Draft

Bay Restoration Fund Advisory Committee

Robert M. Summers, Ph.D., Acting Chairman

Annual Status Report

January 2009

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

EXECUTIVE SUMMARY

The Bay Restoration Advisory Committee is pleased to present to Governor Martin O'Malley and the Maryland Legislature, its forth annual Legislative Update Report. Great strides have been made in implementing this historic Bay Restoration Fund, but many challenges remain as we begin 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, 2008, the Comptroller of Maryland has deposited $188.80 million to the Maryland Department of the Environment for the Wastewater Treatment Plant fund, $21.60 million to the Maryland Department of Environment for the Septic Systems Upgrade fund, and $14.40 million to the Maryland Department of Agriculture for Cover Crop Program.

- Enhanced Nutrient Removal (ENR) upgrades of the State's major sewage treatment plants are currently underway. 10 facilities have been completed and are in operation. Two of the facilities that are currently meeting the ENR treatment level, Dorsey Run and North East River, require further evaluation to ensure that they will continue to achieve ENR without additional improvements as they approach their design capacity. Nine facilities are under construction, 18 are in design, and 24 are in planning. MDE is continuing to work to bring the remaining five major systems into the program by urging the facilities to proceed with the ENR upgrade and/or by adding nutrient loading limits and compliance schedule in the discharge permits.

- BRF Advisory Committee has established a workgroup including local health and public works agencies and industry representatives, to develop specifications for approved OSDS technologies. Referred to as Best Available Technology (BAT) Workgroup, this group of professionals is responsible for establishing the procedures for determining what specific types of systems will be eligible for grants under the OSDS portion of the BRF. The BAT workgroup has adopted a protocol used by the Environmental Protection Agency/ Environmental Technology Verification (EPA/ETV) to establish a procedure to verify the performance of nitrogen reducing OSDS. A review team comprised of two engineers from MDE and one County Environmental Health Director are reviewing applications to ensure that each technology has been third party evaluated to a standard at least as stringent as the EPA/ETV's. Currently twelve proprietary technologies have been evaluated by the program and are eligible for BRF funding in Maryland.

- MDE updated the video, "Onsite Sewage Disposal Systems – Protecting Your System – Preserving the Bay". This video, which won a prestigious Aegis Award for video production, teaches homeowners about the care of septic systems and about the connection between septic systems and the Bay while also informing property owners about the availability of BRF funds to upgrade septic systems.

- The Maryland Department of Agriculture dedicates its portion of BRF funds for the implementation of the statewide Cover Crop Program. In FY2009 farmers applied for 400,000 acres, over 50% of Maryland's Chesapeake Bay Program 2010 goal. Funds projected from BRF annually will support approximately 230,000 acres of cover crops in the program. Cover crops are planted in the fall to tie up nitrogen remaining from the previous crop. They are recognized as the 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.

- MDE executed Memorandums of Understanding with Salisbury University and Towson University to develop a statewide Geographic Information System (GIS) data layer that will provide the geographic location and significant information for all septic systems in the State. This data will allow for improved modeling on septic system impacts and help direct available funding to areas where upgrading septic system will make the biggest impact. The GIS information will also be used to track the BAT units installed through the program. The MOU with Salisbury University deals with the identification of the OSDS completed by January 1st of 2009. Currently, the spatial identification of Maryland's OSDS is nearly in completion and the deliverables are currently being QA/QC before its transfer to Towson University. At Towson University the information will be entered into the OSDS database with a Geospatial Data Manager (GDM). The GDM will be used to facilitate the management of the data through a secure, user-friendly, browser-based application. The database is expected to be ready by July of 2009.

- MDE and Maryland Department of Planning (MDP) have initiated 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 the 2007 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 total capital cost for the ENR Upgrades is likely to be higher than the $750 million to $1 billion range estimated at the time of legislation. The escalating costs can be attributed to increasing energy, steel and concrete costs. Also, these estimates were made as an order of magnitude estimate prior to the passage of the Bay Restoration Fund legislation and before any detailed engineering analyses being done at any of the facilities. Based on the estimated revenue projections and bond issuance, it is estimated the current fee schedule ($30/year) can help finance approximately $868 million in ENR upgrades by 2018. The current ENR capital cost is estimated at $1.113 billion leaving a potential deficit of $245 million. Since the funding gap is not expected to occur until 2012, the Committee believes that we should allow for two years to get better cost estimates on some of the larger ENR projects, before making any recommendation on how to address the anticipated funding shortfall.

- There is a concern that individuals having their septic systems upgraded with the BRF will be subject to taxation based on the value of the upgrade or grant. This serves as a deterrent to property owners who may otherwise want to participate in a voluntary program. The Federal tax code allows the Secretary of the U.S. Department of Agriculture (USDA) to declare grant programs, which are for the purpose of improving the environment, as actions that do not result in income for the property owner. Hence, these grants are considered tax-exempt. In a letter to the U.S. Secretaries of Agriculture and Treasury, Secretary Wilson requested a ruling in favor of Maryland's position that these grants meet the requirements of federal law for a tax exemption. Under Secretary USDA, Mark Rey responded that we should send additional information to John Dondero, Branch Chief, Environmental Improvement Programs, Natural Resources Conservation Services (NRCS) for review. The NRCS have been provided with the requested information.

- Advanced septic systems that remove nitrogen require electricity and have moving parts that require regular maintenance. The EPA strongly recommends that management systems be in place to ensure the long-term performance of advanced septic systems. The BRF has no provisions for ongoing management of nitrogen reducing septic systems.

Conclusions

The implementation of the Bay Restoration Fund program is proceeding in the right direction at a good pace, which is expected to further improve in the upcoming years.

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.

As Patapsco design being finalized, better estimates have been provided showing even higher costs and more program deficit. Due to the lack of detailed engineering cost estimates for the other two largest sewage treatment plants (Blue Plains and Back River), the Committee believes it is still too early to determine what, if any, modifications should be made to the Bay Restoration Fund fee structure.

Purpose of this Report

Section 1605.2 of Chapter 9 of 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.

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 are 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. An agreement was obtained by MDE 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 in an 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.

The CoM completed two compliance audits in FY2008. These audits resulted in additional assessments and subsequent collections of over $14 thousand dollars. Additional compliance audits are scheduled for FY2009.

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 Annotated Code of Maryland, Title 9, Subtitle 16 with the primary responsibility for the financial management and fund accounting of the Water Quality Revolving Loan Fund, the Drinking Water Revolving Loan Fund and the newly created 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. *Water Quality Infrastructure Program:*

The Water Quality Infrastructure Program (WQIP) manages the engineering, planning and project management of federal capital funds consisting of special federal appropriations grants, and state revolving loan funds for water quality and drinking water projects. The Program also manages State grant programs including 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 $50 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. WQIP 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. WQIP consists of three divisions, Bay Restoration Fund Program Division, a Project Management Division, and a Planning 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. The survey and a follow up 2006 survey were used to make program adjustments, with a goal to maximizing program participation and water quality benefits. Program adjustments included increasing the acreage enrollment cap, on-line access to application forms, increased incentives for early planting and split payments. Future program eligibility adjustments may occur in response to an evaluation of targeting mechanisms initiated at the request of Governor O'Malley.

FY2009 saw application requests for 400,000 acres, exceeding available funds. BRF funds approximately 230,000 acres in traditional cover crops. A separate commodity cover crop program was also available allowing farmers to harvest the crop for a reduced payment provided they do not use fertilizer in the fall. This portion of the program is authorized through MDA's General Fund budget. The commodity cover crop program accounted for 58,000 acres of the total approved acres. Because of limited funding in the commodity cover crop program, approximately 250 applicants requesting to enroll 25,000 acres were not approved to participate.

In FY2007, an agreement with the Maryland Grain Producers Utilization Board (MGPUB) resulted in MDA and the MACS Office administering a Hulless Barley Program within the commodity cover crop program, which does not utilize BRF. The purpose is to provide experience for producers who plant hulless barley as a cover crop for its use in the future as a feedstock to produce ethanol. The MGPUB has initiated actions to construct an ethanol plant using hulless barley as a feedstock in Maryland. The pilot provides an added incentive for operators who choose to grow hulless barley as part of the commodity cover crop option. In FY2007, the first year of the Hulless Barley Program, 692 acres were planted.

MDA administers the Cover Crop Program through the Maryland Agricultural Water Quality Cost Share Program or MACS. MACS 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 (BRF AC). 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 State Planning and Smart Growth policies and programs at all levels of government.

Generally, the BRF program will support State Planning and Smart Growth policies to the degree that WWTP capacity serves existing and new development in locally certified and State recognized PFAs.

There are several specific functions that MDP carries out that relate directly or indirectly to the BRF programs. An additional specific reporting responsibility was added by HB 893 in the 2007 legislative session.

1. State Clearinghouse Review

All State and federal financial assistance applications, including those for BRF funds are required to be submitted to the State Clearinghouse within MDP. In turn, MDP sends notice to all relevant State agencies and local jurisdictions for review and comment. The Clearinghouse subsequently notifies the applicant and funding agency of any comments received. This review ensures that the interests of all reviewing parties are considered before the project can be sent to the Board of Public Works for approval.

2. County Water and Sewerage Plan and amendment review and comment.

MDP is directed by law to advise MDE concerning the consistency of County Water and Sewerage Plans and amendments with "local master plan and other appropriate matters" such as State Smart Growth policy (Environment Article 9-507 (b)(2)). MDP carries out this review and advises MDE accordingly 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 must 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, provides some assurance that all BRF projects are consistent with local plans and State Smart Growth policy before funding is approved and construction can begin. As noted above, BRF funds will support State Planning and Smart growth policies to the extent that local comprehensive plans and County Water and Sewerage Plans reflect and implement these State policies.

3. Local (county and municipal) comprehensive plan review and comment

Local Comprehensive Plans and amendments are also subjected to a State interagency review process before they can be adopted by a local governing body. 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.

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."
- Forty percent (40%)of the Septic fees (net of local administrative expenses) are deposited into Maryland Department of Agriculture's (MDA) "Septic 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, 2008, is as follows:

Wastewater Fund (MDE 100% for ENR & Sewer Infrastructure)

Sources:		Uses:	
Cash Deposits	$188,795,088	Capital Grant Awards	$115,490,175
Cash Interest Earnings	$ 12,619,540	Admin. Expense Allowance	$ 2,831,926
Net Bond Proceeds	$ 51,623,877	FY '09 Bond DS Allowance	$ 4,654,963
Total	$253,038,505	Total	$122,977,064

Applicant/WWTP Fund	Grant Award
ENR PROJECTS	
Aberdeen ENR	200,000.00
Alleghany Co/ Georges Creek ENR	10,588,000.00
Alleghany Co/ Celanese ENR	2,333,382.00
Anne Arundel Co/ Annapolis WRF	200,000.00
Anne Arundel Co/ Broadneck WRF	200,000.00
Baltimore City/Patapsco ENR	10,000,000.00
Baltimore City/Back River WWTP ENR	5,000,000.00
Bowie ENR	600,000.00
City of Brunswick/WWTP ENR	8,263,000.00
Cambridge ENR	100,000.00

Applicant/WWTP Fund	Grant Award
Chestertown ENR	2,000,000.00
Crisfield WWTP ENR	4,231,000.00
Cumberland WWTP ENR	1,000,000.00
Delmar WWTP ENR	200,000.00
Denton WWTP ENR	200,000.00
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
City of Hagerstown/WWTP ENR	650,000.00
Havre de Grace WWTP ENR	11,289,000.00
Harford Co./ Sod Run ENR	50,000.00
Howard County/Little Patuxent ENR	530,000.00
Hurlock WWTP ENR	941,147.75
Indian Head ENR	6,484,000.00
La Plata ENR	110,000.00
Leonardtown WWTP ENR	510,000.00
MD Env Serv/Freedom District WWTP ENR	100,000.00
Mt Airy ENR	200,000.00
Perryville ENR	4,000,000.00
Queen Annes/ Kent Island ENR	6,380,645.09
Salisbury WWTP ENR	3,000,000.00

Applicant/WWTP Fund	Grant Award
St. Mary's Co./Marlay Taylor Water Reclam.	200,000.00
Talbot Co/St Michaels ENR	2,000,000.00
Thurmont WWTP ENR	300,000.00
Washington Co./Winebrenner	100,000.00
Westminister ENR	20,000.00
WSSC/Damascus WWTP ENR	325,000.00
WSSC/Western Branch WWTP ENR	1,000,000.00
WSSC/Blue Plains WWTP ENR	2,000,000.00
ENR SUBTOTAL	105,335,174.84
SEWER PROJECTS	
Balto City Gwynns Run Sewer	1,575,000.00
Balto. City Greenmount Branch Sewer Interc.	2,300,000.00
Balto. City Greenmount Branch Sewer Interc. II	1,000,000.00
Emmitsburg/South Seton Ave Sewer Line	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	300,000.00
Port Deposit Inflow & Infiltration Reduction	200,000.00
Secretary/Gordon Street Lift Station	150,000.00
Secretary Infilt/Inflow Reduction	200,000.00
St. Mary's METCOM/Evergreen Park Sewer	230,000.00
Talbot/St Michaels Sewer & Upgrade	1,000,000.00
Talbot/St Michaels Sewer & Upgrade	400,000.00

Applicant/WWTP Fund	Grant Award
City of Taney Town/Balt St Water Main	200,000.00
Washington Co. Halfway Inflow/Infilt Reduction	200,000.00
SEWER SUBTOTAL	10,155,000.00
TOTAL (ENR & SEWER)	**115,490,174.84**

Septic Fund (MDE 60% for On-Site Disposal System upgrades)

Sources:		Uses:	
Cash Deposits	$21,600,504	Capital Grant Awards	$10,009,391
Cash Interest Earnings	$ 1,550,934	Admin. Expense Allowance	$ 1,728,040
Total	$23,151,438	Total	$11,737,431

Applicant/Septic Fund	Grant Award
Anne Arundel Co Health Dept.	2,644,000.00
Calvert Co Dept of Planning/Zoning	933,000.00
Canaan Valley Institute/Frederick Co	712,000.00
Caroline Co Health Dept.	144,000.00
Charles Co Health Dept.	604,000.00
Kent Co Dept. of Water/WW	597,000.00
Maryland Dept. of Natural Resources	287,000.00
Talbot Co Dept. of Natural Resources	1,168,000.00
Wicomico Co Health Dept.	771,000.00
Worcester Co Dept. of Environ. Programs	1,142,000.00
SUBTOTAL SEPTIC	**9,002**,000.00
Individual Septic Upgrades (78) thru 9/08	1,007,390.76
TOTAL SEPTIC	**10,009,390.76**

Septic Fund (MDA 40% for Cover Crops)

Sources*:		Uses:	
Cash Deposits	$12,234,161	Grant Awards	$ 7,381,602
		Admin. Expense	$ 246,043
		Total	$ 7,627,645

Maryland farmers have submitted applications to plant over 330,000 acres of cover crops in FY2008, which equates to a maximum funding demand of over $13.2M. Contracts with a total value of $12M were approved. Given the normal slippage (later plantings, fewer acres, etc., than planned), the anticipated actual expenditure this program year is $8M, which includes watershed specific federal funds and general funds dedicated to traditional cover crop acres and commodity cover crop acres.

Potential Funding Gap and Recommended Action:

Based on current total estimated ENR capital cost of $1.113 billion and BRF wastewater (WW) fund projected cash flow, the WW fund can provide $868 million in grants and is expected to have a funding deficit of $245 million by 2018. Under the current ENR project schedule and anticipated cash flow needs, the WW fund will be able to provide up to 100% grants for ENR expenditures through FY 2011. This will be accomplished by issuing approximately $530 million in revenue bonds in addition to using the Bay fee cash balances (See Attachment 1 for details). The primary reasons for the anticipated funding gap are the higher ENR project cost and the 15-year term limitation on the bay bonds, as required under the Maryland constitution for State supported debt. MDE investigated the issuance of 20-year bonds, which would have allowed the State to issue $100 million more in revenue bonds than the 15-year term. However, it was later determined by the State Treasurer that since the BRF fee is assessed practically from all State residents, any bonds leveraged against the fee must have the same terms as the General Obligation debt, which is set by the State constitution not to exceed 15 years.

Since the ENR funding deficit is not anticipated until FY 2012 and ENR project costs for the big three projects (Back River, Patapsco, and Blue Plains WWTPs) are very preliminary, the Advisory Committee, at this time, is not recommending any change to the Bay Restoration fee, which is currently $2.50 per month per Equivalent Dwelling Unit. Other options to mitigate the potential funding deficit that the Advisory Committee may consider are as follows:

a. Reducing the ENR grant which currently is at 100% of eligible costs;
b. Reprioritize the upgrade of the 66 ENR projects while delaying or not undertaking the upgrade of certain WWTPs;
c. Seek Bay Restoration Fund 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.

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.

One DoD facility, Aberdeen Proving Ground – Aberdeen, has 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 complete the targeted DoD facilities by 2015.

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 66 major sewage treatment facilities are targeted for the initial upgrades.

MDE has taken advantage of the momentum generated by the existing biological nutrient removal (BNR) program and has proceeded with the ENR strategy as a continuation to the BNR. Facilities that were in the planning or design phase to upgrade to BNR (achieving 8 mg/l total nitrogen) were asked to revise their plans to include ENR capability to achieve 3 mg/l total nitrogen and 0.3 mg/l total phosphorus. Consequently, ENR upgrades are underway at many plants, and to date, 10 facilities have been completed and are in operation. Two of the facilities that are currently meeting the ENR treatment level, Dorsey Run and North East River, require further evaluation to ensure that they will continue to achieve ENR without additional improvements as they approach their design capacity. Nine facilities are under construction, 18 are in design, and 24 are in planning. MDE is continuing to work to bring the remaining five major systems into the program by urging the facilities to proceed with the ENR upgrade and/or by adding nutrient loading limits and compliance schedule in the discharge permits. Please see Attachments 2 through 11 for more information on facilities currently in the ENR operation.

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 to address this mandate. The results of this analysis are presented below. This first Report addresses the following Bay Restoration Fund financed facilities which were completed prior to January 1, 2008:

	Design Capacity (MGD)		Actual	% of
Facility	Original	At Upgrade	2007 Flow	Original
Celanese, Allegany County	2.00	1.66	1.319	66.0%
Town of Easton, Talbot County	2.35	4.00	2.161	92.0%
Town of Hurlock, Dorchester County	2.00	1.65	1.025	51.3%
Kent Island (KNSG), Queen Anne's County	2.00	3.00	1.368	68.4%

As of 2007, actual flows for the subject facilities have been below the original design capacity before the ENR upgrade. Therefore, growth at these facilities during 2007, if any, cannot be attributable to the Bay Restoration Fund.

MDP Methodology

Even though the Bay Restoration Fund has no impact on growth during the year 2007 and growth would have occurred at these facilities with or without the ENR upgrades, full analysis have been completed by MDP to estimate growth at these facilities. The MDP GIS Model uses the following Data:

1. Sewer Service Areas derived the latest County Water and Sewerage Plans. These boundaries are updated regularly based on amendments or updates of the county Plans.

2. Locally certified Priority Funding Areas (PFAs), subtracting the "comment areas" that have been identified by MDP. A "comment area" is any part of a locally certified PFA that does not comply the PFA statutory criteria. PFA boundaries are also updated regularly.

3. Parcel data from Maryland Property View (MPV) that identifies new construction on parcels during the reporting year. MPV is also updated on an annual rotating cycle. This update cycle for any particular county may not match perfectly the calendar year for reporting. However, over time, trends will become apparent and will not be important to discerning the locations issues of interest for new connections.

For each wastewater treatment plant (WWTP) service area, the GIS model identifies the number of 2007 connections inside and outside of the PFA. This forms the baseline against which future increases in changes in connections will be measured. The model assumes that any newly improved properties inside of existing service areas are connected to the WWTP. No distinction is made among types of uses – residential, commercial, etc.

A map of each service area is prepared with newly improved parcels for the year highlighted with a yellow dot. These maps appear in Appendix 10 of this Report. These parcels are then simply counted with respect to their location inside and outside of the PFA to produce the table below.

WWTP	Operational Date	2007 New Connections Inside PFA	2007 New Connections Outside PFA
Celanese, Allegany County	11/2/2006		
Town of Easton, Talbot County	6/30/2007		
Town of Hurlock, Dorchester County	5/15/2006		
Kent Island, Queen Anne's County	8/20/2007		

In addition, MDP and MDE are making their best efforts in using the Water and Sewer planning process to ensure that growth, which may be directly or indirectly attributable to the Bay Restoration Fund program, be within State designated Priority Funding Areas. Based on our experience with St. Michael's WWTP, which has been upgraded in 2008 and will be covered in our 2010 report, the following difficulties exist in the implementation of these efforts:

- There is no regulatory link between the County Water and Sewer Plans and Smart Growth.
- There is no regulatory link between the Bay Restoration Fund program and Smart Growth.
- Bay Restoration Fund does not pay for any flow beyond the Approved Design Capacity in the Maryland's Tributary Strategy Statewide Implementation Plan. Therefore, there may be no direct link between growth and the Bay Restoration Fund program. Indirect link is possible.
- Most facilities have a reserved design capacity above current flow, which can be used for growth with or without the ENR upgrade. Hence, indirect link is difficult to establish in some situation.

Onsite Sewage Disposal System (OSDS) Upgrade Program

OSDS Identification and Billing

There are an estimated 420,000 OSDS's 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.

Best Available Technology (BAT)

The Bay Restoration Fund legislation states that funds generated by the OSDS users fee may be used for the following:

" With priority given to failing systems and holding tanks located in the Chesapeake Bay and Atlantic Coastal Bays Critical Area, grants or loans for up to 100% of:

A. The costs attributable to upgrading an onsite sewage disposal system to the best available technology for removal of nitrogen; or
B. The cost difference between a conventional onsite sewage disposal system and a system that utilizes the best available technology for the removal of nitrogen;"

It was necessary to develop a procedure for determining which technologies should be considered grant eligible. The BRF Advisory Committee established a workgroup including local health and public works agencies and industry representatives, to develop specifications for approved OSDS technologies. Referred to as Best Available Technology (BAT) Workgroup, this group of professionals was responsible for establishing the procedures for determining what specific types of systems will be eligible for grants under the OSDS portion of the BRF. MDE and the BAT workgroup reviewed programs in other states, published research and third party verification programs. Current research indicates that nitrogen discharges from OSDS's can be reduced by 50 to 60 percent.

The BAT workgroup adopted a protocol used by the Environmental Protection Agency for Environmental Technology Verification (EPA/ETV) to establish a procedure to verify the performance of proprietary nitrogen reducing OSDS. Twelve proprietary technologies have been evaluated by the EPA/ETV program and are eligible for BRF funding in Maryland. A review team comprised of two engineers from MDE and one County Environmental Health Director review applications to ensure that each technology has been third party evaluated to a standard at least as stringent as the EPA/ETV's.

For non-proprietary technologies the vendor/applicant must provide a detailed description of the technology process illustrating sound scientific fundamentals and engineering practice. Acceptable technologies may be approved as a highly managed system. Highly managed systems must have either a renewable operating permit or be managed as part of a service district. No jurisdictions have availed themselves of the use of highly managed systems.

The BAT protocol requires an application for technology review to be submitted to MDE. The technical review team with experts in the field will review each application for approval of a particular technology and information collected to verify the effectiveness of that technology. If the technology has not

undergone independent third-party verification or certification indicating consistent reduction of better than 50 percent of the nitrogen, the technology will be allowed an unlimited number of types of installations. These technologies will be monitored for a one to two year field evaluation period. After this period the technical review team will determine if the technology receives an unconditional approval, needs further field testing or is rejected from the program. This evaluation period will allow the Department to further define what should be considered a BAT and to perform cost benefits analyses.

BAT Project Selection

The goal of the OSDS portion of the BRF is to curtail the amount of nitrogen discharged from OSDS into the waters of the State. This benefits the State by helping to restore the estuarine environment and provides for better protection of drinking water supplies. The Bay Restoration Fund statute states that funds may be used to provide grants for the incremental cost of upgrading OSDS to BAT for nitrogen removal. The BRF cannot provide funding for an entire OSDS replacement or repair and any material (gravel & pipe) and labor costs not directly associated with the BAT unit installation. The Department recognizes that operation and maintenance, design review, installation inspection and project management are essential parts of the cost of upgrading OSDS to BAT for nitrogen removal. The BRF grant funds will cover the initial cost of purchasing and installing the BAT unit. The cost for the initial 5 years of operation and maintenance may also be included in the cost of purchasing the BAT technology. The local implementing entity may also use a portion of the BRF funds for reasonable costs associated with identifying individual applicants, reviewing plans, and inspecting BAT unit installations.

The Department has outsourced some elements of the OSDS portion of the BRF implementing OSDS upgrades using the BRF funds granted to county and municipal government agencies. These agencies may, with approval from MDE, make grants to OSDS users who agree to upgrade their systems and provide the necessary ongoing operation and maintenance. As mandated by the legislation, addressing failing systems in either the Chesapeake Bay Critical Area or the Maryland Coastal Bay's Critical Area is highest priority.

In cooperation with the Advisory Committee, MDE developed a Request for Proposals (RFP) for local governments to obtain funding through the BRF to support the planning, design and construction of BAT OSDS systems in targeted watersheds, with priority to failing systems in the Critical Area of the Chesapeake Bay and the Coastal Bays. The highest priority was given to proposals that directly address failing OSDS in either the Chesapeake Bay Critical Area or the Maryland Coastal Bay's Critical Area, although grants are not limited to these areas only. Other factors that received priority points included:

- Proximity to shellfish harvesting areas,
- Watersheds that are known to be nutrient impaired due to OSDS,
- Areas that are within 2500' of reservoirs or recreational lakes,
- Areas that are within wellhead protection zones,
- Areas where private wells and OSDS are concentrated on lots smaller than 1 acre,
- Areas that are underlain with karst (limestone) geology,
- Projects that create responsible management entities,
- Projects that utilize renewable operating permits,
- Projects that create management (sanitary) districts,
- Household income below median household income for the county of residence; and
- Readiness to proceed.

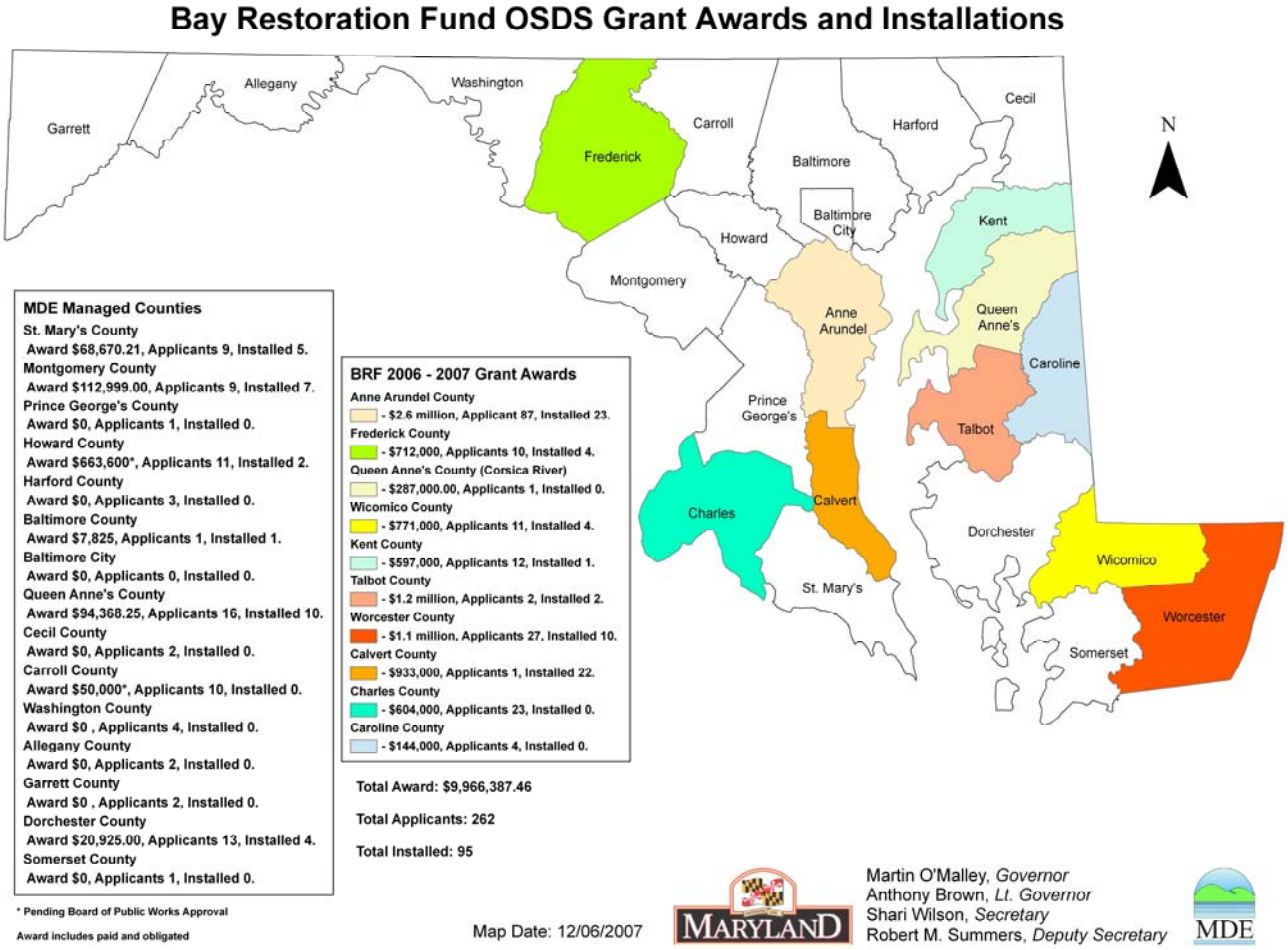
A key component of a successful proposal was the level of management the project will have. Without proper scheduled maintenance, the units will not produce a consistently high quality effluent. A responsible management entity, as defined by the U.S. Environmental Protection Agency (EPA), is "an entity responsible for managing a comprehensive set of activities delegated by the regulatory authority; a legal entity that has the managerial, financial, and technical capacity to ensure long-term, cost effective operation of onsite and/or cluster water treatment systems in accordance with applicable regulations and performance (e.g., a wastewater utility or wastewater management district)." Other management examples that were rewarded higher award points were the issuance of operating permits, similar to State Groundwater Discharge Permits that have reporting limits, or enforceable maintenance contracts to be recorded by some County authorized process.

A review panel consisting of personnel from MDE and the Governor's Advisory Committee evaluated and ranked the proposals. A project score sheet was developed to rate how well each proposal addressed elements that included: readiness to proceed, addressing failing systems in the critical area, addressing other health and environment based factors, identifying onsite sewage disposal systems to be upgraded, partnerships and available resources to implement the proposal and how long-term issues of management are to be addressed. Ten proposals were submitted to MDE prior to the stated deadline and proposed awards were based on their project scores. To date, the Board of Public Works approved MDE's request to fund the proposals and awarded a total of over $10 million to ten different jurisdictions to upgrade approximately 700 septic systems. The following table summarizes the awards:

Applicant/Septic Fund	**Grant Award**
Anne Arundel Co Health Dept.	2,644,000.00
Calvert Co Dept of Planning/Zoning	933,000.00
Canaan Valley Institute/Frederick Co	712,000.00
Caroline Co Health Dept.	144,000.00
Charles Co Health Dept.	604,000.00
Kent Co Dept. of Water/WW	597,000.00
Maryland Dept. of Natural Resources	287,000.00
Talbot Co Dept. of Natural Resources	1,168,000.00
Wicomico Co Health Dept.	771,000.00
Worcester Co Dept. of Environ. Programs	1,142,000.00
SUBTOTAL SEPTIC	**9,002,000.00**
Individual Septic Upgrades (78) thru 9/08	1,007,390.76
TOTAL SEPTIC	**10,009,390.76**

MDE is developing an Application & proposal for grant funding to provide other jurisdictions opportunity to participate in implementing the BRF.

The following figure summarizes system installation and application by County:



Outreach

MDE staff is working with the Chesapeake Bay Tributary Teams, community groups and environmental groups to promote the onsite system upgrade program and has attended meetings, environmental fairs and other events organized by these groups to make presentations and distribute grant program materials.

In the fall of 2005, MDE has developed a brochure entitled "The Bay Restoration Fund Onsite Sewage Disposal System User Information Guide". The brochure explains the Bay Restoration Fund and informs citizens how to apply for funding. The brochure is available on MDE's website, and is being distributed to local health departments. Also, the brochure is being distributed as part of MDE's inspection of onsite sewage disposal systems adjacent to shellfish harvesting waters.

In the winter of 2006, MDE produced the video, "Onsite Sewage Disposal Systems – Protecting Your System – Preserving the Bay". This video, which won a prestigious Aegis Award for video production, teaches homeowners about the care of septic systems and about the connection between septic systems and the Bay while also informing property owners about the availability of BRF funds to upgrade septic systems. To date approximately 5,000 copies of this video have been distributed to homeowners and demand for the video remains high.

Cover Crop Activities (Maryland Department of Agriculture)

Recent Program Streamlining Activities in Preparation for the BRF Program:

In 2005, the Maryland Department of Agriculture engaged the Schaefer Center for Public Policy to assist with a series of focus groups across the state and questionnaires sent to over 3,000 agricultural operators across the state. The purpose was to assess the Cover Crop Program and identify improvements that would result in additional acreage enrolled in the program. The recommendations have been evaluated and many of the recommendations incorporated in the current program. Specific streamlining actions include putting the application and certification forms on the MDA website so they can be downloaded by the applicants and faxed into the local Soil Conservation District offices.

In FY2008, a separate commodity cover crop program continued to be available allowing farmers to harvest the crop for sale in the spring in return for a reduced payment provided they do not fertilize the acres in the fall. Acreage enrollment was capped at 250 acres per application. General funds available for this portion of the program limited the number of applications eligible for the program. Therefore, approximately 250 applications were cancelled due to insufficient funds.

Also in FY2007, a three-year agreement was signed with the Maryland Grain Producers Utilization Board (MGPUB) resulting in MDA and the MACS Office providing additional incentives for participation in the Hulless Barley Program. Producers who plant hulless barley may sell it in the future as a feedstock to produce ethanol in a plant planned to be built by the MGPUB. This program gives operators an opportunity to see how the barley grows and learn any special considerations needed in the planting, harvesting and management of the hulless barley. In the first year of the program, 692 acres of hulless barley were planted for an additional $10,000 paid to the farmers by the MGPUB.

Status of Implementation of BRF for Cover Crop Activities:

The Maryland Department of Agriculture has received $14,348,339 from the BRF to date. Since program demand exceeded BRF grant availability in FY2007, MDA reduced the acreage caps for each application. For FY2008, traditional cover crop applications were capped at 700 acres and commodity cover crop applications were capped at 250 acres per application.

Potential Funding Gap

Attachment 2

Hurlock Wastewater Treatment Plant (WWTP) BNR/ENR Upgrade
FACT SHEET

PROJECT DESCRIPTION:

The project consists of planning, design, and construction of facilities to upgrade the existing Hurlock WWTP for Biological Nutrient Removal (BNR) and Enhanced Nutrient Removal (ENR) to achieve effluent concentrations goal of 3 mg/l for Total Nitrogen and 0.3 mg/l for Total Phosphorous. The existing lagoons will be replaced with a 1.65 mgd activated sludge BNR system and tertiary filters ENR system.

RECEIVING STREAM/BODIES OF WATER: Wrights Branch

NUTRIENT REMOVAL (AT 1.65 MGD):

Nitrogen

	Total Nitrogen (Without Upgrade)	**Total Nitrogen (With Upgrade)**	**% Reduction**
Concentration (mg/l)	18	3	83%

The plant will maintain its Tributary Strategy loading cap of 20,101 pounds of nitrogen per year even after reaching its design capacity and 20-year projected growth.

Phosphorus

	Total Phosphorus (Without Upgrade)	**Total Phosphorus (With Upgrade)**	**% Reduction**
Concentration (mg/l)	2	0.3	85%

The plant will maintain its Tributary Strategy loading cap of 1,508 pounds of phosphorus per year even after reaching its design capacity and 20-year projected growth.

TOTAL COST AND FUNDING SOURCES:

Total Project Cost	$7,585,362
State Supplemental Grant	$ 300,000
State BNR Grant	$2,600,000
Bay Restoration Fund	$1,000,000
State Revolving Loan Fund	$2,734,552
EPA Grant	$ 950,810

MILESTONES:

CONSTRUCTION START: June 2004
CONSTRUCTION COMPLETION: May 2006

CELANESE WASTEWATER TREATMENT PLANT (WWTP)
FACT SHEET

PROJECT DESCRIPTION:

The project involves planning, design, and construction of new activated sludge Enhanced Nutrient Removal (ENR) facility to replace the existing lagoon system, and achieve effluent concentration goal of 3 mg/l for Total Nitrogen and 0.3 mg/l for Total Phosphorous. The project also involves the expansion of the existing 1.25 million gallons per day (MGD) Celanese Wastewater Treatment Plant to 1.66 MGD. The upgrade also includes the installation of denitrification filters for additional nitrogen and phosphorous removal. The original project included only the upgrade with a biological nutrient removal (BNR). However, after the passage of the Bay Restoration Fund Bill, a change order to the construction contract was issued to include the ENR upgrade.

RECEIVING STREAM/BODIES OF WATER: Potomac River

NUTRIENT REMOVAL GOAL (AT 1.66 MGD):

Nitrogen

	Total Nitrogen (Without Upgrade)	**Total Nitrogen (With Upgrade)**	**% Reduction**
Concentration (mg/l)	18	3	83%

The plant will maintain its Tributary Strategy loading cap of 24,364 pounds of nitrogen per year even after reaching its design capacity and 20-year projected growth.

Phosphorus

	Total Phosphorus (Without Upgrade)	**Total Phosphorus (With Upgrade)**	**% Reduction**
Concentration (mg/l)	2	0.3	85%

The plant will maintain its Tributary Strategy loading cap of 1,827 pounds of phosphorus per year even after reaching its design capacity and 20-year projected growth.

BUDGET:	Total Project Cost	$15,833,000
	State BNR Grant	$3,566,000
	Bay Restoration Fund	$2,022,000
	State Supplemental Grant	$1,110,000
	SRF Loan	$8,910,000
	Other Local Funding	$225,000

MILESTONES:	**CONSTRUCTION START:**	March 2003
	CONSTRUCTION COMPLETION:	November 2006

Attachment 4

Town of Easton Wastewater Treatment Facility BNR/ENR Upgrade and Expansion
Fact Sheet

PROJECT DESCRIPTION:

This project is to improve the existing wastewater treatment system and enable the community to meet the goals established for nutrient loads discharged to the Chesapeake Bay. Specifically, the wastewater treatment facility is designed for enhanced nutrient removal (ENR) upgrade to achieve effluent concentrations goal of 3 mg/l for Total Nitrogen and 0.3 mg/l for Total Phosphorous. Also, the project involves the expanding the plant capacity from 2.35 to 4.0 million gallons per day (mgd). The BNR upgrade will be funded at the existing plant capacity of 2.35 mgd, while the ENR upgrade will be funded at the approved design capacity of 4.0 mgd.

RECEIVING STREAM/BODIES OF WATER: Choptank River

NUTRIENT REMOVAL (AT 4.0 MGD):

Nitrogen

	Total Nitrogen (Without Upgrade)	**Total Nitrogen (With Upgrade)**	**% Reduction**
Concentration (mg/l)	18	3	83%

The plant will maintain its Tributary Strategy loading cap of 48,729 pounds of nitrogen per year even after reaching its design capacity and 20-year projected growth.

Phosphorus

	Total Phosphorus (Without Upgrade)	**Total Phosphorus (With Upgrade)**	**% Reduction**
Concentration (mg/l)	2	0.3	85%

The plant will maintain its Tributary Strategy loading cap of 3,655 pounds of phosphorus per year even after reaching its design capacity and 20-year projected growth.

TOTAL COST AND FUNDING SOURCES:

Total Project Cost	$37,453,191
State BNR Grant	$ 8,930,000
Bay Restoration Fund	$ 8,000,000
Local Share/SRF Loan	$20,523,191

MILESTONES:

CONSTRUCTION START: December 2004
CONSTRUCTION COMPLETION: June 2007

Kent Narrows/Stevensville/Grasonville WWTP BNR/ENR Upgrade and Expansion
FACT SHEET

PROJECT DESCRIPTION:

The project involves the planning, design and construction of enhanced nutrient removal (ENR) upgrade to achieve total nitrogen removal to a yearly average of 3 mg/l, and phosphorus of 0.3 mg/l. The upgrade also involves the expansion of the treatment capacity of the plant from 2.0 million gallon per day (MGD) to 3.0 MGD to accommodate growth within State designated Priority Funding Areas and serve existing homes currently using failing septic systems; thereby, averting a public health hazard and further reduce nitrogen loading to the Bay. A new activated sludge process will replace the existing rotating biological contactor (RBC) process with an increased capacity of 3.0 MGD. The treated wastewater from the KN/S/G WWTP will continue to be discharged directly into the Chesapeake Bay.

RECEIVING STREAM/BODIES OF WATER: Middle Chesapeake Bay

NUTRIENT REMOVAL (AT 3.0 MGD):

Nitrogen

	Total Nitrogen (Without Upgrade)	**Total Nitrogen (With Upgrade)**	**% Reduction**
Concentration (mg/l)	18	3	83%

The plant will maintain its Tributary Strategy loading cap of 36,547 pounds of nitrogen per year even after reaching its design capacity and 20-year projected growth.

Phosphorus

	Total Phosphorus (Without Upgrade)	**Total Phosphorus (With Upgrade)**	**% Reduction**
Concentration (mg/l)	2	0.3	85%

The plant will maintain its Tributary Strategy loading cap of 2,741 pounds of phosphorus per year even after reaching its design capacity and 20-year projected growth.

TOTAL COST AND FUNDING SOURCES:

Total Project Cost	$35,018,817
State BNR Grant	$ 8,525,817
Bay Restoration Fund	$ 6,493,000
Local Share/SRF Loan	$20,000,000

MILESTONES:

CONSTRUCTION START: January 2005
CONSTRUCTION COMPLETION: August 2007

Aberdeen Proving Ground - Aberdeen Area WWTP BNR/ENR Upgrade
Fact Sheet

PROJECT DESCRIPTION:

The project involves the planning, design and construction of biological nutrient removal (BNR) and enhanced nutrient removal (ENR) upgrade to achieve total nitrogen of 3 mg/l, and phosphorus of 0.3 mg/l at the existing plant capacity of 2.8 million gallons per day.

RECEIVING STREAMS/BODIES OF WATER: Upper Chesapeake Bay

NUTRIENT REMOVAL (AT 2.8 MGD):

Nitrogen

	Total Nitrogen (Without Upgrade)	**Total Nitrogen (With Upgrade)**	**% Reduction**
Concentration (mg/l)	18	3	83%

The plant will maintain its Tributary Strategy loading cap of 34,110 pounds of nitrogen per year even after reaching its design capacity and 20-year projected growth.

Phosphorus

	Total Phosphorus (Without Upgrade)	**Total Phosphorus (With Upgrade)**	**% Reduction**
Concentration (mg/l)	2	0.3	85%

The plant will maintain its Tributary Strategy loading cap of 2,558 pounds of phosphorus per year even after reaching its design capacity and 20-year projected growth.

PERMITTEE: City of Aberdeen

TOTAL COST AND FUNDING SOURCES:

Total Project Cost	$6,300,000
US Army	$6,300,000

MILESTONES:

CONSTRUCTION START:	August 2004
CONSTRUCTION COMPLETION:	March 2006

Swan Point Wastewater Treatment Plant (WWTP) BNR/ENR Upgrade and Expansion
Fact Sheet

PROJECT DESCRIPTION:

The project entails design and construction of a new wastewater treatment plant to be built in two phases for an ultimate treatment capacity of 600,000 gallons per day (gpd) and will serve the Swan Point Development. The new plant will replace the existing 70,000 gpd wastewater treatment plant located in the Swan Point Development that will be abandoned upon completion of the new WWTP.

Only Phase I of the new plant was completed providing sewage treatment capacity of 300,000 gpd. The new plant is also required to meet stringent nutrient removal requirements with a Total Nitrogen effluent concentration limit of 10 mg/l at 300,000 gpd, 5 mg/l at 600,000 gpd, and with performance goal regardless of the flow of 3.0 mg/l and a Total Phosphorus concentration of 0.3 mg/l. The plant will continue to discharge into the existing outfall line to Cuckhold Creek, a tributary to the Potomac River and the Chesapeake Bay. The new Swan Point WWTP is located on a 220-acre land parcel owned by Charles County, adjacent to the Cobb Island WWTP and will provide future service to the communities of Cobb Island and Mathews Manor.

RECEIVING STREAMS/BODIES OF WATER: Potomac River

NUTRIENT REMOVAL (AT 600,000 GPD):

Nitrogen

	Total Nitrogen (Without Upgrade)	**Total Nitrogen (With Upgrade)**	**% Reduction**
Concentration (mg/l)	18	3	83%

The plant will maintain its Tributary Strategy loading cap of 7,309 pounds of nitrogen per year even after reaching its design capacity and 20-year projected growth.

Phosphorus

	Total Phosphorus (Without Upgrade)	**Total Phosphorus (With Upgrade)**	**% Reduction**
Concentration (mg/l)	2	0.3	85%

The plant will maintain its Tributary Strategy loading cap of 548 pounds of phosphorus per year even after reaching its design capacity and 20-year projected growth.

PERMITTEE: US Steel/Charles County

TOTAL COST AND FUNDING SOURCES:

Total Estimated Project Costs	$8,080,000
U.S. Steel	$8,080,000

MILESTONES:

CONSTRUCTION START: May 2005
CONSTRUCTION COMPLETION: May 2007

Attachment 8

Chestertown WWTP BNR/ENR Upgrade
FACT SHEET

PROJECT DESCRIPTION:

The project involves planning, design and construction for the Biological Nutrient Removal (BNR) and Enhanced Nutrient Removal (ENR) facilities at the existing 0.9 million gallons per day (mgd) Chestertown Wastewater Treatment Plant (WWTP). Upon completion of the BNR and ENR upgrades, the Chestertown WWTP has been achieving effluent quality with annual average nutrient goals of 3 mg/l for Total Nitrogen and 0.3 mg/l for Total Phosphorous. These improvements will reduce nutrients discharged to the Chester River and the Chesapeake Bay.

RECEIVING STREAM/BODIES OF WATER: Chester River

NUTRIENT REMOVAL (AT 0.9 MGD):

Nitrogen

	Total Nitrogen (Without Upgrade)	**Total Nitrogen (With Upgrade)**	**% Reduction**
Concentration (mg/l)	18	3	83%

The plant will maintain its Tributary Strategy loading cap of 18,273 pounds of nitrogen per year even after reaching its design capacity and 20-year projected growth.

Phosphorus

	Total Phosphorus (Without Upgrade)	**Total Phosphorus (With Upgrade)**	**% Reduction**
Concentration (mg/l)	2	0.3	85%

The plant will maintain its Tributary Strategy loading cap of 1,371 pounds of phosphorus per year even after reaching its design capacity and 20-year projected growth.

TOTAL COST AND FUNDING SOURCES:

Total Project Cost	$9,802,000
Bay Restoration Fund	$2,000,000
State BNR Grant	$3,045,000
State Revolving Loan Fund	$3,391,000
State Supplemental Grant	$700,000
EPA Grant	$482,000
Chestertown Share	$14,000
Kent County Share	$170,000

MILESTONES:

CONSTRUCTION START: March 2006
CONSTRUCTION COMPLETION: June 2008

Attachment 9

Brunswick WWTP BNR/ENR Upgrade and Expansion
FACT SHEET

PROJECT DESCRIPTION:

The proposed project entails the planning, design and construction of Biological Nutrient Removal (BNR) and Enhanced Nutrient Removal (ENR) facilities at the existing City of Brunswick Wastewater Treatment Plant. This project will also expand the existing Brunswick Wastewater Treatment Plant from 0.7 million gallons per day (mgd) to 1.4 mgd. Upon completion of the upgrade, the existing wastewater treatment plant has been achieving an effluent with Total Nitrogen goal of 3 mg/l and a Total Phosphorous of 0.3 mg/l. The BNR/ENR upgrade and expansion will significantly reduce the amount of nutrients discharged directly from the Brunswick Wastewater Treatment Plant into the Potomac River and ultimately the Chesapeake Bay.

RECEIVING STREAM/BODIES OF WATER: Potomac River

NUTRIENT REMOVAL (AT 1.4 MGD):

Nitrogen

	Total Nitrogen (Without Upgrade)	**Total Nitrogen (With Upgrade)**	**% Reduction**
Concentration (mg/l)	18	3	83%

The plant will maintain its Tributary Strategy loading cap of 17,055 pounds of nitrogen per year even after reaching its design capacity and 20-year projected growth.

Phosphorus

	Total Phosphorus (Without Upgrade)	**Total Phosphorus (With Upgrade)**	**% Reduction**
Concentration (mg/l)	3	0.3	90%

The plant will maintain its Tributary Strategy loading cap of 1,279 pounds of phosphorus per year even after reaching its design capacity and 20-year projected growth.

TOTAL COST AND FUNDING SOURCES:

Total Project Cost	$14,945,000
State BNR Grant	$2,750,000
Bay Restoration Fund	$8,263,000
State Supplemental Grant	$600,000
Local Share	$3,332,000

MILESTONES:

CONSTRUCTION START: September 2006
CONSTRUCTION COMPLETION: September 2008