



Gunpowder River and Bird River Subsegments of the Gunpowder River Oligohaline Segmentshed PCB TMDL Implementation Plan

October 3, 2017



October 3, 2017

Mr. Raymond Bahr
Sediment, Stormwater and Dam Safety Program
Water and Science Administration
Maryland Department of the Environment
1800 Washington Boulevard, Suite 440
Baltimore, MD 21230


Dear Mr. Bahr:

The Maryland Department of Transportation State Highway Administration (MDOT SHA) is pleased to submit this PCB TMDL Implementation Plan for the Gunpowder River and Bird River Subsegments of the Gunpowder River Oligohaline Segmentshed addressing conditions under the MDOT SHA NPDES MS4 permit (11-DP-3313 MD 0068276) which took effect on October 9, 2015. This submittal covers the permit requirement to submit a coordinated TMDL implementation plan for any subsequent stormwater WLAs within one year of EPA approval.

The EPA approved the TMDL of PCBs in the Gunpowder River and Bird River Subsegments of the Gunpowder River Oligohaline Segmentshed, Baltimore County and Harford County Maryland on October 3, 2016. MDOT SHA is a member of the regulated urban stormwater sector and was assigned an aggregated WLA for this TMDL. The public comment period for this PCB TMDL Implementation Plan was held from September 1, 2017 to October 1, 2017. Notices were posted in the classified section of *The Baltimore Sun* and *The Washington Post* on September 1, 2017. The notices provided the website, <http://www.roads.maryland.gov/Index.aspx?PageId=362>, where the plan could be viewed and how to comment should the reader so choose. No comments were received during the public comment period. Please find enclosed documentation confirming the posting of these notices.

If you have any questions or need additional information regarding this delivery, please contact Mr. Travis Vance at 410-545-8623 (or via email at tvance@sha.state.md.us) or me at 410-545-8407 (or via email at kcoffman@sha.state.md.us).

Sincerely,


Karen Coffman, Chief
MDOT SHA OED Water Programs Division

Enclosures: 1. MDOT SHA Gunpowder River and Bird River Subsegments of the Gunpowder River Oligohaline Segmentshed PCB TMDL Implementation Plan
2. *The Baltimore Sun*, Legal Notices, 1 Sept. 2017, p. 9.
3. Proof of Publication certifying ad appearance on 1 Sept. 2017 in *The Washington Post*

Cc: Mr. Brian Cooper, MDE WSA SSDSP
Ms. Sonal Ram, Director, MDOT SHA OED
Mr. Robert Shreeve, Deputy Director, MDOT SHA OED
Mr. Travis Vance, MDOT SHA OED WPD

LEGAL NOTICES

**CERTIFICATION OF PUBLICATION
CITY OF BALTIMORE OFFICE OF BOARDS AND COMMISSIONS
PUBLIC NOTICE**

PROJECT #1279 – On Call Project and Construction Management Assistance

The Baltimore City Office of Boards and Commissions has been requested by the Department of Public Works, Office of Engineering and Construction, to certify the qualifications of engineering firms to provide on call Project and Construction Management Assistance on consent decree and other construction projects for the City's water and wastewater system. Six (6) contracts will be awarded for a period of four years each.

The services to be provided include, but are not limited to assisting the City Construction Management section with construction monitoring and inspection, preparation of daily reports, maintenance of project records and documentation, review of contractor's application for payment, attendance at progress meetings, preparation of record drawings, review of contract claims and supporting documents, estimating, scheduling, project engineering, constructability reviews, submittal reviews and responses, RFI reviews and responses, and construction contract administrative support. Depending on the nature of other work and City staffing requirements, personnel representing the selected firm shall be available on an as needed basis.

- Experience in development and implementation of a Construction Project Management program.
- Familiarity with standard construction inspection procedures and requirements for civil, mechanical, and electrical disciplines.
- Familiarity with applicable codes and standards.
- Experience with change orders and claims analysis.
- Ability to supplement the City staff to provide field inspection if needed.
- Experience with Critical Path Method construction scheduling.
- Overall team approach with Minority/Women Business Enterprises.
- Experience with Primavera Contract Management version 14 (CM14) project tracking software.
- Experience with Primavera P6 scheduling software, version 8.1 or higher

Consultant's team will provide engineering staff with the following capabilities:

- Personnel with skills equivalent to a Public Works Inspector I, including a minimum education level of a high school diploma or GED and three (3) years of experience performing construction inspection work. Proficient with Primavera CM14.
- Personnel with skills equivalent to a Public Works Inspector II, including a minimum education level of a high school diploma or GED and four (4) years of experience performing construction inspection work on water and sewer system facilities and utilities. Proficient with Primavera CM14.
- Personnel with skills equivalent to a Public Works Inspector III, including a minimum education level of a high school diploma or GED and five (5) years of experience performing construction inspection work on water and sewer system facilities and utilities. Proficient with Primavera CM14.
- Personnel with skills equivalent to an Engineer II, including a Bachelor of Science degree in engineering from an accredited college or university and four (4) years of experience in performing engineering work.
- Personnel with skills equivalent to an Engineer I, including a Bachelor of Science degree in engineering from an accredited college or university.
- Personnel with skills equivalent to a public works Construction Project Supervisor I, including a minimum education level of a bachelor's degree from an accredited college or university and three (3) years in construction inspection, construction supervision, and construction engineering on water and sewer system facilities and utilities. Proficient with Primavera CM14.
- Personnel with skills equivalent to a Construction Claim Analyst, including a Bachelor of Science degree in Engineering or a related field, and seven (7) years' experience in construction claim or risk analysis work. Proficient with Primavera P6. Registrations/Certifications preferred: PSP from AACEI or a PMI-SP.
- Personnel with skills equivalent to a CPM Scheduler, including a college degree and at least five (5) years' experience in construction or construction management, and a minimum of 1 year in analyzing schedules. Three (3) years' experience in construction scheduling software using current industry standard. Proficient with Primavera P6 Registrations/Certifications preferred: PSP from AACEI or a PMI-SP.

Project fees have been estimated at \$5,000,000.00 per agreement for four years. If further information is required regarding this request, please contact Mr. Azzam Ahmad at 410-396-3440.

Firms intending to submit a proposal as a prime consultant for this project should submit a "Letter of Interest" to the Office of Boards and Commissions, 4 South Frederick Street, 4th Floor, Baltimore, Maryland 21202 (EMAIL: OBC.Consultants@baltimorecity.gov). Since these letters are utilized to assist small, minority and women business enterprises in preparing their proposals, the letters should be submitted within five (5) days of the date of the project's advertisement. The letter should contain a contact person. Failure to submit a "Letter of Interest" will not disqualify a firm submitting a proposal for the project.

Each prime consultant applying for this Project will be required to complete and submit an original Federal Form 255, along with five (5) copies, to the Office of Boards and Commissions. The Federal Form 255 and supporting copies must be submitted on or before 1:00 P.M. (Noon) on September 29, 2017. Submittals may not be accepted after this deadline.

Insurance Requirements

The Consultant shall procure and maintain during the life of this agreement, the following required insurance coverage.

- Worker's Compensation coverage as required by the State of Maryland, as well as any similar coverage required for this work by applicable Federal or "other States' State Law.
- Professional Liability, Errors, and Omissions Insurance at a limit of not less than Three Million Dollars (\$3,000,000) including a 3 year extended reporting period, in the event that services delivered pursuant to this agreement, either directly or indirectly, involves or requires professional services, Professional Liability, Errors, and Omissions coverage shall be provided. "Professional Services" for the purpose of this Agreement shall mean any services provided by a licensed CONSULTANT professional.
- Commercial General Liability Insurance at limits of not less than One Million Dollars (\$1,000,000) per occurrence for claims arising out of bodily injuries or death, and property damages. With those policies with aggregate limits, a minimum limit of Three Million Dollars (\$3,000,000) is required. This coverage shall include contractual liability insurance. The City, its elected/appointed officials, employees, and agents shall be covered, by endorsement, when applicable, as additional insureds as respects to; liability arising out of activities performed by or on behalf of the CONSULTANT in connection with this Agreement.
- Business Automobile Liability at limits of not less than One Million Dollars (\$1,000,000) per occurrence for all claims arising out of bodily injuries or death and property damages. The insurance shall apply to any owned, non-owned, leased, or hired automobiles used in the performance of this agreement.
- To the extent of the CONSULTANT's negligence, the CONSULTANT's insurance coverage shall be primary insurance as respects the City, its elected/appointed employees and agents. Any insurance and/or self-insurance maintained by the City, its elected/appointed officials, employees and agents, shall not contribute with CONSULTANT's insurance or benefit the CONSULTANT in any way.
- Coverage shall not be suspended, voided, cancelled, reduced in coverage, or in limits, except by the reduction of applicable agreed-upon limit by claims paid, until after forty-five (45) days prior written notice has been given to the CITY. There will be an exception for non-payment of premium, which is ten (10) days notice of cancellation.
- Insurance is to be placed with insurers with a Best's rating of no less than A- or, if rated with Best's with a minus, the surplus is the equivalent of Best's surplus size VII and must be licensed/approved to do business in the State of Maryland.
- The CONSULTANT shall furnish the CITY a "Certificate of Insurance" with a copy of the additional insured endorsement, when applicable, as verification that the coverage is in force. The CITY reserves the right to require complete copies of insurance policies at any time.

Prequalification Certification

All architectural, engineering, and surveying firms listed in the specific proposal for the Project must be prequalified by the Office of Boards and Commissions for each applicable discipline at time of submittal for this Project. Any construction contractor listed in the specific proposal for the Project to perform work in an existing prequalification category must also be prequalified. A copy of the prime and sub consultant's current Prequalification Certificate should be included in the bid submittal package. Information regarding the prequalification process can be obtained by calling the Office of Boards and Commissions on 410.396.6883.

MBE/WBE Certification

It is the policy of the City of Baltimore to promote equal business opportunity in the City's contracting process. Pursuant to Article 5, Subtitle 28 of Baltimore City Code (2000 Edition) – Minority and Women's Business Program, Minority Business Enterprise (MBE) and Women's Business Enterprise (WBE) participation goals apply to this contract.

The MBE goal is 29%
The WBE goal is 10%

Both the proposed Minority and Women's Business Enterprise firms must be named and identified as an MBE or WBE within Item 6 of the Standard Form (SF) 255 in the spaces provided for identifying outside key consultants/associates anticipated for utilization for this project.

Any submittals that do not include the proper MBE/WBE (in some instances DBE) participation will be disqualified for further consideration for this project.

Verifying Certification

Each firm submitting a SF 255 for consideration for a project is responsible for verifying that all MBEs and WBEs to be utilized on the project are certified by the Minority and Women's Business Opportunity Office (MWBO) prior to submitting the proposal. A directory of certified MBEs and WBEs is available from MWBO. Since changes to the directory occur daily, firms submitting SF 255s should call MWBO at (410) 396-4355, verify certification, expiration dates and services that the MBE or WBE is certified to provide.

Non-Affiliation

A firm submitting a proposal may not use an MBE or WBE to meet a contract goal if:

1. The firm has a financial interest in the MBE or WBE
2. The firm has an interest in the ownership or control of the MBE or WBE
3. The firm is significantly involved in the operation of the MBE or WBE (Article 5 subtitle 28-41).

A firm submitting as a prime consultant that fails to comply with the requirements of Article 5, Subtitle 28 of Baltimore City Code when executing a contract is subject to the following penalties: suspension of a contract; withholding of funds; rescission of contract based on material breach; disqualification as a consultant from eligibility to provide services to the City for a period not to exceed 2 years; and payment for damages incurred by the City.

Additional Requirements

A resume for each person listed as key personnel and/or specialist, including those from MBE and WBE must be shown on the page provided within the application.

Please be advised that for the purpose of reviewing price proposals and invoices, the City of Baltimore defines a principal of a firm as follows:

A principal is any individual owner, partner of a partnership, shareholder of a Sub-Chapter 'S' Corporation, or an officer/director of any Corporation.

Out-of-State Corporations must identify their corporate resident agent within the application.

Firms will not be considered for a specific project if they apply as both a sub-consultant and prime consultant.

The applications for this Project (Form 255) cannot be supplemented with any additional information such as graphs, photographs, organization chart, etc. All such information should be incorporated into the appropriate pages. Applications should not be stapled. Applications should simply be stapled in the upper left-hand corner. Cover sheets should not be included. Inclusion and/or submittal of additional material may result in the applicant being disqualified from consideration for this project.

Failure to follow directions of this advertisement or the application may cause disqualification of the submittal.

Michael Augins, Acting Chief
Office of Boards and Commissions

MDOT MARYLAND DEPARTMENT OF TRANSPORTATION

STATE HIGHWAY ADMINISTRATION

**OPPORTUNITY FOR PUBLIC REVIEW AND COMMENT
DRAFT IMPLEMENTATION PLAN FOR THE TOTAL MAXIMUM
DAILY LOAD (TMDL) OF POLYCHLORINATED BIPHENYL (PCB)
IN THE GUNPOWDER RIVER AND BIRD RIVER SUBSEGMENTS
OF THE GUNPOWDER RIVER OLIGOHALINE SEGMENTS, SHED,
BALTIMORE COUNTY AND HARFORD COUNTY, MARYLAND**

The Maryland Department of Transportation State Highway Administration (MDOT SHA) was issued a National Pollutant Discharge Elimination System Municipal Separate Storm Sewer System (MS4) Permit, (Permit No. 11-DP-3313), by the Maryland Department of the Environment (MDE) on October 9, 2015. This permit covers stormwater discharges from the storm drain system owned or operated by MDOT SHA within Anne Arundel, Baltimore, Carroll, Cecil, Charles, Frederick, Harford, Howard, Montgomery, Prince George's, and Washington Counties. The permit requires MDOT SHA to submit an implementation plan to MDE that addresses Environmental Protection Agency (EPA)-approved stormwater waste load allocations (WLAs) within one year of EPA approval.

EPA approved the *Total Maximum Daily Load of Polychlorinated Biphenyls in the Gunpowder River and Bird River Subsegments of the Gunpowder River Oligohaline Segments, Baltimore County and Harford County, Maryland* on October 3, 2016. The MDOT SHA Office of Environmental Design (OED) is soliciting comments on its draft Implementation Plan to meet this WLA as required under the MS4 Permit. A 30-day public comment period will take place from September 1, 2017 to October 1, 2017. The draft Implementation Plan is available on MDOT SHA's website at <http://www.roads.maryland.gov/Index.aspx?PageId=362>.

Comments should be submitted to MDOT SHA on or before October 1, 2017 by emailing to wpd@sha.state.md.us, faxing to (410) 209-5003, or mailing to:

Maryland Department of Transportation State Highway Administration
Office of Environmental Design, C-303
707 N. Calvert Street
Baltimore, MD 21202

Please note that comments should include the name and address of the person submitting the comments. Responses to comments will not be provided directly, but material comments received during the comment period will be considered and the draft Implementation Plan will be revised as appropriate prior to submittal to MDE. A summary of comments received will be included in the MDOT SHA MS4 annual report submitted to MDE annually on October 9 and posted to this website: <http://www.roads.maryland.gov/Index.aspx?PageId=336>.

**CITY OF BALTIMORE DEPARTMENT OF PUBLIC WORKS
OFFICE OF ENGINEERING AND CONSTRUCTION**

NOTICE OF LETTING

Sealed Bids or Proposals, in duplicate addressed to the Board of Estimates of the Mayor and City Council of Baltimore and marked for **Water Contract No. 1328-Montebello Filtration Plant No.**

1-Infrastructure Improvements will be received at the Office of the Comptroller, Room 204, City Hall, Baltimore, Maryland until 11:00 A.M. on **Wednesday, October 18, 2017**. Positively no bids will be received after 11:00 A.M. Bids will be publicly opened by the Board of Estimates in Room 215, City Hall at Noon.

The Contract Documents may be examined, without charge, in Room 6 located on the first floor of the Abel Wolman Municipal Building, 200 N. Holliday Street, Baltimore, Maryland 21202 as of **Friday, September 1, 2017** and copies may be purchased for a non-refundable cost of **\$100.00**.

Conditions and requirements of the bid are found in the bid package.

All contractors bidding on this Contract must first be prequalified by the City of Baltimore Contractors Qualification Committee. Interested parties should call 410-396-6883 or contact the Committee at 4 South Frederick Street, 4th Floor, Baltimore, Maryland 21202. **If a bid is submitted by a joint venture ("JV"), then in that event, the document that established the JV shall be submitted with the bid for verification purposes.** The Prequalification Category required for bidding on this project is **E13003-Water and/or Sewer Treatment Plants and Pumping Stations**. Cost Qualification Range for this work shall be **\$40,000,000.01 to \$50,000,000.00**.

A "Pre-Bidding Information" session will be conducted at the **Montebello Pumping Maintenance Facility at the Montebello Filtration Plant I, located 3501 Hillen Road, Baltimore, MD 21218 on September 19, 2017 at 10:30 A.M.** A project site visit will take place at **1:00 P.M. on the same day.**

Principal item of work for this project are:

- Montebello Filtration Plant No. 1, Infrastructure Improvements

The MBE goal is 15%
The WBE goal is 3%

WATER CONTRACT NO. 1328

APPROVED: **Bernice H. Taylor**, Clerk, Board of Estimates
APPROVED: **Rudolph S. Chow, P.E.**, Director of Public Works

**NOTICE OF TERMINATION OF PARENTAL RIGHTS
IN THE COURT OF COMMON PLEAS OF LANCASTER COUNTY, PENNSYLVANIA
ORPHANS' COURT DIVISION**

No. 2017-1847

IN RE: ANTHONY REECE HENRY

NOTICE

TO: ANTHONY HENRY, JR.
NOTICE IS HEREBY GIVEN that Lindsay M. Schoeneberger, Esquire has presented to the Orphans' Court Division, Court of Common Pleas of Lancaster County, PA, a Petition for termination of any rights you have or might have concerning the child known as ANTHONY REECE HENRY, born on October 1, 2007. The Court has set a hearing to consider ending your rights to your child. That hearing will be held in Courtroom No. 6, Lancaster County Courthouse, 50 North Duke Street, Lancaster, PA, on October 5, 2017 at 10:00 a.m. prevailing time. You are warned that even if you fail to appear at the scheduled hearing, this hearing will go on without you and your rights to your child may be ended by the Court without your being present. You have a right to be represented at the hearing by a lawyer. YOU SHOULD TAKE THIS PAPER TO YOUR LAWYER AT ONCE. IF YOU DO NOT HAVE A LAWYER OR CANNOT AFFORD ONE, GO TO OR TELEPHONE THE OFFICE SET FORTH BELOW TO FIND OUT WHERE YOU CAN GET LEGAL HELP.
Lancaster Bar Association
Lawyer Referral Services
28 east Orange Street
Lancaster, PA 17602
(717)393-0737

NOTICE REQUIRED BY ACT 101 OF 2010-23
P.A.C.S. §82731-2742

You are hereby informed of an important option that may be available to you under Pennsylvania law. Act 101 of 2010 allows for an enforceable voluntary agreement for continuing contact with your child following an adoption. For information contact:

Lindsay M. Schoeneberger, Esquire
Russell, Kraff & Gruber, LLP
930 Red Rose Court, Suite 300
Lancaster, PA 17601
(717)293-9293

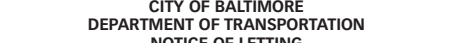
**CITY OF BALTIMORE
DEPARTMENT OF TRANSPORTATION
NOTICE OF LETTING**

Sealed Bids or Proposals, in duplicate addressed to the Board of Estimates of the Mayor and City Council of Baltimore and marked for **BALTIMORE CITY NO. TR18002: RECONSTRUCTION OF FOOTWAYS CITYWIDE** will be received at the Office of the Comptroller, Room 204 City Hall, Baltimore, Maryland until 11:00 A.M. **September 13, 2017**. Positively no bids will be received after 11:00 A.M. Bids will be publicly opened by the Board of Estimates in Room 215, City Hall at Noon. The Contract Documents may be examined, without charge, at the Department of Public Works Service Center located on the first floor of the Abel Wolman Municipal Building, 200 N. Holliday Street, Baltimore, Maryland 21202 as of **September 1, 2017** and copies may be purchased for a non-refundable cost of **\$75.00**. **Conditions and requirements of the bid are found in the bid package.** All contractors bidding on this Contract must first be prequalified by the City of Baltimore Contractors Qualification Committee. Interested parties should call (410) 396-6883 or contact the Committee at 4 South Frederick Street, 4th Floor, Baltimore, Maryland 21202. **If a bid is submitted by a joint venture ("JV"), then in that event, the document that established the JV shall be submitted with the bid for verification purposes.** The Prequalification Category required for bidding on this project is **A02601 (Portland Cement Concrete Paving)**. Cost Qualification Range for this work shall be **\$500,000.00 to \$800,000.00**. A "Pre-Bidding Information" session will be conducted at **10:00 A.M. on September 6, 2017** at 417 E. Fayette Street, Charles L. Benton Building, Room 702. Principal items of work for this project is **S' Concrete Sidewalk – 88,375 SF**. The MBE goal is 32% and WBE goal is 12%.

APPROVED: **Bernice H. Taylor**, Clerk
Board of Estimates

Posting your job has never been easier.

www.advertise.baltimoresun.com



MARYLAND DEPARTMENT OF THE ENVIRONMENT WATER AND SCIENCE ADMINISTRATION NOTICE OF FINAL DETERMINATION

Baltimore City Application for State Discharge Permit 15DP0058, NPDES Permit MD0021601. City of Baltimore, Department of Public Works, Abel Wolman Municipal Building, 6th Floor, 200 N. Holliday Street, Baltimore, Maryland 21202, applied for renewal of the permit to discharge an average of 81,000,000 gallons per day (gpd) (81.0 MGD) of treated domestic wastewater from the Patapsco Wastewater Treatment Plant (WWTP), located at 3501 Asiatic Avenue, Baltimore, Maryland 21226 to the Patapsco River which is designated as Use II stream, protected for support of estuarine and marine aquatic life and water contact recreation (migratory spawning and nursery use from February 1 to May 31, shallow water submerged aquatic vegetation use from April 1 to October 31, and open water fish and shellfish use, except for shellfish harvesting; COMAR 26.08.02.08 K (2) (c), from January 1 to December 31).

Written comments were received from University of Maryland Environmental Law Clinic and Environmental Protection Project on the tentative determination published on January 27 and February 3, 2017 in The Sun newspaper. After considering all the comments, the permit is being reissued with the following changes to the tentative determination:

- Monitoring frequency type for Orthophosphate has been corrected to monthly use, except for shellfish harvesting; COMAR 26.08.02.08 K (2) (c), from January 1 to December 31.
- Written comments were received from University of Maryland Environmental Law Clinic and Environmental Protection Project on the tentative determination published on January 27 and February 3, 2017 in The Sun newspaper. After considering all the comments, the permit is being reissued with the following changes to the tentative determination:

1)Monitoring frequency type for Orthophosphate has been corrected to monthly use, except for shellfish harvesting; COMAR 26.08.02.08 K (2) (c), from January 1 to December 31.

2)Written comments were received from University of Maryland Environmental Law Clinic and Environmental Protection Project on the tentative determination published on January 27 and February 3, 2017 in The Sun newspaper. After considering all the comments, the permit is being reissued with the following changes to the tentative determination:

- Regular maintenance and repair of the skimmers, as required in the Department's Consent Order (CO-16-2405).
- Enforcement of Pretreatment requirements.
- Public outreach to reduce FOG in the sewer collection system.
- During normal flow condition, the permittee shall either raise the water level or lower the scum logs in the contact chamber to optimize the FOG removal efficiency.

The permittee shall report to the Department on an annual basis at the end of each calendar year all measures taken to comply with the plan. Noncompliance with the Plan shall be deemed an enforcement condition of this permit.

3)Boilerplate language for General Conditions III, has been updated.

a)Reference to EPA Form 3320-1, Rev. 01/06 has been deleted from all pages of the discharge permit.

b)Name of Water Management Administration has been changed to newly reorganized Water and Science Administration.

All other terms and conditions in the tentative determination remain unchanged. Any person adversely affected by this final determination may request a judicial review. The judicial review must be filed no later than October 2, 2017 in the circuit court of the county where the activity will occur.

Persons wishing to review the final permit may do so by contacting Mr. Yan-ber Cheng, Chief, Municipal Permits Division at 410-537-3363 to make an appointment. Copies of documents may be obtained at a cost of \$0.36 per page.

Maryland Department of the Environment
Air and Radiation Administration
1800 Washington Boulevard
Baltimore, Maryland 21230

Harford County Public Library
Joppa Branch
655 Towne Centre Drive
Joppa, MD 21085
(410) 612-1660

The Department will provide an interpreter for deaf and hearing impaired persons provided that a request is made for such service at least five (5) days prior to the meeting.

Further information may be obtained by calling Ms. Shannon Heafey at 410-537-4433.

George S. Aburn, Jr., Director
Air and Radiation Administration

**STATE OF CONNECTICUT
SUPERIOR COURT
JUVENILE MATTERS
ORDER OF NOTICE
NOTICE TO
Alva Bingham of parts unknown**

A petition has been filed seeking: Commitment of minor children of the above named parent; vesting of custody and care of said child(ren) of the above named in a lawful, private or public agency or a suitable and worthy person.

The petition, whereby the court's decision can affect your parental rights, if any regarding minor child(ren) will be heard on 10/11/17 at 9:00 AM at Superior Court for Juvenile Matters, 7 Kendrick Ave., 3rd Fl., Waterbury, CT 06702. Therefore, ORDERED, that notice of the hearing of this petition be given by publishing this Order of Notice once, immediately upon receipt in the Baltimore Sun, a newspaper having circulation in the town/city of Baltimore, Maryland.

Name of Judge: Honorable Michael Maronich Signed by clerk: Brenda Pettit, ACJ Date Signed: 8/29/2017 Right Counsel: Upon proof of inability to pay for a lawyer, the court will make sure that an attorney is provided to you by the Chief Public Defender. Request for an attorney should be made immediately in person, by mail, or by fax at the court office where your hearing is to be held.

CONDEMNATION AND CLOSING OF DENMORE AVENUE AND CERTAIN ALLEYS
NOTICE: Application will be made to the Mayor and City Council of Baltimore for the condemnation and closing of Denmore Avenue and certain alleys of varying widths lying between West Garrison Avenue, Park Heights Avenue, Woodland Avenue and Edgemoor Avenue in accordance with the plan now on file with the Department of Transportation.

CEMETERY LOTS
2 CEMETERY PLOTS HOLY CROSS CEMETERY on Ritchie Hwy, Brooklyn Park, MD. \$1300 each. 410-736-2490
In re: Crosier Fathers and Brothers Province, Inc., Case No. 17-41681
In re: Crosier Fathers of onamia, Case No. 17-41682
In re: The Crosier Community of Phoenix, Case No. 17-41683
If you were sexually or physically abused by any priest, brother, or other person connected with the Crosiers, or have any other claim against the Crosiers, you must file a claim by December 15, 2017.
For more information, visit www.crosier.org or call 612-335-1407.

For U.S. Bankruptcy Court for the District of Minnesota information, visit www.mnb.uscourts.gov.
For advice about your rights, contact an attorney.

MAUSOLEUM - 2 Evergreen Finksgard MD Garden Building 1 levels 5 TC, crypts 52 & 53. \$7,500 Or Best Offer 843-634-2164

ANNE ARUNDEL FORECLOSURE

**BWW Law Group, LLC
6003 Executive Blvd., Suite 101
Rockville, MD 20852
(301) 961-6555**

**SUBSTITUTE TRUSTEES' SALE
OF REAL PROPERTY AND
ANY IMPROVEMENTS THEREON
847 MAIN AVE.
LINTHICUM HEIGHTS, MD 21090**

Under a power of sale contained in a certain Deed of Trust dated October 22, 2005 and recorded in Liber 17193, Folio 775 among the Land Records of Anne Arundel County, MD, with an original principal balance of \$425,000.00 and a current interest rate of 4.125%, default having occurred under the terms thereof, the Sub. Trustees will sell at public auction at the Circuit Court for Anne Arundel County, at the Court House Door, 8 Church Circle, Annapolis, MD 21401, on

SEPTEMBER 6, 2017 AT 9:42 AM

ALL THAT FEE SIMPLE LOT OF GROUND, together with any buildings or improvements thereon situated in Anne Arundel County, MD and more fully described in the aforesaid Deed of Trust.

The property, and any improvements thereon, will be sold in an "as is" condition and subject to conditions, restrictions and agreements of record affecting the same, if any, and with no warranty of any kind.

Terms of Sale: A deposit of \$22,000 in the form of certified check, cashier's check or money order will be required of the purchaser at time and place of sale. Balance of the purchase price, together with interest on the unpaid purchase money at the current rate contained in the Deed of Trust Note from the date of sale to the date funds are received by the Sub. Trustees, payable in cash within ten days of final ratification of the sale by the Circuit Court. There will be no abatement of interest due from the purchaser in the event additional funds are tendered before settlement. TIME IS OF THE ESSENCE FOR THE PURCHASER. Adjustment of current year's real property taxes are adjusted as of the date of sale, and thereafter assumed by the purchaser. Taxes due for prior years including costs of any tax sale are payable by the purchaser. Purchaser is responsible for any recapture of homestead tax credit. All other public and/or private charges or assessments, to the extent such amounts survive foreclosure sale, including water/sewer charges, ground rent, whether incurred prior to or after the sale to be paid by the purchaser. All costs of deed recordation including but not limited to all transfer, recordation, agricultural or other taxes or charges assessed by any governmental entity as a condition to recordation, are payable by purchaser, whether or not purchaser is a Maryland First Time Home Buyer. Purchaser is responsible for obtaining physical possession of the property, and assumes risk of loss or damage to the property from the date of sale. The sale is subject to post-sale audit of the status of the loan with the loan servicer including, but not limited to, determination of whether the borrower entered into any repayment agreement, reinstated or paid off the loan prior to the sale. In any such event, this sale shall be null and void, and the Purchaser's sole remedy, in law or equity, shall be the return of the deposit without interest. If purchaser fails to settle within ten days of ratification, subject to order of court, purchaser agrees that property will be resold and entire deposit retained by Sub. Trustees as liquidated damages for all losses occasioned by the purchaser's default and purchaser shall have no further liability. The defaulted purchaser shall not be entitled to any surplus proceeds resulting from said resale even if such surplus results from improvements to the property by said defaulted purchaser. If Sub. Trustees are unable to convey either insurable or marketable title, or if ratification of the sale is denied by the Circuit Court for any reason, the Purchaser's sole remedy, at law or equity, is the return of the deposit without interest. (Matter No. 207656-1)

PLEASE CONSULT WWW.ALEXCOOPER.COM FOR STATUS OF UPCOMING SALES

Howard N. Bierman, Carrie M. Ward, et al.,
Substitute Trustees



WWW.ALEXCOOPER.COM
LICENSE NOS. A000004, A000176, A000234, A000297, A000338, A000394, A000424, A000429, A000445, A000465
3A-E Aug. 18, 25-Sept. 1 5125772

CEMETERY LOTS

MORELAND MEMORIAL PARK CEMETERY Section A, very front of cemetery, near to Cemetery Drive 4 Lots \$4000 for full E-mail: [DSjorrell@verizon](mailto:DSjorrell@verizon.net)

PROOF OF PUBLICATION

District of Columbia, ss., Personally appeared before me, a Notary Public in and for the said District, Travona James well known to me to be BILLING SUPERVISOR of The Washington Post, a daily newspaper published in the City of Washington, District of Columbia, and making oath in due form of law that an advertisement containing the language annexed hereto was published in said newspaper on the dates mentioned in the certificate herein.

I Hereby Certify that the attached advertisement was published in The Washington Post, a daily newspaper, upon the following date(s) at a cost of \$1,331.80 and was circulated in the Washington metropolitan area.

Published 1 time(s). Date(s): 01 of September 2017

Account 1010061228

Witness my hand and official seal this 1st day of September 2017

My commission expires 5/31/2020



OPPORTUNITY FOR PUBLIC REVIEW AND COMMENT DRAFT IMPLEMENTATION PLAN FOR THE TOTAL MAXIMUM DAILY LOAD (TMDL) OF POLYCHLORINATED BIPHENYL (PCB) IN THE GUNPOWDER RIVER AND BIRD RIVER SUBSEGMENTS OF

THE GUNPOWDER RIVER OLIGOHALINE SEGMENTSHED, BALTIMORE COUNTY AND HARFORD COUNTY, MARYLAND The Maryland Department of Transportation State Highway Administration (MDOT SHA) was issued a National

Pollutant Discharge Elimination System Municipal Separate Storm Sewer System (MS4) Permit, (Permit

No. 11-DP-3313), by the Maryland Department of the Environment (MDE) on October 9, 2015. This permit covers stormwater discharges from the storm drain system owned or operated by MDOT SHA within

Anne Arundel, Baltimore, Carroll, Cecil, Charles, Frederick, Harford, Howard, Montgomery, Prince George's, and Washington Counties. The permit requires MDOT SHA to submit an implementation plan to

MDE that addresses Environmental Protection Agency (EPA)-approved stormwater waste load allocations

(WLAs) within one year of EPA approval. EPA approved the Total Maximum Daily Load of Polychlorinated Biphenyls in the Gunpowder River and Bird River Subsegments of the Gunpowder River

Oligohaline Segmentshed, Baltimore County and Harford County, Maryland on October 3, 2016. The MDOT

SHA Office of Environmental Design (OED) is soliciting comments on its draft Implementation Plan to

meet this WLA as required under the MS4 Permit. A 30-day public comment period will take place from

September 1, 2017 to October 1, 2017. The draft Implementation Plan is available on MDOT SHA's website at <http://www.roads.maryland.gov/Index.aspx?PageId=362>. Comments should be submitted to MDOT SHA on or before October 1, 2017 by emailing to wpd@sha.state.md.us, faxing to (410) 209-5003,

or mailing to: Maryland Department of Transportation State Highway Administration Office of Environmental Design, C-303 707 N. Calvert Street Baltimore, MD 21202 Please note that comments should include the name and address of the person submitting the comments. Responses to comments will not be provided directly, but material comments received during the comment period will be

Ad # 12127295 Name MD DEPT OF TRANSP/STATE HWY ADMIN ATTN: Size 110 Lines T0005
Class 825 PO# Authorized by Account 1010061228

considered and the draft Implementation Plan will be revised as appropriate prior to submittal to MDE. A summary of comments received will be included in the MDOT SHA MS4 annual report submitted to

MDE annually on October 9 and posted to this website: <http://www.roads.maryland.gov/Index.aspx?pageid=336>.

TABLE OF CONTENTS

| | |
|---|------------|
| Table of Contents | i |
| Gunpowder and Bird River Subsegments of the Gunpowder River Oligohaline Segmentshed PCB TMDL Implementation Plan | 1 |
| A. Water Quality Standards and Designated Uses | 1 |
| B. Watershed Assessment Coordination..... | 3 |
| C. Visual Inspections Targeting MDOT SHA ROW | 5 |
| D. Benchmarks and Detailed Costs..... | 6 |
| E. Pollution Reduction Strategies..... | 9 |
| E.1. MDOT SHA TMDL Responsibilities | 9 |
| E.2. PCB Pollution Reduction Strategy | 12 |
| E.2.a. PCB TMDLs Affecting MDOT SHA..... | 12 |
| E.2.b. PCB Sources..... | 13 |
| E.2.c. MDOT SHA PCB Modeling Methods..... | 14 |
| E.2.d. PCB Reduction Strategies..... | 16 |
| F. Gunpowder River and Bird River Subsegments Implementation Plan..... | 19 |
| F.1. Subsegments Description | 19 |
| F.2. MDOT SHA TMDLs within the Gunpowder River & Bird River Subsegments | 19 |
| F.3. MDOT SHA Visual Inventory of ROW | 19 |
| F.4. Summary of County Assessment Review | 22 |
| F.5. MDOT SHA Pollutant Reduction Strategies | 26 |
| Abbreviations..... | A-1 |
| References | R-1 |

PAGE INTENTIONALLY LEFT BLANK

GUNPOWDER AND BIRD RIVER SUBSEGMENTS OF THE GUNPOWDER RIVER OLIGOHALINE SEGMENTSHED PCB TMDL IMPLEMENTATION PLAN

A. WATER QUALITY STANDARDS AND DESIGNATED USES

TMDLs focus on offsetting the impacts of pollutants to waterway designated uses. The Federal Clean Water Act (CWA) established requirements for each State to develop programs to address water pollution including:

- Establishment of water quality standards (WQSs);
- Implementation of water quality monitoring programs;
- Identification and reporting of impaired waters; and
- Development of maximum allowable pollutant loads that when met and not exceeded will restore WQSs to impaired waters, called TMDL documents.

WQSs are based on the concept of designating and maintaining specifically defined uses for each waterbody. **Table 1** lists the designated uses for waterways in Maryland. TMDLs are based on these uses.

One means for the EPA to enforce these standards is through the NPDES program, which regulates discharges from point sources.

MDE is the delegated authority to issue NPDES discharge permits within Maryland and to develop WQSs for Maryland including the water quality criteria that define the parameters to ensure designated uses are met.

Table 1: Designated Uses in Maryland

| Designated Uses | Use Classes | | | | | | | |
|---|-------------|-----|----|------|-----|-------|----|------|
| | I | I-P | II | II-P | III | III-P | IV | IV-P |
| Growth and Propagation of Fish (not trout), other aquatic life and wildlife | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Water Contact Sports | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Leisure activities involving direct contact with surface water | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Fishing | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Agricultural Water Supply | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Industrial Water Supply | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Propagation and Harvesting of Shellfish | | | ✓ | ✓ | | | | |
| Seasonal Migratory Fish Spawning and Nursery Use | | | ✓ | ✓ | | | | |
| Seasonal Shallow-water Submerged Aquatic Vegetation Use | | | ✓ | ✓ | | | | |
| Open-Water Fish and Shellfish Use | | | ✓ | ✓ | | | | |
| Seasonal Deep-Water Fish and Shellfish Use | | | ✓ | ✓ | | | | |
| Seasonal Deep-Channel Refuge Use | | | ✓ | ✓ | | | | |
| Growth and Propagation of Trout | | | | | ✓ | ✓ | | |
| Capable of Supporting Adult Trout for a Put and Take Fishery | | | | | | | ✓ | ✓ |
| Public Water Supply | | ✓ | | ✓ | | ✓ | | ✓ |

Source:
http://www.mde.maryland.gov/programs/water/TMDL/WaterQualityStandards/Pages/wqs_designated_uses.aspx

MS4 Permit Requirements

The MDOT SHA MS4 Permit requires coordination with county MS4 jurisdictions concerning watershed assessments and development of a coordinated TMDL implementation plan for each watershed that MDOT SHA has a WLA. Requirements from the MDOT SHA MS4 Permit specific to watershed assessments and coordinated TMDL implementation plans include *Part IV.E.1.* and *Part IV.E.2.b.*, copied below.

Watershed Assessments (Permit Part IV.E.1.)

SHA shall coordinate watershed assessments with surrounding jurisdictions, which shall include, but not be limited to the evaluation of available State and county watershed assessments, SHA data, visual watershed inspections targeting SHA rights-of-way and facilities, and approved stormwater WLAs to:

- *Determine current water quality conditions;*
- *Include the results of visual inspections targeting SHA rights-of-way and facilities conducted in areas identified as priority for restoration;*
- *Identify and rank water quality problems for restoration associated with SHA rights-of-way and facilities;*
- *Using the watershed assessments established under section a. above to achieve water quality goals by identifying all structural and nonstructural water quality improvement projects to be implemented; and*
- *Specify pollutant load reduction benchmarks and deadlines that demonstrate progress toward meeting all applicable stormwater WLAs.*

Coordinated TMDL Implementation Plans (Permit Part IV.E.2.b.)

Within one year of permit issuance, a coordinated TMDL implementation plan shall be submitted to MDE for approval that addresses all EPA approved stormwater WLAs (prior to the effective date of the permit) and requirements of Part VI.A., Chesapeake Bay Restoration by 2025 for SHA's storm sewer system. Both specific WLAs and aggregate WLAs which SHA is a part of shall be addressed in the TMDL implementation plans. Any subsequent stormwater WLAs for SHA's storm sewer system shall be addressed by the coordinated TMDL implementation plan within one year of EPA approval. Upon approval by MDE, this implementation plan will be enforceable under this permit. As part of the coordinated TMDL implementation plan, SHA shall:

- *Include the final date for meeting applicable WLAs and a detailed schedule for implementing all structural and nonstructural water quality improvement projects, enhanced stormwater management programs, and alternative stormwater control initiatives necessary for meeting applicable WLAs;*
- *Provide detailed cost estimates for individual projects, programs, controls, and plan implementation;*
- *Evaluate and track the implementation of the coordinated implementation plan through monitoring or modeling to document the progress toward meeting established benchmarks, deadlines, and stormwater WLAs; and*
- *Develop an ongoing, iterative process that continuously implements structural and nonstructural restoration projects, program enhancements, new and additional programs, and alternative BMPs where EPA approved TMDL stormwater WLAs are not being met according to the benchmarks and*

deadlines established as part of the SHA's watershed assessments.

B. WATERSHED ASSESSMENT COORDINATION

According to the USGS (2016):

A watershed is an area of land where all water that falls on it and drains off it flows to a common outlet. A watershed is an area of land that drains all the streams and rainfall to a common outlet such as the outflow of a reservoir, mouth of a bay, or any point along a stream channel. The word watershed is sometimes used interchangeably with drainage basin or catchment. The watershed consists of surface water--lakes, streams, reservoirs, and wetlands--and all the underlying ground water. Larger watersheds contain many smaller watersheds. Watersheds are important because the streamflow and the water quality of a river are affected by things, human-induced or not, happening in the land area "above" the river-outflow point.

The 8-digit scale is the most common management scale for watersheds across the State, and therefore is the scale at which most of Maryland's local TMDLs are developed. In some cases, a subwatershed has its own TMDL. See **Figure 1** for an illustration of an example 8-digit watershed in Maryland.

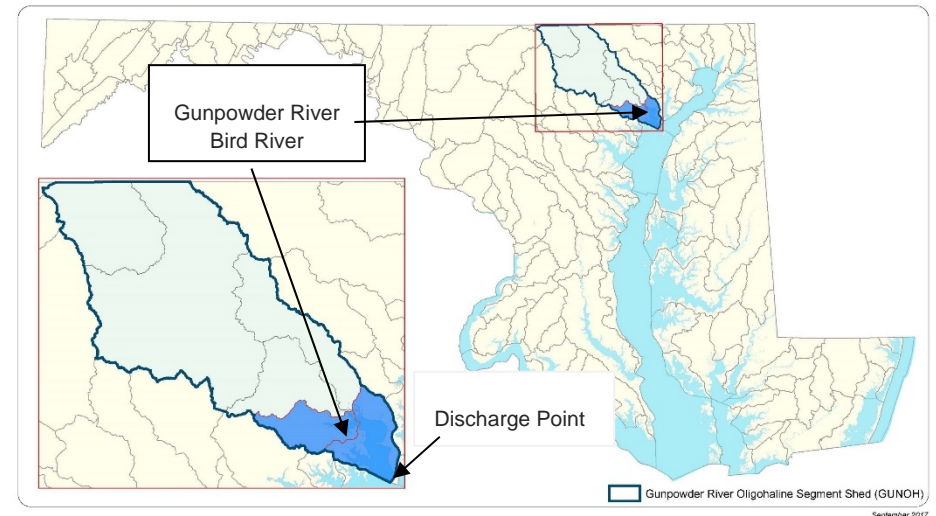


Figure 1: Maryland 8-digit Watershed Example

Segmentsheds are watersheds associated with tidal waters, which are referred to as segments. The Chesapeake Bay and its tidal tributaries are divided into 92 segments as shown in **Figure 2**. The Gunpowder River Oligohaline Segmentshed is designated GUNOH. This TMDL is a subsegment of the larger GUNOH segmentshed as shown in **Figure 1**. Gunpowder River and Bird River are 8-digit watersheds that make up that the larger GUNOH segmentshed along with several other 8-digit watersheds.

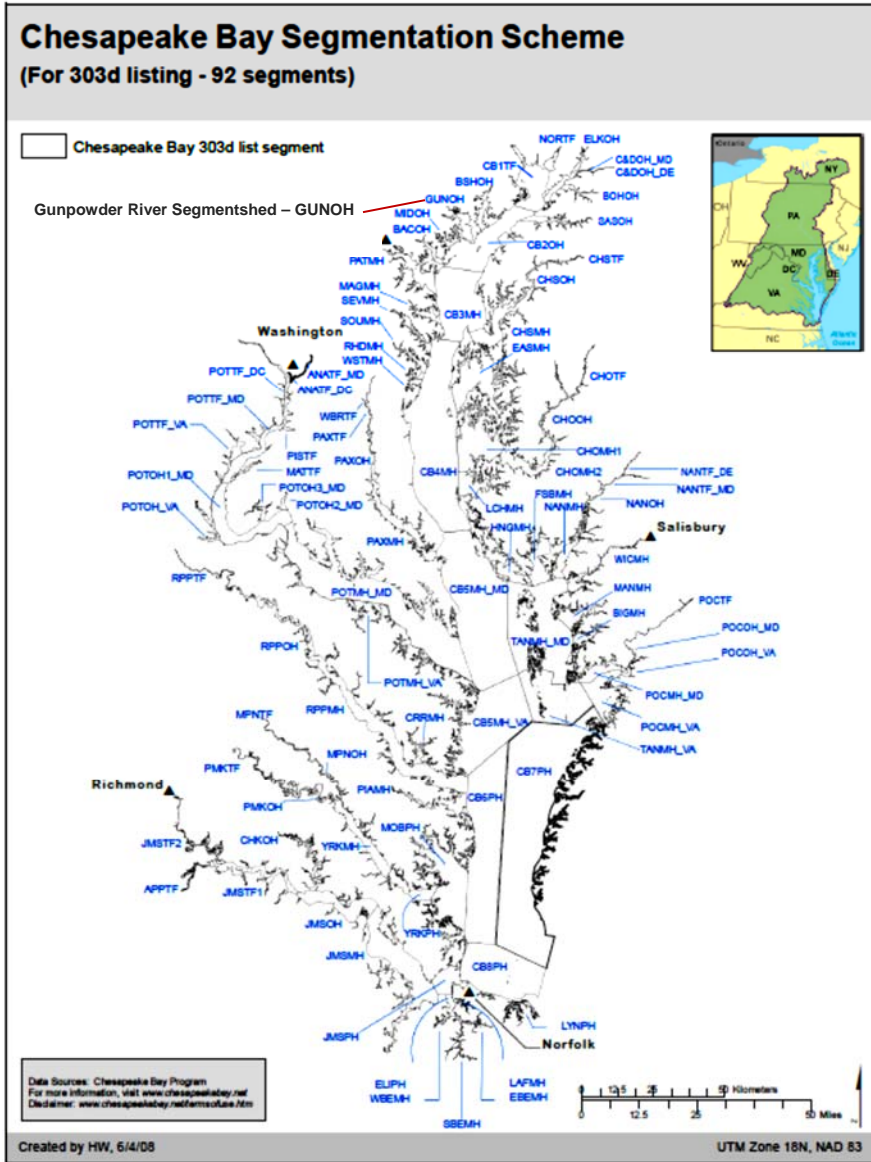


Figure 2: Chesapeake Bay 92 Segments

County Watershed Assessments

Each MS4 county is required to perform detailed assessments of local watersheds as a part of its MS4 permit requirements. These assessments determine current water quality conditions and include visual inspections; the identification and ranking of water quality problems for restoration; the prioritization and the ranking of structural and non-structural improvement projects; and the setting of pollutant reduction benchmarks and deadlines that demonstrate progress toward meeting applicable WQs. MDOT SHA is not required to duplicate this effort, but is required to coordinate with the MS4 jurisdictions to obtain and review watershed assessments. Relying on assessments performed by other jurisdictions avoids redundant analysis and places the responsibility for developing the assessments with the jurisdictions that have close connection to local communities and watershed groups.

Watershed assessment evaluations conducted by MDOT SHA focus on issues that MDOT SHA can improve through practices targeting MDOT SHA right-of-way (ROW) or infrastructure. This information is used to determine priority areas for BMP implementation and to identify potential project sites or partnership project opportunities. Summaries of these evaluations are included in this Plan under **Section F**. MDOT SHA watershed assessment evaluations focus on the following:

- Impacts to MDOT SHA infrastructure such as failing outfalls and downstream channels;
- Older developed areas with little SWM and available opportunities to install retrofits;
- Degraded streams;
- Priority watershed issues such as improvements within a drinking water reservoir, special protection areas or Tier II catchments;
- Identification of areas most in need of restoration;

- Description of preferred structural and non-structural BMPs to use within the watershed;
- Potential project sites for BMPs; and
- In watersheds with PCB TMDLs, identifying locations of any known PCB sources.

In addition to using information from the county watershed assessments, MDOT SHA also undertakes other activities to identify potential project sites and prioritize BMP implementation including:

- On-going coordination meetings with each of the MS4 counties to discuss potential partnerships with the mutual goal of improving water quality;
- Perform visual watershed inspections as described below;
- Model MDOT SHA load reductions within the watershed based on MDOT SHA land uses and ROW; and
- Maximize existing impervious treatment within new roadway projects (practical design initiative).

C. VISUAL INSPECTIONS TARGETING MDOT SHA ROW

MDOT SHA has recently developed a process to methodically review each watershed for potential restoration projects within MDOT SHA ROW to meet the load reductions for current pollutant WLAs. Although these watersheds have previously been reviewed for all practice types, this new process adds a grid system to coordinate and track efforts of many teams systematically to ensure each watershed is thoroughly assessed. This method is used to search for new stormwater control structure sites and tree sites. The watershed review process includes two phases to visually inspect each watershed and identify all structural and non-structural water quality improvement projects to be implemented.

Desktop Evaluation

Phase one is a desktop evaluation of the watershed using available county watershed assessments and MDOT SHA data. MDOT SHA has created a grid system of 1.5 mile square cells to track the progress of the visual watershed inspections, allowing prioritized areas to be targeted first. With this grid system, many spatial data sets are reviewed to determine the most effective use of each potential restoration site. The sites are documented geographically and stored in GIS. Viable sites are prioritized and those located within watersheds with the most pollutant reduction needs move forward to the second phase, which is to perform field investigations. Data reviewed includes:

- Aerial imagery;
- Street view mapping;
- Environmental features delineations such as critical area boundary, wetlands buffers, floodplain limits;
- County data such as utilities, storm drain systems, contour and topographic mapping;
- MDOT SHA ROW boundaries;
- Current MDOT SHA stormwater control and restoration practice locations; and
- Drainage area boundaries.

Figure 7 illustrates the 1.5 mile grid system for the Gunpowder River and Bird River Tidal Subsegments.

Field Investigations

Phase two is a field investigation of each viable site resulting from the watershed desktop evaluation. MDOT SHA inspects and assesses each site in the field to identify and document existing site conditions, water quality problems, and constraints. This information is used to determine potential restoration BMP types as well as estimated restoration credit quantities.

MDOT SHA will continue to prioritize visual inspections in the highest need watersheds. **Figure 3** is an example field investigation summary map that documents observations from the field analysis. A standardized field inspection form is used.

D. BENCHMARKS AND DETAILED COSTS

Benchmarks and deadlines demonstrating progress toward meeting all applicable stormwater WLAs are provided in the segmentshed discussion in **Section F**. It contains generalized cost information that includes an overall estimated cost to implement the proposed practices. Detailed costs for specific construction projects are available on MDOT SHA's website (www.roads.maryland.gov) under the Contractors Information Center.

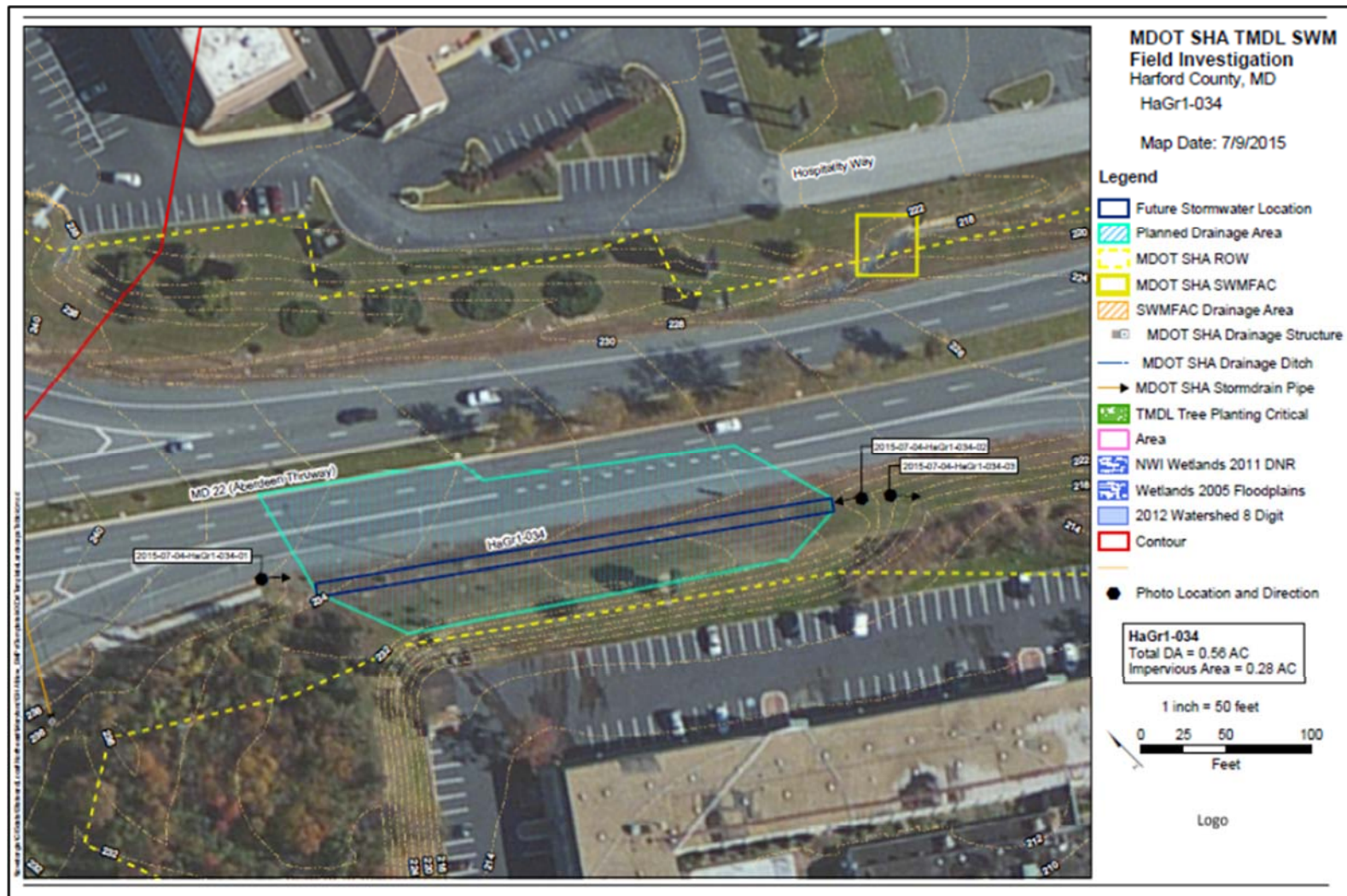


Figure 3: Example Field Investigation Summary Map

PAGE INTENTIONALLY LEFT BLANK

E. POLLUTION REDUCTION STRATEGIES

E.1. MDOT SHA TMDL Responsibilities

TMDLs define the maximum pollutant loading that can be discharged to a waterbody and still meet water quality criteria for maintaining designated uses. **Figure 4** illustrates the concept of maximum loading. The green area on the bar depicts the maximum load that maintains a healthy water environment for the pollutant under consideration. When this load is exceeded, the waterway is considered impaired as illustrated by the red portion of the bar. The example waterway needs restoration through implementation of practices to reduce the pollutant loading to or below the TMDL.

Generally, the formula for a TMDL is:

$$TMDL = \sum WLA + \sum LA + MOS$$

Where:

TMDL = total maximum daily load
WLA = wasteload allocation for point sources;
LA = load allocation for non-point sources; and
MOS = margin of safety.

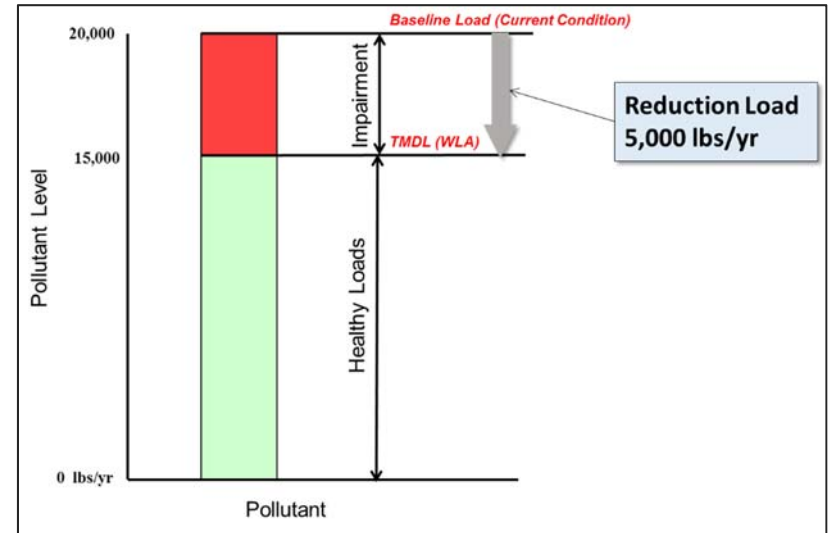


Figure 4: Example TMDL and Reduction Requirement

Pollutants for MDOT SHA Focus

Upon issuance of the MS4 Permit, MDOT SHA was named in TMDLs for five different pollutants within the MS4 coverage area including

- Bacteria;
- PCBs;
- Phosphorus;
- Sediment; and
- Trash.

The MDOT SHA MS4 Permit covers eleven Maryland counties that cross 84 8-digit watersheds representing larger rivers or streams. There are 43 EPA-approved TMDL documents that assign MDOT SHA to either an individual WLA or an aggregate WLA. Each watershed may be covered by one or more TMDL documents, so there is not a direct correlation between the number of TMDL documents and the number of watersheds affected.

Figure 5 shows a map of MDOT SHA TMDL responsibilities by watershed. **Table 2** on the following page summarizes MDOT SHA's PCB reduction requirement and projected progress in meeting the pollution reduction wasteload target within Gunpowder River Oligohaline segmentshed by the listed end date. There are instances where the projected modeled percent reduction does not equal the target percent reduction by the end date listed. In these cases, discussion is added to the reduction strategy (**Section E**) to analyze the conditions that preclude MDOT SHA from meeting the target reductions with currently available modeling methods, loading, reduction efficiencies, or practices.

Lists of proposed practices and costs to achieve the required reductions are included in **Section F**.

Modeling Parameters

MDE requires that pollutant modeling follow the guidance in the MDE (2014a) document and if other methods are employed, they must be approved by MDE. MDOT SHA developed a restoration modeling protocol that describes the methods used for modeling pollutant load reductions for local TMDLs with MDOT SHA responsibility. This protocol was submitted to MDE as an appendix with the MDOT SHA MS4 2016 Annual Report. Once approved, this protocol will be available on the MDOT SHA website.

Different modeling methods are used depending upon the pollutants and current reduction practices in use. Brief descriptions of modeling methods are included in the following section, but the MDOT SHA restoration modeling protocol should be consulted for a more detailed explanation.

Aggregated Loads

WLAs may be assigned to each MS4 jurisdiction separately or as an aggregated WLA for all urban stormwater MS4 permittees that combines them into one required allocation and reduction target. The modeling approach developed by MDOT SHA uses MDOT SHA data (both impervious and pervious land as well as BMPs built before the TMDL baseline year, also known as baseline BMPs) to calculate baseline loads and calibrated reduction targets. Following this approach, disaggregation is done for each TMDL.

Available Reduction Practices

MDOT SHA reserves the right to implement new BMPs, activities, and other practices that are not currently available to achieve local TMDL load reduction requirements. In the future, expert panels may be convened to study the effectiveness of new or modified BMPs on pollutants. MDOT SHA will modify reduction strategies as necessary based on new, approved treatment guidance, and will include revised strategies in updates to this implementation plan.

Table 2: MDOT SHA Gunpowder River Oligohaline Segmentshed PCB Modeling Results

| Watershed Name | Watershed Number | County | Pollutant | EPA Approval Date | WLA Type | Baseline Year | Unit | MDOT SHA Baseline Load | MDOT SHA % Reduction Target | MDOT SHA Reduction Target | MDOT SHA WLA | Projected Reduction to be Achieved | Projected Reduction to be Achieved as a % of Baseline Load | Target Year |
|-----------------|-------------------|--------|-----------|-------------------|---------------------|---------------|-------|------------------------|-----------------------------|---------------------------|--------------|------------------------------------|--|-------------|
| Gunpowder River | MD-GUNOH-02130801 | BA, HA | PCBs | 10/03/2016 | Aggregate by County | 2010 | g/yr. | 0.2 | 0% | - | - | - | - | - |
| Bird River | MD-GUNOH-02130803 | BA | PCBs | 10/03/2016 | Aggregate by County | 2010 | g/yr. | 1.31 | 70.0% | 0.9 | 0.4 | 0.12 | 9.1% | 2050 |

E.2. PCB Pollution Reduction Strategy

E.2.a. PCB TMDLs Affecting MDOT SHA

There are 14 EPA-approved PCB TMDLs with MDOT SHA responsibility that MDOT SHA has previously addressed in earlier implementation plans. The following is a list of TMDL documents for PCBs with MDOT SHA responsibility that are addressed in this plan:

- *Total Maximum Daily Load of Polychlorinated Biphenyls in the Gunpowder River and Bird River Subsegments of the Gunpowder River Oligohaline Segment, Baltimore County and Harford County, Maryland, approved by EPA on October 3, 2016*

In the TMDL document (MDE, 2016c) there are separate reduction requirements for the Gunpowder River subsegment (02130801) and Bird River subsegment (02130803) of the Gunpowder River Oligohaline segmentshed. **Table 2** reflects the different reduction requirement for the subsegments at the 8-digit watershed scale. In **Table 2** the MDOT SHA reduction target for the Gunpowder River subsegment PCB TMDL is 0%, or 0 g/yr. Due to MDOT SHA having a 0 gram per year reduction requirement in the Gunpowder River subsegment of GUNOH

segmentshed meeting this TMDL will rely on meeting the reduction requirement in the Bird River subsegment. For the Bird River subsegment the reduction target is 70%, or 0.9 g/yr. The Bird River subsegment can safely receive 0.4 grams of PCB by MDOT SHA on a yearly basis without being considered impaired. Currently, it is calculated that MDOT SHA is responsible for introducing 1.31 grams per year of PCBs into the segmentshed per the MDE TMDL document (MDE, 2016c) as a MS4 permittee by the Bird River subsegment. Thus, according to the definition of a the TMDL, MDOT SHA has to reduce its load by 0.9 grams to meet its healthy load, WLA, of 0.4 grams per year. MDOT SHA's reduction target is found by multiplying the MDOT SHA baseline load by the MDOT SHA reduction target percent. The MDOT SHA WLA is found by subtracting the MDOT SHA baseline load by the MDOT SHA target load. The projected reduction achieved is found by modeling the PCB load reduction that will be experienced by the construction of current and future BMPs in Bird River subsegment of the GUNOH segmentshed. These BMPs are either currently under construction or are planned to be constructed in the future. It is estimated that these future BMPs will reduce PBC loading by 0.1 gram to the GUNOH segmentshed. The reduction to be achieved expressed as a percent is found by dividing the projected reduction to be achieved by the MDOT SHA baseline load.

Three dates are shown: the EPA approval date, the baseline year set by MDE, and the Target Year. The baseline year published on the MDE Data Center will be used for MDOT SHA's implementation planning. This usually correlates to the time-period when monitoring data was collected for MDE's TMDL analysis. The Target Year is the year MDOT SHA proposes to meet the WLA.

E.2.b. PCB Sources

The objective to establish a TMDL for PCBs is to ensure that the designated use is protected in each of the impaired waterbodies. Monitoring to identify the impairment may have been performed in the water column, in sediments, or in fish tissue depending on whether the impairment was for water contact recreation or fish consumption.

PCBs do not occur naturally in the environment. Therefore, unless existing or historical anthropogenic sources are present, their natural background levels are expected to be zero. Although PCBs are no longer manufactured in the United States, they are still being released to the environment via accidental fires, leaks, or spills from PCB-containing equipment; potential leaks from hazardous waste sites that contain PCBs; illegal or improper dumping; and disposal of PCB-containing products into landfills not designed to handle hazardous waste. Once in the environment, PCBs do not readily break down and tend to cycle between various environmental media such as air, water, and soil.

Sources are not identified in detail, either by land use or other breakdowns. Two non-point sources are related to the waterbody itself: resuspension and diffusion from bottom sediments and tidal exchange with the Bay. Transport of PCBs from bottom sediments to the water column through resuspension and diffusion can be a source of PCBs; however, within the TMDLs it is considered internal loading and not assigned a baseline load or allocation. Tidal influences from the Bay or other tidewater can be either a source or sink. For the Magothy, Severn, South and West and Rhodes River TMDLs, the Bay tidal influence is the single major source of PCBs. Similarly, for Bird River, Bush River, and Gunpowder River, the tidal portions are a PCB source. Baltimore Harbor, Back River, and the Anacostia, on the other hand, export more PCBs to the Bay than they receive.

There are three diffuse watershed sources including atmospheric deposition, non-regulated watershed runoff, and NPDES regulated stormwater. Also, there are four discrete sources: contaminated sites, WWTP facilities, industrial process water and Dredged Material Containment Facilities (DMCF), which are described by name in the TMDL. **Table 3** shows which sources are described in the thirteen PCB TMDLs with MDOT SHA responsibility.

For PCBs, studies have shown the largest sources impacting stormwater are building demolition, building remodeling, and old industrial areas. The main pathways are runoff, wheel and foot tracking, and dust dispersion from industrial areas (San Francisco Estuary Institute [SFEI], 2010).

Table 3: PCB Sources in Each TMDL

| Source | Contaminant | TMDL Watershed | | | | | | | | | | | |
|-------------------|---|------------------|------------|------------|------------|-----------------|-----------------------------------|------------------------------|-------------|---------------|--------------|-------------|------------------------|
| | | Baltimore Harbor | Back River | Bird River | Bush River | Gunpowder River | Tidal Potomac/ Anacostia River | Non-Tidal Anacostia River | Lake Roland | Magothy River | Severn River | South River | West & Rhodes River |
| Non-Point Sources | Upstream Tributaries | | | | | ✓ | ✓ | | | | | | |
| | Chesapeake Bay or Other Tidal Influence | | | ✓ | ✓ | ✓ | | | | ✓ | ✓ | ✓ | ✓ |
| | Atmospheric Deposition | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ | ✓ | ✓ | ✓ | ✓ |
| | Non-regulated Watershed Runoff | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| | Contaminated Sites | ✓ | ✓ | | ✓ | | ✓ | ✓ | ✓ | ✓ | | | |
| Point Sources | Municipal WWTP and CSO | ✓ | ✓ | | ✓ | | ✓ | ✓ | ✓ | | ✓ | ✓ | ✓ |
| | Industrial Process Water | ✓ | | | ✓ | ✓ | | | | | | | |
| | DMCF | ✓ | | | | | | | | | | | |
| | NPDES Regulated Stormwater | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |

Significance for MDOT SHA

MDOT SHA roadways pass through or are near areas that contain facilities or industries that may contribute PCBs to the environment. Two of the controllable sources in **Table 3** appear to fall under MDOT SHA's responsibility: contaminated sites and NPDES-regulated stormwater. MDOT SHA has conducted research on our industrial sites and to date has not discovered any legacy PCB contamination. Thus, MDOT SHA is left with stormwater as the only source to be addressed. MDOT SHA does not plan to complete a comprehensive investigation of all MDOT SHA's ROW, but a method is being researched to identify outfalls that have PCB discharging in stormwater to identify potential source

drainage area. Once these areas are narrowed down, sources of PCBs can be tracked, documented, and methods to remediate developed.

E.2.c. MDOT SHA PCB Modeling Methods

MDOT SHA's modeling focuses on runoff loads and reductions from stormwater BMPs. The approach to modeling PCB reductions is based on the results of a literature review of PCB sources and treatment.

Two documents from the CBP discuss PCB sources, pathways, and treatment. Schueler and Youngk (2015) summarized research nationwide. They reported that PCB sampling in San Francisco Bay showed urban stormwater was the dominant pathway for PCBs to enter

the Bay. The Chesapeake Bay *Toxic Contaminants Policy and Prevention Outcome* (CBP, 2015) also concluded that stormwater was a significant pathway for both particulate and dissolved PCBs. Land use is also a factor.

Baseline Loading for PCBs

Loads discussed in the PCB TMDLs are based on monitoring the impaired waterbody. Watershed loads were estimated by deriving concentrations from the monitoring data and multiplying these by estimated flow rates to the impaired waterbody. Thus, the loads reported in the TMDL do not account for fate and transport from the watershed.

While PCBs can exist in stormwater in both dissolved and particulate forms, they are generally insoluble in water. Lighter compounds may dissolve and subsequently volatilize to the air and heavier compounds bind to sediment. Schueler and Youngk (2015) discussed research indicating that a large portion of the PCB load was attached to sediment, including a sampling study in the Susquehanna River basin that showed 75 percent of PCB loads were associated with particulates. CBP (2015) concluded that contaminated soils were a predominant source of PCBs in stormwater. Both these reports and others (Gilbreath et al., 2012) found that runoff from older industrial areas tended to have a higher concentration of PCBs in runoff and in sediments.

Given the understanding that removal of contaminated sediment from stormwater can be an effective method of reducing the PCB loads, the modeling approach will be to focus on stormwater BMPs that treat sediment. The basis of the modeling will be Total Suspended Solids (TSS) loading rates based on MAST (2016) and reduction calculation based on MDE (2014a). This approach has also been documented by Interstate Commission on the Potomac River Basin (ICPRB) in the Tidal Potomac PCB TMDL.

To estimate the amount of PCBs in sediment from runoff, sampling data from bottom sediments reported in MDE's TMDL documents were used.

Six of the thirteen TMDLs provide sufficient information on sediment concentrations to estimate an average value by watershed. No sediment data was reported in the TMDL for the Anacostia River Northeast and Northwest Branch. In lieu of this, data from the Tidal Potomac TMDL for Anacostia will be used.

For MDOT SHA modeling, baseline loads have been calculated in two steps: first, to model the untreated load, and next, to apply treatment as of the baseline year for each TMDL. Untreated baseline loads were modeled by multiplying MDOT SHA pervious and impervious acres by land-river segment using MDOT SHA spatial data with loading rates calculated at the land-river segment scale from a No-BMP scenario in MAST. Loading rates are described in further detail below. Load reductions from baseline BMPs were calculated from MDOT SHA database information, then applied to the untreated load to determine treated baseline load. All loads and load reductions for PCB TMDLs were first modeled in TSS EOS-lbs/yr. and then converted to TSS EOS-g/yr. and then multiplied by the average sediment PCB concentration from the TMDL document to calculate loads and load reductions in PCB g/yr.

PCB Pollutant Loading Rates by Land Use

Loading rates for TSS have been calculated at the most detailed level feasible: the land-river segments from the Chesapeake Bay model / MAST v5.3.2. Untreated loads and acres, per land-river segment, were derived from a No BMPs scenario in MAST at the Maryland statewide geographic scale using 2010 conditions. With the No-BMP scenario, loading rates for each MDOT SHA land use will stay constant for different baseline years, so these values will be valid for both the Bay TMDL and local TMDL analyses.

PCB Reduction Requirements

The model uses a percent reduction target for MDOT SHA published in the TMDL document. The percent reduction target is compared to the

projected reduction to be achieved modeled from the implementation of restoration BMPs. This method assumes that like sediment, PCB is a conservative pollutant, and that loads exported from the watershed will approximate the loads in the waterbody, without significant loss or degradation in transport.

Reduction Modeling

The model is based on an Excel spreadsheet, using data derived from MAST and MDOT SHA's stormwater geodatabases. The modeling approach focuses on stormwater BMPs that treat sediment. BMP removal rates for structural and ESD stormwater controls (ESD/Runoff Reduction [RR] and Stormwater Treatment [ST] practices) and alternative BMPs (catch basin cleaning) have been implemented following MDE (2014a). For determining BMP efficiencies using MDE (2014a), the model uses the actual treatment and P_e for each BMP to calculate the sediment reduced for each ESD/RR BMP in the watershed.

The model determines sediment reductions achieved by each type of practice and then multiplies the sediment reductions by a PCB concentration to determine the PCB reduction. Sediment reduction computations vary depending upon the type of restoration practice planned: stormwater control structures or inlet cleaning. Steps for determining sediment reductions for stormwater controls include:

- Sediment loading within the drainage area is determined by identifying the MAST land-river segment containing the BMP and recording the loading rate for MDOT SHA pervious and impervious land use. (MAST, 2016);
- TSS removal rates from the database are stored with each BMP, based on its type;
- Load removal (lb/ac/yr) is calculated for pervious and impervious area by multiplying land use loading rate by TSS removal rate; and

- TSS removed (lb/yr) is calculated by multiplying load removal by pervious and impervious area within the BMP drainage area.

Steps for determining sediment reductions for catch basin cleaning include:

- GIS analysis of the area of MDOT SHA ROW within each shop boundary within each TMDL watershed;
- Fraction of ROW area in the TMDL watershed within each shop boundary;
- Lookup of dry weight of material collected from each shop;
- Calculation of material collected within the TMDL watershed by multiplying fraction of TMDL ROW by the total material collected; and
- Calculate TSS pounds removed using parameter from MDE Guidance (MDE, 2014a).

Computing PCB loads removed based on the sediment removal calculated in the previous steps includes:

- Add stormwater BMP and inlet cleaning pounds removed to find total sediment removed in each TMDL watershed and convert to grams;
- Multiply by PCB concentration factor of 80 ng/g (Schueler and Youngk, 2015) to find PCB load removed; and
- Multiply by 50% to account for inconsistency in BMP removal (results are in g/yr).

E.2.d. PCB Reduction Strategies

MDOT SHA will implement an evolving management process that relies on four main PCB reducing efforts. The first strategy will be source tracking and elimination. The second effort will be to track PCBs reduction achieved from ongoing impervious restoration efforts for

MDOT SHA's MS4 permit. MDOT SHA will develop a monitoring and evaluation plan to study the effects of natural attenuation in our PCB TMDL watersheds. Lastly, partnering efforts to reduce PCB concentrations in the local watersheds will be explored with other jurisdictions where it is perceived to be mutually beneficial for both parties.

Stormwater BMP Reduction Modeling

As a byproduct of meeting the impervious surface restoration required under the existing MS4 permit, many of the BMPs used to reduce sediment will provide a secondary benefit in removing PCBs associated with sediments.

The modeling results in **Table 2** show that minimal reductions are achieved through stormwater BMPs in the watershed. Based on these results, MDOT SHA has concluded that source tracking and elimination may be a more effective way of achieving PCB load reductions.

Source Targeting and Elimination

According to MDE's main reports for PCB TMDLs, it's noted that an effective way to meet the WLA is to implement a PCB source targeting and elimination effort. MDOT SHA will develop a protocol describing the process to implement steps that target a PCB source in the ROW. This protocol will also explain how MDOT SHA will evaluate feasibility of source elimination.

Monitoring and Evaluation Plan

MDOT SHA will continue to review MDE documentation of declining PCB concentrations in the local watersheds due to natural attenuation. This process will involve obtaining PCB concentration data directly from MDE and/or other approved sources.

Partnering Efforts

MDOT SHA will implement partnering with other local jurisdictions to ensure that PCB WLAs are met. However, at this time it has not been determined what this effort will entail. There may be a possibility to work with another agency on a public education campaign or contribute effort or money to a PCB cleanup effort in a watershed in which there is an MDOT SHA responsibility. It is anticipated that an overall reduction of PCBs released in the watershed will have a positive load reduction on MDOT SHA's WLA reduction goals.

PAGE INTENTIONALLY LEFT BLANK

F. GUNPOWDER RIVER AND BIRD RIVER SUBSEGMENTS IMPLEMENTATION PLAN

F.1. Subsegments Description

As stated in **Section B**, the Chesapeake Bay and its tributaries are divided into 92 tidal water body segments, one of which is the Gunpowder River Oligohaline Segment. The Gunpowder River Oligohaline Segment includes both the Gunpowder River subsegment (hereinafter “Gunpowder River”) and the Bird River subsegment (hereinafter “Bird River”).

The Gunpowder River is a 6.8-mile-long (10.9 km) tidal inlet on the western side of the Chesapeake Bay in Baltimore and Harford Counties. The Gunpowder River is formed by the convergence of two freshwater tributaries: Gunpowder Falls (often referred to locally as "Big Gunpowder Falls") and Little Gunpowder Falls. Gunpowder River is surrounded by the Gunpowder River watershed (8-digit Basin Code: 02130801, excluding the Seneca Creek portion) in Harford County to the east and Baltimore County to the west. The total area of the Gunpowder River watershed is approximately 20 square miles. Major tributaries of the Gunpowder River watershed include Foster Branch and Emmord Branch.

The Bird River is located above the Baltimore County portion of the Gunpowder River watershed and is approximately 7 miles (11.3 km) in length. The Bird River watershed (8-digit Basin Code: 02130803) encompasses approximately 26 square miles solely within Baltimore County, Maryland. The Bird River flows east into the Gunpowder River; accordingly, both the Gunpowder River watershed and the Bird River watershed drain into the Gunpowder River. The Gunpowder River ultimately flows into the Chesapeake Bay. Major tributaries of the Bird

River watershed include Whitemarsh Run, Honeygo Run, and Windlass Run.

There are 46 centerline miles of MDOT SHA roadway located within the Gunpowder River watershed; the associated ROW encompasses 530 acres, of which 246 acres are impervious.

There are 36 centerline miles of MDOT SHA roadway located within the Bird River watershed; the associated ROW encompasses 453 acres, of which 200 acres are impervious.

There are no MDOT SHA facilities located within the Gunpowder River and the Bird River watersheds (**Figure 6**).

F.2. MDOT SHA TMDLs in the Gunpowder River & Bird River Subsegments

MDOT SHA is included in the PCBs TMDL (MDE, 2016c) and has reduction requirements of 70 percent in the Bird River watershed and 0 percent in the Gunpowder River watershed, as shown in **Table 2**. Because MDOT SHA does not have a reduction requirement in the Gunpowder River watershed, **Section F.3.**, **Section F.4.**, and **Section F.5.** below only pertain to the Bird River watershed.

F.3. MDOT SHA Visual Inventory of ROW

The MS4 permit requires MDOT SHA to perform visual assessments. **Section C** describes the MDOT SHA visual assessment process. The implementation teams are currently evaluating grids in the segmentshed and will continue to do so until all are completed and accepted. The grid-tracking tool was developed to help teams efficiently search each watershed on a 1.5 x 1.5-square-mile system as shown in **Figure 7**. Planning efforts will continue and will be centered on areas with local TMDL needs that have been identified using the site search grid-tracking tool.

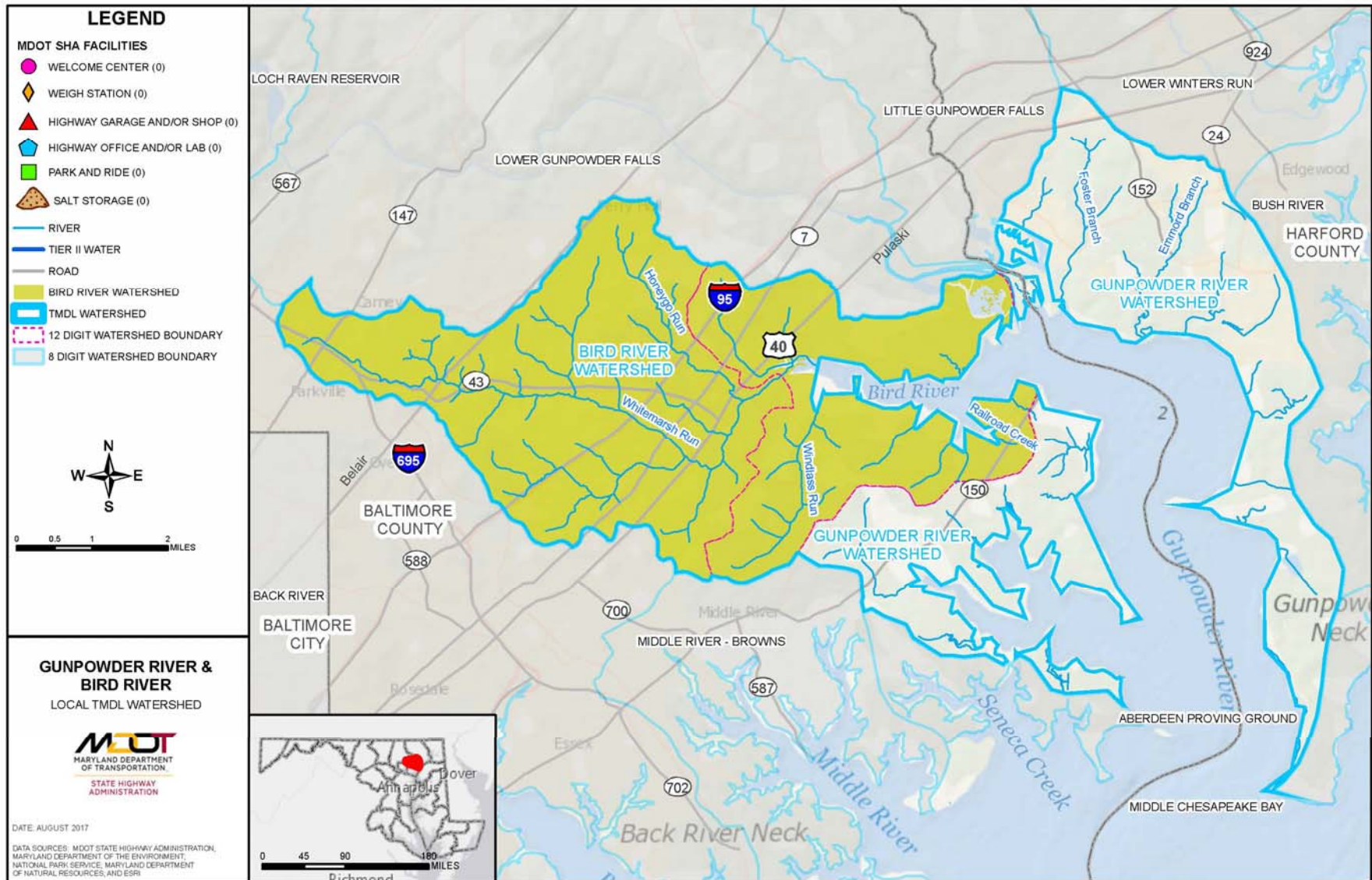


Figure 6: Gunpowder River & Bird River Subsegments of Gunpowder River Oligohaline Segmentshed

Many of the grids awaiting review have little potential for additional restoration due to minimal ROW along residential and wooded areas, which limits the ability to purchase ROW for the construction of a new BMP. Additionally, many MDOT SHA impervious areas within these grids are already treated by MDOT SHA BMPs. The current results of this ongoing grid search for the Bird River watershed are as follows:

24 Total Grids:

- 24 fully reviewed

The new stormwater site search resulted in a pool of potential sites comprised of the following:

- 47 locations identified as possible candidates for new stormwater BMPs;
- 42 facilities have been recommended for restoration after the completion of a preliminary desktop assessment; and
- Five facilities remain on hold due to roadway construction projects.

The tree planting site search teams investigated 607 acres of MDOT SHA-owned pervious area. The ongoing site search resulted in a pool of potential sites comprised of the following:

- 20 acres of pervious area identified as potential for future restoration after the completion of a preliminary desktop assessment.

The stream restoration site search teams investigated 1,260 linear feet of stream channel for restoration opportunities. The site search resulted in the following:

- Zero linear feet are recommended for future restoration potential.

Teams will continue to pursue the most viable and cost-effective BMPs that are currently within the existing pool of sites based on site feasibility.

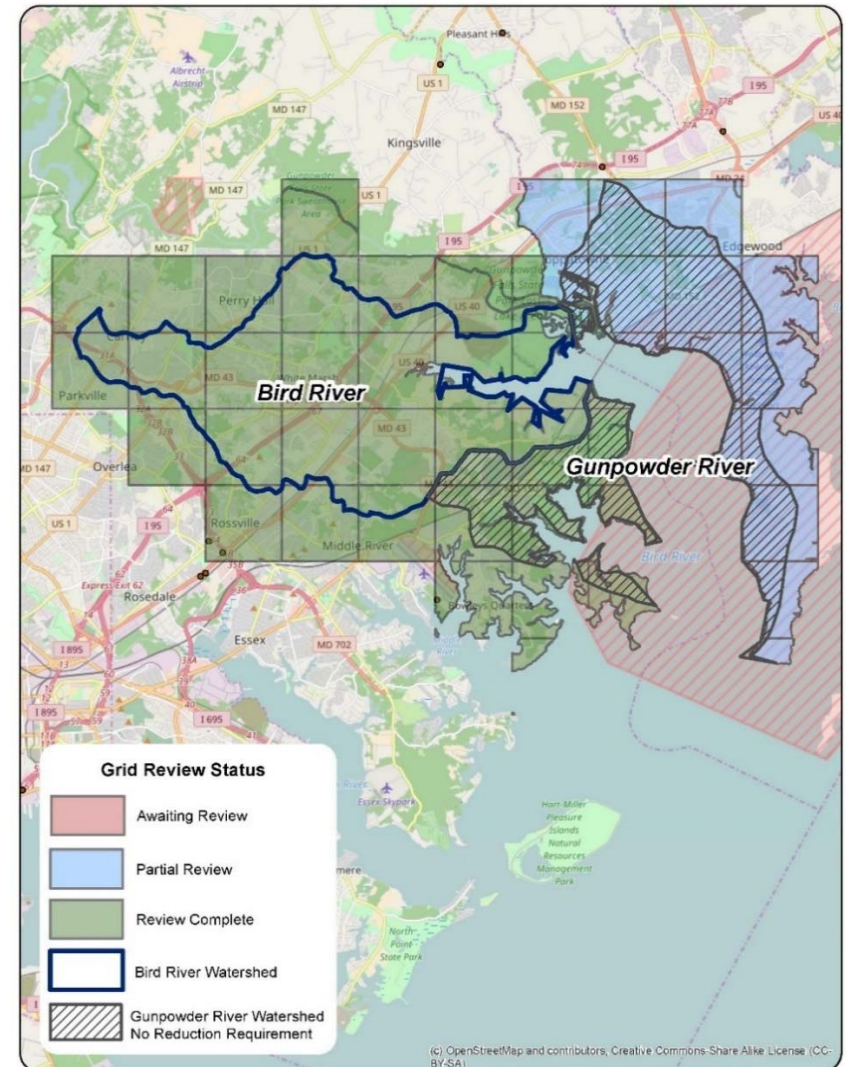


Figure 7: Gunpowder River & Bird River Subsegments Site Search Grids

F.4. Summary of County Assessment Review

The designated use of the waters of the Bird River (8-digit Basin Code: 02130803) is Use II – Support of Estuarine and Marine Aquatic Life and Shellfish Harvesting (MDE, 2016c). The Bird River is subject to the following impairments as noted on MDE’s 303(d) List:

- PCB in Fish Tissue

The Baltimore County Department of Environmental Protection and Sustainability completed a Small Watershed Action Plan (SWAP) for the Bird River watershed (Versar, 2014). The Bird River SWAP provides guidance on the restoration of the Bird River watershed. It includes strategies and project prioritizations for watershed restoration and management for each of the eight subwatersheds within the Bird River watershed, namely Whitemarsh Run, Whitemarsh Run (N. Fork), Whitemarsh Run (S. Fork), Honeygo Run, Windlass Run, Bird River-D, Bird River-B, and Railroad Creek_Bird River-A. Maryland Route 43 predominantly runs through the “Whitemarsh Run” subwatershed and separates the “Whitemarsh Run (N. Fork)” and “Whitemarsh Run (S. Fork)” subwatersheds: Whitemarsh Run (N. Fork) is located above MD Route 43 and Whitemarsh Run (S. Fork) is located below MD Route 43. “Bird River-D” and “Bird River-B” surround Bird River: Bird River-D is predominantly the drainage area directly above Bird River and Bird River-B is predominantly the drainage area directly below Bird River. The “Railroad Creek_Bird River-A” subwatershed surrounds Railroad Creek.

Land use/land cover within the Bird River watershed is predominantly urbanized (approximately 50 percent) and forested (approximately 29 percent). Impervious urban land cover comprises 3,058 acres (18.6

percent) of the watershed, and approximately 12 percent of the soils within the watershed are considered as high runoff potential.

The County estimates that impervious urban land use is responsible for contributing 28,269 lbs. of nitrogen, 4,260 lbs. of phosphorus, and 1,729,028 lbs. of sediment in the Bird River watershed each year. Stormwater runoff was identified as the primary contributor of nutrient (nitrogen and phosphorus) and sediment inputs to the Bird River watershed. Trash is another significant source of impairment; the Bird River SWAP states, “Trash is one of the most noticeable pollutants in the Bird River” (Versar, 2014, p. 2-3).

Restoration actions are needed throughout the entire Bird River watershed to meet environmental goals and requirements. However, using ranking criteria to prioritize the eight subwatersheds within the Bird River watershed, Baltimore County supports a focused framework to identify which subwatersheds have the greatest need and potential for restoration.

The Bird River SWAP describes the ranking methodology used to prioritize the subwatersheds as follows: The subwatersheds were represented by an overall prioritization score on a scale of 48, based on a set of 12 criteria (listed below) each worth a maximum of four points. A total score of 0 means the subwatershed has the least significant impacts to water quality and a total score of 48 corresponds to a subwatershed with the greatest water quality improvement potential. The total prioritization score for each of the Bird River subwatersheds was determined using the following 12 ranking criteria:

- Phosphorus Loads;
- Nitrogen Loads;
- Impervious Surfaces;

- Neighborhood Restoration Opportunity/Pollution Source Indexes;
- Neighborhood Downspout Disconnection;
- Institutional Site Investigations;
- Pervious Area Assessments;
- Municipal Street Sweeping;
- Municipal Stormwater Conversions;
- Illicit Discharge Data;
- Stream Buffer Improvement; and
- Stream Restoration Potential.

The scoring resulted in the Whitemarsh Run and Honeygo Run subwatersheds being rated as “very high” and the Whitemarsh Run (N. Fork) and Whitemarsh Run (S. Fork) subwatersheds being rated as “high” in terms of restoration need and potential. **Table 4** shows the total score of each watershed and its corresponding ranking and prioritization for treatment category.

Table 4: County Identified Priority Areas for Treatment

| Rank | Subwatershed | Total Score | Prioritization Category |
|------|-----------------------------|-------------|-------------------------|
| 1 | Whitemarsh Run | 41 | Very High |
| 2 | Honeygo Run | 31 | Very High |
| 3 | Whitemarsh Run (N. Fork) | 28 | High |
| 4 | Whitemarsh Run (S. Fork) | 28 | High |
| 5 | Bird River-D | 24 | Medium |
| 6 | Railroad Creek_Bird River-A | 17 | Medium |
| 7 | Bird River-B | 14 | Low |
| 8 | Windlass Run | 11 | Low |

Source: Versar (2014)

The subwatersheds were also ranked by protection priorities (**Table 5**). This was done to highlight the importance of protecting areas that are in good condition from any degradation that could occur. This ranking was

established by reversing the subwatershed restoration prioritization as listed in **Table 4**. Therefore, Windlass Run and Bird River-B were listed as “very high,” while Railroad Creek_Bird River-A and Bird River-D were listed as “high” in terms of protection priority.

Table 5: County Identified Priority Areas for Protection

| Rank | Subwatershed | Total Score | Protection Category |
|------|-----------------------------|-------------|---------------------|
| 1 | Windlass Run | 11 | Very High |
| 2 | Bird River-B | 14 | Very High |
| 3 | Railroad Creek_Bird River-A | 17 | High |
| 4 | Bird River-D | 24 | High |
| 5 | Whitemarsh Run (N. Fork) | 28 | Medium |
| 6 | Whitemarsh Run (S. Fork) | 28 | Medium |
| 7 | Honeygo Run | 31 | Low |
| 8 | Whitemarsh Run | 41 | Low |

Source: Versar (2014)

Table 6 presents Baltimore County-suggested BMPs to aid in meeting the restoration goals within the Bird River watershed. The recommended BMPs are separated out by applicable BMPs for developed and agricultural areas. Several other BMP suggestions such as citizen awareness activities are applicable to all areas of the watershed. The Bird River SWAP indicates that the Bird River-B and Windlass Run watersheds have the most agricultural land (cropland). The largest area of commercial and industrial land use is concentrated around the White Marsh Mall and The Avenue at White Marsh within the Whitemarsh Run watershed.

Table 6: County Suggested BMPs for the Bird River Watershed

| Developed Areas | All Areas |
|--|--|
| <ul style="list-style-type: none"> • Stormwater Management Upgrades <ul style="list-style-type: none"> – conversions (ponds # 883 & # 1633 in the Whitemarsh Run, pond # 951 in Whitemarsh Run (N. Fork), and pond # 1166 in Whitemarsh Run (S. Fork) subwatersheds were recommended for conversion because water quality benefits could be significantly increased in these ponds with minimal effort) – retrofits • Stream Corridor Restoration <ul style="list-style-type: none"> – stream restoration (data from stream corridor assessments indicates that a total of 6,924 linear feet of stream in the Bird River-D, Honeygo Run, and Whitemarsh Run subwatersheds are in need of restoration due to significant erosion and channel alteration) – buffer restoration – wetland creation • Trash and Recycling <ul style="list-style-type: none"> – single stream recycling – household hazardous waste collection – waterway trash boom • Reforestation • Street Sweeping • Inlet Cleaning • Illicit Discharge Detection and Elimination Program • Waterway Dredging • Land Development Review (including follow-up inspections post construction) | <ul style="list-style-type: none"> • Citizen Awareness Activities <ul style="list-style-type: none"> – Stormwater Runoff – Pet Waste/Bacteria Awareness – Fertilizer Reduction – Trash and Recycling (compost bins, stewardship projects, Baltimore County's Reuse Directory, and the Re-source Newsletter) – Environmental Awareness and Education • Volunteer Restoration Programs <ul style="list-style-type: none"> – Downspout Disconnection – Bayscaping – Tree Canopy Improvement – Fertilizer Reduction/Education – Stream Watch Program – Open Space Trees • Institutional Initiatives <ul style="list-style-type: none"> – Parking Lot Retrofits – Open Space Planting • Land Preservation <ul style="list-style-type: none"> – Maryland and County Rural Legacy Programs – Maryland Environmental Trust and Local Land Trusts – Maryland Agricultural Land Preservation Foundation – Baltimore County Agricultural Land Preservation Program |
| Agricultural Areas | |
| <ul style="list-style-type: none"> • Farm Conservation Plans <ul style="list-style-type: none"> – Cover Crop – Nutrient Management – Integrated Pest Management – Residue and Tillage Management – Conservation Crop Rotation – Stripcropping • Nutrient Management Plans | |

Source: Versar (2014)

The Bird River SWAP also established restoration strategies for each subwatershed as presented in **Table 7**. These strategies were based on the individual conditions and needs of each subwatershed.

Table 7: County Suggested BMPs for Subwatersheds within the Bird River Watershed

| Subwatershed | Recommended Actions | | | | | | | | | | | | |
|-----------------------------|-------------------------|---------------------|--------------|--------------|---------------------|------------|---------------|-------------------------|---------------------|------------------|---------------------------|----------------------------|-----------------|
| | Remove Impervious Cover | Stormwater Retrofit | Rain Barrels | Rain Gardens | Storm Drain Marking | Bayscaping | Tree Planting | Downspout Disconnection | Pet Waste Education | Trash Management | Stream Buffer Improvement | Parking Lot/Alley Retrofit | Street Sweeping |
| Bird River-B | | | ✓ | ✓ | | ✓ | ✓ | | | | ✓ | ✓ | |
| Bird River-D | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | ✓ | | |
| Honeygo Run | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | ✓ | | |
| Railroad Creek_Bird River-A | | | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ | | ✓ | | |
| Whitemarsh Run | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Whitemarsh Run (N. Fork) | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | |
| Whitemarsh Run (S. Fork) | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ | ✓ | ✓ | ✓ |
| Windlass Run | | ✓ | ✓ | | ✓ | ✓ | ✓ | ✓ | | ✓ | | | |

Source: Versar (2014)

F.5. MDOT SHA Pollutant Reduction Strategies

Proposed practices to meet the PCB reductions in the Bird River watershed are shown in **Table 8**. Projected PCB reductions using these practices are described in **Section E** and shown in **Table 2**. Three timeframes are included in the table below:

- BMPs built before the TMDL baseline. In this case, the baseline is 2010;
- BMPs built after the baseline through fiscal year 2017; and
- BMPs built after fiscal year 2017 through 2050, the projected target date. MDOT SHA will accomplish the projected reduction to be achieved as a percent of the baseline load presented in

Table 2. The reduction is not expected to meet MDE's 70 percent load reduction requirement. BMPs identified in this current plan will only achieve 9.1 percent of the reduction requirement. Through strategies discussed in **Section E.2.d.**, MDOT SHA will increase this expected reduction.

Estimated capital budget costs to design and construct practices within the Bird River watershed total \$18,561,500. These projected costs are based on an average cost per impervious acre treated that is derived from cost history for a group of completed projects for each BMP category.

Figure 8 shows a map of MDOT SHA's restoration practices in the segmentshed and includes those that are under design or construction. Inlet cleaning is not reflected on this map.

Table 8: Bird River PCB BMP Implementation

| BMP ¹ | Unit | Baseline (Before 2010) | Restoration BMPs | | Cost |
|-----------------------------|---------------------|------------------------|------------------------|---------------------|--------------|
| | | | Progress (2010 – FY17) | Future (After FY17) | |
| New Stormwater | drainage area acres | 97.1 | | 16.2 | \$15,097,500 |
| Retrofit | drainage area acres | | | 64.6 | \$3,344,000 |
| Inlet Cleaning ² | tons | | | 21.0 | \$120,000 |

¹ Tree planting, outfall stabilization, and stream restoration BMPs do not contribute to PCB load reductions; therefore, these practices are not included in this table.

² Inlet cleaning is an annual practice.

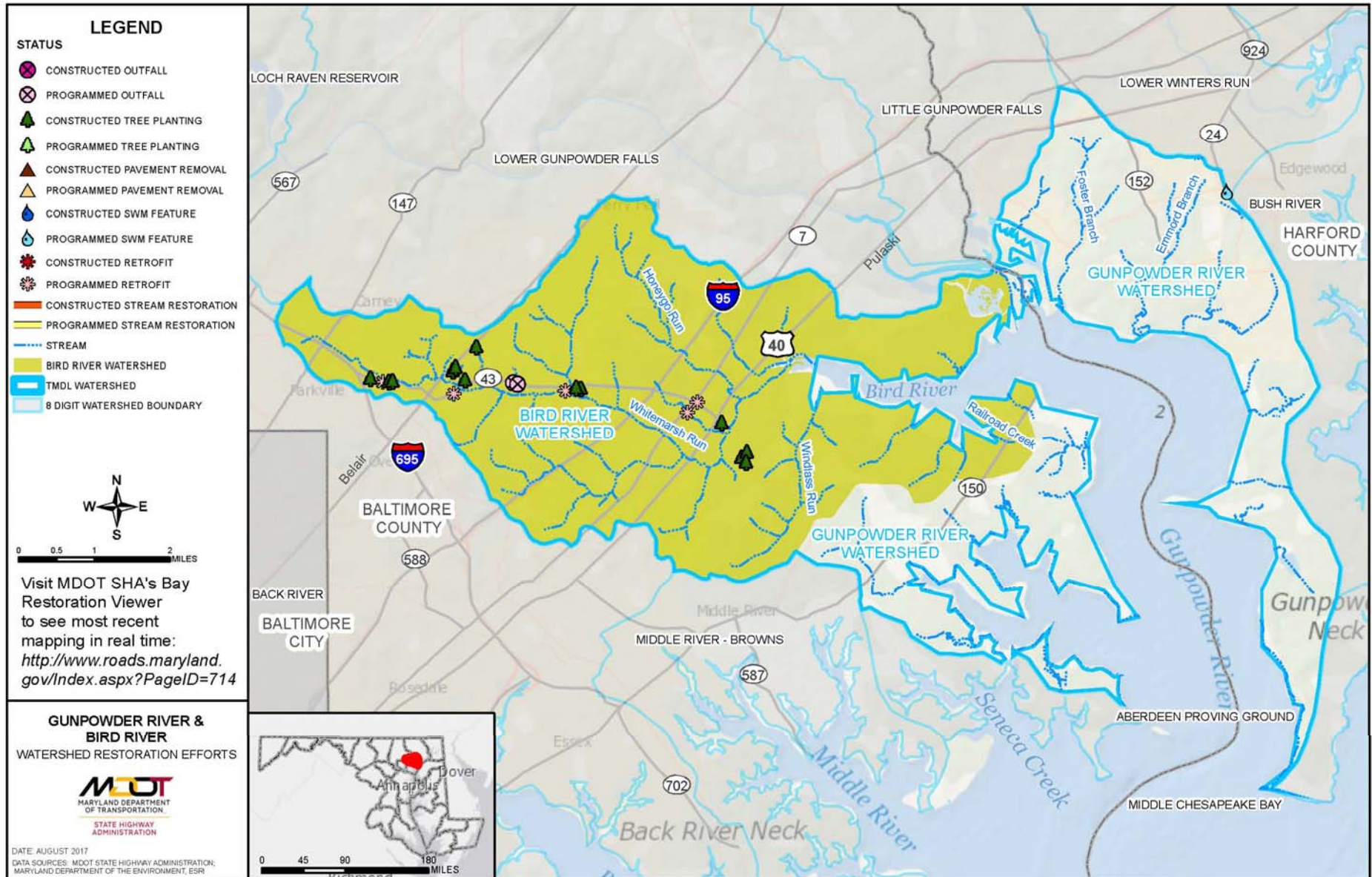


Figure 8: MDOT SHA Restoration Strategies within the Gunpowder River & Bird River Subsegments

PAGE INTENTIONALLY LEFT BLANK

ABBREVIATIONS

| | | | |
|-----------|---|----------------|---|
| AA | Anne Arundel (County) | CBP | Chesapeake Bay Program |
| AA-DPW | Anne Arundel County, Department of Public Works | CBWM | Chesapeake Bay Watershed Model |
| AAH | Adopt-A-Highway | CC | Charles (County) |
| AASHTO | American Association of State Highway and Transportation Officials | CC-BRM | Carroll County, Bureau of Resource Management |
| ac | Acre | CC-DPGM | Charles County, Department of Planning & Growth |
| AFB | Air Force Base | CCMS | Customer Care Management System |
| Alt | Alternative | CFR | Code of Federal Regulations |
| AMT | Automated Modeling Tool | CIP | Capital Improvement Project |
| AMT, Inc. | A. Morton Thomas and Associates, Inc. | CL | Carroll (County) |
| ATV | All-terrain vehicle | CRP | Community Reforestation Program |
| BA | Baltimore (County) | CSN | Chesapeake Stormwater Network |
| BARC | Beltsville Agriculture Research Center | CSO | Combined Sewer Overflow |
| Bay | Chesapeake Bay | CTP | Consolidated Transportation Program |
| BBO | Beaverdam Run, Baisman Run, and Oregon Branch Subwatersheds of the Loch Raven Reservoir Watershed | CWA | Clean Water Act |
| BC-DEPRM | Baltimore County, Department of Environmental Protection and Resource Management | CWAPTW | Clean Water Action Plan Technical Workgroup |
| BC-DEPS | Baltimore County, Department of Environmental Protection and Sustainability | CWP | Center for Watershed Protection |
| BIBI | Benthic Index of Biotic Integrity | DC | District of Columbia |
| BMP | Best Management Practice | DO | Dissolved Oxygen |
| BOD | Biochemical Oxygen Demand | DEL | Delivered Loads |
| BSID | Biological Stressor Identification | DMCF | Dredged Material Containment Facilities |
| BST | Bacterial Source Tracking | DNR | Maryland Department of Natural Resources |
| CAFO | Concentrated Animal Feeding Operation | DRMO | Defense Reutilization and Marketing Office |
| | | ECD | Environmental Compliance Division (MDOT SHA) |
| | | <i>E. coli</i> | <i>Escherichia coli</i> |
| | | ED | Extended Detention |
| | | EMC | Event Mean Concentration |
| | | EMS | Environmental Management System |
| | | EOS | Edge of Stream |

| | | | |
|----------|--|--------|---|
| EPA | United States Environmental Protection Agency | LRE | Loch Raven East subwatershed |
| EPD | Environmental Programs Division | LJF | Lower Jones Falls (Watershed) |
| ESC | Erosion and Sediment Control | LU | Land Use |
| ESD | Environmental Site Design | MAA | Maryland Aviation Administration |
| FC | Fecal Coliform | MAST | Maryland Assessment Scenario Tool |
| FC-DPW | Frederick County, Division of Public Works | MC-DEP | Montgomery County, Department of Environmental Protection |
| FEMA | Federal Emergency Management Administration | MD | Maryland |
| FIB | Fecal Indicator Bacteria | MDA | Maryland Department of Agriculture |
| FIBI | Fish Index of Biotic Integrity | MDE | Maryland Department of the Environment |
| FMD | Facility Maintenance Division (MDOT SHA) | MDOT | Maryland Department of Transportation |
| FR | Frederick (County) | MDP | Maryland Department of Planning |
| FY | Fiscal Year | MEP | Maximum Extent Practicable |
| g | gram | MEPA | Maryland Environmental Policy Act |
| GIS | Geographic Information System | MGF | Middle Gwynns Falls (Watershed) |
| GUNOH | Gunpowder River Oligohaline Segmentshed | MO | Montgomery (County) |
| HA | Harford (County) | MOS | Margin of Safety |
| HC-DPW | Harford County, Department of Public Works | MPR | Maximum Practicable Reduction |
| HO | Howard (County) | MS4 | Municipal Separate Storm Sewer System |
| HUC | Hydrologic Unit Code | NBOD | Nitrogenous Biochemical Oxygen Demand |
| HWG | Horsley Witten Group, Inc. | NEPA | National Environmental Policy Act |
| ICPRB | Interstate Commission on the Potomac River Basin | NFHL | National Flood Hazard Layer |
| IDDE | Illicit Discharge Detection and Elimination | ng | nanogram |
| ISWBMPDB | International Stormwater BMP Database | NJF | Northeastern Jones Falls (Watershed) |
| LA | Load Allocations | NPDES | National Pollutant Discharge Elimination System |
| lbs | Pounds (weight) | NSQD | National Stormwater Quality Database |
| LF | Linear Feet | OC | Office of Communications (MDOT SHA) |
| LN | Lower North | OED | Office of Environmental Design |
| LNB | Lower North Branch | | |

| | | | |
|----------------|---|-----------|---|
| OOM | Office of Maintenance (MDOT SHA) | SWM | Stormwater Management |
| OP | Orthophosphate | SWS | Subwatershed |
| OPPE | Office of Preliminary Planning and Engineering | SW-WLA | Stormwater Wasteload Allocation |
| PACD | Pennsylvania Association of Conservation Districts | TBD | To Be Determined |
| PB | Parsons Brinckerhoff | TBR | Tidal Back River (Watershed) |
| PCB | Polychlorinated Biphenyl | TBS | To Be Specified |
| P _E | Rainfall Target Used To Size ESD Practices | TCWG | Toxic Contaminants Work Group |
| PERC | Perchloroethylene | TMDL | Total Maximum Daily Load |
| PG | Prince George's (County) | TN | Total Nitrogen |
| PGC-DoE | Prince George's County, Department of the Environment | TP | Total Phosphorus |
| RBP | Rapid Bioassessment Protocol | tPCB | Total Polychlorinated Biphenyl |
| RGP | Regional General Permit | TSS | Total Suspended Solids |
| ROW | Rights-Of-Way | TWGCB | Toxics Work Group Chesapeake Bay Partnership |
| Reqd | Required | UBR | Upper Back River (Watershed) |
| RR | Runoff Reduction | UGF | Upper Gwynns Falls (Watershed) |
| RSPSC | Regenerative Step Pool System Conveyance | UJF | Upper Jones Falls (Watershed) |
| SAH | Sponsor-A-Highway | US | United States |
| SB | Spring Branch subwatershed | USACE | United States Army Corps of Engineers |
| SCA | Stream Corridor Assessment | USDA-NRCS | United States Department of Agriculture, Natural Resources Conservation Service |
| SFEI | San Francisco Estuary Institute | USGS | United States Geological Survey |
| SGW | Submerged Gravel Wetlands | USWG | Urban Stormwater Work Group |
| SHA | State Highway Administration | WA | Washington (County) |
| SPR | State Planning and Research | WC-DPW | Washington County, Division of Public Works |
| SSO | Sanitary Sewer Overflow | WCSCD | Washington County Soil Conservation District |
| ST | Stormwater Treatment | WIP | Watershed Implementation Plan |
| SW | Stormwater | WLA | Wasteload Allocation |
| SWAP | Small Watershed Action Plan | WPD | Water Programs Division |

| | |
|-------|---|
| WQLS | Water Quality Limited Segment |
| WQSs | Water Quality Standards |
| WQv | Water Quality Volume |
| WQGIT | Water Quality Goal Implementation Team |
| WRAS | Watershed Restoration Action Strategy |
| WTM | Watershed Treatment Model |
| WTWG | Watershed Technical Work Group |
| WWTP | Waste Water Treatment Plant |
| yr | Year |
| 12-SW | Maryland General Permit for Discharges from Stormwater Associated with Industrial Activities |

REFERENCES

AMT, Inc. (A. Morton Thomas and Associates, Inc.). 2011. *Upper Gwynns Falls Small Watershed Action Plan* prepared for Baltimore County, Department of Environmental Protection and Sustainability. Retrieved from <http://www.baltimorecountymd.gov/Agencies/environment/watersheds/gwynnsmain.html>

AMT, Inc. and Biohabitats. 2003. *Watts Branch Watershed Restoration Study, Task 1 Report*, March 2003 prepared for Montgomery County Department of Environmental Protection. Retrieved from <https://www.montgomerycountymd.gov/DEP/Resources/Files/ReportsandPublications/Water/Watershed%20studies/Lower%20Potomac%20Direct/Watts-Branch-stream-restoration-study-03.pdf>

BC-DEPRM (Baltimore County, Department of Environmental Protection and Resource Management). 2008a. *Upper Back River Small Watershed Action Plan*. Retrieved from <http://resources.baltimorecountymd.gov/Documents/Environment/Watersheds/swapupperbackrivervol1.pdf>

BC-DEPRM. 2008b. *Spring Branch Subwatershed - Small Watershed Action Plan* (Addendum to the Water Quality Management Plan for Loch Raven Watershed). Retrieved from <http://resources.baltimorecountymd.gov/Documents/Environment/Watersheds/swapspringbranchvol%201.pdf>

BC-DEPS (Baltimore County, Department of Environmental Protection and Sustainability). 2012. *Northeastern Jones Falls Small Watershed Action Plan* (SWAP). Retrieved from <http://resources.baltimorecountymd.gov/Documents/Environment/Watersheds/swapnejonesfallsvol1130605.pdf>

BC-DEPS. 2015. *Liberty Reservoir Small Watershed Action Plan*. Vol. 1. Retrieved from <http://resources.baltimorecountymd.gov/Documents/Environment/Watersheds/2016/libertyreservoir/libertyswapvol1complete.pdf>

Biohabitats. 2012. *Rock Creek Implementation Plan* prepared for Montgomery County, Department of Environmental Protection. Retrieved from <https://www.montgomerycountymd.gov/DEP/Resources/Files/ReportsandPublications/Water/Watershed%20studies/Rock-creek-watershed-implementation-plan-11.pdf>

Caraco, D. 2013. *Watershed Treatment Model (WTM) 2013 User's Guide*. Center for Watershed Protection, Ellicott City, MD.

CBP (Chesapeake Bay Program). 2015. *Toxic Contaminants Policy and Prevention Outcome: Management Strategy*. 2015-2025. Vol 1. Retrieved from http://www.chesapeakebay.net/documents/22048/3e_toxics_policyprevention_6-25-15_ff_formatted.pdf

CC-BRM (Carroll County, Bureau of Resource Management). 2012. *Liberty Reservoir Watershed Stream Corridor Assessment*. Retrieved from <http://ccgovernment.carr.org/ccg/resmgmt/doc/Liberty/Liberty%20SCA.pdf?x=1466803710079>

Clary, J., Jones, J., Urbonas, B., Quigley, M., Strecker, E., & Wagner, T. 2008. Can Stormwater BMPs Remove Bacteria? New Findings from the International Stormwater BMP Database. *Stormwater Magazine*, May/June 2008. Retrieved from <http://www.uwtrshd.com/assets/can-stormwater-bmps-remove-bacteria.pdf>

Clemson Cooperative Extension. 2015. *Managing Waterfowl in Stormwater Ponds*. Retrieved from http://www.clemson.edu/extension/natural_resources/water/stormwater_ponds/problem_solving/nuisance_wildlife/waterfowl/

CWAPTW (Clean Water Action Plan Technical Workgroup). 1998. *Maryland Clean Water Action Plan: Final 1998 Report on Unified Watershed Assessment, Watershed Prioritization and Plans for Restoration Action Strategies*. Retrieved from <http://msa.maryland.gov/megafile/msa/speccol/sc5300/sc5339/000113/000000/0000385/unrestricted/20040775e.pdf>

CWP (Center for Watershed Protection). 2003. *Bush River Watershed Management Plan* prepared for Harford County, Department of Public Works.

Retrieved from
http://dnr.maryland.gov/waters/Documents/WRAS/br_strategy.pdf

CWP. 2008a. *Deriving Reliable Pollutant Removal Rates for Municipal Street Sweeping and Storm Drain Cleanout Programs in the Chesapeake Bay Basin*, CWP, Ellicott City, MD. Retrieved from
<https://www.epa.gov/sites/production/files/2015-11/documents/cbstreetsweeping.pdf>

CWP. 2008b. *Lower Jones Falls Watershed Small Watershed Action Plan* (SWAP) prepared for Baltimore County, Department of Environment and Sustainability and the U.S. Environmental Protection Agency, Region III. Retrieved from
<http://resources.baltimorecountymd.gov/Documents/Environment/Watersheds/swaplowerjonesfalls.pdf>

CWP. 2011. *Beaverdam Run, Baisman Run, and Oregon Branch SWAP* prepared for Baltimore County, Department of Environmental Protection and Sustainability. Retrieved from
<http://resources.baltimorecountymd.gov/Documents/Environment/Watersheds/swapareaivolume1.pdf>

CWP. 2014. *Loch Raven East Small Watershed Action Plan: Final Report* prepared for Baltimore County, Department of Environmental Protection and Sustainability. Retrieved from
<http://resources.baltimorecountymd.gov/Documents/Environment/Watersheds/2014/lochraveneastswapvol1.pdf>

CWP. 2015. *Upper Jones Falls SWAP* prepared for Baltimore County Department of Environmental Protection and Sustainability. Retrieved from
<http://resources.baltimorecountymd.gov/Documents/Environment/Watersheds/2015/AreaG/areagswapfulldoc1.pdf>

DNR (Maryland Department of Natural Resources). 2002a. *Bush River Watershed Characterization*. Annapolis, MD. Retrieved from
http://dnr.maryland.gov/waters/Documents/WRAS/br_char.pdf

DNR. 2002b. *Liberty Reservoir Watershed Characterization*. Retrieved from
<http://msa.maryland.gov/megafile/msa/speccol/sc5300/sc5339/000113/00200/0/002374/unrestricted/20063378e.pdf>

DNR. 2004. *Upper Monocacy Stream Corridor Assessment*. Baltimore, MD: DNR, Watershed Assessment and Targeting Division, Watershed Services. EPA (United States Environmental Protection Agency). 2010a. *Getting in Step: A Guide for Conducting Watershed Outreach Campaigns* (3rd ed.). (Publication No. EPA 841-B-10-002). Retrieved from
<https://cfpub.epa.gov/npstbx/files/getnstepguide.pdf>

EPA. 2010b. *Chesapeake Bay Total Maximum Daily Load for Nitrogen, Phosphorus and Sediment*. US EPA, Chesapeake Bay Program Office, Annapolis, MD. December 29, 2010. Retrieved from
<https://www.epa.gov/chesapeake-bay-tmdl/chesapeake-bay-tmdl-document>

EPA. 2016. Watershed Academy Web. Watershed Change Modules: Growth and Water Resources. Retrieved from <https://cfpub.epa.gov/watertrain/>

FC-DPW (Frederick County, Division of Public Works). 2004. *Lower Monocacy River Watershed Restoration Action Strategy*. Final Report. Retrieved from

FC-DPW. 2005. *Upper Monocacy River Watershed Restoration Action Strategy*. Retrieved from
<http://msa.maryland.gov/megafile/msa/speccol/sc5300/sc5339/000113/00200/0/002377/unrestricted/20063545e.pdf>

Gilbreath, A., Yee, D., & McKee, L. 2012. *Concentrations and Loads of Trace Contaminants in a Small Urban Tributary, San Francisco Bay, California*. A Technical Report of the Sources Pathways and Loading Work Group of the Regional Monitoring Program for Water Quality: Contribution No. 650. San Francisco Estuary Institute, Richmond, California.

Hoos, A. B., Robinson, J. A., Aycock, R. A., Knight, R. R., & Woodside, M. D. 2000. *Sources, Instream Transport, and Trends of Nitrogen, Phosphorus, and Sediment in the Lower Tennessee River Basin, 1980-96*. U.S. Geological Survey, Water-Resources Investigations Report 99-4139. Nashville, Tennessee.

HWG (Horsley Witten Group, Inc). 2012a. *Muddy Branch and Watts Branch Subwatersheds Implementation Plan* prepared for the Montgomery County Department of Environmental Protection. Retrieved from
<https://www.montgomerycountymd.gov/DEP/Resources/Files/ReportsandPubl>

ications/Water/Watershed%20studies/Muddy-Branch-Watts-Branch-Subwatersheds-Implementation-Plan-12.pdf

HWG. 2012b. *Great Seneca Subwatershed Implementation Plan* prepared for the Montgomery County Department of Environmental Protection. Retrieved from <https://www.montgomerycountymd.gov/DEP/Resources/Files/ReportsandPublications/Water/Watershed%20studies/Great-Seneca-subwatershed-implementation-plan-12.pdf>

KCI/CH2M Hill. 2011. *Patapsco Non-Tidal Watershed Assessment Comprehensive Summary Report* prepared for Anne Arundel County. August 2011 Final Report. Retrieved from http://dev.aacounty.org/departments/public-works/wprp/forms-and-publications/PNT_Report.pdf

Lazarick, L. 2013. 'Scoop the Poop Day in Maryland,' O'Malley declares, *MarylandReporter.com*, 27 August 2013. Retrieved from <http://marylandreporter.com/2013/08/27/scoop-the-poop-day-in-maryland-omalley-declares/#>

Leisenring, M., Clary, J., & Hobson, P. 2014. *International Stormwater Best Management Practices (BMP) Database Pollutant Category Statistical Summary Report: Solids, Bacteria, Nutrients, and Metals*. Retrieved from http://www.bmpdatabase.org/Docs/2014%20Water%20Quality%20Analysis%20Addendum/BMP%20Database%20Categorical_StatisticalSummaryReport_December2014.pdf

LimnoTech & Versar. 2012. *Patapsco Tidal and Bodkin Creek Watershed Assessment Comprehensive Summary Report* prepared for Anne Arundel County, Department of Public Works. Retrieved from http://dev.aacounty.org/departments/public-works/wprp/forms-and-publications/PTB_Summary_Report_Final_Main.pdf

LimnoTech & Versar. 2016. *Little Patuxent Watershed Assessment Comprehensive Summary Report* prepared for Anne Arundel County, Department of Public Works. Retrieved from http://www.aacounty.org/AACoOIT/WPRP/DRAFT%20Little_Patuxent_Summary_Report_20160219_with_Appendices-small.pdf

MAST (Maryland Assessment Scenario Tool). 2016. *MASTSource_Data_3_31_2016.xlsx*. <http://www.mastonline.org/Documentation.aspx>. Retrieved March 31, 2016.

MC-DEP (Montgomery County, Department of Environmental Protection). 1999. *Great Seneca Watershed Study*. Retrieved from <https://www.montgomerycountymd.gov/DEP/Resources/Files/ReportsandPublications/Water/Watershed%20studies/Seneca%20Creek/Great-Seneca-Creek-watershed-study-99.pdf>

MC-DEP. 2012. *Anacostia Watershed Implementation Plan*. Retrieved from www.montgomerycountymd.gov/DEP/Resources/Files/ReportsandPublications/Water/Watershed%20studies/Anacostia/AnacostiaRiverWIP_FINAL.pdf

MDE (Maryland Department of the Environment). 2006. *Prioritizing Sites for Wetland Restoration, Mitigation, and Preservation in Maryland*. Version: May 2006. Baltimore, MD: Maryland Department of the Environment, Wetlands and Waterways Program. Retrieved from http://www.mde.state.md.us/programs/Water/WetlandsandWaterways/AboutWetlands/Pages/Programs/WaterPrograms/Wetlands_Waterways/about_wetlands/priordownloads.aspx

MDE. 2008a. Revised Final *Total Maximum Daily Load of Sediment in the Antietam Creek Watershed, Washington County, Maryland*. Retrieved from http://mde.maryland.gov/programs/Water/TMDL/ApprovedFinalTMDLs/Pages/Programs/WaterPrograms/TMDL/approvedfinaltmdl/tmdl_final_antietam_creek_sediment.aspx

MDE. 2008b. Final *Total Maximum Daily Load of Sediment in the Conococheague Creek Watershed, Washington County, Maryland*. Retrieved from http://www.mde.state.md.us/programs/Water/TMDL/ApprovedFinalTMDLs/Pages/Programs/WaterPrograms/TMDL/approvedfinaltmdl/tmdl_final_conococheague_creek_sediment.aspx

MDE. 2008c. Final *Total Maximum Daily Loads of Phosphorus and Sediments for Triadelphia Reservoir (Brighton Dam) and Total Maximum Daily Loads of Phosphorus for the Rocky Gorge Reservoir, Howard, Montgomery, and Prince George's Counties, Maryland*. Retrieved from <http://www.mde.state.md.us/programs/Water/TMDL/ApprovedFinalTMDLs/Pa>

ges/Programs/WaterPrograms/TMDL/approvedfinaltmdl/tmdl_pax_res_p_sed.aspx

MDE. 2009a. *2000 Maryland Stormwater Design Manual Volumes I & II* (Effective October 2000, Revised May 2009). Retrieved from http://www.mde.state.md.us/programs/Water/StormwaterManagementProgram/MarylandStormwaterDesignManual/Pages/Programs/WaterPrograms/SedimentandStormwater/stormwater_design/index.aspx

MDE. 2009b. *Final Total Maximum Daily Loads of Fecal Bacteria for Loch Raven Reservoir Watershed in Baltimore, Carroll and Harford Counties, Maryland*. Retrieved from http://www.mde.state.md.us/programs/Water/TMDL/ApprovedFinalTMDLs/Pages/Programs/WaterPrograms/TMDL/approvedfinaltmdl/tmdl_final_loch_raven_reservoir_bacteria.aspx

MDE. 2009c. *Final Total Maximum Daily Loads of Fecal Bacteria for the Patapsco River Lower North Branch Basin in Anne Arundel, Baltimore, Carroll, and Howard Counties, and Baltimore City Maryland*. Retrieved from http://www.mde.state.md.us/programs/Water/TMDL/ApprovedFinalTMDLs/Pages/Programs/WaterPrograms/TMDL/approvedfinaltmdl/tmdl_final_patapsco_lnb_bacteria.aspx

MDE. 2009d. *Revised Final Total Maximum Daily Load of Sediment in the Catoctin Watershed, Frederick County, Maryland*. Retrieved from http://www.mde.state.md.us/programs/Water/TMDL/ApprovedFinalTMDLs/Pages/Programs/WaterPrograms/TMDL/approvedfinaltmdl/tmdl_final_catoctin_creek_sediment.aspx

MDE. 2009e. *Final Total Maximum Daily Load of Sediment in the Double Pipe Creek Watershed, Frederick and Carroll Counties, Maryland*. Retrieved from http://www.mde.state.md.us/programs/Water/TMDL/ApprovedFinalTMDLs/Pages/Programs/WaterPrograms/TMDL/approvedfinaltmdl/tmdl_final_doublepipe_creek_sediment.aspx

MDE. 2009f. *Final Total Maximum Daily Load of Sediment in the Lower Monocacy River Watershed, Frederick, Carroll, and Montgomery Counties, Maryland*. Retrieved from http://www.mde.state.md.us/programs/Water/TMDL/ApprovedFinalTMDLs/Pages/Programs/WaterPrograms/TMDL/approvedfinaltmdl/tmdl_final_lower_monocacy_sediment.aspx

ges/Programs/WaterPrograms/TMDL/approvedfinaltmdl/tmdl_final_lower_monocacy_sediment.aspx

MDE. 2009g. *Final Total Maximum Daily Load of Sediment in the Upper Monocacy River Watershed, Frederick and Carroll Counties, Maryland*. Retrieved from http://www.mde.state.md.us/programs/Water/TMDL/ApprovedFinalTMDLs/Pages/Programs/WaterPrograms/TMDL/approvedfinaltmdl/tmdl_final_uppermonocacy_sediment.aspx

MDE. 2010a. *Total Maximum Daily Loads of Trash for the Anacostia River Watershed, Montgomery and Prince George's Counties, Maryland and the District of Columbia*. Retrieved from: http://www.mde.state.md.us/programs/Water/TMDL/ApprovedFinalTMDLs/Documents/www.mde.state.md.us/assets/document/Anacostia_Trash_TMDL_081010_final.pdf

MDE. 2010b. *Final Total Maximum Daily Load of Sediment in the Gwynns Falls Watershed, Baltimore City and Baltimore County, Maryland*. Retrieved from http://www.mde.state.md.us/programs/Water/TMDL/ApprovedFinalTMDLs/Pages/Programs/WaterPrograms/TMDL/approvedfinaltmdl/tmdl_final_gwynns_falls_sediment.aspx

MDE. 2011a. *Final Total Maximum Daily Load of Polychlorinated Biphenyls in the Northeast and Northwest Branches of the Nontidal Anacostia River, Montgomery and Prince George's County, Maryland*. Retrieved from http://www.mde.state.md.us/programs/Water/TMDL/ApprovedFinalTMDLs/Pages/TMDL_Final_Nontidal_Anacostia_PCBs.aspx

MDE. 2011b. *Final Total Maximum Daily Loads of Bacteria for Impaired Recreational Areas in Marley Creek and Furnace Creek of Baltimore Harbor Basin in Anne Arundel County, Maryland*. Retrieved from http://www.mde.state.md.us/programs/Water/TMDL/ApprovedFinalTMDLs/Pages/TMDL_final_Marley.aspx

MDE. 2011c. *Final Total Maximum Daily Load of Sediment in the Bynum Run Watershed, Harford County, Maryland*. Retrieved from http://www.mde.state.md.us/programs/Water/TMDL/ApprovedFinalTMDLs/Pages/TMDL_Final_BynumRun_Sediment.aspx

MDE. 2011d. Final *Total Maximum Daily Load of Sediment in the Cabin John Creek Watershed, Montgomery County, Maryland*. Retrieved from http://www.mde.state.md.us/programs/Water/TMDL/ApprovedFinalTMDLs/Pages/TMDL_Final_CabinJohnCreek_Sediment.aspx

MDE. 2011e. Final *Total Maximum Daily Load of Sediment in the Jones Falls Watershed, Baltimore City and Baltimore County, Maryland*. Retrieved from http://www.mde.state.md.us/programs/Water/TMDL/ApprovedFinalTMDLs/Pages/TMDL_Final_Jones_Falls_Sediment.aspx

MDE. 2011f. Final *Total Maximum Daily Load of Sediment in the Little Patuxent River Watershed, Howard and Anne Arundel Counties, Maryland*. Retrieved from http://www.mde.state.md.us/programs/Water/TMDL/ApprovedFinalTMDLs/Pages/TMDL_Final_LittlePAX_Sediment.aspx

MDE. 2011g. Final *Total Maximum Daily Load of Sediment in the Patapsco River Lower North Branch Watershed, Baltimore City and Baltimore, Howard, Carroll and Anne Arundel Counties, Maryland*. Retrieved from http://www.mde.state.md.us/programs/Water/TMDL/ApprovedFinalTMDLs/Pages/TMDL_Final_PatapscoLNB_Sediment.aspx

MDE. 2011h. Final *Total Maximum Daily Loads of Fecal Bacteria for the Patuxent River Upper Basin in Anne Arundel and Prince George's Counties, Maryland*. Retrieved from http://www.mde.state.md.us/programs/Water/TMDL/ApprovedFinalTMDLs/Pages/TMDL_final_Patuxent_River_Upper_bacteria.aspx

MDE. 2011i. Final *Total Maximum Daily Load of Sediment in the Patuxent River Upper Watershed, Anne Arundel, Howard and Prince George's Counties, Maryland*. Retrieved from http://www.mde.state.md.us/programs/Water/TMDL/ApprovedFinalTMDLs/Pages/TMDL_Final_PaxUpper_Sediment.aspx

MDE. 2011j. Final *Total Maximum Daily Load of Sediment in the Rock Creek Watershed, Montgomery County, Maryland*. Retrieved from http://www.mde.state.md.us/programs/Water/TMDL/ApprovedFinalTMDLs/Pages/TMDL_final_Rock_Creek_sed.aspx

MDE. 2011k. Final *Total Maximum Daily Load of Sediment in the Seneca Creek Watershed, Montgomery County, Maryland*. Retrieved from http://www.mde.state.md.us/programs/Water/TMDL/ApprovedFinalTMDLs/Pages/TMDL_Final_Seneca_Creek_sed.aspx

MDE. 2012a. Final *Total Maximum Daily Load of Polychlorinated Biphenyls in Back River Oligohaline Tidal Chesapeake Bay Segment, Maryland*. Retrieved from http://www.mde.state.md.us/programs/Water/TMDL/ApprovedFinalTMDLs/Pages/TMDL_Final_BackRiver_PCBs.aspx

MDE. 2012b. Final *Total Maximum Daily Load of Polychlorinated Biphenyls in Baltimore Harbor, Curtis Creek/Bay, and Bear Creek Portions of Patapsco River Mesohaline Tidal Chesapeake Bay Segment, Maryland*. Retrieved from http://www.mde.state.md.us/programs/Water/TMDL/ApprovedFinalTMDLs/Pages/TMDL_Final_BaltHarbor_PCBs.aspx

MDE. 2012c. Final *Watershed Report for Biological Impairment of the Catoctin Creek Watershed in Frederick County, Maryland Biological Stressor Identification Analysis Results and Interpretation*. Retrieved from http://www.mde.state.md.us/programs/Water/TMDL/Documents/BSID_Reports/Catoctin_Creek_BSID_Report_final.pdf

MDE. 2012d. Final *Watershed Report for Biological Impairment of the Liberty Reservoir Watershed in Baltimore and Carroll Counties, Maryland, Biological Stressor Identification Analysis Results and Interpretation*. Retrieved from http://www.mde.state.md.us/programs/Water/TMDL/Documents/BSID_Report_s/LibertyRes_BSID_25Jan2012_final.pdf

MDE. 2012e. Final *Total Maximum Daily Load of Sediment in the Potomac River Montgomery County Watershed, Montgomery and Frederick Counties, Maryland*. Retrieved from http://www.mde.state.md.us/programs/Water/TMDL/ApprovedFinalTMDLs/Pages/TMDL_Final_PotomacMOCnty_Sediment.aspx

MDE. 2013a. Final *Total Maximum Daily Load of Phosphorus in the Antietam Creek Watershed, Washington County, Maryland*. Retrieved from http://www.mde.state.md.us/programs/Water/TMDL/ApprovedFinalTMDLs/Pages/TMDL_final_Antietam_Creek_Nutrient.aspx

MDE. 2013b. Final *Total Maximum Daily Load of Phosphorus in the Catoctin Creek Watershed, Frederick County, Maryland*. Retrieved from http://www.mde.state.md.us/programs/Water/TMDL/ApprovedFinalTMDLs/Pages/TMDL_final_Catoctin_Creek_nutrient.aspx

MDE. 2013c. Final *Total Maximum Daily Load of Phosphorus in the Double Pipe Creek Watershed, Frederick and Carroll Counties, Maryland*. Retrieved from http://www.mde.state.md.us/programs/Water/TMDL/ApprovedFinalTMDLs/Pages/tmdl_final_double_pipe_creek_phosphorus.aspx

MDE. 2013d. Final *Total Maximum Daily Load of Phosphorus in the Lower Monocacy River Watershed, Frederick, Carroll, and Montgomery Counties, Maryland*. Retrieved from http://www.mde.state.md.us/programs/Water/TMDL/ApprovedFinalTMDLs/Pages/tmdl_final_lower_monocacy_river_phosphorus.aspx

MDE. 2013e. Final *Total Maximum Daily Load of Phosphorus in the Rock Creek Watershed, Montgomery County, Maryland*. Retrieved from http://www.mde.state.md.us/programs/Water/TMDL/ApprovedFinalTMDLs/Pages/TMDL_final_Rock_Creek_Nutrient.aspx

MDE. 2013f. Final *Total Maximum Daily Load of Phosphorus in the Upper Monocacy River Watershed, Frederick and Carroll Counties, Maryland*. Retrieved from http://www.mde.state.md.us/programs/Water/TMDL/ApprovedFinalTMDLs/Pages/tmdl_final_upper_monocacy_river_phosphorus.aspx

MDE. 2014a. *Accounting for Stormwater Wasteload Allocations and Impervious Acres Treated: Guidance for National Pollutant Discharge Elimination System Stormwater Permits*. Retrieved from <http://www.mde.state.md.us/programs/Water/StormwaterManagementProgram/Documents/NPDES%20MS4%20Guidance%20August%2018%202014.pdf>

MDE. 2014b. *Guidance for Developing Stormwater Wasteload Allocation Implementation Plans for Nutrient, and Sediment Total Maximum Daily Loads*. Retrieved from http://www.mde.state.md.us/programs/Water/TMDL/DataCenter/Documents/Nutrient%20Sediment%20Implementation%20Plan%20Guidance_final_111814.pdf

MDE. 2014c. *Guidance for Developing a Stormwater Wasteload Allocation Implementation Plan for Bacteria Total Maximum Daily Loads*. Retrieved from http://www.mde.state.md.us/programs/Water/TMDL/DataCenter/Documents/Bacteria%20Implementation%20Plan%20Guidance_051414_clean.pdf

MDE. 2014d. *General Guidance for Developing a Stormwater Wasteload Allocation (SW-WLA) Implementation Plan*. Retrieved from http://www.mde.state.md.us/programs/Water/TMDL/DataCenter/Documents/General_Implementation_Plan_Guidance_clean.pdf

MDE. 2014e. Comment Response Document regarding the Final *Total Maximum Daily Load of Polychlorinated Biphenyls in Lake Roland of Jones Falls Watershed in Baltimore County and Baltimore City, Maryland*. Retrieved from http://mde.maryland.gov/programs/Water/TMDL/ApprovedFinalTMDLs/Pages/tmdl_final_lake_roland_pcb.aspx

MDE. 2014f. *Guidance for Developing Stormwater Wasteload Allocation Implementation Plans for Trash/Debris Total Maximum Daily Loads*. Retrieved from http://www.mde.state.md.us/programs/Water/TMDL/DataCenter/Documents/Trash%20Implementation%20Plan%20Guidance_052014.pdf

MDE. 2015a. *Maryland's Final 2014 Integrated Report of Surface Water Quality*. Retrieved from <http://mde.maryland.gov/programs/Water/TMDL/Integrated303dReports/Pages/2014IR.aspx>

MDE. 2015b. Final *Total Maximum Daily Load of Polychlorinated Biphenyls in the Magothy River Mesohaline Chesapeake Bay Tidal Segment, Anne Arundel County, Maryland*. Retrieved from http://www.mde.state.md.us/programs/Water/TMDL/ApprovedFinalTMDLs/Pages/tmdl_final_magothy_river_pcb.aspx

MDE. 2015c. Final *Total Maximum Daily Loads of Trash and Debris for Middle Branch and Northwest Branch Portions of Patapsco River Mesohaline Tidal Chesapeake Bay Segment, Baltimore City and County, Maryland*. Retrieved from http://www.mde.state.md.us/programs/Water/TMDL/ApprovedFinalTMDLs/Pages/TMDL_final_BaltimoreHarbor_trash.aspx

MDE. 2016a. Final *Total Maximum Daily Load of Polychlorinated Biphenyls in the Bush River Oligohaline Segment, Harford County, Maryland*. Retrieved from http://mde.maryland.gov/programs/water/TMDL/ApprovedFinalTMDLs/Pages/mdl_final_bush_river_pcb.aspx

MDE. 2016b. Final *Total Maximum Daily Load of Sediment in the Swan Creek Watershed, Harford County, Maryland*. Retrieved from http://mde.maryland.gov/programs/water/TMDL/ApprovedFinalTMDLs/Pages/TMDL_Final_SwanCreek_sediment.aspx

MDE. 2016c. Final *Total Maximum Daily Load of Polychlorinated Biphenyls in the Gunpowder River and Bird River Subsegments of the Gunpowder River Oligohaline Segment, Baltimore County and Harford County, Maryland*. Retrieved from http://mde.maryland.gov/programs/water/TMDL/ApprovedFinalTMDLs/Pages/mdl_final_gunpowder_bird_pcb.aspx

MDE. 2016d. Draft *Maryland Trading and Offset Policy and Guidance Manual Chesapeake Bay Watershed*. Retrieved from <http://www.mde.state.md.us/programs/water/pages/wqtac.aspx>

MDP (Maryland Department of Planning). 2010. Land Use/Land Cover. Retrieved from <http://www.mdp.state.md.us/OurWork/landuse.shtml>

PACD (Pennsylvania Association of Conservation Districts). 2009. *Stream Bank Fencing and Stream Crossings: We All Live Downstream*. Retrieved from <http://pacd.org/webfresh/wp-content/uploads/2009/09/StreambankFencing1.pdf>

PB (Parsons Brinckerhoff). 2010. *Tidal Back River Small Watershed Action Plan (SWAP)* prepared for Baltimore County, Department of Environmental Protection and Resource Management. Retrieved from <http://resources.baltimorecountymd.gov/Documents/Environment/Watersheds/tbrswapvol1.pdf>

PB. 2013. *Middle Gwynns Falls SWAP* prepared for Baltimore County, Department of Environmental Protection and Sustainability. Retrieved from <http://resources.baltimorecountymd.gov/Documents/Environment/Watersheds/2013/swapmgfareacvol131113.pdf>

PB. 2015. *Loch Raven North SWAP* prepared for Baltimore County, Department of Environmental Protection and Sustainability. Retrieved from <http://resources.baltimorecountymd.gov/Documents/Environment/Watersheds/2016/lochravennorth/Irnswapvol1complete.pdf>

PGC-DoE (Prince George's County, Department of the Environment). 2014. Draft *Implementation Plan for the Anacostia River Watershed Trash Total Maximum Daily Load in Prince George's County*, PGC-DoE, Largo, MD.

PGC-DoE. 2015. Restoration Plan for PCB-Impacted Water Bodies in Prince George's County. Retrieved from <http://pgcdoe.net/pgcountyfactsheet/Areas/Factsheet/Documents/Plans/PCB%20Restoration%20Plan%2020151228-combined.pdf>

Pitt, R., Maestre, A., & Morquecho, R. 2004. *The National Stormwater Quality Database (NSQD, version 1.1)* Retrieved from <http://rpitt.eng.ua.edu/Research/ms4/Paper/Mainms4paper.html>

S&S Planning and Design. 2012. *Tiber-Hudson and Plumtree Branch Stream Corridor Assessment* prepared for the Howard County Department of Public Works - Bureau of Environmental Services - Stormwater Management Division by S&S Planning and Design, LLC. Cumberland, MD. Retrieved from <http://dnncquh0w.azurewebsites.net/LinkClick.aspx?fileticket=yHQ87JE3FGk%3d&portalid=0>

SFEI (San Francisco Estuary Institute). 2010. *A BMP Tool Box for Reducing Polychlorinated Biphenyls (PCBs) and Mercury (Hg) in Municipal Stormwater*. Retrieved from <http://www.nemallc.com/Resources/Documents/BMP%20Performance/pcb%20and%20hg%20bmp%20toolbox%202010.pdf>

Schueler, T. 2000. Microbes in Urban Watersheds: Concentrations, Sources, & Pathways. *Watershed Protection Techniques*, 3(1), 554-565.

Schueler, T. 2011. *Nutrient Accounting Methods to Document Local Stormwater Reduction in the Chesapeake Bay Watershed*. CSN Technical Bulletin No. 9. Chesapeake Stormwater Network, Ellicott City, MD.

Schueler, T., & Youngk, A. 2015. *Potential Benefits of Nutrient and Sediment Practices to Reduce Toxic Contaminants in the Chesapeake Bay Watershed*.

Part 1: *Removal of Urban Toxic Contaminants*. Final Report. Chesapeake Stormwater Network, Ellicott City, MD.

Schueler, T. R. 1987. *Controlling Urban Runoff: A Practical Manual for Planning and Designing Urban BMPs*. Washington, DC: Metropolitan Washington Council of Governments.

Tetra-Tech. 2009. An Assessment of Stormwater Management Retrofit and Stream Restoration Opportunities in Bennett Creek Watershed, Frederick County, Maryland

Tetra-Tech. 2014. Watershed Existing Condition Report for the Upper Patuxent River, Western Branch, and Rocky Gorge Reservoir Watershed prepared for the Prince George's County Department of the Environment. Retrieved from http://pgcdoe.net/pgcountyfactsheet/Areas/Factsheet/Documents/Reports/WE_CR_Patuxent_20141231.pdf

Tetra-Tech. 2015. *Restoration Plan for the Upper Patuxent River and Rocky Gorge Reservoir Watersheds in Prince George's County* prepared for the Prince George's County Department of Environment. Retrieved from <http://pgcdoe.net/pgcountyfactsheet/Areas/Factsheet/Documents/Plans/Restoration%20Plan%20Upper%20Patuxent%2020151228-combined.pdf>

WC-DPW (Washington County, Division of Public Works). 2014. 2013 NPDES MS4 Annual Report. Retrieved from https://www.washco-md.net/DEM/swm/pdfs/swm_2013_NPDES_AnnualReport.pdf

WCSCD (Washington County Soil Conservation District), Board of County Commissioners of Washington County, Antietam Creek Watershed Alliance, Canaan Valley Institute, & MDE. 2012. *Antietam Creek Watershed Restoration Plan*. Retrieved from <http://www.mde.state.md.us/programs/Water/319NonPointSource/Pages/AntietamCreekWRP.aspx>

USGS (United States Geological Survey). 2016. The USGS Water Science School: What is a watershed? Retrieved from <http://water.usgs.gov/edu/watershed.html>

URS. 2013. *Middle Great Seneca Creek Watershed Study* prepared for City of Gaithersburg. Retrieved from <http://www.gaithersburgmd.gov/services/environmental-services>

URS. 2014a. *Small Watershed Action Plan for Declaration Run and Riverside Watersheds* prepared for Harford County Department of Public Works. Retrieved from <http://www.harfordcountymd.gov/ArchiveCenter/ViewFile/Item/332>

URS. 2014b. *Muddy Branch Watershed Study* prepared for the City of Gaithersburg. Retrieved from <http://www.gaithersburgmd.gov/services/environmental-services>

URS. 2014c. *Lower Great Seneca Watershed Study* prepared for City of Gaithersburg. Retrieved from <http://www.gaithersburgmd.gov/services/environmental-services>

Vaughn, C. 2012. The Scoop on Poop: Pet Waste a Major Polluter of MD Waterways, *Capital News Service*, 25 October 2012. Retrieved from <http://cnsmaryland.org/2012/10/25/the-scoop-on-poop-pet-waste-a-major-polluter-of-md-waterways/>

Versar. 2011a. *Upper Potomac Direct Pre-Assessment Report* prepared for Montgomery County, Department of Environmental Protection. Retrieved from <https://www.montgomerycountymd.gov/DEP/Resources/Files/ReportsandPublications/Water/Watershed%20studies/Upper-Potomac-Direct-Pre-Assessment-Report-11.pdf>

Versar. 2011b. *Lower Potomac Direct Pre-Assessment Report* prepared for Montgomery County, Department of Environmental Protection. Retrieved from <https://www.montgomerycountymd.gov/DEP/Resources/Files/ReportsandPublications/Water/Watershed%20studies/Lower-Potomac-Direct-Pre-Assessment-Report-11.pdf>

Versar. 2011c. *Dry Seneca & Little Seneca Creek Pre-Assessment Report* prepared for Montgomery County Department of Environmental Protection. Retrieved from <https://www.montgomerycountymd.gov/DEP/Resources/Files/ReportsandPublications/Water/Watershed%20studies/Seneca%20Creek/Dry-Seneca-Creek-and-Little-Seneca-Creek-watershed-pre-assessment-report-11.pdf>

Versar. 2012a. *Cabin John Creek Implementation Plan* prepared for Montgomery County, Department of Environmental Protection. Retrieved from <https://www.montgomerycountymd.gov/DEP/Resources/Files/ReportsandPublications/Water/Watershed%20studies/Cabin-John-Creek-implementation-Plan-12.pdf>

Versar. 2012b. *Lower Patapsco River Small Watershed Action Plan*. Final Report. Vols. 1 and 2 prepared for the Baltimore County, Department of Environmental Protection and Sustainability. Retrieved from <http://resources.baltimorecountymd.gov/Documents/Environment/Watersheds/lowerpatapscoswapvol1opt.pdf>

Versar. 2014. *Bird River Small Watershed Action Plan*. Vols. 1 and 2 prepared for the Baltimore County, Department of Environmental Protection and Sustainability. Retrieved from <http://www.baltimorecountymd.gov/Agencies/environment/watersheds/birdmain.html>

Versar. 2015a. *Frederick County Stream Survey: 2014 Countywide Results* prepared for Frederick County, Office of Sustainability and Environmental Resources.

Versar. 2015b. *Little Patuxent River Watershed Assessment* prepared for the Howard County Department of Public Works.