

STORMWATER MANAGEMENT FOR CHESTER COUNTY MUNICIPALITIES



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Chester County Water Resources Authority
Christina Watersheds Municipal Partnership
January 19, 2023

OUTLINE

- MS4 Regulations
- Act 167 – Stormwater Management Ordinances
- What's next – PA DEP Updates



HISTORY OF THE CLEAN WATER ACT AND NPDES

- 1972 - Congress passed the Federal Water Pollution Control Act Amendments (FWPCAA)
- Section 402 of the 1972 CWA Amendments established National Pollutant Discharge Elimination System (NPDES)
- 1990 – NPDES for nonpoint sources – Phase 1 MS4s
- 2002 – NPDES permits for Phase 2 MS4s



- National Pollutant Discharge Elimination System (NPDES)
 - 1990 - “Phase I” MS4 municipalities (medium and large, as defined by federal regulations) required to get NPDES permits
 - Phase I applies to medium and large MS4s, certain industrial activities, and construction sites greater than 5 acres.
 - 1999 - “Phase II” MS4 municipalities (small municipalities in urbanized areas and other municipalities designated by the permitting authority) required to get NPDES permits
 - Phase II regulates smaller municipalities of populations less than 100,000 people and construction activities disturbing 1 to 5 acres.

MS4s IN CHESTER COUNTY (2010)

Chester County
Stormwater and Pollution Reduction


Map
WQ-1-2015

Municipalities in the MS4 Stormwater Permit Program & 2010 Urbanized Areas





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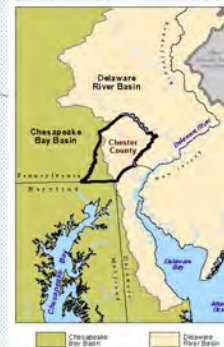
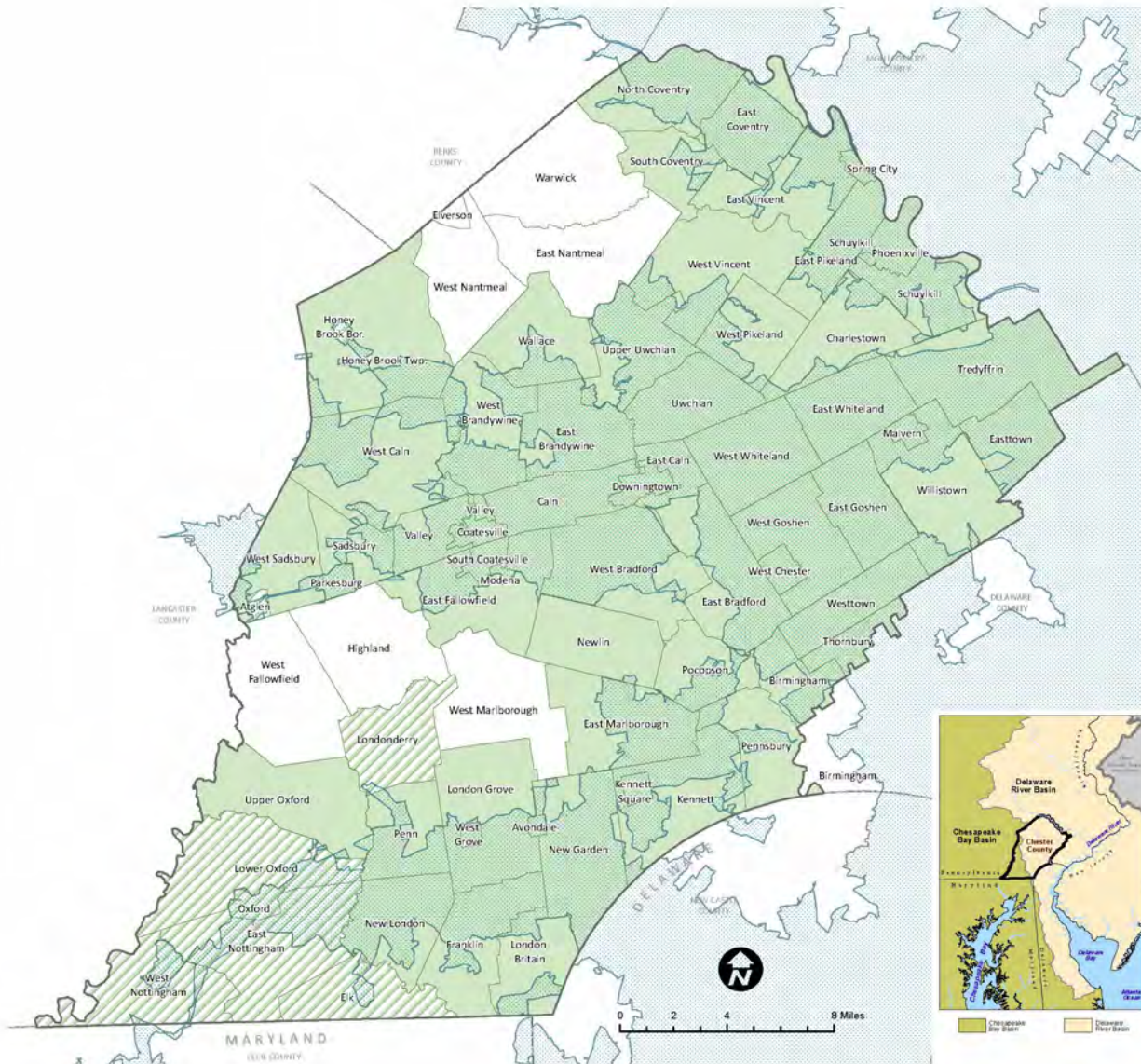
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Urbanized Area - U.S. Census Bureau

 2010 Urbanized Areas (Philadelphia and Pottstown)

Municipalities in the MS4 stormwater program

-  58 municipalities currently included in the MS4 program
-  8 municipalities notified that they will be included in MS4 program
-  8 municipalities not included in MS4 program
-  County Boundary



DATA SOURCES:
Municipalities in the MS4 Program - Pennsylvania Department of Environmental Protection, Bureau of Clean Water, July 2016
Urbanized Areas - U.S. Census Bureau, U.S. Department of Commerce, 2015
Administrative Boundaries and Waterbodies - Chester County, 2015

DISCLAIMER:
This map was generated using the best information available at the time of publication. This map should not be relied upon as the sole basis of determination of regulatory requirements or responsibilities. The relevant PADEP reports and other documents should be consulted for official designations and associated regulatory information. Should any conflicts exist between this map and the PADEP reports and regulations, the latter supersede this map.

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Chester County Water Resources Authority
www.chesco.org/water
November 14, 2016

NPDES REQUIREMENTS FOR SMALL MS4s

- The NPDES requires operators of Small MS4s to:
 - Apply for NPDES permit coverage (individual or general)
 - Develop a stormwater management program which includes the 6 minimum control measures
 - Implement the stormwater management program using appropriate stormwater management controls, or best management practices (BMPs)
 - Develop measurable goals for the program
 - Evaluate the effectiveness of the program.

SIX MINIMUM CONTROL MEASURES (MCMs)

Operators of regulated small MS4s are required to include these 6 minimum control measures in their stormwater management programs:

- 1) Public Education and Outreach
- 2) Public Participation/Involvement
- 3) Illicit Discharge Detection and Elimination
- 4) Construction Site Runoff Control
- 5) Post-Construction Runoff Control
- 6) Pollution Prevention/Good Housekeeping

MS4 REGULATIONS FOR PA MUNICIPALITIES (2016)

3500-PM-BCW0100d 6/2018
Permit



COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF CLEAN WATER

PAG-13
AUTHORIZATION TO DISCHARGE UNDER THE
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
GENERAL PERMIT FOR STORMWATER DISCHARGES FROM
SMALL MUNICIPAL SEPARATE STORM SEWER SYSTEMS (MS4s)
APPROVAL OF COVERAGE

NPDES PERMIT NO.

In compliance with the provisions of the Clean Water Act, 33 U.S.C. Section 1251 et seq. ("the Act") and Pennsylvania's Clean Streams Law, as amended, 35 P.S. Section 691.1 et seq.,

Is authorized to discharge from a regulated small municipal separate storm sewer system (MS4) located in _____ County to _____ in Watershed(s) _____ in accordance with effluent limitations, monitoring requirements and other conditions set forth herein.

APPROVAL OF COVERAGE TO DISCHARGE UNDER THIS GENERAL NPDES PERMIT IS AUTHORIZED BEGINNING ON _____ WHEN THE GENERAL PERMIT IS RENEWED, REISSUED OR MODIFIED. THE FACILITY OR ACTIVITY COVERED BY THIS APPROVAL FOR COVERAGE MUST COMPLY WITH THE FINAL RENEWED, REISSUED OR MODIFIED GENERAL PERMIT.

The authority granted by coverage under this General Permit is subject to the following further qualifications:

1. The permittee shall comply with the effluent limitations and reporting requirements contained in this General Permit.
2. Following initial coverage under this General Permit, the submission of Annual MS4 Status Reports in accordance with Part A, III.D of the General Permit shall constitute the permittee's Notice of Intent (NOI) for continued coverage under the General Permit. The permittee shall be responsible for complying with the final renewed, reissued or amended General Permit. If the permittee is unable to comply with the renewed or amended General Permit, the permittee must submit an application for an individual NPDES permit within 90 days of publication of the final General Permit.
3. The NOI and its supporting documents are incorporated into this approval of coverage. If there is a conflict between the NOI or its supporting documents and the terms and conditions of this General Permit, the terms and conditions of this General Permit shall apply.
4. Failure to comply with the terms, conditions, or effluent limitations of this General Permit is grounds for enforcement action, permit termination or revocation.
5. (IF APPLICABLE) The permittee shall implement Pollutant Control Measures as specified in Appendix (A, B and/or C).
6. (IF APPLICABLE) The permittee shall achieve pollutant loading reductions for (sediment, Total Phosphorus and/or Total Nitrogen) as specified in Appendix (D or E) by _____ Date - 5 Years from Effective Date of Coverage.

This approval of coverage is authorized by:

Clean Water Program Manager
Regional Office
Department of Environmental Protection

PA DEP MS4 REQUIREMENTS TABLE

MS4 Name	NPDES ID	Individual Permit Required?	Reason	Impaired Downstream Waters or Applicable TMDL Name	Requirement(s)	Other Cause(s) of Impairment
Chester County						
DOWNTOWN BORO	PAG130140	No		Beaver Creek		Cause Unknown (4a), Other Habitat Alterations, Water/Flow Variability (4c)
				East Branch Brandywine Creek		Cause Unknown (4a), Other Habitat Alterations, Water/Flow Variability (4c)
EAST BRADFORD TWP	PAI130523	Yes	TMDL Plan, SP, IP	Plum Run		Water/Flow Variability (4c)
				Valley Creek	Appendix C-PCB (4a), Appendix B-Pathogens (5), Appendix E-Siltation (5)	Cause Unknown (5), Other Habitat Alterations, Water/Flow Variability (4c)
				Blackhorse Run		Other Habitat Alterations, Water/Flow Variability (4c)
				Broad Run		Water/Flow Variability (4c)
				Christina River Basin Sediment	TMDL Plan-Siltation, Suspended Solids (4a)	
				Taylor Run		Other Habitat Alterations (4c)
				Unnamed Tributaries to East Branch Brandywine Creek		Other Habitat Alterations (4c)
East Branch Brandywine Creek		Cause Unknown (4a), Water/Flow Variability (4c)				
EAST BRANDYWINE TWP	PAI130524	Yes	SP, IP	Unnamed Tributaries to Beaver Creek	Appendix E-Siltation (4a)	
				Beaver Creek		Cause Unknown (4a), Other Habitat Alterations, Water/Flow Variability (4c)
				Culbertson Run	Appendix E-Siltation (4a)	Other Habitat Alterations (4c)
				East Branch Brandywine Creek		Cause Unknown (4a), Other Habitat Alterations, Water/Flow Variability (4c)

PA DEP MS4 REQUIREMENTS TABLE

MS4 Name	NPDES ID	Individual Permit Required?	Reason	Impaired Downstream Waters or Applicable TMDL Name	Requirement(s)	Other Cause(s) of Impairment
NEW GARDEN TWP	PAI130516	Yes	TMDL Plan, SP, IP	East Branch White Clay Creek	Appendix B-Pathogens (5)	
				Egypt Run	Appendix B-Pathogens (5)	
				Bucktoe Creek	Appendix C-PCB (4a)	
				Christina River Basin Sediment	TMDL Plan-Siltation, Suspended Solids (4a)	
				Christina River Basin Nutrients	TMDL Plan-Nutrients, Organic Enrichment/Low D.O. (4a)	
				White Clay Creek	Appendix B-Pathogens (5)	
				Trout Run	Appendix C-Pesticides (4a)	
				Broad Run	Appendix B-Pathogens (5)	Water/Flow Variability (4c)
				West Branch Red Clay Creek	Appendix C-PCB (4a)	
				Walnut Run	Appendix B-Pathogens (5)	Water/Flow Variability (4c)
				Unnamed Tributaries to East Branch White Clay Creek		Other Habitat Alterations (4c)
Red Clay Creek	Appendix C-PCB (4a)					
NEW LONDON TWP	PAI130526	Yes	TMDL Plan, SP, IP	White Clay Creek	Appendix B-Pathogens (5)	
				West Branch White Clay Creek	Appendix B-Pathogens (5)	
				Middle Branch White Clay Creek	Appendix B-Pathogens (5)	
				East Branch Big Elk Creek	Appendix E-Organic Enrichment/Low D.O. (5)	
				Christina River Basin Nutrients	TMDL Plan-Nutrients, Organic Enrichment/Low D.O. (4a)	
				Chesapeake Bay Nutrients/Sediment	Appendix D-Nutrients, Siltation (4a)	
				Christina River Basin Sediment	TMDL Plan-Siltation, Suspended Solids (4a)	

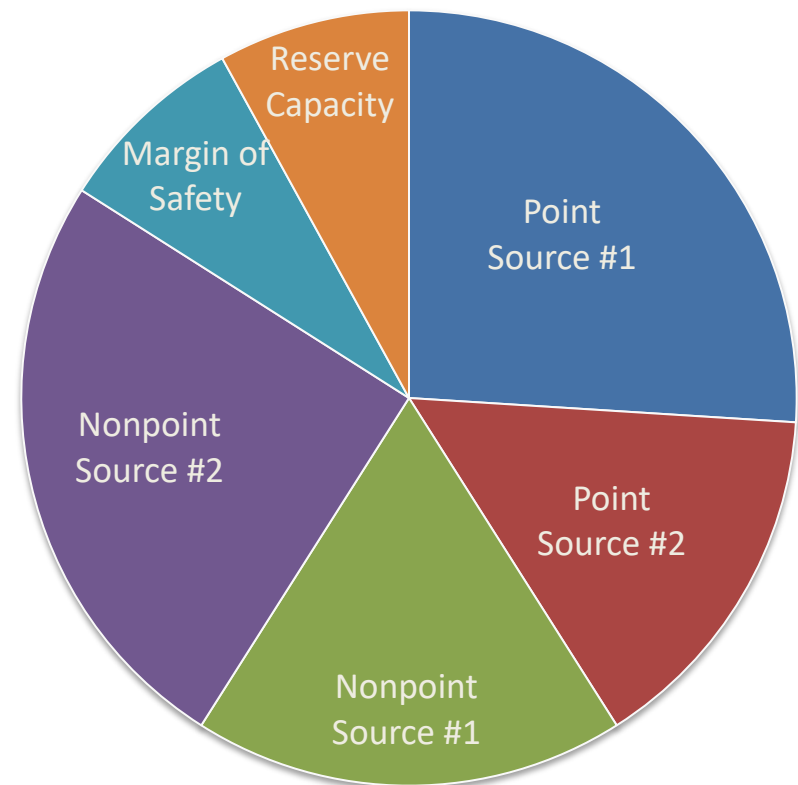
POLLUTANT REDUCTION PLANS (PRPs)

- PRP is a planning document that is designed to guide BMP selection in a manner that will reduce pollutant loading to impaired waters.
- Describe expected municipal upgrades and look for opportunities to implement BMPs that will reduce sediment and nutrient pollution to affected water body by 10% and 5% over the 5-year permit term.
- DEP proposed that the following municipalities are required to submit PRPs:
 - Municipalities that discharge to waters impaired by nutrients and/or sediment without a TMDL
 - Municipalities that discharge to Special Protection Waters (HQ/EV)

WHAT IS A TMDL?

- Total Maximum Daily Load
- EPA - “a calculation of the maximum amount of a pollutant that a waterbody can receive and still meet water quality standards”
- Pollution diet
- TMDLs provide EPA and states with a mechanism to address pollution from both point and nonpoint sources.

TMDL Components



- Explains how the municipality plans to reduce stormwater pollution consistent with waste load allocation (WLA) requirements
- For the current permit cycle, it may be submitted in two parts:
 - TMDL Strategy (due at time of application – already submitted)
 - TMDL Design Details (due one year after permit application is approved)
- For 2018 permit cycle - TMDL Plans were expected to be submitted in a single step with the permit application.

REQUIRED TMDL PLAN/PRP ELEMENTS

- Map(s) of the Storm Sewer System
- Pollutants of Concern
- Existing Pollutant Loading
- Required Pollutant Load Reductions
- BMP Effectiveness
 - DEP's BMP Effectiveness Values document
 - Chesapeake Bay Expert Panel Reports
- BMP Selection
- Funding Mechanisms
- Responsible Parties for O&M
- Public Participation

MS4 PERMIT STATUS

Chester County Stormwater and Pollution Reduction


Map
WQ-1-2015

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

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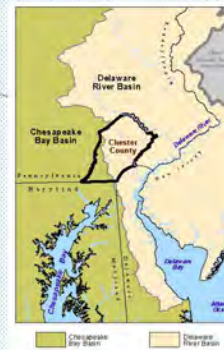
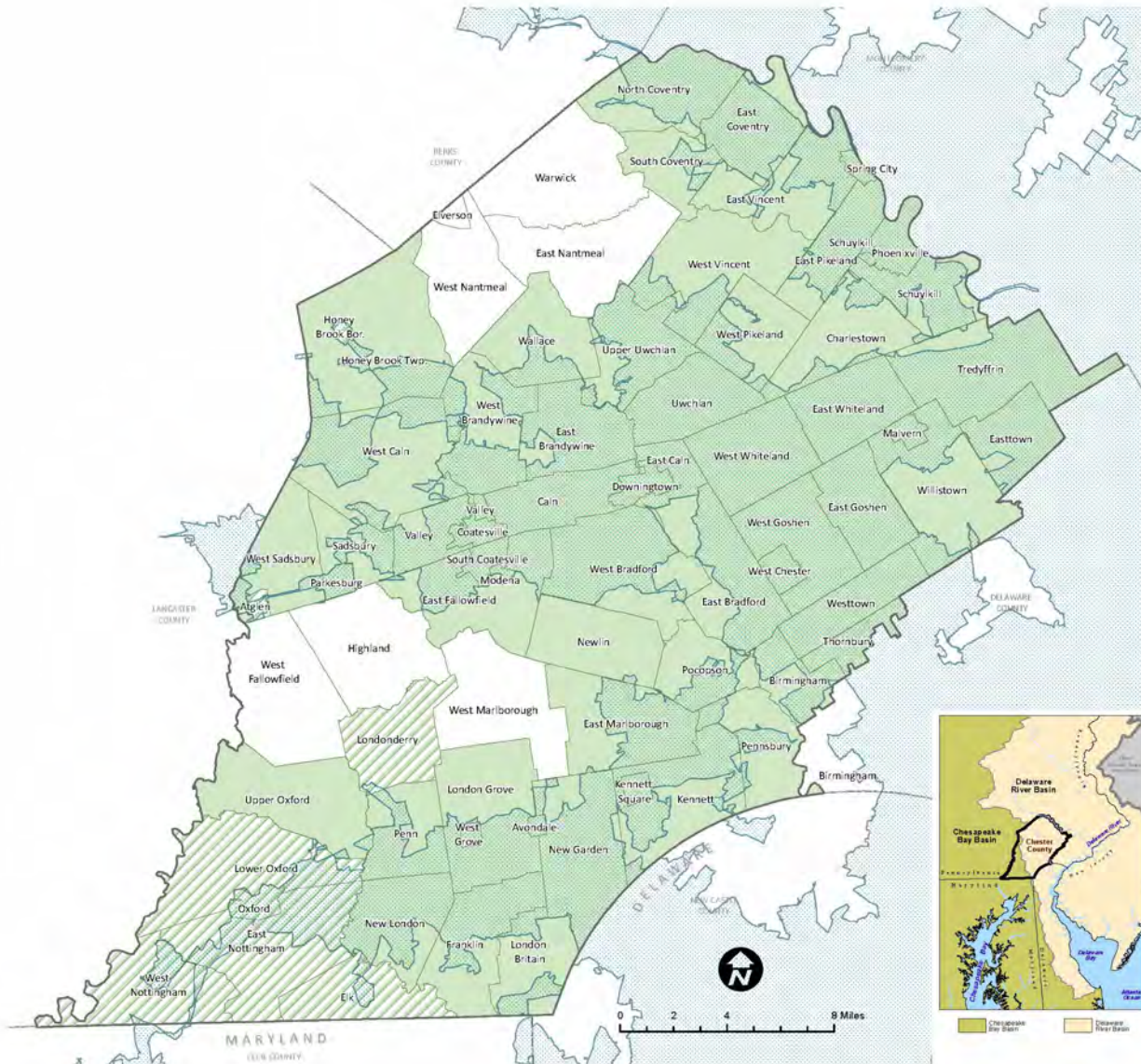
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Chester County Water Resources Authority
www.chesco.org/water
November 14, 2016

PA Act 167 of 1978

Purpose:

- Reduce flooding and stormwater impacts of future development and redevelopment
- Mandates counties to prepare stormwater management plans and standards
- Mandates municipalities to adopt the stormwater management standards

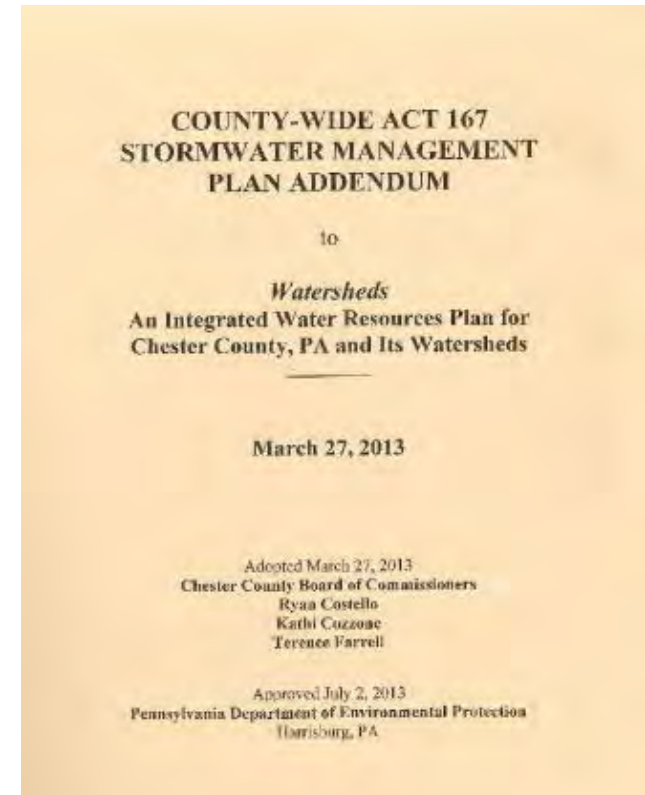


PENNSYLVANIA STORMWATER MANAGEMENT ACT (ACT 167)

- Counties must adopt stormwater management plans for all watersheds within the county
 - Must include information on existing runoff characteristics, areas of flooding concern, projected development, controls and standards for development, etc.
- Plans must be updated every 5 years
- Within 6 months of the County adopting an updated plan, municipalities must update their ordinances

ACT 167 COMPLIANCE IN CHESTER COUNTY

- Act 167 Plans were completed for several individual watersheds:
 - Chester Creek (2003)
 - Darby-Cobb Creek (2005)
 - Valley Creek (2011)
 - Crum Creek (2012)
- 2010: Chester County completed the *County-wide Act 167 Plan Phase 1 Report*
- 2013: Commissioners adopted the County-wide Stormwater Management Plan and Model Ordinance



THE NEED FOR AN UPDATE

- Compliance with PA DEP's **2022 Model Stormwater Management Ordinance** to assist MS4 municipalities with implementing MS4 permit requirements
- Updated ordinance replaced model ordinance contained in the **County-wide Act 167 Plan**
- Increased prevalence of intense **storm events**
- Continued **growth** and **development pressures**
- Opportunity to incorporate **municipal** and **public input**



Changes include:

- Requirement to include a list of all authorized discharges to an MS4
 - Discharges from commercial car washes or any potable water containing detectable levels of Trace Residual Chlorine not permitted
- Inspection Requirements:
 - Annual inspections required for first five years.
 - Inspections required every three years thereafter
 - Submission of inspection reports

Encouraged changes include:

- Adoption of riparian buffer standards
- Additional emphasis on using GI and LID to meet volume, rate, and water quality requirements



SUMMARY OF CHANGES TO COUNTY-WIDE MODEL STORMWATER ORDINANCE

- Minimum Applicability
 - Regulated activities
 - Regulated impervious surface threshold
- Minimum Required Standards
 - Downgradient Properties
 - Water Quality and Volume Control
 - Infiltration
 - Stream Channel Protection
 - Peak Rate Runoff Controls
 - O&M
- Optional Provisions
 - Exempt Activities
 - Small Projects
 - Agricultural Structures
 - Peak Rate Controls
 - Redevelopment



SUMMARY OF CHANGES TO COUNTY-WIDE ORDINANCE

- Simplified Approach for Small Projects
- Conservation Design, Low Impact Development, and Green Infrastructure
- Riparian Buffers



Rain garden



Green roof



Permeable pavement



Infiltration trench



Landscape water body



Grassed swale

Inspection Requirements:

Article VII (O&M Responsibilities and Easements):

- Inspection Requirements (Section 706)
 - **Inspection options:**
 - Municipal Inspection covered by a Stormwater BMP Maintenance Fund (included in original ordinance)
 - Landowner or Owner's Designee Inspection Requirements
 - Municipalities can include both options in their ordinance
 - **Inspection frequencies:**
 1. Annually for the first 5 years.
 2. Once every 3 years thereafter.
 3. During or immediately after the cessation of a 25-year or greater storm (for inspections conducted by the municipality) or 10-year or greater storm (all other inspections)

BENEFITS OF UPDATED ORDINANCE

- Continues to provide a consistent framework for stormwater management across the County
- Satisfies state regulatory requirements, including municipal MS4 requirements
- Improved ease of installing stormwater management for small projects
- Increased focus on utilizing green infrastructure and low impact development practices to control runoff
- Promotes the protection of the County's streams, riparian areas, wetlands, and floodplains

Ordinance and supporting documents are available at:

www.chesco.org/stormwaterordinance

Formally recommended to the Chester County Board of Commissioners for adoption by the....

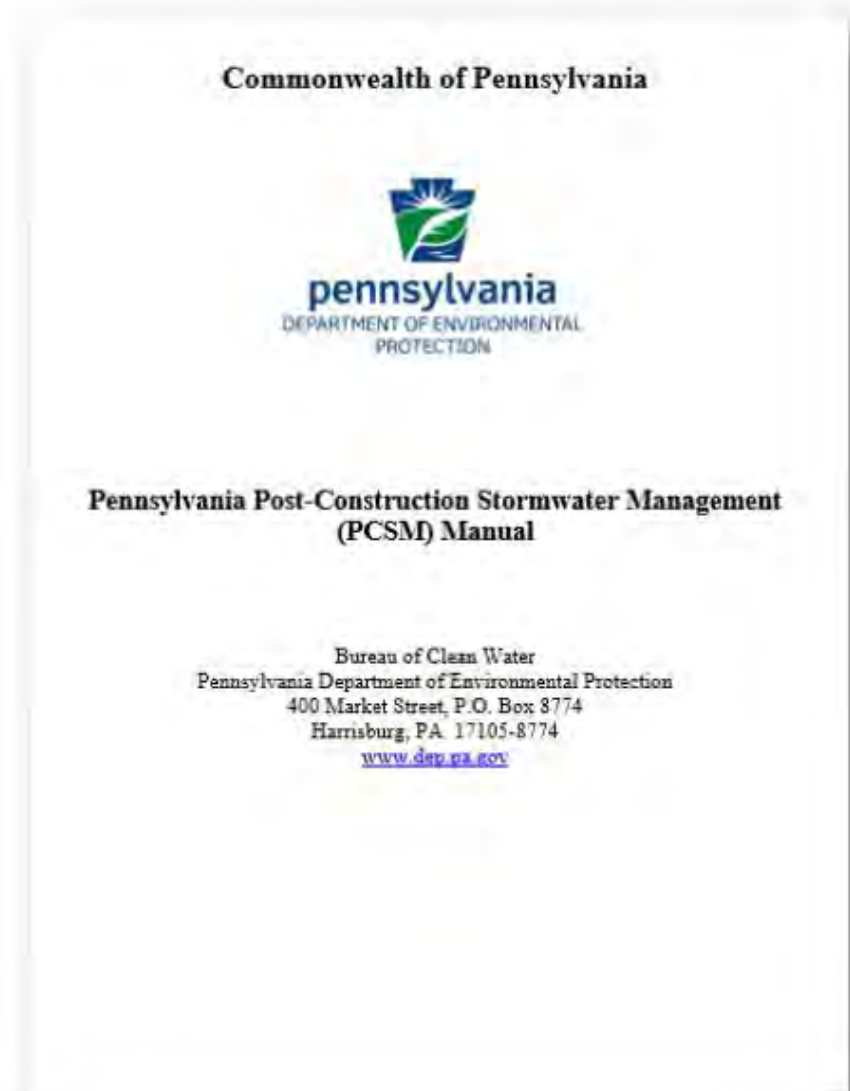
- Chester County Planning Commission
- Chester County Conservation District
- Chester County Water Resources Authority



Commissioners adopted ordinance at public hearing on August 17, 2022 which officially amends County-wide Act 167 Plan

- PADEP has extend MS4s with General Permits for 24 months.
 - Does not extend any deadlines that are contained in the PAG-13 General Permit, including the date for implementation of Pollutant Reduction Plans (PRPs) and when Pollutant Control Measures (PCMs) must be achieved.
 - The existing PAG-13 in effect will expire on March 15, 2023.
 - With extension - permittees who are operating under PAG-13 may continue to operate until March 15, 2025.
 - Submission of a Notice of Intent (NOI) to remain covered under a renewed PAG-13 is anticipated by that date.
- Waivers
 - Permittees with waivers of PAG-13 coverage or individual permit coverage set to expire in 2023 must submit a waiver application along with the PAG-13 NOI or individual permit application at least 180 days prior to the expiration date of the waiver.

- Acknowledges and addresses climate change
- Appropriate stormwater control measures for projects
- System approach
- Separates management for volume and water quality from rate control
- Expanded stormwater analysis method



Questions?

water@chesco.org
chesco.org/water
610-344-5400

