4.) Substantial completion of trunk line installation by developers within 12 months of recording of plat: if the trunk line has not been substantially completed at the end of 12 months, the allocation shall be rescinded (developer must reapply for an allocation, which may then be granted on a first come, first served basis)

1.6.2 Outside Of Growth Areas: Treatment capacity for wastewater treatment plants at Marlay-Taylor Water Reclamation Facility (by way of the Bay Interceptor, Piney Pt. Pump-over or Holly Gaf (proposed), Leonardtown (by way of Banneker or the Villages at Leonardtown) or St. Clements Shores (as serving properties outside of the RNC zone), may be allocated as follows:

- A. *Properties with certified septic system failure or other environmental hazard*
 - (1.) One EDU per dwelling for which the health department has certified septic system failure or ordered connection as a means of correcting such failure
 - (2.) Such properties shall automatically constitute an RSe service area without further amendment to this comprehensive water and sewerage plan

1.6.3 Within Leonardtown corporate limits

- A. *One EDU per zoning lot abutting public sewer or within 200 ft. thereof.*
- B. *Additional EDU's may be allocated where:*
 - (1.) Plant capacity is available (first come first served).
 - (2.) A final subdivision plat or site plan has been approved.
 - (3.) The service area category is S-1 or S-3D.
 - (4.) Substantial completion of trunk line installation by developers within 12 months of recording of plat: if the trunk line has not been substantially completed at the end of 12 months, the allocation shall be rescinded (developer must reapply for an allocation, which may then be granted on a first come, first served basis)

1.6.4 Leonardtown Interjurisdictional Agreement: In 1986 the Metropolitan Commission and the Town of Leonardtown entered into an agreement pertaining to the use of and the method of sharing the cost of a 680,000 gallons per day wastewater treatment plant constructed within the Town of Leonardtown to meet the sewage disposal needs of Leonardtown Sanitary District No. 3. Section 201.D.2 of the agreement reads as follows:

2. Allocation of Final Capacity: The Town agrees to serve all new Commission customers until the average daily flow at the Plant reaches 500,000 gallons per day. The Town shall receive 50,000 gallons per day of the 180,000 gallons per day balance of the Plant capacity, and the remaining 130,000 gallons per day shall be distributed to the Town and the Commission according to the ratio of the number of Equivalent Dwelling Units located within the District and within the Town at the time the plant flow reaches 500,000 gallons per day.

1.6.5 Airedale Road, Tall Timbers, St. George Island: By resolution W/S 92-01, dated March 10, 1992, the Board of County Commissioners 1) established the Airedale Road sewerage service area and set a limit of 75 EDU's to be served by the planned facility; 2) established the St. George's Island service area; and 3) established the Tall Timbers service area and set a limit of 162 EDU's to be served within that area (case no. 91-0121). An attachment to said resolution W/S 92-01 entitled "Service to St. George Island" stipulated a process by which the agreement could be modified to accommodate additional EDU's, and the resolution has been subsequently amended pursuant to such process.

1.6.6 Piney Point Pump-over Consent Agreement: This agreement between the Board of County Commissioners, the Metropolitan Commission and the Maryland Department of the Environment is dated November 19, 1986. It limits sewer service to the 20-year service area defined in figure 10 of the Piney Point Sanitary District Facility Plan dated August 1980, to the Piney Point Landings subdivision, and to properties experiencing septic system failures.

1.7 ALLOCATION OF CAPACITY FOR WATER SERVICE:

1.7.1 A determination of adequacy for the affected community water system shall be made at the time of final site plan approval or preliminary subdivision approval in accordance with Section 70 of the St. Mary's County Comprehensive Zoning Ordinance. For projects exempt from the adequate public facilities ordinance, determination of adequacy will be made upon application.

1.8 GENERAL COUNTY-WIDE POLICIES:

1.8.1 Sewer

A. The Metropolitan Commission shall own all wastewater treatment systems of fixed location outside of the corporate limits of Leonardtown.

- B. The discharge of wastewater plant effluent shall be prohibited in potential water reservoir basins.
- C. There should be continuing investigation of effluent disposal alternatives other than discharge into county waters.
- D. State and Federal support should be sought to develop new technical and fiscal means to minimize pollution of county waters from sources such as failing septic systems, agriculture, and marine oriented wastes.

1.8.2 Marine and Waterfront Preservation:

- A. All marinas should be equipped with sewage collection systems for the servicing of pleasure craft as required by state law.

1.9 Recommendations of the Water Policy Task Force: In 2000 the Commission on the Environment appointed a task force to investigate such problems as declining ground water levels, inadequate well construction, development of community water systems, surface water supplies, conservation, and the county's role in water supply resources planning and development.

Recommendations of the Task Force include:

- (1.) Establish the Comprehensive Water and Sewerage Plan, as an authority and tool to implement the St. Mary's County Comprehensive Plan, to be used in a manner that ensures an adequate water supply for the citizens of the county at reasonable cost.
- (2.) Have MetCom take an active role in the WRA permit process through routine coordination plus active participation in the well drilling permit approval process.
- (3.) Change St. Mary's County Health Department policy regarding new, confined aquifer-source wells to require that 4 inch pump diameter casings be installed to a depth of at least the 80% management level established by MGS/MDE, but not below the top of the confining unit/clay layer for the aquifer involved, with original pump location at least 50' below the static water level, but not below the top of the aquifer.
- (4.) Require that developers of all future subdivisions of 25, or more, residences and of all industrial parks and all other development complexes expected to use 10,000 gallons per day or more provide a metered, community water system, drawing from the Patapsco, or other lowest aquifer, to be dedicated to and operated by MetCom.
- (5.) Require that MetCom and other large users of aquifer water drill any new wells to the Patapsco, or other lowest aquifer.
- (6.) Through policy, programs, zoning, regulations and individual site plan decisions, manage future development to preclude drawdowns of aquifers to 80% levels and below.
- (7.) In areas approaching the 80% drawdown level of available aquifers, consider a moratorium on new development until alternate sources of water are provided or conservation and reduction of water use eliminates the problem.

- (8.) Conduct a County-wide well replacement study to determine the extent of well failures associated with falling potentiometric water levels in the confined aquifers and the resulting implications regarding ground water resources.
- (9.) Expand the well monitoring and water use metering programs, under MetCom, to provide continual data on ground water usage and condition.
- (10.) Develop a county water conservation program, to include education, water saving devices and practices and conservation rewards.
- (11.) Seek new aquifers, and assess and use any found.
- (12.) Conduct an evaluation of surface water impoundment sites.
- (13.) Conduct an evaluation of potential substitutes for ground water such as rain water, gray water, desalinated water and, for certain purposes, sewage treatment plant effluent.
- (14.) Consider restricting non-potable water users to unconfined aquifers or other non-potable sources.
- (15.) Establish a permanent Water Policy Advisory Committee, directly under the Board of County Commissioners, to assess and advise regarding situations, actions and results.

2. General Background Data

- 2.1 Objective:** The purpose of this chapter is to present the physical, social, economic, land use, and planning information relevant to water and sewerage planning. The planning of future basic services in St. Mary's County should be integrated with the concerns and issues that are apparent now and which are discernable in the foreseeable future.
- 2.2 GENERAL INFORMATION:** St. Mary's County is 367 square miles in extent and the 16th largest county in Maryland. It is bounded by water on all sides except for the border with Charles County to the north. The present St. Mary's County was the location of initial European settlement in Maryland, and St. Mary's City was the first state capital during the sixty years preceding 1694. Leonardtown has been the county seat since 1710 and is the only incorporated town within the county. Settlement is centered at Lexington Park and the Patuxent River Naval Air Station and Leonardtown. St. Mary's County still maintains its essentially rural character despite the increasing growth of residential subdivisions and commercial, industrial, and institutional activities.
- 2.3 GROWTH CONSIDERATIONS:** Planning water and sewerage facilities and improving present service systems are guided by the land use plan. Present and future location of population and employment as identified by the land use plan are important in the planning of water and sewerage systems. The location of people and jobs are major determinants of where water and sewerage facilities should be provided, and influence the priority for constructing facilities. St. Mary's County may expect a moderate but sustained growth rate in the next 20 years, and implications of this growth on water and sewerage are substantial.
- 2.4 PHYSICAL FEATURES:** A dominant characteristic of St. Mary's County is its abundance of natural resources and unique physical features. The purpose of this section is to analyze the physical features which affect development and the planning of water and sewerage facilities.

2.4.1 TOPOGRAPHY AND SLOPE: Lying within the Atlantic Coastal Plain, St. Mary's County is characterized by a low-lying series of terraces. Topographically, the county consists of the remnants of a once smooth plain, which, through erosion, has been dissected by a great number of small valleys. The modification of the plain through erosion increases as the boundaries of the county, Patuxent River and Chesapeake Bay and the Potomac River are approached.

Taken as a whole, the divide of the county is lowest in its southern portion between Chesapeake Bay and St. Mary's River, where it has an elevation of about 60 feet, and rises gradually until its greatest altitude is reached on the north side of Golden Beach Road east of Maryland Route 5 in the Charlotte Hall Town Center, where it has a height of about 187 feet. The area east of Route 235 is characterized by slopes in excess of 15% with, the more rugged portion occurring in the northern portion of the area.

The original smooth plain has been thoroughly dissected into belts of hills in the vicinity of the major bodies of water. The eastern and western border belts of the county are hilly, and the central belt is smooth to rolling. Many individual watersheds, therefore, result from the

peninsular character of the county and the dissected topography. This is a major constraint for all water and sewerage planning.

Because the county is in an exposed location, the ASA Standard Building Code requires that minimum design loads in buildings and other structures should be designed for $30 \times 1.5 = 45$ pounds per square foot wind pressure, corresponding to a 123 mile per hour wind. Elevated tanks and standpipes should be designed for at least these loads, allowing for winds from any direction.

2.4.2 Natural Drainage Areas Nine major drainage areas can be identified in the county. Of these, six drain westward into the Potomac River, and one each drains northeastward into the Patuxent River, eastward into the Chesapeake Bay, and southward into the Potomac River and the Chesapeake Bay. They are named according to the river, stream, or bay into which the surface water drains:

- | | |
|---------------------|----------------------|
| 1. Patuxent | 6. St. George' Creek |
| 2. Chesapeake | 7. St. Mary's River |
| 3. Chaptico | 8. Smith Creek |
| 4. St. Clements Bay | 9. Lake Conoy |
| 5. Breton Bay | |

Normal precipitation is 44 inches (3.67 feet) per year. Approximate equivalents are shown below: Annual Precipitation			
	<u>Cubic Feet</u>	<u>Gallons</u>	<u>Gallons Per Day</u>
Per Acre (43,560 sq. ft.)	160,000	1,200,000	3,280
Per square mile (640)	102,000,000	765,000,000	2,100,00
St. Mary's County (367 sq. miles)	37,400,000,000	270,000,000,000	770,000,000

2.4.3 Soils and Drainage: The Soil Conservation Service publishes a study entitled "Natural Soil Groups of Maryland". This study analyzes the suitability of soils for certain land uses. The following pages describe each of the natural soil groups found in St. Mary's County and indicate their approximate location and analyze their suitability for urban uses. These interpretations are general and do not preclude the need for detailed soils analysis.

Soil Descriptions -

A. Coastal Beach Soils (Natural Soils Group A2)

- (1) General Location - First Election District between Point Lookout and Point Lookout Creek on the Potomac River.

- (2) Description - This group consists of land types that have very little if any true soil development. These are non-coherent, loose sands that have been worked and reworked by waves, tides, and wind and are still subject to such action. Excavations are especially hazardous, and likely to encounter the water table. There is a high potential for corrosion of uncoated steel and concrete, due to saline conditions and fluctuating water tables. Septic tank absorption fields function very well above the water table, but are likely to cause pollution of ground water or nearby open water, Deep "dry wells" are almost certain to encounter the water table.

B. Keyport Fine Sandy Loam and Keyport Silt (Natural Soils Group E2a)

- (1) General Location - Generally located throughout the central part of the county within the boundaries formed by Routes 235, 234, 5, Ridge, and the Charles County line.
- (2) Description - Moderately well drained, but high susceptibility to erosion on slopes. The perched water table and dense subsoils severely limit these soils for septic tank absorption fields. The subsoils are too dense to absorb the effluent and if the tile field is placed above the dense layers, the effluent builds up and seeps to the surface, either over the tile field or down the slope. Percolation tests are to be conducted during the period February 1 to April 30 to more accurately evaluate the soils for use of septic tanks. These areas have potential for deep "dry wells" if there is no apparent hazard of contaminating underground water. Geological maps should be consulted for feasibility determinations.

C. Elkton Loam and Elkton Silt Loam Soils (Natural Soils Group - F3)

- (1) General Location - Located adjacent to the major bodies of water throughout the county.
- (2) Description - This group consists of poorly, somewhat poorly, and very poorly drained gently sloping to depressional soils. These soils have a number of undesirable characteristics and features that make them difficult to manage for most uses. Many of them are clayey, sticky, and plastic when wet and hard and intractable when dry. Poor natural drainage and soil material of generally poor engineering properties impose severe limitations on these soils for practically all aspects of urbanization. Foundations should be carefully designed and engineered to withstand the shrink-swell phenomena.

D. Meadow Soils (Natural Soils Group F3)

- (1) General Location - Located along flood plains, inland creeks, streams, and other tributaries throughout the county.
- (2) Description - These soils are made up of sediments washed from silty to sandy uplands. They are highly compressive, unstable and subject to subsidence if drained. All soils in this group are subject to stream flooding or ponding and seasonally high water tables that are not at, or near, the surface in winter and

spring. These soils are moderately or severely limited for farming, and limited for most all nonfarm uses. Severe wetness and flooding make these soils unsuitable for urbanization. Along the waterfront, these soils may cause a nonpoint source of pollution.

E. Tidal Marsh (Natural Soils Group G3)

- (1) General Location - Major locations are the area of Point Lookout Creek and Lake Conoy; headwaters of Breton Bay, St. Clements Bay, and Chaptico Bay.
- (2) Description - Tidal marshes and swamps are prevalent on these soils. These soils are not suitable for urbanization because of extreme wetness from a high water table and almost constant flooding.

F. Sassafras Soils (Natural Soils Group Bla)

- (1) General Location - Scattered throughout the county with concentrations along Route 235; Patuxent Naval Air Station; New Market; and Golden Beach.
- (2) Description - This is the largest extensively, most adaptable group of soils in the county. These are deep, well drained and permeable. Generally, they have a silty or loamy surface soil and sufficient clay in the subsoil to have either a high or moderately available moisture capacity. These soils are highly desirable for either farm or non-farm uses because they are well drained, easily tilled, and water moves through them at moderate, or moderately rapid rates. They also provide the best (most problem free) sites for urban development. With very few exceptions, these soils have no more than slight or moderate limitations for shallow, subsurface septic tank absorption fields. Most of the soils generally will pass percolation tests, and have good potential for properly installed, shallow, subsurface septic tank absorption fields, without a serious risk of contaminating nearby surface groundwater sources.

G. Sassafras Silt Loam and Fine Silt Loam Rolling Phase(Natural Soils Group Blb)

- (1) General Location - Generally concentrated in the central and south central portion of the county.
- (2) Description - Same as Bla with additional characteristics as follows: Slopes of 8 - 15 percent moderately limit the soils of this group for most phases of urban development. Installation of roads and sewers are commonly more problematic and expensive. Although more expensive to develop, these soils may be a better choice for residential development since in many places they have greater aesthetic value than the nearly level areas, since the lower areas are the subject of increased pressure for preservation as prime farm land (Bla).

H. Sassafras Gravelly Sand (Natural Soils Group Blc)

- (1) General Location - Concentrations are found in the Mechanicsville area and along Route 6 and Golden Beach Road in the northern portion of the county.

- (2) Description - Same as Bla with additional characteristics as follows: Slopes greater than fifteen percent along which these soils occur are generally too steep for most phases of urban development. However, some wooded areas with other aesthetic attraction are in demand as sites for rather expensive residences. Others, especially wooded areas, are being utilized as essential components of Planned Unit Development. Others have value as park and picnic areas because of good surface and internal drainage, but they are too steep for intensive uses.

I. Sassafras Gravelly Loam (Natural Soils Group B2c)

- (1) General Location - Concentrated in north central portion of the county between Routes 5, 234, 235, and the Charles County line.
- (2) Description - This group is rather unique in that the soils are well drained in spite of rather slowly permeable layers below a depth of two to three feet. Internal drainage is thorough and the water table is quite deep. Some of the soils in this group have a rather high content of gravel or rock fragments in the surface layers. Slopes of greater than 15 percent severely limit these soils for urbanization. Extensive and intensive cutting and filling would be required for intense development. However, special design and engineering techniques are enabling some areas to be developed for individual homesites.

J. Norfolk Sand Soils (Natural Soils Group Ala)

- (1) General Location - Small concentrations scattered through the county.
- (2) Description - Deep, very sandy, and somewhat excessively drained soils. They are extremely susceptible to erosion by wind when dry and without vegetative cover. These soils have good potential for urban development. They provide nearly level, dry sites for foundations of buildings and, in most places, for basements. These soils are a natural source of sand and some gravel for construction of buildings and roads. Because these soils have a rapid percolation rate, septic tank absorption fields function well in them; but for the same reason, there is a potential for ground water contamination resulting from effluent not being adequately filtered by the sandy substrata. This problem is even more hazardous with "dry wells" for sewage disposal.

2.4.4 Ground Cover: Approximately 54% of the county is covered by forests. Oak, scrub loblolly pine, locust, ash, elm, sweet gum, dogwood, hickory, birch, maple, persimmon, poplar, and other tree types seem to be well suited to the soils and climate of St. Mary's County. The forest cover is scattered evenly throughout the county. Approximately 30% of the county land surface is in active agricultural or open space use (the latter including wetlands).

2.4.5 Areas Suitable for Land Treatment of Sewage Effluent: There are over sixty areas in St. Mary's County which show varying degrees of potential as sites for land treatment facilities. The establishment of such facilities could benefit the county, both environmentally and economically. Environmentally speaking, the use of several hundred acres of land to

augment or even replace discharges into local rivers and streams is desirable. In addition to lowering the impact of waste disposal on the water, land treatment facilities could be used to assist such communities as Golden Beach, Wicomico Shores and Society Hill with the problem of failing septic systems.

From an economic outlook, the advantages are equally clear. At present, large areas of shellfish beds are closed to harvesting primarily because of coliform pollution from non-point sources. A properly designed and maintained spray irrigation site would virtually eliminate discharge into these beds. Also, the cost of constructing and maintaining a land disposal unit could be offset through the cultivation of marketable feed crops.

This method of sewage disposal has been successfully employed in many areas of the country and state and the potential of such a facility in other parts of this county is great. Further study will be made into the possible uses of a spray irrigation facility for land treatment of sewage in St. Mary's County.

2.4.6 Water Quality: All receiving waters of the county are officially designated by the state as Class I Waters. In addition, all estuarine portions of the Potomac and Patuxent Rivers, together with their tributaries and the abutting portion of the Chesapeake Bay, carry the more stringent designation of Class II Waters in order to protect shellfish harvesting.

2.4.7 Groundwater Resources: The primary aquifers of St. Mary's County are the permeable water bearing parts of the Piney Point-Nanjemoy formations, the Aquia formation and the Patapsco formation. The Piney Point-Nanjemoy formations are referred to jointly as Piney Point since they act as a single hydraulic unit. Maps of these aquifers may be found in a 1997 study performed by Grufon Achmad and Harry Hansen entitled "Hydrogeology, Model Simulation, and Water-Supply Potential of the Aquia and Piney Point- Nanjemoy Aquifers in Calvert and St. Mary's Counties, Maryland." The Metropolitan Commission has enacted a policy that mandates that all new municipal wells will utilize the Patapsco aquifer. All domestic wells will continue to utilize the Aquia and Piney-Point aquifers. There are some concerns about the quantity of the water supplied by these aquifers.

2.5 POPULATION PROJECTIONS: The population of St. Mary's County increased by approximately 13% between 1990 and 2000, from 75,974 to 86,211 persons. The largest population concentration has been and will continue to be in the Lexington Park area (Eighth Election District). The growth rate within the county is high within the northern Election districts, as population growth from the Washington, D.C. metropolitan area spreads into St. Mary's County. The Eighth Election District is expected to continue to grow because of projected increases in the test and evaluation activities at the Patuxent River Naval Air Station, and because the availability of public facilities such as water and sewerage and the higher density zoning in the area make the cost of a new home less expensive for the prospective buyer. Table 2-1 illustrates the population projections for the twenty -year planning period.

2.6 LAND USE:

2.6.1 The built environment: The more important land use concentrations are residential, commercial (, industrial, , public and quasi-public. In 1997 there were 36,989 developed acres

in the county. A table at the end of this chapter prepared by the Maryland Department of Planning summarizes land use patterns and trends.

2.6.2 Forests: Forest land as defined in the State Land Use Inventory and as shown in this survey is land that is "...at least 10% stocked by trees capable of producing timber and other wood products that exert an influence on the climate or water regimes". In addition, "Lands from which trees have been removed to less than 10% stocking but which have not been developed for other use are also included. For example, lands on which there is forest rotation, involving clear-cutting and block planting, are part of Forest Land".

2.6.3 Agriculture: Agricultural land uses are defined as land areas primarily used for production of farm commodities. In Southern Maryland, agriculture refers to crop and livestock production.

- 2.7 EDUCATIONAL FACILITIES:** Existing and proposed educational complexes are important considerations in water and sewerage planning since they contain both concentrations of students and school employees. The St. Mary's County public school system in 2002-2003 consisted of 16 standard elementary, 4 middle schools, 3 high schools, 2 special education schools, and a vocational-technical center. The total enrollment was 16,112 students, including the special education students. In addition to public schools, there were approximately 3,307 pupils enrolled in private schools for the 2002-2003 school year. Several higher education institutions offer programs within the county. St. Mary's College of Maryland, located at St. Mary's City, is a state-supported coeducational, four-year -liberal arts college with a 2000-01 enrollment of approximately 1,700 students. In addition, the College of Southern Maryland formerly the Community College of St. Mary's offers Associate of Arts degrees to part-time students. There were 1,688 students enrolled at the facility during the fall of 2001. Extension courses are offered by eight universities at the Southern Maryland Higher Education Center in California. Approximately 3,018 students are enrolled in the programs, which culminate in professional certifications, bachelor's, master's, and doctorate degrees.
- 2.8 MAJOR PUBLIC INSTITUTIONS:** Major public institutions represent a significant consideration in public water and sewerage planning. The water and sewerage demands generated by both the employees and the residents or patients of the institutions may require connection to a community water and sewerage system. In cases where connecting to such system is not feasible, an adequate on-site system should be designed. A table at the end of this chapter locates the major public institutions which are currently operated in the county.

ST. MARY'S COUNTY POPULATION AND PROJECTIONS BY ELECTION DISTRICT: 2000 TO 2030
(HOUSEHOLDS AND HOUSEHOLD PROJECTIONS ARE IN ITALICS.)

Election District Population/Household/ Average Household Size	2000	2005	2010	2015	2020	2025	2030	Projected Growth from 2000
1 St. Inigoes <i>Households</i> <i>Avg. Household Size</i>	5,691 <i>1,924</i> <i>2.44</i>	6,405 <i>2,625</i>	6,897 <i>2,827</i>	7,383 <i>3,026</i>	7,855 <i>3,219</i>	8,307 <i>3,405</i>	8,731 <i>3,578</i>	3,040 <i>1,246</i>
Valley Lee & 2 & 9 St. Georges Island <i>Households</i> <i>Avg. Household Size</i>	6,871 <i>2,576</i> <i>2.63</i>	6,841 <i>2,601</i>	7,368 <i>2,802</i>	7,887 <i>2,999</i>	8,391 <i>3,190</i>	8,873 <i>3,374</i>	9,326 <i>3,546</i>	2,455 <i>933</i>
3 Leonardtown <i>Households</i> <i>Avg. Household Size</i>	10,900 <i>3,787</i> <i>2.73</i>	11,501 <i>4,213</i>	12,386 <i>4,537</i>	13,258 <i>4,856</i>	14,106 <i>5,167</i>	14,917 <i>5,464</i>	15,679 <i>5,743</i>	4,779 <i>1,751</i>
4 Chaptico <i>Households</i> <i>Avg. Household Size</i>	9,583 <i>3,119</i> <i>3.07</i>	9,660 <i>3,147</i>	10,403 <i>3,389</i>	11,136 <i>3,627</i>	11,848 <i>3,859</i>	12,529 <i>4,081</i>	13,169 <i>4,290</i>	3,586 <i>1,168</i>
5 Mechanicsville <i>Households</i> <i>Avg. Household Size</i>	9,966 <i>3,198</i> <i>3.02</i>	11,246 <i>3,724</i>	12,111 <i>4,010</i>	12,964 <i>4,293</i>	13,793 <i>4,567</i>	14,586 <i>4,830</i>	15,331 <i>5,076</i>	5,365 <i>1,776</i>
6 Hollywood <i>Households</i> <i>Avg. Household Size</i>	13,114 <i>4,878</i> <i>2.69</i>	13,537 <i>5,032</i>	14,578 <i>5,419</i>	15,605 <i>5,801</i>	16,603 <i>6,172</i>	17,558 <i>6,527</i>	18,454 <i>6,860</i>	5,340 <i>1,985</i>
7 Milestown <i>Households</i> <i>Avg. Household Size</i>	3,083 <i>1,226</i> <i>2.51</i>	3,629 <i>1,446</i>	3,908 <i>1,557</i>	4,183 <i>1,667</i>	4,451 <i>1,773</i>	4,707 <i>1,875</i>	4,947 <i>1,971</i>	1,864 <i>743</i>
8 Lexington Park <i>Households</i> <i>Avg. Household Size</i>	27,003 <i>9,934</i> <i>2.66</i>	30,781 <i>11,572</i>	33,148 <i>12,462</i>	35,483 <i>13,339</i>	37,752 <i>14,192</i>	39,923 <i>15,009</i>	41,962 <i>15,775</i>	14,959 <i>5,624</i>
Total St. Mary's County	86,211	93,600	100,800	107,900	114,800	121,400	127,600	56,614
Total Households	30,642	34,359	37,002	39,608	42,141	44,564	46,840	15,226
Note: St. Mary's County Average household size = 2.72.								

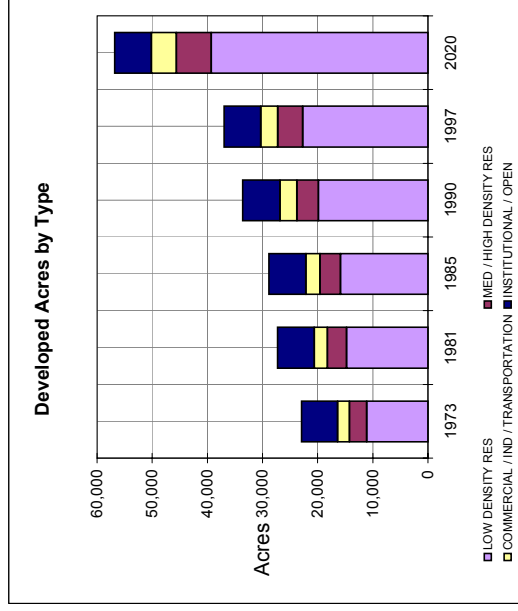
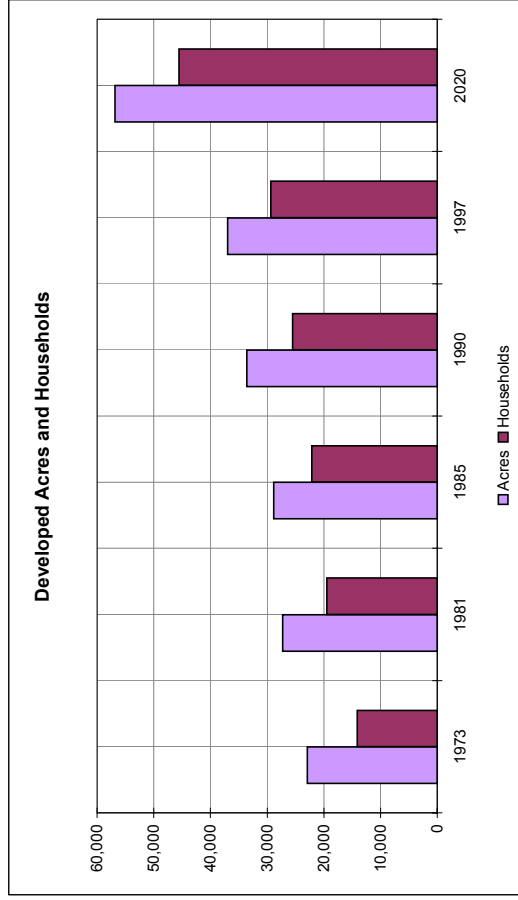
Table 2-3: Major Public Institution
(Group Quarters)

E.D.	2001 Population	E.D. Total
St. Inigoes		
St. Mary's College	1259	1259
Valley Lee (2)		
Lundeberg School	280	280
Leonardtown (3)		
Cedar Lane	160	
St. Mary's Nursing Home	206	
County Jail	172	538
Mechanicsville (5)		
Veteran's Home	378	378
Bay (8)		
NAS Barracks	1080	
Bayside Nursing Home	125	
ARC Group Homes	41	1246
TOTAL:		3701

1. Metropolitan Commission allocated 110 EDU's to the Lundeberg School
2. Charlotte Hall Veteran's Home is connected to the emergency service only there have been no allocations

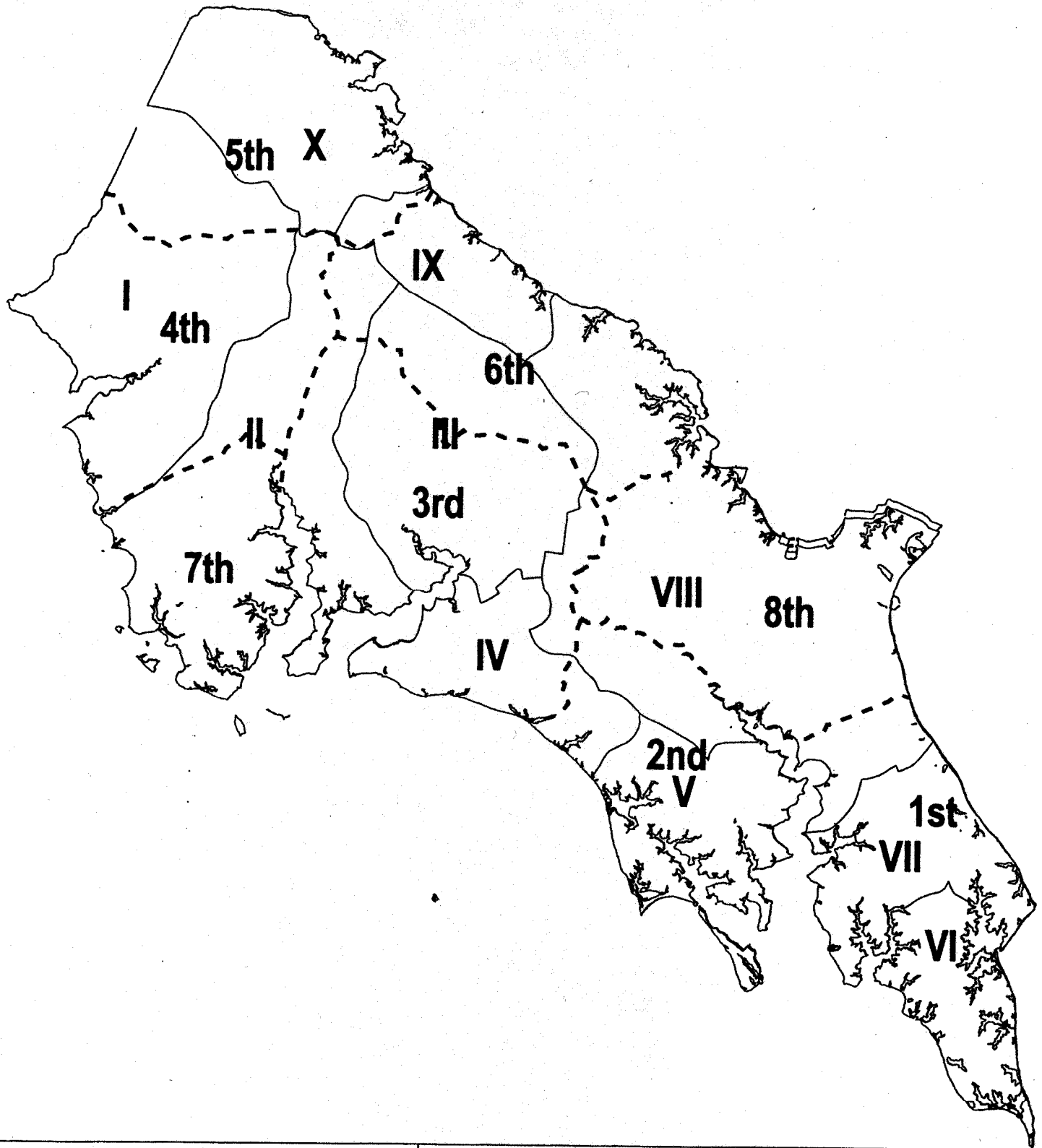
Land Use Change					
1973-1997		1990 - 1997		Projected 1997-2020	
AGRICULTURE	PERCENT	AGRICULTURE	PERCENT	AGRICULTURE	PERCENT
11,240	101.4%	2,464	12.4%	16,979	76.1%
1,389	44.7%	601	15.4%	1,796	39.9%
884	40.3%	-3	-0.1%	1,439	46.8%
171	2.6%	-52	-0.8%	-1	0.0%
13,684	59.7%	3,009	9.0%	20,214	55.2%
-3,213	-4.7%	-893	-1.4%	-5,196	-8.0%
-10,296	-7.6%	-2,370	-1.9%	-15,018	-11.9%
130	30.9%	0	0.1%	0	0.0%
164	6.9%	-96	-3.6%	0	0.0%
-13,215	-6.4%	-3,358	-1.7%	-20,214	-10.4%
469	0.2%	-675	-0.3%	0	0.0%
-1,144	-0.4%	0	0.0%	1	0.0%

Developed Acres in St. Mary's County

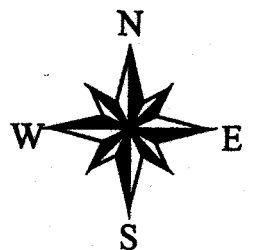
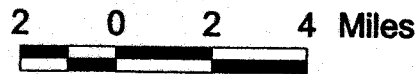


^a 2020 Agriculture and forest include acres of very low density development (5 to 20 acre lots)

RELATIONSHIP OF ELECTION DISTRICTS AND SANITARY DISTRICTS



VI Sanitary District Number
6th Election District Number
--- Election Districts
□ Sanitary Districts



3. WATER

This chapter will deal with water supply and distribution throughout the county. Discussion of those elements which relate to the county as a whole will be followed by detailed descriptions of each water service area with related recommendations. This discussion will help ensure the safety and adequacy of water service for current and future populations of the county, including Leonardtown..

3.1 WATER RESOURCES: St. Mary's County is fortunate to have aquifers that are readily available for consumption. However, the county should also look for other sources of potable water to supplement water supplies provided by the aquifers.

3.1.1 Aquifers: Historically the county has withdrawn a majority of its groundwater from the Aquia and Piney Point-Nanjemoy aquifers. Recently the Metropolitan Commission has begun utilizing the Upper Patapsco aquifer for public wells.

3.1.2 Surface Water: The major surface water resources surrounding St. Mary's County are brackish and could only be used for municipal supplies at great expense. There is a potential to use water from the larger freshwater streams such as St. Mary's River or McIntosh Run if sufficient water can be stored in reservoirs. At least one potential water supply reservoir site is in public ownership, St. Mary's Lake, but has not been put into service because ground water supplies are abundant, more uniform and more easily treated.

3.1.3 Potential Reservoir Sites: In view of falling potentiometric levels and failing wells, this water and sewerage plan identifies four potential reservoir sites.

<u>Site Location</u>	<u>Potential Service Area</u>	<u>Principal Storage Volume Million Gallons</u>
1. On McIntosh Run	Leonardtown	96-5787
2. On St. Mary's River	Lexington Park, California	-
3. On Killpeck Creek	Charlotte Hall, Mechanicsville	166-3033
4. On Persimmon Creek	Lexington Park Great Mills	213-7101

Pollution potential of surface water supplies is much greater than for ground waters, the degree depending on land uses permitted in catchment areas. The majority of the McIntosh watershed is made up of agricultural areas and could be subject to contamination by insecticides, fertilizers, and animal waste, unless otherwise controlled. The Killpeck and Persimmon reservoirs are within water front protection zones which, while providing more stringent control of land use, does not preclude contamination from the sources mentioned above. Upper reaches of the St. Mary's River are in a development district, but the proposed reservoir is immediately surrounded primarily by open space / recreation area but there are signs of encroaching development, especially along the southwestern boundary. Contaminants of agricultural origin should not be a problem in this reservoir, and proper management of the recreation area will prevent damage from human sources.

In order to retain the possibility of utilizing these reservoirs for ultimate water supply, the land areas covered not only by water impoundments but the much larger catchment areas

will require protection from development. Future sewerage and water planning should be consistent with this objective and should help to effectively preserve the county's approved water catchment and dam site strategy.

Surface water withdrawals in the county are limited to a few commercial and agricultural operations. The use of this resource should be encouraged, where practical, to reduce the demand on groundwater for non-potable uses.

It is the recommendation of this plan that St. Mary's County should partner with the Army Corp of Engineers to perform a water impoundment viability study. This study should be completed within 24 months of adoption of this plan. A matching fund program for such water supply planning activities is available through the Planning Assistance Program of the U.S. Army Corps of Engineers.

3.1.4 Desalinization: In light of falling potentiometric levels and the possible salt water intrusion into existing wells, this plan recommends that the county explore the possibility of desalinization. St. Mary's County is surrounded by brackish water that could be utilized as an auxiliary source of potable water with desalinization. Brackish water from wells where intrusion of salt water has occurred may be treated by desalinization. With the advent of membrane treatment systems desalinization has become more economically viable and efficient. There are a variety of different methods of removing salts from brackish water.

- A. *Membrane Processes:* Include electro dialysis and reverse osmosis. The reverse osmosis process is the mostly widely use desalinization process in the United States.
- B. *Thermal Process:* Includes multi-stage flash distillation, multi-effect distillation, and vapor compression.

3.2 WATER USAGE: The use of water resources in Maryland is controlled by the Maryland Department of the Environment (MDE) through the issuance of water appropriation permits. This system has been developed to oversee the right of individual landowners to make reasonable use of the water associated with their property without causing an unreasonable impact on other water users or the resource. This right of law extends beyond jurisdictional boundaries which is why the broad regulatory authority has remained the responsibility of the state.

The state has established regulations that limit the use of a confined aquifer in any region to 80 percent of the difference between the historic, pre-pumping water level and the top of the aquifer. The regulations allow MDE deny a proposed appropriation that would unreasonably harm the aquifer or other users of the aquifer. MDE may advise the applicant to file a new application for an appropriation from another aquifer. In making this determination, MDE must consider a number of factors including the aggregate changes and cumulative impact to water resources in the area and the practicality of avoiding harm by adjusting the use of the applicant or another permittee. If an applicant intends to appropriate ground water in unprecedented quantities for a unique purpose and the appropriation would cause harm to other users, when no other options are available, MDE may require an applicant to pay for the cost of improving neighboring facilities or mitigate the impact on nearby users.

The water appropriation permit system includes a regular review and renewal cycle and the requirement for large water users to report withdrawals semi-annually. This information, together with other data, was used to develop the following picture of water use in the county:

3.2.1 GROUND WATER USE: In the southern half of the county, the Aquia and Patapsco aquifers supply water to large municipal, industrial and institutional systems. The Metropolitan Commission has enacted a policy that requires new public wells to utilize the Patapsco Aquifer. The shallower Piney Point Nanjemoy aquifer supplies water to smaller commercial and individual domestic users. The Piney Point aquifer is not available for uses in an area north of Morganza. Since the Piney Point aquifer is unavailable, the Aquia aquifer is used extensively by all categories of water appropriators. The increase in county population is leading to a greater demand for water appropriations from the Aquia. A decline in the potentiometric surface has created a local concern for the future reliability of the Aquia aquifer. There have been a number of well failures throughout the county that are believed to be a result of recent drought conditions, falling potentiometric levels and the use of telescopic well casings. Report of Investigations No.64, prepared by the Maryland Geological Survey (MGS) in 2001, indicates that computer simulations of projected drawdowns of the Aquia aquifer, particularly in the Country Lakes area could approach the 80% management limit by the Year 2020. An update, Supplemental Report No. S1/RI 64, released during 2001, extends the approach year to 2025 while assuming that new wells, into the Patapsco group, replace some draws on the Aquia aquifer. A study of the Patapsco group was launched in 2002.

Even though the Aquia aquifer supply should be adequate for the next two decades or so, it is essential to examine the potential for deeper aquifers, particularly in the northern half of St. Mary's County in order to identify future alternative supplies and to begin using these supplies prior to 2025 to slow demand on the aquifer and, thereby, reduce the impact on the water levels in existing wells. These include the deep aquifers of the Patapsco Formation. Before these aquifers can be considered reliable future water supplies, further investigation must be conducted to determine the potential supplies and water quality characteristics. In 2002 MGS began drilling seven test wells to explore the potential of the Patapsco aquifer.

New and replacement community water system wells should begin making use of the deeper Patapsco aquifer where it is known to exist in the Lexington Park area. This should take place in other areas of the county as soon as the extent of the Patapsco aquifer can be verified. This is particularly important in the northern half of the county where there is a need to separate larger community wells from individual domestic wells. It is the policy of this Plan that all private domestic wells utilize the shallowest water bearing confined aquifer. All community system wells and all appropriations in excess of 5000 gpd must use a deeper confined aquifer in areas where such aquifers exist.

3.3 WELL CONSTRUCTION: The productivity of a well depends on a number of factors. Two of the most important are the properties of the aquifer and the care a well driller takes in constructing and developing the well. The basic construction of the well dictates the quantity of water that may be produced by the well and the type of pump that may be used. The type of pump limits the depth from which water may be withdrawn.

Well construction regulations changed in 1973. Prior to that date, 2 inch casings with jet pumps were permitted for domestic and commercial wells. Since 1973, a minimum four-inch well casing has been required, as has use of submersible pumps. State regulations require the four inch casing only to a depth of 20 feet below the existing static water level. Two-inch casings can be extended below that point into the aquifer. There is no standard requiring the pump to be installed at a greater depth below the static water level. In many cases, the increasing demand for ground water has resulted in a decline in the static water level far greater than the 20-foot buffer. This has caused many wells to be replaced, because the 4" casing is not deep enough to allow the submersible pump to be dropped down to the current static levels. As a result, many people have faced an financial burden to replace their wells. Since 1993, the required minimum depth for 4" casings is 200' below the static water level but not below the top of the aquifer. Pumps may be 50' below the static water level, but not below the top of the aquifer. It is the recommendation of this plan that the St. Mary's County Health Department condition well permits regarding new, confined aquifer-source wells to require that 4 inch pump diameter casings be installed to a depth of at least the 80% management level established by MGS/MDE, but not below the top of the confining unit/clay layer for the aquifer involved, with original pump location at least 50' below the static water level, but not below the top of the aquifer. By conditioning well permits in this manner, future well failures may be averted.

3.4 WATER CONSERVATION: This Plan fully supports water conservation measures as a means to save water, energy, and the expense of additional water handling facilities. Water conservation is already required in some aspects of the existing Plumbing Code. Conservation causes a number of beneficial side effects. Obviously our water resources are saved. Sewer flows into treatment plants are lessened, thereby increasing capacity without any capital outlay. Lower water usage usually translates into a lower water bill.

The use of water meters and associated pricing plans is an effective water conservation measure. It is the intent of the Metropolitan Commission to meter all water services by the end of Y2004. This Plan supports and encourages the Commission's efforts.

3.4.1 TREATED WASTEWATER RE-USE/SUSTAINABLE

DEVELOPMENT: It is estimated that 5% of potable water is used for human consumption. It is, therefore, theoretically possible to reduce water consumption by as much as 95% by re-using highly treated wastewater. As of 2002, the St. Mary's County Metropolitan Commission had constructed a water reclamation project for the irrigation of the Breton Bay Golf Course, and has obtained MDE approval to irrigate the Wicomico Shores Municipal Golf Course in a similar manner. This Plan encourages and supports the Commission's efforts to pursue the technologies as an alternative to using confined aquifer supplies.

The Metropolitan Commission has also explored the re-use of treated wastewater effluent from the Marlay Taylor WWTP, the Patuxent River Naval Air Station and from the greater Lexington Park area. From the standpoint of sustaining continued development. This Plan encourages the Metropolitan Commission to actively pursue the use of treated wastewater effluent, rain water, and gray water as viable alternatives to potable water consumption as well as a method of reducing wastewater effluent nutrient discharges into the Chesapeake Bay.

The Commissioners of Leonardtown are also pursuing utilization of treated effluent from the Leonardtown WWTP for irrigation of the proposed McIntosh Run Golf Course within

the town limits. Recently the state has promulgated new water reuse regulations, (Bill 726 of 2002) This revision makes it feasible to spray effluent from the wastewater treatment plant on the golf course for irrigation purposes. The effluent would otherwise be discharged into Breton Bay. The project would also eliminate the need for digging a new well on the property to supply ground water for irrigation.

- 3.5 MONITORING:** The MGS ground water monitoring network and the MDE water appropriation permitting system provide water level and pumpage data on the Piney Point/Nanjemoy, Aquia Aquifer. This information should be routinely provided to the Metropolitan Commission and the St. Mary's County Health Department. Cooperation between MGS, MDE and the County will create a better-defined picture of the status of water resources. The MGS predicts that the static water level declines in the Aquia Aquifer may reach management level as early as 2025.

By appropriate study, monitoring and resultant planning, potential problems can be averted. St. Mary's County along with other agencies in the region have financed a project to identify additional ground water supplies within the Patapsco Aquifer located in Southern Maryland. The Plan supports this study. Upon completion, the data from these test wells and subsequent production wells should be added to the State monitoring program.

- 3.6 PLANNING FOR GROWTH AND DEVELOPMENT:** St. Mary's County has the responsibility to adequately prepare for growth. Management of growth is directed by the open, comprehensive public planning process which has resulted in the 2002 Comprehensive (Land Use) Plan. The Comprehensive Water and Sewerage Plan is a tool designed to ensure that adequate water supply systems are developed that utilize all available water resources in support of that planning process.

This Plan recommends the usage of community water systems as the primary method of achieving that objective. Central water systems, therefore, should be the primary source of future water supply. Cluster development, in particular, lends itself to community systems. Further, this Plan supports the current policy that all community water system customers be metered. Private well construction should be discouraged except for individual lots and minor subdivisions in the Rural Preservation District (RPD). To discourage development in the RPD as recommended, the Comprehensive Plan and the State "Smart Growth Policy", Forest Conservation Program, Critical Areas Program, etc., growth in rural areas should be contained in Village Centers and Town Centers served by community water systems.

- 3.7 WATER SUPPLY SYSTEM:** The water supply system for St. Mary's County consists of the following:

3.7.1 WELL COMPLEXES: The system is based on a concept of well complexes, in which every public well site would consist of approximately one-half acre of land. The first installation usually would be a well and pump with a capacity of approximately 100 gallons per minute, draining upon the best local aquifer and operating through a hydro-pneumatic tank. The next would be a ground storage tank providing 350 gallons of storage per equivalent dwelling unit, with a high-pressure pumping station to deliver water to the distribution system, plus the required fire flow storage as required by the National Fire

Protection Association (NFPA). As additional water would be required, a second well would be drilled, perhaps to a different aquifer. Well complexes should be spaced approximately 2 to 3 miles apart where possible, preferably not closer than 1-1/2 miles. Complexes eventually may have wells in both the Patapsco and Aquia Formations. In the southern portion of the County the Piney Point/Nanjemoy Aquifer should be reserved for private domestic wells. It is appropriate to prohibit new commercial or municipal wells from utilizing the Piney Point/Nanjemoy Aquifer. In the future, attendant costs no doubt will increase beyond the present level. Concentrating the facilities into well complexes will make possible automation, telemetering and central control, standardization, and the consequential reduction in costs.

3.7.2 DISTRIBUTION SYSTEM: The distribution system design is based upon analyses of typical areas (Piney Point, Mechanicsville, Pine Hill Run Sanitary District, and others elsewhere). The basis is an initial network of mains (12" or larger) connecting elevated tanks with an input of well water near the midpoints. Such a network will provide an ample domestic supply, approved fire protection, and a supply for light industry and commerce, provided subsidiary mains create a grid of alternate 6" and 8" mains. Larger mains should be installed along presently non-existent roads, as the advent of industry or high-density development changes the present picture. Such a system is quite flexible. As much or as little of it may be built as circumstances dictate. If the pressure zones and tank locations shown on county-wide map and the well location principles are followed, the increasements will fit together eventually as a workable whole.

3.7.3 STORAGE CAPACITY: Storage capacity must be sufficient to provide a volume equivalent to one day's average daily flow plus a minimum fire flow volume based on current ISO or NFPA standards.

3.7.4 PRESSURE ZONES: Pressure zones have been established throughout the county based on topographic features. These zones relate elevation and therefore extend across service area limits as topography dictates. They have been selected to provide sufficient but not excessive pressure to their respective areas. These zones will take on greater importance as community systems expand and are interconnected across zone boundaries.

3.7.5 WELL-HEAD PROTECTION AREAS: Areas surrounding public well complexes should be protected from contamination from objectionable uses. The Environmental Protection Agency has programs that may financially assist the County in the establishment of such a program.

3.8 WATER SERVICE AREAS: Water is distributed by pressure, therefore it is not as restricted to natural drainage as are sewers, but for ease of administration, the water service areas coincide with the sanitary districts. Community water systems in each district are discussed below. New service areas may be amended into the plan for developments which comply with the land use plan and the goals and policies stated in chapter 1 of this water and sewerage plan. Table 3-5 at the end of this chapter describes planned developments and identifies the community water systems (either new or existing) which will serve them.

3.8.1 LUCKLAND RUN SANITARY DISTRICT NO. 1: This district, at the northwestern extremity of the county, contains 32,768 acres. All four water pressure zones are

represented in this service area, beginning with zone one (1) along the shores of the Wicomico and rising to zone four (4) along Highway 235 as shown on the water maps.

- A. *Wicomico Shores*: Located adjacent to Budd's Creek and bordering on the Wicomico River is the Wicomico Shores subdivision. The Metropolitan Commission owns and operates the water and sewerage systems for Wicomico Shores. In 1988, the Board of County Commissioners passed the Wicomico Shores Special Taxing District Ordinance (Ordinance No. 88-35) to allow for the provision of community water and sewerage service for 700 dwelling units or equivalent dwelling units. The ordinance stipulates "two-hundred forty-four (244) lots to be subdivided from parcels 9 and 22, tax map 16, and other lands of Wicomico, Inc. ..." in addition to four hundred twenty (420) existing parcels and sixty (60) additional equivalent dwelling units attributable to the golf course. Community water is provided by an elevated storage tank designed to provide 0.3 mgd, and is distributed through a system of 8-inch diameter water mains. There are currently four hundred twenty (420) EDU's served by this system.
- B. *Birch Manor*: Birch Manor, which is located adjacent to Maryland Route 5 and south of Route 235. Operated by the Metropolitan Commission, the water system for this subdivision consists of two wells, a pumping station (124 gpm) and two (2) storage tanks (25,000 gallons combined storage capacity) which serve 100 dwelling units. This subdivision is built out, and no expansions are planned. There are currently 100 EDU's served on this system.
- C. *Country Lakes*: The Country Lakes subdivision, which will ultimately encompass 823 lots, is located on the west side of the Mechanicsville Road, approximately midway between those two points. Water service is provided by three wells (577 gpm), a hydro-pneumatic tank, a 100,000 and 150,000 elevated storage tanks. The Metropolitan Commission serves Hayden's Run subdivision (65 units), Lacy's Run Estates (48 units), Meadow Woods (53 units), Shannon Run (75 units) and Bruce Knolls (30 units). As of 2003, one thousand seventy four accounts were served.
- D. *Remainder of the district* – No other community water service is planned for the remainder of the district.

3.8.2 DUKEHEART'S CREEK SANITARY DISTRICT NO. 2: This area, covering 36,934 acres, runs from its narrowest portion at Highway Route 235 southerly to the Potomac River, flanking both sides of St. Clement's Bay. Three pressure zones are represented in the area: pressure zone three (3) in the upper reaches of the area near Highway 235; pressure zone two (2) in the middle portion of the area; and pressure zone one (1) along the shoreline of the Potomac and St. Clement's Bay. The district is located primarily within a rural preservation district as identified by the land use plan, and no major developments are anticipated.

- A. *St. Clement's Shores*: St. Clement's Shores is a neighborhood conservation district with a community water system which is operated by the Metropolitan Commission. Water is provided by one well (115gpm) which is chlorinated and

stored in a 44,000-gallon ground storage tank. While the system supplies adequate flow for domestic use, it does not have mains of sufficient size to guarantee adequate fire protection. The largest main is 4" and there are no hydrants on the system. However, the ground storage tank has a connection for filling fire apparatus. This water system will ultimately serve 240 units. 219 dwelling units are currently being served.

- B. *Breton Bay PUD*: The Breton Bay water system consists of two wells (300 gpm) and a 250,000-gallon storage tank, and is operated by the Metropolitan Commission. Water is chlorinated. The system serves the Breton Bay PUD (118 units), Society Hill (285 units), and Paw Paw Hollow (41 units). As of 2003, the system served 359 EDU's. Paw Paw Hollow and a portion of Society Hill are situated within the Leonardtown Sanitary District.
- C. *Mt. Pleasant*: This subdivision is located at the intersection of Maryland Rt. 470 and 242, south of Dynard. Its water system is owned and operated by Thomas Downs. Two 4 – inch diameter wells provide 8,000 gpd to serve 33 dwelling units located within sections 1 through 4, and lot 6 of section 5. Water is chlorinated. No expansion is planned.
- D. *Remainder of district*: No other community water service is planned for the remainder of the district.

3.8.3 LEONARDTOWN SANITARY DISTRICT NO. 3: This service area is central to the county, covering 28,544 acres, most of which lies north of Leonardtown. It extends from the headwaters of Breton Bay on the south, to State Rt. 235 on the north. The area is mostly within pressure zone two (2), with pressure zone one (1) represented on the west edge of Leonardtown, and pressure zone three (3) in the northeastern portion of the area.

- A. *Leonardtown*: The town of Leonardtown owns and operates a municipal water system consisting of three wells, three elevated storage tanks and a system of distribution lines ranging from 2 inches to 12 inches. Leonardtown has the second largest water system in the county.

A 100,000 gallon elevated water tank is located in the town center area. This tank is approximately seventy-seven years of age and will need to be rehabilitated or eliminated in the next three to five years. A second 300,000 gallon elevated water tank is in the north part of the town on Greenbrier Road. This tank is approximately twenty-nine years of age. The third elevated water tank is west of the town center area. This tank has a capacity of 500,000 gallons bringing the total available capacity to 900,000 gallons. While the third tank will give the town added capacity for future growth for at least five to ten years, the town continues to be active in the planning and acquisition of additional tank and well sites.

The town currently has three wells in operation. The largest is the Courthouse Drive well which was constructed in 1989 and rehabilitated in 1993. This well has a pumping capacity of .669 million gallons per day (mgd). The second largest well is located at 23330 Greenbrier Road adjacent to the existing water tower. It was rehabilitated in 1999 and has a capacity of .432 mgd. The town's

third well is located at 23230 Greenbrier Road. It was constructed in 1966, but was rehabilitated in 1991, including new pumps, controls, and chlorination equipment. The capacity of this well is .252 mgd, which brings the town's total pumping capacity to 1.353mgd. The Leonardtown water treatment procedure is a single step process involving chlorination and pH testing. All wells and treatment processes comply with federal and state regulations.

The largest distribution lines are the 12-inch main on Moakley Street and the 12-inch Point Lookout Road main which runs west to Leonardtown Centre. Most of the distribution lines are ductile iron and remain in good condition. At the end of some distribution lines, galvanized steel was used and may need replacing in the future. Extension of a water main along the Route 5 bypass will occur as the adjoining property is developed.

As of December 31, 2002, the town served 1,493 EDU's with its water system. Notwithstanding the fact that 105 of those EDU's are outside town limits, the town's current policy limits new connections to residents and commercial establishments that are located within the corporate limits.

- B. *Holland Forest Landing*: Two wells at 100 gpm and a 100,000-gallon ground storage tank. This system serves 49 units.
- C. *King and Kennedy Estates*: This subdivision is located on Maryland Route 247, south of Maryland Route 235, and is served by a community water system which is operated by the Metropolitan Commission. Water is supplied by two wells (70 gpm), a storage tank (15,000 gallons), and fire hydrants. Water is chlorinated. The system will ultimately serve 70 units. 59 units are currently served as of 2002.
- D. *Mulberry South*: 26 dwelling units will be served by this system which is operated by the Metropolitan Commission and which consists of 2 wells (80 gpm total) a hydro-pneumatic storage tank (5,000 gallons), and chlorination. As of August 2002, 20 units have been built and connected to the system.
- E. *Remainder of the district*: Table 3-5 at the end of this chapter describes planned or proposed developments and the community water systems which will serve them.

3.8.4 FLOOD CREEK SANITARY DISTRICT NO. 4: This service area includes 13,216 acres along the Potomac River and is bounded on the north by Breton Bay. Portions shoreward of State Rt. 244, north of Poplar Hill Creek, are relatively flat. The Blake Creek watershed and the area northeast of State Rt. 244 rise sharply to 100 MSL. The northeasterly portion of the district is in the pressure zone two (2) and the balance is in pressure zone one (1).

- A. *Wilderness Run and Kingston*: 191 dwelling units will ultimately be served by this system which is operated by the Metropolitan Commission and which is comprised of two wells and one storage tank (100,000 gallons). This system will also serve Kingston subdivision (101 units). Water is chlorinated.
- B. *La Grande Estates*: Privately owned system.

3.8.5 PINEY POINT SANITARY DISTRICT NO. 5: This service area covers 13,478 acres in the southern part of the county as a peninsula between the Potomac and St. Mary's

Rivers, including St. George's Island which is connected to the county by a bridge. With the exception of a small pressure zone two (2) area around St. Mary's Church in the northern sector, the entire service area is in pressure zone one (1). The highest concentration of development is currently in the Piney Point – Tall Timbers area, between St. George's Creek and the Potomac River. Steuart Petroleum maintains a bulk oil receiving terminal in this area, and the Harry Lundeberg School of Seamanship is located on St. George's Creek. The land use plan designates Piney Point as a town center.

- A. *Piney Point*: This system is operated by the Metropolitan Commission and consists of one well (110 gpm), a reserve well, and a 30,000-gallon ground storage tank. Water is chlorinated. The system also serves Lundeberg School and will serve the Potomac Sands subdivision, a development which will ultimately include 45 dwelling units. A new elevated water tank and an upgraded well will be added to the Piney Point system and turned over to the Metropolitan Commission. Currently, 218 EDU's are served.
- B. *The Landings at Piney Point*: This subdivision encompasses 95 lots. Currently, 58 dwellings are served. This system is comprised of two (2) wells, and 180,000-gallon storage tank and is operated by the Metropolitan Commission. Water is chlorinated.
- C. *Remainder of the district*: No other community water service is planned for the remainder of the district.

3.8.6 LAKE CONOY SANITARY DISTRICT NO. 6: Southern most in the county, this service area of 8,954 acres is triangular in shape and almost totally surrounded by water. The area has little topographic relief except in its north central region where elevations of up to 90 MSL are reached. Area Number 6 lies wholly within pressure zone one (1). Growth in this service area will be minimal, and no community water systems are planned.

- A. *Point Lookout State Park*: Point Lookout State Park is a Department of Natural Resources (DNR) Facility. The Park is located on the southern tip of St. Mary's County, at the confluence of the Potomac River and the Chesapeake Bay. The park is open year-round, and has 143 improved campsites. Maryland Environmental Services (MES) maintains the water supply and distribution for the entire park. Existing conditions: There are two water systems that serve the needs of the park. The north system consists of one chlorinated well and a 25,000 gallon storage tank. System pressure is supplied by pumps. The south system consists of two chlorinated wells and one 7,000 gallon hydro-pneumatic tank. The Approximately 4 miles of water distribution piping is composed of either PVC or ductile iron pipe.
- B. *Remainder of the district* – No service is planned for the remainder of the district.

3.8.7 CARROL POND SANITARY DISTRICT NO. 7: This area lies to the north of Service Area No. 6 and spans from the Chesapeake Bay to the St. Mary's River, encompassing 18,445 acres in all. High ground – up to 85 MSL – is concentrated between State Routes 5 and 235; shoreward the terrain transforms into large, relatively flat areas. With the exception of a small portion at the northern end, the entire area is within pressure zone one (1).

- A. Webster Field The Webster Field and Coast Guard Station system is operated by the Navy and consists of three wells, (680 gpm) and two storage tanks (425,000 gallon combined capacity). Due to continuous moderate growth at Webster, the Navy is planning for a new fire suppression tank in the next 3-5 years.
- B. Remainder of the district – No other community water service is planned for the remainder of the district.

3.8.8 PINE HILL RUN SANITARY DISTRICT NO. 8: This service area, the largest in the county, includes 51,570 acres, and is the population center of the county. Most of its population is clustered around the Naval Air Station, and within the Lexington Park – Great Mills – California Triangle, and includes the Lexington Park Development District stipulated by the land use plan. To the south, St. Mary’s City and St. Mary’s College constitute a second area of population concentration. This service area lies within pressure zone two (2) with the exception of the shore areas of the Patuxent River and a portion of the area west of St. Mary’s City which is in pressure zone one (1). The Naval Air Station and St. Mary’s College maintain proprietary systems.

There are several private water systems functioning within this district, all of which are listed on Table 3-2. These systems, while supplying acceptable domestic service, fall short of providing desirable fire protection. Many private systems also lack mains sized for adequate fire flow, and some have not provided fire hydrants within their network. This may be a problem warranting further investigation.

- A. *Lexington Park system:* The majority of the population is serviced by a public system under the jurisdiction of the Metropolitan Commission. The system is comprised of 16 wells and three (3) elevated storage tanks (at Great Mills Road, Wildewood and Hickory Hills). A 1,000,000 gal. Ground storage tank has been completed at First Colony PUD. Some emergency support is currently available from two interconnections with the Naval Air Station system. Water is chlorinated. The Lexington Park System currently serves 9,379 EDU’s. Continuity of service and improved fire protection is the first priority in this water service area. In providing these services, it is planned that ultimately the urban development area as designated on the land use plan will be looped by 12-inch mains, and systematically reinforced with elevated and ground storage. This will eventually interconnect Leonardtown and the Hollywood area with Lexington Park and the Industrial Park. Lord Calvert and California Trailer Park wells may be turned over to the Metropolitan Commission and become a part of the Lexington Park system in the next 5 to 15 years.

The following community water systems have been incorporated into the Lexington Park system:

1. Wildewood: The Wildewood PUD consists of 884.8 acres of residentially zoned land (PDR 4.28 units/acre) and 33 acres of commercially zoned land. The June 1991 amendment to the PUD consisted of 347.9 acres (part of the total 884.8 acres) at PDR 4.28. As of June 1992 the majority of the commercial land is developed. One out parcel of approximately two acres remains to be developed. The residential land will support 3792 dwelling units. Approximately 1200 units have been built and are being served by

community water and sewerage, leaving 2592 units for future development. New development within Wildewood will include approximately 100 to 150 units per year, with total buildout reached by the year 2020.

The impacts to the water and sewer infrastructure will be managed by improvements to these systems. The main portion of these improvements will be designed and phased in with development as warranted. Following are the existing and proposed future system components which will comprise the Wildewood PUD system at buildout.

In 1991 Wildewood water system was tied into the Lexington Park System, thereby benefiting both systems by providing backup capacity in low pressure situations.

As of 2002 the system consists of three wells, (two 100 gpm wells and a 200 gpm well) and three storage tanks (a 200,000 gallon elevated storage tank, and two 7,500 gallon hydro-pneumatic tanks).

Future capacity will be provided by on site production wells. The projected capacity of these future wells (in addition to the three mentioned above) needed to accommodate the PUD to buildout is approximately 800 gpm based on maximum daily flow. This production is to come from wells with capacity of 200 gpm. A new well is estimated to go on-line approximately every five to six years until required capacity is reached. Fire flow for the entire project to buildout is provided by the existing 200,000 gallon elevated storage tank located within Wildewood. The distribution system will be sized in accordance with accepted engineering standards to carry the projected flows.

- B. *Southgate*: The Southgate water system consists of one well (25 gpm), one ground storage tank (40,000 gallons) and one hydro-pneumatic tank (10,000 gallons). Water is chlorinated. The Metropolitan Commission operates the system. It is designed to serve 79 EDU's.
- C. *Greenview Knolls*: The Greenview Knolls water system is operated by the Metropolitan Commission. The system is comprised of three wells (total of 293 gpm), two hydro-pneumatic storage tanks (10,000 gallons each), and 50,000 gallon ground storage tank. Water is chlorinated. The system is designed to serve 393 dwelling units (340 are currently served). Greenview Knolls is connected to the Lexington Park water system, thereby benefiting both systems. No other improvements are planned. This system also serves the Greenview Knolls West community.
- D. *Hollywood*: The Hollywood water system consists of two wells 62 gpm & 100 gpm) and one storage tank (6,500 gallons). Water is chlorinated. The system is operated by the Metropolitan Commission. It is designed to serve 20 EDU's, and is currently serving 19 dwelling units and the Hollywood Elementary School.
- E. *Fenwick Manor* : The Fenwick Manor subdivision has a water system that is comprised of two wells (40 and 50 gpm), a 10,000-gallon hydro-pneumatic tank and a 10,000-gallon ground storage tank. Water is chlorinated. The system is

operated by the Metropolitan Commission. It is designed to serve 101 EDU's, and is currently serving 83 EDU's.

- F. *Fox Meadows*: The Fox Meadows subdivision has a water system which is comprised of two wells (84 gpm) and a storage tank (5,000 gallons). Water is chlorinated. The system is operated by the Metropolitan Commission. It is designed to serve 34 EDU's, and is currently serving 32 EDU's.
- G. *Callaway*: Public water in Callaway is provided by two wells (250 GPM), a hydro pneumatic storage tank (15,000 gallons) and a 220,000 gallon ground storage tank located within the Hunting Quarter PUD. The water is chlorinated. The water system is designed to serve 180 EDU's and currently serves 120 as of October 2002. The system is operated by the Metropolitan Commission.
- H. *Cedar Cove*: The Cedar Cove PUD has a water system which is comprised of 2 wells (300 gpm and 200 gpm) and a storage tanks (100,000 gallons and 268,000 gallons). Water is chlorinated. The system is operated by the Metropolitan Commission. It is designed to serve 831 EDU's, and is currently serving 445 EDU's.
- I. *Greenbriar* – The water system consists of two wells (300 gpm) and a 15,000-gallon hydro-pneumatic tank. It is designed to serve 486 EDU's, and currently serves 140 EDU's. Water is chlorinated. The system is operated by the Metropolitan Commission. A test well has been drilled.
- J. *Woods at Myrtle Point*: A 350,000-gallon elevated storage tank has been built to serve this 130-unit planned unit development. Contiguous to this PUD and planned for development in conjunction therewith are another 292.74 acres; buildout for these additional acres is projected to be 490 units. The Woods at Myrtle Point is planned for connection to the Lexington Park system. Ground storage at First Colony was sized to take into account the needs of the Woods at Myrtle Point.
- K. *Trailer parks*:
 - (1) William E. Smith Trailer Park - 12 lots are served by a private water system that consists of a single 4" well (40 gpm) and four hydro-pneumatic tanks (40 gallons each). Water is not treated. No groundwater appropriation permit.
 - (2) Lexington Estates - Located on MD235 south of Lexington Park. 76 lots (14,000-gpd average daily demand) are served two wells (25 gpm) and a 5,000-gallon hydro-pneumatic tank. The water is not treated. The system is operated by Williams Management Company. The hydro-pneumatic tank is due to be replaced because of water pressure problems. GAP: SM69G003.
 - (3) Hills and Pomerantz – 34 lots (31,000 gpd average daily demand) are served by a private water system which consists of one well (80 gpm) and one hydro-pneumatic tank (10,000 gallons). Water is chlorinated The system is currently operated by MetCom. This system will be abandoned in the next 24 months as water is extended from Great Mills High School.

- (4) Garrett Mobile Home Park - 32 lots (trailers, post office, gas station) are served by a private water system which consists of one well and two hydro-pneumatic tanks (500 gallons each) and two bladder tanks (50 gallons each). Water is not treated. System operator is the Cook Management Company. GAP: SM77G012.
 - (5) Langley Trailer Park - 37 lots (average demand 9,000 gpd) are served by a private water system which consists of two wells and 3 bladder tanks (150 gallons each). Water is chlorinated. System operator is Charles Langley.
 - (6) Lord Calvert Trailer Park - 280 lots are served by a private water system that consists of one well (120 gpm), one hydro-pneumatic tank (10,000 gallons), and a storage tank (30,000 gallons). Water is chlorinated. System operator is Waring Associates. GAP: SM73G007.
 - (7) California Trailer Park - 26 lots are served by a private water system which consists of two wells and two hydro-pneumatic tanks (3,000 gallons each). Water is not treated. The system is managed by Burke Management. GAP: SM73G007.
- L. *St. Mary's College*: Daily water production averages 90,000 gallons per day and increases to 145,000 gallons per day with the start of school in September. The water treatment facility serving the college consists of three wells, a 300,000-gallon water tower, and chlorine disinfection equipment. The three wells have a yield capacity ranging from 125-330 gallons per minute. The wells allow a total daily production yield of approximately 605,000 gallons per day based on an 18 hour per day pumping cycle. Currently the well with the highest yield of 330 gallons per minute is undergoing rehabilitation. However, the two remaining wells produce a sufficient amount of water to meet daily demands. Water is distributed by a 12 inch trunk line made of cast iron.

The raw water for all three wells requires only chlorination to comply with the Safe Drinking Water Act limitations. Water is pumped from wells no. 1 and no. 4 directly into the water tower. Water from well no. 3 is chlorinated at the well head, then pumped directly into the system. Well no. 1 was drilled in 1984 and has a flow rate of 100 gpm. This well provides most of the water for the college. Well no. 2 is no longer in service, but is used to monitor the ground water table. Well no. 3 is located in the older section of the college. This well is used as a standby due to its low capacity. Well no. 4 was drilled and placed into service in 1988, and has a capacity of 320 gpm. Total capacity of the wells is slightly over 300,000 gpd, based on a 12-hour maximum pumping time for each well. For planning purposes the actual capacity should be assumed to be half of the maximum capacity, or 150,000 gpd. Current water demand for the college averages 50,000 gpd, with peak days exceeding 100,000 gallons.

Current Improvements: MES has a maintenance project underway to construct a new chlorine building. At present the chlorine cylinders are stored in the base of the tower, which is a safety hazard. The new building will house the chlorination equipment, and have a separate room for the electrical controls. A

capital improvement project is planned for FY93 to upgrade the water system. Under this project a new well will be installed to replace well no. 3. In addition, all of the electrical controls will be relocated to the chlorine building. The estimated cost for this project is approximately \$600,000.

Future needs: Once the above projects are complete, the water system will be capable of supplying the college's potable water needs.

- M. Patuxent River Naval Air Station:* This water system consists of four separate distribution system fed by 16 active wells. There are 6 additional outlying well servicing individual areas. The combined storage capacity is 3.55 million gallons for fire suppression and 210,000 gallons for potable uses. The potable water is chlorinated and fluoridated. The base population averages 17,000 personnel. This includes military, civil service and contractor workforce.

3.8.9 Manor Run Sanitary District No. 9: This area includes 10,016 acres along a 7 mile frontage of the Patuxent River. From the shore of the river, it rises through relatively rugged terrain to Highway 235. Shoreline areas are in pressure zone one (1), and the higher areas are in zones (2) and (3).

There are no community water systems in this area and the population projections indicate a minimal demand for such systems through the year 2002. No service is planned for this district.

3.8.10 Indian Creek Sanitary District No. 10: This water service area is in the northern-most portion of the county, bounded on the east by the Patuxent River and on the west generally by State Routes 5 and 235. The area contains 20,954 acres, most of which is fairly rugged terrain.

- A. Rolling Acres:* The Rolling Acres water system which is operated by the Metropolitan Commission and which consists two wells (85 and 75 gpm), two 15,000 gallon ground storage tanks, a 10,000 hydro-pneumatic storage tank, and a 100,000 elevated storage tank. The elevated storage tank is located at Summit Hill. Water is chlorinated. The average use is 50,000 gpd. It is planned to serve 415 units, and it presently serves 307 units. Rolling Acres, Summit Hill, Indian River Estates and Carroll Manor are connected to this water system.
- B. Laurel Ridge:* The Laurel Ridge subdivision has a water system which is comprised of two wells (112 and 100 gpm), a 15,000 gallon hydro-pneumatic storage tank, and a 100,000 gallon stand pipe. Water is chlorinated. The system is operated by the Metropolitan Commission. It is designed to serve 525 EDUs, and is currently serving 307 EDUs. The remaining units will be built within the next 5 years.

- C. *Charlotte Hall Veterans Home:* The Charlotte Hall Veterans Home is a facility for Maryland veterans located off Maryland Route 5 near the junction with Maryland Route 6. It was opened in January 1985, and is operated by the Maryland Veterans Home Commission. The main building has two wings, one which provides domiciliary and residential care, and the other comprehensive nursing care. The home has facilities for 252 residents. There are approximately 200 staff working on three shifts. The water system is operated by Maryland Environmental Services.

The water system was constructed in 1984 when the home was built. Most of the system is in very good condition. The current rate of water consumption is 32,000 gpd. The water system consists of two water wells with chlorination systems, and an elevated 250,000 gallon storage tank. Well #1 is a 10-inch diameter submersible well with a yield of about 485 gallons per minute. It is located on the veteran's home campus adjacent to the water tower and treatment system. Well #12 is also a 10-inch diameter submersible well with a yield of about 380 gpm. Rehabilitation of the water storage tank is currently underway. MES plans to request funds in FY '07 to make further improvements on the water system.

- D. *Charlotte Hall Community System:* The Charlotte Hall water system consists of three wells and three water pumping stations. The system begins on the northbound side of MD 5, just below the MD 6 intersection. The system extends along the northbound side of MD 5 to the McKay's Plaza Shopping Center.

Full fire protection is provided to the Charlotte Hall service area. The water system is interconnected to the Charlotte Hall Veteran's Home. This is a state-owned facility served by two wells and an 250,000 gallon elevated storage tank. A regulating valve was installed in between the two water systems. If low pressure occurs, as during a fire, the valve automatically opens. Metropolitan Commission personnel regularly exercise the valve. On at least two occasions, the valve has worked efficiently when major fires occurred in the Charlotte Hall area.

1 Charlotte Hall #1: water station #1 is located at the Farmer's Market and consists of one well with a capacity of 106 gpm, a 10,000 gallon hydropneumatic tank, and a 30,000 gallon ground storage tank.

2. Charlotte Hall #2: Water station #2 is located at the Charlotte Hall Business Park and consists of one 121 gpm well.

3 McKay's Plaza: McKay's Plaza is the location of the Charlotte Hall water system's third water station. It consists of one 45 gpm well, a 10,000 gallon hydropneumatic tank, and a 30,000 gallon ground storage tank.

- E. *Persimmon Hills:* Construction permit was issued and a test well has been drilled. 122 units are planned to be built, and approximately 20 units per year will be built.
- F. *Remainder of the district:* No other community water service is planned for the remainder of the district.

3.8 WATER PROBLEM AREAS: Water problem areas consist of the inadequate portions of community systems and areas where individual systems are experiencing difficulties in providing a potable supply of sufficient quantity and quality; or areas where such systems are not capable of providing a fire flow that is adequate to protect structures that are considered to be of sufficient occupancy hazard to warrant a fire flow, and are also located in sufficient proximity to other structures to present a risk of conflagration; or areas which adversely effect the fire insurance premium ratings of a community water system that does have an adequate fire flow. The National Fire Code requires that the fire flow address only the single largest potential fire event.

3.9 FINANCING: The St. Mary's County Metropolitan Commission is responsible for providing public water service throughout the county's jurisdiction. Several methods are available to pay for public water facilities. The annual income from all sources should equal the debt service on borrowed funds, capital construction costs, administrative, operation and maintenance costs.

3.9.1 Charges to Aid in Construction: Design and construction costs for new water systems or extensions of existing systems that are intended to serve only new developments are paid entirely by the developer under a public works agreement with the Metropolitan Commission. When the new systems are completed and approved by the Commission, they are required by local law to be dedicated to the Commission for the sum of one dollar. If the Commission finds it necessary to increase the capacity of the new water system in order to serve other existing or projected public needs, it has the authority to construct the facilities and require the developer to pay a proportionate share of the cost.

3.9.2 Benefit Assessment Charges: Benefit assessment charges for water service are paid by all property owners to whom service is available. The charge is used to cover debt service for the capital cost of plants, water mains, storage facilities, etc. There is a minimum front footage charge of 50 feet per equivalent single family dwelling unit., There also is a table of equivalent dwelling units which specifies the number of single family dwelling units each type of user on the system will be charged. Once a standard benefit assessment charge rate is established, it can only be decreased. Additional benefit assessments can be established for new improvements to the system, but only upon changes in the Commission's debt.

3.9.3 Water Connection Charges: These charges shall be in the amounts fixed by the Metropolitan Commission from time to time and are payable prior to connection to the Commission's system.

3.9.4 Water Service Charges: The charges are primarily for, but not limited to, payment of administrative, maintenance and operation costs. The amounts of the charges are changed by the Metropolitan Commission from time to time to reflect projected expenditures. The volume of water consumed is metered wherever practical, but the charges are otherwise based upon a flat rate times the standard volume for the number of equivalent dwelling units connected. The amount of these charges shall be fixed by the Metropolitan Commission from time to time.

3.9.5 Developer Financing: Developer financing is a widely accepted method of providing water facilities. The developer constructs the facilities under a Public Works Agreement with the Commission, and recovers his investment as part of lot or home costs.

The buyer amortizes the capital cost as part of his mortgage payment, and the facilities are eventually deeded to the Metropolitan Commission as required by Board of County Commissioners Resolutions No. 71-13 and 71-22. Construction of the facilities must be in accordance with the St. Mary's County Standard Specifications for Water and Sewerage Construction.

3.9.6 Bonding: St. Mary's County and the Metropolitan Commission should pursue bond issues to finance privately owned projects in order to expand infrastructure in designated growth areas.

Table 3 - 1
Projected Water Supply Demands and Planned Capacity

Sanitary District Water System Name	2002				2007				2012										
	Total	EDU's Served	Unserved	GPED	Average Demand (MGD)	Capacity	Total	EDU's Served	Unserved	GPED	Average Demand (MGD)	Capacity	Total	EDU's Served	Unserved	GPED	Average Demand (MGD)	Capacity	
1																			
Luckland Run S. D.	1200	1068	2268	250	0.270	0.360	1200	1134	66	250	0.284	0.360	1200	1200	0	250	0.300	0.360	
Country Lakes	100	100	200	210	0.021	0.097	100	100	0	210	0.021	0.097	100	100	0	210	0.021	0.097	
Birch Manor	1191	420	2468	170	0.085	0.196	1191	561	630	170	0.095	0.196	1191	740	451	170	0.126	0.402	
Wicomico Shores																			
District Total	2491	1588	4936				2491	1795	696				2491	2040	451				
2																			
Dukehart's Creek S. D.	443	360	83	275	0.099	0.263	443	402	41	275	0.111	0.026	443	443	0	275	0.122	0.263	
Breton Bay	240	219	21	215	0.047	0.090	240	219	21	215	0.047	0.090	240	219	21	215	0.047	0.090	
St. Clement's Shores	33	33	0				33	33	0				33	33	0				
Mt. Pleasant (private)																			
District Total	716	612	104				716	654	62				716	695	21				
3																			
Leonardtown S. D.																			
Leonardtown																			
Residential																			
Commercial																			
Institutional																			
Subtotal	0	0	0				0	0	0				0	0	0				
Mulberry South	26	20	6	200	0.004	0.062	26	23	3	200	0.005	0.062	26	26	0	200	0.005	0.062	
King and Kennedy	70	59	11	340	0.020	0.097	70	65	5	340	0.022	0.097	70	70	0	340	0.024	0.097	
Holland Forrest Landing	49	49	0	180	0.009	0.260	49	49	0	180	0.009	0.260	49	49	0	180	0.009	0.260	
Forrest Farm	209	0	209				209	100	109				209	200	9				
Villages at Leonardtown	88	0	88				88	50	38				88	88	0				
District Total	442	128	314				442	287	155				442	433	9				
4																			
Flood Creek S. D.	190	98	92	190	0.019	0.161	190	144	46	190	0.027	0.161	190	190	0	190	0.036	0.161	
Wilderness Run/Kingston	190	98	92				190	144	46				190	190	0				
District Total	380	196	184				380	288	92				380	380	0				
5																			
Piney Point S. D.	240	213	27	280	0.060	0.180	300	263	37	280	0.074	0.180	300	283	17	280	0.079	0.180	
Residential	95	58	37	260	0.016	0.163	95	77	18	260	0.020	0.163	95	95	0	260	0.025	0.163	
Piney Point Landings	335	271	64				395	340	55				395	378	17				
District Total	575	484	91				595	673	109				595	661	17				
6																			
Lake Conoy S. D.																			
Pt. Lookout State Park																			
District Total	0	0	0				0	0	0				0	0	0				
7																			
Carroll Pond S. D.																			
District Total	0	0	0				0	0	0				0	0	0				

Table 3 - 1
Projected Water Supply Demands and Planned Capacity

Sanitary District Water System Name	2002				2007				2012										
	Total	EDU's Served	Unserved	GPED	Average Demand (MGD)	Capacity	Total	EDU's Served	Unserved	GPED	Average Demand (MGD)	Capacity	Total	EDU's Served	Unserved	GPED	Average Demand (MGD)	Capacity	
8																			
Pine Hill Run S. D.	15000	8968	6032	260	2.343	3.548	15000	10243	4757	260	2.663	3.819	15000	11250	3750	260	2.925	4.020	
Lexington Park	831	439	392	210	0.093	0.492	831	490	341	210	0.103	0.494	831	570	261	210	0.120	0.494	
Cedar Cove	393	354	39	250	0.089	0.249	393	374	19	250	0.094	0.249	393	393	0	250	0.098	0.249	
Greenview Knolls	500	179	321	205	0.037	0.330	500	230	270	205	0.047	0.330	500	300	200	205	0.062	0.330	
Hunting Quarter	101	96	5	215	0.022	0.125	100	96	4	215	0.021	0.125	100	96	4	215	0.021	0.125	
Fenwick Manor	34	32	2	250	0.008	0.088	34	33	1	250	0.008	0.088	34	34	0	250	0.008	0.088	
Fox Meadow	1400	20	1380	250	0.007	0.099	1400	600	800	250	0.150	0.099	1400	800	600	250	0.200	0.099	
Hollywood			0						0						0				
St. Mary's College	486	140	346	220	0.031	0.525	486	200	286	220	0.044	0.525	486	300	186	220	0.066	0.525	
Greenbriar	90	79	11	100	0.008	0.100	90	79	11	100	0.008	0.100	90	79	11	100	0.008	0.100	
Southgate																			
Trailer Parks																			
William E. Smith																			
Lexington Estates																			
Hills & Pomerantz																			
Garrett																			
Langley																			
Lord Calvert																			
Calvert																			
California																			
Patuxent N. A. S.																			
District Total	18835	10307	8528				18834	12345	6489				18834	13822	5012				
9																			
Manor Run S. D.	0	0	0				0	0	0				0	0	0				
District Total																			
10																			
Indian Creek S. D.	209	209	0	235	0.049	0.182	209	209	0	235	0.049	0.182	209	209	0	235	0.049	0.182	
Laurel Ridge	1300	66	1234	1015	0.067	0.266	1300	200	1100	1110	0.222	0.266	1300	400	900	1110	0.444	0.266	
Charlotte Hall	200	70	130	230	0.016	0.113	200	135	65	230	0.031	0.113	200	200	0	230	0.046	0.113	
Persimmon Hills	250	247	3	220	0.055	0.145	250	250	0	220	0.055	0.145	250	250	0	220	0.055	0.145	
Rolling Acres			0						0						0				
Veterans Home	24	24	0	125	0.003	0.110	24	24	0	125	0.003	0.110	24	24	0	125	0.003	0.110	
Hearts Desire																			
District Total	1983	616	1367				1983	818	1165				1983	1083	900				

Table 3-2
Inventory of Existing Community System Wells

S.D.	COMMUNITY (Number of Wells)	OWNER	WELL PERMIT	AQUIFER	COORDINATE LOCATION			GAP(AVR) (MGD)	GAP(MAX) (MGD)	WATER QUALITY
					N	E	E			
1	Wicomco Shores	Met.Com	SM72G001	Magolby	200	845	0.150	0.200	GOOD	
1	Birch Manor (2)	Met.Com	SM74G035	Aquia	212	879	0.027	0.040	GOOD	
1	Country Lakes (3)	Met.Com	SM76G003	Aquia	210	863	0.240	0.325	GOOD	
2	St. Clement's Shore	Met.Com	SM65G002	Aquia	162	884	0.040	0.050	GOOD	
2	Breton Bay (2)	Met.Com	SM69G017	Aquia	158	896	0.075	0.138	GOOD	
2	Mt. Pleasant (2)	Private	SM72G004	Aquia	170	874	0.010	0.020	GOOD	
3	Leoardtown	Municipal	SM57G003	Aquia	168	806	0.525	0.725	GOOD	
3	King-Kennedy	Met.Com	SM71G004	Aquia	201	895	0.310	0.052	GOOD	
3	Mulberry South (2)	Met.Com	SM84G033	Aquia	159	802	0.0057	0.0086		
4	Wilderness Run	Met.Com	SM86G060	Aquia	152	914	0.025	0.042	GOOD	
4	La Grande Estates	Private								
5	Piney Point (2)	Met.Com	SM70G010	Aquia	113	941	0.070	0.090		
5	Landing @ Piney Point (2)	Met.Com	SM89G002	Aquia	119	934	0.030	0.060		
6	Point Lookout State Park	MES	SM69G009	Lower Crutaceous	83	982	0.020	0.050	GOOD	
7	Weber Field (2)	Navy	SM82G001	Paleocene	114	965	0.050	0.080	GOOD	
8	Lexington Park (16)	Met.Com	SM46G001	Aquia	114	985	1.450	2.000	GOOD	
			SM52G004	Piney	171	947	0.2	0.275	GOOD	
			SM74G002	Aquia	160	855	0.05	0.07	GOOD	
8	Wildwood (2) (JC Lax. Park)	Met.Com	SM76G014	Aquia	159	935	0.350	0.585	GOOD	
8	Greenview Knolls (3)	Met.Com	SM67G001	Piney	163	948	0.050	0.085	GOOD	
			SM67G101	Aquia	163	944	0.1	0.13	GOOD	
8	Hollywood	Met.Com	SM76G010	Piney	184	826	0.015	0.020		
8	Fenwick Manor (2)	Met.Com	SM74G043	Aquia	189	926	0.025	0.040	GOOD	
8	Fox Meadows (2)	Met.Com	SM87G001	Piney	143	858	0.010	0.016		
8	Hunting Quarter	Met.Com	SM83G016	Aquia	149	937	0.040	0.068		
8	Cedar Cove (2)	Met.Com	SM73G003	Aquia	156	967	0.160	0.200		
8	Whaler's Creek Run	Met.Com								
8	St. Mary's College (3)	MES	SM69G001	Aquia	132	968	0.0565	0.089	GOOD	
8	Peluxent N.A.S. (22)	Private for Navy	SM74G018	Piney	167	956	0.923	1.133	GOOD	
	TRAILER PARKS									
8	William E. Smith	Private			144	953				
8	Lexington Estates (2)	Private	SM69G003							
8	Hills (2)	Private	SM52G002	Piney	151	945	0.150	0.200		
8	Hills and Pometantz	Private	SM52G002	Piney	151	945	0.150	0.200		
8	Garrett MHP	Private	SM77G012	Piney	142	962	0.008	0.0125		
8	Langley (2)	Private								
8	Lord Calvert	Private	SM52G002	Piney	150	945	0.150			
8	California	Private	SM73G007	Piney	171	937	0.006			
10	Rolling Acres (2)	Met.Com.	SM74G025	Aquia	240	879	0.022	0.036	GOOD	
10	Laurel Ridge (2)	Met.Com	SM86G016	Aquia	237	872	0.061	0.102		
10	Charlotte Hall Vet. Home (2)	MES	SM81G018	Aquia	235	863	0.080	0.150	GOOD	
10	McKey's Plaza	Met.Com	SM80G029	Aquia	246	865	0.006	0.007	GOOD	
10	Persimmon Hills	Met.Com								

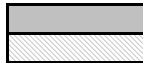
Table 3-3 Inventory of Water Problem Areas

Sanitary District	Location	Nature of Problem	Population	Demand	Planned Correction Date
8	Esperanza	Additional Storage Capacity should be to enable continued system			Not Established
8	Forest Heights (Lincoln Ave.)	Inadequate Water Supply for homes			Not Established
9-2	Mount Zion Church Road	Inadequate Water Supply for homes			Not Established
10	Hills Club Area	Inadequate Water Supply for homes			Not Established

ST. MARY'S COUNTY METROPOLITAN COMMISSION
Capital Improvements Budget
FY 2003-2008
Financing Summary
Water

PROJECT NAME	CURRENT FY-03	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	SIX YEAR TOTAL
Lexington Park Distribution Improvements		\$705,500	\$487,100	\$600,000	\$112,000		\$1,904,600
Countywide Water Meter Replacement	\$1,515,700	\$1,028,000	\$2,200,000				\$4,743,700
Arsenic Removal		\$900,000					\$900,000
Radon Removal		\$50,000					\$50,000
8th District Facility Plan	\$25,000						\$25,000
Water Main Replacement and Upgrades	\$100,000	\$100,000	\$100,000	\$100,000	\$100,000	\$100,000	\$600,000
Lexington Manor Water Line		\$80,000	\$928,000				\$1,008,000
Pax Park Water Main Rep. Phase 1,2, and 3	\$37,000				\$125,000	\$125,000	\$287,000
Bay Ridge Water Storage Tank	\$280,000						\$280,000
Hollywood Water System Ext.				\$325,000	\$3,156,000		\$3,481,000
MetCom Maint. Fac.		\$100,000					\$100,000
Southam/Lex Park/ Forrest Hills Replace Mn.				\$412,000			\$412,000
Wicomico Shore Water Comp. Of S/D				\$3,131,700			\$3,131,700
Water SUBTOTAL	\$1,957,700	\$2,963,500	\$3,715,100	\$4,568,700	\$3,493,000	\$225,000	\$16,923,000
SEWER SUBTOTAL	\$5,852,000	\$1,727,000	\$5,055,000	\$12,215,000	\$7,170,700	\$100,000	\$32,119,700
WATER/SEWER SUBTOTAL	\$7,809,700	\$4,690,500	\$8,770,100	\$16,783,700	\$10,663,700	\$325,000	\$49,042,700

MDE Loan



Water Supply & Storage Fee Fund
Debt Service Revenues

Rates of ground-water withdrawals for St. Mary's County for 1970-1996 by major users pumping more than 10,000 gallons per day and aggregated estimates for domestic and minor users, in thousand gallons per day (GPD)

Major Users by Aquifer:		1996	1990	1985	1980	1975	1970
Piney Point- Nanjemoy	MAJ PN	509	593	579	463	367	342
Aquia	MAJ AQ	3,680	3,051	3,007	2,627	2,071	2,379
Magothy	MAJ MG	0	0	0	0	0	0
Upper Patapsco	MAJ UP	90	28	24	10	15	0
Lower Patapsco	MAJ LP	0	0	0	0	0	0
Patuxent	MAJ PX	0	0	0	0	0	0
Aggregated domestic and minor users	TOT DOM	4,830	3,611	3,240	2,540	2,170	1,851
Major users subtotal		4,279	3,672	3,610	3,100	2,453	2,721
Total		9,109	7,283	6,850	5,640	4,623	4,572

