

**BARRY GLASSMAN**  
HARFORD COUNTY EXECUTIVE



**JOSEPH J. SIEMEK, P.E.**  
DIRECTOR OF PUBLIC WORKS

DEPARTMENT OF PUBLIC WORKS  
*Office of the Director*

**JULY 6, 2021**

Mr. Raymond Bahr  
Water Management Administration  
Maryland Department of the Environment  
1800 Washington Boulevard  
Baltimore, Maryland 21230

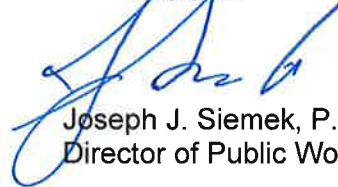
**RE: HARFORD COUNTY – MS4 PERMIT**

Dear Mr. Bahr:

Enclosed for your review are documents that you have requested to be completed in preparation of Harford County's next MS4 Permit. The documents represent the County's proposed capital improvement program based on available funding to complete projects necessary to replace the nutrient trade from the previous permit. The documents were completed assuming the next permit would be issued July 1, 2022 and cover fiscal years FY2023 through FY2027. A column was added to the capital project portfolio to show expenditures proposed during this time frame.

Should you have any questions, or wish to discuss this submittal, please feel free to contact me at 410-638-3285 or Christine Buckley at 410-638-3217 extension 1176.

Sincerely yours,



Joseph J. Siemek, P.E.  
Director of Public Works

JJS:CMB/ kjs

Enclosures

cc: The Honorable Barry Glassman  
Billy Boniface  
Ben Lloyd  
Margaret Hartka  
Stephen Walsh  
Christine Buckley  
C. Lyerly (MDE)  
File

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212 S. Bond Street, Bel Air, Maryland 21014

THIS DOCUMENT IS AVAILABLE IN ALTERNATIVE FORMAT UPON REQUEST

## Part II. Physical Capacity Questionnaire (Harford County)

1. *What is the typical implementation time frame (from planning through construction) for a restoration project? Provide a typical Gantt chart for the following three main classes of BMPs and break down into planning, design, and construction phases: 1. Large upland stormwater projects (e.g., new and retrofits for ponds, bioretention, infiltration basins, etc.); 2. Instream restoration projects; and, 3. Alternative projects (not annual) (e.g., tree planting). Provide a written justification to explain the time frames for each BMP class and phase.*

A. Stormwater Projects

Planning Phase:	12 months
Design Phase:	20 months
Construction Phase:	6 months

B. Stream Projects

Planning Phase:	12 months
Design Phase:	33 months
Construction Phase:	12 months

C. Alternative BMPs

Planning Phase:	12 months
Design Phase:	6 months
Construction Phase:	4 months

The planning phase for all BMP types includes the preparation of small watershed assessments that identify and prioritize various BMPs. In addition, the small watershed assessments calculate planning level nutrient reductions and impervious area credits that help guide the selection of BMPs for implementation.

**Stormwater Projects:** The design phase includes preparation of 30%, 75%, 90% and 100% plans, specifications, and cost estimates. Permit review meetings, submittals and re-submittals are included, along with preparation of easement plats and documents, and obtaining the necessary easements from the property owner.

**Stream Projects:** The design phase includes the preparation of design documents and permit submittals described above. Any required pre-construction monitoring is performed during the design phase.

**Alternative BMPs:** Alternative BMPs are typically easier to implement but provide for much smaller credits. The Watershed Protection and Restoration Office has only completed two tree planting projects, both on County-owned property. All other tree plantings were completed by the Planning and Zoning Department using grant funding. Those plantings were on both public and private properties. Agreements did not include permanent easements and maintenance was to be provided by the property owners.

### **Implementation Challenges:**

- a. Property acquisition is often the most time-consuming aspect of the design phase. The design phase of projects on County-owned property generally require much less time. However, in Harford County, most existing BMPs are privately owned and no easements exist along streams through privately owned property. Most stream projects involve multiple property owners. Outreach and easement negotiations require significant effort. Easement acquisition from Homeowners Associations generally take 8 to 10 months, as HOAs seek legal counsel prior to accepting an easement. Harford County has also experienced situations where a property is sold, or is being sold, during the easement acquisition time frame.
- b. Permitting time can vary greatly between projects. If a stream restoration design results in an increase to the 100-year floodplain water surface elevation greater than 0.1 ft, MDE requires an agreement with the property owner. Permitting can also be delayed if there is a personnel change in the review agency. Any pre-construction monitoring, as required by a permit, or as required to meet crediting protocols, are included in the design phase.
- c. Staffing capacity can impact the design and implementation schedule of capital project. Project design is rarely performed in-house. Harford County uses consultants to prepare design and bid packages for most capital projects. However, County staff reviews each submittal to ensure the documents are complete and correct. Because of limited staffing capacity, review times may exceed the planned schedule, resulting in project delays.

***2. Provide the average time to authorize capital improvement project (CIP) budgets for the initial project planning phase and for the design phase of a typical restoration project (assumes CIP approval for each phase is required). Do you have the ability to combine these two phases or do you have to get CIP approval for each phase consecutively?***

Harford County begins the budget process in October preceding the start of the fiscal year (July 1). A single capital project account exists for small watershed assessments. Once a small watershed assessment has been completed, an umbrella capital project account is created (ie. Upper Bynum Run Watershed). Funding is added to these accounts annually based on budget requests developed by the Watershed Protection and Restoration Office. Any project identified within that small watershed assessment can be funded. Individual project selection is not part of the budget approval process. This allows flexibility to implement projects that are ready to proceed, or to shift funding from one project to another. In addition to watershed-based umbrella accounts, the County also has a general watershed restoration account for projects that may be identified outside of small watershed assessments and a general watershed restoration account for projects located on County property.

3. ***Provide the average time to procure professional planning, design, and construction services. Is procurement done in phases (e.g., procurement for planning, then procurement for design, and then procurement for construction)? How would a pay for performance type of contract or a design-build-operation-maintenance contract affect these time frames? Please provide information on any innovative contracting mechanism you use to reduce procurement timeframes and what those reduced time frames are.***

Harford County uses open-end contracting for design and assessment services. The open-end design and assessment contracts are for one year, with four additional one-year renewals. The process of soliciting for Expressions of Interest, Requests for Proposals, scoring proposals, and issuance of contracts takes approximately 10 months to complete. Ideally, the process begins prior to the expiration of existing contracts to avoid a lapse in design service coverage. Harford County recently entered into new contracts with 5 design consultants.

As mentioned above, project planning is performed in the small watershed assessment phase, which is funded and completed prior to specific capital projects. The County awards to small watershed assessments to one of the consultants under our open-end contract. Small watershed assessments take an average of 12 months to complete.

For most capital projects, Harford County employs a design/bid/build process. Designs are performed by consultants under our open-end contract. Once designs are complete, the County advertises an Invitation for Bids. Harford County uses a prequalification process to ensure bidders are qualified to construct the project. Bids are reviewed and awarded to the lowest responsible and responsive bidder. It takes 3 months to advertise and award a construction contract.

Harford County also has a design/build open-end contract. The County has found that this process works best for smaller projects involving minimal property owners.

4. ***Provide the number of requests for proposals (RFPs) for BMP construction and for BMP design advertised during the past 5-year permit term. Of these, how many bids were submitted for each RFP and how many required re-advertising? Was there a trend over the permit term in the number of bid submittals received? How many unique companies provided bids for all RFPs?***

During the past permit term, Harford County issued 30 purchase orders for design, under our open-end contracts. Harford County advertised 20 projects for construction. None of the construction projects needed re-advertising.

Harford County requires contractors to be pre-qualified in stormwater management and/or stream restoration prior to bidding on projects. The number of bidders on an individual project can vary from 2 to 9. The number of pre-qualified contractors has increased over the permit term. The pre-qualification process has helped ensure bidding contractors have the experience needed to construct the project according to our specifications.

Harford County has allowed for greater flexibility for scheduling construction start times over the past several Invitation for Bids. This may have contributed to the increased number of bidders.

5. ***Provide information on contracting limitations that result in longer project implementation times. Examples: Limited qualified construction contractors; Woman owned business enterprise (WBE) or minority owned business enterprise (MBE) requirements limit available qualified construction contractors and/or engineering contractors. Describe the issue and provide the time extension that results due to the issue.***

Harford County does not have MBE/WBE participation requirements. Some grants the County receives have included MBE/WBE requirements, but this has not limited the ability to hire contractors, as most contractors have subcontractors that qualify.

Project delays typically revolve around stream closure periods. Harford County has been flexible with Notice to Proceed dates to minimize the risk of project shut-down for stream closure.

6. ***Provide a typical time frame required to obtain permits from local, State, and federal agencies for the three main BMP project classes (i.e., upland stormwater ponds, instream restoration, and alternative projects) prior to construction. Describe how these time frames affect the overall project implementation time frames described in Question #1. How can these time frames be reduced to help get these projects out the door faster?***

a. Stormwater Projects

Stormwater management projects require local grading and stormwater management permits. Larger facilities may require small pond and / or MD378 approval. Harford County has review approval for small pond but MD378 must be approved by Maryland Dam Safety. Typically, the review and approval process take no more than 12 months complete.

b. Stream Restoration

Stream restoration permitting times can vary greatly, depending on the scope and impact of the project. Stream restoration is subject to U.S. Army Corps of Engineers and Maryland Department of the Environment reviews. Additionally, Forest Conservation Act and Critical Area requirements may also need to be met. Local grading permits and stormwater management waivers are required, along with the NOI for stormwater associated with construction activities.

As mentioned above, easements from private property owners are often the most time-consuming part of the design phase. MDE requires these easements and floodplain agreements to be in place prior to issuing a Letter of Authorization. Easements and floodplain agreements cannot be initiated prior to the joint permit application and field meeting, as the reviewers may decide to alter the limits of

disturbance (LOD). The LOD determines the easement boundaries. The reviewers may also decide a modification to the proposed design is necessary, which, in turn, may alter the floodplain impacts. The final LOD is generally not established until the 90% design submittal phase.

Review times by state and federal reviewers have improved over the course of the permit term. However, changes in review personnel during the review process has caused delays based on the need for a new reviewer must get up to speed on a project and may require additional meetings.

Typically, it takes 12-18 months to obtain permits for stream restoration.

c. Alternative BMPs

Tree plantings typical require no permits but do require agreements with the property owners including Harford County agencies.

Forest Conservation Act (FCA) – The Watershed Protection and Restoration Office is currently working with the County Planning and Zoning Office to develop procedures to follow to meet the intent of the FCA. For stream restoration projects, the County has been identifying location, species, and health for all trees within the LOD that are greater than 18 inches in diameter. This data has been used to minimize and target tree removal. The Watershed Protection and Restoration Office has proposed that replacement tree plantings focus on establishing a forested riparian area and not just tree replacement as outlined in the FCA. As written, the FCA focuses more on tree replacement for development.

**7. *What type of a project do you consider as “low-hanging fruit”? What is your remaining capacity of available “low-hanging fruit” projects (estimate the number and impervious acre treatment total)?***

Harford County considers “low-hanging fruit” to be those projects on County-owned land that can provide the most cost-effective impervious acre treatment. The County is currently reviewing County-owned properties for opportunities for tree plantings and conservation landscaping. Harford County Schools currently has several low mow areas that could be enhanced and added to the County’s inventory of restoration projects. Additionally, the County has provided funding to the Alliance for the Chesapeake Bay through a partnership with the Chesapeake Bay Trust. Trees planted through this funding need to be inspected and added to the County’s inventory of restoration projects.

- 8. Complete the spreadsheet provided for restoration projects to be planned, designed, and/or constructed from the end of the 4th generation permit through 2029. Include for each restoration project the estimated impervious acres treated, estimated total nitrogen (TN) reduction, estimated total phosphorus (TP) reduction, and estimated total suspended sediments (TSS) reduction; any local total maximum daily load (TMDL) parameter (or other water quality objective) addressed; estimated cost; implementation status; and projected completion year. Include projects that will be in the planning or design phase but will not be completed until after 2027. This information should be more specific for the first reporting year but may be more generalized for the remaining reporting years.**
- 9. Provide a copy of your 5-year CIP for restoration projects (End of 4th Generation Permit- 2027).**
- 10. Provide a copy of your operating budget for annual restoration projects (FY2021).**
- 11. Provide a copy of your operating and maintenance budget for all BMPs implemented under the MS4 permit? (FY2021)**

Financial Capacity Spreadsheet			
1	County/City Name	Harford	
2	Cost As A Percent Of Household Income		
2a	Median Household Income (MHI)	\$	89,147
2b	Total Number Of Households In Jurisdiction		100,210
2c	Average Annual Cost For Public Stormwater Related Management Programs	\$	7,644,471.80
2d	Annual Cost For Public Stormwater Related Management Programs Per Household	\$	76.28
2e	% Of MHI Spent On Public Stormwater Related Management Programs		0.09%
2f	Total Annual Stormwater Remediation Fee Per Household	\$	-
2g	% Of MHI Spent Annually On Stormwater Remediation Fee		0.00%
3	Cost Of Impervious Surface Restoration As A Percent Of Household Income		
3a	Total In Previous Permit Term Spent On The Impervious Surface Restoration Plan (ISRP)	\$	23,130,116.00
3b	Average Annual Cost Of The ISRP During The Previous Permit Term	\$	4,626,023.20
3c	Annual Cost Of The ISRP Per Household During The Previous Permit Term	\$	46.16
3d	% Of MHI Spent On The ISRP During The Previous Permit Term		0.05%
3e	Total Projected Cost For Restoration Portfolio		\$19,343,220
3f	Projected Annual Cost For Restoration Portfolio	\$	3,868,644.00
3g	Projected Annual Cost For Restoration Portfolio Per Household	\$	38.61
3h	% Of MHI Spent On Projected Cost Of Restoration Portfolio		0.04%
4	Cost For Low-Income Residential Customers As A Percent Of Household Income		
4a	Percentage Of Households With Annual Income <\$25,000		11.80%
4b	% Of Income For Low Income Households Spent On Public Stormwater Related Management Programs		0.31%
4c	% Of Income For Low Income Households Spent On Stormwater Remediation Fees		0.00%
4d	% Of Income For Low Income Household Spent On The ISRP		0.18%
4e	% Of MHI For Low Income House Spent On Projected Cost Of Restoration Portfolio		0.15%
5	Key Socioeconomic Indicators		
5a	Percentage Unemployed		2.80%
5b	Median Household Income	\$	89,147
5c	Percent Of Individuals (All People) Below Poverty Level		7.20%
6	Financial Capacity Indicators		
6a	Debt Indicators	Bond Rating – GO <sup>1</sup> Bonds	AAA
6b		Bond Rating – Revenue Bonds	AAA
6c		Net Debt As A % Of FMPV <sup>2</sup>	1.67%
6d	Financial Management Indicators	Property Tax Revenues As % Of FMPV	1.08%
6e		Property Tax Revenue Collection Rate	99.29%

Notes:

1. GO = General Obligation

2. FMPV = Full Market Property Value



**PUBLIC WORKS - DIVISION OF ENVIRONMENT & SUSTAINABILITY**

**Watershed Management**

**Index #303320**

**ORIGIN/PURPOSE:**

The Watershed Management group is responsible for implementation of the County's Municipal Storm Separate Sewer System (MS4) Permit and compliance with our National Pollution Discharge Elimination System (NPDES) permit.

The MS4 permit is required by the Environmental Protection Agency (EPA) and is issued by the Maryland Department of the Environment (MD). Harford County received its most recent five year MS4 permit in December, 2014, which expired in December 3029. The permit has been administratively continued by MDE, and the MS4 program continues to operate under the terms of the previous permit. Permit requirements include assessing stream health through watershed assessments, identifying opportunities for improvement through watershed restoration plans, and designing and constructing watershed restoration projects.

Projects include but are not limited to constructing new stormwater management facilities, upgrading existing stormwater management facilities, and constructing stream restorations. Additional permit requirements include monitoring stream health, identifying sources of potential impacts to stream health from commercial, industrial and residential properties and implementing a public outreach program.

**FY 21 GOALS:**

MANAGE PROJECT CONSTRUCTION AND INSPECTION

COORDINATE ALL ACTIVITIES OF THE PROJECT TEAM

MANAGE AND COORDINATE MS4 ACTIVITIES

DIRECT AND MANAGE PROJECT DESIGN

MEET FUNCTIONAL NEEDS OF CUSTOMER

**PUBLIC WORKS - DIVISION OF ENVIRONMENT & SUSTAINABILITY**  
**Watershed Management**  
**Index #303320**

**ALL FUND SUMMARY:**

	AUDITED FY 18	AUDITED FY 19	ORIGINAL BUDGET FY 20	EXECUTIVE PROPOSED FY 21	ENACTED FY 21
<b><u>SUMMARY BY CHARACTER:</u></b>					
10 PERSONAL SERVICES	0	0	0	504,670	504,670
20 CONTRACTUAL SERVICES	0	0	0	598,091	598,091
30 SUPPLIES & MATERIALS	0	0	0	4,845	4,845
40 BUSINESS AND TRAVEL	0	0	0	9,750	9,750
70 MISCELLANEOUS	0	0	1,985,000	5,581	5,581
<b>GRAND TOTAL</b>	<b>0</b>	<b>0</b>	<b>1,985,000</b>	<b>1,122,937</b>	<b>1,122,937</b>
<b><u>SUMMARY BY FUND:</u></b>					
29 WATERSHED MANAGEMENT	0	0	1,985,000	1,122,937	1,122,937
	<b>0</b>	<b>0</b>	<b>1,985,000</b>	<b>1,122,937</b>	<b>1,122,937</b>
<b><u>SUMMARY BY DIVISION:</u></b>					
303320 Bureau of Watershed Management	0	0	1,985,000	1,122,937	1,122,937
<b>GRAND TOTAL</b>	<b>0</b>	<b>0</b>	<b>1,985,000</b>	<b>1,122,937</b>	<b>1,122,937</b>

<b>PUBLIC WORKS - DIVISION OF ENVIRONMENT &amp; SUSTAINABILITY</b> <b>Watershed Management</b> <b>Index #303320</b>
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**FINANCIAL NOTES:**

FY 20	FY 21	CHANGE	EXPLANATION OF INCREASE/DECREASE
			<u>PERSONAL SERVICES increase \$504,670</u>
	22,471	22,471	FY 21 merit increase of \$2,000 and COLA of 2% to all eligible employees
		18,600	Temporary funding for 2 summer Interns to assist with MS4 compliance
	458,666	458,666	Four (4) Positions transferred from Stormwater Management:
			# of Positions
			Salary
			Fringe
			Total
			1.00 47,103 16,669 63,772 Admin Asst I
			1.00 77,657 37,705 115,362 Civil Eng II
			1.00 88,000 39,359 127,359 Civil Eng III
			1.00 109,010 43,163 152,173 Civil Eng 1V
			<hr style="width: 100%; border: 0.5px solid black;"/>
			<b>4.00 321,770 136,896 458,666</b>
	3,210	3,210	PEHP (Post Employment Health Plan)
		1,423	FICA for Temporary summer interns
			<u>CONTRACTUAL SERVICES increased \$598,091</u>
0	598,091	598,091	Funding for Management Services, Other Professional Services, Office equipment, telephone service, computer hardware and software transferred from Stormwater Management
			<u>SUPPLIES AND MATERIALS increase \$4,845</u>
0	4,845	4,845	General office supplies, office mailing, drafting supplies, laboratory supplies, transferred from Stormwater Management
			<u>BUSINESS AND TRAVEL increase \$9,750</u>
0	9,750	9,750	Vehicle expenses, professional books, membership fees, training for new division
			<u>MISCELLANEOUS decrease (\$1,979,419)</u>
1,985,000	5,581	(1,979,419)	Pro Rata Share transferred from Stormwater Management offset by the elimination of contingency funds for FY 21

**DIVISION STAFF SUMMARY**  
**Watershed Management**  
**Index #303320**

POSITION TITLE	ENACTED FY 19		ENACTED FY 20		PROPOSED FY 21	
	POSITIONS	SALARIES	POSITIONS	SALARIES	POSITIONS	SALARIES
Administrative Specialist I	0.00	0	0.00	0	1.00	53,040
Civil Engineer II	0.00	0	0.00	0	1.00	81,250
Civil Engineer III	0.00	0	0.00	0	1.00	89,760
Civil Engineer IV	0.00	0	0.00	0	1.00	113,230
<b>FULL-TIME SALARIES</b>	<u>0.00</u>	<u>0</u>	<u>0.00</u>	<u>0</u>	<u>4.00</u>	<u>337,280</u>
<b>TEMPORARY SALARIES</b>		0		0	0	18,600
<b>TOTAL</b>	<u><b>0.00</b></u>	<u><b>0</b></u>	<u><b>0.00</b></u>	<u><b>0</b></u>	<u><b>4.00</b></u>	<u><b>355,880</b></u>
<b>OTHER PERSONAL SERVICES</b>						
Pension & Retirement		0		0		35,414
Workers' Compensation		0		0		982
Health Benefits		0		0		81,100
PEHP		0		0		3,210
FICA		0		0		27,224
Miscellaneous		0		0		860
<b>TOTAL OTHER PERSONAL SERVICES</b>		<u><b>0</b></u>		<u><b>0</b></u>		<u><b>148,790</b></u>
<b>TOTAL PERSONAL SERVICES</b>	<u><b>0.00</b></u>	<u><b>0</b></u> *	<u><b>0.00</b></u>	<u><b>0</b></u>	<u><b>4.00</b></u>	<u><b>504,670</b></u>

\*FY 19 Salaries and Other Personal Services are Enacted not Audited amounts

**FY 22 APPROVED CAPITAL BUDGET**

<b>PROJECT</b>	<b>TOTAL</b>	<b>PRIOR PAYGO</b>	<b>PAYGO</b>	<b>PRIOR BONDS</b>	<b>COUNTY BONDS</b>	<b>LEASE FINANCE</b>	<b>REAPPROP</b>	<b>TRANSFER TAX</b>	<b>RECORD. TAX</b>	<b>STATE</b>	<b>P.O.S.</b>	<b>FEDERAL</b>	<b>DEVELOPER/ OTHER</b>
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**GENERAL FUND**

**WATERSHED MANAGEMENT**

County Owned Stormwater Management Rehab and Repair*	150,000	0	150,000	0	0	0	0	0	0	0	0	0	0
County Owned Watershed Restoration Improvements	3,775,000	0	0	0	2,550,000	0	0	0	0	1,225,000	0	0	0
Joppatowne Area Watershed Restoration	150,000	0	0	0	0	0	0	0	0	150,000	0	0	0
Maintenance/Repair of Stormwater Facilities	872,850	0	0	0	0	0	0	0	0	0	0	0	872,850
Middle Bynum Run Watershed Restoration Improvements	200,000	0	0	0	200,000	0	0	0	0	0	0	0	0
Plumtree Run Watershed Restoration	1,000,000	0	0	0	500,000	0	0	0	0	500,000	0	0	0
Riverside Area Watershed Restoration	975,000	0	0	0	500,000	0	0	0	0	475,000	0	0	0
Sams Branch Watershed Restoration	400,000	0	0	0	300,000	0	0	0	0	100,000	0	0	0
Septic System Disconnection*	150,000	0	150,000	0	0	0	0	0	0	0	0	0	0
Stormwater Pollution Prevention*	250,000	0	250,000	0	0	0	0	0	0	0	0	0	0
Upper Bynum Run Watershed Restoration Improvements	2,000,000	0	0	0	1,000,000	0	0	0	0	1,000,000	0	0	0
Watershed Restoration Assessment	1,300,000	0	0	0	900,000	0	0	0	0	300,000	0	100,000	0
Watershed Restoration Improvements	650,000	0	0	0	500,000	0	0	0	0	150,000	0	0	0
Watershed Restoration Maintenance*	300,000	0	300,000	0	0	0	0	0	0	0	0	0	0
Wheel Creek Watershed Restoration	300,000	0	0	0	300,000	0	0	0	0	0	0	0	0

\*Special Dedicated Paygo

<b>SUB-TOTAL WATERSHED MANAGEMENT</b>	<b>12,472,850</b>	<b>0</b>	<b>850,000</b>	<b>0</b>	<b>6,750,000</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>3,900,000</b>	<b>0</b>	<b>100,000</b>	<b>872,850</b>
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**HARFORD COUNTY, MARYLAND  
FY 22 APPROVED CAPITAL IMPROVEMENT PROGRAM**

PROJECT TITLE	TOTAL COST	PRIOR APPROP	BUDGET	FY 2023	FIVE YEAR CAPITAL PROGRAM			
			FY 2022		FY 2024	FY 2025	FY 2026	FY 2027

**GENERAL FUND**

**WATERSHED MANAGEMENT**

FY 22 Funded Projects

County Owned Stormwater Mmgmnt Rehabilitation & Repair	1,000,000	350,000	150,000	100,000	100,000	100,000	100,000	100,000	100,000
County Owned Watershed Restoration Improvements	36,350,000	15,400,000	3,775,000	3,275,000	3,325,000	3,425,000	3,525,000	3,625,000	3,625,000
Joppatowne Area Watershed Restoration	8,300,000	5,800,000	150,000	150,000	550,000	550,000	550,000	550,000	550,000
Maintenance/Repair of Stormwater Facilities	872,850	0	872,850	0	0	0	0	0	0
Middle Bynum Run Watershed Restoration Improvements	5,250,000	1,450,000	200,000	600,000	750,000	750,000	750,000	750,000	750,000
Plumtree Run Watershed Restoration	13,143,452	7,643,452	1,000,000	900,000	900,000	900,000	900,000	900,000	900,000
Riverside Area Watershed Restoration	9,635,886	3,585,886	975,000	1,575,000	875,000	875,000	875,000	875,000	875,000
Sams Branch Watershed Restoration	6,172,922	3,772,922	400,000	400,000	400,000	400,000	400,000	400,000	400,000
Septic System Disconnection	900,000	500,000	150,000	50,000	50,000	50,000	50,000	50,000	50,000
Stormwater Pollution Prevention	2,331,395	1,331,395	250,000	150,000	150,000	150,000	150,000	150,000	150,000
Upper Bynum Run Watershed Restoration Improvements	14,000,000	2,000,000	2,000,000	2,000,000	2,000,000	2,000,000	2,000,000	2,000,000	2,000,000
Watershed Restoration Assessment	16,800,000	8,500,000	1,300,000	1,400,000	1,400,000	1,400,000	1,400,000	1,400,000	1,400,000
Watershed Restoration Improvements	10,450,000	6,250,000	650,000	550,000	750,000	750,000	750,000	750,000	750,000
Watershed Restoration Maintenance	1,360,000	560,000	300,000	100,000	100,000	100,000	100,000	100,000	100,000
Wheel Creek Watershed Restoration	7,489,607	7,189,607	300,000	0	0	0	0	0	0

Outyear Projects

Maintenance/Repair of Dams	2,755,000	2,505,000	0	50,000	50,000	50,000	50,000	50,000	50,000
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Open Projects

Bynum Run @ St. Andrews Way Stream Restoration	2,297,026	2,297,026	0	0	0	0	0	0	0
Lilly Run Watershed Restoration	725,000	725,000	0	0	0	0	0	0	0
Stormwater Enhancement	900,000	900,000	0	0	0	0	0	0	0
Sunnyview Stream Restoration	5,192,220	5,192,220	0	0	0	0	0	0	0

<b>Watershed Management Total by Project</b>	<b>145,925,358</b>	<b>75,952,508</b>	<b>12,472,850</b>	<b>11,300,000</b>	<b>11,400,000</b>	<b>11,500,000</b>	<b>11,600,000</b>	<b>11,700,000</b>	<b>11,700,000</b>
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Paygo - Special Dedicated Paygo	10,287,508	7,187,508	850,000	450,000	450,000	450,000	450,000	450,000	450,000
Prior Bonds	36,300,000	36,300,000	0	0	0	0	0	0	0
Future Bonds	42,000,000	0	6,750,000	6,850,000	6,950,000	7,050,000	7,150,000	7,250,000	7,250,000
Reappropriated	0	0	0	0	0	0	0	0	0
Recordation Tax	200,000	200,000	0	0	0	0	0	0	0
State	48,557,016	25,157,016	3,900,000	3,900,000	3,900,000	3,900,000	3,900,000	3,900,000	3,900,000
Federal	4,197,984	3,597,984	100,000	100,000	100,000	100,000	100,000	100,000	100,000
Developer/Other	4,382,850	3,510,000	872,850	0	0	0	0	0	0

<b>Watershed Management Total by Fund</b>	<b>145,925,358</b>	<b>75,952,508</b>	<b>12,472,850</b>	<b>11,300,000</b>	<b>11,400,000</b>	<b>11,500,000</b>	<b>11,600,000</b>	<b>11,700,000</b>	<b>11,700,000</b>
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**Restoration Projects To Be Planned, Designed, and/or Constructed From The End Of 4th Generation Permit Through CY 2029  
HARFORD COUNTY**

Remaining Unmet Restoration Obligation from Previous Permit (Impervious Acres):	0
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REST BMP ID	REST BMP TYPE <sup>1</sup>	BMP CLASS <sup>1</sup>	PERMANENT OR ANNUAL BMP	NUM BMP	DRAINAGE AREA (acres)	PE (inches)	LENGTH RESTORED (feet)/ LANE MILES (miles)/ MASS LOADING (lbs)	TP REDUCTION (lbs/year)	TSS REDUCTION (lbs/year)	TN <sup>6</sup> REDUCTION (lbs/year)	IMP ACRES (IA)	GREEN STORMWATER INFRASTRUCTURE (GSI) CREDIT (IA X 0.35)	WATERSHED MANAGEMENT (WM) CREDIT	TOTAL IMP ACRES (W/ GSI AND WM CREDITS)	IMPLEMENTATION COST	IMPLEMENTATION STATUS <sup>2</sup>	PROJECTED IMPLEMENTATION YEAR (Fiscal Year)	TMDL PARAMETER OR WQ OBJECTIVE ADDRESSED	GENERAL COMMENTS <sup>7</sup>
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**Remaining Unmet Restoration Obligations from Previous Permit**

**Annual Operational Programs (Unmet Obligations from Previous Permit)<sup>3,4</sup>**

Street Sweeping*		A	ANNUAL	0										0.0					The County does not plan any street sweeping to meet its obligation under the previous permit.
Catch Basin Cleaning*		A	ANNUAL	0										0.0					The County does not plan any catch basin cleaning to meet its obligation under the previous permit.
Septic System Pumping		A	ANNUAL	0										0.0					The County does not plan any additional septic pumping to meet its obligation under the previous permit.
Subtotal Operations <sup>3</sup>				0				0.0	0	0.0	0.0			0.0	\$0				

**Capital Projects (Unmet Obligations from Previous Permit Term)**

Subtotal Capital				0				0.0	0	0.0	0.0	0	0	0.0	\$0				

**Other (Unmet Obligations from Previous Permit Term)**

														0.0					
Subtotal Other				0				0.0	0	0.0	0.0	0	0	0.0	\$0				
<b>Total of Remaining Obligations from The Previous Permit</b>				<b>0</b>				<b>0.0</b>	<b>0</b>	<b>0.0</b>	<b>0.0</b>	<b>0</b>	<b>0</b>	<b>0.0</b>	<b>\$0</b>				

**Obligations from Previous Permit That Must Be Continued**

**Annual Operational Programs Required to be Maintained from Previous Permit<sup>5,6</sup>**

Septic System Pumping	SEPP	A	ANNUAL	4,516	N/A	N/A	N/A	0.0	0	0.0	135.5			135.5	\$0	Complete	2020		2014 Account Document credits
Septic System Pumping	SEPP	A	ANNUAL	4516	N/A	N/A	N/A	0.0	0	0.0	135.5			135.5	\$0	Under Construction	2021		2014 Account Document credits
Septic System Pumping	SEPP	A	ANNUAL	4516	N/A	N/A	N/A	0.0	0	0.0	135.5			135.5	\$0	Planning	2022		2014 Account Document credits
Septic System Pumping	SEPP	A	ANNUAL	4516	N/A	N/A	N/A	0.0	0	0.0	135.5			135.5	\$0	Planning	2023		2014 Account Document credits
Septic System Pumping	SEPP	A	ANNUAL	4516	N/A	N/A	N/A	0.0	0	0.0	135.5			135.5	\$0	Planning	2024		2014 Account Document credits
Septic System Pumping	SEPP	A	ANNUAL	4516	N/A	N/A	N/A	0.0	0	0.0	135.5			135.5	\$0	Planning	2025		2014 Account Document credits
Septic System Pumping	SEPP	A	ANNUAL	4516	N/A	N/A	N/A	0.0	0	0.0	135.5			135.5	\$0	Planning	2026		2014 Account Document credits

Septic System Pumping	SEPP	A	ANNUAL	4516	N/A	N/A	N/A	0.0	0	0.0	135.5			135.5	\$0	Planning	2027		2014 Account Document credits
Septic System Pumping	SEPP	A	ANNUAL	4,516	N/A	N/A	N/A	0.0	0	0.0	135.5			135.5	\$0	Planning	2028		2014 Account Document credits
Subtotal Operations <sup>3</sup>				4,516				0.0	0	0.0	135.5			135.5	\$0				
<b>Capital Projects (Proposed to Replace Annual Obligations)</b>																			
HA20ALN000018	STRE	A	PERMANENT	1	N/A	N/A	2,028	517.0	986,000	1,363.0	143.3			143.3	\$2,000,000	Complete	2020		
WP000033	SPSC	A	PERMANENT	1	8.6	1.6	N/A	0.4	240	4.6	0.3			0.3	\$0	Complete	2020		Cost included above
WP000033	SPSC	A	PERMANENT	1	2.7	1.8	N/A	0.8	127	20.8	0.3			0.3	\$0	Complete	2020		Cost included above
WP000039	STRE	A	PERMANENT	1	N/A	N/A	2,512	170.8	623,060	188.4	75.4			75.4	\$3,300,000	Complete	2020		
WP000039	SPSC	A	PERMANENT	1	6.2	1.1	N/A	1.0	560	8.6	0.7			0.7	\$0	Complete	2020		Cost included above
WP000105	UTC	A	PERMANENT	1	N/A	N/A	N/A	0.5	84	3.2	0.3			0.3	\$100,000	Complete	2020		
WP000104	MMBR	E	PERMANENT	1	0.5	1.4	N/A	0.4	280	2.6	0.5			0.5	\$200,000	Complete	2020		
WP000033	IBAS	S	PERMANENT	1	10.3	3.1	N/A	4.8	2,679	50.9	3.3			3.3	\$0	Complete	2020		Cost included above
WP000033	PWET	S	PERMANENT	1	8.6	1.6	N/A	3.2	1,780	33.7	2.0			2.0	\$0	Complete	2020		Cost included above
WP000033	WPWS	S	PERMANENT	1	44.8	0.5	N/A	14.7	8,333	141.1	6.6			6.6	\$0	Complete	2020		Cost included above
WP000039	PWET	S	PERMANENT	1	13.9	0.9	N/A	4.4	4,500	57.3	6.2			6.2	\$0	Complete	2020		Cost included above
WP000039	FBIO	S	PERMANENT	1	5.8	0.4	N/A	1.6	900	15.6	0.6			0.6	\$0	Complete	2020		Cost included above
WP000039	WPWS	S	PERMANENT	1	3.5	0.2	N/A	1.0	620	6.9	0.4			0.4	\$0	Complete	2020		Cost included above
WP000039	PWET	S	PERMANENT	1	8.3	1.1	N/A	2.6	1,280	31.9	1.0			1.0	\$0	Complete	2020		Cost included above
WP000039	WPWS	S	PERMANENT	1	6.2	1.1	N/A	1.9	1,120	17.4	1.5			1.5	\$0	Complete	2020		Cost included above
WP000085	STRE	A	PERMANENT	1	N/A	N/A	975	216.0	412,000	495.0	58.5			58.5	\$800,000	Complete	2021		
	SEPC	A	PERMANENT	9	N/A	N/A	N/A	0.0	0	0.0	3.5			3.5	\$40,500	Under Construction	2021		2014 Account Document credits, \$4,500 credit per tank from MS4 office
WP000014	STRE	A	PERMANENT	1	N/A	N/A	1,569	106.7	389,112	117.7	31.4			31.4	\$1,500,000	Under Construction	2022		
WP000037	STRE	A	PERMANENT	1	N/A	N/A	1,550	32.0	510,200	255.1	12.1			12.1	\$1,000,000	Under Construction	2022		
WP000037	SPSC	A	PERMANENT	1	7.4	1.0	N/A	5.4	2,600	65.3	5.5			5.5	\$0	Under Construction	2022		Cost included above
WP000091	STRE	A	PERMANENT	1	N/A	N/A	3,878	326.5	112,200	1,182.0	124.0			124.0	\$1,900,000	Under Construction	2022	Bynum Run TMDL for Sediment	
	SEPC	A	PERMANENT	10	N/A	N/A	N/A	0.0	0	0.0	2.3			2.3	\$45,000	Planning	2022		Draft 2020 Account Document credits, \$4,500 credit per tank from MS4 office



WP000102	FBIO	S	PERMANENT	1	3.4	1.1	N/A	1.2	900	13.4	1.5			1.5	\$400,000	Under Construction	2022		
WP000108	FBIO	S	PERMANENT	1	2.1	1.2	N/A	0.8	520	8.3	1.7			1.7	\$400,000	Design	2022	Bynum Run TMDL for Sediment	
WP000109	MSGW	S	PERMANENT	1	3.2	1.2	N/A	1.2	820	13.2	1.5			1.5	\$400,000	Design	2022	Bynum Run TMDL for Sediment	
WP000110	PWET	S	PERMANENT	1	20.3	1.2	N/A	7.5	5,080	81.8	7.3			7.3	\$500,000	Design	2022	Bynum Run TMDL for Sediment	
WP000021	STRE	A	PERMANENT	1	N/A	N/A	4,755	323.3	1,179,240	356.6	95.1			95.1	\$2,400,000	Design	2023	Bynum Run TMDL for Sediment	Credits based on planning rates
WP000034	STRE	A	PERMANENT	1	N/A	N/A	2,170	147.6	538,160	162.8	43.4			43.4	\$2,000,000	Design	2023		Credits based on planning rates
WP000043	STRE	A	PERMANENT	1	N/A	N/A	2,548	173.3	631,904	191.1	51.0			51.0	\$2,800,000	Design	2023		Credits based on planning rates
WP000043	SPSC	A	PERMANENT	1	7.5	0.2	N/A	3.3	1,880	49.7	0.8			0.8	\$0	Design	2023		Cost included above
WP000043	SPSC	A	PERMANENT	1	8.0	0.1	N/A	3.6	2,020	53.5	0.4			0.4	\$0	Design	2023		Cost included above
WP000043	SPSC	A	PERMANENT	1	4.3	0.2	N/A	1.9	1,080	28.5	0.4			0.4	\$0	Design	2023		Cost included above
WP000043	SPSC	A	PERMANENT	1	6.1	0.3	N/A	2.7	1,520	40.5	1.0			1.0	\$0	Design	2023		Cost included above
WP000043	SPSC	A	PERMANENT	1	4.1	0.2	N/A	1.8	1,020	27.1	0.8			0.8	\$0	Design	2023		Cost included above
WP000043	SPSC	A	PERMANENT	1	2.2	0.2	N/A	1.0	560	14.7	0.4			0.4	\$0	Design	2023		Cost included above
WP000089	STRE	A	PERMANENT	1	N/A	N/A	600	40.8	148,800	45.0	12.0			12.0	\$0	Design	2023		Cost included above, Credits based on planning rates
WP000107	STRE	A	PERMANENT	1	N/A	N/A	2,200	149.6	545,600	165.0	44.0			44.0	\$1,000,000	Design	2023	Gunpowder TMDL for Phosphorus	Credits based on planning rates
	SEPC	A	PERMANENT	10	N/A	N/A	N/A	0.0	0	0.0	2.3			2.3	\$45,000	Planning	2023		Draft 2020 Account Document credits, \$4,500 credit per tank from MS4 office
WP000034	MSGW	S	PERMANENT	1	6.0	1.0	N/A	2.1	1,480	23.3	3.9			3.9	\$0	Design	2023		Cost included above
WP000034	ITRN	S	PERMANENT	1	0.9	1.2	N/A	0.5	260	6.6	0.4			0.4	\$0	Design	2023		Cost included above
WP000089	FBIO	S	PERMANENT	1	7.6	1.6	N/A	3.8	2,200	57.0	3.3			3.3	\$400,000	Design	2023		
WP000097	STRE	A	PERMANENT	1	N/A	N/A	1,679	114.2	416,392	125.9	33.6			33.6	\$1,300,000	Design	2024	Bynum Run TMDL for Sediment	Credits based on planning rates
WP000100	STRE	A	PERMANENT	1	N/A	N/A	3,500	238.0	868,000	262.5	70.0			70.0	\$1,500,000	Design	2024		Credits based on planning rates
	SEPC	A	PERMANENT	10	N/A	N/A	N/A	0.0	0	0.0	2.3			2.3	\$45,000	Planning	2024		Draft 2020 Account Document credits, \$4,500 credit per tank from MS4 office
	CLTM	A	PERMANENT	7.0	N/A	N/A	N/A	3.7	0	36.7	2.6			2.6	\$142,450	Planning	2024		
	FPU	A	PERMANENT	10.0	N/A	N/A	N/A	17.8	28,050	111.2	11.0			11.0	\$605,000	Planning	2024		
	UTC	A	PERMANENT	10.0	N/A	N/A	N/A	5.0	2,060	32.0	2.8			2.8	\$154,000	Planning	2024		
WP000100	PPKT	S	PERMANENT	1	8.1	0.5	N/A	2.3	1,540	25.2	0.8			0.8	\$0	Design	2024		Cost included above



Catch Basin Cleaning		A	ANNUAL															
Septic System Pumping		A	ANNUAL															
Subtotal Operations (up to 2026) <sup>5</sup>				0			0.0	0	0.0	0.0			0.0	\$0				
<b>Capital Projects</b>																		
	STRE	A	PERMANENT	1.0	N/A	N/A	3500.0	238.0	868,000	262.5	70.0			70.0	\$1,750,000	Planning	2026	
	CLTM	A	PERMANENT	8.0	N/A	N/A	N/A	4.2	0	41.9	3.0			3.0	\$162,800	Planning	2026	
	FPU	A	PERMANENT	10.0	N/A	N/A	N/A	17.8	28,050	111.2	11.0			11.0	\$605,000	Planning	2026	
	UTC	A	PERMANENT	10.0	N/A	N/A	N/A	5.0	2,060	32.0	2.8			2.8	\$154,000	Planning	2026	
	PWET	S	PERMANENT	2.0	TBD	TBD	N/A	TBD	TBD	TBD	4.0			4.0	\$320,000	Planning	2026	
	SEPC	A	PERMANENT	10	N/A	N/A	N/A	0.0	0	0.0	2.3			2.3	\$45,000	Planning	2027	
	STRE	A	PERMANENT	2.0	N/A	N/A	3500.0	238.0	868,000	262.5	140.0			140.0	\$3,500,000	Planning	2027	
	CLTM	A	PERMANENT	8.0	N/A	N/A	N/A	4.2	0	41.9	3.0			3.0	\$162,800	Planning	2027	
	FPU	A	PERMANENT	10.0	N/A	N/A	N/A	17.8	28,050	111.2	11.0			11.0	\$605,000	Planning	2027	
	UTC	A	PERMANENT	10.0	N/A	N/A	N/A	5.0	2,060	32.0	2.8			2.8	\$154,000	Planning	2027	
	PWET	S	PERMANENT	2.0	TBD	TBD	N/A	TBD	TBD	TBD	4.0			4.0	\$320,000	Planning	2027	
	STRE	A	PERMANENT	3.0	N/A	N/A	3500.0	238.0	868,000	262.5	210.0			210.0	\$5,250,000	Planning	2028	
	CLTM	A	PERMANENT	8.0	N/A	N/A	N/A	4.2	0	41.9	3.0			3.0	\$162,800	Planning	2028	
	FPU	A	PERMANENT	10.0	N/A	N/A	N/A	17.8	28,050	111.2	11.0			11.0	\$605,000	Planning	2028	
	UTC	A	PERMANENT	10.0	N/A	N/A	N/A	5.0	2,060	32.0	2.8			2.8	\$154,000	Planning	2028	
	PWET	S	PERMANENT	2.0	TBD	TBD	N/A	TBD	TBD	TBD	4.0			4.0	\$320,000	Planning	2028	
	STRE	A	PERMANENT	3.0	N/A	N/A	3500.0	238.0	868,000	262.5	210.0			210.0	\$5,250,000	Planning	2029	
	CLTM	A	PERMANENT	8.0	N/A	N/A	N/A	4.2	0	41.9	3.0			3.0	\$162,800	Planning	2029	
	FPU	A	PERMANENT	10.0	N/A	N/A	N/A	17.8	28,050	111.2	11.0			11.0	\$605,000	Planning	2029	
	UTC	A	PERMANENT	10.0	N/A	N/A	N/A	5.0	2,060	32.0	2.8			2.8	\$154,000	Planning	2029	
	PWET	S	PERMANENT	2.0	TBD	TBD	N/A	TBD	TBD	TBD	4.0			4.0	\$320,000	Planning	2029	
	STRE	A	PERMANENT	4.0	N/A	N/A	3500.0	238.0	868,000	262.5	280.0			280.0	\$459,375,000	Planning	2030	

	STRE	A	PERMANENT	4.0	N/A	N/A	3500.0	238.0	868,000	262.5	280.0			280.0	\$459,375,000	Planning	2031		
Subtotal Capital (up to 2027)				73				530.1	1,796,220	895.2	253.8	0	0	253.8	\$7,778,600				
<b>Other</b>																			
														0.0					
														0.0					
Subtotal Other (up to 2027)				0				0.0	0	0.0	0.0	0	0	0.0	\$0				
Total for Next Permit (up to 2027)				73				530.1	1,796,220	895.2	253.8	0.0	0.0	253.8	\$7,778,600				
<b>Remaining Unmet Restoration Obligations from Previous Permit</b>																			
Remaining Unmet Restoration Obligations from Previous Permit								0.0	0	0.0	0.0	0.0	0.0	0.0	\$0				
Obligations from Previous Permit That Must Be Continued								4,149.0	10,946,871	9,111.4	1,366.9	0.0	0.0	1,366.9	\$34,708,400				
Proposed Restoration for the Next Permit								530.1	1,796,220	895.2	253.8	0.0	0.0	253.8	\$7,778,600				

NOTE - I added the 3 rows above as the links below were broken and made sense for reviewing purposes

<b>Total for Next Permit and Projected Years</b>																			
Total for Next Permit and Projected Years				147				1,536.2	5,328,440	2,315.5	1,275.3	0.0	0.0	1,275.3	\$939,512,200				
Total for Remaining Obligations from The Previous Permit, Continued Obligations, and Proposed Activities for The Next Permit (up to 2027)				4,752				4,679.1	12,743,091	10,006.6	1,620.7	0.0	0.0	1,620.7	\$42,487,000				
Total for Remaining Obligations from The Previous Permit, Continued Obligations, and Proposed Activities for The Next Permit (up to 2031)				4,826				5,685.2	16,275,311	11,426.9	2,642.3	0.0	0.0	2,642.3	\$974,220,600				

BMP Class	
Code	Code Description
A	Alternative BMP
E	ESD
S	Structural BMP

BMP Classification	BMP Type Code	BMP Type
Alternative Surfaces (A)		
E	AGRE	Green Roof – Extensive
E	AGRI	Green Roof – Intensive
E	APRP	Permeable Pavements
E	ARTF	Reinforced Turf
Nonstructural Techniques (N)		
E	NDRR	Disconnection of Rooftop Runoff
E	NDNR	Disconnection of Non-Rooftop Runoff
E	NSCA	Sheetflow to Conservation Areas
Micro-Scale Practices (M)		
E	MRWH	Rainwater Harvesting
E	MSGW	Submerged Gravel Wetlands
E	MILS	Landscape Infiltration
E	MIBR	Infiltration Berms
E	MIDW	Dry Wells
E	MMBR	Micro-Bioretenion
E	MRNG	Rain Gardens
E	MSWG	Grass Swale
E	MSWW	Wet Swale
E	MSWB	Bio-Swale
E	MENF	Enhanced Filters
Ponds (P)		
S	PWED	Extended Detention Structure, Wet
S	PWET	Retention Pond (Wet Pond)
S	PMPS	Multiple Pond System
S	PPKT	Pocket Pond
S	PMED	Micropool Extended Detention Pond
Wetlands (W)		
S	WSHW	Shallow Marsh
S	WEDW	ED – Wetland
S	WPWS	Wet Pond – Wetland
S	WPKT	Pocket Wetland
Infiltration (I)		
S	IBAS	Infiltration Basin
S	ITRN	Infiltration Trench
Filtering Systems (F)		
S	FBIO	Bioretention
S	FSND	Sand Filter
S	FUND	Underground Filter
S	FPER	Perimeter (Sand) Filter
S	FORG	Organic Filter (Peat Filter)
S	FBIO	Bioretention
Open Channels (O)		
S	ODSW	Dry Swale
S	OWSW	Wet Swale
Other Practices (X)		
S	XDPD	Detention Structure (Dry Pond)
S	XDED	Extended Detention Structure, Dry
S	XFLD	Flood Management Area
S	XOGS	Oil Grit Separator
S	XOTH	Other
Alternative BMPs		
A	MSS	Mechanical Street Sweeping
A	VSS	Regenerative/Vacuum Street Sweeping (i.e., Advanced Street Sweeping)
A	IMPP	Impervious Surface Reduction (i.e., impervious to pervious)
A	IMPF	Impervious Surface to Forest (i.e., IMPP + FPU)
A	FPU	Forestation on Pervious Urban (i.e., Forest Planting)
A	CBC	Catch Basin Cleaning

A	SDV	Storm Drain Vacuuming
A	STRE	Stream Restoration
A	OUT	Outfall Stabilization
A	SPSC	Regenerative Step Pool Storm Conveyance
A	SPSD	Dry Channel Regenerative Step Pool Stormwater Conveyance System
A	SHST	Shoreline Management
A	SEPP	Septic Pumping
A	SEPD	Septic Denitrification
A	SEPC	Septic Connections to WWTP
A	XFTW	Floating Treatment Wetland
A	FCO	Forest Conservation
A	CLTM	Conservation Landscaping
A	RCL	Riparian Conservation Landscaping
A	RFP	Riparian Forest Planting
A	STCI	Street Tree
A	USRP	Urban Soil Restoration (Compacted Pervious Surfaces)
A	USRI	Urban Soil Restoration (Removed Impervious Surfaces)
A	UTC	Urban Tree Canopy (i.e., Pervious Turf to Tree Canopy over Turf)
A	IDDE	Illicit Discharge Detection & Elimination
A	OTH	Other