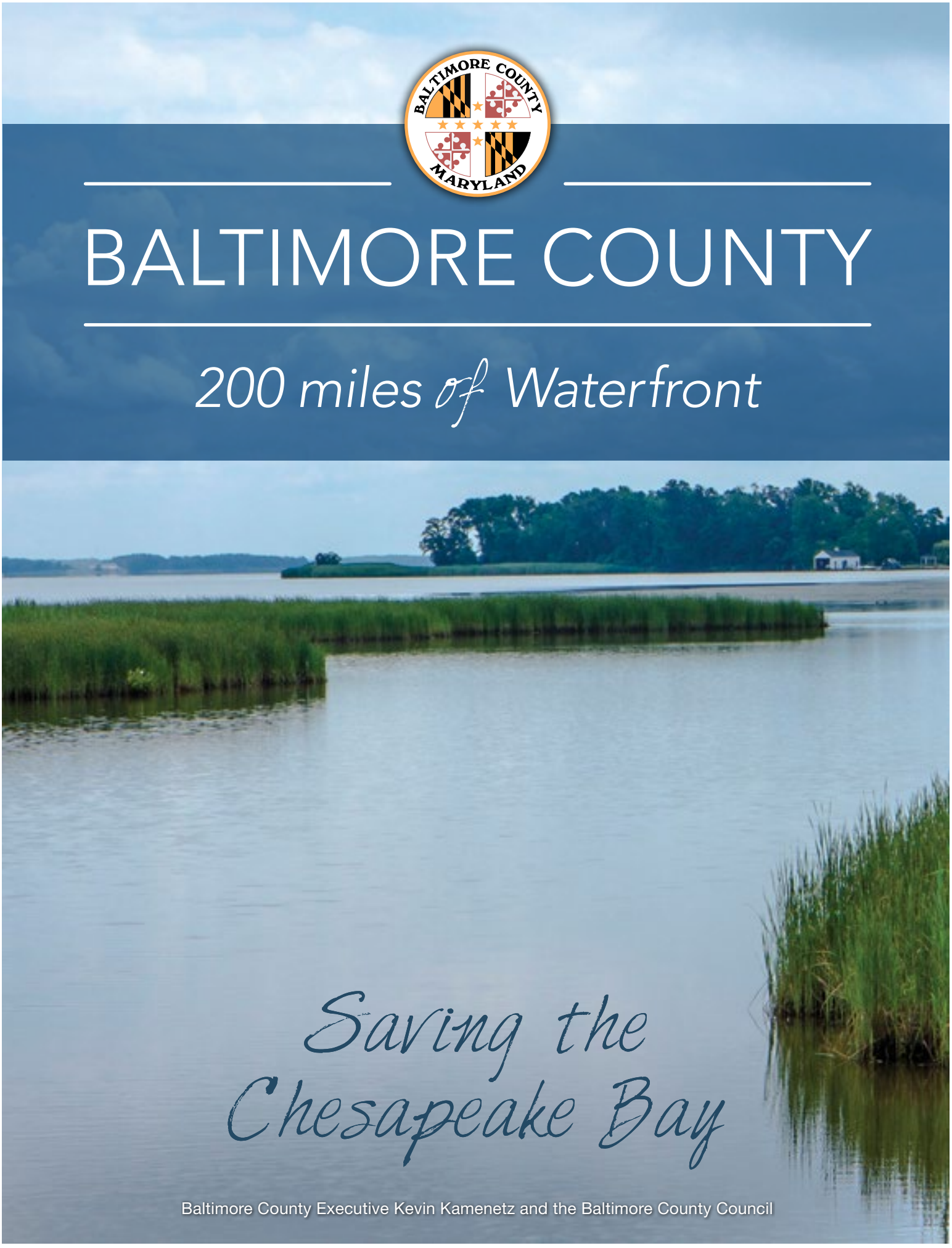

BALTIMORE COUNTY

200 miles of Waterfront

Saving the Chesapeake Bay

Baltimore County Executive Kevin Kamenetz and the Baltimore County Council

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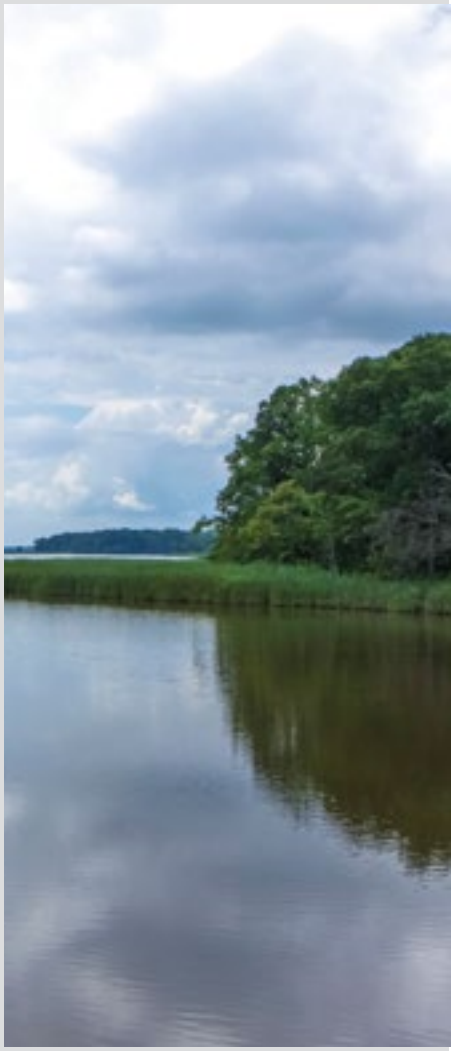
INTRODUCTION

The state of the Chesapeake Bay has been studied and debated for generations and the sources of pollution are far ranging and complex; development, wastewater, runoff, air pollution and agriculture head the list. Stormwater runoff from urban developed areas of the watershed is, doubtless, a primary pollutant and one that Baltimore County is required to address.

A Chesapeake Bay Foundation case against the Environmental Protection Agency (Fowler vs. EPA, settled in 2010) set in motion a chain of events that culminated in Maryland's historic decision to tackle water pollution and preserve the Bay. Under an ensuing United States Environmental Protection Agency (EPA) directive, the EPA agreed to fully enforce the 1972 Clean Water Act, with its goal of a clean Bay by 2025. And in May, 2012 the Maryland General Assembly mandated that the State's ten largest jurisdictions should share the responsibility of cleaning the Chesapeake Bay with a fully-funded program that would address stormwater runoff.



Under the new law instituting the Stormwater Remediation Fee, Baltimore County is required to address phosphorus, nitrogen and sediment loading into the Bay. The County developed a comprehensive plan to curb pollution, calculated the cost of such a program and then developed an equitable fee structure for County residents and businesses to cover the cost.

Baltimore County has, of course, always had a program to address stormwater runoff and its attendant pollutants. The County Department of Environmental Protection and Sustainability regulates construction and development and promotes Best Management Practices to capture and clean stormwater. The County Department of Public Works manages stormwater projects through its Bureaus of Engineering, Highways and Utilities that reduce pollutants directly through street sweeping, inlet cleanout programs and storm drain outfall repair, reconstruction and retrofits.

Presently, after a year of assessment, evaluation, and planning, Baltimore County is complying with the Clean Water Act and the will of the General Assembly by providing a sustainable revenue source that will ensure a progressive diminution of stormwater runoff. The program is moving forward with over one hundred projects in various stages of implementation which will take the County and the State closer to its goal of a clean Chesapeake Bay.

THE PROBLEM AND THE PLAN

Based on jurisdiction boundaries, the County is required to reduce its share of nitrogen, phosphorus and sediment pollutant loads with the goal of meeting TMDLs (Total Maximum Daily Loads) as required in the Clean Water Act. Progressive load reductions follow a Watershed Implementation Plan – a plan developed by the County to ensure that the State's goals are met.

In addition, the Clean Water Act requires Baltimore County renew its stormwater discharge permit (NPDES MS4 Permit). This permit stipulates that the County treat stormwater runoff from 20% of the untreated impervious surfaces, initially removing nitrogen, phosphorus, and sediment. Eventually, other impairments such as bacteria, chlordane, PCBs, mercury and trash will have to be reduced to meet new TMDLs.

Compliance is complex. There are layers of regulations and there are layers of regulators – all with the same goal but varying ways to achieve that goal. In response, Baltimore County has developed its own implementation plan which will comply with standards and bring about the desired result. Projects to address TMDLs and to satisfy a renewed stormwater discharge permit have been identified and are moving forward.

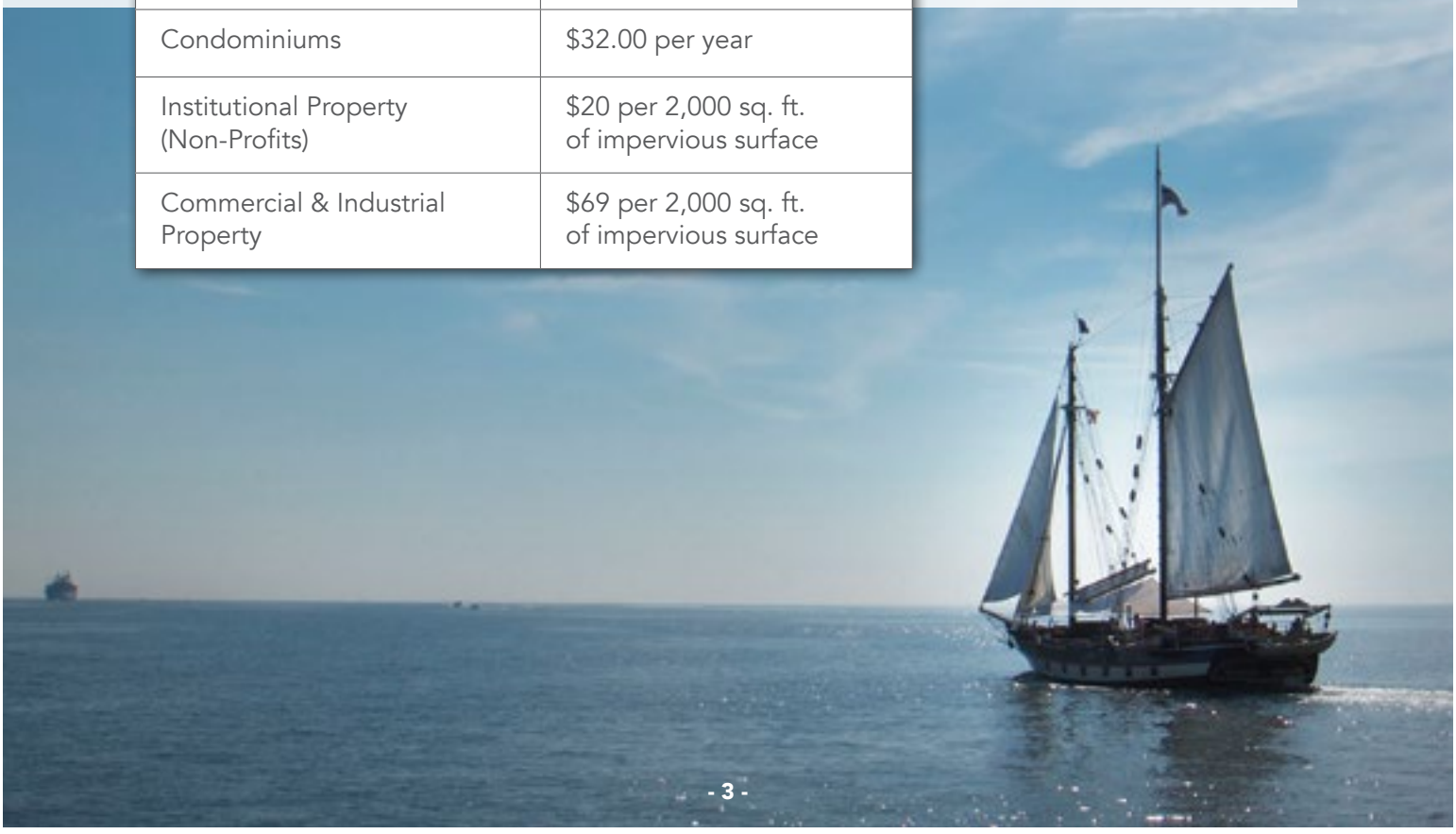
COVERING THE COST

Before the State's clean water requirements went into effect, Baltimore County recognized that new revenues would be needed to support new regulations. The Department of Environmental Protection & Sustainability and the Department of Public Works first determined the projects or remediation measures needed to comply with the law and achieve the desired benefits of reduced runoff over a period of years.

Then, with an estimate of the number and types of projects which would be needed (as well as additional personnel, consultants, and equipment), the Departments projected the costs needed to close the gap between current funding (including Metropolitan District Capital Funds) and the cost of required expansion to meet new needs.

To achieve this year's goals, an annual funding level of $33.4 million was established. A fee structure for property owners was approved by the County Council and established before the July 1, 2013 deadline. To provide balance and to reflect the differences in stormwater impacts, the fee structure reflected varying rates for varying property uses based on impervious surface:

Type of Dwelling	Cost
Single Family Residence	$39.00 per year
Townhouses	$21.00 per year
Condominiums	$32.00 per year
Institutional Property (Non-Profits)	$20 per 2,000 sq. ft. of impervious surface
Commercial & Industrial Property	$69 per 2,000 sq. ft. of impervious surface



How are stormwater fees calculated?

Baltimore County has instituted a fixed low cost rate for residential homeowners, regardless of the size of the property. For non-residential property owners, the County calculates its fee based upon an actual measurement of the property's impervious surface, multiplied by a fixed rate. The fixed rate for commercial properties is $69 per 2,000 square foot of impervious surface. The County reduces the fixed rate for non-profit owned properties to $20 per 2,000 square foot of impervious surface.

Can the fee for non-residential properties be further reduced?

Non-residential property owners are offered opportunities to further reduce their fee. By making one-time changes to the property that results in a reduction of impervious surface or improvement to stormwater management practices, a property owner will receive appropriate reductions to the fee. Credits to the Stormwater Remediation Fee are determined prior to billing based on existing 'as-built' stormwater treatment facilities and/or practices that have been approved by the Department of Environmental Protection and Sustainability.

BMP	Pollutants			Average Removal Efficiency
	TN	TP	TSS	
Detention Facilities and Hydrodynamic Structures	5	10	10	8.3%
Extended Detention Facilities	20	20	60	33.3%
Wet Ponds	20	45	60	41.6%
Infiltration Practices	85	85	95	88.6%
Filtration Practices	40	60	80	60.0%
ESD Practices	50	60	90	66.6%

Can the fee for non-profit property owners be further reduced?

In addition to the reduced non-profit property rate ($20/2000 s.f.), Baltimore County has established a special program to further help owners of properties that are designated as Nonresidential Institutional Non-profit by the Maryland State Department of Assessments and Taxation. Using a portion of the proceeds generated by the fees, the County will initiate projects on property owned by non-profits for removal of impervious surface area (ISA) such as paving and concrete (no buildings). This will then further reduce the impervious surface area that is otherwise subject to the fee, thereby reducing the overall cost to non-profits. Upon application, Baltimore County will inspect the site to ensure that it meets the criteria of 10,000 square feet minimum ISA, identify the location through a survey and manage and remove the ISA. The property owner will receive a credit toward their Stormwater Remediation Fee.

Identified Project for Non-profit properties	Community Location	CD / LD	Cost Estimate
Multiple	To be determined	All / All	$3,000,000

Total Revenues Required

In order to meet the Total Maximum Daily Loads (TMDL) required by the Clean Water Act, Baltimore County has determined that $33.4 million per year will be required. Approximately $23.4 million will be generated by the Stormwater Remediation Fee, and the balance absorbed through existing County Metropolitan District funding. The County will annually review the list of eligible projects based upon the anticipated revenues generated each year by the fee.

Component	Per year needs
EPS – Stormwater Remediation Cost Analysis	$18,973,188
DPW – Infrastructure Environmental Enhancements	$5,427,362
Street sweeping/SD cleaning	$3,000,000
Public Facility Environmental Enhancements	$6,000,000
TOTAL ADDITIONAL FUNDING REQUIRED	**$33,400,550**

IMPLEMENTATION

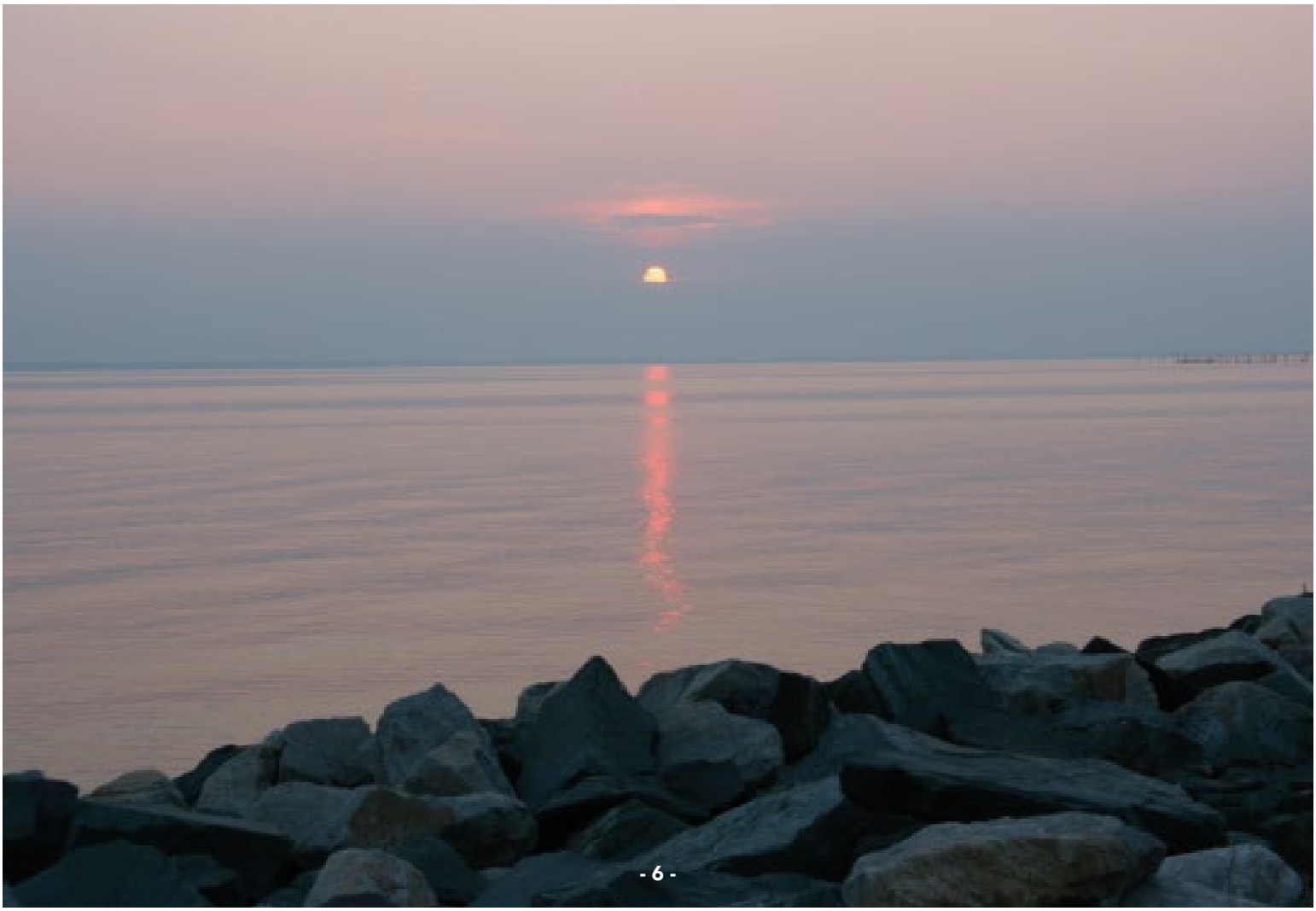
Baltimore County's compliance with the Federal Court order, the Clean Water Act, State law and the MDE permitting process is largely the responsibility of the Department of Environmental Protection and Sustainability (EPS) and the Department of Public Works (DPW). Funding is generally divided between the two, though environmental analysis (and its attendant cost projection) is naturally the strength of EPS.

EPS has a wide variety of projects including stream restoration, shoreline enhancement, BMP or Best Management Practices projects, storm water management pond repairs and retrofits, and reforestation.

The Department of Public Works, in addition to its routine stormwater management projects, is reducing impervious surfaces at County facilities: maintenance facilities, utility yards and highways shops.

PROSPECTS

Baltimore County's stormwater remediation fee supports a significant effort to control pollution before it reaches the Chesapeake Bay. The combined efforts of the State, federal government and local Maryland jurisdictions as well as parts of Pennsylvania and New York which share the watershed will lead to a cleaner, more vibrant Bay.



Representative STREAM RESTORATION PROJECTS

Lower Spring Branch

Before

- Two sections of concrete channel conveying perennial flow converged just below Pot Spring Road in Timonium
- Once the concrete ended the stream had significantly degraded due to impacts from increased volume and velocity during storm events

After

- 2,824 feet of concrete removal and channel stabilization
- Benefits include: significant sediment reduction(important because this tributary flows directly into the Loch Raven Reservoir), excess nutrient attenuation & habitat improvement
- Constructed in 2008 at a total cost of $1.1M

Redhouse Run at St. Patrick Road

Before

- Extremely degraded channel conveying runoff from the highly urbanized area adjacent to Belair Road inside the Baltimore Beltway
- Active erosion was impacting sanitary sewers, bridges, private properties and public open space

After

- 3,047 feet of channel stabilization and sanitary sewer encasements
- Benefits include: significant sediment reduction, excess nutrient attenuation & habitat improvement
- Constructed in 2008 at a total cost of $1.1M

Representative
SHORELINE ENHANCEMENT PROJECTS

Essex Skypark

Implement shoreline enhancement and erosion control along 2,610 LF of Essex Skypark using both structural and non-structural shoreline stabilization and restoration techniques.

Before

After

Before

After

Representative RETROFIT PROJECTS

Essex Park and Ride

Best management practice (BMP) techniques were used in the design and implementation for the removal of 1 acre of impervious surface (paving) with subsequent creation of a reforested area and bioretention facility treating 0.3 acres of stormwater drainage.

Construction

Post-Construction

Representative REFORESTATION PROJECTS

Lower Back River Peninsula

Planted 12 acres as part of the County's Chesapeake Bay Watershed Implementation Plan (WIP). The site was overgrown with invasive weeds and Sweetgum seedlings. The project involved control of the Sweetgum and weeds by selective mowing and herbicide treatment, followed by planting of a variety of oaks, which have a higher value for nutrient cycling and habitat. The contractor will provide seasonal maintenance of the reforestation area for three years.

Before

After

Representative STORMWATER MANAGEMENT FACILITY REPAIR & CONVERSION PROJECTS

Cedarside Farms Stormwater Management Pond

Installed gabion sandwich filter and diversion wall (to add water quality component to existing facility which previously only provided water quantity control) armored infall channels, cleaned infall and outfall pipes, installed access ramp, cleared perimeter vegetation for installation of fence.

Before

After

Wood of Winands Stormwater Management Pond

Cleared fill embankment, armored infall channel, installed gabion sandwich filter (to add water quality component to facility function), repaired perimeter fence, installed low flow pipe, sliplined existing CMP barrel pipe with Blue-Tec fiberglass liner.

Before

After

Representative STORM DRAIN OUTFALL RETROFIT PROJECTS

Before

After

Stormwater pollution is being addressed at public sites. Here, at a County landfill, stormwater is safely redirected to a gabion sandwich filter. Such mitigation measures are part of the County's Public Facility Environmental Enhancement program.

Before

After

A collapsed storm drain outfall augments sediment transport. A restored outfall reduces the pollution impact. The response is part of the Infrastructure Environmental Enhancement program.

STREET SWEEPING PROJECTS

Trash and debris traveling into storm drains is a major contributor to stormwater pollution entering into the watershed. Traditional street sweeping efforts are quite effective in collecting the trash before it reaches the storm drains. The County is dedicating a portion of the fees to acquire and maintain modern street sweeping equipment, which will be regularly utilized on County roads.

PROPOSED STORMWATER REMEDIATION PROJECTS AT COUNTY PUBLIC WORKS FACILITY SITES

Essex Shop *(inefficient stormwater management)*

Glen Arm Shop *(inefficient stormwater management)*

Glen Arm Shop *(inefficient stormwater management)*

Glen Arm Shop *(inefficient stormwater management)*

Sparrows Point Shop *(inefficient stormwater management)*

White Hall Shop *(inefficient stormwater management)*

CLEAN GREEN COUNTY

SUMMARY OF STORMWATER REMEDIATION PROGRAM PROJECTS

CURRENT PROJECT COSTS – BEGINNING FY14	
Stream Restoration Projects	$9,350,000
Shoreline Enhancement Projects	$5,180,000
BMP Projects	$3,000,000
SWM Pond Repairs/Conv./Retrofit Projects	$2,467,022
Reforestation Projects	$4,625,350
Infrastructure Environmental Enhancement	$8,786,000
Public Facility Environmental Enhancement	$7,160,000
Street Sweeping & Inlet Cleaning	$1,627,928
TOTAL	**$42,196,300**

Note: Projects (stream restoration, shoreline enhancement, water quality BMPs) requiring full permitting take 2- 3 years to complete design and construction.

BALTIMORE COUNTY REMEDIATION PROGRAM

IMPLEMENTATION PROJECTS

STREAM & FLOODPLAIN RESTORATION PROGRAM

Purpose & Function

Baltimore County's Stream Restoration Program utilizes a watershed-based approach to restore degraded stream systems to improve stream morphology, ecological function, water quality, aquatic habitat and quality of life for Baltimore County citizens. The Stream Restoration Program is an important mechanism for Baltimore County to meet federal and state mandated pollutant load reductions (TMDLs) and implementation of the local Stormwater Remediation Program for the Chesapeake Bay and its tributaries.

Stream Restoration Project Tasks

- Assessment and Evaluation
- Prioritization and Project Selection
- Design
- Community Input
- Federal, State & Local Permits
- Private Property Access Approval
- Construction Bid/Contract
- Construction
- As-Built Approval
- Post-Restoration Monitoring

Proposed Stream Restoration Projects

Map Key Number	Identified Projects	Community Location	CD/LD*	Watershed	Stream Length (ft.)	Cost Estimate
1	Long Quarter Br., at Shetland Hills	Towson	3 / 42	Loch Raven	3,000	$1,000,000
2	Slaughterhouse Br. Upper Reach	Pikesville	2 / 11	Jones Falls	3,500	$1,100,000 (Metro)
3	Slaughterhouse Br. Middle Reach	Pikesville	2 / 11	Jones Falls	2,600	$800,000 (Metro)
4	Cedar Branch Upper Reach	Catonsville	1 / 10	Patapsco	6,040	$1,800,000 (Metro)
5	Cooper Branch Upper Reach	Catonsville	1 / 12A	Patapsco	4,200	$1,250,000
	Total				**19,340**	**$5,950,000**

Existing Stream Restoration Project

Map Key Number	Identified Projects	Community Location	CD / LD*	Watershed	Stream Length (ft.)	Cost Estimate
6	White Marsh Run Stream Restoration at White Marsh Rd.	White Marsh	6 / 7	Bird River	10,600	$3,400,000 (Metro)**

Proposed & Existing Stream Restoration Projects Total: $9,350,000

* CD: Council District / LD: Legislative District

** This is an additional $3.4 million allocated in FY2014 using Metro Funds.

WATERWAY RESTORATION PROGRAM

Purpose & Function

Primary goal is to improve the water quality of Baltimore County's watershed/waterway systems by implementing shoreline stabilization and enhancement (SE), stormwater management pond (SWM) conversions, retrofits and repairs, and Best Management Practices (BMP) projects for implementation that reduce pollutant loads to meet the local and Chesapeake Bay Total Maximum Daily Loads (TMDL). With that in mind a comprehensive watershed approach will be used to select projects which will improve water quality by reducing nutrients such as nitrogen and phosphorous and reduce sediment. Additional goals include restoring ecological function and habitat diversity.

Waterway Restoration Project Tasks/Components

- Assessment and Evaluation
- Rank, Prioritization and Project Selection
- Design
- Community Input and Property Negotiations
- Permit - Federal/State/Local (SCD, Grading Permit, EA)
- Construction Advertisement/Bid/Contract or RFP
- Construction
- As-Built Approval
- Post-Restoration Monitoring and Maintenance

11 Proposed Shoreline Restoration Projects

Map Key Number	Potential Projects	Location	CD / LD	Owner	Length (ft.)	Cost Estimate
1	Goose Harbor SE	Middle River	6 / 7	Private	100	$40,000
2	Miami Beach	Middle River	6 / 7	BC*	900	$360,000
3	Cox Point Park	Essex	7 / 6	BC	500	$200,000
4	Stansbury Park	Dundalk	7 / 6	BC	317	$100,000
5	Inverness Park	Dundalk	7 / 6	BC	300	$100,000
6	Watersedge SE	Dundalk	7 / 6	BC	1000	$400,000
7	Fleming Park SE	Dundalk	7 / 6	BC	1300	$520,000
8	Ballestone SE	Essex	6 / 6	BC	1500	$600,000
9	Back River SE	Sparrows Point	7 / 6	MD DNR**	2900	$1,160,000
10	Todd's Inheritance	Sparrows Point	7 / 6	MD DNR	250	$100,000
11	Fort Howard SE	Sparrows Point	7 / 6	BC	4000	$1,160,000
	Total					**$5,180,000**

*BC: Baltimore County **MD DNR: Maryland Department of Natural Resources

12 Proposed Best Management Practices (BMP) Projects

Identified BMP Project	Location (Watershed)	CD / LD	Cost Estimate
Loch Raven BMP	Loch Raven	3 / 5B, 11, 42, 7	$250,000 (Metro)
Little Gunpowder BMP	Little Gunpowder	3 / 5B	$250,000
Bird River BMP	Bird River	5, 6 / 7, 8	$250,000
Lower Gunpowder BMP	Lower Gunpowder Falls	5, 3 / 42, 7, 8	$250,000
Gunpowder River BMP	Gunpowder River	6 / 7	$250,000
Middle River BMP	Middle River	6, 7 / 7,6	$250,000
Liberty BMP	Liberty	3, 4 / 5B, 11	$250,000
Patapsco BMP	Patapsco	1, 4 / 11, 12A, 10	$250,000
Gwynns Falls BMP	Gwynns Falls	1, 2, 4 / 11, 12A, 10	$250,000 (Metro)
Jones Falls BMP	Jones Falls	2, 3, 5 / 11, 42	$250,000
Baltimore Harbor BMP	Baltimore Harbor	7 / 6	$250,000
Back River BMP	Back River	5, 6, 7 / 42, 8, 6	$250,000
Total			**$3,000,000**

Note: Cost estimate is total cost for design and construction.

67 Proposed SWM Pond Repairs/Conversions/Retrofits Projects

Identified SWM Pond (Pond # and Name)	Location (Watershed)	CD / LD	Cost Estimate
358 Catonsville Community Park	Patapsco River	1 / 12A	$30,000
164 Woodward Square	Back River	7 / 6	$30,000
170 Woodward Square	Back River	7 / 6	$30,000
381 Urbanwood	Back River	7 / 6	$30,000
832 Rustic Ridge	Back River	6 / 7	$30,000
1608 Greenview Park	Back River	6 / 8	$30,000
536 Goldenwood	Back River	6 / 8	$30,000
624 Kahler Property	Back River	7/ 8	$30,000
532 Golden Tree	Back River	7 / 7	$30,000
533 Golden Tree	Back River	7 / 7	$30,000
534 Golden Tree	Back River	7 / 7	$30,000
535 Golden Tree	Back River	7 / 7	$30,000

67 Proposed SWM Pond Repairs/Conversions/Retrofits Projects (cont.)

Identified SWM Pond (Pond # and Name)	Location (Watershed)	CD / LC	Cost Estimate
181 Perring Woods	Back River	5 / 8	$30,000
1269 Perry Hall Blvd.	Back River	6 / 8	$30,000
1211 Fullerton Elementary School	Back River	7 / 6	$30,000
463 Dundalk Community College	Baltimore Harbor	7 / 6	$30,000
726 North Point Government Center	Baltimore Harbor	7 / 6	$30,000
1420 Boston Courts Pond #1	Baltimore Harbor	7 / 6	$30,000
Magnolia SW Retrofit – *Partial Funding*	Bird River	5 / 8	$59,000
434 Cunninghill Cove Pond #1	Bird River	6 / 7	$30,000
978 Southfield Pond #2 at Berryfield	Bird River	5 / 8	$30,000
1729 Owings Mills Commerce – *REPAIR*	Gwynns Falls	4 / 11	$14,512
48 Velvet Hills South – *REPAIR*	Gwynns Falls	4/ 11	$4,651
1657 Lyonswood South – *REPAIR*	Gwynns Falls	4/ 11	$8,409
1164 & 1165 Cedar Run 1 & 2 – *REPAIR*	Gwynns Falls	4 / 10	$62,414
451 Discovery Acres 2	Gwynns Falls	4 / 10	$30,000
996 The Woods of Winands – *Conv. Complete*	Gwynns Falls	4 / 11	$46,913
85 Mays Chapel Pond 3	Loch Raven	3 / 11	$39,859
578 Industry Lane Pond 2	Loch Raven	3 / 7	$45,000
1825 Mayfair Facility 3 – *Conv. Complete*	Loch Raven	3 / 11	$61,115
577 Industry Lane Pond 1 – *REPAIR*	Loch Raven	3 / 7	$23,516
393 Cedar Side Farm – *Conv. Complete*	Loch Raven	5 / 8	$34,918
406 Chippendale	Lower Gunpowder Falls	3 / 8	$30,000
916 Slywood Pond 2	Lower Gunpowder Falls	3 / 8	$30,000
915 Slywood Pond 1	Lower Gunpowder Falls	3 / 8	$30,000
845 Satyr Woods	Lower Gunpowder Falls	5 / 8	$30,000
846 Satyr Woods South	Lower Gunpowder Falls	5 / 8	$62,715
452 Doncaster Village, Sec. 7, Pond 2	Lower Gunpowder Falls	3 / 8	$30,000
453 Doncaster Village. Sec. 6, Pond 1	Lower Gunpowder Falls	3 / 8	$30,000
473 Erd Manor	Lower Gunpowder Falls	5 / 8	$30,000
815 Robin Ridge Pond 1 – *Conv. Complete*	Lower Gunpowder Falls	5 / 8	$62,000
705 Meadow Woods	Lower Gunpowder Falls	3 / 8	$30,000
728 Northwinds	Lower Gunpowder Falls	5 / 8	$30,000
755 Perry Woods	Lower Gunpowder Falls	5 / 8	$30,000

67 Proposed SWM Pond Repairs/Conversions/Retrofits Projects (cont.)

Identified SWM Pond (Pond # and Name)	Location (Watershed)	CD / LC	Cost Estimate
524 Glen Mill Estates Pond 1	Lower Gunpowder Falls	5 / 8	$30,000
525 Glen Mill Estates Pond 2	Lower Gunpowder Falls	5 / 8	$30,000
850 Scott's Haven	Lower Gunpowder Falls	5 / 8	$30,000
412 Village of Vanderway	Lower Gunpowder Falls	5 / 8	$30,000
517 Fullerton Farms	Lower Gunpowder Falls	6 / 8	$30,000
955 Village of White Oak Pond 3	Lower Gunpowder Falls	5 / 8	$30,000
854 Village of White Oak Pond 2	Lower Gunpowder Falls	5 / 8	$30,000
734 Oakhurst Pond 2	Lower Gunpowder Falls	5 / 8	$30,000
741 Oakhurst Pond 4	Lower Gunpowder Falls	5 / 8	$30,000
733 Oakhurst Pond 1	Lower Gunpowder Falls	5 / 8	$30,000
729 Northwind Farms II, Pond 1	Lower Gunpowder Falls	5 / 8	$30,000
1473 Northwind Farms II, Pond 2	Lower Gunpowder Falls	5 / 8	$30,000
439 Dawnvale West	Lower Gunpowder Falls	5 / 8	$30,000
1842 Village of White Oak, Sec. 2	Lower Gunpowder Falls	5 / 8	$30,000
279 St. Isaac Jogues	Lower Gunpowder Falls	5 / 8	$30,000
452 Doncaster Village-Malton Court	Lower Gunpowder Falls	3 / 8	$30,000
631 Minte	Lower Gunpowder Falls	5 / 8	$30,000
950 Village of Pawnee	Middle River	6 / 7	$30,000
711 Middleborough Road Link	Middle River	6 / 6	$30,000
182 Mary's Choice	Middle River	6 / 7	$30,000
1642 Kenwood's Choice	Middle River	7 / 7	$30,000
435 Cunninghill Cove Pond #2	Gunpowder River	6 / 7	$30,000
449 Cunninghill Cove Addition	Gunpowder River	6 / 7	$30,000
1167 Chase Manor	Gunpowder River	6 / 7	$30,000
		TOTAL	**$2,175,022**
Misc. Pond Repair Maintenance (4 years)			$292,000
		TOTAL	**$2,467,022**

REFORESTATION PROGRAM

Purpose & Function

The natural functions of forests and trees greatly improve watershed health by increasing and maintaining high water quality in both stream and terrestrial ecosystems. Forests intercept precipitation, thereby decreasing storm water runoff, reducing soil erosion, and increasing water infiltration into the soil, which cleanses the water of pollutants and recharges ground water. Healthy forests and trees are essential natural tools for meeting the local and Chesapeake Bay Total Maximum Daily Loads (TMDL).

A comprehensive reforestation approach will be used to select tree species and sites in both urban and rural areas of Baltimore County. Potential projects include several ownership types: BCPS Comprehensive Landscape Improvement Projects (CLIPs) – approved pilots, potential BCPS CLIPs, other Baltimore County-owned properties, County Local Open Space (LOS) areas, and citizen-requested reforestation projects (private lands). Additional reforestation goals include the restoration of native biological diversity in the County's Canopy Goals objectives and the reduction of long-term mowing expenditures on County-owned properties.

Reforestation Project Components

- Site Identification (GIS analysis)
- Site Assessment & Evaluation
- Coordination with Landowners
- Planting Plan Design
- Access Approval (private property)
- Planting Bid/Contract
- Site Preparation & Planting
- Post-Reforestation Monitoring & Maintenance

EPS has prepared descriptions and scopes of work for two contracts for installation of trees. One contract is for a landscape contractor to plant individual large-caliper trees in urban areas. The second contract is for reforestation services for larger areas and rural lands. In addition to site preparation and tree planting, the urban contract includes a survival warranty and maintenance for one year, and the rural reforestation contract includes maintenance for three years.

1 Completed Reforestation Project

Completed Project	Community Location	CD / LD	Owner	Watershed	Acres	Cost
Lower Back River Peninsula	Essex	6 / 6	Baltimore County	Back River	12	$102,000

3 BCPS Comprehensive Landscape Improvement Project Pilot Sites

Potential Project	Community Location	CD / LD	Owner	Watershed	Acres	Cost Estimate*	Estimated Completion Schedule**
Halstead Academy Elementary	Parkville	5 / 8	BCPS	Back River	0.65	$22,750	1-2 year
Villa Cresta Elementary	Parkville	5 / 8	BCPS	Back River	3.7	$129,500	1-2 year
Pine Grove Elementary	Carney	3 / 8	BCPS	Lower Gunpowder Falls	1.2	$42,000	1-2 year
				TOTAL	**5.55**	**TOTAL**	**$194,250**

44 Proposed BCPS Comprehensive Landscape Improvement Project Sites

Potential Project	Community Location	CD / LD	Owner	Watershed	Acres	Cost Estimate*	Estimated Completion Schedule**
Lansdowne Elementary	Lansdowne	1 / 12A	BCPS	Patapsco River	1.75	$35,000	2-3 year
Lansdowne Middle	Lansdowne	1 / 12A	BCPS	Patapsco River	Single Trees	TBD	2-3 year
Riverview Elementary	Lansdowne	1 / 12A	BCPS	Patapsco River	3	$60,000	2-3 year
Catonsville Middle	Catonsville	1 / 12A	BCPS	Patapsco River	1.35	$27,000	2-3 year
Westchester Elementary	Catonsville	1 / 12A	BCPS	Patapsco River	2.3	$46,000	2-3 year
Pikesville Middle	Pikesville	2 / 11	BCPS	Jones Falls	1.2	$24,000	2-3 year
Summit Park Elementary	Pikesville	2 / 8	BCPS	Jones Falls	2	$40,000	2-3 year
Perry Hall Middle	Perry Hall	5 / 8	BCPS	Bird River	1.35	$27,000	2-3 years
Seven Oaks Elementary	Perry Hall	5 / 8	BCPS	Lower Gunpowder Falls	1	$20,000	2-3 years
Joppa View Elementary	White Marsh	5 / 8	BCPS	Bird River	1.2	$24,000	2-3 years
Pine Grove Middle	Carney	5 / 8	BCPS	Lower Gunpowder Falls	1.35	$27,000	2-3 years
New Town Elementary	Owings Mills	4 / 11	BCPS	Gwynns Falls	1.3	$26,000	2-3 years
Hebbville Elementary	Milford Mill	4 / 10	BCPS	Gwynns Falls	1.15	$23,000	2-3 years

44 Proposed BCPS CLIP Sites (cont.)

Potential Project	Community Location	CD / LD	Owner	Watershed	Acres	Cost Estimate*	Estimated Completion Schedule**
Winfield Elementary	Milford Mill	4 / 10	BCPS	Patapsco River	1.5+	$30,000	2-3 years
Hernwood Elementary	Randallstown	4 / 10	BCPS	Patapsco River	6	$120,000	2-3 years
Woodlawn Middle	Lochearn	4 / 10	BCPS	Gwynns Falls	1.75	$35,000	2-3 years
Woodmoor Elementary	Lochearn	4 / 10	BCPS	Gwynns Falls	5	$20,000	2-3 years
Franklin Middle	Reisterstown	3 / 11	BCPS	Gwynns Falls	1.1	$22,000	2-3 years
Pot Spring Elementary	Timonium	3 / 42	BCPS	Loch Raven Reservoir	2.7	$54,000	2-3 years
Dulaney High	Cockeysville	3 / 42	BCPS	Loch Raven Reservoir	1.4	$28,000	2-3 years
Padonia Elementary	Cockeysville	3 / 42	BCPS	Loch Raven Reservoir	1.15	$23,000	2-3 years
Kingsville Elementary	Kingsville	3 / 7	BCPS	Little Gunpowder Falls	1.75	$35,000	2-3 years
Hereford High	Parkton	3 / 5B	BCPS	Loch Raven Reservoir	8.6	$172,000	2-3 years
Hereford Middle	Monkton	3 / 5B	BCPS	Loch Raven Reservoir	4.5	$90,000	2-3 years
Jacksonville Elementary	Phoenix	3 / 7	BCPS	Loch Raven Reservoir	3.25	$65,000	2-3 years
Seventh District Elementary	Parkton	3 / 5B	BCPS	Loch Raven Reservoir	1	$20,000	2-3 years
Sparks Elementary	Sparks Glencoe	3 / 5B	BCPS	Loch Raven Reservoir	16	$320,000	2-3 years
Orems Elementary	Middle River	7 / 7	BCPS	Back River	1.45	$29,000	2-3 years
Sandalwood Elementary	Essex	7 / 6	BCPS	Back River	1.25	$25,000	2-3 years
Bear Creek Elementary	Dundalk	7 / 6	BCPS	Baltimore Harbor	0.95	$19,000	2-3 years
Dundalk Elementary	Dundalk	7 / 6	BCPS	Baltimore Harbor	1.25	$25,000	2-3 years
Grange Elementary	Dundalk	7 / 6	BCPS	Baltimore Harbor	0.75	$15,000	2-3 years
Holabird Middle	Dundalk	7 / 6	BCPS	Baltimore Harbor	1.8	$36,000	2-3 years
Parkville High	Parkville	6 / 8	BCPS	Bird River	1.55	$31,000	2-3 years

44 Proposed BCPS CLIP Sites (cont.)

Potential Project	Community Location	CD / LD	Owner	Watershed	Acres	Cost Estimate*	Estimated Completion Schedule**
Glenmar Elementary	Middle River	6 / 7	BCPS	Bird River	2.1	$42,000	2-3 years
Victory Villa Elementary	Middle River	6 / 7	BCPS	Back River	1.1	$22,000	2-3 years
Shady Spring Elementary	Rosedale	6 / 8	BCPS	Back River	1.25	$25,000	2-3 years
Seneca Elementary	Bowley's Quarters	6 / 7	BCPS	Gunpowder River	1.7	$34,000	2-3 years
Oliver Beach Elementary	Middle River	6 / 7	BCPS	Gunpowder River	2.5	$50,000	2-3 years
Wellwood Elementary	Pikesville	2 / 42	BCPS	Jones Falls	2	$40,000	2-3 years
Pikesville Middle Reforestation	Pikesville	2 / 11	BCPS	Jones Falls	0.8	$16,000	2-3 years
Pikesville High	Pikesville	2 / 42	BCPS	Back River	0.9	$18,000	2-3 years
Riderwood Elementary	Towson	2 / 42	BCPS	Jones Falls	0.9 + 16 trees	$23,600	2-3 years
Randallstown High	Randallstown	4 / 10	BCPS	Gwynns Falls	1.1	$22,000	2-3 years

8 Sites Reserved for Tree Planting on Baltimore County Properties

Potential Project	Community Location	CD / LD	Owner	Watershed	Acres	Cost Estimate*	Estimated Completion Schedule**
Aiken Avenue	Parkville	5 / 8	Baltimore County Rec & Parks / Property Management	Back River	0.2	$4,000	2-3 years
Yataruba Drive	Lochearn	4 / 10	Baltimore County Public Works	Gwynns Falls	1	$20,000	2-3 years
Sunny Court	Woodlawn	4 / 10	Baltimore County Rec & Parks / Property Management	Gwynns Falls	0.9	$18,000	2-3 years
Little Falls Greenway – Dairy Road	Parkton	3 / 5B	Baltimore County Rec & Parks / Property Management	Loch Raven Reservoir	15	$300,000	2-3 years
Cloverland Park	Towson	3 / 7	Baltimore County Rec & Parks / Property Management	Loch Raven Reservoir	20	$400,000	2-3 years

8 Sites Reserved for Tree Planting on Baltimore County Properties (cont.)

Potential Project	Community Location	CD / LD	Owner	Watershed	Acres	Cost Estimate*	Estimated Completion Schedule**
Runaway Court	Middle River	6 / 7	Baltimore County Public Works	Back River	2	$40,000	2-3 years
Golden Ring Park	Rossville	6 / 8	Baltimore County Public Works	Back River	1.2	$24,000	2-3 years
Delvale Avenue (Holabird Middle and Norwood Elementary)	Middle River	6 / 6	Baltimore County Public Works	Baltimore Harbor	70 trees	24,500	2-3 years

11 Citizen-Requested Reforestation Projects

Potential Project	Community Location	CD / LD	Owner	Watershed	Acres	Cost Estimate*	Estimated Completion Schedule**
Williamsburg Community	Lochearn	2 / 10, 11	Private	Gwynns Falls	Street Trees	TBD	2-3 years
Somerset Place	Lutherville	2 / 11	Private	Jones Falls	0.5	$10,000	2-3 years
Notchcliff Road	Glen Arm	3 / 7, 8	Private	Lower Gunpowder Falls	0.75	$15,000	2-3 years
Sleepy Dog Farm	Glyndon	3 / 5B, 11	Private	Loch Raven Reservoir	20	$400,000	2-3 years
Glen Falls Road	Reisterstown	3 / 5B	Private	Liberty Reservoir	2.5	$50,000	2-3 years
Miller Lane	Parkton	3 / 5B	Private	Loch Raven Reservoir	7	$140,000	2-3 years
Ensor Property	Parkton	3 / 5B	Private	Prettyboy Reservoir	15	$300,000	2-3 years
Zodhiates Property Site 1	Hampstead	3 / 5B	Private	Prettyboy Reservoir	30	$400,000	2-3 years
Zodhiates Property Site 2	Hampstead	3 / 5B	Private	Prettyboy Reservoir	--	$200,000	2-3 years
Shaper Property	Freeland	3 / 5B	Private	Prettyboy Reservoir	10	$200,000	2-3 years
Rodgers Forge	Towson	5 / 42	Private	Jones Falls	Street Trees	TBD	2-3 years
				TOTAL	**41**	**TOTAL**	**$830,500**

12 Local Open Space Sites

Potential Project	Community Location	CD / LD	Owner	Watershed	Acres	Cost Estimate*	Estimated Completion Schedule**
Local Open Spaces – Lower Gunpowder Falls	Hampton, Carney, Towson, Parkville, Perry Hall	5 / 42, 8	Baltimore County Property Management	Lower Gunpowder Falls	TBD	TBD	2-3 years
Local Open Spaces – Patapsco River	Randallstown, Milford Mill, Woodlawn, Catonsville, Arbutus, Lansdowne, Baltimore Highlands, Brooklyn Park	1, 4 / 10, 12A	Baltimore County Property Management	Patapsco River	TBD	TBD	2-3 years
Local Open Spaces – Loch Raven Reservoir	Cockeysville, Timonium, Mays Chapel, Luther-ville, Hampton, Towson	2, 3, 5 / 5B, 7, 11, 42	Baltimore County Property Management	Loch Raven Reservoir	TBD	TBD	2-3 years
Local Open Spaces – Middle River	Essex, Middle River, Bowleys Quarters	6, 7 / 6, 7	Baltimore County Property Management	Middle River	TBD	TBD	2-3 years
Local Open Spaces – Liberty Reservoir	Owing Mills, Randallstown	4 / 10, 11	Baltimore County Property Management	Liberty Reservoir	TBD	TBD	2-3 years
Local Open Spaces –Jones Falls	Pikesville, Mays Chapel, Timo-nium, Lutherville	2, 3, 5 / 11, 42	Baltimore County Property Management	Jones Falls	TBD	TBD	2-3 years
Local Open Spaces – Gwynns Falls	Owing Mills, Randallstown, Garrison Woodlawn, Lochearn, Milford Mill, Pikesville, Catonsville, Arbutus, Lansdowne	1, 2, 3, 4 / 11, 10, 12A	Baltimore County Property Management	Gwynns Falls	TBD	TBD	2-3 years
Local Open Spaces – Bird River	Parkville, Carney, Perry Hall, White Marsh, Rossville, Overlea	5, 6 / 8, 7	Baltimore County Property Management	Bird River	TBD	TBD	2-3 years

12 Local Open Space Sites (cont.)

Potential Project	Community Location	CD / LD	Owner	Watershed	Acres	Cost Estimate*	Estimated Completion Schedule**
Local Open Spaces – Back River	Towson, Carney, Parkville, Overlea, Rosedale,Rossville, Middle River, Essex, Dundalk	5, 6, 7 / 42, 8, 7, 6	Baltimore County Property Management	Back River	TBD	TBD	2-3 years
Local Open Spaces – Gunpowder River	Middle River, Bowleys Quarters	6 / 6, 7	Baltimore County Property Management	Gunpowder River	TBD	TBD	2-3 years
Local Open Spaces – Baltimore Harbor	Dundalk, Edgemere	7 / 6	Baltimore County Property Management	Baltimore Harbor	TBD	TBD	2-3 years
				TOTAL	**TBD**	**TOTAL**	**TBD**

Reforestation Projects Grand Totals

	Acres Total	Estimated Total Cost
BCPS CLIP Pilots	5.55	$194,250
Potential BCPS CLIPs	103.16	$1,885,600
Reserved Sites	41.00	$830,500
Rural Reforestation (Private Lands)	87.75	$1,715,000
Local Open Spaces	TBD	TBD
TOTALS	**231.91**	**$4,625,350**

*Note: Project unit costs are estimates and will be revised based on a contractor cost analysis as projects are completed. All current cost estimates reflect a median reforestation cost per acre (or per tree for urban landscaping trees), derived from previous projects. In more urban areas, a mixture of reforestation and urban landscaping trees may be incorporated into projects.

**Note: The estimated completion schedule does not include extended monitoring and maintenance for reforestation projects.

STREET SWEEPING PROGRAM

DPW Bureau of Highways Stormwater Remediation Equipment

Description	Quantity	Cost (each)	Total Cost	Delivery Date
Cleaner, sewer catch basin	3	$200,878.25	$602,634.75	March/April
Truck, Street Sweeper: Elgin	3	$238,987.00	$719,961.00	March/April
Containers, roll-off, 30 cubic yard	10	$4,993.10	$49,931.00	February
Vacuum Leaf Loader, trailer mounted	3	$25,777.50	$77,332.50	February
Contract – Street Sweeping			**TOTAL**	**$1,440,928.25**
Essex/Dundalk areas				
Anticipated May 1			**Approximately**	**$187,000.00**

Public Facility Environmental Enhancements

No.	Site # and Name	CD* / LD	Street Address	City/Town/State/ZIP	Operating & Maintenance costs**
1	**Site 1**	**3 / 7-2**	**Glen Arm Multi-Use Facility**		
	Glen Arm Maintenance Facility		12200 Long Green Pike	Glen Arm, Md 21057	$98,000
2	**Site 2**	**3 / 6**	**Gilroy Multi-Use Facility**		
	Hunt Valley Facility – Gilroy		11120 Gilroy Road	Hunt Valley, Md 21031	$75,000
3	**Site 3**	**7 / 9**	**Essex VOM Shop**		
	Essex Service / Repair Shop – V.O.M.		511 Mace Avenue	Essex, Md 21221	$140,000
	Essex Service / Repair Shop Shed		511 Mace Avenue	Baltimore, Md 21221	
4	**Site 4**	**7 / 9**	**Hwy's+R&P+Fire Dept – Sparrows Point**		$99,000
	Highway Shop – Sparrows Point		1535 Sparrows Point Boulevard	Sparrows Point, MD 21219	
	Highway Shop – Sparrows Point Shed (hwy's shop 9)		1535 Sparrows Point Boulevard	Sparrows Point, Md 21219	
	Sparrows Point Rec & Park Maintenance Building		1525 Sparrows Point Boulevard	Sparrows Point, MD 21219	
5	**Site 5**	**1 / 1**	**Brady Ave. Hwy's + Utilities**		$185,000
	Brady Avenue Utilities Building		1943 Brady Avenue	Halethorpe, MD 21227	
	Highway Shop - Brady Avenue - Salt Shed (Hwy's shop 1)		1947 Brady Avenue	Halethorpe, Md 21227	

Public Facility Environmental Enhancements (cont.)

No.	Site # and Name	CD* / LD	Street Address	City/Town/State/ZIP	Operating & Maintenance costs**
	Highway Shop - Brady Avenue (Shop 1/ Districts 13 & 1)		1947 Brady Avenue	Halethorpe, Md 21227	
6	**Site 6**	**7 / 9**	**Chesterwood Pk. County Ride**		$130,000
	Chesterwood Maintenance Shop (County Ride)		2200 Chesterwood Road	Dundalk, Md 21222	
7	**Site 7**	**6 / 7-1**	**Double Rock – R&P Equipment**		$517,000
	Double Rock Maint. Shop		7704 Belair Road	Nottingham, Md 21236	
8	**Site 8**	**3 / 6**	**Special Forces R&P – Van Buren Lane**		$210,000
	Special Forces – Rec & Parks		9819 Van Buren Lane	Cockeysville, Md 21030	
9	**Site 9**	**7 / 8**	**Essex Utilities Yard on Riverside Dr.**		$140,000
	Essex Utilities Yard		332 Riverside Drive	Essex, Md 21221	
10	**Site 10**	**2 / 2**	**Pikesville Yard - Utilities Shop + Hwy's Salt Dome**		$90,000
	Pikesville Service Center		509 Western Maryland Avenue	Pikesville, Md 21208	
	Pikesville Service Center Bldg 2		511 Western Maryland Avenue	Pikesville, Md 21208	
11	**Site 11**	**3 / 6**	**Longview Hwy's Shop (New)**		$237,000
	Highway Shop – Longview (New)		504 Galloway Avenue	Texas, Md 21030	
	Highway Shop - Longview Salt Dome (hwy's shop 6)		506 Galloway Avenue	Texas, Md 21030	
	Texas Maintenance Shop – Rec & Parks		500 Galloway Avenue	Cockeysville, Md 21030	
12	**Site 12**	**6 / 8**	**Martin State Airport – Police Hangar**		$70,000
	Police Aviation Hangar (5/06)		801 Wilson Point Road	Middle River, Md 21220	
13	**Site 13**	**3 / 6**	**Industry Lane Salt Dome**		$160,000
	Industry Lane Salt Dome		155 Industry Lane	Cockeysville, Md 21030	
14	**Site 14**	**4 / 2**	**Windsor Mill – Hwy's Yard**		$615,000
	Highway Shop – Windsor Mill Road (Shop 2 / Districts 1 & 2)		7224 Windsor Mill Road	Gwynn Oak, Md 21244	
	Highway Shop - Windsor Mill – Salt Shed #2 (hwy's shop 2)		7222 Windsor Mill Road	Gwynn Oak, Md 2124	
	Highway Shop – Windsor Mill Road – Salt Shed #1 (hwy's shop 2)		7222 Windsor Mill Road	Gwynn Oak, Md 21244	

Public Facility Environmental Enhancements (cont.)

No.	Site # and Name	CD* / LD	Street Address	City/Town/State/ZIP	Operating & Maintenance costs**
	Highway Shop – Windsor Mill Road – Storage Bldg (hwy's shop 2)		7222 Windsor Mill Road	Gwynn Oak, Md 21244	
	Highway Shop – Windsor Mill Road – Storage Shed (hwy's shop 2)		7222 Windsor Mill Road	Gwynn Oak, Md 21244	
15	**Site 15**	**4 / 3**	**Highway's District 3 – Clarks Lane**		$150,000
	Highway Shop – Clarks Lane (Shop 3 / Districts 3 & 4)		8 Clarks Lane	Reisterstown, Md 21136	
	Highway Shop – Clarks Lane Salt Shed (Pole Building) – Hwy's Shop 3		8 Clarks Lane	Reisterstown, Md 21136	
16	**Site 16**	**3 / 4-2**	**Ridge Road Highway's yard and Salt Dome**		$306,000
	Highway Shop – Ridge Road (Shop 4-1 / District 5)		17128 Ridge Road	Upperco, Md 21155	
	Highway Shop – Ridge Road – Salt Shed (Hwy's shop 4-1)		17128 Ridge Road	Upperco, Md 21155	
17	**Site 17**	**3 / 4-2**	**Middletown Rd. Highway's Shop**		$526,000
	Highway Shop – Middletown Road (Shop 4-2 / District 6)		20046 Middletown Road	Freeland, Md 21053	
	Highway Shop – Middletown Road – Shed (hwy's shop 4-2)		20046 Middletown Road	Freeland, Md 21053	
18	**Site 18**	**3 / 4-3**	**Whitehall Highway's Shop**		$115,000
	Highway Shop – Graystone Road (Shop 4-3 / District 7 & 10)		19128 Graystone Road	White Hall, Md 21161	
	Highway Shop – Graystone Road – Salt Shed (Hwy's shop 4-3)		19128 Graystone Road	White Hall, Md 21161	
	Highway Shop – Graystone Road – Storage Bldg (Hwy's shop 4-3)		19128 Graystone Road	White Hall, Md 21161	
19	**Site 19**	**3 / 7-2**	**Hydes Rd. Hwy's Shop**		$85,000
	Highway Shop – Hydes Rd. (Shop 7-2 / District 11)		5239 Hydes Road	Hydes, Md 21082	
	Highway Shop – Hydes Road – Salt Shed (Hwy's shop 7-2)		5239 Hydes Road	Hydes, Md 21082	

Public Facility Environmental Enhancements (cont.)

No.	Site # and Name	CD* / LD	Street Address	City/Town/State/ZIP	Operating & Maintenance costs**
20	**Site 20**	**6 / 7-1**	**Highway's Shop on Perry Road**		$180,000
	Highway Shop – Perry Rd. (Shop 7-1 / District 14)		7801 Perry Road	Fullerton, Md 21236	
	Highway Shop – Perry Road – Chemical Storage Shed (hwy's shop 7-1)		7805 Perry Road	Fullerton, Md 21237	
21	**Site 21**	**6 / 8**	**Emala Ave. Highway's Shop**		$138,000
	Highway Shop - Emala Avenue (Shop 8 / District 15)		14 Emala Avenue	Middle River, Md 21220	
	Highway Shop – Emala Avenue – Salt Shed – Highway's shop 8		14 Emala Avenue	Middle River, Md 21220	
	Highway Shop – Emala Avenue – Storage Bldg – Highway's shop 8)		14 Emala Avenue	Middle River, Md 21220	
22	**Site 22**	**4 / 3**	**New VOM Facility on Liberty Road**		$70,000
	Randallstown Service Center		9428 Liberty Rd.	Randallstown, MD	
	Sites that are NOT subject to NPDES Industrial coverage				
23	**Site 23**	**6**	**Chase Fire Station**		$250,000
24	**Site 24**	**2**	**Pikesville Library**		$300,000
25	**Site 25**	**5**	**Solid Waste Management**	**Eastern Landfill**	$2,270,273.65
			TOTAL		**$7,156,273.65**

Infrastructure Environmental Enhancements

Location	CD / LD	Cost
Edmondson Avenue traffic calming	1 / 12	$300,000
Lafayette Avenue, sand filter repair	1 / 12	$33,000
Violet Alley construction, pervious pavement	1 / 12	$350,000
North Forest Park Avenue outfall repair	1 / 488	$100,000
Cherry Hill Road apron and outfall repair	2 / 7	$350,000

Infrastructure Environmental Enhancements (cont.)

Location	CD / LD	Cost
Bellinger Court outfall repair	2 / 10	$300,000
Branchwood Court	2 / 11	$300,000
Lightfoot Road outfall repair	2 / 11	$100,000
Millridge Road outfall restoration	2 / 11	$516,000
Verdant Road stream restoration	2 / 11	$280,000
Bigley Avenue culvert repair	2 / 12	$100,000
Smith Avenue outfall repair(commercial)	2 / 12	$200,000
Bradshaw Road Culvert repair	2 / 7	$100,000
Clubhouse Lane outfall restoration	4 / 42B	$100,000
Dogwood Hill Road	4 / 42B	$100,000
Hampton Lane outfall restoration	4 / 42B	$100,000
Stags Head Road outfall restoration	4 / 42B	$100,000
Breen Place Culvert repair	5 / 8	$100,000
Chapel Road culvert repair	5 / 8	$100,000
Putty Hill Avenue end section repair	5 / 8	$100,000
Ridge Road outfall repair	5 / 8	$100,000
Emla Avenue outfall channel restoration	5 / 42B	$300,000
Salem Village Road (commercial)	5 / 42B	$230,000
Redhouse Run, Tributary 12 Stream Restoration	6 / 6	$440,000
Todds Lane, pavement harvesting	6 / 6	$100,000
Sipple Avenue	6 / 8	$100,000
Valewood Road #1 outfall restoration	6 / 42B	$100,000
Valewood Road #2 outfall restoration	6 / 42B	$100,000
Cedar Lane Culvert repair	7 / 6	$100,000
Quad Avenue Culvert repair	7 / 6	$100,000
Weyburn Road channel removal	7 / 6	$170,000
Maple Avenue wetland creation	7 / 6	$250,000
Outfall Assessments	Countywide	$3,300,000
	TOTAL	**$8,786,000**