PRINCE GEORGE'S COUNTY | CORVIAS SOLUTIONS

CLEAN WATER PARTNERSHIP

Prince George's County's Approach to

MEETING REGULATORY STORMWATER MANAGEMENT REQUIREMENTS

USING A COMMUNITY-BASED PUBLIC-PRIVATE PARTNERSHIP BUSINESS MODEL

APRIL 2016

Prince George's County
DEPARTMENT OF THE ENVIRONMENT

STORMWATER MANAGEMENT DIVISION

ACKNOWLEDGMENTS

The success of Prince George's County's Clean Water Partnership (CWP), a groundbreaking community-based public-private partnership (CBP3) program, is due to a collective effort of the Prince George's County's Department of Environment (DOE), Department of Public Works and Transportation (DPW&T), Department of Permitting, Inspection and Enforcement (DPIE), the County Executive, the County Council Members, and other experts who were consulted during the process. Thanks to the efforts of ***Mr. Adam Ortiz***, the Director of DOE, whose vision to interweave the County's environmental goals with economic and education growth led to the evolution of CWP. It was ***Mr. Larry Coffman***, the Deputy Director of DOE from 2012 to 2015, who took Mr. Ortiz's idea and ensured it was transformed into a program that would suit Prince George's County's needs.

The DOE is grateful for the support and guidance of County Executive ***Mr. Rushern L. Baker III*** and the County Council consisting of:

- ***Ms. Mary A. Lehman*** (District 1)
- ***Ms. Deni Taveras*** (District 2)
- ***Ms. Dannielle M. Glaros*** (District 3)
- ***Mr. Todd M. Turner*** (District 4)
- ***Ms. Andrea C. Harrison*** (District 5)
- ***Mr. Derrick Leon Davis*** (District 6)
- ***Ms. Karen R. Toles*** (District 7)
- ***Mr. Obie Patterson*** (District 8)
- ***Mr. Mel Franklin*** (District 9)

The County Executive and Council saw the economic development, environmental restoration, and educational potential in the program proposed by Mr. Ortiz and Mr. Coffman and unanimously approved the program. Technical support was provided by U.S. Environmental Protection Agency (EPA) Region 3 in development of this program, especially ***Ms. Dominique Lueckenhoff***, Deputy Director, Water Protection Division.

At DOE, Mr. Ortiz was supported by ***Dr. Mow Soung Cheng*** (retired), Special Assistant to the Director; ***Mr. Jeff M. DeHan***, Associate Director of the Stormwater Management Division; ***Mr. Jerry Maldonado***, Section Head of Water Quality and Compliance, Stormwater Management Division; and ***Mr. Daniel O. Rybak***, Section Head, Construction, for initial technical analyses and investigations. The DOE staff were supported by personnel from DPW&T represented by ***Ms. Gwendolyn Clerkley***. The County also engaged URS Corporation (now AECOM) led by ***Ms. Mary Roman*** and subject matter experts on alternative financing, ***Mr. George Tapas*** and ***Mr. Chris Hanson***, who provided technical guidance during the proposal and contracting phases.

It was through the experienced guidance of ***Mr. Thomas Himler***, Deputy Chief Administrative Officer, Budget, Finance and Administration, that DOE could successfully navigate through the County's financial regulations when developing the CWP. Thanks to ***Mr. Roland Jones***, Director of Office of Central Services

and the County's Procurement Officer, ***Mr. Josue Pierre***, Deputy County Attorney, and ***Ms. Barbara Manley*** from the County's Contract Administration and Procurement Division for their efforts in representing the County's interests and in developing the contract with Corvias.

The DOE selected Corvias Solutions LLC, an appropriate partner that would help the County achieve its economic, environmental, and educational goals. The Corvias team, represented by ***Mr. Greg Cannito*** and ***Mr. Tim Toohey,*** offered a great partnership and a promise to meet the County's vision.

Mr. Jim Lyons, the CWP Program Manager at DOE, has been leading and managing the CWP since its establishment, and it is through his guidance that this document was developed so that other communities can learn from Prince George's County's experience when considering their own CBP3 programs. The document was authored by ***Ms. Mary Roman*** and ***Ms. Manasa Damera*** of AECOM.

This publication was funded through a Green Streets, Green Jobs, Green Towns (G3) grant from the Chesapeake Bay Trust (Grant Number 11921) and EPA Region 3 Water Protection Division. The Prince George's County Department of Environment wishes to acknowledge the support of the U.S. EPA Region 3 Water Protection Division, the Maryland Department of Natural Resources, and the Chesapeake Bay Trust.

The County is already seeing improvements since the CWP's establishment, and it is only through the efforts of all DOE staff and Corvias, and support from staff at DPIE and DPW&T, that it will reach all the envisioned milestones.

EXECUTIVE SUMMARY

Prince George's County is implementing hundreds of water quality improvement projects to meet state and federal regulatory water quality requirements, with deadlines as soon as 2017 to remove pollutants from stormwater runoff from currently untreated impervious areas. The magnitude of stormwater treatment needs and compressed timeframe to complete the requirements called for a more efficient project delivery system. The County therefore determined it needed a business model to accelerate implementation, increase affordability, improve program administration, and better address long-term operation and maintenance requirements, as well as promote social and economic development.

The Clean Water Partnership (CWP), created by the County's Department of Environment (DOE), is an innovative business model in the field of stormwater management that aims to meet regulatory requirements by leveraging private-sector resources and promoting operational efficiencies and innovation in design, construction, and maintenance. The CWP was designed to create "green jobs" that preserve and restore environmental quality, expand the County's small businesses, promote educational opportunities for students by collaborating with local colleges and universities, and develop partnerships with faith-based institutions and nonprofit agencies to achieve the County's goals.

The CWP is a Design-Build-Operate-Maintain community-based public-private partnership (CBP3) business model contract between the County

and private partner Corvias Prince George's County Stormwater Partners LLC (Corvias). Corvias is the program manager in partnership with the County, collaborating on the administration and decision-making process, and thus creating transparency in the program. Corvias is responsible for implementing best management practice (BMP) projects and their maintenance throughout their 30-year lifecycle as approved by DOE. The County provides funds to implement projects through the Clean Water Act Fee. The goals for implementing BMPs are listed in the Master Program Agreement, and the goals for the long-term maintenance of BMPs are listed in the Master Maintenance Agreement. Corvias is supported by contractors approved by the County for design, construction, and maintenance of BMPs. Corvias receives compensation, and potentially incentive fees, based on performance goals, which include socioeconomic goals. Corvias is responsible for maintaining the BMPs for 30 years.

With Corvias engaging with private residents, local businesses, homeowners associations, faith-based institutions, nonprofits, nongovernmental organizations, schools, and towns and cities, the County gains important partners for the environmental stewardship of its resources to efficiently achieve aggressive regulatory goals and continue to improve the water quality in the Chesapeake Bay.

"We determined that it is riskier to continue doing things the same way (regarding stormwater management compliance) versus trying something different."

— Mr. Adam Ortiz
Director, Prince George's County DOE

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ACRONYMS

AWS	Anacostia Watershed Society
BBO	Build, Buy, Operate
BMP	Best Management Practice
BOE	Board of Education
BOO	Build, Own, Operate
BOT	Build, Operate, Transfer
CBP3	Community-Based Public-Private Partnership
CIP	Capital Improvement Program
CWA	Clean Water Act
CWP	Clean Water Partnership
DB	Design, Build
DBFOM	Design, Build, Finance, Operate, and Maintain
DBFOMT	Design, Build, Finance, Operate, Maintain, Transfer
DBM	Design, Build, Maintain
DBO	Design, Build, Operate
DBOM	Design, Build, Operate, and Maintain
DOD	U.S. Department of Defense
DOE	Prince George's County's Department of the Environment
DPIE	Department of Permitting, Inspection and Enforcement
DPW&T	Department of Public Works and Transportation
EPA	U.S. Environmental Protection Agency
GI	Green Infrastructure
GIS	geographic information system

HOA	homeowners association
LID	Low Impact Development
LSMWVBE	Local, Small, Minority, Women, Veteran and Disadvantaged Business Enterprise
MBE	Minority Business Enterprise
MDE	Maryland Department of the Environment
MHPI	Military Housing Privatization Initiative
MMA	Master Maintenance Agreement
MOU	memorandum of understanding
MPA	Master Program Agreement
MS4	Municipal Separate Storm Sewer System
NDC	Neighborhood Design Center
NPDES	National Pollutant Discharge Elimination System
O&M	operations and maintenance
OM&M	Operation, Maintenance, and Management
P3	Public-Private Partnership
RFQ	Request for Qualifications
ROW	right-of-way
TMDL	Total Maximum Daily Load
TN	Total Nitrogen
TP	Total Phosphorus
TSS	Total Suspended Solids
UMD	University of Maryland
WIP	Watershed Implementation Plan

INTRODUCTION

The Clean Water Partnership (CWP) is an innovative community-based public-private partnership (CBP3) program adopted by Prince George's County, Maryland to modernize and retrofit its stormwater infrastructure. The CWP was set up to meet the goals of the U.S. Environmental Protection Agency's (EPA's) Chesapeake Bay Total Maximum Daily Load (TMDL) requirements by 2025 in a cost-effective way while furthering the County's commitment to promoting economic development, improving education opportunities, and restoring and protecting the environment. The Prince George's County Department of the Environment (DOE), with the help of the Department of Public Works and Transportation (DPW&T) and Department of Permitting, Inspection and Enforcement (DPIE), spearheaded this partnership to facilitate the design, installation, maintenance, and monitoring of stormwater management facilities to treat the stormwater runoff from approximately 4,000 acres of untreated urban impervious areas over the next 30 years.

The CWP follows a Design-Build-Operate-Maintain CBP3 process, which is a breakthrough from the County's traditional business model of Design-Bid-Build, which consists of individual contracting phases for design, construction, and maintenance. The CWP was developed in order to reduce the cost of stormwater management retrofits, reduce the implementation timeframe, promote innovative technologies in the field of stormwater management, and apportion the financial and legal risks while promoting a green economy to preserve County resources and encourage sustainability.

Overview and purpose of this document

This document describes the creation of the Prince George's County's CWP and the drivers that influenced program development. The operational structure of the CWP, responsibilities of the entities involved, and anticipated benefits from the program are also outlined. In addition, the role of partners such as schools, homeowners associations (HOAs), and businesses whose direct or indirect contributions would result in the development of a successful CWP is described.

FAQ

WHAT IS A STORMWATER MANAGEMENT RETROFIT?

Adding a Best Management Practice (BMP) or upgrading an existing BMP to treat stormwater runoff from developed areas that presently have no qualitative stormwater controls.

WHAT IS A BMP?

A BMP is a treatment technique adopted to reduce pollutants being discharged into waterbodies through filtering, infiltration, or other means. BMPs are used to minimize the adverse impacts of urbanization on natural resources.

WHAT THIS DOCUMENT PROVIDES:

- ✓ An insight into Prince George's County's experience in setting up the Clean Water Partnership (CWP) program
- ✓ A description of anticipated benefits from the CWP
- ✓ A description of the roles played by Prince George's County's partners
- ✓ Items to consider before setting up a public-private partnership (P3) program for your community

The purpose of this document is to share Prince George's County's experiences in implementing a CBP3 in the stormwater management sector with other municipalities who may be considering a similar approach for meeting stormwater or other regulatory requirements. It describes items to consider for municipalities who want to adopt a P3 for implementing large stormwater infrastructure projects.

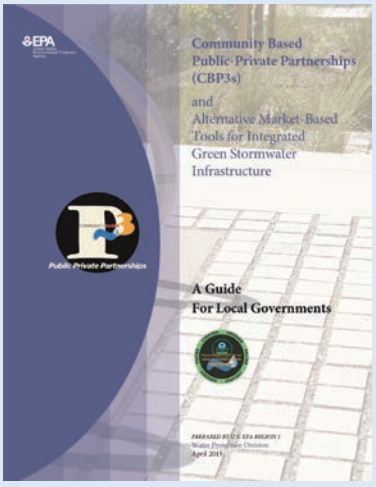
Additional resources

In recent years, EPA Region 3 and has been championing the implementation of stormwater CBP3s as an alternative for restoring the environment and meeting regulatory requirements. More detailed information on CBP3s can be found in the EPA publication Community-Based Public-Private Partnerships and Alternative Market-Based Tools for Integrated Green Stormwater Infrastructure, April 2015.

FAQ

WHERE CAN I FIND ADDITIONAL INFORMATION ON P3?

Available at:
http://www.epa.gov/sites/production/files/2015-12/documents/gi_cb_p3_guide_epa_r3_final_042115_508.pdf



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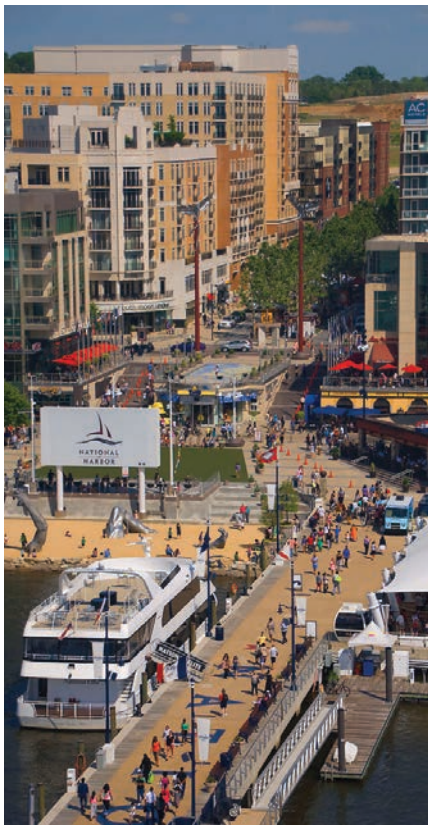
REGULATORY BACKGROUND

Prince George's County, with an area of approximately 500 square miles, is the second most populated county in Maryland, with residential areas occupying almost 60 percent of the land area. Development in the County dates back to the 1800s, and it has steadily increased over the years due its prime geographic location and proximity to both Washington, DC and Baltimore, Maryland. There are approximately 27 towns and cities in the County, the most of any county in Maryland, and as the area became increasingly developed, the open and forested areas decreased. As a result, stormwater runoff is not being filtered through soils and thus carries pollutants such as trash, chemicals, bacteria, dirt, and vehicle oil from the roads and other impervious surfaces to the County streams.



The County, as required by state and federal regulations, is working to improve water quality conditions in its streams and other waterbodies. Water quality in the streams has degraded over the years due to excess pollutants such as Total Nitrogen (TN), Total Phosphorus (TP), Total Suspended Solids (TSS), and trash, which are a direct effect of urbanization. The streams in Prince George's County flow into the Chesapeake Bay and transport these pollutants, thereby degrading the quality of the Bay. The regulations require states and municipalities to implement stormwater management techniques that improve water quality in the Chesapeake Bay, and the water bodies flowing to it, by making them suitable to support aquatic habitat and recreational activities.

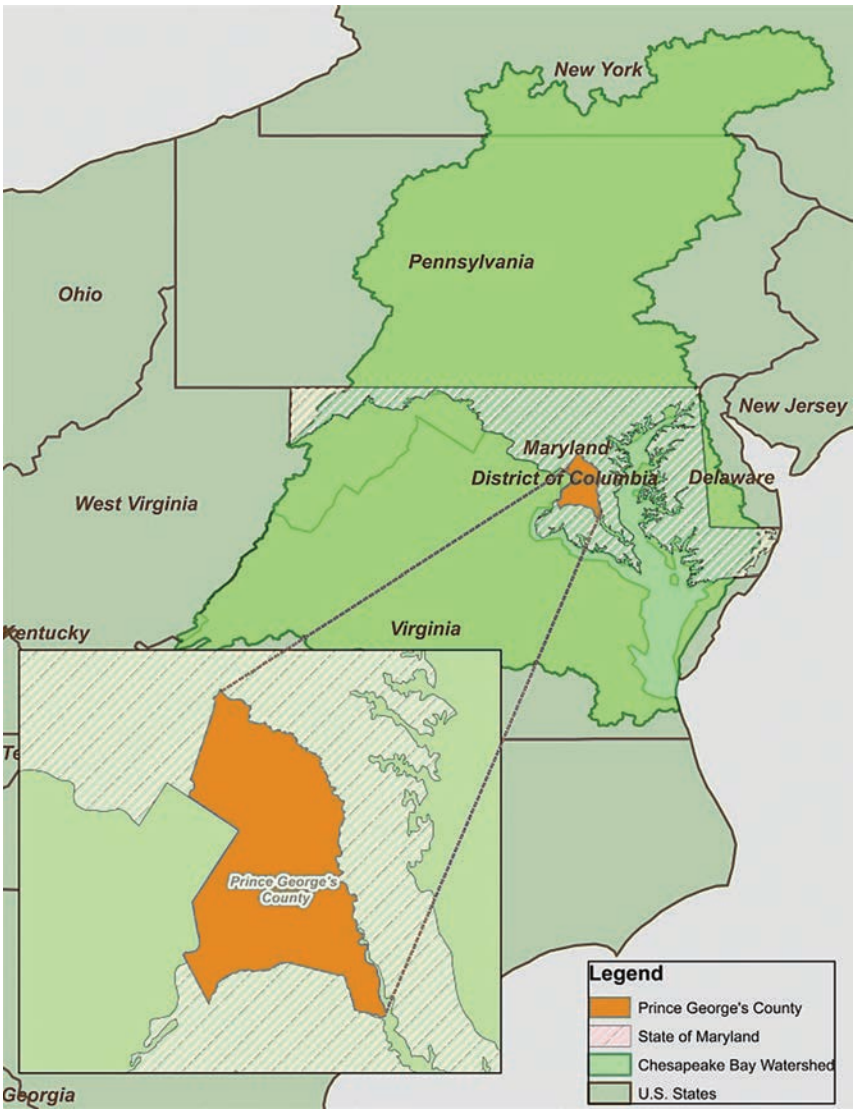
Regulatory drivers

Prince George's County, as an operator of a Municipal Separate Storm Sewer System (MS4), is subject to the requirements of a National Pollutant Discharge Elimination System (NPDES) MS4 Phase I Permit as authorized by the federal Clean Water Act (CWA). EPA has delegated the permitting authority of the NPDES MS4 program to the Maryland Department of the Environment (MDE) through a Memorandum of Agreement dated May 18, 1989. The County was issued an initial NPDES MS4 Permit in November 1993, and it has been reissued four times since then.

FAQ

WHERE CAN I FIND THE CURRENT PRINCE GEORGE'S COUNTY'S NPDES MS4 PERMIT?

http://www.mde.state.md.us/programs/Water/StormwaterManagementProgram/Documents/Prince%20George%27s%20county%20final%20permit%20January%202%202014.pdf



ABOVE: MAP OF PRINCE GEORGE'S COUNTY IN RELATION TO THE CHESAPEAKE BAY WATERSHED.

LEFT: EXAMPLE OF A BMP — BIOFILTRATION SYSTEMS LIKE THIS ARE DESIGNED TO CAPTURE AND FILTER POLLUTANTS FROM THE STORMWATER RUNOFF ON THE STREETS.

The requirements of the NPDES MS4 Permit have evolved with each permit cycle to include additional requirements to protect and restore natural and water resources in the County. The initial permit cycle required the County to develop programs to reduce pollution from storm drains; develop geographic information system (GIS) mapping for watersheds in the County; identify the characteristics of urban stormwater using chemical, physical, and biological monitoring; administer an effective urban stormwater management program to mitigate the water quality impacts of runoff from new development and significant redevelopment projects and construction sites; eliminate illicit stormdrain system connections; and develop public outreach and education programs to inform citizens on reducing stormwater pollution.

Subsequent permit cycles imposed additional requirements, including the need to assess water quality on a watershed level to establish stormwater retrofit requirements for 10 percent of the untreated impervious area in the County in each permit cycle.

The current permit, issued on January 2, 2014, added requirements such as enforcing more stringent stormwater management criteria, managing trash and litter, and developing restoration plans to meet Chesapeake Bay and local TMDLs. As a part of restoration plan requirements, the County is

required to implement TMDL restoration strategies to the maximum extent practicable by the end of the permit term (i.e., 2019). The County is also required to treat 20 percent of its currently untreated impervious area by implementing MDE-approved Best Management Practices (BMPs) by the end of the permit cycle to be in compliance with the CWA.

The permit also subjects the County to the Chesapeake Bay TMDL requirements established by EPA Region 3 in 2010. The Chesapeake Bay TMDL for TN, TP, and TSS requires all states whose stormwater drains to the Chesapeake Bay to work together to reduce the amount of pollutants being discharged into their waters. The goal is to achieve a cleaner Chesapeake Bay by 2025.

The responsibility for attaining these goals is allocated to the states in the Chesapeake Bay Watershed, which include New York, Pennsylvania, Maryland, Delaware, West Virginia, Virginia, and the District of Columbia. These states are required to meet the TMDL reductions by 2025, and 60 percent of the reduction requirements are to be met by 2017.

Each state has the flexibility to develop specific methods and means to delegate and enforce the TMDL reduction goals. To meet its own TMDL allocations, the State of Maryland developed Phase I and II Watershed Implementation Plans (Maryland WIPs), which present roadmaps for meeting the state TMDL goals.

There are five major watersheds in Maryland, and the 2025 pollutant load reductions for these watersheds are published in the Phase I and II WIPs.

In Maryland, the MDE assigned all jurisdictions, including Prince George's County, Chesapeake Bay TMDL reduction goals and required them to develop their own WIP to show how they would meet the pollution reduction goals. Prince George's County's final WIP was submitted on July 2, 2012 and is included in Section III of the Maryland's Phase II WIP. It provides a detailed description of strategies to be adopted by the County in the areas of agriculture, point source pollution/wastewater, septic system management, and urban stormwater management. Under urban stormwater management strategies, the County's WIP indicates that approximately 8,000 acres of untreated impervious area needs to be retrofitted to meet the 2017 goals, and an additional approximately 7,000 acres (for a total of 15,000 acres) of untreated impervious area needs to be retrofitted by 2025 to meet the Chesapeake Bay TMDL goals.

HOW MANY CHESAPEAKE BAY WATERSHEDS ARE IN MARYLAND?

There are five:

- Potomac
- Patuxent
- Susquehanna
- Western Shore
- Eastern Shore

IN WHICH WATERSHED IS PRINCE GEORGE'S COUNTY LOCATED?

Potomac

WHERE CAN I FIND MARYLAND'S WATERSHED IMPLEMENTATION PLANS?

Phase I: http://www.mde.state.md.us/programs/Water/TMDL/TMDLHome/Pages/Final_Bay_WIP_2010.aspx

Phase II: http://www.mde.state.md.us/programs/Water/TMDL/TMDLImplementation/Pages/FINAL_PhaseII_WIPDocument_Main.aspx

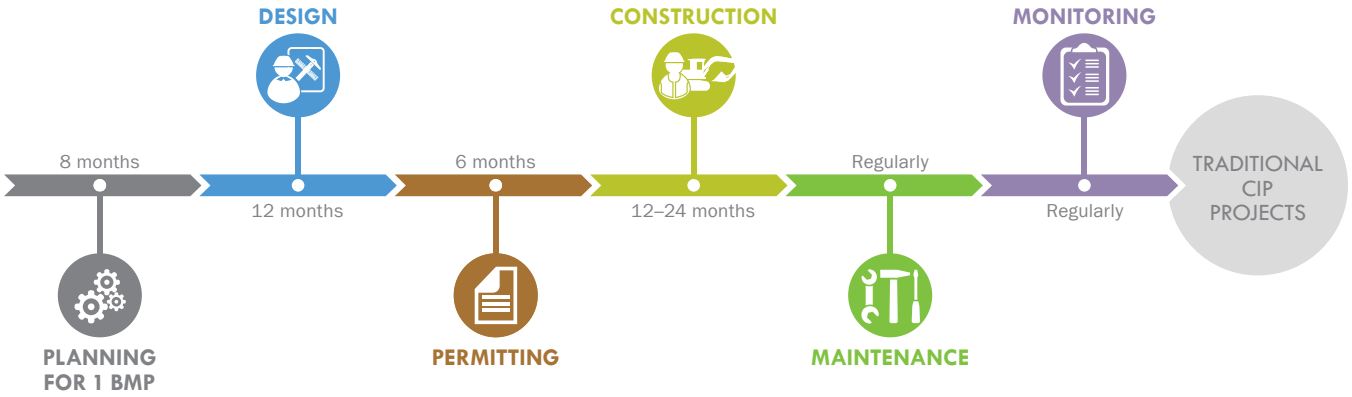
FAQ

WHERE CAN I FIND MORE INFORMATION ON PRINCE GEORGE'S COUNTY'S CLEAN WATER ACT FEE?

http://www.princegeorgescountymd.gov/sites/stormwaterManagement/Pages/default.aspx

The County's challenges in meeting regulatory requirements

About $1.2 billion will be required to retrofit the approximately 15,000 acres of untreated impervious area according to the County's final WIP. Even though the County has a steady source of funding through its Clean Water Act Fee via the Clean Water Program, it would be difficult to meet the restoration requirements if the stormwater projects or BMPs were implemented through its Capital Improvement Program (CIP). The County's CIP process is a traditional stormwater management program that involves the following phases and timelines to plan and implement each BMP:



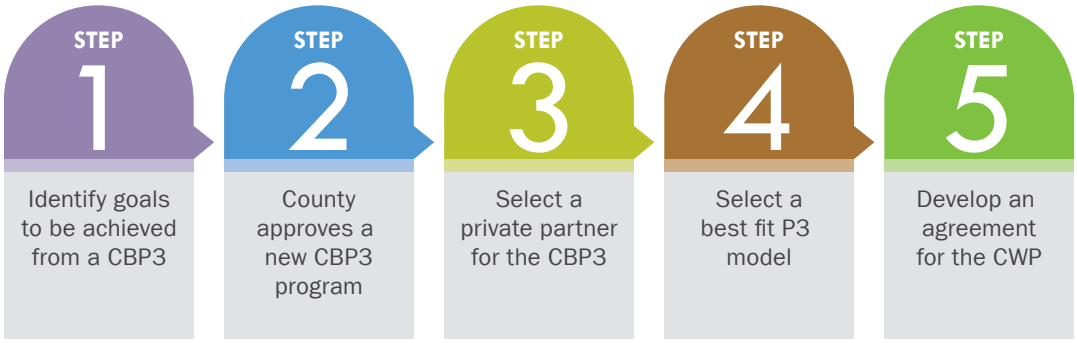
This conventional approach does not support the simultaneous implementation of projects. Additionally, upon implementation of the BMPs, the County also needed to maintain them to keep them functioning properly throughout their lifecycle, which is approximately 30 years. County staff and technical resources are limited, and more resources were needed to develop and implement an optimized stormwater retrofit program at the County level to implement and maintain BMPs. In addition, as these projects are funded through the County's Clean Water Act Fee, which is provided by County residents, the County needed to develop a process that obtained the maximum benefit by driving down the implementation costs for the BMPs and included economic development, environmental protection, and educational opportunities. The County determined that it was riskier to continue doing things the same way in stormwater management versus trying something different, and therefore had to explore other options.

THE CLEAN WATER PARTNERSHIP AS A SOLUTION

Because of the challenges posed by the large amount of impervious area to be treated by 2025, limited County resources, and the inability of the current CIP processes to handle the increased work flow, the County determined that it needed to develop a fast-tracked, efficient, and cost-effective program to meet the 2025 goals. Many options were considered. Expanding the traditional CIP program by adding more resources was considered; however, it was concluded that the program would not be able to achieve the goals by 2025, as the duration needed to implement a BMP using existing contracting processes would not support implementation of BMPs with accelerated schedules.

This need resulted in Prince George's County adopting an aggressive Urban Watershed Restoration Impervious Area Treatment Plan, which is a two-pronged approach consisting of 1) enhancing the County's traditional CIP to implement BMPs at a faster pace and, on a parallel track, 2) adopting the CWP to implement and maintain BMPs that would treat up to 4,000 acres of untreated impervious area. The CWP was envisioned to:

- Accelerate the implementation timeframe of BMPs
- Increase affordability of retrofits
- Reduce operation and maintenance costs of the impervious area retrofits
- Advocate for innovation in technology
- Achieve the County's mandate of promoting Education, Environment, and Economy



STEPS INVOLVED IN THE COUNTY'S ADOPTION OF CWP

WHAT IS A PUBLIC-PRIVATE PARTNERSHIP?

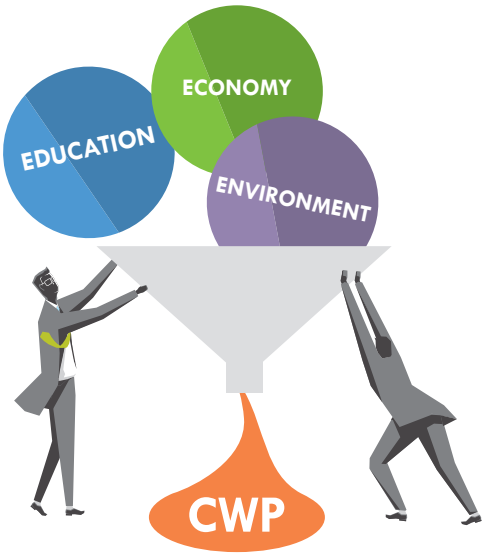
Public-private partnership business model

A P3 business model is typically established when the public sector requires private sector resources, experience, and innovation to implement needed public sector services. Even though the Prince George's CWP is the first P3 business model being adopted in a stormwater management arena, P3 models have been successfully implemented in various sectors by other federal, state, and local agencies, such as the U.S. Department of Defense (DOD), U.S. Forest Service, and the Port Authority of New York and New Jersey. Nationwide, multiple federal and state transportation projects are implemented using a P3 setup. Typically, P3 business models are established by a long-term contract between a private entity or entities and a government or public agency for delivering services such as planning, construction, or long-term maintenance of public infrastructure.

With a typical P3, the private entity bears the majority of the management responsibilities, and as a result accepts a greater risk. The public agency maintains oversight of the project, and payment of the private entities involved is based on meeting contract goals.

County approval of a new business model

County Council approval of the CBP3 was required since this contracting method deviated from the County's traditional CIP processes. Noncompliance with the permit requirements under the CWA is punishable by large federal fines, and the County DOE believed the CBP3 was needed to comply. However the County Executive and County Council required additional evidence that the CBP3 would also benefit County residents, businesses, and communities.



The County DOE recognized that meeting the stormwater requirements was also an opportunity to **promote economic development and improve education opportunities, while restoring and protecting the environment.** The County wanted to adopt a program that would intertwine achieving social and economic development with achieving environmental goals.

Economy would be promoted through the CWP by hiring the local workforce and promoting County-based and local businesses in all phases of BMP implementation.

Education programs envisioned would promote awareness among residents and students on the benefits of stormwater management and preservation of natural resources.

The County Council recognized the advantages of providing economic development, enhancing **environmental** stewardship, and educating residents, and unanimously approved the adoption of a CBP3 business model to implement stormwater management retrofits to treat approximately 4,000 acres of untreated impervious area to meet environmental goals.

Prince George's County's CBP3 partner selection

An important part of the success of the CBP3 program was to select the right partner who would embrace the County's goals. The County required its partner to have flexibility to work within the given financial limitation, be willing to accept as much legal and financial risk as possible, and be willing to put forth significant efforts to achieve the community's goals.

The County issued a Request for Qualifications (RFQ) as part of the selection process for a CBP3 partner. The RFQ requested extensive information on the team's public-private partnership experience and proposed approach to meeting Prince George's County's goals for the program. To help guide through the process, the County hired P3 subject matter experts (AECOM, formerly URS Corporation) to write the RFQ and develop an Evaluation Framework document to help the County Consultant Selection Committee evaluate the proposals received and select the best partner.

The County selected **Corvias Group LLC**, as they offered flexibility, and exhibited an adaptive management style to adjust to changing politics, regulations, and economic conditions for meeting the County's goals.

KEY QUALIFICATIONS THAT LED TO THE COUNTY'S SELECTION OF CORVIAS GROUP LLC AS A PARTNER:

- ✓ Flexibility
- ✓ Adaptive management style to changing politics, regulations, and economic conditions
- ✓ Depth and breadth of staff resources
- ✓ Commitment to the County's economic development goals to engage the local workforce

Selection of the best fit P3 model

The County studied several P3 business models used successfully throughout the nation to evaluate which was the best fit. The County already had experience using a P3 business model at two of its landfills for conversion of landfill gas to electricity.

The County contracted Brown Station Road Sanitary Landfill and Sandy Hill Landfill to private firms to design, build, finance, operate, and maintain (DBFOM) the infrastructure required to convert landfill gas to electricity. In this setup, the private firms are also responsible for marketing gas and electricity to the purchasers. Both of these P3s were recognized by EPA through its Landfill Methane Outreach Program award for excellence in innovation and creativity, for promoting renewable energy development,

SANDY HILL LANDFILL GAS PROCESSING PLANT
(SOURCE: HTTP://WWW.NASA.GOV/VISION/EARTH/EVERYDAYLIFE/ARCHIVES/0508LANDFILL_PRT.HTM)

FAQ

WHAT ARE OTHER KINDS OF P3s?

- ✓ Operations and Maintenance (O&M)
- ✓ Operation, Maintenance, and Management (OM&M)
- ✓ Design, Build (DB)
- ✓ Design, Build, Operate (DBO)
- ✓ Design, Build, Operate, and Maintain (DBOM)
- ✓ Design, Build, Finance, Operate, and Maintain (DBFOM)
- ✓ Design, Build, Maintain (DBM)
- ✓ Design, Build, Finance, Operate, Maintain, Transfer (DBFOMT)
- ✓ Build, Operate, Transfer (BOT)
- ✓ Build, Own, Operate (BOO)
- ✓ Build, Buy, Operate (BBO)

and achieving environmental and economic benefits. Both of these P3s resulted in substantial cost savings for the County.

The County also evaluated the successful P3 business model adopted by the United States DOD for the privatization of military housing, called the Military Housing Privatization Initiative (MHPI). The MHPI is a public-private partnership initiative adopted by DOD in 1996 where private firms were contracted to own, operate, and maintain military family housing. The two goals of this P3 were to provide quality residential homes for military service members and their families and to substantially decrease the cost of construction through privatization. In addition to improving the quality of construction and decreasing its timeframe, a savings of approximately 10 percent was expected over 50 years because of transfer of operation and maintenance costs to the private sector.

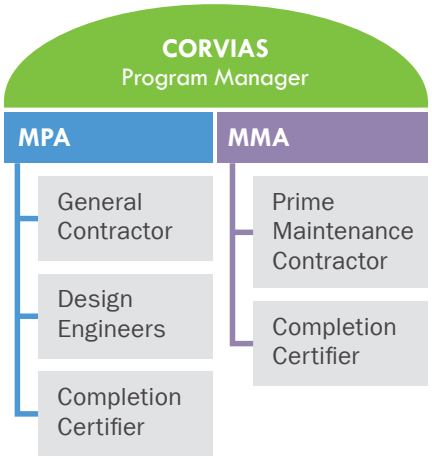
The MHPI program demonstrated significant cost savings and greater affordability, enhanced capacity to leverage public funds and expand services and benefits, a significant shift of program responsibilities and risks to the private sector, and expedited delivery of quality services and projects.

The County believed that the model adopted by MHPI could be a foundation for the P3 model for the **Clean Water Partnership**, but the County also needed a method for designing and building projects. Therefore, after evaluating specific needs and resources, the County selected a modified version of the DBFOM.

To meet the County's needs, Corvias Group LLC established **Corvias Prince George's County Stormwater Partners LLC** as the private partner for the CWP. The County's CBP3 program was also envisioned to include several other key partners. The key partners included community stakeholders such as universities, faith-based and nonprofit organizations, and environmental organizations.

Development of an agreement for CWP

The County developed a Master Program Agreement (MPA) and a Master Maintenance Agreement (MMA) with Corvias (Section 5 of this document) as the next step. The MPA document details Corvias' responsibilities for implementation of BMPs using Green Infrastructure (GI) technology in the next 3 years, and the MMA documents maintenance of the implemented BMPs for the next 30 years. Corvias will serve as program manager for both the MPA and MMA and be assisted by several subcontractors. The agreements also included a description of the compensation structure for Corvias, which is performance-based with a base fee for the successful implementation of all BMP projects and an incentive fee for meeting all County-established socioeconomic goals.



Factors to consider when developing a CBP3

Based on the County's experience developing a CBP3, factors to consider are outlined below.

IDENTIFICATION OF CBP3 GOALS

Identifying goals envisioned to be achieved by adopting a CBP3 is an important first step. The goals could vary from one community to another depending on specific needs. Some of these goals, such as improving water quality in surface water, are driven by state or federal regulatory requirements, whereas other goals, such as mitigating localized flooding, are driven by the desire to minimize impacts on properties and infrastructure in the community. In Prince George's County's case, the goal was to improve water quality conditions in the County's streams and achieve regulatory compliance.

FAQ

WHAT ARE THE GOALS THAT NEED TO BE ACHIEVED THROUGH THE CBP3?

Example goals include:

- ✓ Manage stormwater
- ✓ Improve water quality
- ✓ Maintain existing infrastructure
- ✓ Manage assets
- ✓ Reduce flood damages

INPUT FROM LEGAL COUNSEL

It is important to ensure that the municipality's legal structure allows a CBP3 to be implemented. Legislation in some communities might enforce restrictions on the type of CBP3 projects that can be implemented or restrict the role of private entities in a CBP3. It is important to determine whether the Community's legislative framework is flexible enough to allow a CBP3 to be implemented while protecting the municipality. Prince George's County's legislative framework allowed the DOE to transfer most of its responsibilities to a private entity. It is recommended that a municipality obtain input from both internal legal departments and an outside legal consultant to protect the municipality's interests.

FAQ

DOES THE COMMUNITY'S LEGAL STRUCTURE ALLOW THE ADOPTION OF A CBP3?

Check with legal counsel to obtain input on how much flexibility the community's legal structure has for adopting a CBP3.

(continued on page 12)

(continued from page 11)

FINANCIAL REVIEW AND INPUT

A CBP3 program typically requires a different financial arrangement from traditional CIP project implementation, and therefore the agreement needs to clearly define the payment process. The County also had to ensure that the financial processes in the CWP agreement between the County and Corvias were in accordance with the County's regulations and contained provisions that adequately protected the County. The County's Deputy Chief Administrative Officer, Budget, Finance and Administration, Mr. Thomas Himler, played an important role in reviewing the financial aspect of the CWP agreement to ensure it was in compliance with the County's regulations.

INDEPENDENT CBP3 GUIDANCE

If a municipality is entering into a CBP3 agreement for the first time, the community should consider hiring an independent subject matter expert with a wide range of P3 experience to guide and inform the technical aspects of selecting, hiring, and engaging a P3 partner. Even though Prince George's County had previous experience with P3 contracts, the consulting firm URS Corporation (acquired by AECOM in October 2014) assisted in establishing and guiding the County through the selection and contracting process.

DEDICATED FUNDING MECHANISM

Since CBP3s are generally long-term arrangements, it is important to identify a dedicated funding mechanism when setting up a CBP3. The CWP is set up to be funded through the County's Clean Water Act Fee, a stormwater utility fee implemented by the County on July 1, 2013. The County will fund all phases of the BMP projects and compensate Corvias with Base and Incentive fees for the services provided through this fund. Depending on the financial structure of the community, sources of funding could include public bonds, private activity bonds, private investments, a utility fee, or a grant program. For communities without any bonding authority, a CBP3 program with private financing may be a good option to pool the funding needed to implement CBP3 projects.

FAQ

WHAT WILL BE THE SOURCE OF FUNDING FOR THE CBP3?

Options include:

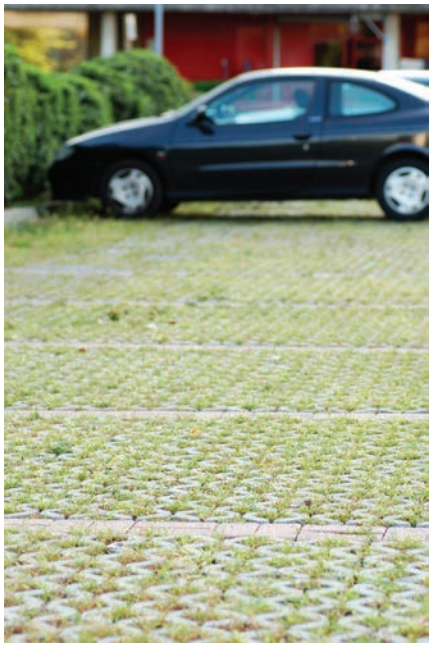
- ✓ Utility fees
- ✓ Public bonds
- ✓ Private investments
- ✓ Grant programs
- ✓ Private bonds

GOVERNANCE

With a CBP3, the role of the public agency evolves from project management to management of a performance-based contract. It is crucial that a streamlined process for managing and monitoring the CBP3 contract be established such that the risks transferred to the private entity are not transferred back to the public agency; if that happens, the financial and operational efficiencies are not maintained. To develop an effective governance program, the public agency should set performance standards. This should include defining interim and ultimate goals for private entities even before entering into an agreement with them. The public agency should set up monitoring procedures, including regular project meetings and intermittent audits from public agency personnel or a third party. Prince George's County developed an MPA and an MMA to define the responsibilities and goals to be achieved by Corvias (Section 5 of this document). According to these agreements, implemented retrofit projects are considered acceptable by the County only after they have been inspected and identified as "accepted" by the assigned Completion Certifier.

ANTICIPATED BENEFITS FROM THE CLEAN WATER PARTNERSHIP

The CWP is designed to mitigate a portion of the County's risk and delegate most stormwater retrofit responsibilities to Corvias. The CWP will help achieve the County's goal of treating 4,000 acres of untreated impervious area by implementing BMPs over 6 years. The CWP will not only function as an alternative source of BMP construction at an accelerated schedule, but will also be a means of introducing private sector technology and innovations into the County's stormwater management program. With the push for innovative technologies, it is anticipated that the CWP will elevate Prince George's County as the **center of excellence** for Green Infrastructure. The CWP will also be a vehicle for promoting job opportunities, and **green jobs** in particular, by employing County-based firms to provide engineering services and supply construction materials for the stormwater retrofit projects. Some significant anticipated advantages of the CWP are listed below.



PERMEABLE PAVEMENT

Lower costs and increased affordability through innovation and standardization

Adopting the CWP will increase the affordability of implementing BMPs by lowering the costs of materials and services. Due to the scale and long-term nature of CWP projects, Corvias can negotiate with contractors to lower the costs of materials and services, resulting in considerable savings for the County. The CWP requires the private partner to promote innovation and improve technology to enhance the pollutant removal efficiencies of the stormwater management retrofits and treat larger impervious areas, which lowers the cost per impervious acre treated.

Streamlining the CWP processes will reduce the cost by at least 30 percent per treated impervious acre. These processes include more efficient construction practices, greater flexibility to improve operational efficiencies based on lessons learned, and reduced resources due to overlapping design and construction schedules of multiple projects. Since the private partner is also responsible for the maintenance of constructed BMPs, the overall lifecycle costs should be considered when selecting BMP designs.

In addition, the County is collaborating with the private partners to use their technological resources to develop a toolbox of BMPs with high pollutant removal rates that can be implemented throughout the County. Creating this toolbox of standard BMP designs will reduce timeframes and costs for planning, design, and permit approval and enable multiple high-performance BMPs to be implemented. With standard BMP designs being used at the County level, the material, design, construction, and maintenance costs are anticipated to go down over the contract period due to economy of scale.

The CWP also requires the development of more efficient construction, maintenance, and program administration practices, which will also drive down the costs. With a high-volume, long-term maintenance program, the maintenance cost per unit will tend to decrease as the number of units to be maintained increases. In addition, the private partners' systems are more efficient than the County's in procuring supplies, construction and maintenance equipment, and services, and the significant cost and time savings are passed on to the County. The County will continue to monitor contractual requirements such as local and small business use.

Streamlined County administration program

With the CWP program, the private partner is responsible for program administration, enforcement, project management, inspection, certification, maintenance, and development of the NPDES MS4 annual report. The traditional County CIP program generally requires separate consultant contracts for each project and for each project phase (e.g., planning, design, construction, and construction inspection). Significant County resources are invested in program administration, procuring the contracts, managing the contracts, and dealing with contractual

County Staffing Resources: Traditional County CIP Program vs. CWP

STAFF RESOURCE	TRADITIONAL CIP PROGRAM		CLEAN WATER PARTNERSHIP	
	# OF STAFF	PURPOSE	# OF STAFF	PURPOSE
Project Manager (PM)	~15	Each County PM oversees several CIP projects	1	One County PM will track the progress of the program
Inspectors	~10	Each inspector is assigned to oversee several tasks on several projects	1	Completion Certifier will be required to inspect and certify the projects
Field Engineers	0	Not proposed	1	Completion Certifier will be required to approve any field modifications to the projects
Professional Service Contracts	13	Traditionally, the County hires consultants to design projects	1	Corvias Prince George's County Stormwater Partners LLC will manage all professional services

issues. In addition, County staff are typically responsible for certification, maintenance, and development of the annual report. With the CWP, the County's administration program is streamlined, and the amount of time and resources spent on contracting and procurement are drastically reduced, as the County has a contract with only one private partner. A comparison of staffing resources is shown on the previous page.

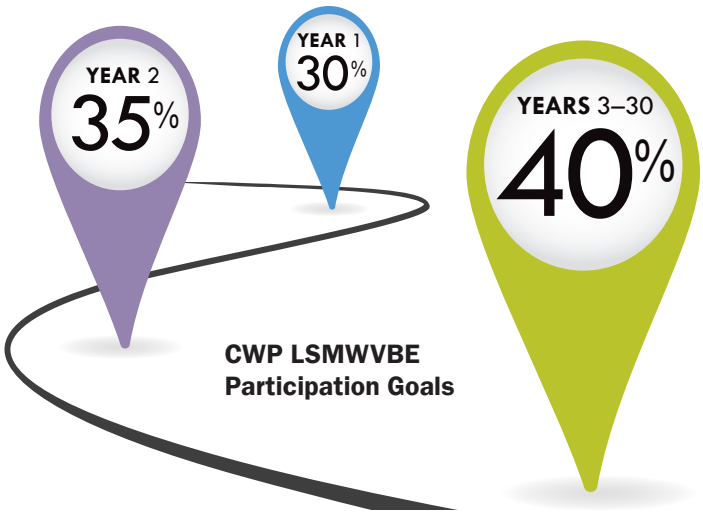
The CWP is streamlined such that the County can be directly involved to provide oversight in all phases of the program without the need for excess staff resources.

Economic development and job creation

The CWP provides an opportunity for local businesses to grow and create new jobs. Once a contractor is a part of the CWP and performs well, it is likely that the contractor would be retained by the private partner for the long term. This will allow the contractor to hire staff, because there will be more certainty about future work and a more continuous cash flow. This was not achieved through the County's traditional approach for bidding separate contracts for each BMP.

MBE/Small Business Outreach and Inclusion Program. Over the first 3 years of the program, approximately 40 County-based Minority Business Enterprises (MBEs) are anticipated to provide services in areas such as design, maintenance, material supply, and construction management, with hundreds more added to the eligibility roster. Through the MPA and MMA requirements of the CWP's MBE/Small Business Outreach and Inclusion Program, Corvias is helping Local, Small, Minority, Women, Veteran and Disadvantaged Business Enterprise (LSMWVBE) businesses obtain County certification so they can have new contract opportunities. The CWP's MPA and MMA are designed to expand the program to ensure that at least 40 percent of the work is subcontracted to the identified 300 County-certified LSMWVBEs.

Jobs First Act. In addition, the CWP anticipates that 51 percent of the labor hours that would be required for the CWP will be contributed by County residents, thereby meeting or exceeding the County's Jobs First Act. Some of the required personnel would include landscape architects, engineers, plumbers, and farmers, among many others.



Installation and Design

- **Landscape Architects**
- **Engineers**
- **Plumbers**
- **Contractors**
- **Construction Workers**
- **Administrative Staff**

Operations and Maintenance

- **Landscapers**
- **Plumbers**
- **Engineers**
- **Inspectors**
- **Contractors**

Supply Chain

- **Nursery and Greenhouse Workers**
- **Farmers**
- **Horticulturalists**
- **Truck Drivers**
- **Stock Clerks**
- **Administrative Staff**

Mentor-Protégé Program. One of the social and economic development program requirements of the CWP is to develop a Mentor-Protégé Program through which Corvias will train and guide the County workforce on business planning, staffing, purchasing, and marketing. The CWP recognizes the importance of participating in local and national organizations to gain recognition. Modules that would be implemented as a part of the Mentor-Protégé Program include:

- Recruitment, screening, and referral services
- Job readiness training (e.g., soft skills and life skills training)
- Technical training (e.g., stormwater certificate training) and on-the-job training opportunities

» Supportive services / case management

» Continuing education and retention services

Community outreach and educational advancement

The CWP is developing a wide range of education and outreach programs to inform and engage schools, universities, County residents, community leaders, and other interested parties about different aspects of stormwater management and GI. As a part of CWP requirements, Corvias is required to develop a **Community Outreach Program** to inform the local residents during all phases of design and implementation of the projects in their respective areas. Renderings, animation, and other outreach materials will be developed by Corvias to inform the County residents of projects.

As a part of the **Work Development Program**, the County and Corvias will provide internships, scholarships, and grants and develop educational programs for interested students in the local community college and universities as a part of their career advancement program in the field of stormwater management and GI. Low impact development (LID) and GI will be included as a part of the curriculum in the local schools so that students can become stewards of the environment and learn about careers in the environmental field.

Opportunity for adaptive management and operational flexibility

The CWP's MPA and MMA are set up such that Corvias has flexibility to modify the approach and operations in all phases of project implementation (i.e., design, construction, and maintenance) to improve efficiency, lower implementation costs, and encourage innovation. However, the projects must still meet the County's performance goals. In contrast to the County's traditional contracting program, hundreds of BMPs will be implemented with a schedule lasting at least 3 years, which means Corvias has more flexibility to negotiate contracts with subcontractors and material suppliers to achieve lower costs with an optimized implementation schedule. The CWP is set up such that the County and Corvias can modify the requirements of the CWP without renegotiating the fee or services, as long as it does not disrupt the predefined CWP performance goals and is approved by the County's oversight committee consisting of representatives from various departments in the County.

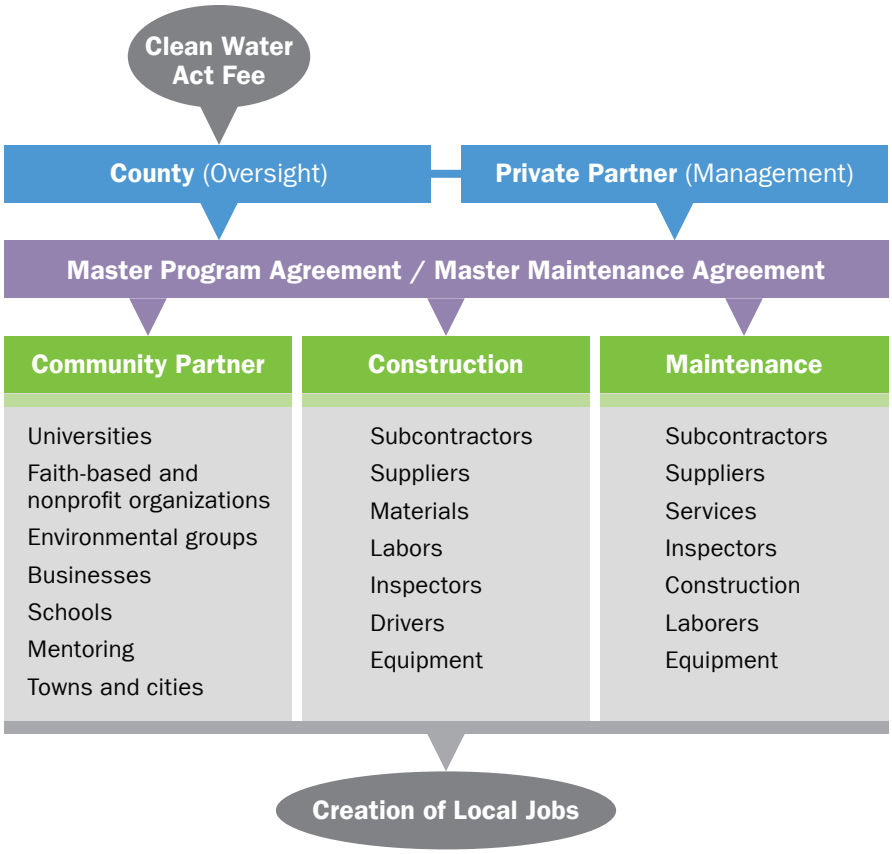
5

CLEAN WATER PARTNERSHIP OPERATIONAL STRUCTURE

Corvias acts as a program manager in partnership with the County through a contractual framework, which is different from the traditional corporate private entity agreement under a design-build-finance-operate-maintain arrangement. With both parties taking part in the administration and decision-making process, program transparency is created. In this scenario, Corvias is responsible for implementing the stormwater management projects/BMPs, and the capital costs for implementing the BMPs are provided by the County through the Clean Water Act Fee.

Other sources of financing, such as bonds, the State Revolving Fund, private financing sources, and grant proceeds, may also be considered by the County in the future. Corvias' revenue will be based on the negotiated performance-based fee, and Corvias will be required to meet all the performance goals set by the County in the MPA and MMA to receive payment. The County will also compensate Corvias with an incentive fee when Corvias meets the incentive fee criteria. The roles of County agencies and Corvias are well defined in CWP documents. Corvias is assigned the role of manager, and the DOE is the lead County agency responsible for the oversight of the CWP program, supported by DPW&T and DPIE. The CWP is upheld by two multi-year agreements: the MPA and the MMA. The MPA has an initial term of 3 years with a goal of retrofitting 2,000 acres of the County's untreated impervious area through implementation of BMPs. At the end of the 3 years, an additional 3 years and 2,000 acres will be added if Corvias achieves the program performance milestones.

The MMA is a 30-year operations and maintenance (O&M) agreement that includes maintenance, inspection, repair, and replacement of the BMPs installed under the MPA. The County has an oversight committee consisting of personnel from various County departments who are responsible for reviewing the incentive fee for Corvias based on the data they are presented. The oversight committee meets every two weeks to review progress of the CWP and all the projects in the pipeline. Prince George's County CWP organization is illustrated in the diagram on the next page.



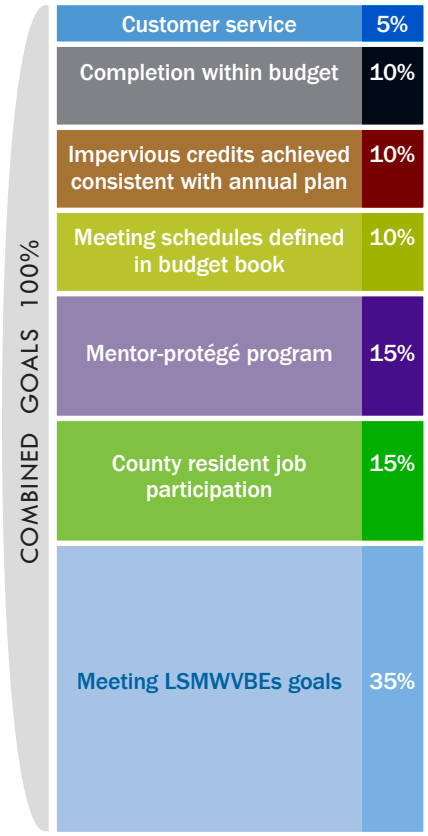
Operational responsibilities of the manager (Corvias)

As the manager, Corvias is responsible for a broad range of goals, illustrated in the figure to the right, set through the MPA and MMA. These are program performance milestone metrics, and if Corvias achieves 75 percent of the performance metrics, the County can retain Corvias for an additional 3 years to retrofit another 2,000 acres of untreated impervious area.

Master Performance Agreement

Under the MPA, Corvias, the program manager, is responsible for the following broad-range activities:

» Assisting the County in establishing CWP program priorities and preparing the "Annual Plan," which will include information for each project recommended to be developed in the next fiscal year. Once the Annual Plan is approved by the County, Corvias is responsible for developing the design and pre-construction phases of the approved projects and is required to develop a Budget Book that includes information on all approved projects.



FAQ

WHAT DOES AN ANNUAL PLAN INCLUDE?

- ✓ The project site
- ✓ Total number of acres to be retrofitted and number of impervious area credits
- ✓ Anticipated construction start date
- ✓ Anticipated acceptance date
- ✓ Estimated project cost
- ✓ Estimated base fee and estimated incentive based on the project cost and maximum design cost

- » Design and construction of stormwater management projects such that each project achieves acceptance. Upon completion of each County-approved project, Corvias is responsible for obtaining an "Impervious Area Credit Certificate" from the Completion Certifier.
- » As a part the MPA, Corvias is responsible for developing and implementing social and economic development programs, which include:
  - – Community Outreach Program: To provide information to, and obtain input from, County residents during all development phases of each approved project.
  - – MBE/Small Business Outreach and Inclusion Program: To increase participation of County LSMWVBEs in all aspects of project development to promote local businesses through training and informative sessions.
  - – Mentor-Protégé Development Program: To train and enhance the skill set of the County workforce such that they have an opportunity to be included in the CWP.
  - – Workforce Development Program: To train students in the local education institutions, including universities, community colleges, and public schools, to promote a future skilled workforce in the County.

CORVIAS SERVES AS THE PROGRAM MANAGER OF THE CWP AND IS ASSISTED BY:

- ✓ General Contractors
- ✓ Design Engineers
- ✓ Maintenance Contractor
- ✓ Completion Certifier

Corvias is also responsible for obtaining all access rights, servitudes, easements, and rights-of-way (ROWs) required for the construction of projects from all types of property owners except the County. As a part of the MPA, Corvias is responsible for contracting subconsultants and engineers required for successful implementation of the projects. For the MPA, Corvias is assisted by a highly qualified group of design engineers, general contractors, and other consultants approved by the County, and the Completion Certifier is responsible for issuing an "Impervious Area Credit Certificate" for the constructed BMPs. In addition, the County and Corvias may also select an independent engineer to review the work of the Completion Certifier as a last step toward the County's acceptance of a BMP project. Corvias is also responsible for conducting monthly meetings to update DOE staff on the status of planned projects.

Master Maintenance Agreement

Under the MMA, Corvias is responsible for the following activities:

- » Preparing a Project Maintenance Plan for the long-term maintenance of the implemented projects. The Budget Book developed under the MPA is also required to include the maintenance plan for every proposed BMP under each project.

» Preparing an Annual O&M Plan for County approval.

» Planning and overseeing the maintenance work performed on the projects. Similar to a property management arrangement, Corvias is not responsible for the actions of the prime maintenance contractor and subcontractors performing the O&M work. A prime maintenance contractor is responsible for performing and subcontracting all O&M work planned by Corvias. Once the scheduled O&M work is completed, the Completion Certifier will take on the role of maintenance monitor and be responsible for inspection and certification of the O&M work.

Operational responsibilities of the County agencies

As mentioned above, DOE is responsible for spearheading the CWP, and DPW&T and DPIE also have prominent roles for a successful CWP program. Responsibilities of each agency are summarized below.

DOE Responsibilities

DOE is responsible for approving the Annual Plan and Budget Book that Corvias will develop under the MPA and the Annual O&M Plan that Corvias will develop under the MMA. DOE has the right to reject any proposed project. The County DOE is responsible for approving compensation upon acceptance of the constructed BMPs and O&M work. Under the MPA, the DOE is required to grant the necessary access rights, servitudes, easements, and ROWs on all properties under the County's authority for no charge. Under the MMA, the DOE is responsible for granting the manager, prime maintenance contractor, and any other subcontractor access rights and right of entry to each project site to perform O&M work. In addition, the DOE is responsible for helping the manager and prime maintenance contractor obtain O&M permits. Through a memorandum of understanding (MOU) with DPIE, DOE will also act as the permitting authority to approve all BMP projects. DOE is currently developing specific instructions that are applicable for permitting BMP projects, which will help streamline the permitting process.

DPW&T Responsibilities

DPW&T typically operates and maintains BMPs constructed in County ROWs. However, through the MMA, Corvias is responsible for maintaining all BMPs constructed by the CWP, including those in the ROW.

Normal operations in the ROW may limit the type of facility that can be constructed there. Therefore, BMPs proposed for placement in County ROWs must be approved by DPW&T. DPW&T will approve the BMP location

FAQ

WHAT DOES AN ANNUAL O&M PLAN INCLUDE?

- ✓ All projects in development phase that would be certified as "Accepted" under the MPA
- ✓ A description of all activities developed as part of the Project Maintenance Plan
- ✓ A routine inspection schedule for each O&M project
- ✓ A list of potential Capital Repair and Replacement projects
- ✓ An implementation plan for Social and Economic Development Program requirements

FAQ

WHAT ARE DOE'S RESPONSIBILITIES IN THE CWP?

- ✓ Manage the partner's (i.e., Corvias') activities
- ✓ Approve the Annual Plan and Budget Book
- ✓ Approve compensation for successful projects
- ✓ Grant access rights, servitudes, easements, and ROWs on all County properties for installing BMPs
- ✓ Providing access rights and right of entry for O&M work
- ✓ Assist with O&M permits
- ✓ Permitting authority

and comment on the design and maintenance limitations of the facility. DPW&T will not conduct detailed review of plans and specifications. Any comments on designs, including BMP project tasks that are outside the limitations set by DPW&T, must be corrected by Corvias prior to initiating construction of the approved BMP.

DPIE Responsibilities

DPIE was created by the County government in 2012 to streamline County operations in the areas of permitting, business licensing, inspections, and property code enforcement. DPIE also has a Peer Review Program that has an option to expedite a permit approval process by selecting a DPIE-registered and -approved peer reviewer. Though DOE reviews and permits all CWP projects under the MOU mentioned above, DPIE will continue to provide guidance to DOE on all permitting aspects as needed.

THE IMPORTANT ROLE OF COUNTY PARTNERS

The CWP is anticipated to meet the bulk of the County's 2025 impervious area treatment goals, and the County acknowledges that collaborating with partners is essential for the program's success. Support from partners is crucial not only for the success of the CWP, but also for the success of the County's expanded CIP program. By partnering with private residents, local businesses, homeowners associations, faith-based institutions, nonprofits, nongovernmental organizations, schools, and towns and cities, the County gains important resources for meeting regulatory goals and continuing to improve the water quality in County streams and the Chesapeake Bay.

CWP Partners

Faith-based institutions

Faith-based institutions such as churches play an important role in communicating the County's clean water vision through their volunteer and outreach programs. Through its Alternative Compliance Program, the County is helping these organizations treat impervious areas on their

properties by using BMPs such as rain barrels, rain gardens, and tree plantings. Faith-based institutions are also platforms for educating citizens on the importance of healthy streams and holding workshops for building rain barrels. With the help of volunteers, these institutions can encourage County residents to join stream and community cleanup programs, and are helping the County by conducting outreach programs to provide information on the County's Rain Check Rebate Program for which County residents can become eligible by implementing an approved BMP. Many churches have also unified to teach the importance of environmental stewardship by creating a green ministry. The County is promoting the participation of these organizations by reducing their Clean Water Act Fee. In this way, both the County and the faith-based institutions benefit. Incentives depend on the institution's contribution to the program as outlined below.

Incentives for Faith-Based Institutions

PARTICIPATION	INCENTIVE
Allow the County to use ROWs on properties owned by nonprofit and faith-based institutions to install BMPs	The Clean Water Act Fee is reduced by 50 percent
Assist the County with the Rain Check Rebate Program	The Clean Water Act Fee is reduced by 25 percent
Use green lawn companies that use fertilization application techniques that minimize impact to water quality	The Clean Water Act Fee is reduced by 25 percent

Nonprofit and nongovernmental organizations

The County is teaming up with various nonprofit and nongovernmental organizations such as the Anacostia Watershed Society (AWS), the Neighborhood Design Center (NDC), and the Low Impact Development Center (LID Center) by providing them with technical support and resources required to implement BMPs. The County has also partnered with Chesapeake Bay Trust to support the NDC in developing a new pilot program called "Stormwater Savvy," a community design process for stormwater management master planning in the County's neighborhoods. DPW&T collaborated with NDC to design over 85 individual sites for the Clean Up Green Up event in fall 2015, in which volunteers installed beautification projects in:

- schools,
- libraries,

» playgrounds, and
» neighborhoods.

The County has also teamed up with AWS to establish environmental programs. The AWS is an active group that supports Prince George's County environmental programs through public outreach and social media. AWS also conducts watershed stewardship programs such as stream/community cleanup events, native plant restoration projects, invasive species removal, and water pollution monitoring.

Similarly, the County has partnered with the LID Center by providing technical resources and grants to encourage their continued research for the advancement of BMP technology. For example, in 2014 Prince George's County, in partnership with Chesapeake Bay Trust, approved a grant of $55,895 through the Stormwater Stewardship Grant Program to the LID Center to develop a visible demonstration project for the seven stormwater management practices promoted by the County's Rain Check Rebate Program.

These County partnerships with nonprofit and nongovernmental organizations have improved the quality of stormwater conveyed to the County's streams.

Schools

The public school system is an important partner in garnering support for the County's environmental programs. School properties are high-priority project areas for BMP retrofits, as school campuses are often good demonstration sites for BMP projects. The DOE, in partnership with the Board of Education (BOE), has several ongoing environmental programs at school campuses across the County, such as building rain gardens, cisterns, and other small-scale BMPs, where both students and parents can participate and learn about ways to protect natural resources. In addition, the DOE, in collaboration with the BOE, is planning to develop a new program called "Teaching and Treating" focused on educating students about stormwater management and maintenance.

Private residents and local businesses

The County developed a Rebate Program as a part of its Rain Check Program to encourage private residents and business owners to abide by good environmental stewardship principles. The private resident or commercial owner will receive a rebate if he or she installs one of the seven practices promoted by the County's Rain Check Rebate Program.

FAQ

WHAT ARE ELIGIBLE STORMWATER PRACTICES FOR THE RAINCHECK REBATE PROGRAM?

- ✓ Cisterns
- ✓ Green Roofs
- ✓ Pavement Removal
- ✓ Permeable Pavement
- ✓ Rain Barrels
- ✓ Rain Gardens
- ✓ Urban Tree Canopy

More information can be found at: http://www.princegeorgescountymd.gov/sites/StormwaterManagement/Services/RainCheck/Rebates/Pages/EligiblePractices.aspx

The rebate amount varies depending on the type of project. To encourage more participation, the County's website provides guidance documents and fact sheets with information on how to implement these BMPs. In addition, the County also conducts hands-on workshops to train private owners on implementing BMPs.

Homeowners associations

A large percentage of the County's impervious cover is from residential land uses. Often HOAs have open areas where a BMP can be implemented, or they have an existing BMP that can be upgraded to treat more impervious area. Consequently, the majority of projects are planned on HOA-owned properties, and partnering with the HOAs is vital for the CWP.

Towns and cities in the County

There are approximately 27 municipalities in Prince George's County, the most of any other Maryland county. The City of Bowie is currently the only municipality that has its own stormwater management program. As the municipalities move toward implementing BMPs in their jurisdictions, the County is helping them with technical and financial resources for implementing effective stormwater improvements in their jurisdictions. The County conducts grant sessions and workshops to train municipal officials to submit successful grant applications. The County also supports the municipalities by conducting technical training on current BMP technologies.

County workforce

Development of the LSMWVBE workforce, to take on the role as contractor and maintenance personnel, is a high priority in Prince George's County. The County envisions that new workforce members graduating from the County's universities and colleges who focus on environmental programs as a part of their education will promote the green economy and contribute to the success of the CBP3. The County workforce is an important partner, therefore the County created programs such as Prince George's Green to train and grow a robust workforce that can contribute to meeting the goals of the CWP.

Academic research

Research is vital for the advancement of BMP technology to improve performance efficiency. The County is collaborating with academic institutions, such as the University of Maryland (UMD) and Prince George's County Community College, on various research-related activities, such as providing test sites for implementing different kinds of BMP filter media, and enlisting students from these academic institutions for BMP monitoring tasks. In addition, the County plans to develop an environment-focused curriculum and will be training teachers on the importance of stormwater management and natural resource conservation so these subjects can be included as a part of the curriculum at all academic institutions in the County.

UMD's Civil and Environmental Engineering Department is an important partner to the County. The County frequently collaborates with the department and awards grants to further BMP research to achieve higher pollutant removal efficiencies. For example, the County granted Dr. Allen P. Davis, a professor at the university, with a grant worth $632,000 to provide recommendations on the media that could be used in bioretention and sand filter type BMPs for enhanced removal of nitrogen and phosphorus from stormwater runoff. The DOE's office in Upper Marlboro will also be used by UMD as a test site to implement two of the test media, and DOE will be conducting monitoring to test their performance.

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INNOVATION AND COLLABORATION: MORE THAN JUST CLEAN WATER

Prince George's County's CWP is an innovative solution for stormwater management that departs from the traditional CIP program adopted by municipalities nationwide for the implementation of BMPs. Through extensive planning and analyses, and by collaborating with EPA and subject matter experts, the County developed a successful program using a public-private partnership business model whereby they are working to meet environmental requirements of the Chesapeake Bay TMDL and the NPDES MS4 Permit while promoting economic development, improving education opportunities, and restoring and protecting the environment.

This document describes the County's experience in adopting the CWP, with the hopes that it will serve as a stepping stone for other communities considering a CBP3 program—for stormwater improvements or any other purpose. The County's experience can be taken as an example that a CBP3 program can be used to intertwine socioeconomic development with the community's goals for environmental stewardship and well-being.

REFERENCES

Environmental Protection Agency (EPA), 2014. *Landfill Gas Energy Achievements*. Available online at: http://www3.epa.gov/lmop/partners/award/.

EPA, April 2015. *Community Based Public-Private Partnerships and Alternative Market-Based Tools for Integrated Green Stormwater Infrastructure.* http://www.epa.gov/sites/production/files/2015-12/documents/gi_cb_p3_guide_epa_r3_final_042115_508.pdf.

Maryland Department of the Environment (MDE), 2014. *National Pollutant Discharge Elimination System Municipal Separate Storm Sewer System Discharge Permit.* http://www.mde.state.md.us/programs/Water/StormwaterManagementProgram/Documents/Prince%20George%27s%20county%20final%20permit%20January%202%202014.pdf.

MDE, 2012. Phase II Watershed Implementation Plan for the Chesapeake Bay TMDL http://www.mde.state.md.us/programs/Water/TMDL/TMDLImplementation/Pages/FINAL_PhaseII_WIPDocument_Main.aspx.

MDE, 2010. Phase I Watershed Implementation Plan for the Chesapeake Bay Watershed http://www.mde.state.md.us/programs/Water/TMDL/TMDLHome/Pages/Final_Bay_WIP_2010.aspx.

Prince George's County Department of the Environment. http://www.princegeorgescountymd.gov/sites/environmentalresources/Pages/default.aspx.

Prince George's County Department of the Environment Stormwater Management Division http://www.princegeorgescountymd.gov/sites/stormwaterManagement/Pages/default.aspx.

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