

BUCKS COUNTY STORMWATER MANAGEMENT PLAN WATERSHED PLAN ADVISORY COMMITTEE (WPAC) WORKSHOP NO. 3 – PHASE 2 KICK-OFF

APRIL 10, 2025

In cooperation with:



Presented By:



WELCOME FROM:



Bucks County



BCPC

Bucks County Planning Commission

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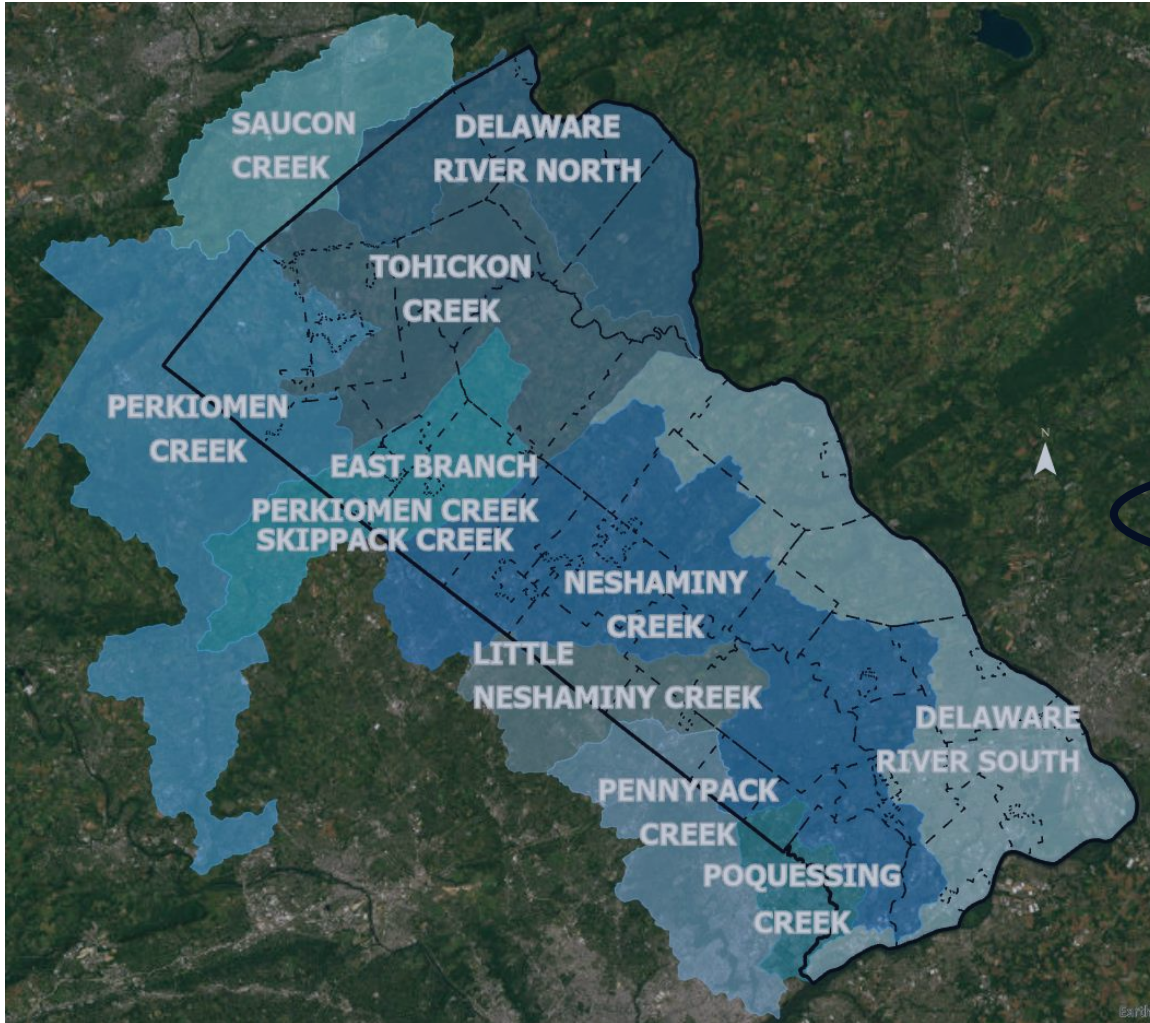
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AGENDA

- Welcome & Introductions
- Act 167 Overview
- Phase 1 Review
 - Summary of Survey Responses
 - Criteria Used for Prioritizing
 - Problem Areas for Site Visits and Analysis
- Phase 2 Scope of Work
- Schedule/Timeline
- Open Discussion



ACT 167 OVERVIEW

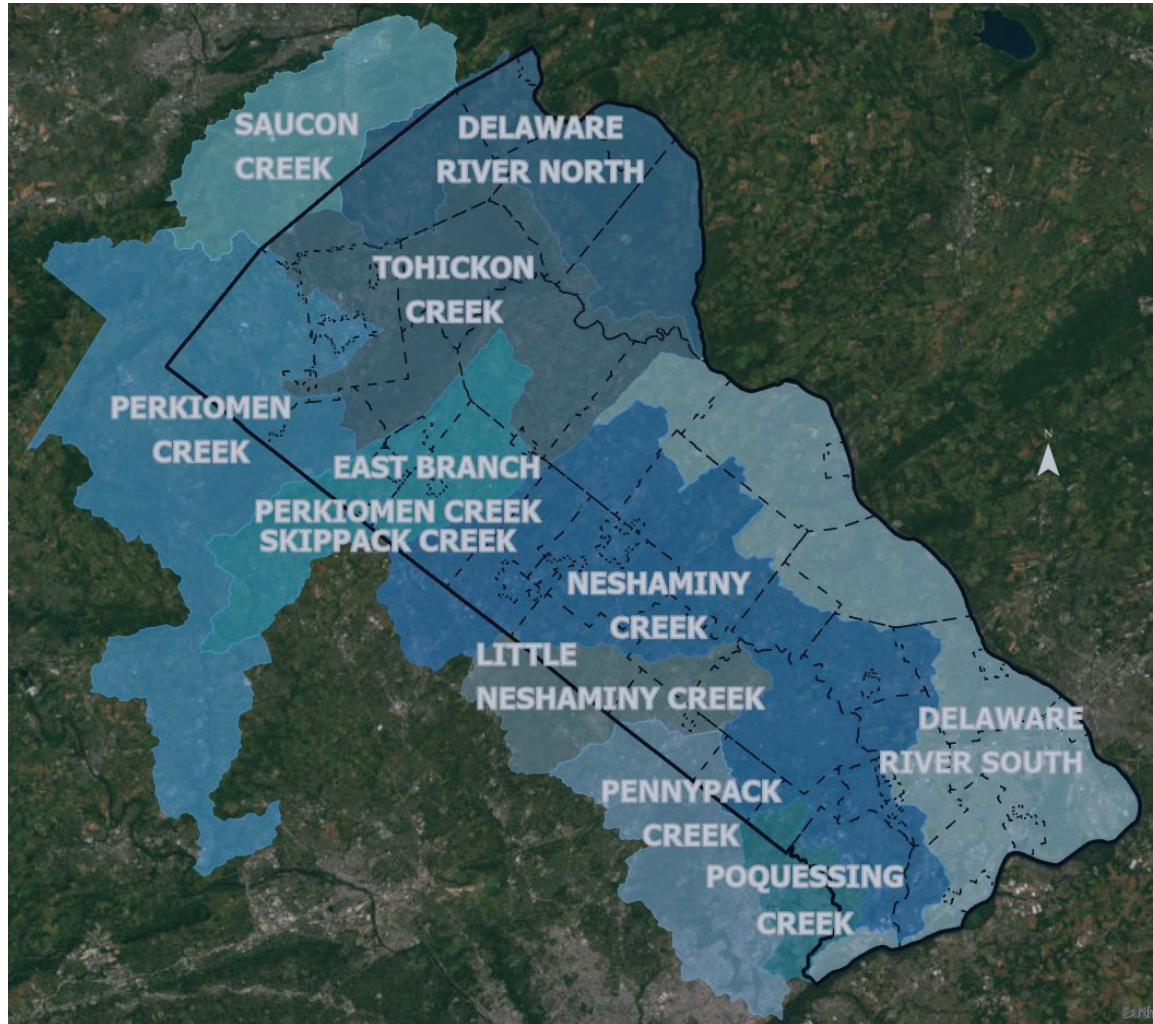
PHASE 1: INITIAL WATERSHED ASSESSMENT

PHASE 2: STORMWATER MANAGEMENT STUDY
AND PLAN

IMPLEMENTATION

ACT 167 – GOALS OF THE PLAN

- Maintain natural hydrologic regime
- Identify and prevent flooding/stormwater (SW) problems
- Promote groundwater recharge
- Minimize stream bank erosion
- Water quality control
- Nonstructural SW mgmt.
- Maintenance provisions
- Education
- Consistency across municipalities



PHASE 1 REVIEW

PHASE 1 ACT 167 SCOPE OF WORK

- Obtained input from the WPAC
- Obtained & reviewed existing related reports/plans and data
- Conducted survey on problem areas
- Collected, collated and mapped problem areas
- Determined typical versus critical problem areas
- Formulated Phase 2 Scope of Work
- Developed Phase 2 Cost Estimate
- Reviewed SOW with WPAC
- Finalized Phase 1 Report

Related Plans and Reports Reviewed:

- Bucks County Hazard Mitigation Plan (2021)
- Bucks County Open Space and Greenways Plan
- Watershed Restoration and Protection Projects
 - Gallows Run Watershed Restoration Plan
 - Poquessing/Pennypack Act 167 Plans
 - Perkiomen Creek Act 167 Plan
 - Pidcock and Mill Creek Watershed Restoration Plan
 - Neshaminy Creek Watershed Restoration
 - Little Neshaminy Creek Act 167 Plan
- Core Creek updated Watershed Implementation Plan (2017)
- Upper and Middle Neshaminy Creek River Conservation Plan (2002)
- Lower Neshaminy Creek Watershed Conservation Plan (2004)
- Little Neshaminy Creek River Conservation Plan (2007)
- Neshaminy Creek Watershed Sediment Reduction Plan (2014)
- *Upper Makefield Township Watershed Restoration Plan*

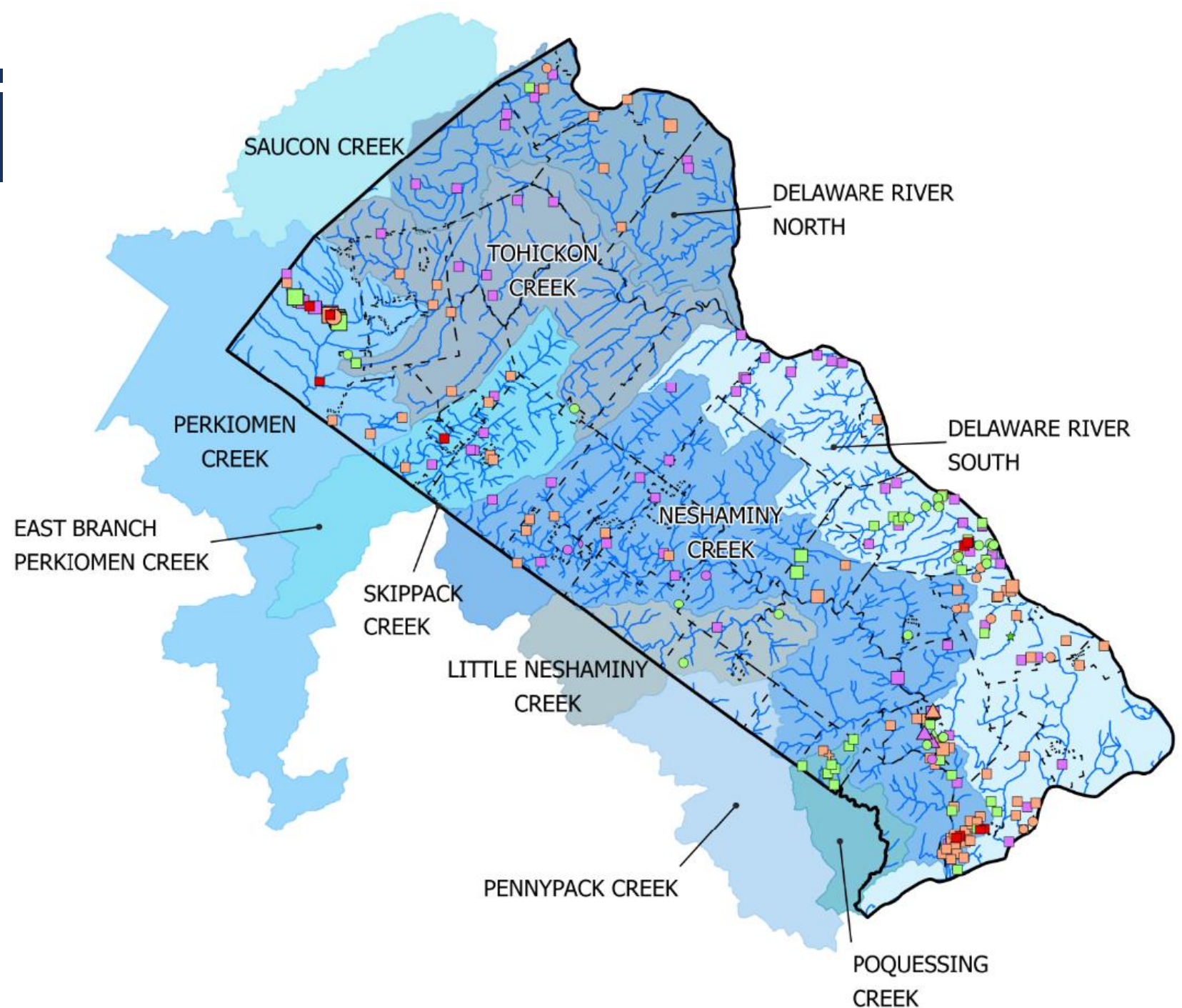
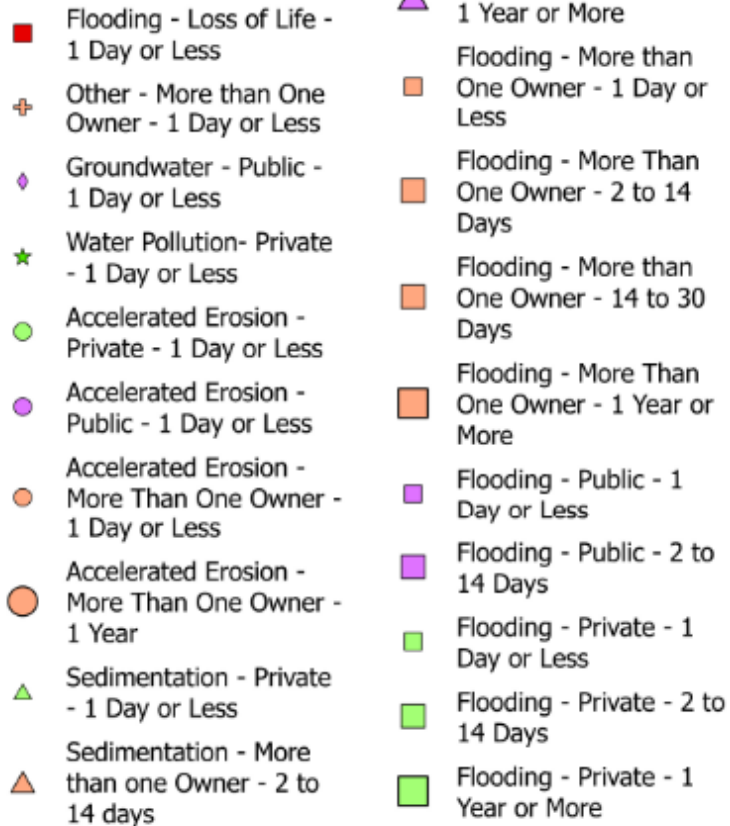
SURVEY SUMMARY

Number of each Problem Type	
31	Sedimentation
66	Accelerated Erosion
205	Flooding
5	Water Recharge
1	Water Quality

Watershed	Total	Problems not included in a Previous Act 167
Delaware River South	100	62
Neshaminy Creek	81	65
Perkiomen Creek	21	21
Delaware River North	17	*
Tohickon Creek	13	6
East Branch Perkiomen Creek	11	4
Poquessing Creek	8	6
Pennypack Creek	0	0
Saucon Creek	0	0
Skipack Creek	0	0

SURVEY FINDINGS

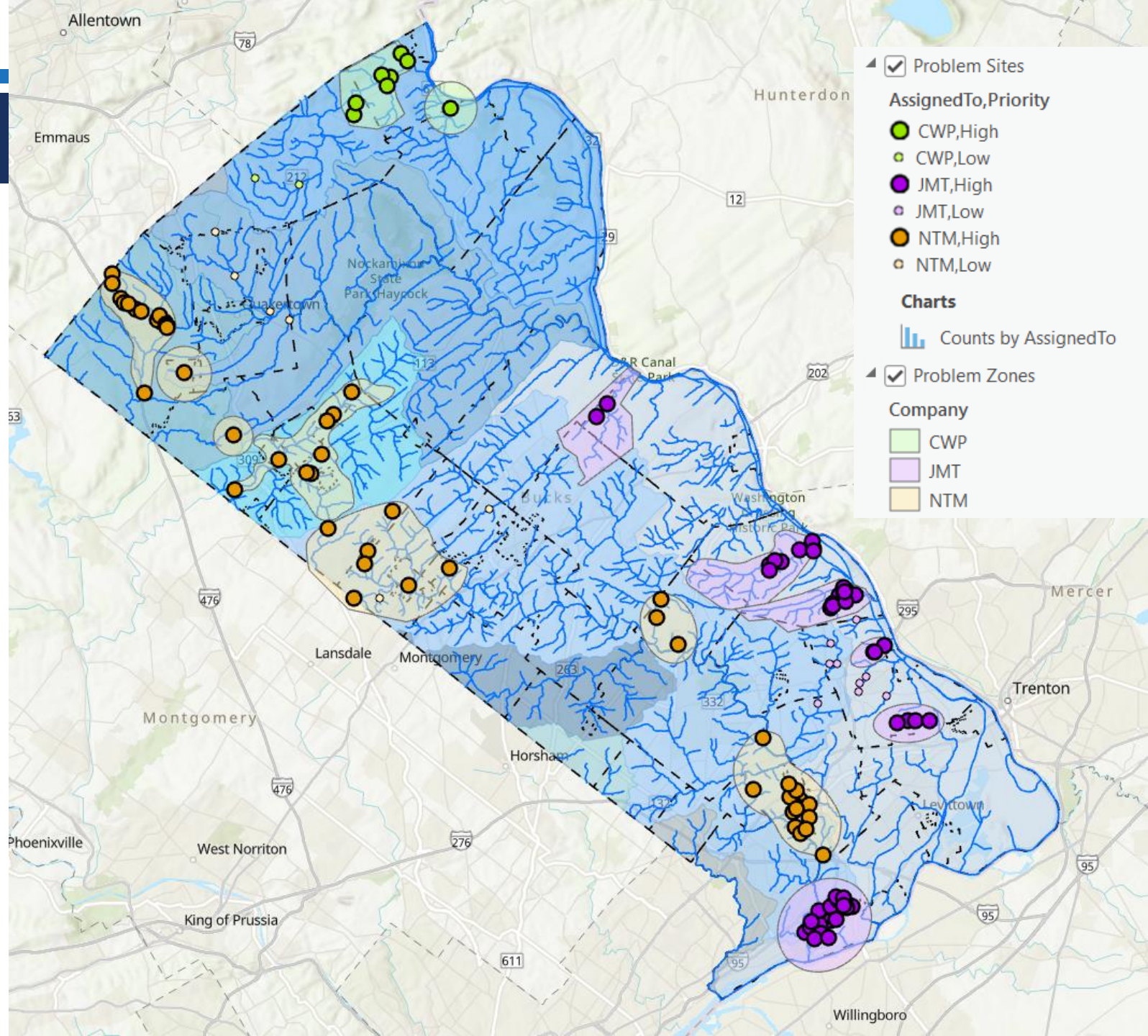
Stormwater Problem Sites - Legend



PRIORITY PROBLEM AREAS

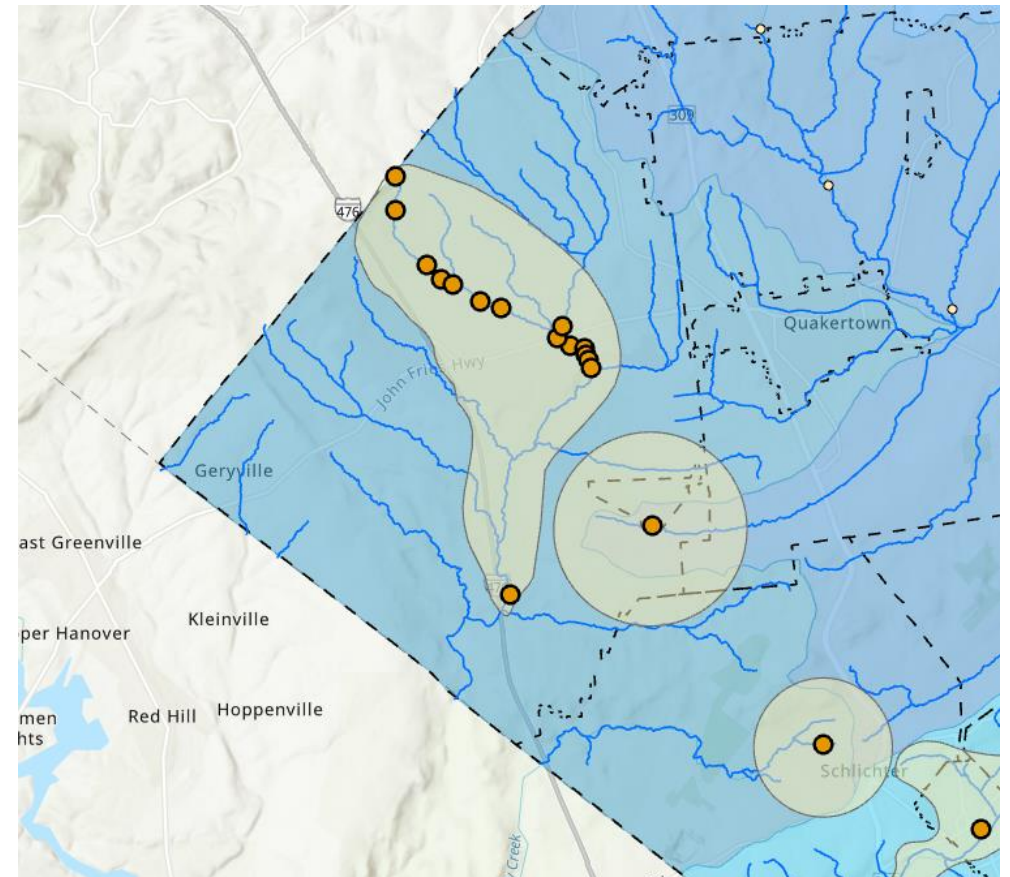
Priority Problem areas:

- present an increased risk to life, property, and/or the environment
- are aligned with Act 167 Plan goals

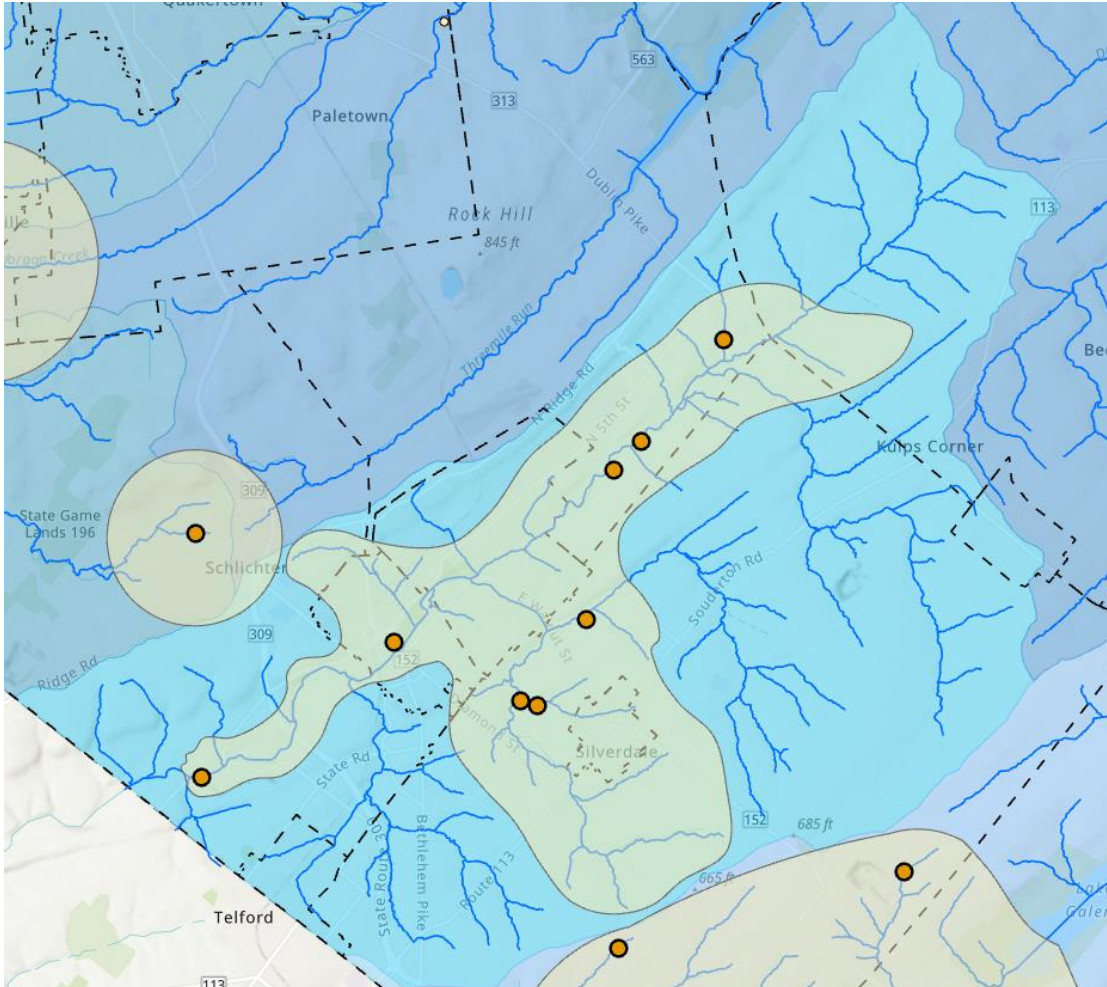


PERKIOMEN CREEK

- **No Existing Perkiomen Act 167 in Bucks or Montgomery – only in Lehigh County**
- 15 Problem Areas – Primarily in Unami Creek
 - 1 Fatalities
 - 4 Impact Multiple Properties
- Some development in the watershed –
 - Agriculture Land Use to ½ - 1 acre Residential Properties
- This is covered in the Perkiomen Watershed Study – we will be looking at a finer level of detail

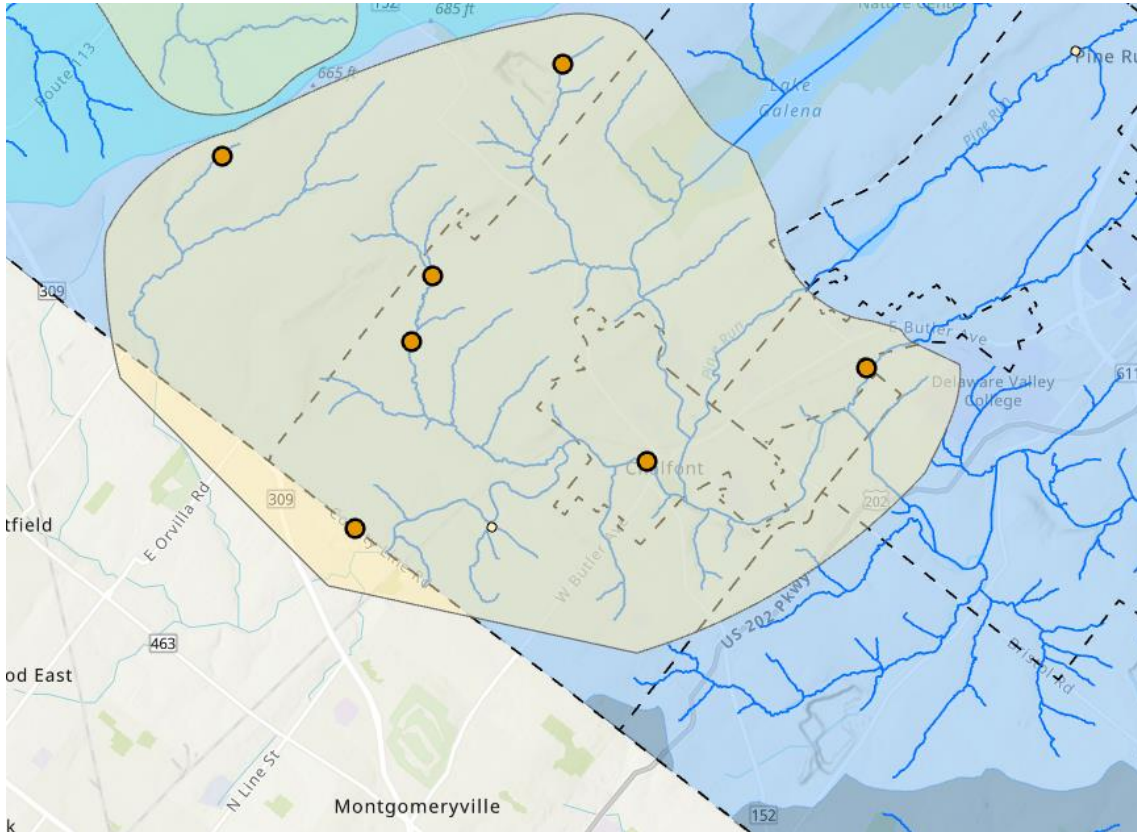


EAST BRANCH PERKIOMEN

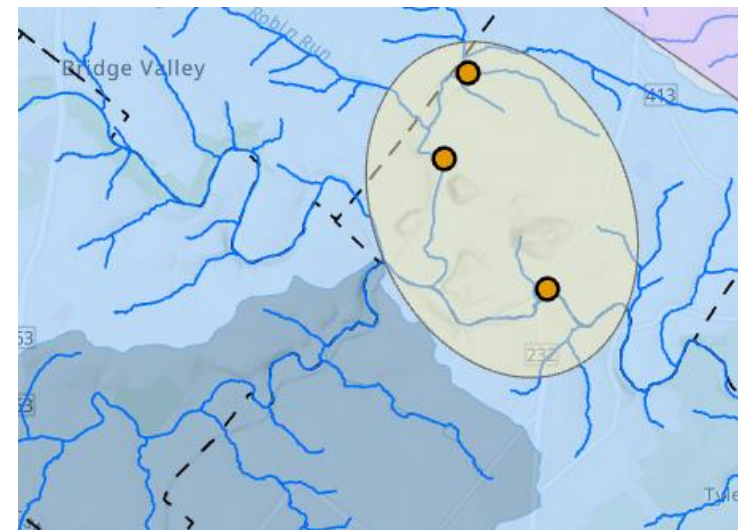


- Fatality at confluence of Mainstem EB Perkiomen Creek and unnamed tributary (UNT)
 - Existing East Branch Perkiomen Act 167 appears to have identified a problem area at the location of the fatality (Sellersville Borough)
- Multiple Culverts undersized in UNT to Pleasant Spring Creek
- Flooding overtops the banks of the EB Perkiomen Creek in East Rockhill Township. Additional Roadway flooding at Blooming Glen Rd Crossing.

UPPER AND MIDDLE NESHAMINY CREEK

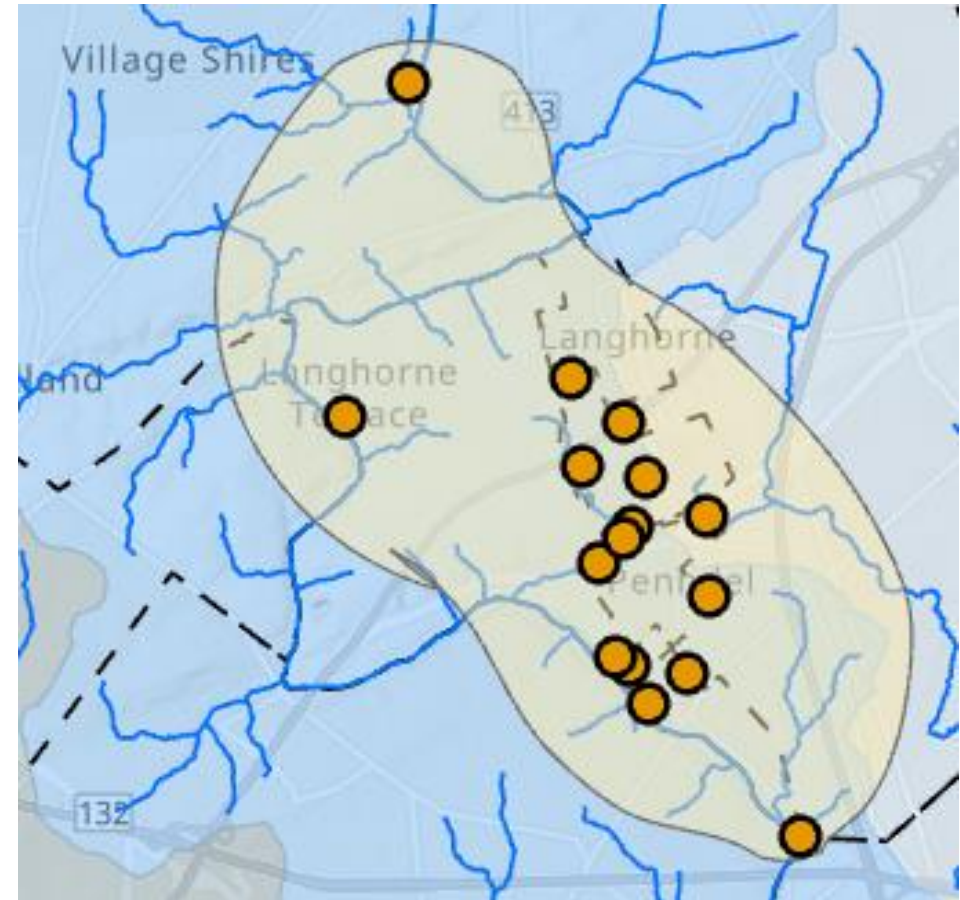


- Flooding related to stream constrictions due to roadway crossings.
- 5 areas were not included in a previous Act 167 Plan

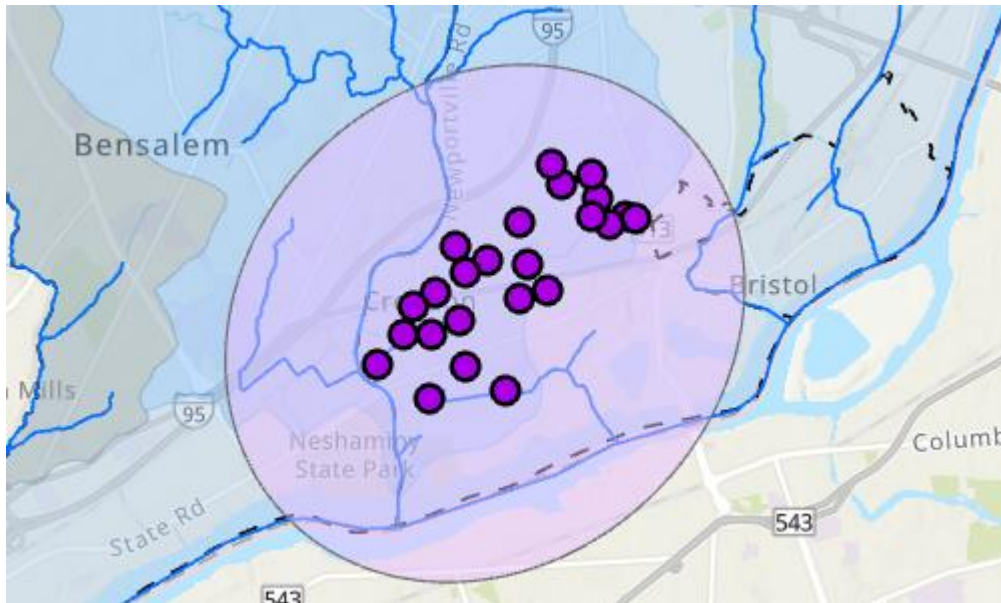


NESHAMINY CREEK AT LANGHORNE MANOR AND PENNDEL BOROUGH

- No fatalities in this area.
- Neshaminy Creek overtops its banks in this area leading to roadway flooding
- Conveyance flooding present in this area
- Many problem areas appear to be in the same/similar locations as in the previous Act 167 plan



NESHAMINY CREEK AT DELAWARE RIVER



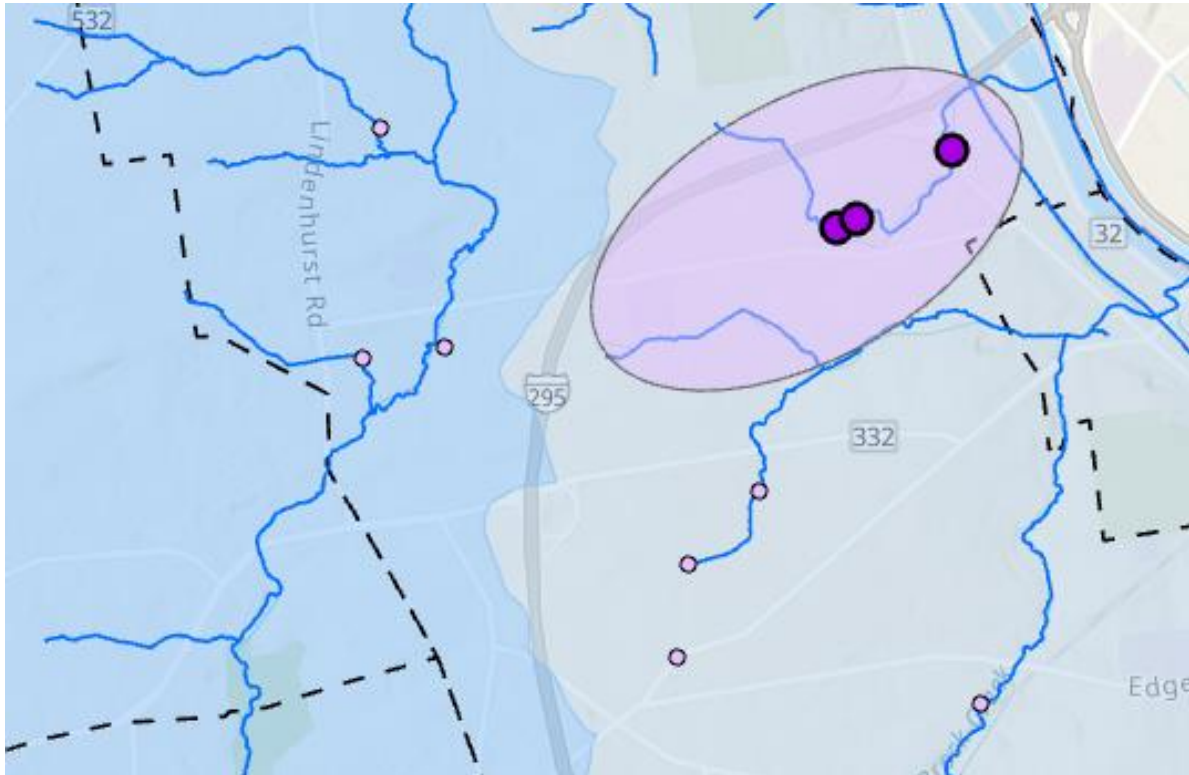
- Flooding of Delaware River is outside the scope of this Act 167
- Conveyance system problem sites have been excluded from further analysis but will be identified for coordination with possible Municipal action as part of MS4 activities
- Problem areas
 - 4 locations with Fatalities
 - Multiple Properties impacted at nearly all points of concern
- No problem areas identified here in the previous Act 167 Plan

ROCK RUN CREEK

- Flooding occurs at undersized culverts
- Problem sites were identified in the Delaware River South Act 167 Plan



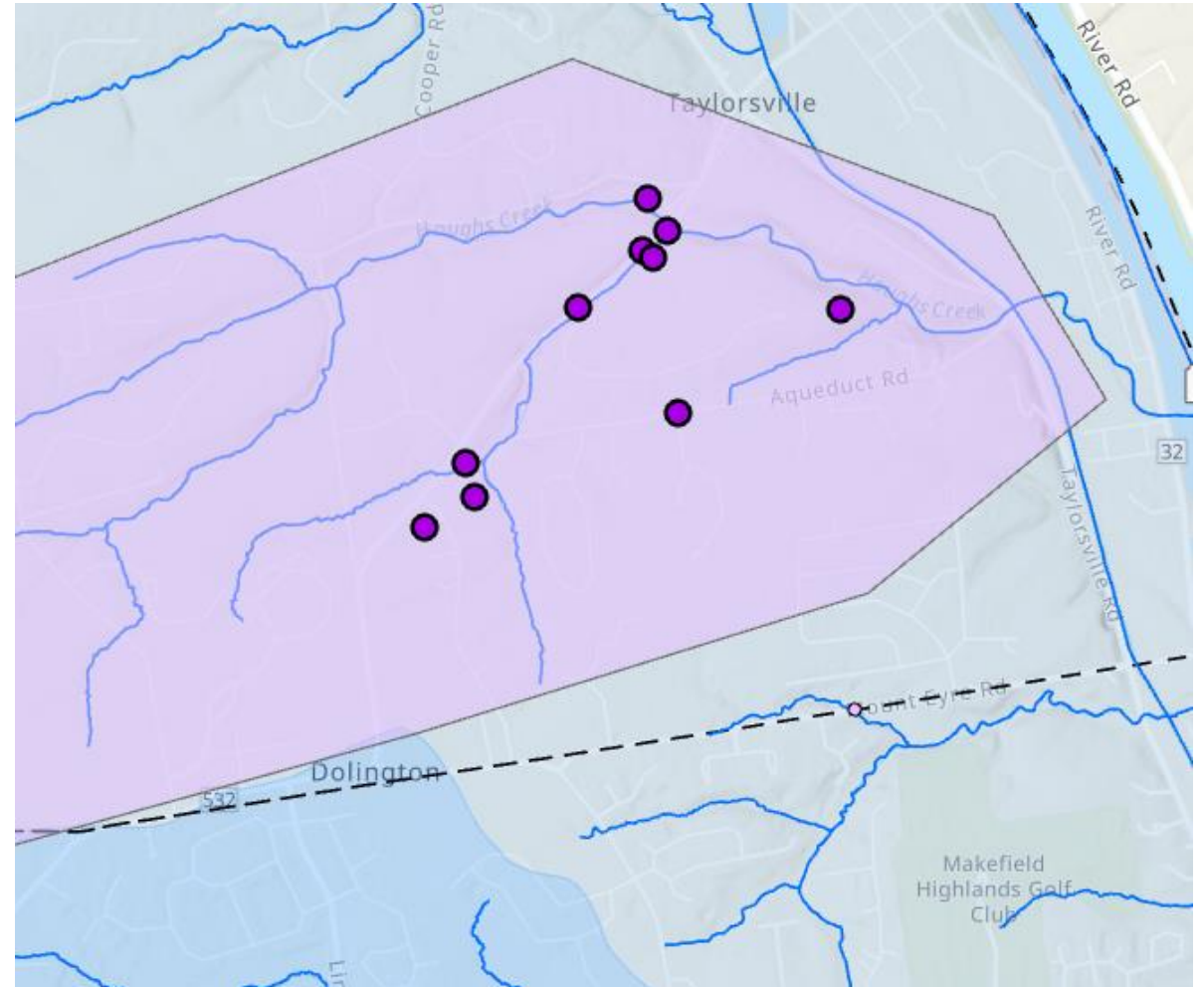
UNT TO PENNSYLVANIA CANAL IN LOWER MAKEFIELD TOWNSHIP



- Undersized culverts at Lower Hilltop Rd, Edgemere Dr, Highland Drive (circled)
- Problem area furthest from the stream is conveyance related; however, it is caused by overtopping of stream at Highland Dr and Taylorsville Rd causing backup in the storm system

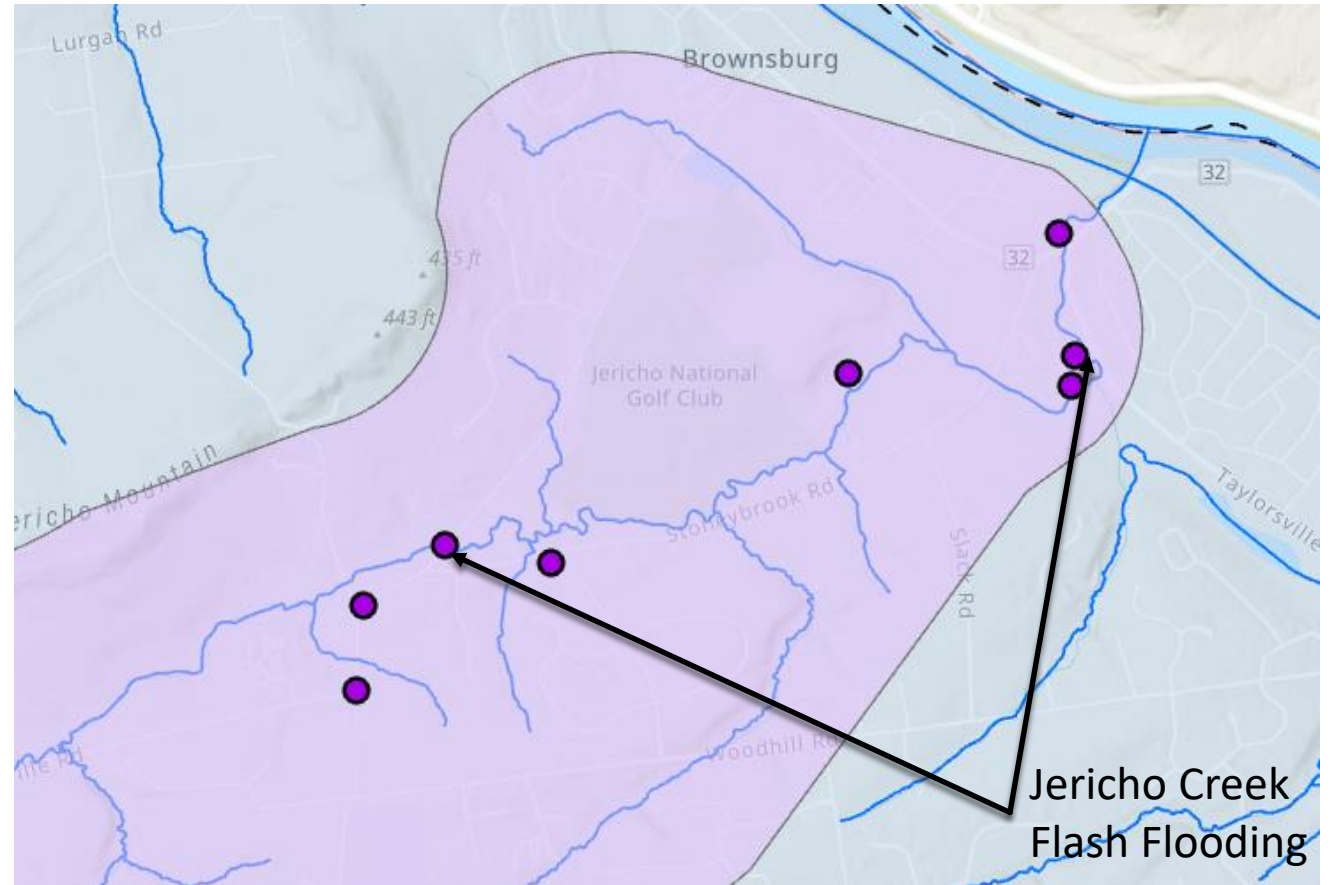
UNT TO HOUGHS CREEK (DELAWARE RIVER SOUTH)

- 2 Fatalities in related to Houghs Creek
- Roadway impacts from UNT overtopping the banks and additional flooding at confluence with Houghs
- Problems were not identified at this location in the previous Act 167

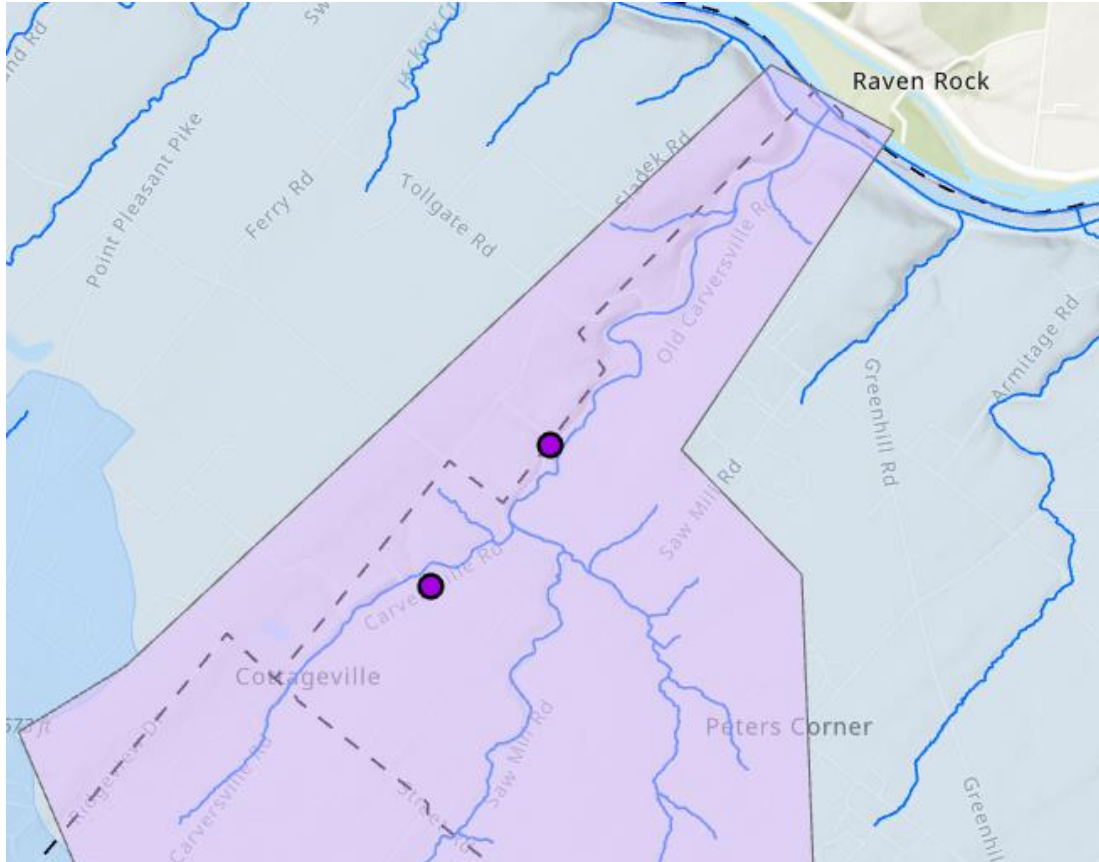


JERICO CREEK

- Flood flooding along Jericho Creek with several near fatal events.
- Flooding of River Road at confluence of Jericho Creek and Delaware River. Emergency services regularly respond to flooding here.
- Existing Act 167 Plan included Problem Areas at this location and modeling was performed.

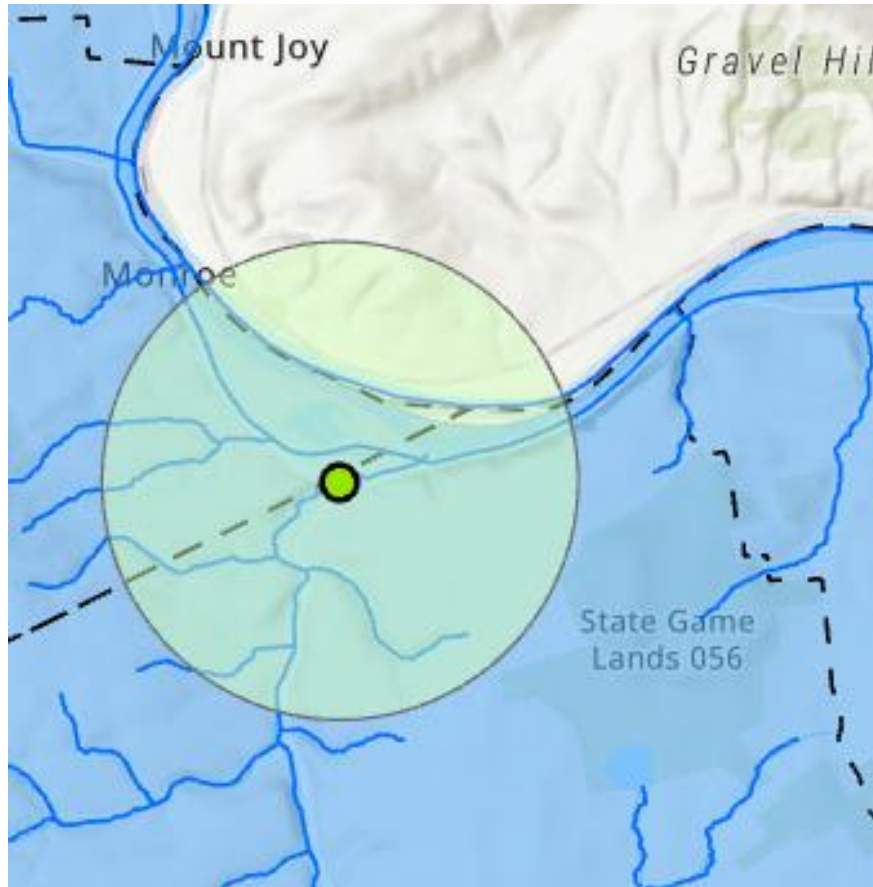


PAUNNACUSSING CREEK AND UNT



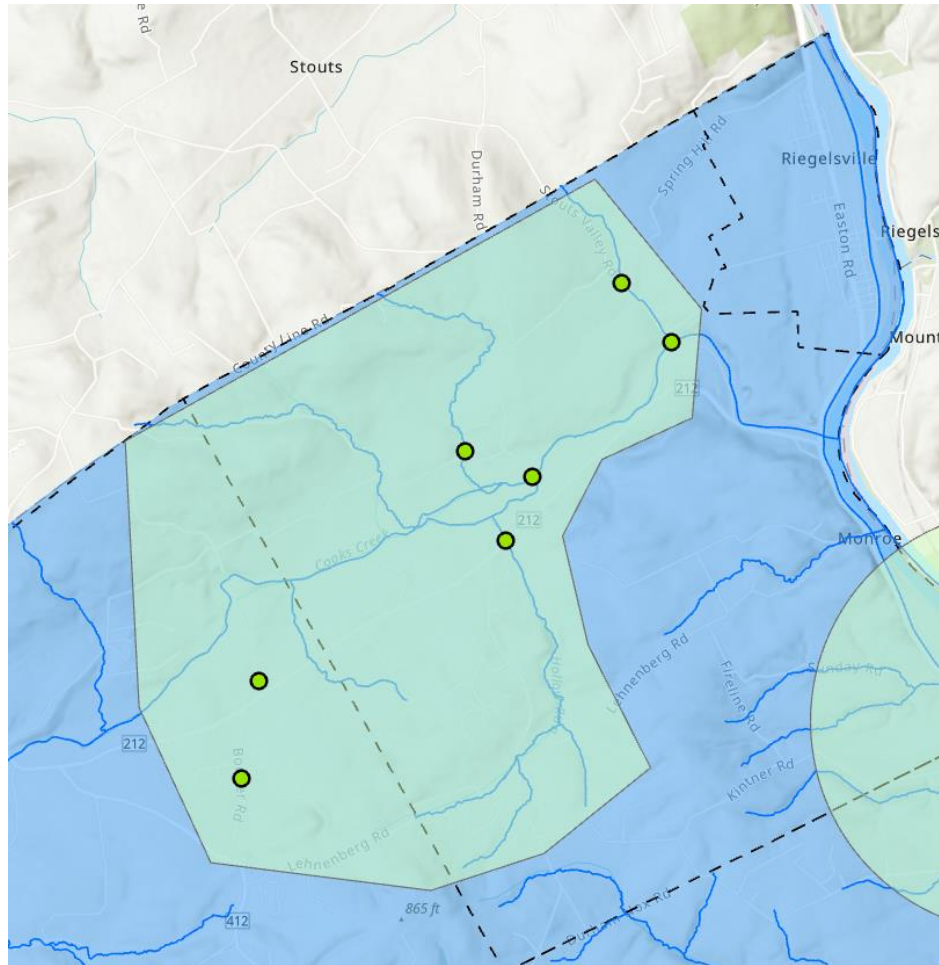
- Multiple instances of flooding along Paunnacussing Creek beginning at Joshua Lane
- Fewer problem areas identified than in previous act 167 report. Two were identified for closer investigation.
- May need additional evaluations and division of Subareas modeled in previous Act 167

CONFLUENCE DELAWARE RIVER, PENNA. CANAL, AND GALLOWS RUN

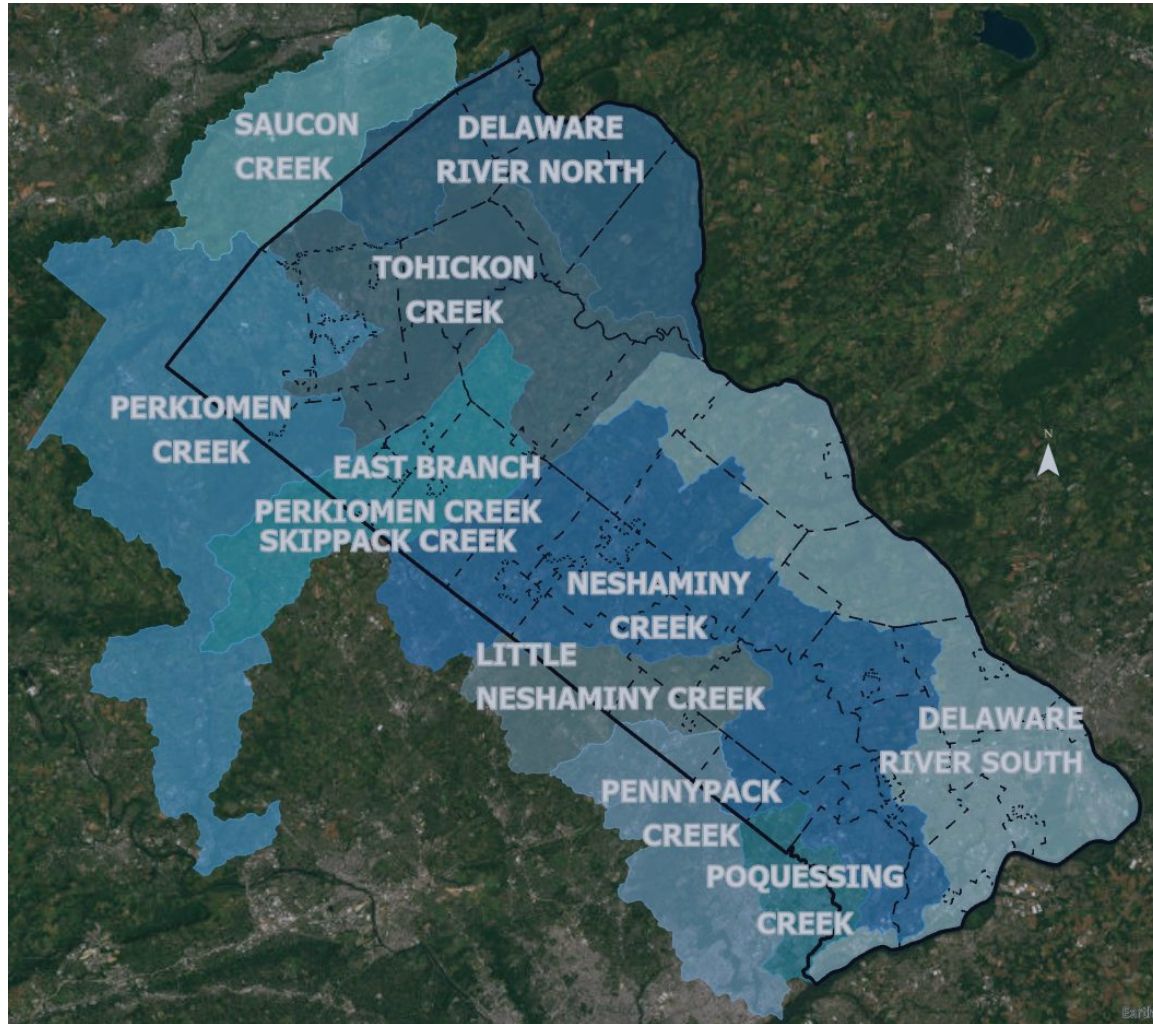


- Roadway and property flooding occurs regularly at this location.
- 5 pages missing in Delaware R North Act 167 where the modeling data should be located.
- Additional studies have been performed here in recent years.

HOLLOW RUN, COOKS CREEK AND UNT TO COOKS CREEK FLOODING



- At each location, structures appear to restrict flow and cause flooding
- Review Obstructions Data from previous Act 167 plan and further investigation will be needed
- Watershed is experiencing development mostly in Springfield Township



PHASE 2 SCOPE OF WORK

ACT 167 PHASE 2 – PLAN PREPARATION

- GIS Database Compilation (Existing Land Use, Soils, Future Land Use, Obstructions, Problem Areas)
- Field Investigations and Evaluation of Problem Areas identified in Phase 1
- Water Quantity Modeling (Flooding) (if required)
 - Those watersheds that have already been modeled may not need additional modeling
- Coordinate with MS4 Requirements
- Develop Standards & Criteria
- Develop Model Ordinance
- WPAC Participation

PHASE 2 ACT 167 WATERSHED PLAN

- Task 1: Data Collection and Analysis
- Task 2: Technical Analysis, Problem Areas and Obstructions
- Task 3: Model Ordinance Development
- Task 4: Public/Municipal Participation through WPAC
- Task 5: Phase II Report with County-wide Model Ordinance & Implementation

TASK 1: DATA COLLECTION AND ANALYSIS

- Beginning in May, wrapping up in June if needed
- Detailed Priority Problem Area Analysis
 - Field Investigation
 - Public/Recreational Lands with SWM Potential
 - Detailed Problem Area Forms
 - Potential Solutions and Watershed Benefits with Associated Cost Estimates

Poquessing Watershed Act 167 Problem Area Inventory			
Problem Area - Map ID:	PHA 50	Inspected By/Date:	DJS, BAB
Municipality:	Lower Southampton	Checked By/Date:	
			

The banks of this tributary are experiencing significant erosion. As evident from the pictures above, the channel has been eroded approximately 10-12 feet below the normal channel depth. Banks were also reported as being overgrown with invasive species.

Type of Problem	Erosion		
Drainage Area			
Calculation Methodology			
Storm Frequency	Existing Peak Discharge (cfs)	Mitigated Peak Discharge (cfs)	Difference (cfs)
2			
5			
10			
50			
100			
500			

Potential Solutions

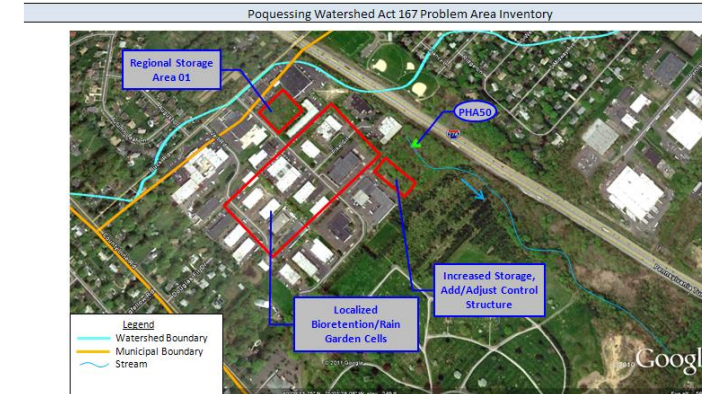
1) Stream Stabilization: Stabilize existing stream bank to limit further erosion and decrease sediment transport downstream.

2) Regional Storage Area 01 (Bioretention, Infiltration, Detention) within Commercial Area:

Commercial area and enhance with vegetation. Increase water quality and infiltration.

This area appears to already be a storage area. Storage could be increased in this area, to better control release rates from this area.

Small pockets of open space within the commercial area that will help with infiltration.

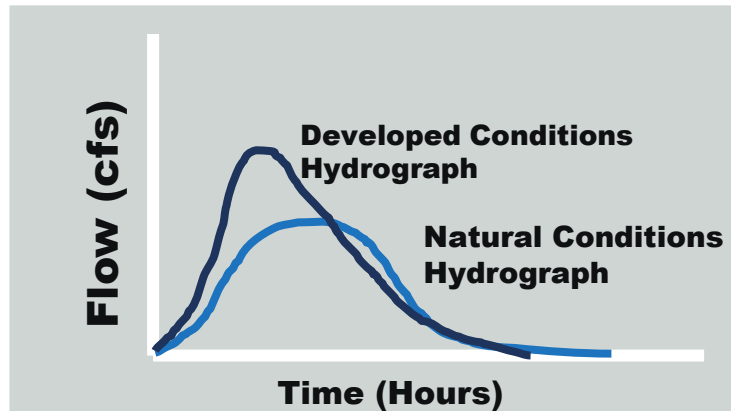
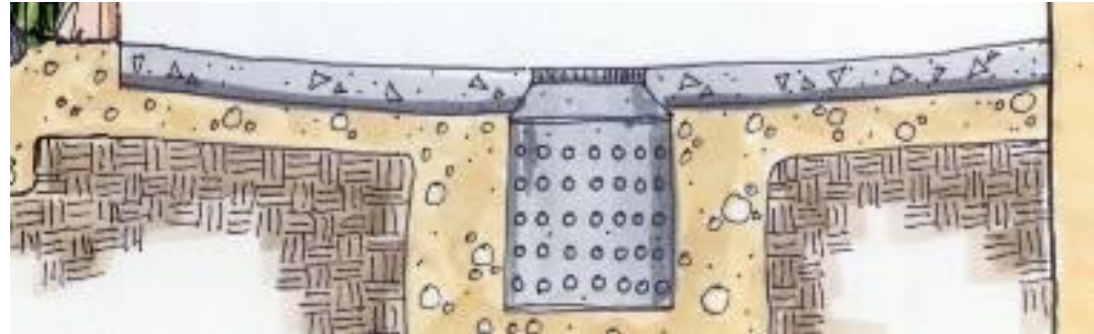


Problem Area	Municipality	Stream Name	Preferred Solution
PHA-50	Lower Southampton	UNT Poquessing Creek	

Description: This problem area was reported by the Philadelphia Water Department. The subject channel is located in Lower Southampton Township at the outfall of a large commercial/industrial area. The reach stability was reported as actively degrading and the bank erosion was classified as high. The upstream drainage area is highly impervious with limited stormwater management facilities. This is resulting in high flow rates and volumes that is causing significant erosion in the downstream channel at the problem area.

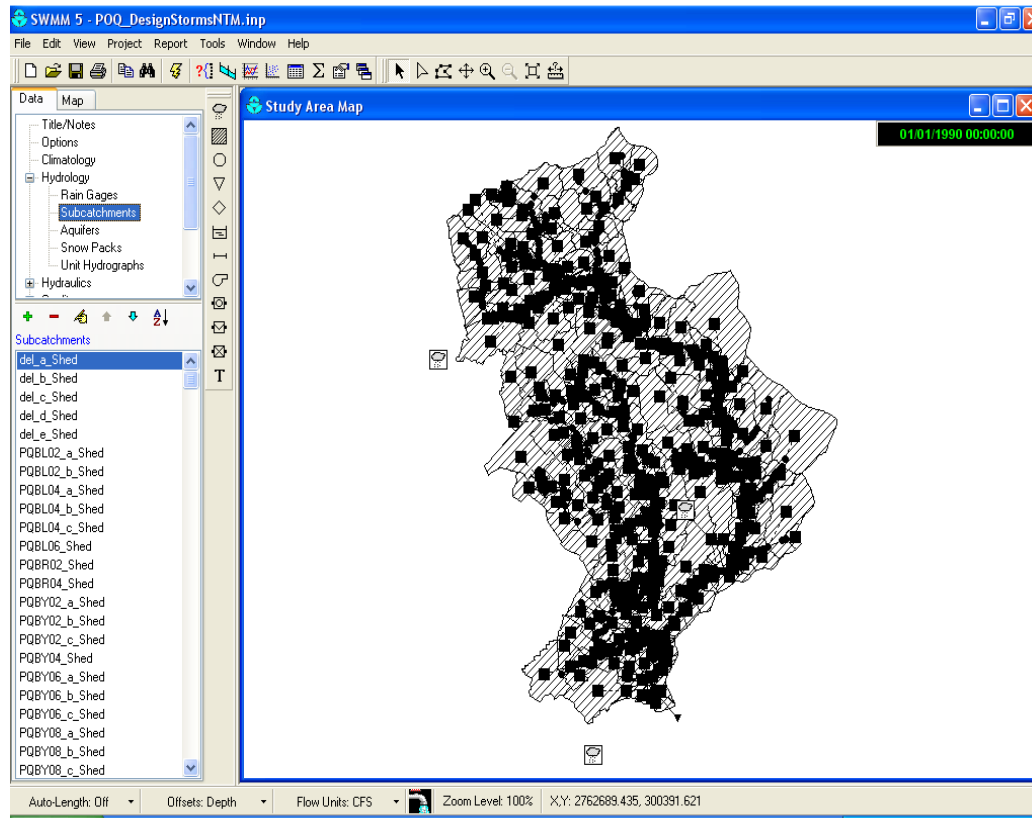
TASK 2: TECHNICAL ANALYSIS

- Evaluate Water Quality, Peak Flow, Stream Stability, and Groundwater Recharge



TASK 2: TECHNICAL ANALYSIS CONTINUED

- Detailed Hydrologic Modeling (if/where needed)



TASK 2: TECHNICAL ANALYSIS CONTINUED

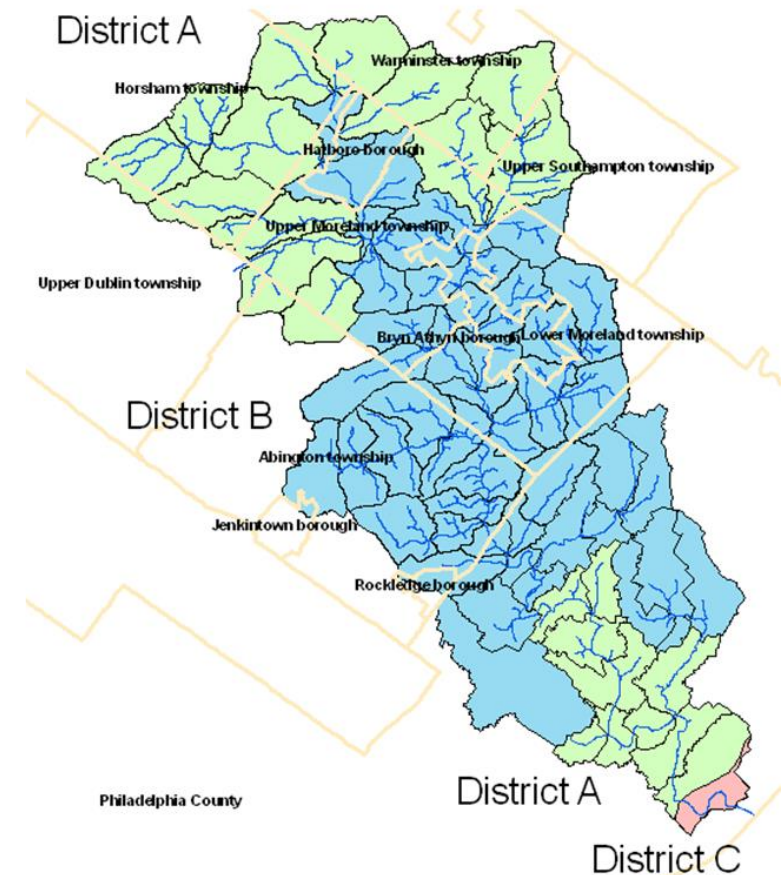
- Management Strategy for Release Rate Maps

- Detailed land use/land cover evaluation
- Assess applicability of existing release rate maps
- Develop additional release rate maps if necessary

(It is anticipated that the release rates are still valid since they are based on existing conditions at the time of Act 167 development)

- Analysis at Priority Problem Areas

- Analysis using desktop hydrologic techniques
- Limited modelling as needed



TASK 2: TECHNICAL ANALYSIS CONTINUED

- Provide Conceptual Solutions for Existing Problem Areas

DEP Draft PCSM Manual Objectives

PCSM Objective A – Low Impact Design

A.1 – Protect and Preserve Natural Landscape Processes

A.2 – Enhanced Natural Landscape SCMs

PCSM Objective B – Green Infrastructure Practices

B.1 – Infiltration-Based SCMs

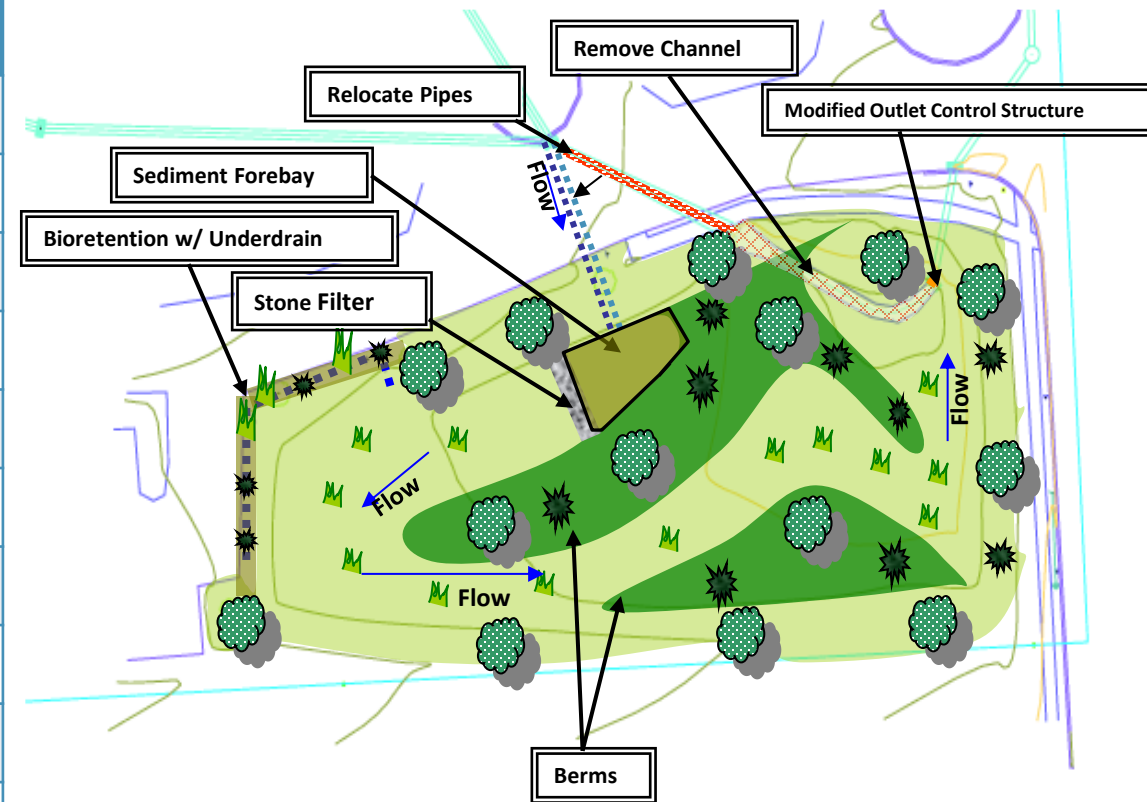
B.2 – Non-Infiltration SCMs

PCSM Objective C – Volume and Water Quality Management

C.1 – Managed Release Concepts

PCSM Objective D – Rate Management

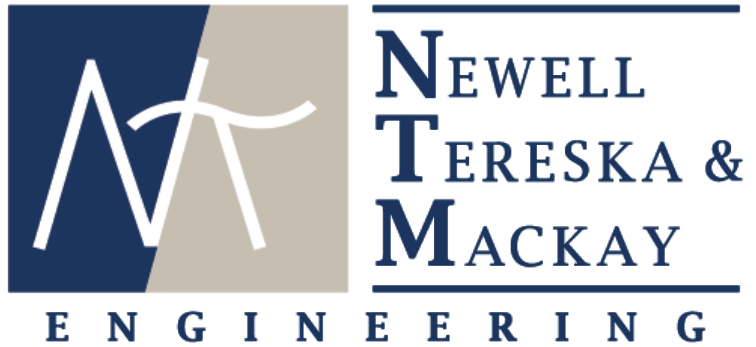
D.1 – Wet Basins, Detention Basins



SCHEDULE/TIMELINE

- May-June 2025: Field Visits
- May-Sept 2025: Technical Analysis
- Jan 2026: Draft Plan and Draft Model Ordinance
- April 2026: Finalize Report, Model Ordinance, and Exhibits
- Public Hearing and Board of Commissioners Approval
- Aug 2026: Phase 2 Report Submission to PA DEP Grant Funding Deadline
- Municipal Implementation, Public Info Workshops, Ordinance Adoption
- Dec 2025: Agreement Deadline





THANK YOU!

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