

*Final Draft*



# **Bay Restoration Fund Advisory Committee**

**Gregory B. Murray, Chairman**

## **Annual Status Report January 2011**

**Report to:**

**Governor Martin O'Malley**

**The President of the Senate**

**The Speaker of the House**

**The Senate Education, Health, and Environmental Affairs Committee**

**The Senate Budget and Taxation Committee**

**The House Environmental Matters Committee**

**The House Appropriations Committee**

## Bay Restoration Fund Advisory Committee Members

Committee Members	Affiliation
Gregory B. Murray	Washington County
Robert M. Summers, Ph.D.	Maryland Department of the Environment
Delegate Barbara Frush	Maryland House of Delegates
James L. Hearn	Washington Suburban Sanitary Commission
Jenn Aiosa	Chesapeake Bay Foundation
Beverly Stinson, PhD	AECOM
William P. Ball, Ph.D.	Johns Hopkins University
Don William Bradley	Town of Hurlock
Jeff Horan	Maryland Department of Natural Resources
Wayne Green	Office of Comptroller of Maryland
John Leocha	Maryland Department of Planning
Linda Busick, Commissioner	Worcester County Board of County Commissioners
Hilary Bell	Maryland Department of Budget & Management
Norman Astle	Maryland Department of Agriculture
Kerry Topovski	Anne Arundel County Department of Health

## **PURPOSE OF THIS REPORT**

Section 1605.2 of Chapter 9 of the Environment Article requires that beginning January 2006, and every year thereafter, the Bay Restoration Fund (BRF) Advisory Committee must provide an update to the Governor and the General Assembly on the implementation of the BRF program, and report on its findings and recommendations.

## **EXECUTIVE SUMMARY**

The Bay Restoration Fund Advisory Committee is pleased to present to Governor Martin O'Malley and the Maryland Legislature, its sixth annual Legislative Update Report. Great strides have been made in implementing this historic Bay Restoration Fund, but many challenges remain as we continue with the multi-year task of upgrading the State's wastewater treatment plants and onsite sewage disposal systems and the planting of cover crops to reduce nitrogen and phosphorus pollution in Chesapeake Bay.

### **Accomplishments**

- As of September 30, 2010, the Comptroller of Maryland has deposited approximately \$297 million in the Maryland Department of the Environment (MDE) Wastewater Treatment Plant fund, \$34 million in the Maryland Department of Environment Septic Systems Upgrade fund, and \$31 million in the Maryland Department of Agriculture (MDA) Cover Crop Program fund.
- Enhanced Nutrient Removal (ENR) upgrades of the State's major sewage treatment plants are currently underway. Upgrades to 16 facilities have been completed and are in operation. Upgrades to 15 other facilities are under construction, 21 are in design, and 8 are in planning. MDE is continuing to work to bring the remaining seven major systems into the program by urging the facilities to proceed with the ENR upgrade and/or by adding nutrient loading limits and compliance schedules in the discharge permits.
- The Maryland Department of Agriculture dedicates its portion of BRF funds for the implementation of the statewide Cover Crop Program. In FY2010, farmers planted 206,810 acres, 64% of Maryland's Chesapeake Bay Program 2-year Milestone goal to be achieved by 2011. In FY2011 Maryland farmers applied to plant 508,000 acres of cover crops. Although acreage planted typically is less than that enrolled, farmers are projected to exceed the milestone goal in FY2011. MDA's portion of funds projected from BRF annually for cover crops support approximately 120,000 acres in the program. Additional funding was made available from the 2010 Chesapeake Bay Trust Fund in FY2010 to support increased level of participation. Cover crops are planted in the fall to tie up nitrogen remaining from the previous crop. They are recognized as the State's single most cost effective best management practice (BMP) available to control nitrogen movement to groundwater and subsequently the Bay. Cover crops also prevent soil erosion and improve soil quality.
- The Maryland Department of Agriculture conducted a survey in 2010 to evaluate the Cover Crop Program and determine if program modifications could improve performance and farmer participation. Farmers were supportive of current program requirements. The most often cited

concerns for inability to carry out contracts and maximize acreage planting relate to time available in the fall and labor capacity to get the work done. As a result of the survey, MDA made modifications to the 2011 program including changing incentives for cover crops after manure use and extending kill down date to March 15. MDA retained 2010 program flexibility to allow farmers until the spring to designate which acres will be harvested and provide farmers the option of receiving a partial payment in the fall.

- MDE was successful in implementing a programmatic change for the upgrades of Onsite Sewage Disposal System (OSDS), by which the Bay Restoration Fund Septic Best Available Technology (BAT) upgrade program is being implemented locally at the county level. MDE is no longer taking direct applications from homeowners. All the counties have subscribed to the new program through their local health departments or third-party representatives.
- To provide a simplified procurement process MDE undertook an Invitation for Bids from the four field verified BAT technologies – Advantex, Hoot BNR, Norweco and Septitech. For Bay Restoration Fund BAT procurement purposes, MDE has selected the two lowest fixed unit price BAT by region for FY 2011. To allow flexibility the grant recipient (County Government/Partner) may use one of two BAT pre-selected by MDE for its regions, or use local procurement to select another BAT approvable by MDE.
- MDE and Maryland Department of Planning (MDP) are continuing their efforts to implement the requirements of House Bill 893, which was passed in the 2006 session and requires MDE and MDP, in consultation with local governments to report on the impact that an ENR upgraded wastewater treatment plant has on growth in the jurisdiction it serves. As part of this report, MDE and MDP evaluated the impact during 2009 as required by the legislation.

## **Challenges**

- Wastewater treatment plant construction costs on recently opened bids are significantly higher than the original pre-planning level estimates. As a result the current estimated total capital cost for the ENR Upgrades is higher than the \$750 million to \$1 billion range estimated at the time of legislation. The initial estimates were made as an order of magnitude estimate prior to the passage of the Bay Restoration Fund legislation and before the performance of any detailed engineering analyses at any of the facilities. The current estimate of the cost of completing the upgrades of the 67 major plants in Maryland, based on actual capital costs of the 16 completed upgrades and 15 currently under construction, is approximately \$1.478 billion. Under the current Bay Restoration Fund (BRF or Fund) fee schedule of \$2.50 per month per equivalent dwelling unit (EDU), the ENR program is generating \$54 million per year. MDE estimates that at the current fee level and with maximum 15-year term bonding, the fund can provide \$948 million in ENR grants, resulting in a projected funding shortfall of \$530 million. Given the current schedule of wastewater treatment plant upgrades, the BRF has sufficient revenue and bonding capacity to meet anticipated cash flow needs through FY 2012. In order to allow timely ENR grant awards and fully fund the planned construction within the timeline outlined in the State's Watershed Implementation Plan, the recommended fee increase would have to be effective in FY 2013, on or before October 1, 2012. The Committee considered five options. As an initial step to eliminate the funding shortfall, last year the Committee supported MDE in seeking statutory changes that allow the Bay fees to make debt service payment on bonds issued by local governments (for ENR eligible cost) that have a term of up to 30 years. A bill was introduced during the 2010 legislative session, but was later withdrawn at the request of some legislators. During the 2010 legislative session, the Maryland General Assembly acknowledged the Bay Restoration Deficit and provided that it is the intent of the committees that the Bay Restoration Fund Advisory Committee

work in consultation with the Maryland Department of the Environment and the Department of Budget and Management during the 2010 legislative interim on a plan to eliminate the deficit for funding the upgrade of the State's 67 major wastewater treatment plants to enhanced nutrient removal technology. In addition, the committees stated that it is their intent that this funding plan be implemented during the 2011 legislative session

- During 2010, the Committee reevaluated all the options and is providing its recommendations to fully close the funding gap as part of this report.
- The Chesapeake Bay Total Maximum Daily Loading (TMDL), being developed by the US Environmental Protection Agency and the Bay States, is also likely to require some minor facilities to be upgraded with an Enhanced Nutrient Removal technology. None of the minor facilities (with a capacity of less than 0.5 million gallons per day) were targeted for funding and upgrade under the Bay Restoration Fund. Requiring some of these facilities to upgrade will further increase the funding gap, if Bay Restoration Funds are used. Therefore, the Committee considered the need to upgrade some of these facilities in its recommendation to close the funding gap.

## **Conclusions**

- With the development and implementation of the BayStat process, MDE has improved its benchmarks and tracking of implementation efforts to ensure that projects remain on schedule.
- The Committee has evaluated all the options and is providing its recommendations to fully close the funding gap as part of this report. In reviewing the pros and cons of the five options detailed in this report, the Committee determined that the only option that can fully offset the shortfall, and complete the ENR upgrades on schedule is to increase the BRF fee from \$2.50 to \$5 per month per EDU. Furthermore, the Committee recommends the same fee increase be applicable to septic users, which would double the revenue to allow for more OSDS upgrades and Cover Crops activities, thereby bringing Maryland closer to meeting its obligations under the Bay-wide Total Maximum Daily Loading (TMDL).

## **Programs and Administrative Functions**

### **Comptroller's Office:**

The role of the Comptroller of Maryland (CoM) is to act as the collection agent for the Bay Restoration Fund (BRF) and make distributions to the Maryland Department of the Environment (MDE) and the Maryland Department of Agriculture (MDA) as required.

In the third year of administering the BRF, the CoM began the compliance phase of the fee administration. The law specifies that the BRF shall be administered under the same provisions allocable to administering the sales and use tax. Granted that authority, the CoM began the audit process for both filers and non-filers of BRF quarterly reports.

For non-filers, CoM has begun contacting the billing authorities and users who have failed to file or pay the BRF and is obtaining sufficient documentation to make an assessment and begin collection activity. Federal government billing authorities and users have, to date, refused to participate in the BRF process. MDE secured an agreement with several defense organizations having wastewater treatment plants to upgrade their systems over a defined period of time and they were then exempted from the BRF by MDE. A copy of the agreement was provided by MDE to CoM, and those BRF accounts were subsequently placed on inactive status. The CoM has begun to audit billing authorities who are not collecting the BRF from federal agencies and will make assessments as appropriate against those billing authorities for those uncollected fees.

Additionally, the CoM is working with MDE to obtain historical flow data from billing authorities and users, which will be compared to returns filed by billing authorities and users to ensure accurate BRF returns have been filed and paid.

### **Maryland Department of the Environment:**

Three units within the Maryland Department of the Environment (MDE) are involved in the implementation of the Bay Restoration Fund.

#### ***I. Maryland Water Quality Financing Administration:***

The Maryland Water Quality Financing Administration (MWQFA) was established under Title 9, Subtitle 16 of the Maryland Code. MWQFA has primary responsibility for the capital budget development and financial management and fund accounting of the Water Quality Revolving Loan Fund, the Drinking Water Revolving Loan Fund and the Bay Restoration Fund. Specifically for the Bay Restoration Fund, the MWQFA is responsible for the issuance of revenue bonds, payment disbursements, and the overall financial accounting, including audited financial statements.

#### ***II. Engineering and Capital Projects Program:***

The Engineering and Capital Projects Program (ECPP) manages the engineering and project management of federal capital funds consisting of special federal appropriation grants and state revolving loan funds for water quality and drinking water projects. The Program also manages projects funded by State grant programs, including Bay Restoration Fund, Special Water Quality/Health, Small Creeks and Estuaries Restoration, Stormwater, Biological Nutrient Removal, and Water Supply Financial Assistance. There may be as many as 250 active capital projects ranging in levels of complexity at any given time.

Individual projects range in value from \$10,000 to \$150 million. A single project may involve as many as eight different funding sources and multiple construction and engineering contracts over a period of three to ten years. ECPP is responsible for assuring compliance with the requirements for each funding source while achieving the maximum benefit of funds to the recipient and timely completion of the individual projects. ECPP consists of two divisions: (1) the Bay Restoration Project Management Division; and (2) the Water and Wastewater Project Management Division.

### III. Wastewater Permits Program:

The Wastewater Permits Program (WWPP) issues permits for surface and groundwater discharges from municipal and industrial sources and oversees onsite sewage disposal and well construction programs delegated to local approving authorities. Large municipal and all industrial discharges to the groundwater are regulated through individual groundwater discharge permits. All surface water discharges are regulated through combined state and federal permits under the National Pollutant Discharge Elimination System (NPDES). These permits are issued for sewage treatment plants, some water treatment plants and industrial facilities that discharge to State surface waters. These permits are designed to protect the quality of the body of water receiving the discharge.

Anyone who discharges wastewater to surface waters needs a surface water discharge permit. Applicants include industrial facilities, municipalities, counties, federal facilities, schools, and commercial water and wastewater treatment plants, as well as treatment systems for private residences that discharge to surface waters.

WWPP will ensure that the enhanced nutrient removal goals and/or limits are included in the discharge permit of facilities upgraded under the BRF. To accommodate the implementation of the Onsite Sewage Disposal System (OSDS) portion of the Bay Restoration Fund, the WWPP Deputy Program Manager has been designated as the lead for the onsite sewage disposal system upgrade program.

### **Maryland Department of Agriculture:**

The Maryland Department of Agriculture (MDA) delivers soil conservation and water quality programs to agricultural landowners and operators using a number of mechanisms to promote and support the implementation of best management practices (BMPs). Programs include information, outreach, technical assistance, financial assistance and regulatory requirements under the Water Quality Improvement Act. Soil Conservation Districts are the local delivery system for many of these programs.

The Chesapeake Bay Restoration Fund provides a dedicated fund source to support the Cover Crop Program. In prior years, funding fluctuated and program guidelines were modified accordingly to try to get the best return on public investment. Results from a 2005 survey of 3000 farm operators, who had previously participated in MDA Water Quality Incentive programs, indicated that changing Cover Crop Program guidelines and funding uncertainty discouraged participation.

Surveys were also conducted in 2006, 2009, and 2010 and used to make program adjustments, with a goal to maximizing program participation and water quality benefits. The program also includes having one application for both the traditional cover crop program and commodity cover crop program rather than separate program applications. This increases flexibility for enrollment and management at the farm level. In SFY 2011 eligibility requirements consistent with findings from a scientific panel under the auspices of BayStat were continued. The incentive structure was adjusted to maximize nutrient reductions. In addition to incentives for early planting, farmers could receive increased payments for

planting cover crops after corn or vegetables, planting cover crops on fields where manure was used as a nutrient source, planting rye, using certain tillage methods or planting in priority watersheds. In FY2011 MDA also extended killdown date for two weeks to gain additional nutrient reduction benefits and increased incentives for use of cover crops after manure. With incentives payments ranged from \$25 per acre to \$95 per acre.

Funding available for FY2011 is approximately \$15 million, with \$5.6 million from BRF, and \$9.5 million from Chesapeake Bay 2010 Trust Fund and the balance from small watershed specific grant programs. MDA had a record enrollment for FY2011 of over 508,000 acres or 150% of the 2011 Chesapeake Bay Milestone goal for cover crops. MDA enhanced its regular outreach program with news releases, print ads, direct mail, posters, 25' outdoor banners at feed mill and equipment dealer facilities, cover crop field signs, seed testing bags, bumper stickers and educational displays targeted toward farmers. Additionally inclement weather impacts to crop productivity influenced farmer decisions to enroll additional acres since projected harvest would be early allowing additional time for cover crop planting.

MDA administers the Cover Crop Program through the Maryland Agricultural Water Quality Cost Share Program or MACS. MACS program provides financial assistance to farm operators to help them implement approximately 30 BMPs. Cover crops are one of the most cost effective methods for tying up excess nitrogen from the soil following the fall harvest of crops. They minimize nitrogen loss caused by leaching into nearby streams and aquifers, prevent soil erosion and improve soil quality.

### **Maryland Department of Planning:**

The Maryland Department of Planning (MDP) is a statutory member of Bay Restoration Fund Advisory Committee (BRFAC). The Department's general mandate is to advise State agencies, local governments, the General Assembly, and others on planning matters. More specifically, the Department is focused on implementation of Smart Growth policies and programs at all levels of government. Generally, the BRF program supports State Planning and Smart Growth policies to the degree that WWTP capacity is allocated to serve existing and new development in locally certified and State recognized Priority Funding Areas (PFAs).

Specific functions that MDP carries out that relate directly or indirectly to the BRF programs are summarized below. HB 893 enacted by the 2007 legislative session, added an additional BRF reporting responsibility which is discussed in another section.

#### **1. State Clearinghouse Review**

All State and federal financial assistance applications, including those for BRF funds are required to be submitted for review through the State Clearinghouse which is part of MDP. The Clearinghouse solicits comments on these applications from all relevant State agencies and local jurisdictions. The applicant and funding agency are subsequently notified of any comments received. This review ensures that the interests of all reviewing parties are considered before a project is sent forward for final federal or State approval.

#### **2. Review and Comment on County Water and Sewerage Plans and Amendments**

MDP is directed by law to advise MDE regarding the consistency of County Water and Sewerage Plans and amendments with "local master plan and other appropriate matters" (Environment Article § 9-507

(b)(2)). This includes review for consistency with State Smart Growth policy. MDP carries out this review and provides advisory comments to MDE for consideration before MDE makes an approval decision on Water and Sewerage Plans or amendments.

The law also requires that County Water and Sewerage Plans and amendments be consistent with the local master or comprehensive plans. Therefore, if a plan or amendment is not consistent with a comprehensive plan, it is subject to disapproval by MDE. Since facility construction, discharge, and other permits must also be consistent with the County Water and Sewerage Plans, the legal chain, from comprehensive plans to Water and Sewerage Plans to permits, helps to assure that all BRF projects are consistent with local comprehensive plans before funding is approved and construction can begin.

### 3. Priority Funding Areas (PFA)

One specific feature of State Smart Growth policy is the designation of Priority Funding Areas (PFAs). These areas are delineated by local governments in accordance with statutory criteria that focus on concentrating high density growth in and near existing communities. If the local PFA boundaries do not meet the legal requirements in the law, MDP would overlay a “comment area” delineation to so indicate. The PFA statute lists the specific State financial assistance programs that are required to focus their funding on projects inside the PFA, with certain specified exceptions. BRF funds and projects are not listed as a PFA covered program. The rationale for this was that BRF funds will only pay to upgrade existing treatment capacity and will not pay for any capacity expansions.

The BRF was enacted after PFA law and is not included in the list of State financial programs subject to it. As indicated in Table 1 on page 25, the number and percent of connections outside PFAs during any one year from 2007 to 2009 varied considerably, from lows of 1 connection and less than 1%, to highs of 514 connections and 19.4%. The numbers of connections and percentages are very consistent from year to year for each upgraded ENR WWTP.

HB 893, which is discussed further in another section, analyzes the current growth impacts of BRF activities within the service areas of the ENR upgraded wastewater treatment plants completed prior to January 1, 2010.

### 4. Local Comprehensive Plan Review and Comment

Local Comprehensive Plans must be prepared by every county and municipality in Maryland, pursuant to Article 66B of the Annotated Code. MDP provides comments on all draft local Comprehensive Plans and amendments. Through the Clearinghouse review process, other State agencies are also provided the opportunity to comment before they can be adopted by local governing bodies. However, since these plans are not subject to State approval, comments provided are advisory only. Depending on the wishes of the jurisdiction, MDP works closely with, and provides technical assistance to, local governments in the processes leading to adoption of local comprehensive plans. MDP advises them on planning issues and methods supporting State Planning and Smart Growth policies and practices.

### **Monthly BayStat Review of the BRF:**

All BRF-funded ENR upgrades are closely monitored through planning, design, construction, and implementation by MDE, and are overseen monthly by the Governor through BayStat, a monthly meeting of cabinet-level state officials where updated Bay-related data are reviewed and discussed. MDE submits a monthly report to BayStat showing the status of each ENR upgrade; a recent BayStat ENR monthly report is available via this link:

[http://www.mde.maryland.gov/water/cbwrf/pop\\_up/enr\\_status\\_map.asp](http://www.mde.maryland.gov/water/cbwrf/pop_up/enr_status_map.asp)

These monthly reports show expected completion dates for each step of the process at each location, and highlight delays and other key changes in status. BayStat meetings devote particular attention to those upgrades due to become effective during the current two-year Bay milestone period.

## Bay Restoration Fund Status

The Bay Restoration Fund (BRF) fees collected from wastewater treatment plant users are identified as “Wastewater” fees and those collected from users on individual onsite septic systems as “Septic” fees. These fees are collected by the State Comptroller’s Office and deposited as follows:

- Wastewater fees (net of local administrative expenses) are deposited into MDE’s “Wastewater Fund.”
- Sixty percent (60%) of the Septic fees (net of local administrative expenses) are deposited into MDE’s “Septic Fund.”<sup>1</sup>
- Forty percent (40%) of the Septic fees (net of local administrative expenses) are deposited into Maryland Department of Agriculture’s (MDA) “Septic Fund.”<sup>1</sup>

1: For FY 2010 only, the allocation was changed to 22.4% MDE and 77.6% MDA as part of the State Budget approval during the 2010 legislative session. The purpose of this temporary change was to transfer excess funds from the MDE septic system fund into the MDA cover crop fund.

The status of the cash deposits from the State Comptroller’s Office to MDE and MDA for each of the sub-funds identified above, as of September 30, 2010, is as follows:

### Wastewater Fund (MDE 100% for ENR, Sewer Infrastructure and O&M grants)

<u>Sources:</u>		<u>Uses:</u>	
Cash Deposits	\$297,030,548*	Capital Grant Awards	\$322,237,827
Cash Interest Earnings	\$ 21,226,268	Admin. Expense Allowance	\$ 4,455,458
Net Bond Proceeds	<u>\$ 51,623,877</u>	Bond DS Allocation	<u>\$ 11,672,824</u>
Total	<u>\$369,880,693</u>	Total	<u>\$338,366,109</u>

*\* In June 2010, as part of the Budget Reconciliation and Financing Act, \$155 million of BRF fee revenue was transferred to the general fund to be replenished with \$125 million of State General Obligation bonds in FY 2010 (BPW approval 6/9/10) and the balance \$30 million is scheduled to be replaced in June 2011.*

<u>APPLICANT/PROJECT</u>	<u>GRANT AWARD</u>
<b>ENR PROJECTS</b>	
Aberdeen ENR	14,982,000.00
Allegany Co/ Georges Creek ENR	10,588,000.00
Allegany Co/ Celanese ENR	2,333,382.00
Anne Arundel Co/ Annapolis WRF ENR	700,000.00
Anne Arundel Co/ Broadneck WRF	340,000.00
Anne Arundel Co/ Broadwater ENR	650,000.00

Anne Arundel Co/ Cox Creek WRF ENR Up	16,500,000.00
Anne Arundel Co/ MD City Facility ENR	500,000.00
Anne Arundel Co/ Patuxent WRF ENR	500,000.00
Baltimore City/Back River WWTP ENR	5,000,000.00
Baltimore City/Patapsco ENR	79,547,000.00
Bowie ENR	8,867,000.00
City of Brunswick/WWTP ENR	8,263,000.00
Cambridge ENR	500,000.00
Chestertown ENR	1,490,854.14
Crisfield WWTP ENR	4,231,000.00
Cumberland WWTP ENR	26,779,000.00
Delmar WWTP ENR	2,544,000.00
Denton WWTP ENR	4,609,000.00
Easton WWTP ENR	8,660,000.00
Elkton ENR	7,960,000.00
Emmitsburg WWTP ENR	50,000.00
Federalsburg ENR	3,360,000.00
Fred. Co./ Ballenger Creek McKinney WWTP	31,000,000.00
City of Hagerstown/WWTP ENR II	10,857,000.00
Harford Co./ Joppatown ENR	888,000.00
Harford Co./ Sod Run ENR	4,283,000.00
Havre de Grace WWTP ENR	11,289,000.00
Howard County/Little Patuxent ENR	530,000.00
Hurlock WWTP ENR	941,147.75
Indian Head ENR	5,822,098.00
La Plata ENR Upgrade	610,000.00
Leonardtown WWTP ENR	510,000.00

MD Env Serv/Freedom District WWTP ENR	100,000.00
Mt Airy WWTP/ENR	3,500,000.00
Perryville ENR	4,000,000.00
Pocomoke WWTP ENR	3,224,000.00
Poolesville WWTP ENR	235,000.00
Queen Annes/ Kent Island ENR	6,380,645.09
Salisbury WWTP ENR	3,000,000.00
Snow Hill/BNR ENR	400,000.00
St. Mary's Co./Marlay Taylor Water Reclam.	1,600,000.00
Talbot Co/St Michaels ENR	1,978,698.78
Taneytown WWTP ENR	310,000.00
Thurmont WWTP ENR	300,000.00
Washington Co./Winebrenner	100,000.00
Westminster WWTP ENR	20,000.00
WSSC/Blue Plains WWTP ENR	2,000,000.00
WSSC/Damascus WWTP ENR	325,000.00
WSSC/Western Branch WWTP ENR	1,000,000.00
<b>ENR SUBTOTAL</b>	<b>304,157,825.76</b>

**SEWER PROJECTS**

Allegany Co/ Braddock Run Interceptor	500,000.00
Balto City Gwynns Run Sewer	1,575,000.00
Balto. City Greenmount Br Sewer Interc.	2,300,000.00
Balto. City Greenmount Br Sewer Interc. II	1,000,000.00
Cumberland / CSO Elimination-Evitts Creek	1,539,000.00
Denton – Lockerman St. Lift Station	100,000.00
Emmitsburg/South Seton Ave Sewer Line	600,000.00

Federalsburg/Maple Ave Sewer	600,000.00
Frostburg Combined Sewer Overflow Phase IV	1,000,000.00
Frostburg CSO – Phase V	800,000.00
City of Fruitland Infiltration & Inflow Sewer	800,000.00
Hagerstown/ Collection System Rehab	800,000.00
Havre de Grace/ I&I Sewer Reduction	166,500.00
Mountain Lake Park - Sewer Rehab III	750,000.00
Port Deposit Inflow/Infiltration Reduction	178,199.00
Secretary/Gordon Street Lift Station	150,000.00
Secretary Infil/Inflow Reduction	172,068.00
St. Mary's METCOM/Evergreen Park Sewer	203,714.00
St. Mary's METCOM/Piney Pt. Sewer Repair	500,000.00
Talbot/St Michaels Sewer & Upgrade	1,000,000.00
Talbot/St Michaels Reg.II Sewer & Upgrade	450,000.00
Thurmont / Sewer Line Rehab	947,000.00
City of Taneytown/Balt St Water Main	200,000.00
Washington Co. Halfway Inflow/Infil Reduction	200,000.00
Westernport CSO	936,000.00
Town of Williamsport/Inflow & Infiltration Red.	400,000.00
<b>SEWER SUBTOTAL</b>	<b>17,867,481.00</b>

**O&M PROJECTS**

Allegany Co./ Celanese	36,000.00
Brunswick, City of	8,400.00
Chestertown, Town of	9,450.00
Easton, Easton Utilities	72,000.00
Hurlock, Town of	29,700.00

Queen Anne's Co. / Kent Island	54,000.00
Talbot Co. / Region II	2,970.00
<b>O&amp;M PROJECT SUBTOTAL</b>	<b>212,520.00</b>

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**TOTAL (ENR, SEWER and O&M) 322,237,826.76**

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**Septic Fund (MDE 60% for On-Site Disposal System upgrades except 22.4% in FY 2010)**

<u>Sources:</u>		<u>Uses:</u>	
Cash Deposits	\$34,174,602	Capital Grant Awards	\$36,932,294
Cash Interest Earnings	<u>\$ 2,236,293</u>	Admin. Expense Allowance	<u>\$ 2,733,968</u>
Total	\$36,410,895	Total	\$39,666,262

<u>APPLICANT</u>	<u>GRANT AWARD</u>
Allegany Co. (FY11)	50,000.00
Anne Arundel Co Health Dept.	2,448,863.52
Anne Arundel Co. (FY11)	896,000.00
Baltimore Co. (FY11)	126,000.00
Calvert Co Dept of Planning/Zoning	932,401.18
Calvert Co. Planning & Zoning #2	1,582,000.00
Calvert Co. (FY11)	372,500.00
Calvert Co.(Prince George's Co.) (FY11)	50,000.00
Canaan Valley Institute (Frederick Co.)	631,907.05
Canaan Valley Inst.(Fred. Co.) (FY11)	114,000.00
Canaan Valley Institute/Washington #2	750,000.00
Canaan Valley Inst. (Wash.Co.) (FY11)	68,500.00
Caroline Co Health Dept.	144,000.00
Caroline Co Health Dept.#2	274,071.60
Caroline Co. (FY11)	97,000.00

Carroll Co. (FY11)	60,500.00
Cecil Co. Health Dept.	650,000.00
Cecil Co. (FY11)	276,500.00
Charles Co Health Dept.	601,817.08
Charles Co Health Dept. II	900,000.00
Charles Co. (FY11)	146,000.00
Dorchester Co. Health Dept.	409,000.00
Dorchester Co. (FY11)	217,500.00
Garrett Co. (FY11)	50,000.00
Harford Co. Health Dept.	1,038,000.00
Harford Co. (FY11)	133,500.00
Kent Co Dept. of Water/WW	597,000.00
Kent Co. (FY11)	129,000.00
MD DNR - Queen Annes Co.	0
Montgomery Co. (FY11)	78,000.00
Queen Anne's Co. (FY11)	295,000.00
St. Mary's Co. (FY11)	427,000.00
Talbot Co Dept. of Natural Resources	1,168,000.00
Talbot Co. (FY11)	239,500.00
Wicomico Co Health Dept.	770,601.29
Wicomico Co Health Dept.#2	979,421.70
Wicomico Co. (FY11)	168,000.00
Worcester Co Dept. of Environ. Programs	1,124,912.13
Worcester Co. (FY11)	113,500.00
Worcester Co.-(Somerset Co. FY11)	150,000.00
<b><u>County Septic Subtotal</u></b>	<b><u>19,259,995.55</u></b>

**DIRECT SEPTIC GRANTS:**

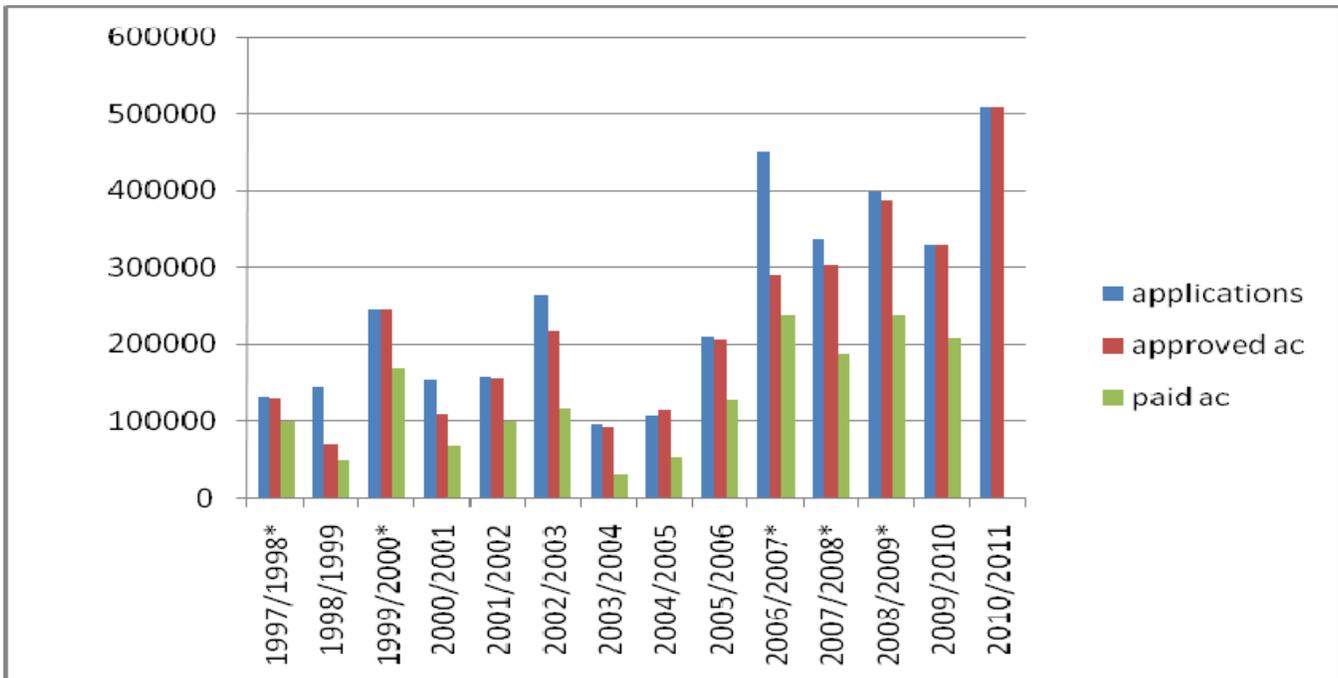
<b><u>Individual Septic Sub Total</u></b>	<b><u>17,672,298.18</u></b>
<b><u>TOTAL SEPTIC</u></b>	<b><u>36,932,293.73</u></b>

**Septic Fund (MDA 40% for Cover Crops)**

<u>Sources:</u>		<u>Uses:</u>	
Cash Deposits*	\$31,507,000	Grant Awards	\$25,164,930
		Admin. Expense	<u>\$ 783,115</u>
		Total	<u>\$25,948,045</u>

\*Cumulative revenue and expenditures as of 6/30/10

Historically there is attrition between acres approved for funding and actual payments for cover crops planted under the Maryland Agricultural Water Quality Cost Share Program. The main cause of reduced acreage is one of time and labor availability in the fall planting of cover crops after harvest. Related causes are delays caused by weather and other uncontrolled factors. The chart below illustrates the “typical” program attrition profile.



**Potential Funding Gap and Recommended Action:**

At the time of 2004 legislation, there were no Wastewater Treatment Plant (WWTP) specific engineering studies completed and MDE estimated the ENR cost for the 66 WWTP (later increased to 67, Hampstead

WWTP added) based on the Department's experience with the Biological Nutrient Removal (BNR) upgrades. In 2004, MDE testified that the ENR upgrades would cost between \$740 million and 1 billion. Based on the Engineering News-Record Construction (inflation) Index, the \$740 million or \$1.00 billion in 2004 would be equivalent to \$950 million or \$1.28 billion in 2010, respectively. Specifically, the following factors attributed to the cost increase:

- **The Inaccuracy of the August 2004 Estimates:** Maryland is a pioneer in the implementation of Enhanced Nutrient Removal (ENR) technology. At the time these estimates were developed in August 2004, there was no engineering study or any example from another state to base these estimates on. MDE's cost estimate at that time was based on its experience in the Biological Nutrient Removal (BNR) upgrades. This has proved to be an unreliable estimator for ENR project costs. For example, the current estimated cost for the upgrade of Back River WWTP is approximately \$375 million, which is 4 times higher than the original August 2004 estimates.
- **Inflationary and Economic Impacts:** Based on the Engineering News-Record Construction Index, the \$740 million in 2004 are equivalent to \$950 million today. In addition, the program was initiated during sharp increase in costs of construction during the "housing bubble," and high uncertainties in the bidding environment. In some cases, bids came more than 50% higher than the final design estimates, which are usually within 10% of the bids.
- **Restrictive Site Conditions:** Shortly after the estimates for the 2004 legislative session were developed by MDE, an EPA funded study, titled Refinement of Nitrogen Removal from Municipal Wastewater Treatment Plants, was completed in December 2004. The study provided very preliminary evaluation for a sample of 20 plants and advised that some plants such as Cox Creek had no space for additional tankage to achieve ENR level of treatment. After the completion of the more detailed feasibility studies for each specific plant, Patapsco, Ballenger Creek, and Cox Creek were found to have this challenging restriction. Very expensive technologies were needed and are being constructed at these plants in order to address their restrictive site conditions. The cumulative increased in cost for these three plants is over \$320 million.
- **Cost Containment Versus Compliance:** While MDE engineers work diligently with local governments and their engineers to contain and reduce the project cost, sufficient attention has to be given to the integrity of the design to ensure its ability to meet the project's objectives for nutrient reduction goals and permit compliance. This has been a difficult balance to achieve and in some cases more compliance assurances were provided at a higher cost.

In addition to the above factors, at the time of the initial legislation, the fiscal note was based on MDE intention to issue 20-year term bonds. After the passage of the legislation, the State Treasurer's Office, in consultation with bond counsel concluded that the Bay Restoration Fee should be treated the same way as State General Obligation Debt for purposes of determining the "maximum" bond term. Under the Maryland constitution, the General Obligation debt term cannot exceed 15-years. Based on this, the MDE was not able to issue bonds longer than 15 years and this limitation resulted in ~\$100 million reduction in bond revenues available for ENR upgrades.

MDE's current estimate for ENR upgrade of the 67 majors is \$1.478 billion. This does not include non-ENR costs that the WWTP owners pay using local funds. The \$1.478 billion also does not include the cost for ENR upgrade of currently "minor" WWTPs (flow < 0.50 MGD) that may undertake ENR in the future to comply with Chesapeake Bay wide Total Maximum Daily Loading (TMDL) or any other

compliance issue attributable to local water quality needs. It is estimated, the ENR cost for minor WWTP upgrades would be \$170 million (Attachment 2).

Under the current Bay Restoration Fund (BRF or Fund) fee schedule of \$2.50 per month per EDU, the ENR program is generating \$54 million per year. MDE is estimating that at the current fee level and with maximum 15-year term bonding, the fund can provide \$948 million in ENR grants, resulting in a projected funding shortfall of \$530 million.

In the most recent Bay Restoration Fund Advisory Committee (BRFAC) annual report (January 2010), the committee identified five options to eliminate the funding shortfall. The financial impact of these options is summarized below:

*a. Increase the Bay fee, which is currently \$2.50 per month per Equivalent Dwelling Unit (EDU), or \$30/yr per EDU. This option requires legislative approval.*

Based on the current ENR cost estimated at \$1.478 billion, a fee increase of 80% or additional \$24/yr per EDU will be needed to fully fund the ENR cost with 100% grants, if the increased fee is allowed to be fully leveraged. However, due to the required State debt ceiling, MDE will not be able to fully leverage the increased fee and the shortfall will not be fully eliminated by only 80% increase. Therefore, a fee increase of 100% or an additional \$30/yr per EDU is more likely to cover the funding shortfall by using a combination cash and bonds. Depending on the allowable bonding capacity, some projects may have to be funded at less than 100%. Alternatively, if more leveraging is allowed, the 100% increase option can provide up to \$150 million buffer for cost overruns and/or to provide assistance to jurisdictions to upgrade some of the minor facilities as needed by the Bay-wide TMDL or other compliance issue. The table below shows the funding capacity and shortfall at different fee increase levels:

	BRF Fee Increase					
Option	A	B	C	D	E	F
Fee Increase (%)	0%	50%	60%	70%	80%	100%
Fee Increase/Yr (\$)	0	15	18	21	24	30
New Fee/Yr (\$)	30	45	48	51	54	60
Sources of Funding						
WQFA Bonds (\$M)	530	775	840	895	945	1,040
Cash etc. (\$M)	418	481	496	511	533	588
Total ENR Funding (\$M)	948	1,256	1,336	1,406	1,478	1,628
Shortfall/Surplus (\$M) with full bonding capacity is added	-530	-222	-142	-72	0	150
<b>TO</b>						
Shortfall/Surplus (\$M) if no added bonding capacity is allowed	-530	-370	-340	-280	-220	-160

*b. Reduce the ENR grant, which currently is at 100% of eligible costs. This option does not require legislative approval as the law states that funding can be provided for up to 100% of eligible costs.*

Excluding the ENR grants already awarded or committed for projects under construction or completed (\$465 million), the ENR cost of future construction (FY 2011 and beyond) is estimated to be \$1.013 billion. Under the current fee, the BRF can fund a maximum of \$948 million in ENR, of which \$465 million is already committed, leaving \$483 million of uncommitted funds to finance a \$1.013 billion future needs or a grant reduction to say 50% (rather than 100%) for all future ENR construction projects.

Under this option, the projects that have yet to undertake ENR will have to pay for 50% of the capital cost using local funds. This creates an inequity as most projects have already initiated or completed the construction with 100% in ENR grants, while others in the future will not. To date, 16 facilities have completed the construction, 15 more are under construction, and at least 3 are in the bidding process and may receive 100% grant before the new policy is in place.

*c. Reprioritize the upgrade of the 67 ENR projects while delaying or not undertaking the upgrade of certain WWTPs. This option does not require legislative approval as prioritization can be completed in accordance with the existing law. However, the requirements under the Bay Total Maximum Daily Loading (TMDL) need to be considered.*

The projected funding shortfall is ~\$530 million. The future projects that would have to be delayed to offset the large shortfall would have to be the high cost projects such as:

<u>WWTP</u>	<u>Est. ENR Cost</u>	<u>Nutrient Reduction (BayStat GDU)</u>
Back River	\$ 375 million	2.459 million lbs/yr
Blue Plains	\$ 203 million	1.519 million lbs/yr (MD portion)

The Back River and Blue Plains alone account for 48% of the total nitrogen reduction goal of 7.65 million lbs/yr targeted from point sources under the Chesapeake Bay Tributary Strategy Implementation Plan (August 2007). Delaying these projects is not a viable option to meet the Bay TMDL.

*d. Seek Bay Restoration Fund statutory changes that allow the BRF revenues to make debt service payment on bonds issued by local governments (for ENR eligible costs) that have a term of up to 30 years. MDE should seek legislative approval to make this option available even if MDE and local governments later decide not to exercise the option.*

Under this option some of the local governments would issue local 30-year bond debt with BRF as source of revenue for payment of debt service. This option was proposed under HB 70 (2010 session) and later withdrawn. This option could increase the funding capacity by ~\$90 million to partially offset the projected \$530 million funding shortfall. Under this option, the fee will be used to pay local ENR debt over a 30-year period rather than over 15-years currently, and the fund would have reduced future funding capacity as bonds get fully paid off. Clearly, this option alone will not generate sufficient funds to meet the anticipated shortfall.

*e. Seek Bay Restoration Fund statutory changes to discontinue the annual operation and maintenance (O&M) grants, which can use up to \$5 million of the fund annually.*

This option would increase one-time funding capacity by ~\$50 million every 15 years, to partially offset the projected \$530 million funding shortfall, and will be objectionable to WWTP owners. The legislative intent of the O&M grant was to provide a small subsidy to upgraded WWTP operators, recognizing that once an ENR upgrade was complete, the WWTP operating costs would increase.

## **Recommendation**

In reviewing the pros and cons of the five options above, the only option that can fully offset the shortfall, and complete the ENR upgrades on schedule is to increase the BRF fee from \$2.50 to \$5 per month per EDU. Furthermore, the Committee recommends the same fee increase be applicable to septic users, which would double the revenue to allow for more OSDS upgrades and Cover Crops activities, thereby bringing Maryland closer to meeting its obligations under the Bay-wide Total Maximum Daily Loading (TMDL).

The BRF provides dedicated funding for 120,000 acres of cover crops in the MDA Winter Cover Crop Program. Maryland's Chesapeake Bay Program 2-year Milestone goal for FY 2011 includes 355,000 acres to be planted to cover crops, which will require \$18M of dedicated funding. Current BRF funding is approximately \$5.6M annually.

While the Chesapeake Bay 2010 Trust Fund has provided funding support for the Cover Crop Program in recent years, additional CBRF funding will provide greater assurance to achieve future milestones under Maryland's Chesapeake Bay Program and/or the Bay TMDL through a dedicated fund source.

Similarly, there is a huge demand on the OSDS side. The Bay TMDL Watershed Implementation Plan (the Plan) calls for requiring the retrofit of all septic systems in the Critical Area with the Best Available Technology (BAT) for nitrogen removal. This represents additional 27,552 BAT upgrades at a total estimated cost of \$358 million. If these upgrades are initiated in 2012, as the Plan states, and completed by the year 2017 milestone (within 5 years), and if they are to be fully funded by BRF (Septic Fund), it would require an average of \$72 million per year. The fund currently provides only \$8.5 million per year. While the fee increase alone will not achieve this goal, it may greatly assist in the implementation of a phased-in upgrade program.

## Wastewater Treatment Plant Upgrades With Enhanced Nutrient Removal (ENR)

### Status of Upgrades:

The Maryland Department of the Environment (MDE) is implementing a strategy known as Enhanced Nutrient Removal (ENR) and is providing financial assistance to upgrade wastewater treatment facilities in order to achieve ENR. The ENR Strategy and the Bay Restoration Fund set forth annual average nutrient goals of WWTP effluent quality of Total Nitrogen (TN) at 3 mg/l as “N” and Total Phosphorus (TP) at 0.3 mg/l as “P”, where feasible, for all significant wastewater treatment plants with a design capacity of 0.5 million gallons per day (MGD) or greater. Other wastewater treatment plants may be selected by the Department for upgrade on a case-by-case basis, based on the cost effectiveness of the upgrade, environmental benefits and other factors. Specifically, Maryland’s 67 major sewage treatment facilities are targeted for the initial upgrades.

ENR upgrades are underway at many plants, and to date, 16 major facilities and one minor have been completed and are successfully in operation. 15 other facilities are under construction, 21 are in the design stage, and eight are in the planning stage. MDE is continuing to work to bring the remaining six major systems into the program by urging the facilities to proceed with the ENR upgrade and/or by including nutrient loading limits and a compliance schedule in the discharge permits. The City of Salisbury has completed the construction to upgrade its treatment plant. However, the upgraded plant failed to achieve the ENR goals, and the City is proceeding with a corrective action plan to bring the facility into compliance.

The following are the facilities that have completed the upgrade and are in operation:

No.	Facility	Design Flow In Million Gallons Per Day	Date Completed	Nitrogen Load Reduction At Design Flow (Lbs/year)	Phosphorus Load Reduction At Design Flow (Lbs/year)
1	Hurlock	1.65	May 2006	75,000	8,500
2	Celanese	2.00	Nov. 2006	91,000	10,300
3	Easton	4.00	June 2007	60,000	20,700
4	Kent Narrows	3.00	Aug. 2007	137,000	15,500
5	APG-Aberdeen (Federal) <sup>1</sup>	2.80	Mar. 2006	127,000	14,500
6	Swan Point (Expanded Minor) <sup>1</sup>	0.60	May 2007	27,000	3,100
8	Mattawoman <sup>1</sup>	20.00	Nov 2007	304,000	103,500
7	Chestertown	0.90	June 2008	68,000	7,700
9	Brunswick	1.40	Sept. 2008	63,000	7,200
10	St. Michaels	0.66	Oct. 2008	30,000	3,400
11	Indian Head	0.50	Jan. 2009	22,000	2,600
12	Elkton	3.05	Dec 2009	139,000	15,800
13	Havre De Grace	2.275	May 2010	34,000	11,800
14	Poolesville	0.75	Jul 2010	9,000	3,900
15	Federalsburg	0.75	Aug 2010	34,000	3,900
16	Crisfield	1.00	Aug 2010	45,000	5,200
17	Boonsboro (Expanded Minor) <sup>1</sup>	0.53	Oct 2010	22,000	2,700
<i>Total</i>				1,287,000	240,300

<sup>1</sup> No BRF funding was provided

As an estimate of the total benefit of these capital projects, the above load reductions were determined based on the difference between what would be the facility's load without the upgrade versus the load with the upgrade at the ultimate design capacity. These load reductions would allow the upgraded facilities to maintain their Tributary Strategy loading caps of nitrogen and phosphorus even after reaching their design capacity and the 20-year projected growth.

### **Chesapeake Bay TMDL Implications:**

In early November, 2009, the US Environmental Protection Agency (EPA) officially transmitted the Watershed Implementation Plan (Plan) guidance and working target loads to the Bay States and Washington DC. Current model estimates are that the States' Bay water quality standards can be met at basin-wide loading levels of 200 million pounds of nitrogen per year and 15 million pounds of phosphorus per year. Maryland's current target loads are 41.04 million pounds of nitrogen per year and 3.04 million pounds of phosphorus per year by 2025

Maryland submitted its draft Phase I of the Plan on September 1, 2010 in accordance with the directions and guidance of EPA. The Plan identified 75 strategy options to reduce nitrogen, phosphorus, and sediments from wastewater, urban run-off, septic, agriculture and air pollution sectors. Maryland estimates that these strategies will provide a total reduction of 9.48 million pounds of nitrogen, which is approximately 31% more than is needed to meet Maryland's 70% reduction goal by 2017. The other Bay States and Washington DC also submitted their draft Phase I Plans to EPA.

Maryland's strategy in developing segmentshed waste load allocations (WLA) is to assume that point source cap will achieve the WLAs through the ENR upgrades. To ensure the success of Maryland's TMDL strategy and to allow for attaining 70% load reductions by 2017, ENR upgrades for major facilities need to be completed before that year. In addition, as WLAs are further developed, some minor facilities within certain segmentshed may be required to upgrade to ENR.

### **Update on Fees from Federal Facilities**

On July 19, 2006, the State of Maryland and the Department of Defense (DoD) signed a Memorandum of Understanding (MOU) to resolve a dispute regarding the applicability of the Bay Restoration Fee to DoD. The State's legal position is that the federal government is not exempt from paying the Bay Restoration Fund (BRF) fee; however, the DoD asserts that the BRF fee is a tax and that the State may not tax the federal government. On July 19, 2006, with the advice of counsel, the State chose to settle the matter with DoD rather than to litigate. In the MOU, neither party concedes any legal position with respect to the BRF fee. The MDE has agreed to accept DoD's proposal to undertake nutrient removal upgrades at certain DoD-owned wastewater treatment plants at its own expense (estimated cost \$22.5 million) in lieu of paying the BRF fee. No other Federal agency is exempt from paying the BRF fee.

Two DoD facilities, Aberdeen Proving Ground – Aberdeen and Fort Meade have been upgraded to achieve ENR level of treatment. MDE will continue to work with DoD to upgrade the other facilities as specified in the MOU. The goal is to complete the targeted DoD facilities and be in compliance with ENR effluent limits by 2012. Specifically, the following are the targeted DoD facilities with their projected construction completion and compliance dates:

<b>DoD Facility</b>	<b>Projected Construction Completion Date</b>	<b>Effluent Limits Effective Date</b>
Fort Detrick	6/30/2011	7/1/2011
Aberdeen Proving Ground – Edgewood	1/1/2012	7/1/2012
Naval Station – Indian Head	12/1/2011	1/1/2012

**Annual Operation and Maintenance Grants for the Upgraded Facilities:**

Starting in fiscal year 2010 (FY 2010), the BRF legislation allows up to 10 percent of the annual fee generated from users of wastewater treatment facilities to be earmarked to provide grants for a portion of the operation and maintenance costs of the enhanced nutrient removal technology. To ensure that each upgraded facility receives a reasonable and fair amount of grant, MDE, in consultation with the Advisory Committee, is allocating the annual operation and maintenance grant at a rate of up to \$18,000 per million gallons per day of design capacity of the facility not to exceed \$216,000 per facility.

A total of \$212,520 were authorized and expended in FY 2010. MDE requested authorization for \$1,000,000 in FY 2011 for the annual operation and maintenance grant. However, no additional grant funds were authorized to MDE for this purpose under FY 2011 budget. MDE intends to continue with this program and is requesting \$1,000,000 under FY 2012 budget.

## House Bill 893 Implementation

House Bill 893, enacted on April 24, 2007, requires that: “Beginning January 1, 2009, and every year thereafter, the Department [MDE] and the Department of Planning shall jointly report on the impact that a wastewater treatment facility that was upgraded to enhanced nutrient removal during the calendar year before the previous calendar year with funds from the Bay Restoration Fund had on growth within the municipality or county in which the wastewater treatment facility is located.”

As required by this legislation, MDP and MDE have advised the Bay Restoration Fund Advisory Committee regarding the best available information and the analysis of that data to address this mandate. MDE and MDP have concluded that the available data do not indicate that upgrading a wastewater treatment plant to ENR has had an impact on growth to date.

This report addresses the following Bay Restoration Fund financed facilities that were upgraded to ENR with Bay Restoration Fund and were completed prior to January 1, 2010:

- Town of Hurlock, Dorchester County
- Celanese, Allegany County
- Town of Easton, Talbot County
- KNSG (Kent Island), Queen Anne’s County
- Town of Chestertown, Kent County
- City Brunswick, Frederick County
- Talbot Region II, Talbot County
- Town of Indian Head, Charles County
- Town of Elkton, Cecil County

### Available Capacity

The chart below illustrates that some of the plants increased capacity at the time of the ENR upgrade, and compares the actual 2009 flow with the original design capacity. As of 2009, flows at all of these facilities continue to be below the original design capacity before the upgrade. Therefore capacity was available to accommodate the 2009 growth independently of the ENR upgrade.

Facility	Design Capacity (MGD)		Actual 2008 Flow	
	Original	At Upgrade	(MGD)	% of Original Design Capacity
Celanese, Allegany County	2.00	2.00	1.49	75%
Town of Easton, Talbot County	2.35	4.00	2.29	97%
Town of Hurlock, Dorchester County	2.00	1.65	0.89	45%
Kent Island (KNSG), Queen Anne's County	2.00	3.00	1.75	88%
City of Brunswick, Frederick County	0.70	1.40	0.35	50%
Town of Chestertown, Ken County	0.90	0.90	0.64	71%
Talbot Region II, Talbot County	0.50	0.66	0.35	70%
Town of Indian Head, Charles County	0.50	0.50	0.35	70%
Town of Elkton, Cecil County	2.70	3.05	1.53	57%

## **The Data**

MDP used three kinds of data to investigate the impact of ENR upgrades on growth:

1. **Sewer Service Area Data.** The boundaries of the areas served or planned to be served by sewer were obtained from County Comprehensive Water and Sewerage Plans. These boundaries are updated when the county plans are updated or amended.
2. **PFA Area Data.** PFA boundaries are determined by removing mapped PFA “comment areas” from locally certified PFAs. A “comment area” refers to an area certified by the local jurisdiction as a PFA, but does not meet the PFA statutory criteria. PFA boundaries are updated regularly.
3. **Parcel Point Datasets from Maryland Property View (MDPV).** MDPV is a tax map and parcel point database collection of county data. MDP used the latest MDPV Data available to identify parcels that had been improved by construction during the reporting period. An “improved parcel” is defined as any parcel that is less than twenty acres and has an improvement value of \$10,000 or more. The parcel information provided by MDPV is updated once every twelve months, but the update may not coincide with a calendar year.

## **Analysis**

According to House Bill 893, the reporting period covers the timeframe of one calendar year before the start of operations of a major ENR WWTP and every year thereafter. For each wastewater treatment plant (WWTP) service area, MDP identified the number of parcels that had been improved in the current reporting year. No distinction was made among types of uses – residential, commercial, etc. MDP assumed that improved parcels located inside of existing service areas (S-1) (based on the County Water and Sewerage Plans) are connected to the WWTP and improved parcels located outside of existing service area are on septic systems. This is the baseline against which the annual future changes in the number of connections will be measured. Note that, due to lagging data updates, it is possible in some cases that improved parcels in areas designated as planned service area (S-2) and the future service area (S-3) in County Comprehensive Water and Sewerage Plans could be connected to the public sewer system.

The focus of the analysis is on the number of newly improved parcels from one year to the next. MDP has identified these parcels as being inside or outside an S-1 service area and inside or outside the PFA. The analysis is presented in the table below. The vast majority of new lots in areas assumed to be served by WWTPs that have been upgraded with BRF money are in PFAs.

**Table 1 - Base Year Connections to 2009 Completed ENR Upgraded WWTPs Inside and Outside of PFAs**

ENR WWTP	Start of Operation Date	Number of Connections Inside PFA 2007	Number of Connections Inside PFA 2008	Number of Connections Inside PFA 2009	Number and Percent of All Connections Outside PFA 2007	Number and Percent of All Connections Outside PFA 2008	Number and Percent of All Connections Outside PFA 2009
Celanese, Allegany County	Nov-06	1854	1871	1886	64 / 3.3%	67 / 3.5%	67 / 3.4%
Easton, Talbot County	Jun-07	5899	6067	6294	102 / 1.7%	103 / 1.7 %	103 / 1.6%
Hurlock, Dorchester	May-06	796	794	794	6 / 0.7%	6 / 0.8%	5 / 0.6%
Kent Island, Queen Anne's	Aug-07	6134	6176	6274	504 / 7.6%	514 / 7.7%	475 / 7.0%
Chestertown, Kent County	Jun-08	1545	1606	1618	236/ 13.3%	239 / 13.0%	238 / 12.8%
Brunswick, Frederick County	Sep-08	2162	2172	2176	349 /13.9%	349 / 13.8%	349 / 13.8%
Talbot Region 2, Talbot County	Oct-08	1003	1006	1007	205 / 17.0%	205 / 17.0%	243 / 19.4%
Elkton, Cecil County	Dec-09	5826	5840	5858	161 / 2.7%	160 / 2.7%	160 / 2.7%
Indian Head, Charles County	Dec-09	1378	1393	1425	1 / 0.07%	1 / 0.07%	1 / 0.07%

**Table 1** shows that the number and percentages of connections outside of the PFA vary significantly from one service area to the next. Connections occur outside of the PFA for a number of reasons. Sometimes sewer service is extended beyond the PFA to address a public health problem, such as failing septic systems. Some service areas were established before the PFA law. Even today, however, there is no requirement that Water and Sewerage Plans be consistent with the PFA boundaries: State law requires only that Water and Sewerage Plans be consistent with the local Comprehensive Plan. The sole purpose of PFAs is to focus State investment programs listed in the PFA statute into PFAs. As discussed elsewhere, the BRF is not a listed program. Notwithstanding the lack of a requirement that these two plans be consistent with PFA boundaries, MDP and MDE encourage the County Water and Sewerage and local comprehensive planning processes to direct growth to designated Priority Funding Areas. For the most part, connections outside of PFAs have gone down, with the Talbot Region 2 being the exception. The Town of Easton Wastewater Treatment Plant received an ENR upgrade in 2007. However, the initial BRF reporting period for the Easton WWTP and its sanitary district spanned from 2006 to 2008.

In 2006, MDP determined that the Easton WWTP had approximately 5,649 improved parcels within the Existing Sewer Service Area (S-1) of its sanitary district. In 2007 and 2008, the number of newly improved parcels within the Existing Sewer Service Area (S-1) rose to 5,827 and then to 6,001, respectively. Presently, MDP has concluded that between 2006 and 2009 the Easton WWTP had 617 newly improved parcels within the Existing Sewer Service Area (S-1), making the current total 6,266.

As we examined the matter of the Town of Easton’s Priority Funding Area, we took into account that overall the Sanitary District (S-1, S-2, S-3 and NP) currently has approximately 6,400 improved parcels. Also, Easton’s PFA Boundary extends beyond the “S1” Category, and the Sanitary District itself. Our findings revealed that in 2007 the Easton WWTP had 5,899 improved parcels “inside” of the PFA portion of its sanitary district. In 2008 and 2009, the analysis indicated 6,067 and then rose to approximately

6,300 newly improved parcels inside of the PFA portion of the Easton WWTP sanitary district. (See Table 1)

In this 2011 Report, of the nine upgraded wastewater treatment plants the Town of Easton has experienced the most significant growth in terms of newly improved parcels (or connections) in its Existing Sewer Service Area (S-1) and “inside” the portion of PFA that overlies its sanitary districts (S-1, S-2, S-3 and NP). We see that several changes occurred throughout Easton’s expanding sewer-shed. Most of the changes are reflected by updated sewer service data while other changes are due to newly certified annexations such as the combined 340 acre annexation brought on by the relocation of the Memorial Hospital at Easton.

The second largest increase in development within its sanitary district is the Kent Island WWTP. It provides sewer service to the KN/S/G Wastewater Sub District, which is a consolidation of the Chester, Kent Narrows, Grasonville, Stevensville, and Prospect Bay Sub Districts. The Queen Anne’s County 2010 Comprehensive Water and Sewerage Plan reports that this region has experienced high population growth that is expected to continue. MDP found this growth to be evident within the Kent Island WWTP’s Existing Service Area (S-1). The majority of new development that occurred in the existing sewer service area during the reporting period from 2006 to 2009 is represented by 172 newly improved parcels, totaling 6,596 as of 2009. The newly improved parcels vary from single family houses to condominiums to commercial space. MDP’s analysis indicates that approximately 6,300 improved parcels exist inside of the PFA portion of its sanitary district. (See “Table 1” above.)

Maps are available in this 2011 BRF Report for all of the completed ENR WWTPs and sanitary districts (with the exception of the Talbot Region II). The Talbot Region II Map is not shown because between 2007 and 2009, there was only one newly improved parcel developed in the "S1" Category. However, this reporting period does mark a five year interval for the Hurlock and Celanese WWTPs, both sanitary districts have shown very modest growth in new development since 2005.

The Sewer Service Area and Improved Parcel Maps (Attachment 3) illustrate the locations of all improved parcels (red dots) up to and including the previous reporting year and all of the newly improved parcels (yellow dots) of the current reporting year that fall within the S-1 (Existing Service) Sewer Service Category.

## Onsite Sewage Disposal System (OSDS) Upgrade Program

### OSDS Identification and Billing

There are an estimated 420,000 OSDSs in Maryland that needed to be identified by local jurisdictions and billed. Working with the Advisory Committee, Maryland Department of Planning and the State Department of Assessment and Taxation, all jurisdictions have identified, and are now billing, septic system users.

### Recent Program Implementation Changes

Effective July 1, 2010, the Bay Restoration Fund Septic Best Available Technology (BAT) upgrade program is being implemented locally at the county level and MDE is no longer taking direct applications from homeowners.

The Bay Restoration (Septic) Fund statute (Annotated Code of Maryland under 9-1605.2) requires that funding priority for BAT installations be “first given to failing septic systems and holding tanks in the Chesapeake and Atlantic Coastal Bays Critical Areas and then to failing septic systems that the Department (MDE) determines are a threat to public health or water quality ...” In addition, Senate Bill 554 approved in the 2009 legislative session, requires new and replacement septic systems serving property in the Critical Areas to include the best available technology for removing nitrogen (BAT) and House Bill 62 approved in the 2010 legislative session, requires MDE to assist homeowners with failing OSDS in critical areas from moneys in the Bay Restoration (Septic) Fund for 100% of the BAT cost during calendar years 2010, 2011 and 2012.

Consistent with the above, starting in FY 2011, MDE is requiring all new grant recipients to prioritize application for financial assistance based on the following:

1. Failing OSDS or holding tanks in the Critical Areas<sup>1</sup>
2. Failing OSDS or holding tanks not in the Critical Areas<sup>2</sup>
3. Non-failing OSDS in the Critical Areas including new BAT installation
4. Non-failing OSDS outside the Critical Areas

*1. Critical Area Counties: To ensure sufficient grant funds are available to comply with HB 62 (2010 session), between July 1, 2010 and December 31, 2010, the grant funds shall only be used for BAT installations on failing OSDS or holding tanks in critical areas.*

*2. Non-Critical Area Counties: Between July 1, 2010 and December 31, 2010, the grant funds shall only be used for BAT installations on failing OSDS or holding tanks.*

**Income Based Grant Funding:** To ensure an equitable distribution of the limited BRF grant funding for the upgrade of OSDS with BAT, starting in FY 2011, MDE will require grant recipients to limit financial assistance to homeowners (except those with failing systems in the critical area, who are eligible for 100% funding) based on the following Income Based Criteria:

*Taxable Income*

% Septic BAT Grant Subsidy*	Federal 2009 Marginal	Single		Married Filing Jointly		Married Filing Separately		Head of Household	
	Tax rate	Over	up to	Over	Up to	over	up to	over	up to
100%	10%	0	8,350	0	16,700	0	8,350	0	11,950
100%	15%	8,350	33,950	16,700	67,900	8,350	33,950	11,950	45,500
75%	25%	33,950	82,250	67,900	137,050	33,950	68,525	45,500	117,450
50%	28%	82,250	171,550	137,050	208,850	68,525	104,425	117,450	190,200
25%	33%	171,550	372,950	208,850	372,950	104,425	186,475	190,200	372,950
25%	35%	372,950		372,950		186,475		372,950	

The above information is subject to change annually based on the Federal tax code.

\* 1. Homeowner Occupied Primary Dwelling: Use 2009 Federal Income Tax Return as source document (This Income based criteria does not apply to any existing failing septic system in critical areas (residential or business); they are eligible for 100% BAT grant funding.)

2. All Other Applicants (Business, Non-Residential, Rental etc.) not in critical areas: Limit grant to 25% of BAT cost

Grant Eligibility: Based on the above priority system, the Bay Restoration Fund statute allows grant funding for:

- a. The cost attributable to upgrading an OSDS to BAT for nitrogen removal (*Note, most funding requests fall under this category*); or
- b. The cost differential between a conventional OSDS and one that utilizes BAT for Nitrogen Removal; or
- c. The cost for repairing and replacing a failing OSDS with one that utilizes BAT for Nitrogen Removal (*Note, this option is available only to low-income owners, provided funds are available after addressing all BAT applications. For low-income eligibility criteria, visit MDE web site at: [http://www.mde.state.md.us/Water/CBWRF/osds/li\\_criteria.asp](http://www.mde.state.md.us/Water/CBWRF/osds/li_criteria.asp)*); or
- d. The cost, up to the sum of the costs authorized under “b” of each individual system, of replacing multiple OSDS located in the same community with a new community system that is owned by a local government and that meets Enhanced Nutrient Removal Standards.

*Grant eligibility includes capital cost of BAT plus the cost of 5-years of operations and maintenance performed by a certified service provider at a minimum of once per year or the minimum frequency recommended by the manufacturer.*

MDE Approved BAT for Nitrogen Removal: MDE currently has 14 approved BAT for nitrogen removal and information is available on MDE website at: [http://www.mde.state.md.us/Water/CBWRF/osds/brf\\_bat.asp](http://www.mde.state.md.us/Water/CBWRF/osds/brf_bat.asp)

To provide a simplified procurement process MDE undertook an Invitation for Bids from the four field verified BAT technologies – Advantex, Hoot BNR, Norweco and Septitech.

The following technologies have successfully completed the field verification:

Model	Contact Information	Certifications	MDE Field Performance Analysis for Total Nitrogen	Operation and Maintenance Cost per year*	Electricity cost and Usage**
Hoot BNR	<p><b>Manufacturer</b> Hoot Aerobic Systems, Inc. <a href="http://www.hootsystems.com">www.hootsystems.com</a></p> <p><b>Local Distributor</b> Nancy Mayer Phone: (410) 796-1434 Email: <a href="mailto:mayerbro@connext.net">mayerbro@connext.net</a></p>	Other 3 <sup>rd</sup> Party	<p>Percent Removal 52% And Effluent Concentration 29 mg/l</p> <p><a href="#">Data &amp; Analysis</a></p>	\$250 to \$325	\$100/year or 2.1 kWh/day
Advantex®-AX	<p><b>Manufacturer</b> Orenco Systems®, Inc. <a href="http://www.orenco.com/">www.orenco.com/</a></p> <p><b>Local Distributor</b> Robert Johnson Phone: 1-877-214-92837 Email: <a href="mailto:bjohnson@septicssystems.net">bjohnson@septicssystems.net</a></p>	Other 3 <sup>rd</sup> Party	<p>Percent Removal 69% And Effluent Concentration 19 mg/l</p> <p><a href="#">Data &amp; Analysis</a></p>	\$175	\$23/year or 0.475 kWh/day
Singulair TNT	<p><b>Manufacturer</b> Norweco, Inc. <a href="http://www.norweco.com">www.norweco.com</a></p> <p><b>Local Distributors</b> Eastern Shore - John Short Phone: (443) 786-0594 Email: <a href="mailto:btowers62@gmail.com">btowers62@gmail.com</a></p> <p>Southern Region - Jeff Earnshaw Phone: (301) 274-3772 Email: <a href="mailto:superiortank@olg.com">superiortank@olg.com</a></p> <p>Western Region - C.R. Semler (301) 824-2780 <a href="mailto:crsemler@crsemler.com">crsemler@crsemler.com</a></p> <p>Back River Pre-Cast LLC 12200 Owings Mills Blvd, #B Reisterstown, MD 21136 410-833-3394 Contact: Tony Geckle, Matt Geckle</p>	Other 3 <sup>rd</sup> Party And <a href="#">NSF 245</a>	<p>Percent Removal 50% And Effluent Concentration 35 mg/l</p> <p><a href="#">Data &amp; Analysis</a></p>	\$180 to \$300	\$273/year or 5.75 kWh/day
SeptiTech®	<p><b>Manufacturer</b> SeptiTech, Inc. <a href="http://www.septitech.com">www.septitech.com</a></p> <p><b>Local Distributors</b> Chris Wireman Phone: (443)-463-0637 Western MD, Scott Everhart Phone: (304) 676-3823</p>	<a href="#">ETV</a> And <a href="#">NSF 245</a>	<p>Percent Removal 59% And Effluent Concentration 24 mg/l</p> <p><a href="#">Data &amp; Analysis</a></p>	\$180 to \$300	\$242/year or 5.1 kWh/day

- \* Does not include cost of pumping septage.
- \*\* Based on a rate of \$0.13 per kWh and unit size for 3 to 4 bedrooms.

For Bay Restoration Fund BAT procurement purposes, MDE has selected the two lowest fixed unit price BAT by region for FY 2011, as follows:

Vendor	BAT System	Region	Unit Price/BAT
Back River Pre-Cast, LLC	Norweco Singular 960 TNT 500-600 GPD	Central	\$10,918
Mayer Bros., Inc	Hoot 600 BNR	Central	\$12,307
Towers Concrete Products	Norweco Singular 960 TNT 500-600 GPD	Eastern	\$10,618
Mayer Bros., Inc	Hoot 600 BNR	Eastern	\$12,507
Superior Tank Inc.	Norweco Singular 960 TNT 500-600 GPD	Southern	\$10,618
Mayer Bros., Inc	Hoot 600 BNR	Southern	\$12,407
C R Semler, Inc.	Norweco Singular 960 TNT 500-600 GPD	Western	\$12,162
RCR Septic Services, LLC	SeptiTech M440D, M550D, M750D	Western	\$12,800

*Prices for future fiscal years will be adjusted based on prior 12-month CPI published by the US-DOL, Bureau of Labor Statistics and MD sales tax changes. The unit price/BAT above includes total installed price including 5 years of O&M. The price does not include the cost of permits.*

To allow flexibility the grant recipient (County Government/Partner) may use the following procurement options:

1. Use either one of the two MDE procured fixed unit price BAT systems - The maximum grant eligible cost will be the fixed BAT unit price (above). No further local procurement action is needed.
2. Use another BAT system - The BAT may be any of the MDE approved BAT technologies and may be selected by considering other factors such as nitrogen removal efficiency, electrical cost, operations and maintenance cost. The maximum BRF grant eligible cost must be based on the "low bid" using local procurement process for that selected BAT. In some cases this will involve small purchase procurement using three price quotes/bids on the selected BAT.
3. Use one of four field verified BAT that is not one of the two MDE procured fixed unit price - The maximum BRF grant eligible cost is the "higher price" of the two MDE procured fixed unit price BAT systems, and any price difference being the homeowner's cost. This option may not require formal local procurement and is an alternative to option 2 above.

## **Cover Crop Activities (Maryland Department of Agriculture)**

### **Recent Program Streamlining and Targeting to Achieve Maximum Nutrient Reduction:**

In FY2011, MDA continued to implement and refine a targeting strategy to maximize nutrient reduction effectiveness of cover crops. Current year's program includes incentives to:

1. plant cover crops as early as possible in the fall
2. plant after crops that need higher fertilizer rates, such as corn and vegetables
3. use cover crops on fields that were fertilized using manure
4. use planting methods that maximize seed to soil contact to assure germination and early growth
5. use small grains such as rye to maximize nutrient uptake
6. Target watersheds with greatest nutrient loading potential
7. Extend killdown further in the spring to gain more nutrient uptake benefits

MDA has applied these criteria the last three fiscal years by structuring the incentive payments to reward farmers who adhered to one or more of these priorities.

In 2010, the Maryland Department of Agriculture conducted a survey which resulted in questionnaires being sent to 5,600 agricultural operators across the State. The survey builds on those conducted in 2005, 2006, and 2009. The purpose was to assess the Cover Crop Program and identify improvements that would result in additional acreage enrolled in the program.

Findings from the survey indicate the largest impediment to planting cover crops is the time available following harvest for the farmer to accomplish planting within established deadlines. Although farmers who had not participated in the program over the last four years were surveyed, 72% were aware of the Cover Crop Program. 33-37% indicated that they had either planted cover crops or commodity small grains on their own in the last 10 years. Suggestions for increasing participation such as using custom applicators to plant cover crops in the fall or increasing payment rates met with divided response, approximately half favoring the change and half being opposed. No additional program changes were made as a result of the survey.

MDA also convened a meeting of agencies involved in delivery of the Cover Crop Program. Although most who attended were Soil Conservation District personnel, University of Maryland researchers and some cooperating agencies were also in attendance. Participants emphasized building in program flexibility when possible, especially as concerned traditional and commodity cover crop options.

Recommendations incorporated into the 2011 Cover Crop Program included offering a partial payment in the fall and removing the acreage cap to eliminate enrollment barriers. To increase flexibility MDA offered a blended cover crop program, allowing farmers to enroll both traditional and commodity (harvestable) acres under the same contract and allowing them to designate acres to be harvested in the spring rather than at sign-up.

### **Status of Implementation of BRF for Cover Crop Activities:**

The Maryland Department of Agriculture portion of BRF funds is \$ 31,507,000 as of June 30, 2010. In FY 2010, an additional \$1.9 million from the 2010 Chesapeake Bay Trust Fund was also utilized to fund the Cover Crops Program. .

## **Potential Funding Gap**





# **Minor Facilities Cost Estimates**

**COST ESTIMATES FOR BNR/ENR AT MINOR FACILITIES**

Major-Minor Facilities = These are facilities of 0.112 or more million gallons per day (MGD) in design capacity. The load from these facilities exceed 6,100 N lb/year, which is the expected load discharged from the smallest major facility (0.5 mgd) upgraded with ENR (4 mg/l). A 0.112 facility can discharge close to 6,200 Lbs of N per year

BASIN	COUNTY	Facility Name	FLOW2008	Design Flow (flow in permits)(mgd)	Flow as % of Capacity	Owner	Total Est. Cost (\$M)	Est BRF Share (\$M)	Est BNR Share (\$M)	Owner's Share (\$M)
PATUXENT	ANNE ARUNDEL	PINEY ORCHARD WWTP	0.45926	1.200	38%	Private	16.15	4.37	0.00	11.77
UPPER POTOMAC	WASHINGTON	BOONSBORO WWTP	0.43569	0.530	82%	Public	0.00	0.00	0.00	0.00
UPPER WESTERN	CARROLL	MANCHESTER WWTP	0.34135	0.500	68%	Public	12.58	3.30	2.32	6.96
PATUXENT	PRINCE GEORGES	MARLBORO MEADOWS WWTP	0.27210	0.49	56%	Public	12.53	3.28	2.31	6.93
LOWER EASTERN	SOMERSET	EASTERN CORRECTIONAL INSTITUTU	0.44307	0.480	92%	Public	12.48	3.27	2.30	6.91
UPPER EASTERN	KENT	ROCK HALL WWTP	0.23056	0.480	48%	Public	12.48	3.27	2.30	6.91
UPPER POTOMAC	ALLEGANY	PINTO UTILITIES	0.27333	0.450	61%	Public	12.32	3.22	2.28	6.83
Group 1							78.52	20.70	11.51	46.31

Completed

BASIN	COUNTY	Facility Name	FLOW2008	Design Flow (flow in permits)(mgd)	Flow as % of Capacity	Owner	Total Est. Cost (\$M)	Est BRF Share (\$M)	Est BNR Share (\$M)	Owner's Share (\$M)
UPPER POTOMAC	WASHINGTON	HANCOCK WASTEWATER LAGOON	0.32116	0.380	85%	Public	11.97	3.11	2.21	6.64
UPPER POTOMAC	WASHINGTON	SMITHSBURG WWTP	0.29106	0.333	87%	Public	11.73	3.04	2.17	6.51
UPPER POTOMAC	FREDERICK	JEFFERSON WWTP	0.17812	0.3	59%	Public	11.56	2.99	2.14	6.43
UPPER POTOMAC	FREDERICK	MYERSVILLE WWTP	0.18710	0.300	62%	Public	11.56	2.99	2.14	6.43
Group 2							46.81	12.13	8.67	26.00

BASIN	COUNTY	Facility Name	FLOW2008	Design Flow (flow in permits)(mgd)	Flow as % of Capacity	Owner	Total Est. Cost (\$M)	Est BRF Share (\$M)	Est BNR Share (\$M)	Owner's Share (\$M)
CHOPTANK	DORCHESTER	TWIN CITIES WWTP	0.15993	0.281	57%	Public	11.46	2.96	2.12	6.37
CHOPTANK	CAROLINE	GREENSBORO WWTP	0.12623	0.280	45%	Public	11.46	2.96	2.12	6.37
UPPER WESTERN	CECIL	RISING SUN WWTP	0.30122	0.275	110%	Public	11.43	2.95	2.12	6.36
UPPER EASTERN	KENT	TOLCHESTER WWTP	0.10680	0.265	40%	Public	11.38	2.94	2.11	6.33
UPPER EASTERN	CECIL	CHERRY HILL WWTP	0.09278	0.250	37%	Public	11.30	2.91	2.10	6.29
UPPER EASTERN	KENT	WORTON - BUTLERTOWN WWTP	0.06690	0.250	27%	Public	0.00	0.00	0.00	0.00
UPPER POTOMAC	FREDERICK	MIDDLETOWN EAST WWTP	0.15303	0.250	61%	Public	11.30	2.91	2.10	6.29
UPPER POTOMAC	FREDERICK	MIDDLETOWN WWTP	0.21251	0.250	85%	Public	11.30	2.91	2.10	6.29
UPPER POTOMAC	FREDERICK	WOODSBORO WWTP	0.09022	0.250	36%	Public	11.30	2.91	2.10	6.29
UPPER POTOMAC	FREDERICK	NEW MARKET WWTP	0.07550	0.240	31%	Public	11.25	2.90	2.09	6.27
UPPER POTOMAC	FREDERICK	POINT OF ROCKS WWTP	0.09325	0.230	41%	Public	11.20	2.88	2.08	6.24
UPPER EASTERN	KENT	BETTERTON WWTP	0.02740	0.200	14%	Public	11.05	2.84	2.05	6.16
UPPER POTOMAC	WASHINGTON	CLEAR SPRING WWTP	0.08407	0.200	42%	Public	11.05	2.84	2.05	6.16
UPPER POTOMAC	FREDERICK	FOUNTAINDALE WWTP	0.13388	0.200	67%	Public	11.05	2.84	2.05	6.16
UPPER POTOMAC	WASHINGTON	FUNKSTOWN WWTP	0.10090	0.200	50%	Public	11.05	2.84	2.05	6.16
UPPER POTOMAC	FREDERICK	MONROVIA WWTP	0.08397	0.200	42%	Public	11.05	2.84	2.05	6.16
CHOPTANK	CAROLINE	RIDGELY WWTP	0.23713	0.200	119%	Public	11.05	2.84	2.05	6.16
CHOPTANK	TALBOT	TRAPPE WWTP	0.08242	0.200	41%	Public	11.05	2.84	2.05	6.16
UPPER POTOMAC	CARROLL	UNION BRIDGE WWTP	0.15153	0.200	76%	Public	11.05	2.84	2.05	6.16
MIDDLE POTOMAC	PRINCE GEORGES	USDA WEST-SIDE WWTP	0.06434	0.200	32%	Federal	11.05	2.84	0.00	8.21
LOWER EASTERN	DORCHESTER	VIENNA WWTP	0.13276	0.200	66%	Public	11.05	2.84	2.05	6.16
LOWER EASTERN	WICOMICO	WILLARDS WWTP	0.06641	0.200	33%	Public	11.05	2.84	2.05	6.16
Group 3							234.91	60.45	41.56	132.90

Complete

BASIN	COUNTY	Facility Name	FLOW2008	Design Flow (flow in permits)(mgd)	Flow as % of Capacity	Owner	Total Est. Cost (\$M)	Est BRF Share (\$M)	Est BNR Share (\$M)	Owner's Share (\$M)
UPPER POTOMAC	WASHINGTON	ANTIETAM WWTP	0.10726	0.163	66%	Public	10.86	2.78	2.02	6.06
UPPER POTOMAC	FREDERICK	MOUNT SAINT MARY'S UNIVERSIT	0.10431	0.160	65%	Private	10.84	2.78	0.00	8.07
CHOPTANK	TALBOT	OXFORD WWTP	0.11057	0.150	74%	Public	10.79	2.76	2.01	6.02
UPPER WESTERN	CECIL	PORT DEPOSIT WWTP	0.09429	0.150	63%	Public	10.79	2.76	2.01	6.02

CHOPTANK	TALBOT	TALBOT COUNTY REGION V WWTP	0.08195	0.1500	55%	Public	10.79	2.76	2.01	6.02
LOWER EASTERN	WICOMICO	SHARPTOWN WWTP	0.08118	0.150	54%	Public	10.79	2.76	2.01	6.02
UPPER POTOMAC	ALLEGANY	RAWLINGS WWTP	0.06831	0.143	48%	Private	10.76	2.75	0.00	8.01
PATAPSCO/BACK	ANNE ARUNDEL	HOLIDAY MOBILE ESTATES WWTP	0.08930	0.125	71%	Private	10.67	2.72	0.00	7.94
UPPER POTOMAC	CARROLL	NEW WINDSOR WWTP	0.06338	0.115	55%	Public	10.61	2.71	1.98	5.93
LOWER EASTERN	WICOMICO	PITTSVILLE WWTP	0.09492	0.115	83%	Public	10.61	2.71	1.98	5.93
CHOPTANK	CAROLINE	PRESTON WWTP	0.04636	0.115	40%	Public	10.61	2.71	1.98	5.93
<i>Group 4</i>							118.14	30.19	15.98	71.97
<b>Total for Major-Minor Facilities</b>							<b>478.38</b>	<b>123.48</b>	<b>77.73</b>	<b>277.18</b>

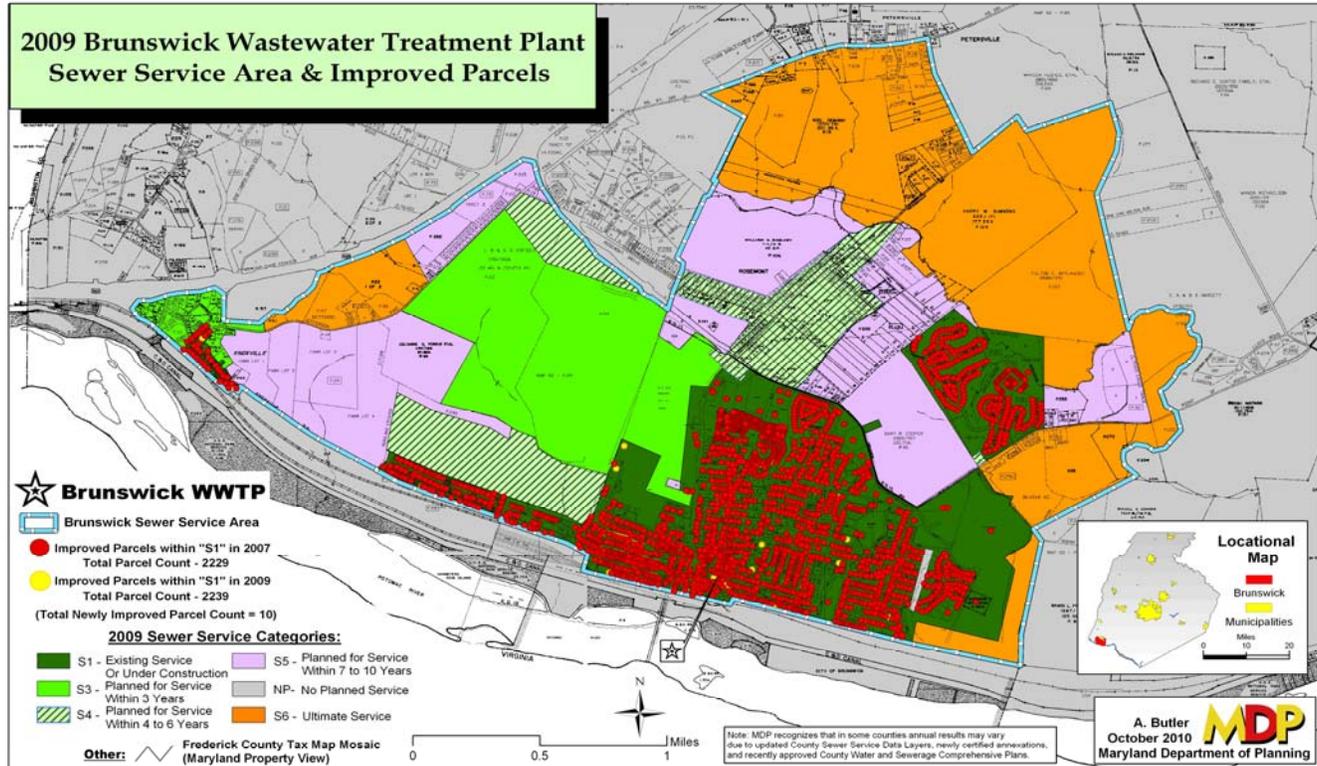
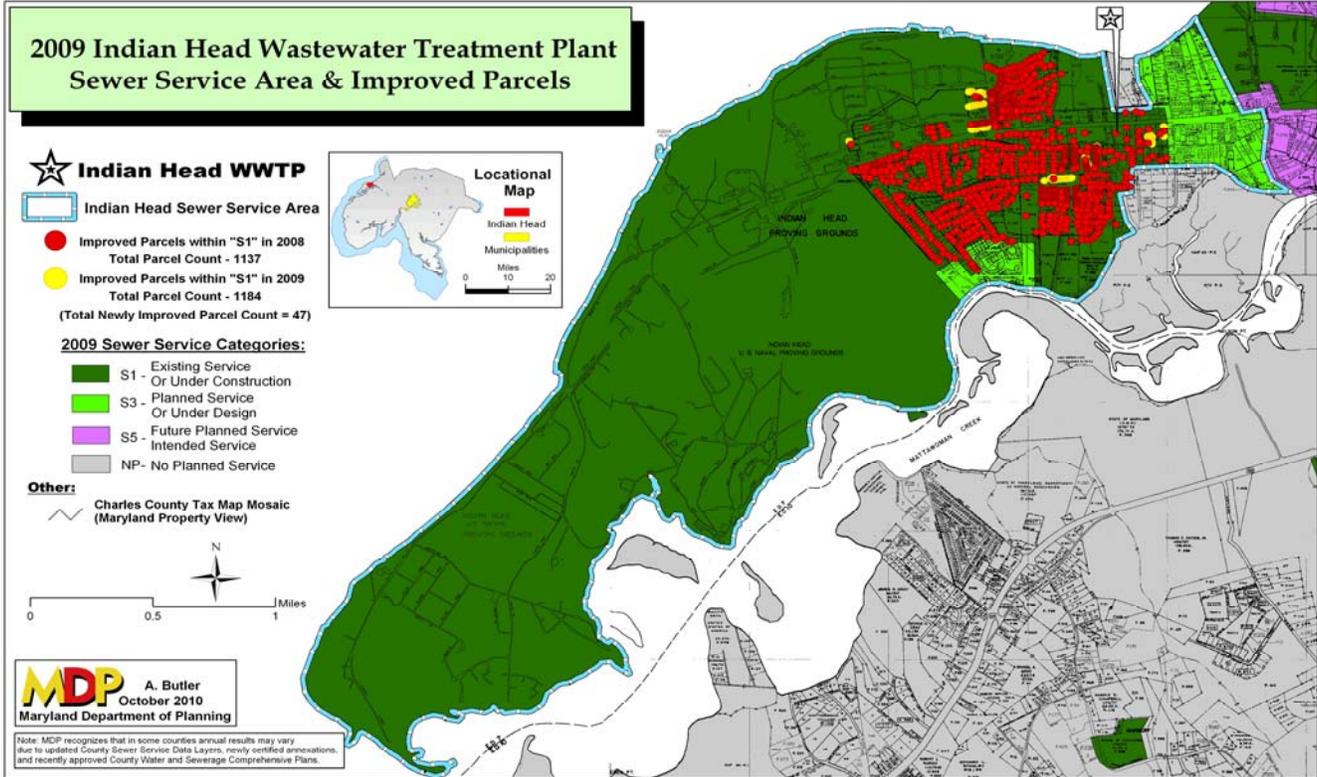
**Within ~80% Range of Major-Minor**

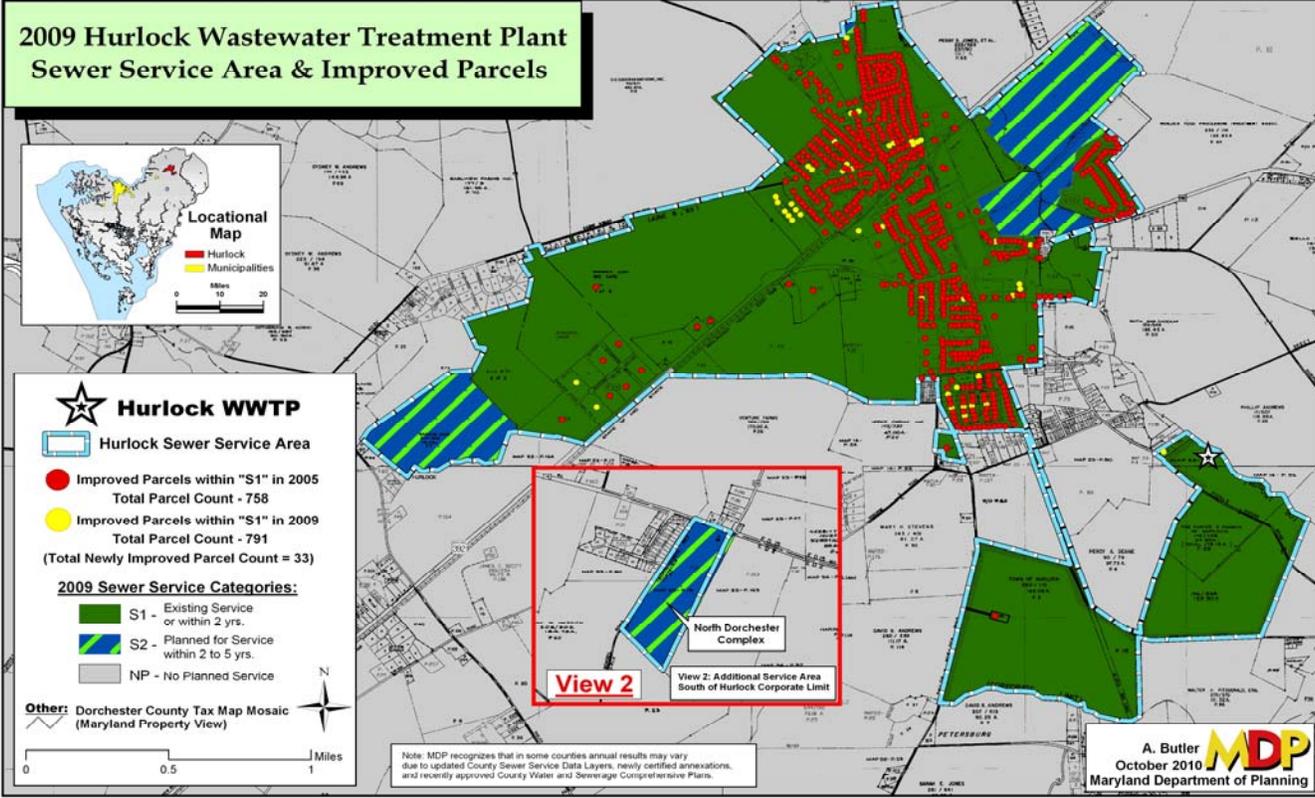
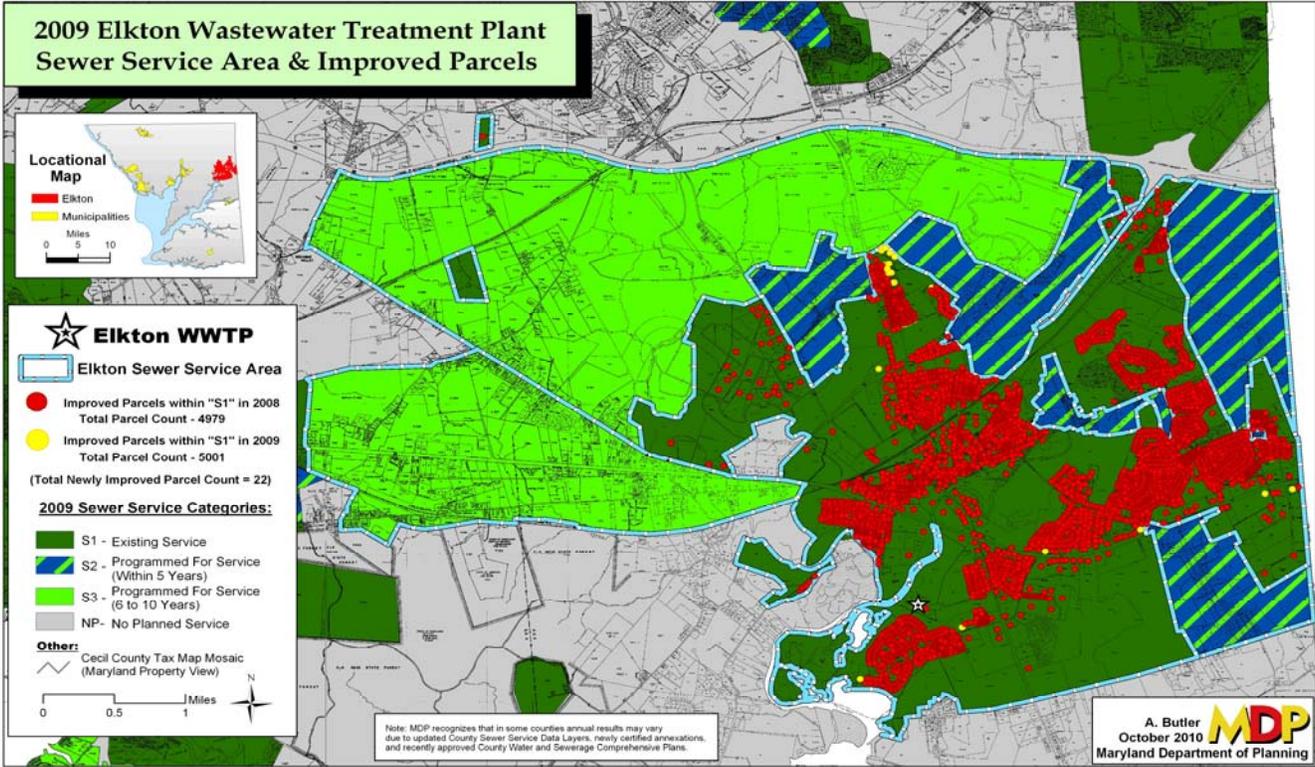
BASIN	COUNTY	Facility Name	FLOW2008	Design Flow (flow in permits)(mgd)	Flow as % of Capacity	Owner	Total Est. Cost (\$M)	Est BRF Share (\$M)	Est BNR Share (\$M)	Owner's Share (\$M)
UPPER EASTERN	QUEEN ANNES	MILLINGTON WWTP	0.05633	0.105	54%	Public	10.56	2.69	1.97	5.90
LOWER EASTERN	WICOMICO	HEBRON WWTP	0.06277	0.101	62%	Public	10.54	2.68	1.96	5.89
PATUXENT	ANNE ARUNDEL	LYONS CREEK MOBILE HOME ESTA	0.09916	0.100	99%	Private	10.54	2.68	0.00	7.85
UPPER POTOMAC	FREDERICK	MILL BOTTOM WWTP	0.06164	0.100	62%	Public	10.54	2.68	1.96	5.89
MIDDLE POTOMAC	MONTGOMERY	NIH ANIMAL CENTER	0.04956	0.100	50%	Federal	10.54	2.68	0.00	7.85
UPPER POTOMAC	FREDERICK	PLEASANT BRANCH WWTP	0.04740	0.100	47%	Public	10.54	2.68	1.96	5.89
PATUXENT	ANNE ARUNDEL	MARYLAND MANOR WWTP	0.04323	0.094	46%	Private	10.51	2.67	0.00	7.83
LOWER POTOMAC	ST MARYS	POINT LOOKOUT STATE PARK WW	0.02947	0.090	33%	State	10.49	2.67	1.95	5.86
UPPER WESTERN	BALTIMORE	RICHLYN MANOR WWTP	0.04475	0.090	50%	Public	10.49	2.67	1.95	5.86
UPPER EASTERN	CECIL	CHESAPEAKE CITY SOUTH WWTP	0.06986	0.088	79%	Public	10.48	2.66	1.95	5.86
UPPER EASTERN	QUEEN ANNES	QUEENSTOWN WWTP	0.11709	0.085	138%	Public	10.46	2.66	1.95	5.85
PATUXENT	ANNE ARUNDEL	BOONES MOBILE ESTATES WWTP	0.08450	0.08	106%	Private	10.44	2.65	0.00	7.78
UPPER EASTERN	QUEEN ANNES	CHURCH HILL WWTP	0.06044	0.080	76%	Public	10.44	2.65	1.95	5.84
UPPER POTOMAC	ALLEGANY	ROCKY GAP STATE PARK WTP	0.02975	0.080	37%	State	10.44	2.65	1.95	5.84
							146.98	37.40	19.56	90.02

**Possibly Due for Expansion and Upgrade:**

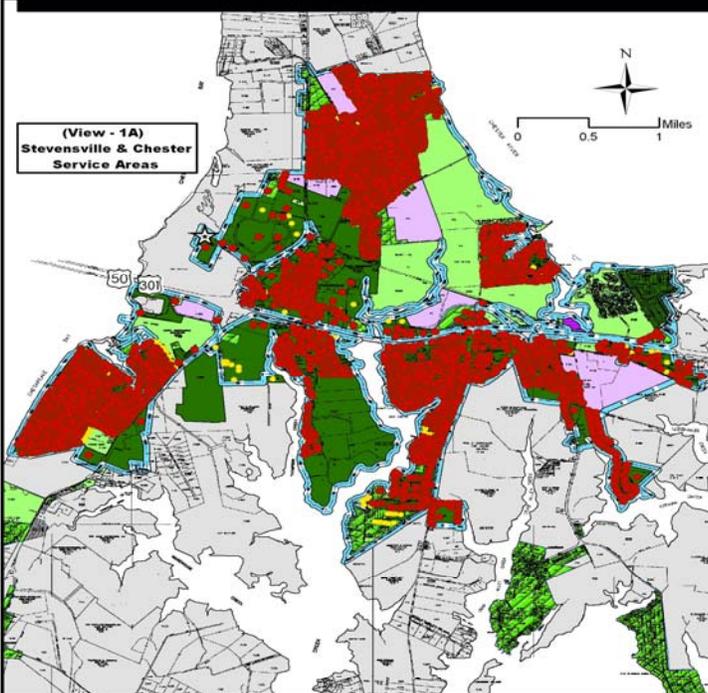
BASIN	COUNTY	Facility Name	FLOW2008	Design Flow (flow in permits)(mgd)	Flow as % of Capacity	Owner	Total Est. Cost (\$M)	Est BRF Share (\$M)	Est BNR Share (\$M)	Owner's Share (\$M)
UPPER POTOMAC	ALLEGANY	FLINTSTONE WWTP	0.05634	0.045	125%	Public	10.26	2.60	1.91	5.74
UPPER EASTERN	CECIL	CECILTON WWTP	0.04813	0.050	96%	Public	10.28	2.61	1.92	5.76
UPPER EASTERN	QUEEN ANNES	SUDLERSVILLE WWTP	0.06683	0.075	89%	Public	10.41	2.65	1.94	5.82
UPPER EASTERN	KENT	GALENA WWTP	0.04967	0.060	83%	Public	10.33	2.62	1.93	5.78
							41.28	10.47	7.70	23.11
<b>Total</b>							<b>666.65</b>	<b>171.35</b>	<b>104.99</b>	<b>390.31</b>

## **Sewer Service Areas**





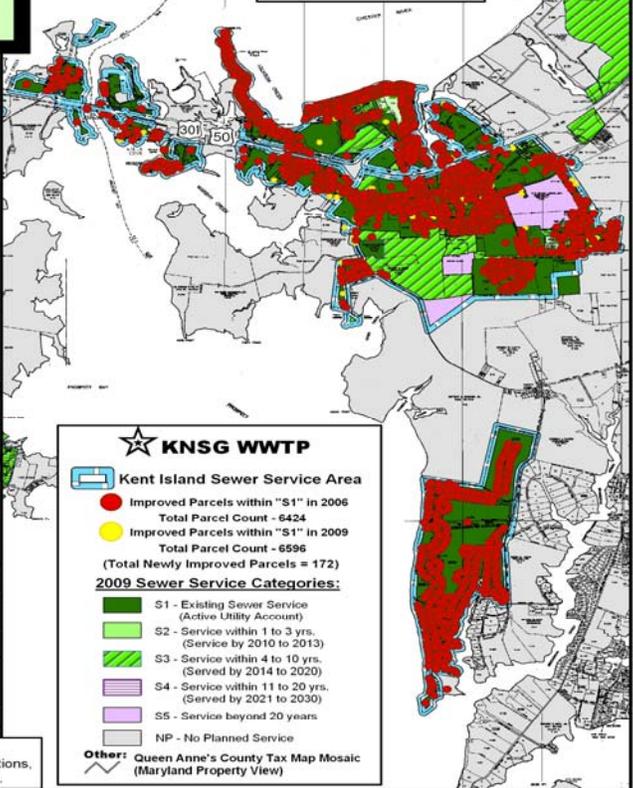
**2009 Kent Narrows/Stevensville/Grasonville Wastewater Treatment Plant Sewer Service Area & Improved Parcels**



**MDP**  
A. Butler  
November 2008  
Maryland Department of Planning

Note: MDP recognizes that in some counties annual results may vary due to updated County Sewer Service Data Layers, newly certified annexations, and recently approved County Water and Sewerage Comprehensive Plans.

**(View - 2A)  
Kent Narrows, Grasonville & Prospect Bay Service Areas**



**KNSG WWTP**

**Kent Island Sewer Service Area**

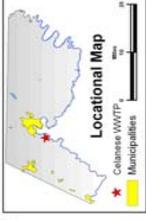
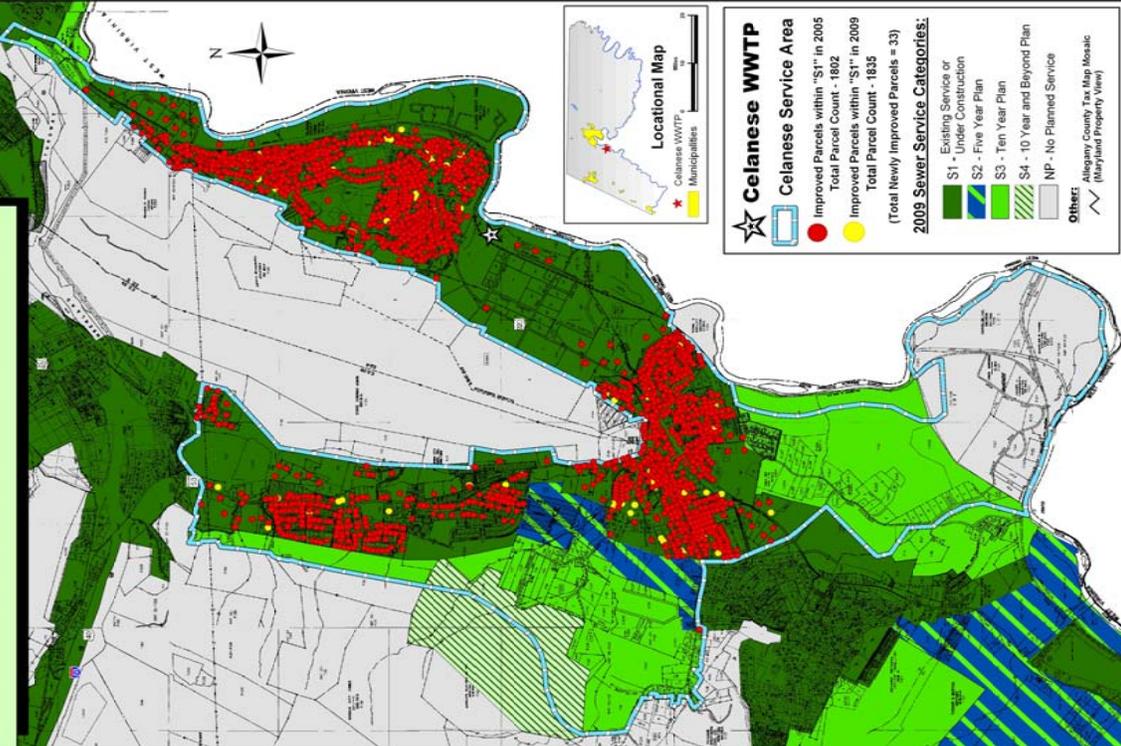
- Improved Parcels within "S1" in 2006  
Total Parcel Count - 6424
- Improved Parcels within "S1" in 2009  
Total Parcel Count - 6596  
(Total Newly Improved Parcels = 172)

**2009 Sewer Service Categories:**

- S1 - Existing Sewer Service (Active Utility Account)
- S2 - Service within 1 to 3 yrs. (Served by 2010 to 2013)
- S3 - Service within 4 to 10 yrs. (Served by 2014 to 2020)
- S4 - Service within 11 to 20 yrs. (Served by 2021 to 2030)
- S5 - Service beyond 20 years
- NP - No Planned Service

**Other:** Queen Anne's County Tax Map Mosaic (Maryland Property View)

**2009 Celanese Wastewater Treatment Plant Sewer Service Area & Improved Parcels**



**Celanese WWTP**

**Celanese Service Area**

- Improved Parcels within "S1" in 2005  
Total Parcel Count - 1802
- Improved parcels within "S1" in 2009  
Total Parcel Count - 1835  
(Total Newly Improved Parcels = 33)

**2009 Sewer Service Categories:**

- S1 - Existing Service or Under Construction
- S2 - Five Year Plan
- S3 - Ten Year Plan
- S4 - 10 Year and Beyond Plan
- NP - No Planned Service

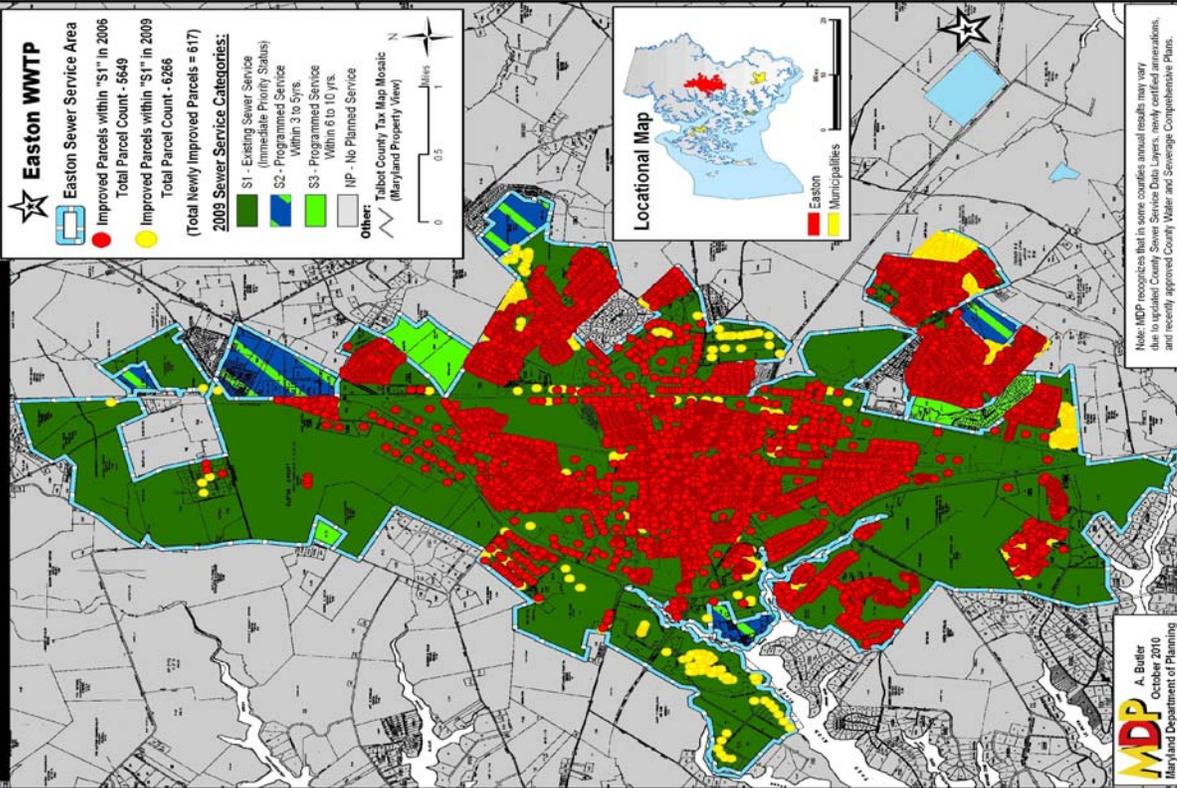
**Other:** Allegany County Tax Map Mosaic (Maryland Property View)

**MDP**  
A. Butler  
October 2010  
Maryland Department of Planning

Miles  
0 0.5 1

Note: MDP recognizes that in some counties annual results may vary due to updated County Sewer Service Data Layers, newly certified annexations, and recently approved County Water and Sewerage Comprehensive Plans.

# 2009 Easton Wastewater Treatment Plant Sewer Service Area & Improved Parcels



# 2009 Chestertown Wastewater Treatment Plant Sewer Service Area & Improved Parcels

