BUCKS COUNTY STORMWATER MANAGEMENT PLAN WATERSHED PLAN ADVISORY COMMITTEE (WPAC) WORKSHOP NO. 6

OCTOBER 22, 2026



In cooperation with:

BCPC
Bucks County Planning Commission

Presented By:

Newell Tereska & MacKay
ENGINEERING

WELCOME FROM BUCKS COUNTY PLANNING COMMISSION

MICHAEL ROEDIG, EXECUTIVE DIRECTOR
MROEDIG@BUCKSCOUNTY.ORG

MATTHEW WALTERS, SENIOR PLANNER/PROJ MGR
DEANNA MILLER, PLANNER/ASSISTANT PROJ MGR
ANDREW HEIMARK, DIRECTOR OF GIS SERVICES

Bucks County

BCPC
Bucks County Planning Commission

THIS MEETING IS BEING RECORDED. RECORDING CAN BE FOUND AT:

HTTPS://CONNECTS.BUCKSCOUNTY.GOV/ACT-167-STORMWATER-PLAN-UPDATE

CONSULTING TEAM

NEWELL TERESKA & MACKAY ENGINEERING

SCOTT BROWN, MS, PE, D.WRE
PAUL DEBARRY, MS, PE, PH, GISP, D.WRE
BETHANY SHUMAKER, MS, PE, CSI

CENTER FOR WATERSHED PROTECTION

BETH UHLER
PENNSYLVANIA DIRECTOR

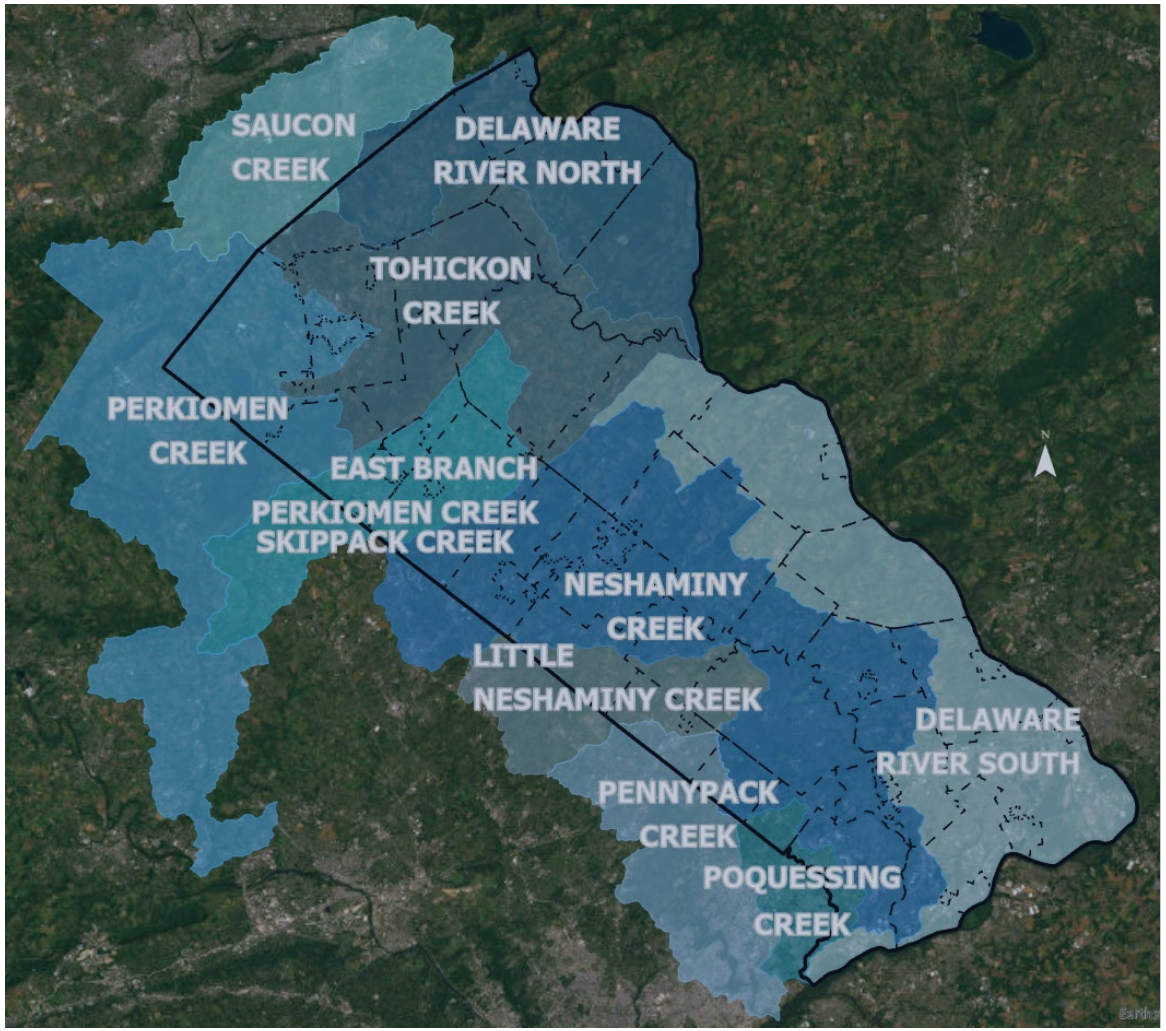
JMT

TYLER CHARLES, PE
SENIOR ASSOCIATE

AGENDA

1. Project Overview
2. Phase 2 Plan Content
3. Model Ordinance Highlights
4. Plan Review and Implementation Schedule
5. Commenting on the Plan
6. Questions/ Open Discussion

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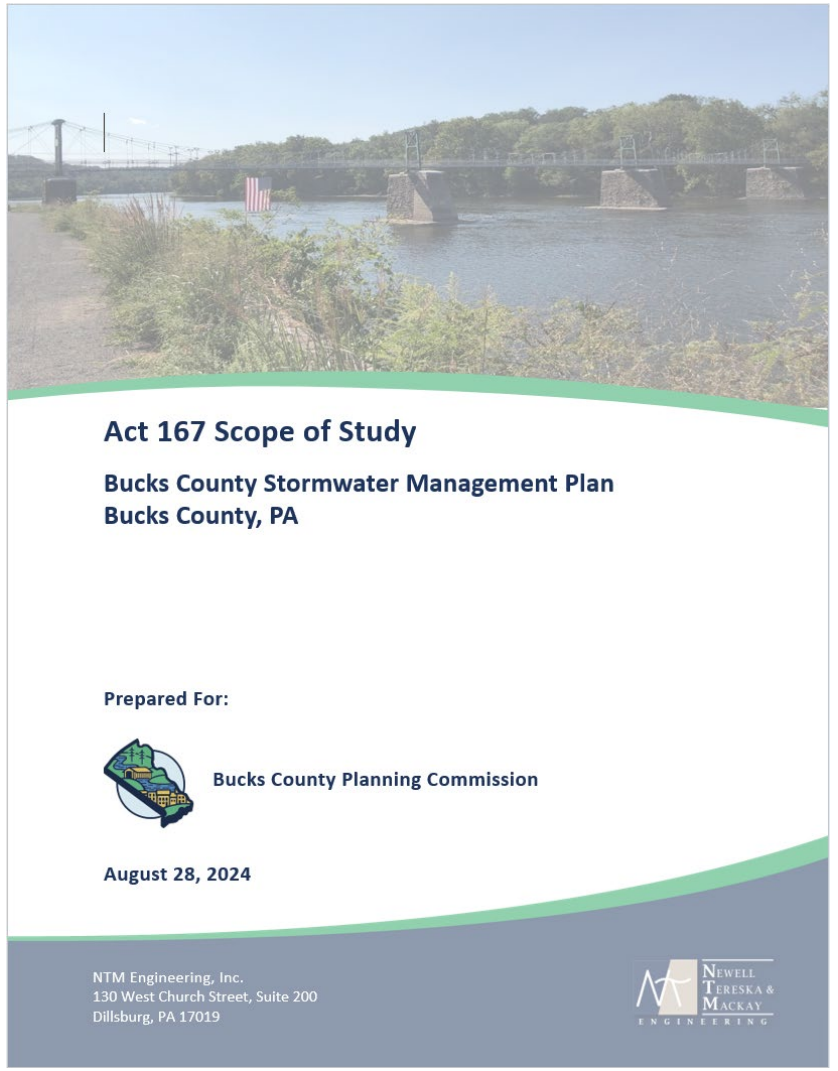


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1. PROJECT OVERVIEW

1. PROJECT OVERVIEW - PHASE 1 SCOPE OF STUDY

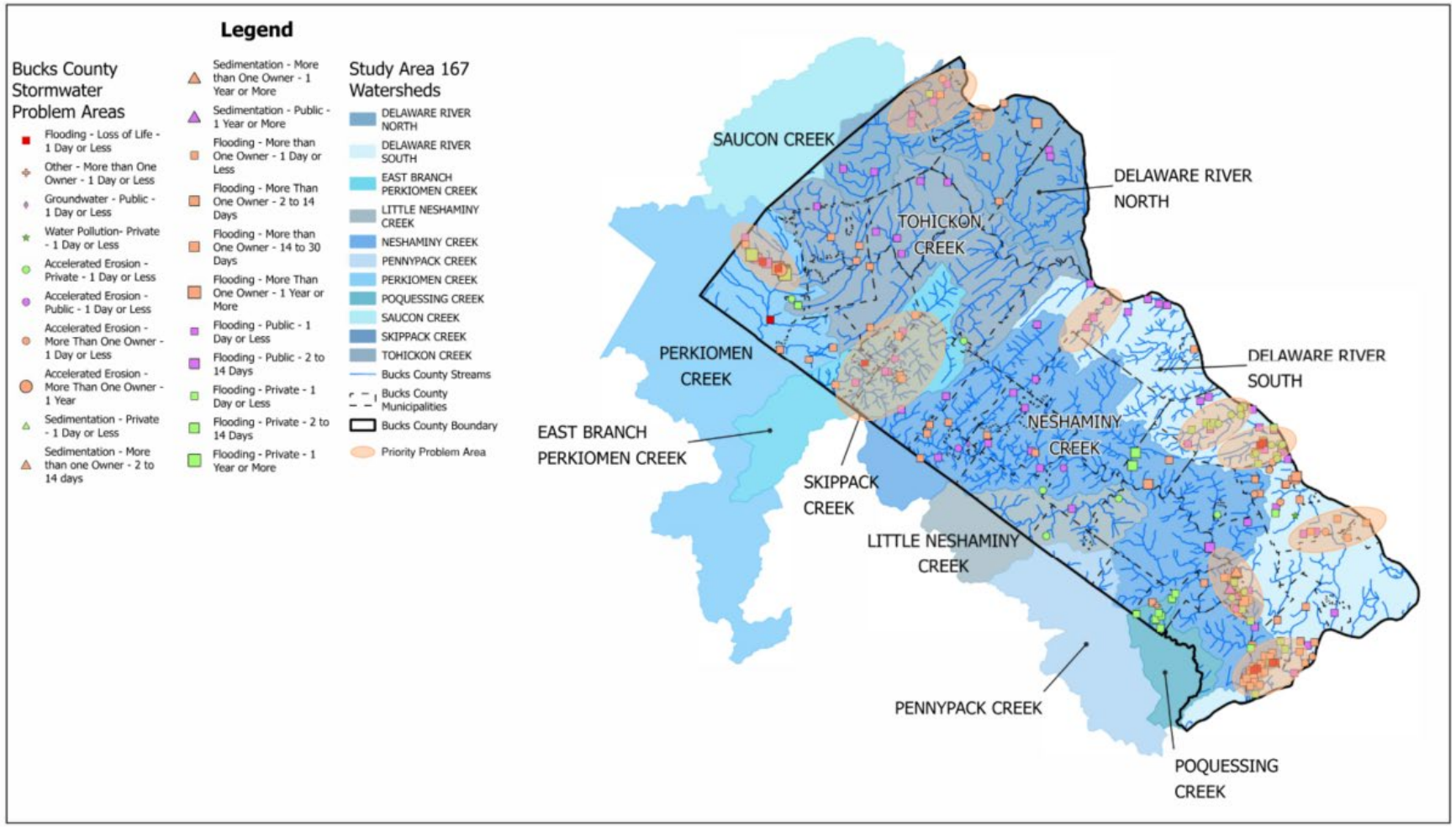
- ID County Objectives
- Summarize State Regulatory Standards
- Review and Summarize County Watershed Characteristics
- Assess County Land Use
- Inventory and Characterize Problem Areas
  - Municipal Survey
  - Prioritize Problem Areas
- Develop Scope of Study for Phase 2



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1. PROJECT OVERVIEW - PHASE 2 PLAN DEVELOPMENT

Task 1. Data Collection and Review



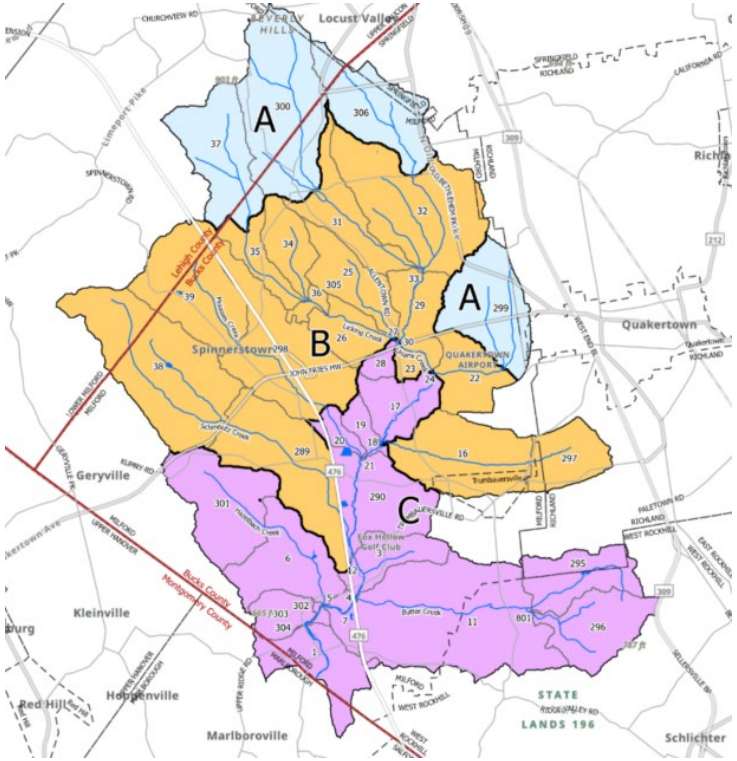
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1. PROJECT OVERVIEW - PHASE 2 PLAN DEVELOPMENT

Task 1. Data Collection and Review

Task 2. Technical Analysis

- Standards Evaluation (Peak Runoff Rates, Streambank Stabilization, Groundwater Recharge/Volume Control, and Water Quality)
- Unami Creek Release Rate Modeling
- Develop Problem Area Conceptual Solutions and Desktop Evaluations
- Land Use Change Considerations



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1. PROJECT OVERVIEW - PHASE 2 PLAN DEVELOPMENT

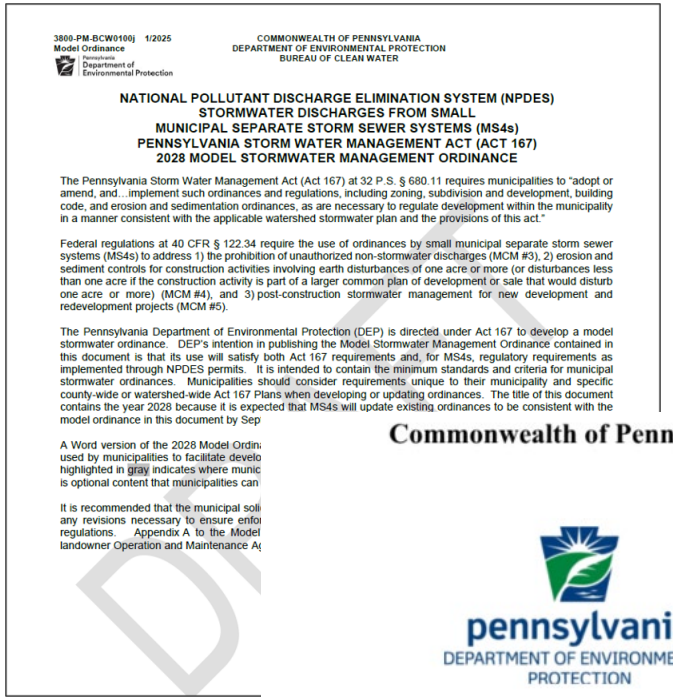
Task 1. Data Collection, Review and Analysis

Task 2. Technical Analysis

Task 3. Model Ordinance Development

Consistent with

- PADEP 2028 MS4/Act 167 Model Ordinance
- Post Construction Stormwater Management (PCSM) Manual



3800-PM-BCW0100j 1/2025
Model Ordinance

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

The Pennsylvania Storm Water Management Act (Act 167) at 32 P.S. § 680.11 requires municipalities to "adopt or amend, and…implement such ordinances and regulations, including zoning, subdivision and development, building code, and erosion and sedimentation ordinances, as are necessary to regulate development within the municipality in a manner consistent with the applicable watershed stormwater plan and the provisions of this act."

Federal regulations at 40 CFR § 122.34 require the use of ordinances by small municipal separate storm sewer systems (MS4s) to address 1) the prohibition of unauthorized non-stormwater discharges (MCM #3), 2) erosion and sediment controls for construction activities involving earth disturbances of one acre or more (or disturbances less than one acre if the construction activity is part of a larger common plan of development or sale that would disturb one acre or more) (MCM #4), and 3) post-construction stormwater management for new development and redevelopment projects (MCM #5).

The Pennsylvania Department of Environmental Protection (DEP) is directed under Act 167 to develop a model stormwater ordinance. DEP's intention in publishing the Model Stormwater Management Ordinance contained in this document is that its use will satisfy both Act 167 requirements and, for MS4s, regulatory requirements as implemented through NPDES permits. It is intended to contain the minimum standards and criteria for municipal stormwater ordinances. Municipalities should consider requirements unique to their municipality and specific county-wide or watershed-wide Act 167 Plans when developing or updating ordinances. The title of this document contains the year 2028 because it is expected that MS4s will update existing ordinances to be consistent with the model ordinance in this document by Sep

A Word version of the 2028 Model Ordin
used by municipalities to facilitate develo
highlighted in gray indicates where munic
is optional content that municipalities can

It is recommended that the municipal soli
any revisions necessary to ensure enfo
regulations. Appendix A to the Model
landowner Operation and Maintenance Ag

DRAFT



Commonwealth of Pennsylvania

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Pennsylvania Post-Construction Stormwater Management (PCSM) Manual

Bureau of Clean Water
Pennsylvania Department of Environmental Protection
400 Market Street, P.O. Box 8774
Harrisburg, PA 17105-8774
www.dep.pa.gov

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1. PROJECT OVERVIEW – PHASE 2 PLAN DEVELOPMENT

Task 1. Data Collection, Review and Analysis

Task 2. Technical Analysis

Task 3. Model Ordinance Development

Task 4. Public/Municipal Participation

- WPAC Meetings
- Informational Workshop
- Public Hearing

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1. PROJECT OVERVIEW – PHASE 2 PLAN DEVELOPMENT

Task 1. Data Collection, Review and Analysis

Task 2. Technical Analysis

Task 3. Model Ordinance Development

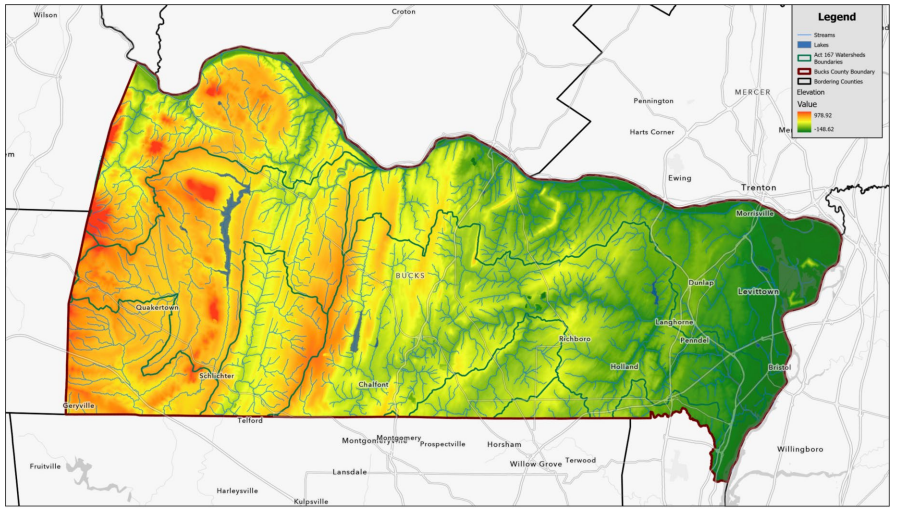
Task 4. Public/Municipal Participation

Task 5. Develop Final Plan

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2. PHASE 2 PLAN CONTENT

1. Introduction
   - General Background Info on Plan and Stormwater Management
2. Act 167 Overview
   - Planning and Policies under the Act
   - Plan Benefits an approach
   - Related County Planning Efforts
   - Plan Objectives and Goals
3. Watershed Plan Advisory Committee and Meeting Summary
4. General Description of County
   - Political Jurisdictions
   - Land Use
   - Land Development Patterns
   - Slopes
   - Soils
   - Watersheds and Designated Uses
   - Wetlands
   - Climate

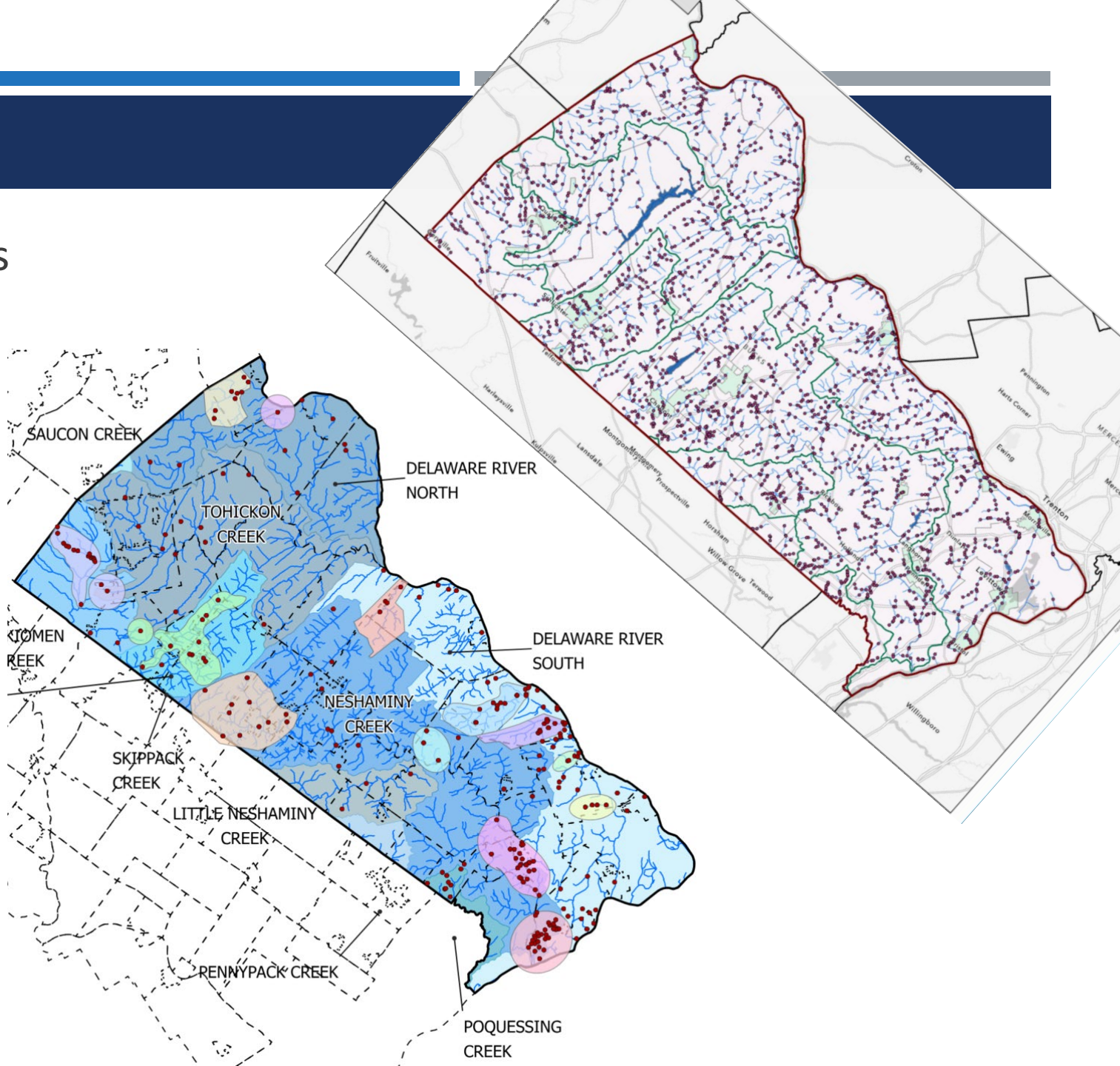


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2. PHASE 2 PLAN CONTENT

5. Problem Areas and Obstructions

- Previous Act 167 Problem Areas
- Municipal Survey Results
- Priority Site Field View Results
- Generalized Problem Area Recommendations
- Problem Area Conceptual Solutions
- Obstructions

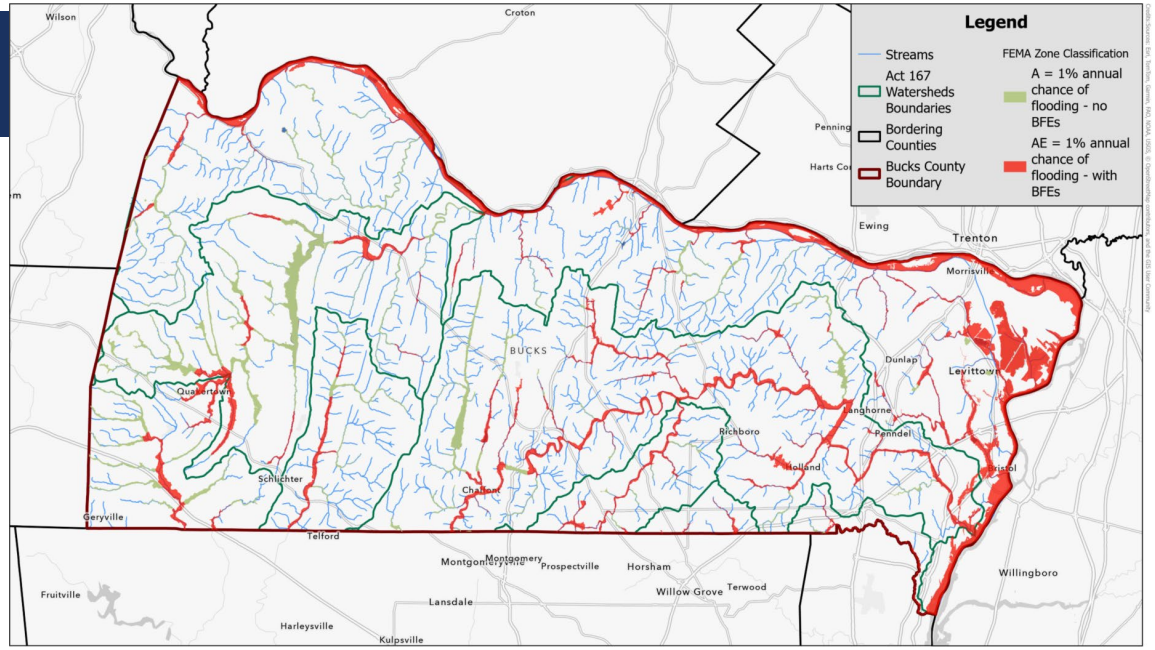


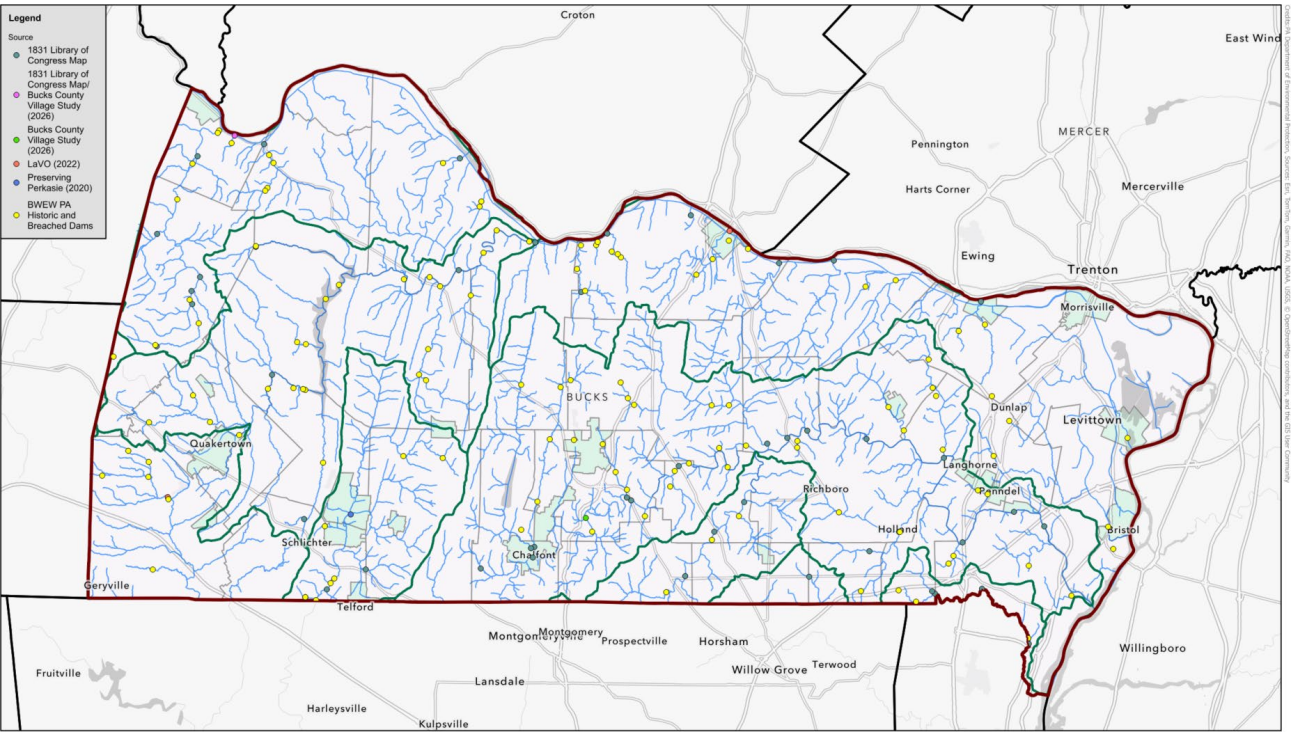
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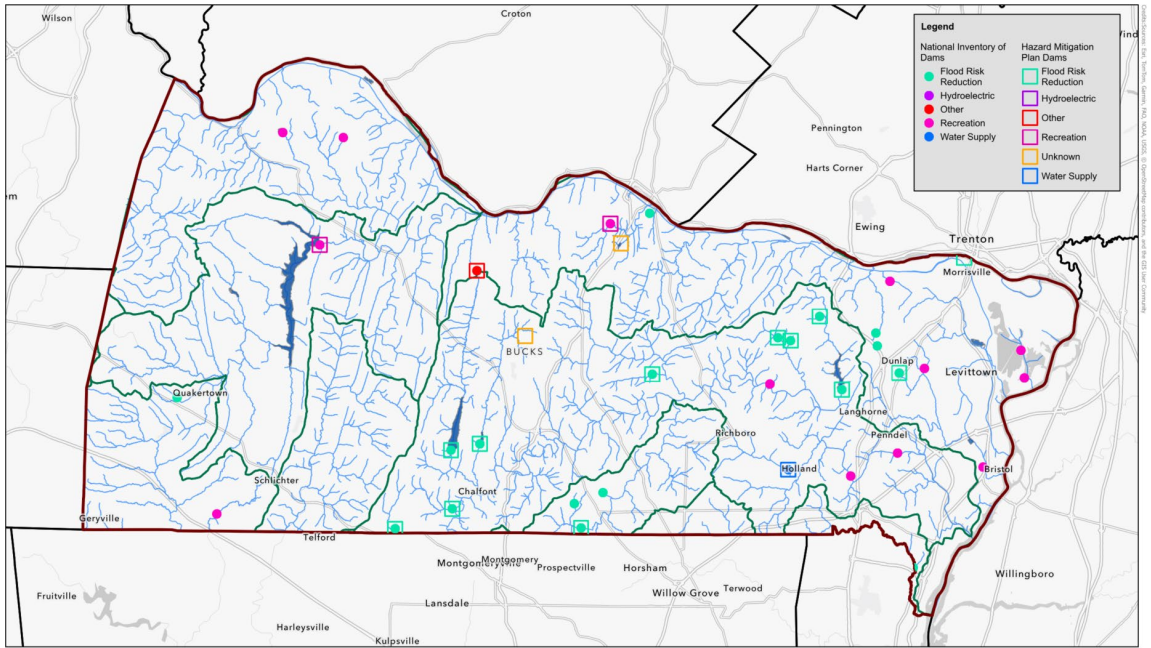
2. PHASE 2 PLAN CONTENT

6. Floodplains and Stormwater Control Facilities

- Floodplains
- Dams and Flood Control Facilities
- Historic Mill Dams

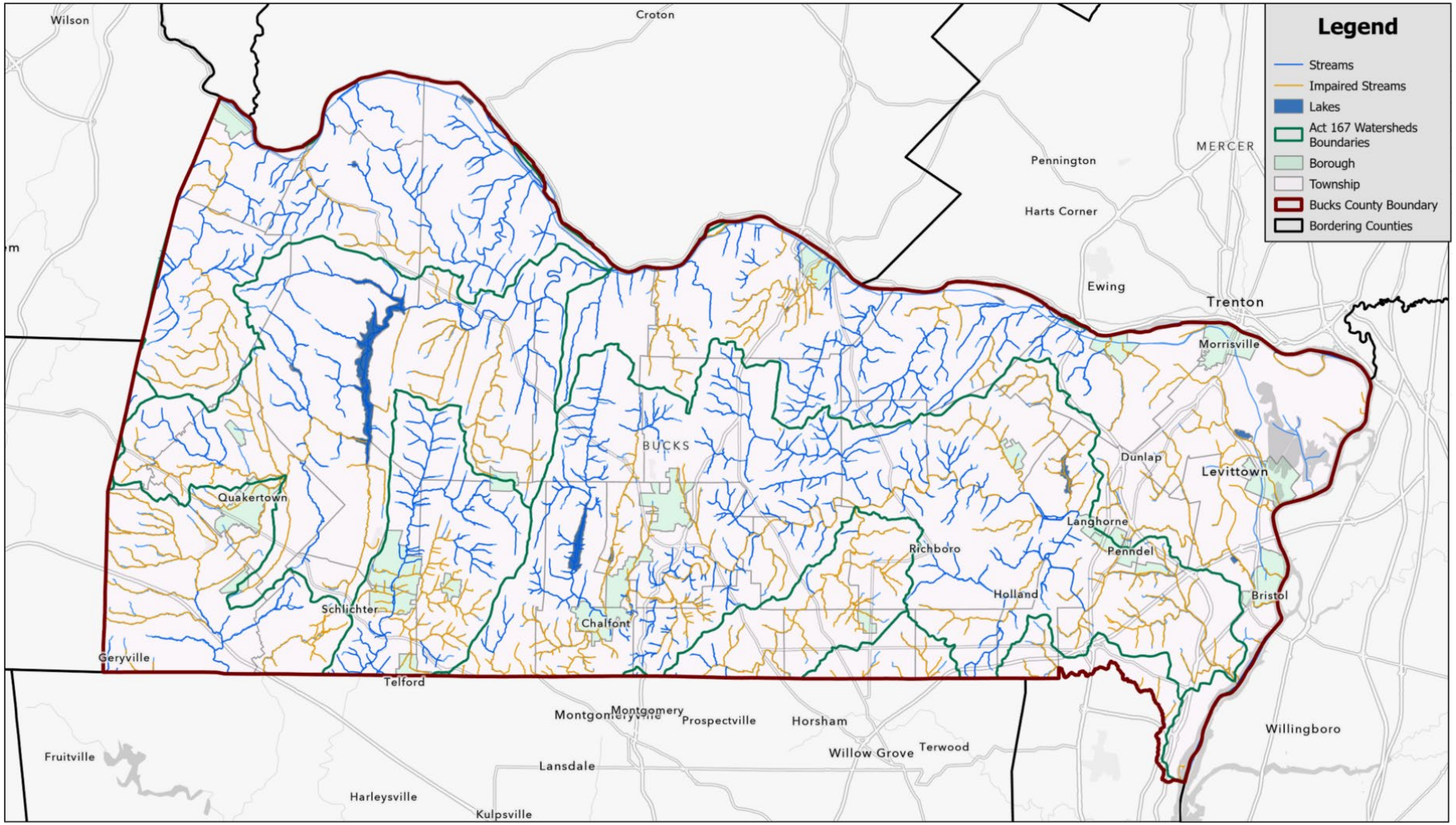






2. PHASE 2 PLAN CONTENT

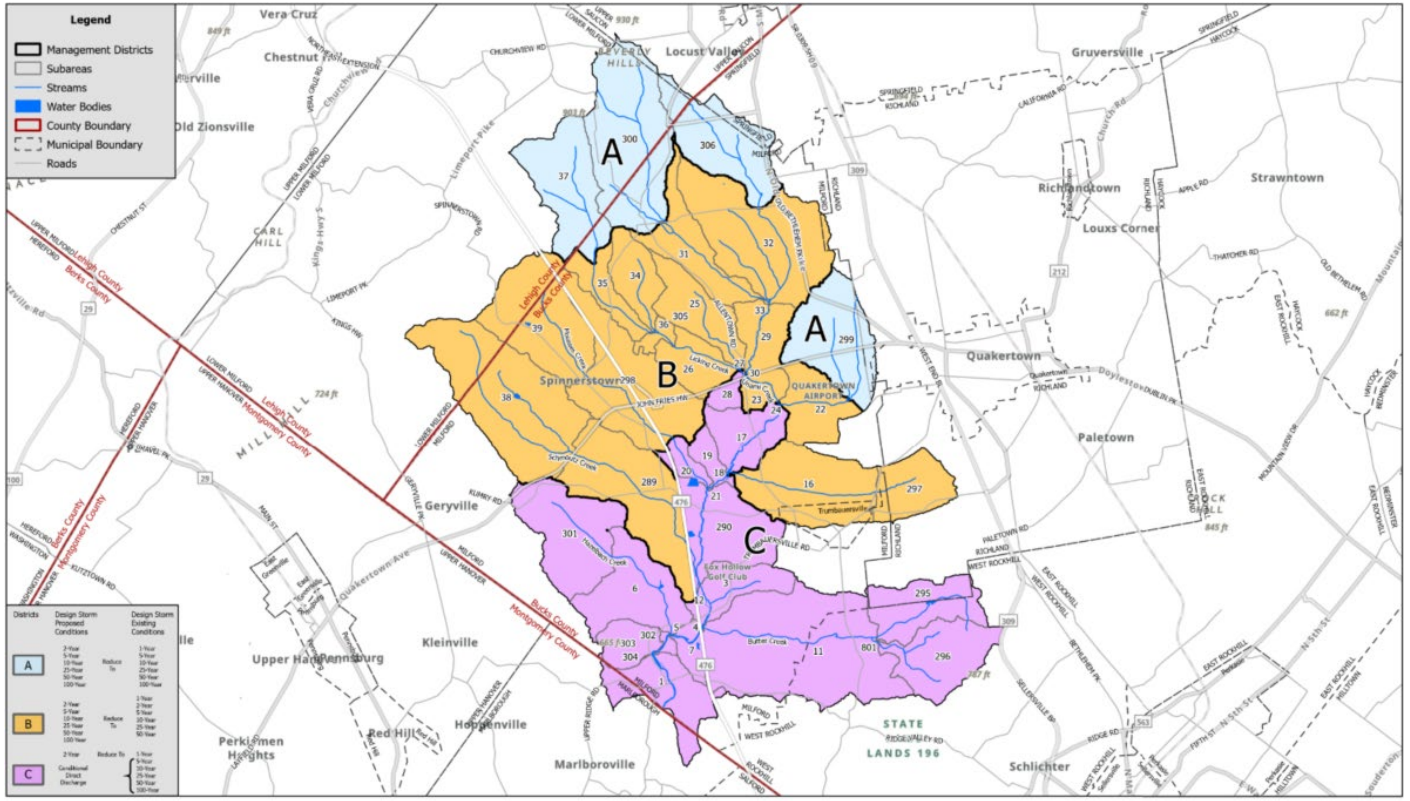
7. Water Quality
   - Impaired Streams
   - TMDLs
   - Urbanization



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2. PHASE 2 PLAN CONTENT

8. Watershed Technical Analysis
   - Unami Creek
   - Modeling Process, Calibration, Results
9. Standards and Criteria
   - Standards
     - Infiltration
     - Water Quality
     - Streambank Erosion
     - Overbank Events
     - Extreme Events
   - Exemptions
   - Small Project Standards



Unami Creek Watershed
Release Rate Map

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2. PHASE 2 PLAN CONTENT

10. Stormwater Regulations and Related Plans
    - Federal Regulations
    - State Regulations
    - Model Ordinance
11. Priorities for Implementation
    - Municipal Ordinance Implementation
    - Local Government Involvement
    - Landowner/Developer Responsibilities

Appendices:

- Maps
- Unami Creek Model Tech Data
- Model Ordinance
- Problem Area and Obstruction Data
- Problem Area Analysis and Conceptual Solutions
- Prior Act 167 Problem Area and Obstruction Data
- Public Involvement
- Public Comment and Responses

3. MODEL ORDINANCE HIGHLIGHTS - GENERAL

- Basis - PADEP 2028 MS4 and Act 167 Model Ordinance
- Consistent with the 2028 MS4 Ordinance and 2027 PCSM Manual
- Required and Optional Elements

> Text that is highlighted in yellow is completely optional and may be removed or customized. Text that is highlighted in blue requires customization and will typically be accompanied by additional instruction. *All instructions are italicized and should be deleted prior to final formatting and adoption of the ordinance by a municipality.*

For Example:

> **Impervious Surface** – Any land cover that prevents or impedes infiltration of stormwater into the soil, such as roadways or buildings. Compacted gravel areas and bodies of water, including pools, are considered impervious. Elevated structures, such as decks where pervious surfaces exist beneath them, are not considered impervious. *Municipalities may elect to revise this definition so that pools and decks are not considered impervious for consistency with their zoning ordinance.*

3. MODEL ORDINANCE HIGHLIGHTS - CONTENT

Article I – General Provisions

- 101 Short Title
- 102 Statement of Findings
- 103 Purpose
- 104 Statutory Authority
- 105 Applicability
- 106 Repealer
- 107 Severability
- 108 Compatibility with Other Requirements
- 109 Erroneous Permit
- 110 Financial Guarantee

Article II – Definitions

Article III – General SW Requirements

- 301 Permit Requirements
- 302 General E&S Requirements
- 303 E&S Preparer Qualifications
- 304 General PCSM Requirements
- 305 PCSM Plan Preparer Qualifications
- 306 Exemptions

Article IV – E&S Plan and Implementation Requirements (may become optional)

- 401 General
- 402 E&S Plan Requirements
- 403 Protection of Site Infiltration Properties
- 404 Discharges to Special Protection and Impaired Waters
- 405 E&S Plan Submission
- 406 E&S Plan Review Process
- 407 Modification of E&S Plans
- 408 Resubmission of Disapproved E&S Plans

ARTICLE V – PCSM Plan and Implementation Requirements

- 501 General
- 502 PCSM Plan Contents
- 503 Per-Development Site Characterization
- 504 Stormwater Analysis
- 505 Erosion Potential Analysis
- 506 Stream Stability Analysis
- 507 Off-site Stormwater Management
- 508 PCSM in Karst Terrain (only municipalities underlain by carbonate rock)
- 509 Temporary and Permanent Stabilization
- 510 PCSM Plan Submission
- 511 PCSM Plan Review Process
- 512 Modification of PCSM Plan
- 513 Resubmission of Disapproved Plans
- 514 Authorization to Construct
- 515 Project Completion

3. MODEL ORDINANCE HIGHLIGHTS - CONTENT

Article VI – Stormwater Control Measure Requirements
- 601 General Requirements
- 602 SCM Design
- 603 Stormwater Conveyance
- 604 Existing SCMs
- 605 Riparian Buffers (Optional but recommended)

Article VII – Operation and Maintenance
- 701 General Requirements
- 702 O&M Agreements

Article VIII – Easements
- 801 General
- 802 Discharges to Adjacent Property

Article IX – Fees and Expenses

Article X – Prohibitions
- 1001 Prohibited Discharges and Connections
- 1002 Roof Drains and Sump Pumps
- 1003 Notification of Pollution

Article XI – Inspection, Enforcement and Penalties
- 1101 Right of Entry
- 1002 Post-Construction Inspection of SCMs
- 1003 Enforcement
- 1004 Suspension and Revocation
- 1005 Penalties
- 1006 Appeals

Appendix A – O&M Agreement

Appendix B – Release Rate Maps

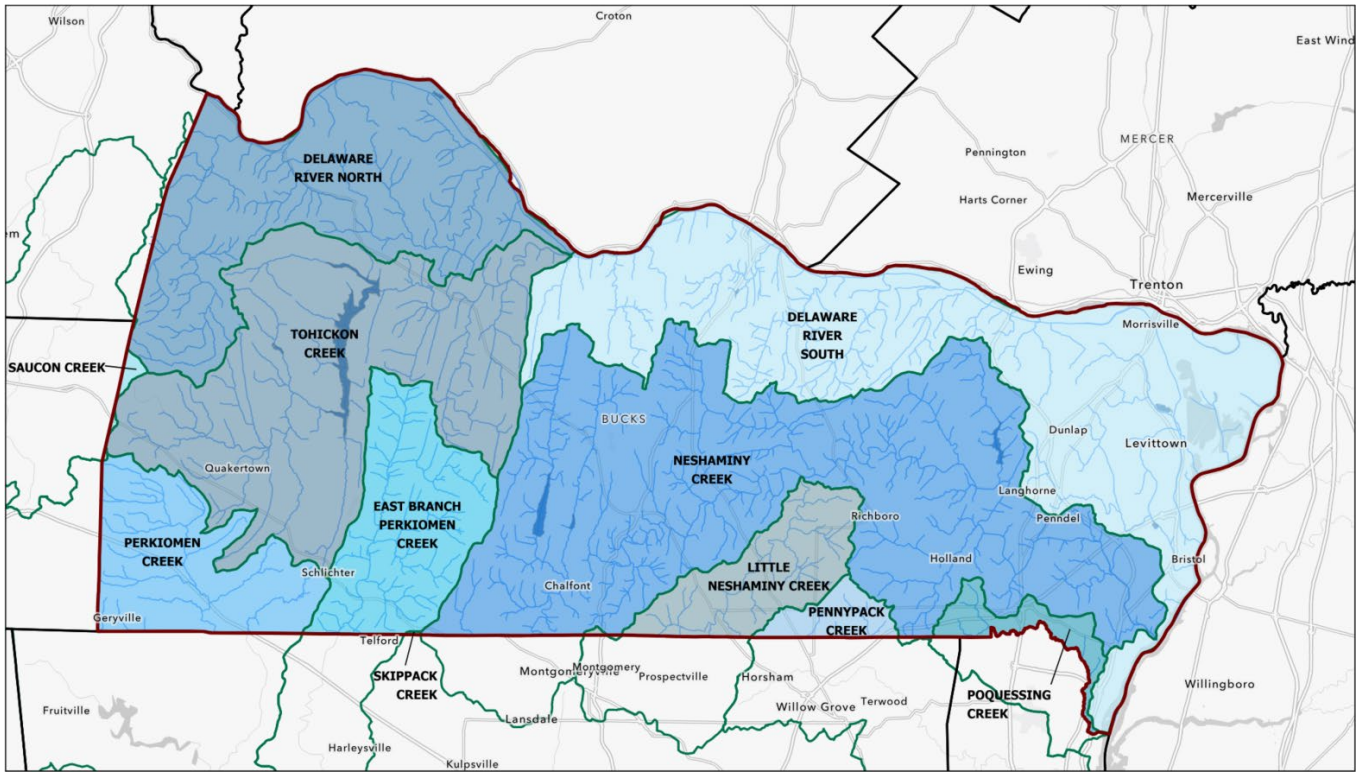
Appendix C – Stormwater Design Criteria

Appendix D – Small Project Design Criteria

3. MODEL ORDINANCE HIGHLIGHTS – DESIGN STANDARDS

SWM Standards

- **Peak Rates** (Overbank and Extreme Events)
  - Release rates
  - Skippack Creek, Ridge Valley Creek, Stony Run - 100 percent release rate
  - Release Rate No Detention Areas
    - Direct to main stem/adequate conveyance
  - Tidal Considerations
    - Tailwater - NOAA MHHW (4.7 ft)
- **Streambank Protection**
  - 2-year to 1-year
- **Volume and Water Quality**
  - PCSM Manual Standard



3. MODEL ORDINANCE HIGHLIGHTS – SMALL PROJECTS

Small Project SWM Site Plan Design Approach

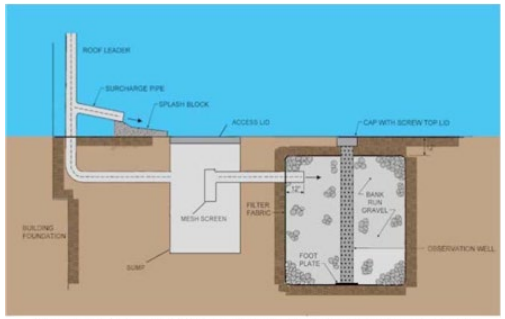
- Qualifying Projects:
  - Less than 1 acre of disturbance & more than exemption criteria (5,000 sq ft of new impervious or other)
- Standards:
  - Capture first 2” of runoff from new impervious area
  - First 1” of runoff removed (Inf., Evap., Trans. Reuse)
  - Infiltrate as much as possible but at least 0.5”
- Typical Control Measures
  - Infiltration Trench
  - Rain Gardens
  - Dry Wells
  - Tree Plantings and Preservation
  - Minimize Soil Compaction
  - Rain Barrels

- Design Examples Provided -



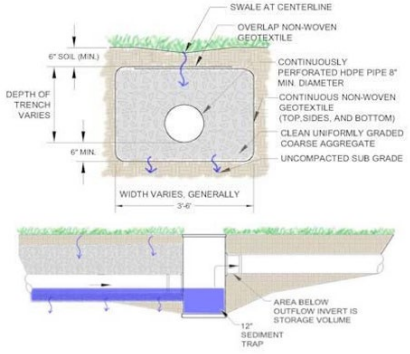
Source: Pennsylvania Stormwater Best Management Practices Manual, Chapter 6.

Rain Garden



Source: Pennsylvania Stormwater Best Management Practices Manual, Chapter 6.

Dry Well



Source: Pennsylvania Stormwater Best Management Practices Manual, Chapter 6.

Infiltration Trench



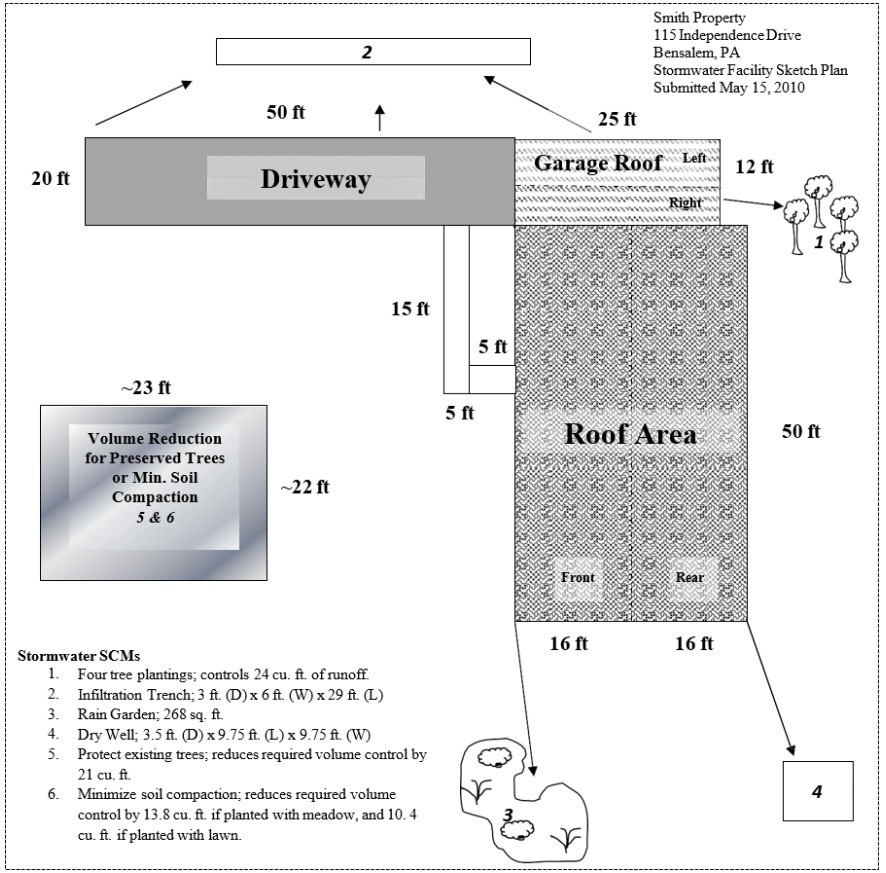
Rain Barrel

3. MODEL ORDINANCE HIGHLIGHTS – SMALL PROJECTS

Small Project SWM Site Plan Design Approach (con't)

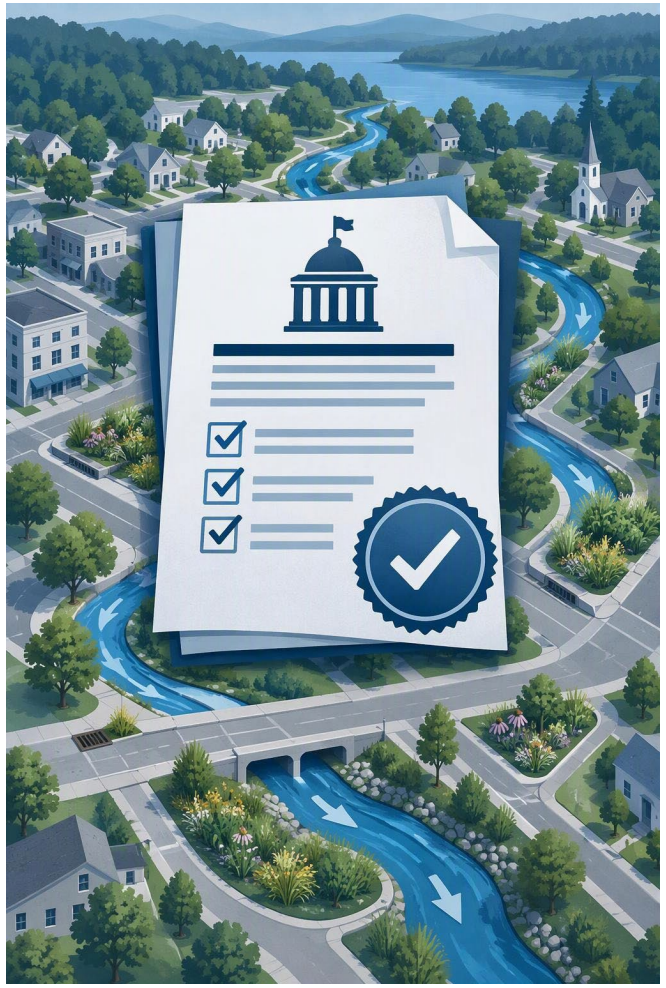
- Facility Sizing
  - Determine total Impervious area
  - Calculate required volume to be managed
  - Size SCMs

    - Example Provided -
- Submission Requirements
  - Brief narrative (describe proposed work and SW facilities)
  - Stormwater facility sizing calculations
  - Site Sketch (existing site features/prop structures/SW facilities/E&S controls)
  - Adequacy letter from Bucks Co. Conservation District



3. MODEL ORDINANCE HIGHLIGHTS – ADOPTION

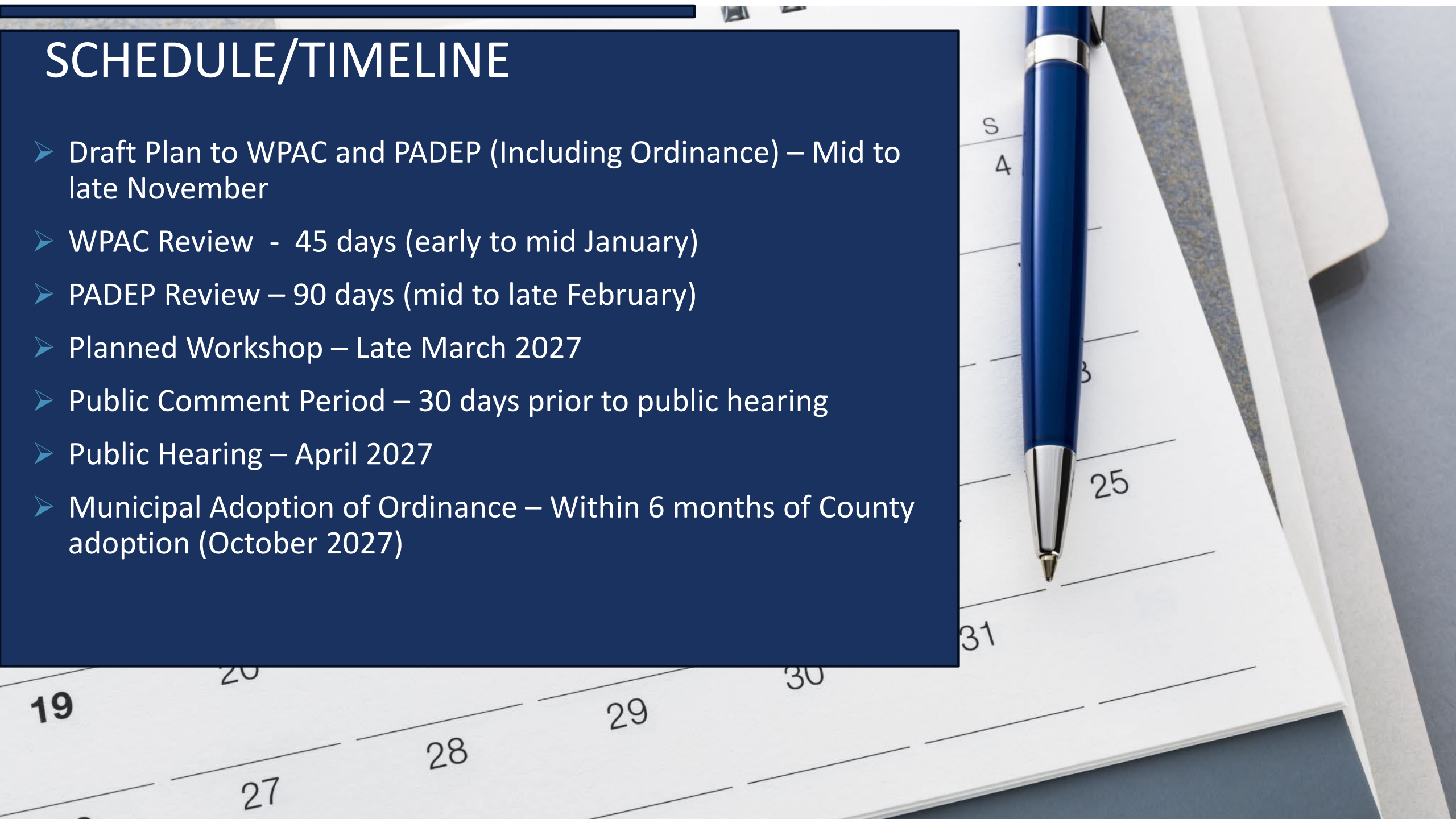
- Workshop – March 2027
  - General Ordinance Review
  - Stormwater Management Standards (Peak Rate, Streambank Protection, Water Quality, Volume/Recharge Control)
  - SWM Site Plan Requirements
  - Implementation Instructions: Ordinance provides for flexibility in restrictiveness – *do not just repeal and replace without detailed review.*
- Municipalities have *6 months to adopt* an ordinance consistent with the Countywide Model Ordinance following County adoption of the plan.



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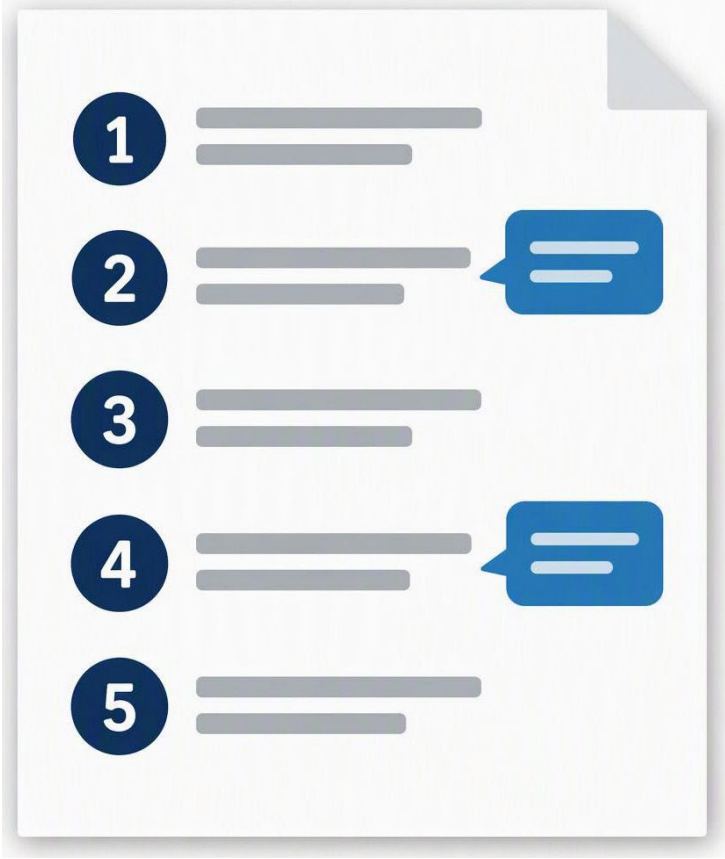
SCHEDULE/TIMELINE

- Draft Plan to WPAC and PADEP (Including Ordinance) – Mid to late November
- WPAC Review - 45 days (early to mid January)
- PADEP Review – 90 days (mid to late February)
- Planned Workshop – Late March 2027
- Public Comment Period – 30 days prior to public hearing
- Public Hearing – April 2027
- Municipal Adoption of Ordinance – Within 6 months of County adoption (October 2027)



5. COMMENTING ON THE PLAN

- Electronically
  - Body of an Email
  - Word Document
- Respond to email address will be provided



These graphics were AI generated

Newell Tereska & Mackay Engineering

THANK YOU!

Q&A

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