

1. Goals, Organization, Policy and Procedures

1.1. Goals

1.1.1. Preparation

The County Commissioners of Kent County (in accordance with the requirements of the Code of Maryland Regulations, Title 26, Subtitle, 3, Chapter 01 entitled "Planning Water Supply and Sewerage Systems") have adopted an updated and revised County Comprehensive Water and Sewerage Plan. This plan is a revision of all previous plans and incorporates all amendments and revisions as well as technical information and analyses required under Maryland House Bill 1141.

This plan shall be reviewed triennially, or at such times deemed necessary by the Kent County Commissioners, or as may be required by the Maryland Department of the Environment (MDE). The Report of Review, showing all revisions adopted, shall be submitted to the MDE.

This plan was prepared with the cooperation and support of the Kent County Department of Water and Wastewater Services, the Kent County Department of Public Works, the Kent County Department of Planning, Housing, and Zoning and the Kent County Health Department. It is intended to be fully integrated with the Chesapeake and Atlantic Bays Critical Areas Program and the Kent County Comprehensive Plan and to complement them as a growth management tool. This document is expected to be a daily working guide, a long-term programmatic plan, and a tool to assist with the implementation of the Comprehensive Plan. The Kent County Comprehensive Plan is the document which directs and controls growth in the county. The Kent County Comprehensive Plan works with the town growth plans where available to achieve the common goal of smart growth. The Kent County Comprehensive Plan recognizes that it is sometimes necessary to extend water and sewer services to correct problem areas. To assure consistency with the goals of the Kent County Comprehensive Plan when extending services to problem areas, specific policies and growth management papers, developed by a committee appointed by the County Commissioners, may be developed where appropriate.

1.1.2. Planning

This updated Comprehensive Water and Sewerage Plan was written with a view to the needs of both the past and the future. This plan, in conjunction with the Kent County Comprehensive Plan and Critical Areas Program, presents solutions for existing problems and guidelines for future development. By compiling available information on the identified problem areas and providing practical solutions that are consistent with other plans; this document will attempt to correct the problems.

The restoration and protection of the surface and groundwater resources of the County, and the benefits of meeting the goals of the Critical Areas Program are a natural result of a planned utilization of groundwater and a planned and controlled treatment of wastewater.

1.1.3. Goals

This plan seeks to achieve the following goals:

- a. The protection of the health, safety and welfare of the residents of Kent County and their neighbors by promoting the development and maintenance of sanitary conditions through comprehensive planning for water and sewerage systems.

- b. The provision of adequate and appropriate water and wastewater facilities to all municipalities, public and private communities, shared facilities, industries, and individuals with due regard for future need.
- c. The preservation of prime agricultural land, while meeting the growth needs of the county.
- d. The protection and improvement of the quality of Kent County, the Chesapeake Bay and all its tributaries by reducing water quality problems caused by point and non-point sources.
- e. The adoption of such ordinances, policies, guidelines, or regulations as may be required to fulfill this plan.
- f. The timely amendment and updating of this plan as required by changing conditions, needs, or state or federal law.

1.2. Objectives

1.2.1. Organizational Objectives

- a. The County Commissioners should fully implement this plan so as to correct the existing threats problems and forestall future ones to protect the health and safety of citizens and visitors of the county.
- b. All central water and/or wastewater facilities in new subdivisions outside municipal jurisdiction should be designed and built to specifications approved by the Kent County Department of Water and Wastewater Services. All planned shared facilities should be sized, at a minimum, to provide service for the maximum development permissible by the Land Use Ordinance. If it is necessary to alleviate problem areas nearby as identified by the Health Department, MDE, or DNR, the proposed facility may be required to be sized to meet both the on- and off-site needs planned community and problem area needs.

1.2.2. Land Use Objectives

- a. The protection and enhancement of existing communities will be promoted through the inclusion of new or expanded services adequate to meeting changing community needs.
- b. Development is encouraged in areas designated as growth areas in the Kent County Comprehensive Plan and with adequate available public utilities. This growth will occur in a manner that compliments and enhances each community's character and with boundaries established by coordination with the community. Please see section 1.4.6 for more information on Kent County's Denied Access Facilities Policy.
- c. New development is encouraged within existing communities designated in the Comprehensive Plans that are now served or programmed for public water and sewerage service.

1.2.3. Economic Objectives

- a. Economic development of the County will be guided to minimize costs for and maximize efficiency of public services and facilities.
- b. The program of agricultural, business and industrial promotion will be expanded and supported by selected improvements to or limitations of public services and facilities, where appropriate.

1.2.4. Environmental Objectives

- a. Public capital improvement projects and private developments are to be designed and constructed in a way that mitigates harmful environmental effects.
- b. Promote and use best available technologies (BAT) to improve wastewater treatment, protect the water supply and reduce the impacts of failing septic systems.
- c. The use of innovative and alternative methods of on-site treatment and disposal of wastewater in existing problem areas is recommended, when practical. The use of these systems outside planned sewer service areas may be considered on a case-by-case basis to solve problems but not to encourage development on previously undeveloped parcels. The county must have the ability to review designs and monitor performance,
- d. The conservation of water supplies through the fullest possible compliance with the Maryland Water Conservation Plumbing Fixtures Act, including but not limited to, encouragement of retrofitting, public education, qualified management, and other measures.

1.3. Organization

A functional table of organization is included at the end of this Chapter.

1.3.1. Kent County Commissioners

The Kent County Commissioners have the general power to do all such things as they may deem necessary in order to assure the good government of the county, to protect and preserve the county's rights, property and privileges, to preserve peace and good order, to secure persons and property from danger and destruction and to protect the health, comfort and convenience of the citizens of the county.

The Kent County Commissioners have the authority to establish, construct, locate, maintain, operate, protect, preserve, repair, replace, extend or enlarge any water supply, water supply system, water main, sewer, sewer system, sewage disposal plant or field, reservoir, dam, water purification or filtration plant, tank or pumping station and all other facilities, appurtenances and adjuncts that may be required to fulfill their duties.

1.3.2. Kent County Department of Water and Wastewater Services

The Kent County Sanitary District was renamed the Kent County Department of Water and Wastewater Services (KCDWWS) and is under the jurisdiction and control of the Kent County Commissioners.

1.3.3. Kent County Health Department

The Kent County Health Department is a unit of The State of Maryland Department Of Health and Mental Hygiene, partially funded by the county and responsible for local implementation of programs of The State of Maryland Departments of Health and Mental Hygiene, Environment, and Natural Resources as well as administering local ordinances.

1.3.4. Kent County Planning Commission

The Kent County Planning Commission and its staff, the Kent County Department of Planning, Housing, and Zoning, serves the present and future residents of Kent County by conducting immediate and long range planning; developing, implementing, and enforcing new and existing programs and regulations; and by providing technical assistance to citizens and other agencies.

1.4. Policies, Regulations, and Guidelines

1.4.1. Shared (Sanitary) Facilities for Water & Wastewater

(Previously Multi-use and Shared Systems)

Wherever sanitary facilities serve or are proposed to serve more than one single-family unit or equivalent dwelling unit, a shared sanitary facility shall be required to be established in accordance with the provisions of Chapter 161, Article II. The provisions of Chapter 161, Article III shall apply throughout Kent County, but shall not apply within the corporate limits of any municipality located in Kent County.

All shared facilities having water treatment capacities of 5,000 gpd or more, or wastewater treatment capacities of 5,000 gpd or more, shall need to be authorized by the Kent County Department of Water and Wastewater Services via an amendment to this plan. These facilities will also require a permit by MDE. By decision of the Kent County Commissioners, it shall be operated and maintained by the Kent County Department of Water and Wastewater Services or its authorized agent. It shall be the policy of Kent County to encourage the integration of two or more proposed shared systems shared facilities into a single system.

In the event that a shared sanitary facility is taken over by the County Commissioners pursuant to Kent County Code Chapter 161, Article I, it shall be operated as a sanitary service area, and the developer, all property owners and facility users shall be liable for all duly levied charges, fees, assessments and costs. Any shared sanitary facility serving or designed to serve fewer than 20 single-family units or equivalent dwelling units producing or designed to produce less than 5,000 gallons per day of effluent or water shall be considered a limited shared sanitary facility.

1.4.2. Water Supply General Guidelines

1.4.2.1. Projects Requiring Water Treatment Facilities

Any proposed project located within an existing service area, being designated as W-1 or "Existing Service" on the service area maps, must connect to the water system regardless of the size of the project. If the project requires additional water mains, storage, plant capacity, or improved treatment, etc. it shall be the responsibility of the developer to bear the cost of those improvements required for the proposed project.

Any proposed project located within the area designated as W-2 or "Planned Service" on the service area maps shall be required to extend the existing water system consistent with the Comprehensive Water and Sewerage Plan should any one of the following conditions apply:

- a. The Kent County Planning Commission requires that the project be connected to a shared water system, or

- b. The nature of the project, subdivision or its environs are such that the absence of a shared water system may compromise water quality and/or the public health, as determined by the Kent County Health Department or the Maryland Department of the Environment (MDE).

Any proposed project located outside an "Existing Service" or "Planned Service" area on the service area maps shall be required to provide shared water facilities consistent with the Comprehensive Water and Sewerage Plan should any one of the following conditions apply:

- The Kent County Planning Commission requires that the project be served by a shared water system, or
- a. The nature of the project, subdivision or its environs are such that the absence of a shared water system may compromise water quality and/or the public health, as determined by the Kent County Health Department or the Maryland Department of the Environment (MDE).

1.4.2.2. Water Facilities Design Guidelines

When connection to, or expansion and/or construction of a shared water system is required, the design and construction shall be in accordance with MDE standards and Chapter 161 of the Kent County Code of Public Local Laws of Kent County (Kent County Code) specifications of the Kent County Department of Water and Wastewater Services. The Kent County Department of Water and Wastewater Services shall evaluate the suitability of the proposed shared water system shared facility based upon projected demand and the character of the anticipated service area. General guidelines for typical shared water systems are as follows:

- a. Residential Systems are to assume an average usage of 300 gpd/dwelling. All other users are to determine their average flow or usages from satisfactory technical papers accepted by the County as representative.
- b. Where systems are required and have flows in excess of 5,000 gpd but not more than 30,000 gpd, facilities shall consist of two wells located on at least one lot, that lot or any additional lot being at least 10,000 square feet per lot, chlorination disinfection, and other necessary treatment facilities as required by the raw water analysis to meet potable water standards. Adequate storage and distribution lines shall be provided to satisfy instantaneous demand and fire flow demands.
- c. Where systems are required and have flows in excess of 30,000 gpd, facilities shall consist of not less than two well supplies each on a lot of at least 10,000 sq. ft., chlorination disinfection, and other necessary treatment facilities as required by the raw water analysis to meet potable water standards. Adequate storage and distribution lines shall be provided to satisfy instantaneous demand and fire flow demands.
- d. When economically feasible or required by the Kent County Planning Commission, fire flow shall be provided with a residual pressure of 20 psi as measured at the critical discharge point (typically the hydrant farthest from the storage system or the hydrant with the maximum elevation). Projects in the 5,000 gpd to 10,000 gpd range shall be required to deliver not less than 1,000 gpm for 2 hours; projects in excess of 10,000 gpd shall be required to deliver 1,000 gpm for 4 hours unless approved otherwise.

The above general guidelines are minimum standards for typical systems. Additional requirements may be applied where appropriate.

The MDE requires the following on all private residential water systems:

MDE requirements for all privately owned public drinking water systems are set forth in COMAR Title 26 Subtitle 03 (Water Supply, Sewerage, Solid Waste, and Pollution Control Planning and Funding) and Subtitle 04 (Regulation of Water Supply, Sewage Disposal and Solid Waste). The following list of minimum requirements is not all-inclusive:

- a. The project must be described and shown in the County Comprehensive Water and Sewerage Plan.
- b. A surface or groundwater appropriation permit must be obtained from the Maryland Department of Environment, Water Supply Program..
- c. A well construction permit must be obtained from the MDE via the Kent County Health Department.
- d. A financial management plan must be submitted to the MDE Water Supply Program for review and approval. This plan shall detail estimated operating costs and the revenues required to support these costs.
- e. All required financial agreements and sureties shall be established, as may be required by the MDE.
- f. An Operation and Maintenance (O&M) plan must be prepared and submitted to the MDE Division of Engineering and Permits, for review and approval.
- g. A State water construction permit must be obtained from the MDE for the installation of the system.

After the State construction permit has been issued, there are additional requirements which must be met prior to actual operation of the new system:

- a. All County permits must be obtained, and all inspections performed, as may be required by the Approving Authorities.
- b. A water treatment plant superintendent and operator, certified in the appropriate classification by the Board of Waterworks and Waste System Operations, must be employed prior to start-up to attend the plant on a daily basis.
- c. Plans must be made for compliance with the monitoring and reporting requirements of COMAR 26.04.01 in advance of start-up.

1.4.3. Wastewater Treatment General Guidelines

1.4.3.1. Projects Requiring Treatment Facilities

Any proposed project located within an existing service area, being designated as S-1 or "Existing Service" on the service area maps, must connect to the sewage treatment system regardless of the size of the project. If the project requires additional sewer mains, pump stations, plant capacity, etc. it shall be the responsibility of the developer to bear the cost of those improvements required for his project.

Any proposed project located within the area designated S-2 or "Planned Service" on the service area maps shall be required to extend the existing sewage treatment system consistent with the Comprehensive Water and Sewerage Plan should any one of the following conditions apply:

- a. The Kent County Planning Commission requires that the project be connected to an existing sewage treatment system, or
- b. The nature of the project, subdivision or its environs are such that the absence of a wastewater system may compromise water quality and/or the public health, as determined by the Kent County Health Department or the Maryland Department of the Environment (MDE) and found consistent with the State and local planning directives by the Maryland Department of Planning.

Any proposed project located outside an "Existing Service" or "Planned Service" area on the service area maps shall be required to provide wastewater facilities consistent with the Comprehensive Water and Sewerage Plan should any one of the following conditions apply:

- a. The Kent County Planning Commission requires that the project be served by a wastewater system, or
- b. The nature of the project, subdivision or its environs are such that the absence of a wastewater system may compromise water quality and/or the public health, as determined by the Kent County Health Department or the Maryland Department of the Environment (MDE) and found consistent with the State and local planning directives by the Maryland Department of Planning.

1.4.3.2. Wastewater Facilities Design Guidelines

When connection to, or expansion and/or construction of a wastewater system is required, the design and construction shall be in accordance with MDE standards and Chapter 161 of the Kent County Code of Public Local Laws of Kent County (Kent County Code) specifications of the Kent County Department of Water and Wastewater Services. The Kent County Department of Water and Wastewater Services shall evaluate the suitability of the proposed wastewater system based upon flow generated and the character of the anticipated service area. Land application of wastewater effluent may be permitted is encouraged where possible, per MDE guidelines for the design, operation and maintenance of land treatment of wastewater.

General guidelines for typical wastewater systems are as follows:

- a. Residential systems are to assume average usage of 250 gpd/dwelling. All other uses are to determine their average flow or usages from acceptable technical papers accepted by the County as representative.
- b. All systems generating in excess of 5,000 gpd shall consist of a treatment process acceptable to the Kent County Department of Water and Wastewater Services with disposal of the effluent in accordance with all state and local requirements.
- c. The above general guidelines are minimum standards for typical systems. Wastewater characteristics, flow surges, and other factors may necessitate additional requirements. Innovative/alternative systems designed to achieve similar goals may be considered where appropriate. Effluent standards will be those established by the MDE. In all cases, the burden of proof shall be on the developer.

MDE requirements for wastewater systems are set forth in COMAR Title 26 Subtitle 03 (Water Supply, Sewerage, Solid Waste, and Pollution Control Planning and Funding) and Subtitle 04 (Regulation of Water Supply, Sewage Disposal and Solid Waste).

1.4.4. General Policy on Water and Wastewater Facilities

Within proposed existing or planned service areas, it is desirable to provide and utilize central water and/or wastewater facilities.

Outside the limits of proposed service areas, individual wells and individual disposal systems may be permitted. The burden of proof of feasibility and design shall rest on the developer. The developer shall submit such information, in a form specified by the Health Department, as may be required to review the application.

Individual on-site wastewater disposal systems have an average design life of 12-15 years with proper design, construction and maintenance. The actual disposal portion (drainfields, seepage beds, etc. is the portion of the OSDS that limits the design life. Routine pumping and maintenance reduces, but does not eliminate, non-point nutrient pollution. Even if properly maintained, these systems are a source of nutrient pollution to both ground and surface waters. If a shared sewage disposal system is not available within a 12 to 15 year time span, a adequate correction areas must be provided. This Plan can provide some guidance on the chronological distance to sewerage; and, thus the potential number of "corrections" required. The potential occupancy of the dwelling and the soil/groundwater conditions determine the area required for the system. The number of corrections times the area for one system yields the area to be reserved.

Within and outside of proposed service areas, cluster-type and/or shared systems of an interim or a permanent nature may be permitted for the correction of existing problems in compliance with COMAR and County Ordinances, Plans, Policies, and Guidelines, as determined by the Approving Authorities.

1.4.5. Individual Water Supply and Sewerage Systems)

The installation of individual water supply or individual sewerage systems shall be subject to the following requirements.

- a. An individual water supply or individual sewerage system may not be permitted to be installed where an adequate water or wastewater facility is available. If an existing water or sewerage facility is inadequate or is not available, an individual water and sewerage system may be used as set forth below.
- b. Individual water supply and sewerage systems may be permitted to be installed in any portion of the County, except where otherwise prohibited, where shared systems will be programmed for construction with the S-2 and W-2 service time frames, provided that:
 - Such systems are adjudged by the local Health Department to be adequate, safe, and in compliance with pertinent State and local regulations, including minimum lot ownership as set forth in COMAR Regulation 26.03.01 (Regulations for Planning Water Supply and Sewerage Systems) and Health and Land Use Ordinances of the County.
 - Permits for such systems shall bear a notice regarding the interim nature of the permit and stating that connection to a future system shall be made when such system becomes available.
 - When such systems are used, provisions shall be made whenever possible to locate such systems so as to permit connection to the public facilities in a most economical and convenient manner.

- The applicant, or ultimate owner, shall be required to discontinue using the system and to connect to the programmed public facilities, under the conditions and within the time frame specified by the County, when any public water main or sanitary sewer is complete and ready for the delivery of water or the reception of wastewater. The applicant shall ensure that all property owners within the subdivision are informed that a connection to the public system is required at such time as it becomes available.
- c. Individual water supply or sewerage systems may be permitted to be installed in any portion of the County where shared systems are not planned. Such installations shall be governed by the MDE COMAR 26.04.02, 26.04.03 and 26.04.04 as minimum requirements, and such requirements as the County Commissioners may from time to time impose.
- d. Chesapeake Bay Nitrogen Reduction Act of 2009 (Maryland Senate Bill 554), effective October 1, 2009, specifies that new construction or replacement OSDS within Chesapeake and Atlantic Coastal Bays Critical Areas (1,000 ft) of the Chesapeake Bay or its tributaries use nitrogen removing technology. Nitrogen removing technology refers to the best available technology for the removal of nitrogen. Limited funding from the Department of the Environment is available to assist with implementation of the technology.
- e. The Private Wastewater Treatment Act of 2009 (Maryland House Bill 1105) , which is effective October 1, 2009, prohibits a person from installing privately owned individual sewerage systems that serve a single lot and discharge to the surface waters of Maryland. The only exception, subject to MDE’s approval, is that a person may install an individual sewerage system for use if an existing on-site sewage disposal system fails and cannot be repaired or replaced by any means.
- f. Wells serving a single property are to be of their nominal diameter for the first 200 feet in length, i.e. telescoping to a small diameter pipe in the bottom of a shallow well is prohibited. This telescoping practice greatly reduces the usable life of the well as it inhibits the ability to drop the well pump to below the lowered aquifer water level.

1.4.6. Denied Access Facilities

(Formerly Denied Access Lines)

- A. “Denied Access” water and sewerage service lines are water or sewer service lines which pass through areas outside of the 10-year service areas as delineated in the locally adopted, State-approved County Water and Sewerage Plan. They may be used only when studies have documented that all other reasonable options have been ruled about as infeasible for technical, financial, or other sound reasons. This policy may be applied to service lines and appurtenances used only for the follow circumstances:
 - 1. To provide service connections to a limited number of parcels with documented failed individual systems. Denied access lines must be clearly identified on parcel based maps and described in the text of the County Water and Sewer Plan, and parcels that are permitted to connect to these lines must meet all of the requirements in Paragraph B below or
 - 2. To interconnect existing shared service areas.

B. Connection of any property, parcel to a “Denied Access” line is prohibited unless:

1. The allocated is for an improved legal lot of record that existed prior to the County adoption of the denied access line in the Water and Sewer Plan, and the local health department has certified that the septic system is failing and cannot be corrected on site, or the connection is to an unimproved lot of record that can pass on –site well and septic requirements; and
2. The served properties are contiguous to the right-of-way containing the service main; and
3. There is adequate capacity in the Treatment system to serve the new area or the County has allocation available from the municipality.
4. There shall be only one allocation granted per lot, except that additional allocations may be granted if there are multiple authorized uses existing on the lot as of the date of the installation of the line, such as: apartment, small business, second home. Etc.

1.4.7. Flow Reduction Program

Substantial reductions in the operation costs of water and wastewater facilities and withdrawal of groundwater are possible through the implementation of a flow reduction program.

All existing structures within a proposed water or wastewater service area shall be required to upgrade plumbing fixtures when the plumbing system is remodeled. The installation of water-conserving devices in areas outside of shared service areas shall be encouraged as strongly as possible.

This policy is adopted County-wide to conserve groundwater resources and reduce groundwater withdrawal to the minimum possible consistent with growth.

County Water and Sewerage Plans COMAR 26.03.01.07 requires that the County Water and Sewerage Plan complies with the Maryland Water Conservation Plumbing Fixtures Act (MWCPFA).

Water Conservation Fixtures COMAR 26.17.06.04A (8) requires that applicants for annual average appropriations of 10,000 gallons per day or greater must certify on a form that water-conserving fixtures will conform to the Maryland Plumbing Code’s water conservation technology regulation.

1.4.8. Marinas

In order to reduce waste discharges from vessels to the lowest possible level, all existing marinas shall be actively encouraged to retrofit or upgrade as soon as possible to meet these guidelines. In any case, upgrading shall be a requirement as part of any expansion.

All developers of new marinas shall be required to provide adequate water and wastewater facilities as required by the MDE and Department of Natural Resources (DNR). The following minimum guidelines shall be used:

- a. Pump-out facilities are required at service areas of marinas for the removal of the contents of wastewater holding tanks and recirculating toilets. Any marina consisting of 10 or more slips shall have a pump-out facility. The pump-out facility shall discharge to an approved shared facility or to an approved shared wastewater system facility. Water service shall be available at each pump-out facility, slip or mooring.

- b. When designing facilities, an average flow of 30 gallons per vessel per day should be used as the basis for estimating the water demand, and an average flow of 25 gallons per vessel per day per slip for wastewater generation.
- c. All water and wastewater facilities serving marinas shall be constructed in accordance with requirements of the Kent County Department of water and Wastewater Services and the MDE and DNR standards.
- d. Any expansion of existing marinas shall require the construction of a pump-out facility, if one is not readily available.

1.4.9. Guidelines for the Construction of Wastewater Facilities

1.4.9.1. General

All new wastewater facilities constructed in Kent County shall be subject to the following requirements:

- a. Multiple units of each critical wastewater treatment component shall be provided, such that with the largest flow capacity unit out of service, the remaining units shall have a design flow capacity of at least 50 percent of the total percent of the total design flow to that unit operation.
- b. Multiple units of final and chemical sedimentation basins, trickling filters, filtration units, activated carbon columns, and other flow sensitive components designated by the Kent County Department of Water and Wastewater Services shall be provided such that with the largest flow capacity unit out of service, the remaining units shall have a design flow capacity of at least 75 percent of the total design flow to that unit operation.
- c. An auxiliary power generator sufficient to operate all vital components during peak wastewater flow conditions, together with critical lighting and ventilation, shall be provided for each treatment plant. Each auxiliary power system shall be equipped with an automatic switchover device.
- a. d. An alarm system shall be provided at the wastewater treatment facilities. The alarm system shall monitor disinfection, high liquid level in tanks and basins, power supply to plant, auxiliary power source, critical mechanical equipment, and a test function. An audiovisual alarm system signaling a central location (as designated by the Kent County Department of Water and Wastewater Services) where competent personnel are available 24 hours per day will be required.
- e. Adequate bypass piping shall be provided to permit the removal from service of any one treatment plant component without necessitating the removal from service of additional upstream or downstream components.
- f. State law requires any treatment plant discharging into shellfish waters to have a 24-hour emergency holding basin to receive bypass flows during plant failures. Each holding basin must be capable of recycling the flow back through the plant upon correction of the failure.

1.4.9.2. Pump Stations

At least two pumps shall be provided at each pump station. When two units are provided, each shall have the capability to handle the maximum flow or a minimum of 2-1/2 times the average design flow. Where three or more units are provided, they shall be of such capacity that with any one unit out of service, the

remaining units will have the capability to handle the maximum flow or a minimum of 2-1/2 times the average design flow.

An auxiliary power generator sufficient to operate enough pumps to deliver the maximum peak flow, together with critical lighting and ventilation, shall be provided for each pump station. Each auxiliary power system shall be equipped with an automatic switchover device.

An alarm system shall be provided for all pump stations. The alarm system shall monitor high wet well level, operation of each pump, power supply to the station, auxiliary power source, and a test function. An audiovisual alarm system signaling a central location (as designated by the Kent County Department of Water and Wastewater Services) where competent personnel are available 24 hours per day will be required.

1.4.10. Guidelines for the Construction of Wastewater Facilities in Special Flood Hazard Areas

The location of wastewater facilities within special flood hazard areas shall be avoided whenever possible. However, where it is necessary that wastewater facilities be constructed within special flood hazard areas, these facilities will be subject to the following requirements:

Treatment Facilities

- a. All operational components of the treatment facilities shall be located at an elevation which is not subject to flood or wave action created by the 100-year flood or storm, or shall otherwise be adequately protected against the 100-year flood.
- b. The treatment facilities shall remain fully operational and accessible during the 50-year flood.
- c. All critical equipment should be protected from debris carried by the waters of the 100-year flood where practical.

Pump Stations

- a. Entrance tubes for all pump stations shall extend above the 100-year flood level. Where this is not practical, flood-proof hatches shall be provided.
- b. Auxiliary power systems, alarms, and controls shall be located above the 100-year flood level. Where this is not practical, watertight enclosures shall be provided.
- c. Wet well vents, dry well vents, and generator exhausts shall extend above the 100-year flood level.
- d. Wet well hatches shall be flood-proof.

Collection System

- a. In any gravity collection system, a water tight manhole cover shall be provided for any manhole top below the 100-year flood level.
- b. Where watertight manhole covers are required and it is not possible to adequately vent the collection system through the main building stacks of nearby buildings, then vents extending above the 100-year flood level shall be provided at each manhole.

1.4.11. Regulation of Lot Size

All proposed new lots shall provide at least the minimum and maximum size in order to comply with *a shore for tomorrow, A vision Series from the Maryland Department of Planning* (MDP, March 2008 and area requirements of the Zoning District in which they are located, and any other applicable local laws, ordinances, or regulations of Kent County, its Health Department, or MDE, whichever are more stringent.

1.4.12. Service Area Mapping Definitions

This section defines the service area map designations as discussed in this chapter and shown on the maps in Chapters 3 and 4.

- a. Service areas designated as S-1/W-1 currently have sewerage and/or water service as evidenced by an active customer account (i.e., the property is being billed periodically for the service). These are either already existing improved properties, existing vacant lands within the service area, or properties that are under/pending construction.
- b. Service areas designated as S-2/W-2 are properties that meet one of the following descriptions:
 - Properties with a known proposed development that was recently amended into the Comprehensive Water and Sewerage Plan. Advancement to S-1/W-1 is automatic once the development satisfies all conditions imposed on the development during the development review process.
 - Properties intended to be served.
- c. Areas with no service designations are “No Planned Service” areas and correspond to COMAR’s S-6/W-6.
- d. Public Health Concern Areas have been given a “Problem Area” designation to show the County Commissioner’s commitment to resolve the concern.

Please refer to Appendix 1-A for a description of water and sewerage priorities. Please refer to Appendix 1-B for the Sewer Allocation Policy. The sewer allocation policy is currently being updated by the Kent County Department of Water and Wastewater Services and will be added by amendment when completed.

Based on actual treatment plant flow and nutrient loading data reported to the Maryland Department of the Environment (MDE) and the recommendations of the Directors of the Kent County Department of Water and Wastewater Services, Health Department and Planning Commission, sewerage allocation target reservations for public health projects, public service needs, commercial development or wet weather reserve may be adjusted per the Water and Sewerage Allocation Policy.

1.4.13. Recapturing Unused Water and Sewer Allocations

The County Commissioners of Kent County may issue allocations to a specific project for water and/or sewer service, however; the commitment will remain valid only if the original conditions of the Public Works Agreement remain unchanged. The applicant cannot propose changing the project without risking the allocation. Allocations are considered to be granted when a Public Works Agreement (PWA) has been executed between the County Commissioners and the developer/owner. The public works agreement is in Appendix 1-G.

The Allocation(s) granted hereunder will remain valid only if the original conditions of the Agreement remain unchanged. The Owner cannot propose changing the project without risking the loss of allocation(s). Allocations(s) are considered to be granted when an Agreement has been executed between the Commissioners and the Developer/Owner.

The Allocation(s) fee must be paid on execution of this Agreement; therefore, the Developer/Owner will be assessed the minimum quarterly charges for vacant lots established by the Commissioners until the earlier of connection of the project to Kent County water and /or sewer lines or two (2) years from the date of this Agreement. Developer/Owner shall be charged the full quarterly charges for the improvements on the property unless, additional arrangements are specified.

The Commissioners reserve the right to review and recapture any allocations that have not been connected to Kent County's water and/or sewer lines in the event that the Wastewater Plant in the district for which they were approved is within 85% of its design capacity. Owner acknowledges the Commissioners' right to recapture any unconnected allocations subject to this Agreement and subject to the conditions stated in this paragraph. Owner further acknowledges that allocation fees for any recaptured allocation are NON-REFUNDABLE. The failure of the Commissioners to undertake the review and recapture at a time when the Wastewater Plant is within 85% of its design capacity shall not constitute a waiver of the provisions of this paragraph in the event that the Commissioners decide to conduct a review and recapture during a subsequent time when the plant is within 85% of capacity.

The Owner will be responsible for the installation of any water or sewer appurtenances necessary for service to the property, for obtaining all necessary permits, and for the payment to the Commissioners of all associated inspection fees.

Owner shall guarantee the construction for a period of one (1) year from initial acceptance by the Department.

1.5. Recommended Action Items

Future water and sewer planning will be improved by undertaking programs which are in concert with the technical information and analyses under Maryland House Bill 1141 and the corresponding Water Resources Element (WRE). This section identifies those recommended actions to be considered under future programs and budgets by Kent County departments.

1.5.1. On-Site Sewage Disposal Systems

The Onsite Sewage Disposal System (OSDS) Element of Maryland's Tributary Strategy includes the following septic upgrade goals:

- a. One hundred percent of new OSDS installed beginning in 2010 will include enhanced denitrification technology.
- b. Existing septic systems will need to be upgraded to improve nitrogen removal per the recommended 5-year implementation schedule for the State of Maryland:

OSDS Upgrades:

- Progress (through 2005): 1,200
- 2-year goal (2008-2010): 550
- 5-year goal (2008-2013): 3500

Effective October 1, 2005, a \$30 annual fee is collected from each home service by an on-site system. The total estimated program income is \$12.6 million per year. Sixty percent of these funds will be used for septic system upgrades and the remaining 40% will be used for cover crops. (Cover crops are a part of the Agricultural Element of Maryland's Bay Restoration Fund (BRF) initiative.) Priority funding from the BRF will be given to failing septic systems in Critical Areas, which is the 1,000-foot buffer around the Chesapeake Bay and Coastal Bays shoreline.

The OSDS Element of Maryland's Tributary Strategy recommends that local governments:

- Require long-term maintenance contracts prior to approval of advanced OSDS.
- Implement local policy and code changes to encourage or require maintenance or upgrade of on-site disposal systems.
- Consider applying for funding on behalf of landowners in a block-grant approach.
- Require nutrient offset projects for subdivisions built using individual septic tanks.
- Comply with Senate Bill 554 and use nitrogen removing technology in new OSDSs located in the critical area.

To be able to undertake consideration and implementation of this Tributary Strategy element, (it is recommended that) Kent County will undertake an OSDS Survey to document OSDS locations, conditions, and predicted life assessments. This document is intended to inform decision-making and consideration of county policy and code changes.

1.5.2. Capacity Management Plans

Capacity Management Plans may be prepared for any public water supply or wastewater system. MDE provides guidance and worksheets for these plans. They are required by MDE for water and wastewater plants operating at 80% design capacity. They are recommended for all plants and service areas for analyses required for development of the Water Resources Element (WRE) of the County Comprehensive Plan. They are useful for water and sewerage planning and appropriations. Please see Chapters 3 and 4 for more detail on Water Supply and Wastewater Capacity Management Plans.

(It is recommended that) Kent County may prepare Capacity Management Plans as part of the development of the basis of design for future infrastructure capital projects and use them as the basis for amendments to this plan.

These Capacity Management Plans for water and wastewater may be used for decisions supporting or limiting new allocations or connections to shared systems. In the case of water systems, these plans may be used to provide the basis for drought management plans for Kent County water systems.

1.5.3. Wellhead Protection and Aquifer Recharge Areas

Kent County is pursuing development of a Source Water Protection ordinance that includes wellhead protection standards in its Land Use Ordinance to manage ground water supply sources. Wellhead protection may be required around all public and shared water supply wells.

Any new development (residential or commercial) within Wellhead Protection Areas (WHPAs) should be seweraged to protect the groundwater against microbiological contaminants, excessive nitrates and chemicals from household wastes.

Kent County and local communities may work together with MDE's Water Supply Program to protect public water supplies in any of the following ways:

- The County may request MDE's Water Supply Program to assist in defining undefined WHPAs.
- Inventory existing sources and potential sources of contamination in the WHPAs.
- MDE's Water Supply Program can provide communities with lists of regulated activities within their WHPAs. Communities can then conduct their own search for additional potential contaminant sources, such as abandoned wells or unregulated waste disposal sites.
- Develop local planning, zoning, and health ordinances to effectively manage the types of activities that can occur in a WHPA.
- Purchase land or conservation easements within WHPAs with zero interest loans available through MDE.
- Encourage commercial and industrial facilities to monitor ground water quality on their own property to detect pollution before it reaches the public supply well.
- Encourage potential polluters to adopt best management practices.
- Educate citizens about their water supply.

Kent County will use regional approaches, with MDE, the State of Delaware Maryland Geological Society, and adjacent counties, to manage and protect the groundwater resources of Kent County.

1.5.4. Sanitary Surveys

There are several communities along the Sassafraz River (detailed in sections 3.6 and 4.7) which have very small lots containing both wells and OSDSs. The Kent County Commissioners have requested that the Kent County Health Department perform an investigation and evaluation of these areas due to concerns about water quality issues and potential failing OSDSs. One possible method of investigation is a sanitary survey.

The Kent County Health Department may conduct a sanitary survey upon request of the Kent County Commissioners and/or the communities affected. A sanitary survey is a formal evaluation of the water quality issues and/or the sewage disposal systems associated with a community or area. The Kent County Health Department may conduct its evaluation to determine Health related affects associated with water and wastewater in a particular area. The results of these sanitary surveys can be used by the Department of Water and Wastewater services to prioritize manpower, resources, and funding to correct problem areas if feasible.

1.6. Procedures

1.6.1. Triennial Update Procedures for the Comprehensive Water and Sewerage Plan

COMAR Title 26 Subtitle 03 Chapter 01 (Planning Water Supply and Sewerage Systems) requires the governing body of the County, after reasonable opportunity for public hearing, to adopt a triennially revised County Water and Sewerage Plan and have it approved by the MDE.

The adopted Plan for Kent County and its incorporated municipalities shall be reviewed and updated triennially. For this purpose, requests for proposed changes should be sent to the Planning Commission Municipal and County agencies, and incorporated towns each update year so that a draft update can be prepared for a public informational meeting. Municipal and County agencies will be furnished copies of the draft changes for comment. A draft of the plan will be sent to MDP for the 60 day clearing house review then a public hearing with the County Commissioners will then be held. Notice of the public hearing shall be advertised in a newspaper of general circulation at least 15 days prior to the proposal hearing. Following the public hearing, the County Commissioners shall take appropriate action.

Following decision of the County Commissioners, the updated Plan shall be sent to the MDE for its review and final approval. The updated Plan will not become effective until notification of final approval is received from the State, but in the event the State does not approve or reject the updated Plan within 90 days, the Plan shall be considered approved by the State.

The County Commissioners may amend the Plan by inserting, altering, or deleting as required. Amendments require public hearings and notice of the time and place of the public hearing along with a summary of the amendment to the plan must be published once a week for two successive weeks beginning at least fourteen days before the public hearing.

1.6.2. Amendments to The Comprehensive Water and Sewerage Plan

COMAR Title 26 Subtitle 03 Chapter 01 (Planning Water Supply and Sewerage Systems) requires the governing body of the County review and adopt a revised County Comprehensive Water and Sewerage Plan on a triennial basis. In addition, State regulations permit the County Commissioners to amend the Water and Sewerage Plan more frequently by inserting, altering or deleting content provided the public is given adequate notice to express its opinion before the amendment is adopted. In any instance of amendment, revision, or update to the Kent County Water and Sewer Plan in its entirety, each action shall require a statement of certification of consistency with the County's Comprehensive Plan by the Kent County Department of Planning, Housing and Zoning (Art 9-506 (a.1.ii)). This certification should indicate specific Comprehensive Plan references to assist in the MDE approval process.

Amendments to the Kent County Comprehensive Water and Sewerage Plan shall be considered on a quarterly basis at a minimum. If a party desires that the Comprehensive Water and Sewerage Plan be amended to include their proposed project, they shall submit an application, in a form specified by the county, to the County Commissioners with a copy to the Kent County Department of Water and Wastewater Services. It must be made clear that an Amendment to the County's Comprehensive Water and Sewerage Plan does not obligate the County to enter into a PWA.

This section is intended to serve as a guide for applicants and the Approving Authority. By clarifying the appropriate subjects for Amendment, this should reduce unnecessary applications and review workload for the County Commissioners and involved agencies. This plan also functions as an inventory document for the public and several state and local agencies. Regardless of the care taken in preparing policy and guidelines, decisions will have to be made that were not anticipated by this Plan. Therefore, what is listed below may not be an exhaustive listing. Anyone considering a project should contact the Kent County Department of Water and Wastewater Services in advance.

1.6.2.1. Amendment Required, Pursuant to Section 1.6.2.4

- Any proposed individual, shared facility water supply system having a capacity equal to or greater than a 5,000 gpd average or any proposed individual, shared facility sewerage system having a capacity equal to or greater than a 5,000 gpd average.
- Any proposed 5,000 gpd average capacity or greater modification, expansion, or upgrade to any existing shared facility, whether currently included in this Plan or not.
- Any new or amended residential subdivision, or business facility, within or in close proximity to a planned service area which would exceed 5,000 gpd.
- Any change to the status of a denied access line.

1.6.2.2. No Amendment Required

- Any new or amended residential subdivision, or business facility, within an existing service area with less than a 5,000 gpd average capacity.
- No facility intended strictly for agricultural irrigation or aquacultural supply or make-up water shall require an amendment to this Plan. Other permits may be required.
- Shared water and/or sewage disposal systems serving two households, for the sole purpose of abating or preventing existing health problems. Health Department review and approval is required. The Health Department will provide an inventory of shared systems for inclusion in this Plan during triennial reviews to assist in planning relief.

1.6.2.3. Administrative Amendments

- The Director of the Kent County Department of Water and Wastewater Services may amend or correct minor omissions or errors of fact administratively. In addition to omissions and errors, the following requests may be amended administratively. Such changes must be brought to the attention of the County Commissioners but do not require the full amendment procedure provided in 1.6.2.1 above.
- Any new or amended residential subdivision, or business facility, within a planned service area shown on the service area maps which would not exceed 5,000 gpd.
- Any extension outside of the established planned or existing service area, or any connection to an established denied access line is not an administrative action. The previously mentioned actions should be amended to the County Service area map and approved by the Maryland Department of the Environment.
- Correction of existing problems, generating less than 5,000 gpd., outside of, but in close proximity, to an existing service area provided the following conditions are met:
 1. Adequate capacity exists in the collection, distribution and/or treatment facilities as determined by the Kent County Department of Water and Wastewater Services; and
 2. There is an existing dwelling or structure currently occupied on the property and the Kent County Health Department certifies in writing that there is an existing health problem; and
 3. A Public Works Agreement (PWA) is executed between the owner and County Commissioners restricting the service to the existing dwelling or structure only and limiting the size of the service connection to the existing use only.

1.6.2.4. Amendment Review Process

STEP 1: When a developer is interested in developing a project which requires sewer and/or water allocation, he will first submit a concept plan to the Kent County Department of Planning, Housing, and Zoning. The Kent County Department of Planning Housing and Zoning will then conduct a concept plan review that will review at a conceptual level, the feasibility, design, and environmental characteristics of the proposal based on the standards set forth in the Ordinance, the *Comprehensive Plan*, and where applicable the Village Master Plan, with the understanding that additional technical engineering, design material, survey work, and other *subdivision* documents will be submitted for review at

later steps in the *subdivision* review process. The plans will then be scheduled for Technical Advisory Committee (T.A.C.) review, at which time other county and state agencies will be provided the opportunity to ask questions, make comments and require revisions to the plans.

STEP 2: After the concept plans have been reviewed by the Technical Advisory Committee, the plans will be scheduled for a concept plan review by the Planning Commission. Scheduling of review of the project by the Planning Commission shall be done in conformance with Land Use Ordinance requirements and the rules of the Planning Commission.

Upon review, the Planning Commission shall either provide preliminary approval, preliminary approval with conditions or deny the application for the proposed project. The Planning Commission shall base their decision on the standards of review for preliminary plan as outlined in the Land Use Ordinances. If preliminary approval is granted, the applicant will continue to the next step, while those proposals denied approval must be revised as required by the Planning Commission and resubmitted.

STEP 3: The applicant for the project will submit a request to the Department of Water and Wastewater to determine if water and sewer capacity is adequate to serve the proposed project.

STEP 4: Preliminary Plan as currently drafted

STEP 5: Preliminary Plan as currently drafted with the following addition: “The Planning Commission will review the project for compliance with the Land Use Ordinance, Comprehensive Plan, and where applicable the Village Master Plan, and its feasibility, environmental, and design characteristics based a specific project that compiles the requirements for a preliminary plan. At this stage, the applicant must demonstrate adequate provisions for water supply and sewage disposal, proposed methods for fire protection, preliminary stormwater management and Forest Conservation Plans.

STEP 6: Projects which involve an average flow of 5,000 gpd, or more, must be included in the Comprehensive Water and Sewerage Plan prior to proceeding to Step7. These projects will be submitted to MDE and MDP for consistency review comments.

STEP 7: Application for water and/or sewer allocation is made to the Kent County Department of Water and Wastewater Services. The application shall be accompanied by: (1) a copy of the approved preliminary plan; (2) a letter from the Planning Commission granting approval; (3) and any other pertinent information or documentation as deemed necessary by the Kent County Department of Water and Wastewater Services.

STEP 8: Submit preliminary plan to the T.A.C.

STEP 9: After approval of preliminary plan by T.A.C., submit the preliminary plan to the Planning Commission for review and approval.

STEP 10: After receiving preliminary approval from the Planning Commission, the applicant shall then proceed with all final site and/or subdivision plans for submission and approval by T.A.C.

- STEP 11: The applicant shall enter into a Public Works Agreement (PWA) with the County Commissioners in a form prescribed by the Kent County Department of Water and Wastewater Services prior to final site plan approval. The PWA shall include at the least: (1) a reference to the approved plan; (2) a specific time frame in which all approvals shall be completed and construction shall have begun. Allocation fees are to be submitted at the time of execution of the PWA by the County Commissioners.
- STEP 12: Submit final site plan/subdivision plat to the Planning Commission for review and approval.

A flow chart of the process described above is included in this plan at the end of this chapter.

1.6.3. Guidelines for Amendments within Incorporated Towns

The Kent County Water and Sewer Plan serves as the Water and Sewer Plan for each incorporated town in the County. Therefore, each town must amend the plan according to the requirements of Sections 1.6.2.2 for projects that require a permit from MDE such as:

- Changes to the NPDES wastewater discharge permit,
- An increase in the Groundwater Appropriation Permit,
- A modification to an existing water and/or sewerage system that would require a MDE Permit, or
- A modification to an existing water and/or sewer system that would require a MDE construction permit;
- An annexation if the area is not in the W1/S1 or W2/S2 service timing category.

Any amendment of the Plan would follow a similar procedure to that described in 1.6.2.4 adjusted to each town's project review procedures.

1.6.4. Severability

In the event that any word, phrase, clause, sentence, paragraph, section, or part in or of this Comprehensive Plan for Water and Sewerage, or the application thereof to any person or circumstances, is judicially determined to be invalid, then the remaining provisions and the application of such provisions to other persons or circumstances shall not be affected. The remaining provisions of the Comprehensive Plan without the word, phrase, clause, sentence, paragraph, section or part in or of the Comprehensive Plan, or the application thereof, declared invalid, would have been adopted and approved.

Kent County, Maryland Executive Branch

