

BUCKS COUNTY STORMWATER MANAGEMENT PLAN WATERSHED PLAN ADVISORY COMMITTEE (WPAC) WORKSHOP NO. 4

OCTOBER 30, 2025

In cooperation with:



Presented By:



WELCOME FROM BUCKS COUNTY PLANNING COMMISSION

EVAN J. STONE, EXECUTIVE DIRECTOR
ESTONE@BUCKSCOUNTY.ORG



Bucks County

MATTHEW WALTERS, PROJECT MANAGER
DEANNA MILLER, PROJECT MANAGER



THIS MEETING IS BEING RECORDED. RECORDING CAN BE FOUND AT:
[HTTPS://CONNECTS.BUCKSCOUNTY.GOV/ACT-167-STORMWATER-PLAN-UPDATE](https://connects.buckscounty.gov/act-167-stormwater-plan-update)

CONSULTING TEAM



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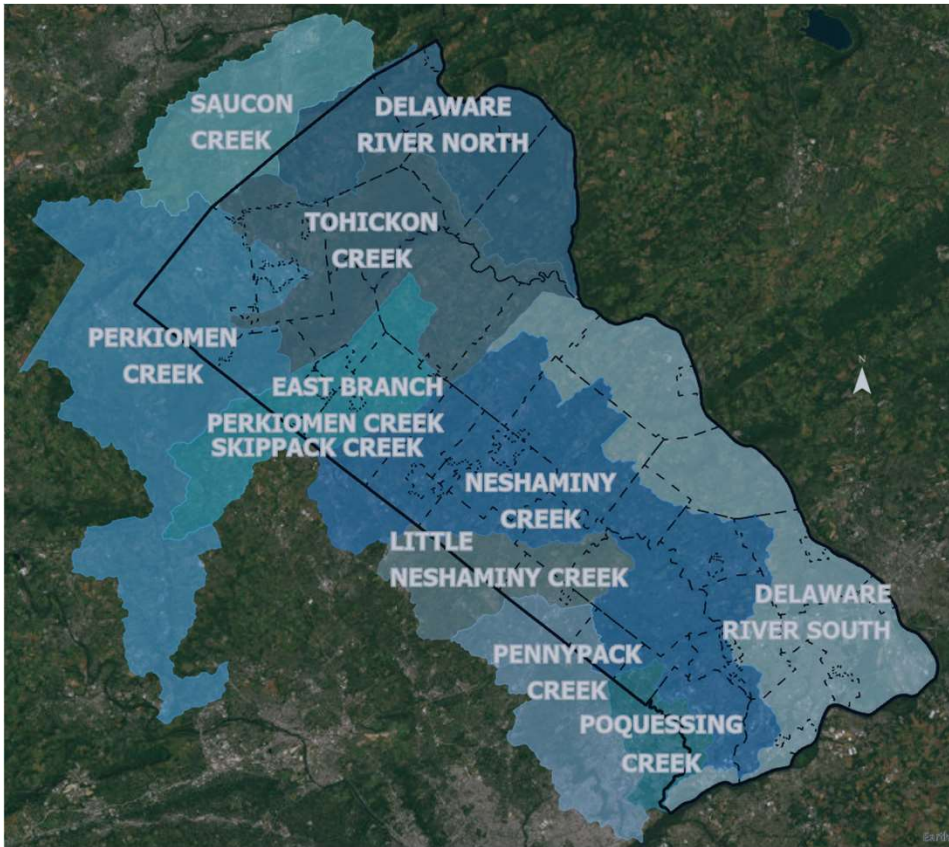
BETH UHLER
PENNSYLVANIA DIRECTOR



SHINY MATHEW, PE, ENV SP
TYLER CHARLES, PE

AGENDA

- Welcome & Introductions
- Act 167 Phase 2 Overview
- Problem Area Analysis Summary
- Standards Development
- Model Ordinance Update
- Recommendations for Future Act 167 Updates
- Schedule/Timeline
- Reimbursement Information
- Open Discussion



PHASE 2 OVERVIEW

ACT 167 PHASE 2 OVERVIEW

Task 1. Data Collection, Review and Analysis

Task 2. Technical Analysis

Task 3. Model Ordinance Development

Task 4. Public/Municipal Participation

Task 5. Plan Preparation and Implementation

ACT 167 PHASE 2 OVERVIEW

Task 1. Data Collection, Review and Analysis

- Watershed Data Review/Evaluations
- GIS Data Compilation for analysis
 - Existing and Future Land Use,
 - Wetlands,
 - Obstructions,
 - Problem Areas
 - Flood Control Fac. and SWM Facilities
- Additional Problem Area input/data review

ACT 167 PHASE 2 OVERVIEW

Task 1. Data Collection, Review and Analysis

Task 2. Technical Analysis

- Standards Evaluation (Peak Runoff Rates, Streambank Stabilization, Groundwater Recharge/Volume Control, and Water Quality)
- Hydrologic modeling and desktop evaluations of problem areas
- Land Use Change Study
- Development of conceptual solutions and cost estimates for problem areas

ACT 167 PHASE 2 OVERVIEW

Task 1. Data Collection, Review and Analysis

Task 2. Technical Analysis

Task 3. Model Ordinance Development

- Consistant with
 - MS4 Model Ordinance
 - PCSM Manual Model Ordinance

ACT 167 PHASE 2 OVERVIEW

Task 1. Data Collection, Review and Analysis

Task 2. Technical Analysis

Task 3. Model Ordinance Development

Task 4. Public/Municipal Participation

- WPAC Meetings
- Public Hearing
- Informational Workshop

ACT 167 PHASE 2 OVERVIEW

Task 1. Data Collection, Review and Analysis

Task 2. Technical Analysis

Task 3. Model Ordinance Development

Task 4. Public/Municipal Participation

Task 5. Plan Preparation and Implementation

- Final Plan
- Plan/Ordinance Adoption by Municipalities.

TASK 2. TECHNICAL ANALYSIS - PROBLEM AREA ANALYSIS SUMMARY

- Field Work Completed May - June 2025
- Detailed Priority Problem Area Analysis and Solution – Ongoing
 - Flooding - 82% of identified problem areas
 - Accelerated Erosion – 26%
 - Sedimentation - 12%
 - Water Recharge - 2%
 - Water Quality - <1%

East Branch Perkiomen Creek		
Problem Area(s) - Map ID:	45	Comments
Municipality:	Hilltown Township	This problem area was reported by Tim Fulmer of Wynn Associates for Hilltown Township. The problem area is at the Steeplebush Drive crossing Tributary 01269.
Inspected By/Date:	BAS/808 06/03/2025	
Checked By/Date:	BAS 10/22/2025	
Type of Problem (highlighted):		
1	Flooding	The problem is reported to be accelerated erosion affecting Steeplebush Drive.
2	Deficient Bridge/Culvert	
3	Erosion	
4	Sedimentation	
5	Water/Groundwater Pollution	
6	Other	
Description		
Culvert was measured and been completed for this location observed to the roadway		
Description		
The presence of bare earthen bank of the tributary, which may indicate excessive flows. Aerial imagery indicates significant upstream erosion of banks of Pleasant Spring Creek		
Solution		
1) Stabilize Stream Bank		
2) Reduce Peak Flows		
3) Evaluate Culvert Sizing		

TASK 2. TECHNICAL ANALYSIS - PROBLEM AREA ANALYSIS SUMMARY

- Reasons for increased flooding
 - Legacy Development
 - Climate Change – Rainfall Intensity and Frequency
 - Conveyance System Design

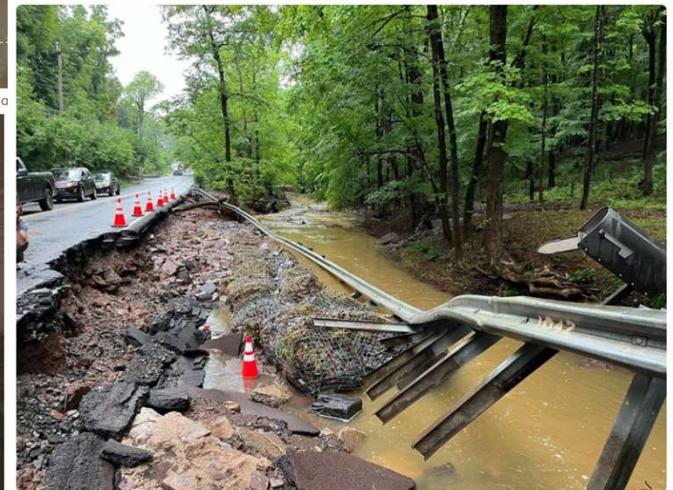


Image via 6abc.

Increased risk of floods, fires a



SkyForce10 was over the scene of widespread flooding along Bristol Pike in Bucks County.

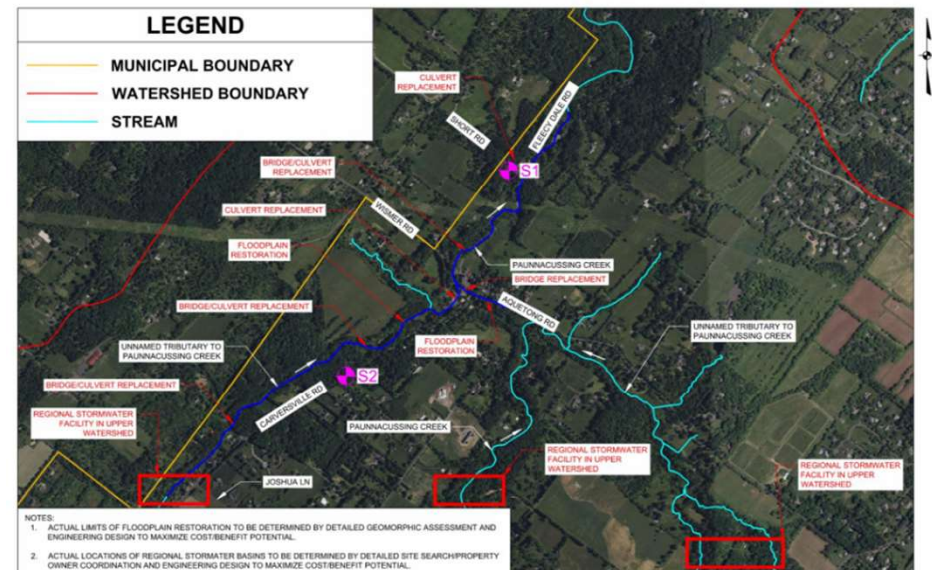


Pennsylvania senator Steve Santarsiero surveyed flooding damage in Washington Crossing township in Bucks County Pa, July 16, 2023.

Sen. Steve Santarsiero/Facebook

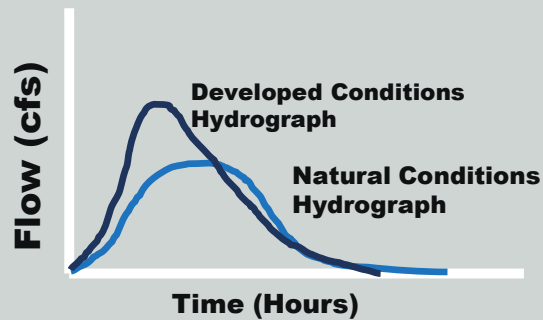
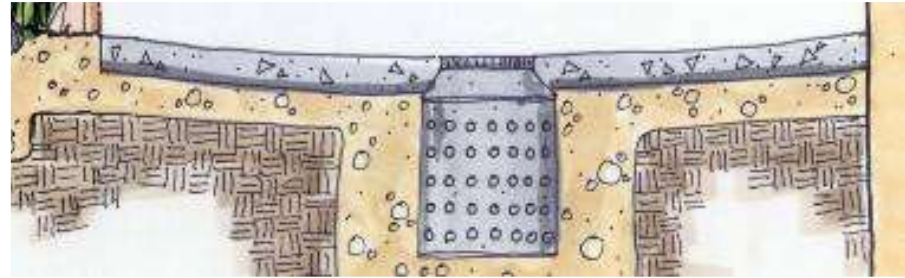
TASK 2. TECHNICAL ANALYSIS - PROBLEM AREA ANALYSIS SUMMARY

- Typical Problem Area Solutions
 - Bridge/Culvert Replacement
 - Floodplain Restoration
 - Regional Stormwater Facilities
 - Stormwater Basin Retrofits
 - Green Stormwater Infrastructure
- Solutions will be developed for problem areas
- Cost Estimate will be provided for solutions to aid in prioritization of future projects and funding



TASK 2. TECHNICAL ANALYSIS - STANDARDS DEVELOPMENT

- Peak Flow, Stream Stability, Groundwater Recharge/Volume Control, Water Quality



TASK 2. TECH ANALYSIS - STANDARDS DEVELOPMENT

■ Peak Rates

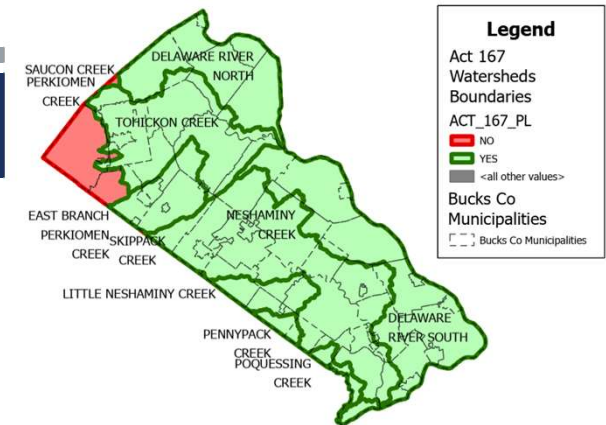
- Where release rates exist
 - Convert percent reduction to design storm basis
(50% reduction => 10-year post-dev. to 5-year pre-development)
- Unami Creek modeling being used to assess possible release rates.

■ Stream Bank Protection

- 2-year post-development to 1-year pre-development

■ Recharge/Volume Control (State Standard)

■ Water Quality (State Standard)



Existing Act 167 Watershed Plan	Peak Rate Standards
Delaware River North	% Reduction (3 Districts)
Delaware River South	Design Storm (3 Districts)
EB Perkiomen Creek	Design Storm (3 Districts)
Neshaminy Creek	Design Storm (3 Districts)
Perkiomen Creek	Not Completed for Bucks Co
Pennypack Creek	Design Storm (3 Districts)
Poquessing Creek	Design Storm (3 Districts)
Saucon Creek	N/A – approx. 105 acres
Skippack Creek	N/A – approx. 7 acres
Tohickon Creek	% Reduction (4 Districts)

TASK 2: TECHNICAL ANALYSIS - UNAMI MODEL CALIBRATION

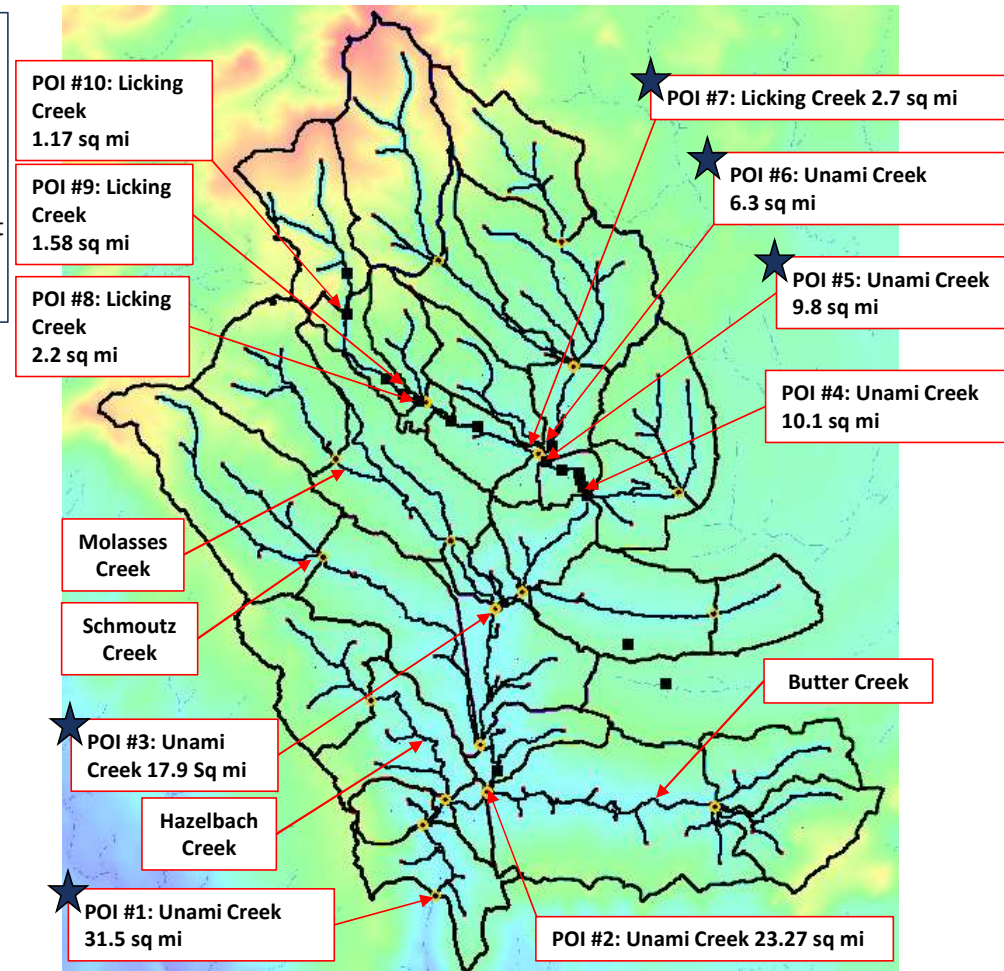
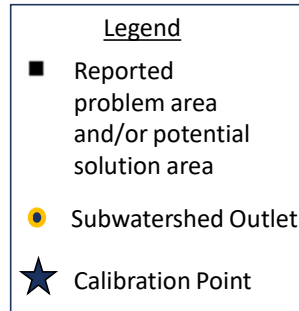
Target Flows

- USGS SIR 2019-5094
- Flows from a regional gage analysis (local stream gages are unavailable)
- Table with 25-year results:

POI	DA (mi ²)	Regional Gage (cfs)	USGS SIR 2019-5094 (cfs)	Initial Run Q (cfs)	Calibrated Q (cfs)	FEMA FIS (cfs)
1	31.5	7,068	7,210	14,550	7,188	9,788 (DA 36.7)
3	17.9	4,737	5,005	9,075	5,686	6,707 (DA 19.7)
5	9.8	3,101	3,402	4,345	3,614	3,697 (DA 9.7)
6	6.3	2,261	2,551	2,675	2,268	n/a
7	2.7	1,246	1,482	1,441	1,282	897 (DA 2.3)



FEMA 25-year flows were interpolated from a curve of published 10-, 50-, 100-, and 500-year event flows. FEMA flows were performed in 1976 (HEC-1) and are outdated.



TASK 3. MODEL ORDINANCE

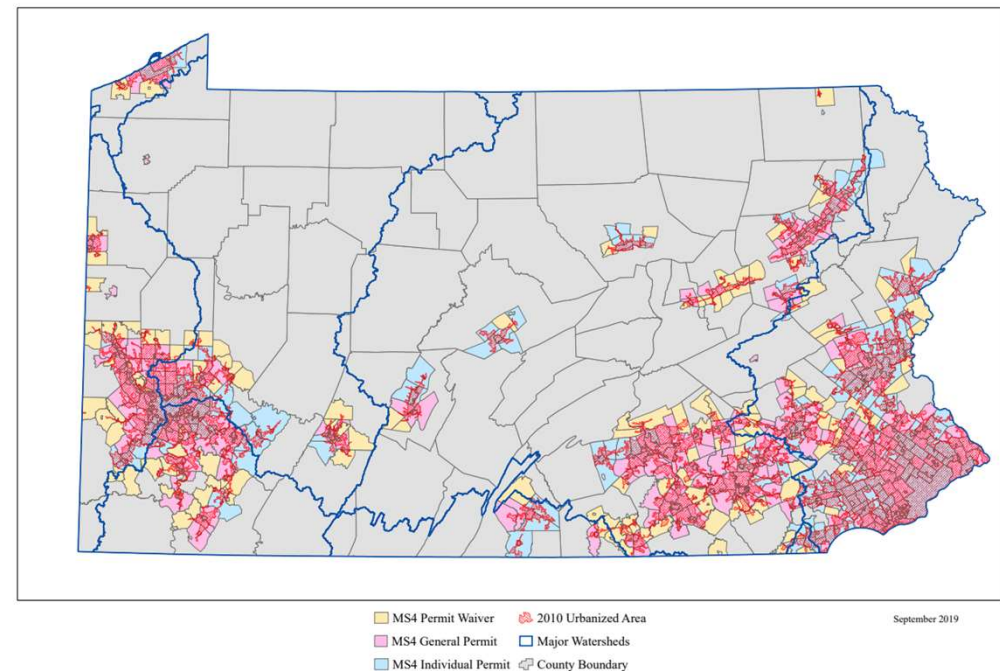
- Consistent with PCSM Manual & MS4 Draft Model Ordinances
- Small Project Exemption Standards
 - PCSM Manual - doesn't address
 - MS4 draft ordinance - open ended
 - Existing watershed Act 167 ordinances vary
 - 1000 to 5000 sq ft impervious area topical
 - Some include sliding scale dependent on disturbed area.
 - Recommendation: 5000 sq ft impervious Area or more restrictive (by municipality)
- MS4 and PCSM Manual Model Ordinance releases are impacting project schedule

3800-PM-BCW0100j 1/2025
Model Ordinance
Pennsylvania
Department of
Environmental Protection

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF CLEAN WATER

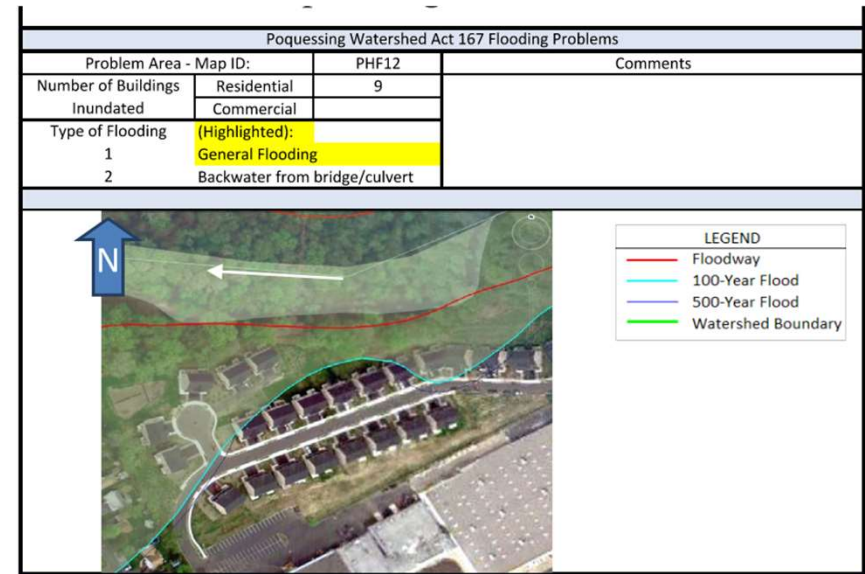
**NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
STORMWATER DISCHARGES FROM SMALL
MUNICIPAL SEPARATE STORM SEWER SYSTEMS (MS4s)
PENNSYLVANIA STORM WATER MANAGEMENT ACT (ACT 167)
2028 MODEL STORMWATER MANAGEMENT ORDINANCE**

Pennsylvania MS4 Municipalities



TASK 5. PLAN PREPARATION - RECOMMENDATIONS FOR FUTURE ACT 167 SB0

- Perform Hydraulic Analysis of Flooding Problem areas
- Implementation of municipal Stormwater Fees
 - 3 Municipalities have implemented Stormwater Fees
 - Warminster
 - Middletown
 - Lower Makefield (pending)



Slide 20

SB0

May want to list the municipalities that already have implemented SW fees (and tabulate for report)Also indicate that there may be future Act 167 funds available for analysis of flooding problem areas. Also some Corps funding available.

Scott Brown, 2025-10-28T13:18:20.426

SCHEDULE/TIMELINE SB0

- May-June 2025: Field Visits Completed
- May-Nov 2025: Technical Analysis
- March 2026: Draft Plan and Draft Model Ordinance
- June 2026: Finalize Report, Model Ordinance, and Exhibits
- July 2026: Phase 2 Report Submission to PA DEP
- Sept – Nov 2026; Public Hearing and Board Approval
- Nov – Early 2027 Municipal Implementation and Ordinance Adoption, Public Info Workshops

Slide 21

SB0

May need updated based on conversation with Jamie

Scott Brown, 2025-10-28T13:19:10.967

MUNICIPAL REIMBURSEMENT SB0

- [Municipal Reimbursement Form and Application](#) (linked here)
- More information on eligibility for reimbursements is at [PA Clean Water Academy](#)
 - Use the Find Learning dropdown menu to select “Stormwater – Act 167.” Then click on the “Act 167 Plan Municipal Reimbursements” course

3800-FM-BCW0059 Rev. 1/2025
Instructions
Pennsylvania
Department of
Environmental Protection

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF CLEAN WATER

INSTRUCTIONS FOR COMPLETING THE APPLICATION FOR MUNICIPAL REIMBURSEMENT UNDER THE PENNSYLVANIA STORM WATER MANAGEMENT ACT (1978 ACT 167)

General Instructions

Municipalities located in counties for which watershed stormwater management plans (“Act 167 Plans”) have been adopted by the county and approved by the Department shall be eligible for partial reimbursement of the allowable costs incurred during the adoption of stormwater ordinances and for the administration, implementation, and enforcement of the provisions of the county Act 167 Plan. Only municipalities that have enacted a stormwater ordinance consistent with a model ordinance contained in a current and approved 167 Plan are eligible for reimbursement. Municipalities updating ordinances independent of a county Act 167 Plan or Plan update are not eligible for reimbursement. Reimbursements shall be made from and to the extent of funds appropriated by the General Assembly for such purposes. When funding is available, municipalities may request reimbursement for 75% of the allowable costs up to a cap of \$9,999 per year.

The following instructions and explanatory notes are for use in completing the municipal reimbursement application.

... are allowable

... es relating to
... cons...
... on or purchase
... he adoption or
... nses.

... ment.
... activities
... activities other than purely stormwater management
... by Act 167 including BMP implementation require
... ents for allowable costs incurred must be include

- Costs for reviewing stormwater management components of land development plans.
 - Costs for inspection and monitoring of the construction of Stormwater Management Facilities
 - Costs for technical, legal, and clerical services necessary to enact ordinances, regulations, creation or purchase of administrative forms, maps, and other items required by the Act 167.
 - Costs for technical and legal services necessary for required public hearings related to the adoption or implementation of the Act 167 Plan.
 - Costs incurred for participation in a watershed plan advisory committee, including mileage expenses.
- Costs which are offset by permit review or stormwater fees imposed by the municipality.
 - Costs for activities or expenses which are not solely required by Act 167 including BMP implementation required to comply with MS4 NPDES Permits.

Slide 22

SB0

Include bullets identifying the most common costs that can be reimbursed and what can't be.

Scott Brown, 2025-10-28T13:19:54.303



THANK YOU!

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