

PRP Projects

One Township's Approach to Affordability

2025 PSATS Stormwater / MS4 Virtual Conference
November 12 and 13, 2025



SKELLY AND LOY

A Terracon Company

Today's Topics

- Presenter Introduction
- Township Characteristics
- Current Permit: Pollutant Reduction Plan Projects and Cost Management
- Upcoming Permit Cycle: Changes and Deadlines
- Strategy For Completing the Notice of Intent Using the MEP Calculator
- Volume Management Plan
- Funding New SCMs
- Conclusion
- Question & Answer



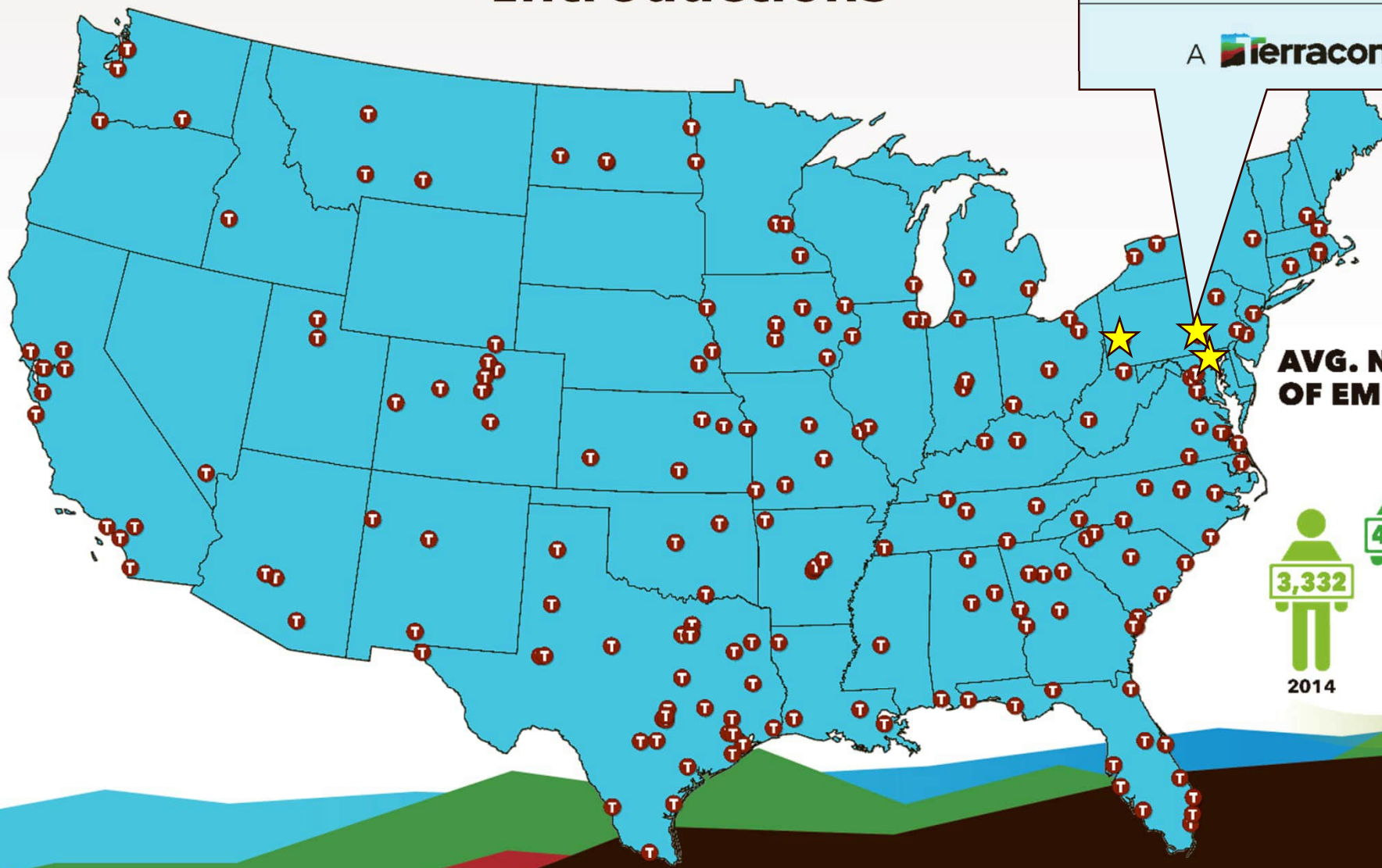


JENNIFER
STRAUSS
Sr. Staff Scientist

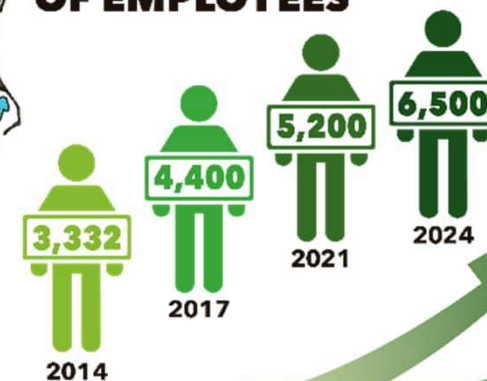


CARROL
EHRHART,
RLA
Department
Manager
Environmental
Engineering

Introductions



AVG. NO. OF EMPLOYEES

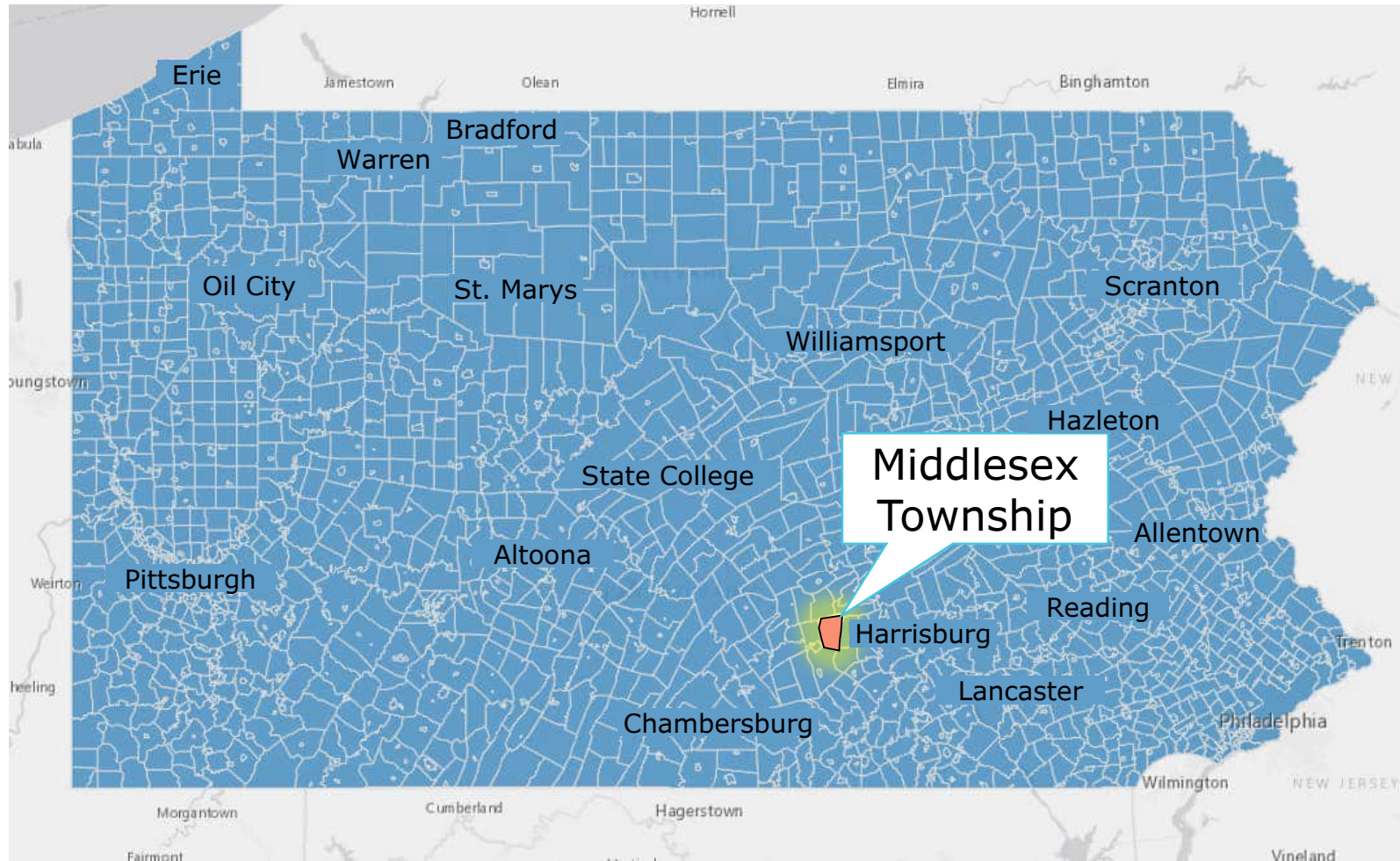


SKELLY AND LOY

A Terracon Company

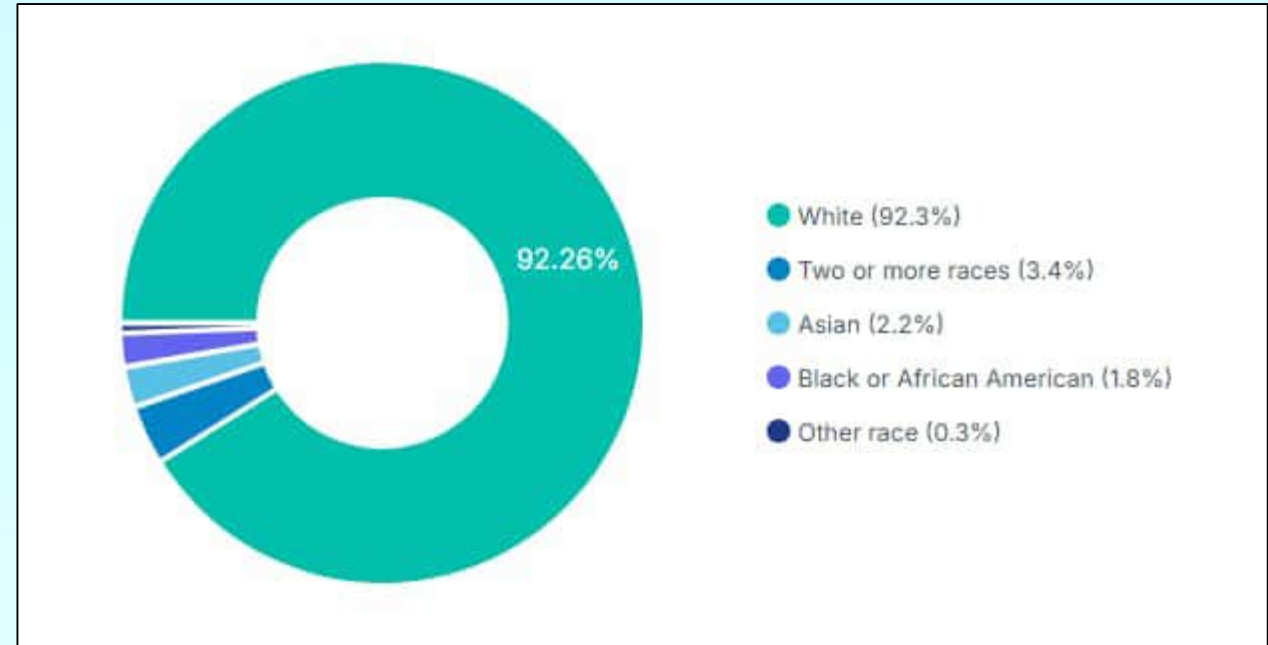
Township Characteristics

Middlesex Township



Middlesex Township

- 25.7 square miles
- Population of 7,110 (+70 from 2010)
- Median age 47.1
- Median household income \$65,353
- 8.8% below poverty line
- 90.6% graduated high school



Source: US Census Bureau

Middlesex Township MS4 Characteristics



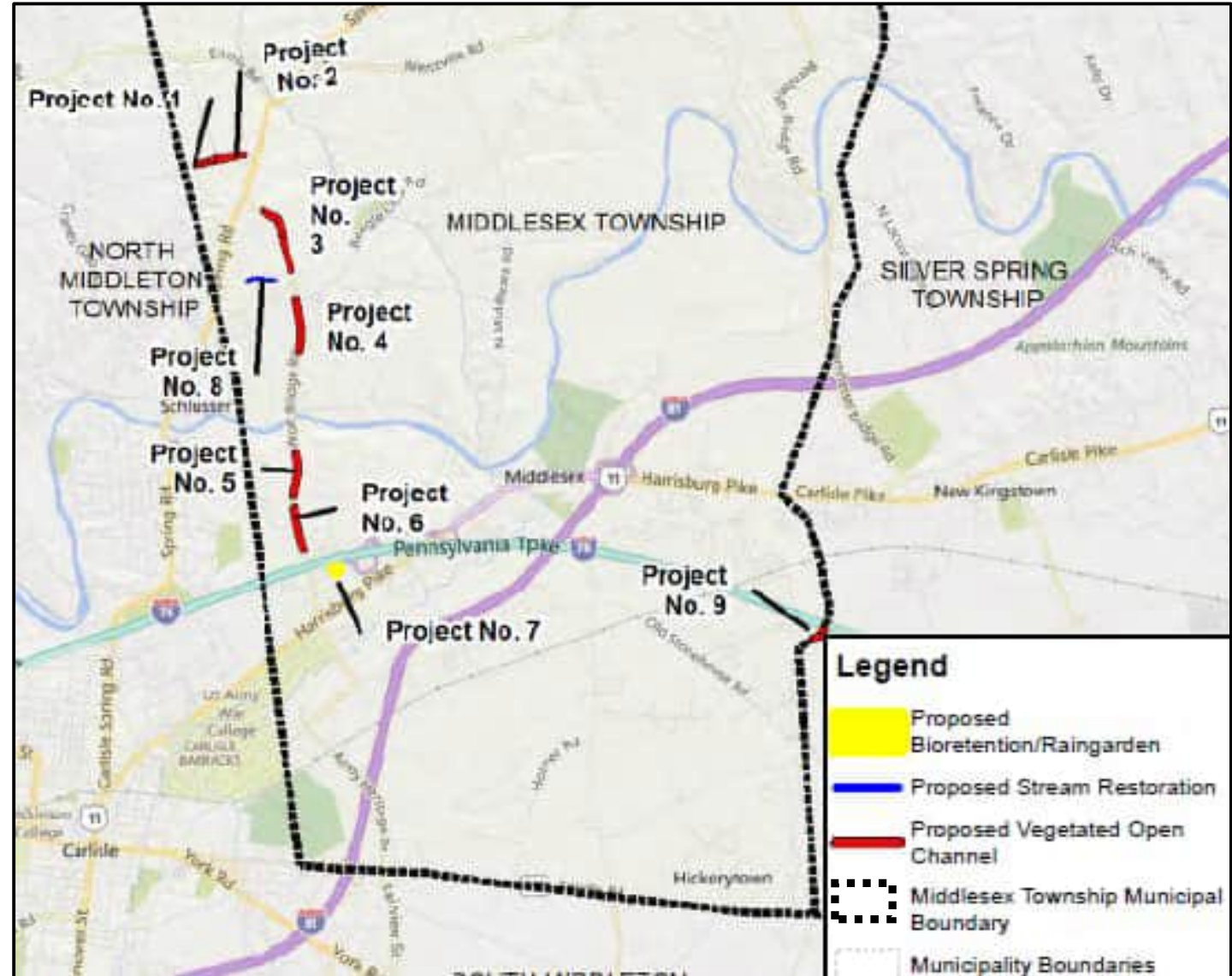
Letort Spring Run

- Individual permittee because Letort Spring Run's designated use is HQ-CWF (High Quality-Cold Water Fishes)
- Current permit expires 7/31/2028
- Adopted model ordinance on 8/3/2011 from Act 167 Cumberland Countywide Stormwater Management Plan approved 9/29/2010

Current Permit: Pollutant Reduction Plan Projects and Cost Management

Middlesex Township MS4 Characteristics

- Sediment reduction target 124,415 lbs/yr
- 9 PRPs
 - 6 Roadside open channels
 - 1 Rain Garden
 - 1 Stream Restoration
- 8 constructed
- 1 in process



Economic Stewardship

- Use Already completed analytics
 - Concepts developed for PRP
 - Completed watershed study that identified problem segments of Letort Spring Run
- Select sites without acquisition costs
 - Mostly municipally owned sites
- Piggyback stormwater with other required construction
 - Selected sites with other deficiencies like flooding and damaged infrastructure
- Seek Grant Funding
 - Grant 1: Mariner Pipeline II Grant \$631,600
- **Be a Little Red Hen!**
 - Outreach, Construction, and Plant Establishment- Township Maintenance Staff
 - As-needed Professional Services – Consultant



Project 1 and 2: Wagner Drive



Project 1 Wagner Drive near the western end during construction

View looking at improvements made near a driveway that required excavation and new piping to provide positive drainage.



Project 2 before construction at the east end along Wagner Drive

The photo shows stagnant ponding water at a driveway near the east end of the project.

When owners see a personal benefit, they are more likely to support the project and tolerate inconvenience.



Project 2 during construction at the east end along Wagner Drive

Improvements included installation of a french drain across the driveway. The improvements reduce ponding and promote infiltration in this flat segment of the channel.

SKELLY AND LOY

A **Terracon** Company

Explore with us



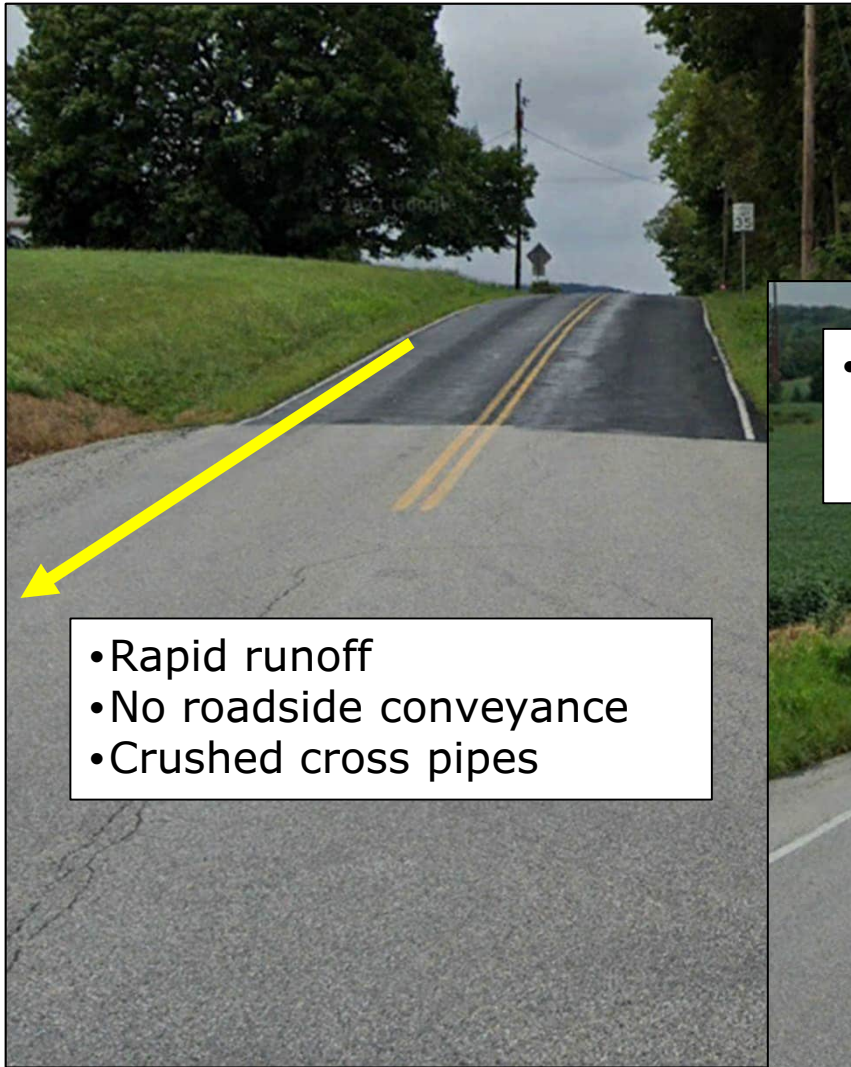
SKELLY AND LOY

A  Terracon Company

Explore with us

Project 4:

Wolf's Bridge Road & West Middlesex Drive



- Rapid runoff
- No roadside conveyance
- Crushed cross pipes



- Deteriorated macadam in turning path off the intersecting road

Prior to Project 4, there were no roadside swales Along Wolf's Bridge Road.

Persistent road flooding and inadequate conveyance caused bank erosion and paving deterioration at the upper end of these segments.

SKELLY AND LOY

A **ierracon** Company

Explore with us

Project 4:

Wolf's Bridge Road and West
Middlesex Drive



Looking west



Looking south



Looking north

SKELLY AND LOY

A **Terracon** Company

Project 4: Anderson Park



Problem Wet Area

The swing set was located at the low spot in the park, and the area was frequently inundated and wet.



No Acquisition Cost

Clean washed sand was installed for the base layer.



Township Staff Constructed

Amended soil mixture was placed. Note: the equipment is working from the side of the rain garden to prevent soil compaction on the floor of the rain garden.



Project 7 rain garden at Anderson Park post-construction

SKELLY AND LOY

A **Terracon** Company



Project 7 rain garden at Anderson Park post-construction one year later

Explore with us

Know when it's time to change direction!

- Respond to changes
- Samples:
 - Project isn't the correct one
 - Key personnel depart
 - Owner disputes
 - Too-challenging site constraints
 - Economy or regulatory environment shifts



Stream restoration

Stream restoration was required to produce substantive sediment reductions for compliance.

Change 1:

- Selected Reach of Letort Spring Run that was part of a watershed wide assessment improvement
- Restoration was unnecessary
- Sediment reduction achievement would be nominal



Project 8: New Site

- Headwater stream with lots of erosion.
- Contributing sediment to impaired Wertz Run.
- Sediment reduction:
 - Project 8: 123,280 lbs/yr
 - Others combined: 33,135 lbs/yr.

Opportunities for Township stewardship

- Private property owner
- Excellent rapport between Township and constituents
- Timely communication with PA DEP to gain approval of new project opportunity



PRP Summary

Project 8 Statistics

1072 LF
Step-pool
channel

- Steep 5% ravine 5% - 33 rock steps and 3 log structures
- Restores stream horizontal alignment and stabilizes vertical incision and horizontal widening

Plants:

- 659 container grown native plants
- 1921 Live stakes
- Preservation of healthy, mature vegetation

Reduce
Pollutants:

- Sediment: 123,280 lbs/year
- Phosphorus: 187 lbs/year
- Nitrogen: 206 lbs/year

Growing Greener

A Terracon Company

All Projects Highlights

Township staff performed

- Owner notifications, outreach, and negotiation
- Procurement
- Construction Management, traffic control and worker protection
- Plant installation and establishment for constructed projects (except PRP 8)

Skelly and Loy, A Terracon Company performed

- Design
- Permitting
- Construction guidance and oversight
- Grant Assistance

Grant was for design and approvals of all projects and construction of all except project 8

- Intention to construct the stormwater projects economically and request reallocation toward construction of Project 8.

Successfully reserved \$277,500 of the \$631,600

- Returned funds to PA DEP. Timing of permit approval did not allow adequate time for a grant extension, and a reallocation would reduce potential for full funding through Growing Greener.

Explore with us

Project 8: UNT to Wertz Run Stream Restoration Status

Change 2: Choosing to outsource

Decision to contract Construction:

- Loss of key personnel with required equipment operator skillset
- Competition for staff time and routine work
- Behind compliance schedule: Recognition of need for speed...Git 'r done

Grants to ease expenditure

- Cumberland County Countywide Action Plan (CAP) Clean Water Grant: \$101,200
- PA DEP Growing Greener Grant: \$426,309

Contracts:

- Construction: Flyway Construction
- Construction engineering services: Skelly and Loy, A Terracon Company



Upcoming Permit Cycle: Changes and Deadlines



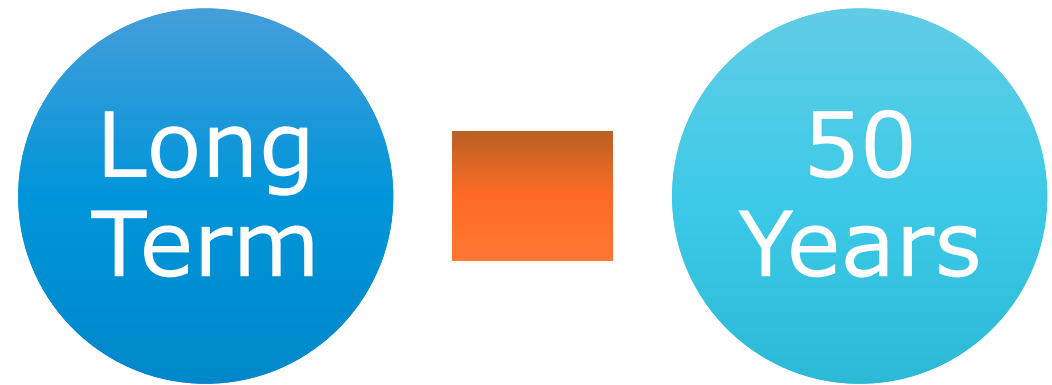
Next Permit

- Pollutant Reduction Plans (PRP) retired.
- **Volume Management Plan (VMP)**
 - New document outline how you, the applicant, is going to meet compliance goals...the Volume Management Objective (VMO) through specific project implementation
- **Volume Management Objective (VMO)**
 - The VMO is established using the **Maximum Extent Practicable (MEP) Calculator**
- No Pollutant Control Measures (PCMs)
 - Focus will be on pollutants that can be mitigated via stormwater management

Explore with us

PA DEP's Long-term MS4 Approach

- Long-term goal of the Volume Management Plan is the treatment of 88% impervious surfaces in the MS4
- Volume Management Objective (VMO) was empirically calculated...NOT an arbitrary goal
 - It is the midpoint range of total impervious area and % of impervious area treated
 - VMO is the difference between treatment goal and existing level of treatment
 - The Volume Management Chart provides the required reduction/year
- Treated impervious means the capture of 1 inch of runoff from MS4 impervious surface area for water quality treatment



Key Dates

- 9/30/2026: Notice of Intent (NOI) submittal (effective date: March 2027).
 - Volume Management Objective (VMO) using Maximum Extent Practicable (MEP) Calculator due with the NOI
 - Submissions will be through the new electronic system GreenPort
- 2028: Model Ordinance adoption due



Key Dates

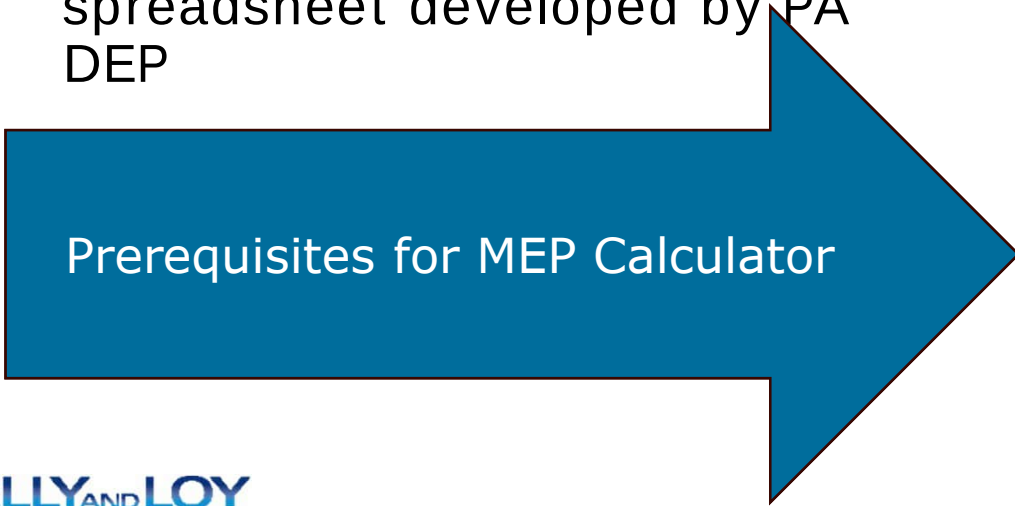
- 9/30/2028: Volume Management Plan (VMP) using template that incorporates Volume Management Objective (VMO) due with Annual Report
 - Public Notice must be provided at least 45 days prior to submittal and written comments must be accepted at least 30 days from the public notice date
- 9/30/2031: Two times Annualized VMO completed and due with Annual Report



Strategy For Completing the Notice of Intent Using the MEP Calculator

Where do we start?

- Start with the NOI and MEP calculator
 - NOI is a standard PA DEP form...but has a new entry of interest
 - MEP Calculator is a new custom spreadsheet developed by PA DEP



Prerequisites for MEP Calculator

- Impervious analysis of regulated MS4
- Inventory of existing Stormwater Control Measures and including impervious area treated
- Socioeconomic data
- Decision to apply independently or as part of a collaborative group

Notice of Intent

- The New NOI is posted with PA DEP's Draft MS4 Documents
- PAG-13 is for most applicants
- If the MS4 discharges to High-Quality (HQ) or Exceptional Value (EV), use the Individual Permit NOI

3800-PM-BCW0100b 1/2025
NOI

VOLUME MANAGEMENT PLAN

☐

A completed MEP Calculator Spreadsheet has been attached to the NOI.

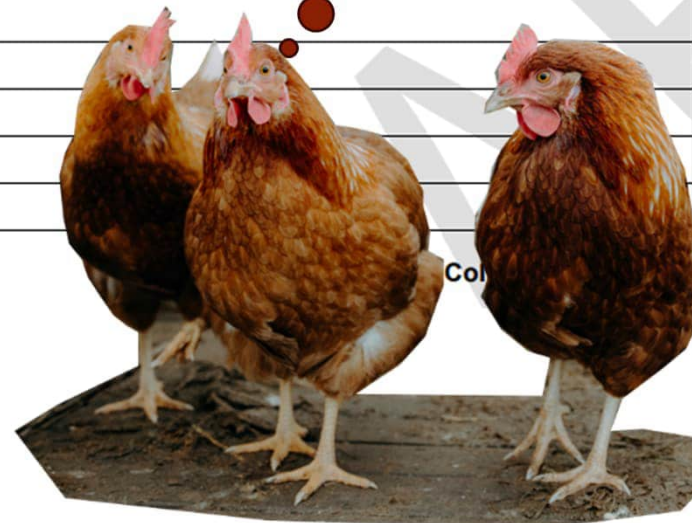
Annualized MEP Volume Management Objective (VMO): CF/Yr

VMO for 2026-2031 General Permit Term: CF (VMO x 2 years)

Identify all anticipated collaborators in the VMP and their VMOs (attach additional sheets as necessary):

MS4 Name	VMO for 2026-2031 General Permit Term (CF)
Unless you have your own GIS analysts, you might need a consultant, like Skelly and Loy 	

Unless you have your own GIS analysts, you might need a consultant, like Skelly and Loy



Maximum Extent Practicable (MEP) Calculator for Volume Management Plans

CLEAR FORM

INSTRUCTIONS

MS4 Name: Permitted MS4:

Surface Waters:

☐ Step 1: Determine Annualized Volume Management Objective **VIEW CHART**

☐ Step 2: Calculate Feasibility Index

☐ Step 3: Determine MEP

- There are three steps
- When the steps are complete, the Volume Management Objective (VMO) can be determined using the Volume Management Chart

% Impervious Treated	Total Impervious, UA (acres)													
	< 100	100-199	200-299	300-399	400-499	500-599	600-699	700-799	800-899	900-999	1000-1499	1500-2000	> 2000	
0-5%	3,000	9,000	16,000	22,000	28,000	34,000	40,000	47,000	50,000	50,000	50,000	50,000	50,000	
6-10%	3,000	9,000	15,000	20,000	26,000	32,000	38,000	44,000	49,000	50,000	50,000	50,000	50,000	
11-15%	3,000	8,000	14,000	19,000	25,000	30,000	35,000	41,000	46,000	50,000	50,000	50,000	50,000	
16-20%	3,000	8,000	13,000	18,000	23,000	28,000	33,000	38,000	43,000	48,000	50,000	50,000	50,000	
21-25%	2,000	7,000	12,000	17,000	21,000	26,000	31,000	35,000	40,000	45,000	50,000	50,000	50,000	
26-30%	2,000	7,000	11,000	15,000	20,000	24,000	28,000	33,000	37,000	41,000	50,000	50,000	50,000	
31-35%	2,000	6,000	10,000	14,000	18,000	22,000	26,000	30,000	34,000	38,000	50,000	50,000	50,000	
36-40%	2,000	5,000	9,000	13,000	16,000	20,000	24,000	27,000	31,000	34,000	45,000	50,000	50,000	
41-45%	2,000	5,000	8,000	11,000	15,000	18,000	21,000	25,000	28,000	31,000	41,000	50,000	50,000	
46-50%	1,000	4,000	7,000	10,000	13,000	16,000	19,000	22,000	25,000	28,000	36,000	50,000	50,000	
51-55%	1,000	4,000	6,000	9,000	11,000	14,000	17,000	19,000	22,000	24,000	32,000	44,000	50,000	
56-60%	1,000	3,000	5,000	8,000	10,000	12,000	14,000	16,000	19,000	21,000	27,000	38,000	49,000	
61-65%	1,000	3,000	5,000	6,000	8,000	10,000	12,000	14,000	15,000	17,000	23,000	32,000	41,000	
66-70%	1,000	2,000	4,000	5,000	7,000	8,000	9,000	11,000	12,000	14,000	18,000	25,000	33,000	
71-75%	1,000	2,000	3,000	4,000	5,000	6,000	7,000	8,000	9,000	10,000	14,000	19,000	25,000	
76-80%	1,000	1,000	2,000	3,000	3,000	4,000	5,000	5,000	6,000	7,000	9,000	13,000	16,000	
81-85%	1,000	1,000	1,000	1,000	2,000	2,000	2,000	3,000	3,000	3,000	5,000	6,000	8,000	
> 85%	0	0	0	0	0	0	0	0	0	0	0	0	0	

MEP Calculator

This is the Volume Management Chart that can be accessed via the radio button "View Chart"

Step 1: Determine impervious surface area in Regulated MS4

Where is the MS4 Boundary for the next permit cycle?

- All of the 2010 Urban Area
- All of the 2020 Urban Area
- No parsing

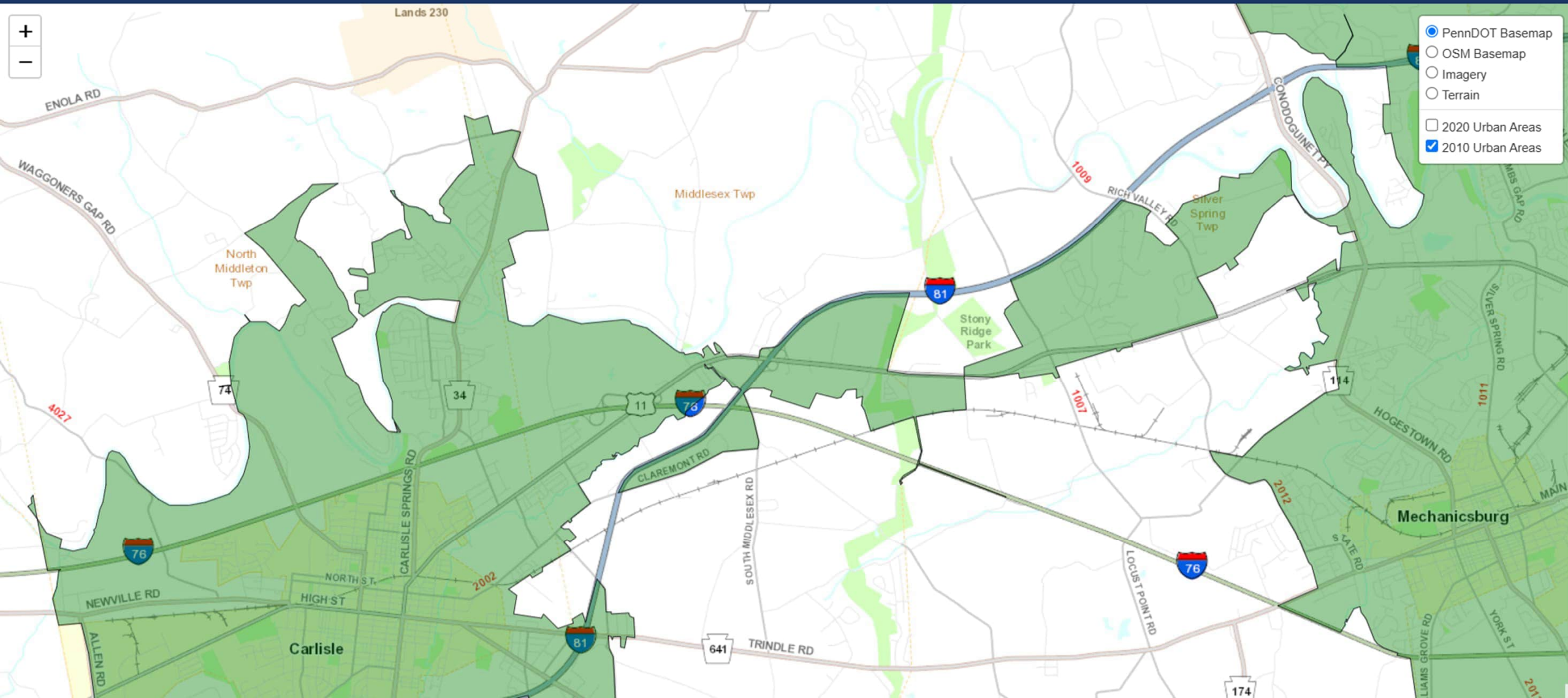


What impervious surfaces should be included in the Total Impervious Area for VMO lookup?

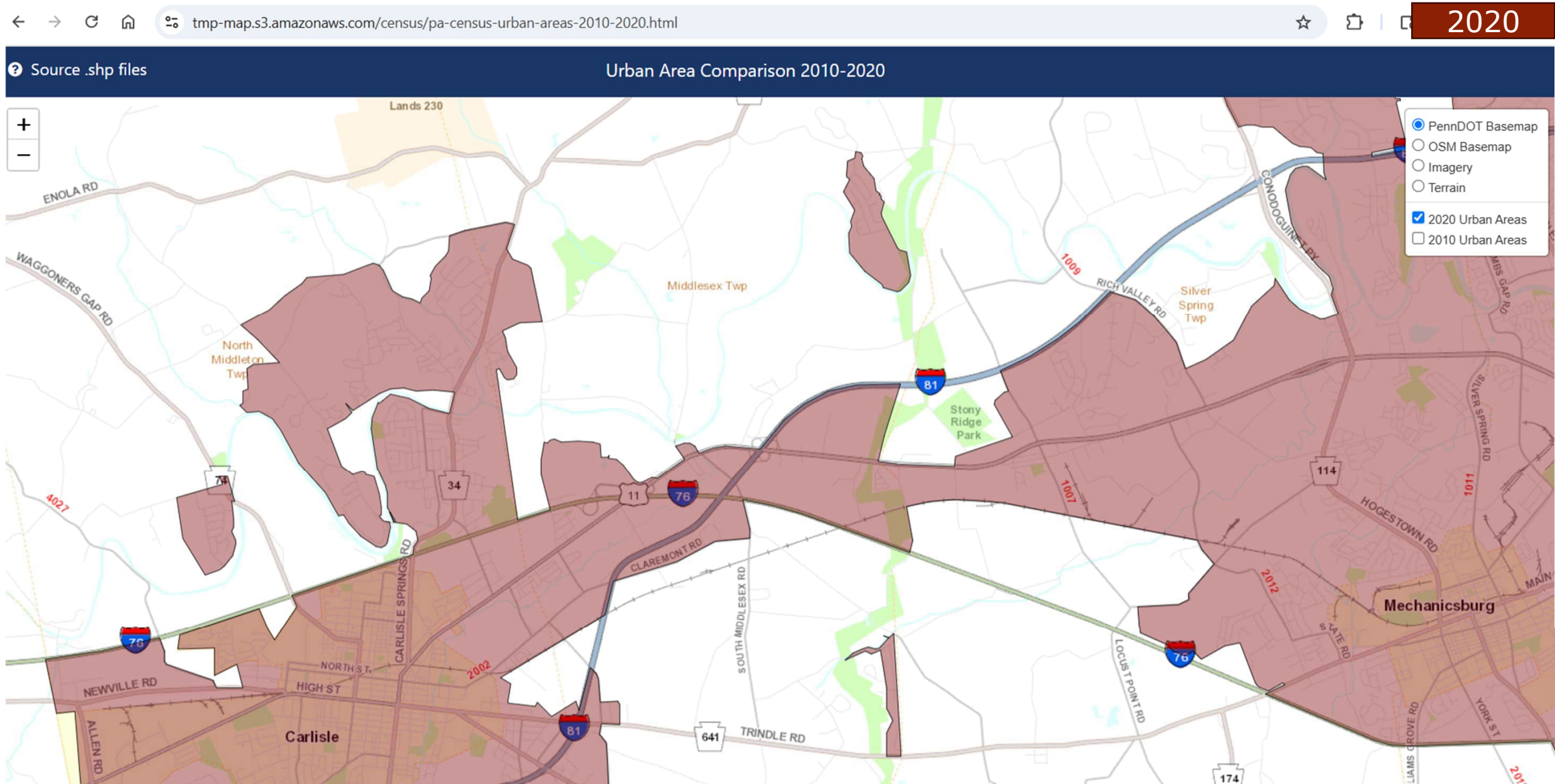
- The analyzed impervious surface area in the MS4 plus areas that do not infiltrate (per TR55), like bodies of water, swimming pools, and gravel. Exclude:
 - Combined Sewer Service area
 - Impervious surfaces treated by other National Pollutant Discharge Elimination System (NPDES) permits
 - Discharges of Stormwater Associated with Construction Activities
 - Industrial Stormwater Permits



MS4 Boundary Illustrated



MS4 Boundary Illustrated



MS4 Boundary Illustrated

2010 + 2020

Urban Area Comparison 2010-2020

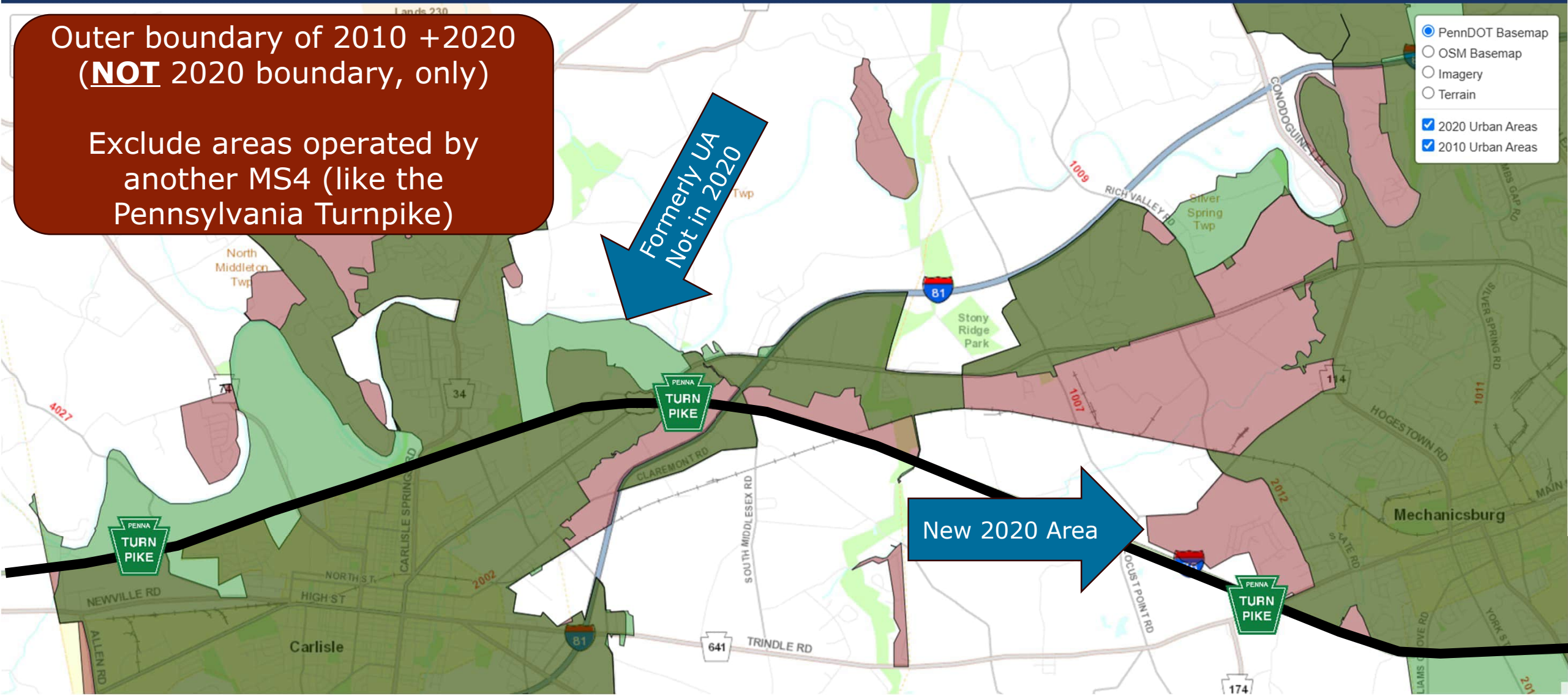
Outer boundary of 2010 + 2020
(**NOT** 2020 boundary, only)

Exclude areas operated by
another MS4 (like the
Pennsylvania Turnpike)

Formerly UA
Not in 2020

New 2020 Area

- ☒ PennDOT Basemap
- ☐ OSM Basemap
- ☐ Imagery
- ☐ Terrain
- ☒ 2020 Urban Areas
- ☒ 2010 Urban Areas



PA DEP Authoritative MS4 Boundary

newdata-padep-1.opendata.arcgis.com/datasets/ms4-regulated-areas/explore?location=40.233885%2C-77.142330%2C13.35

PA Department of Environmental Protection

MS4 Regulated Areas

✓ Authoritative



PA DEP GIS

PA Department of Environmental Protection

Summary

MS4 Regulated Areas
(BCW_MS4RegulatedAreas) Pennsylvania Department of Environmental Protection, Bureau of Clean Water, MS4 Regulated Areas. Areas that require NPDES MS4 permit coverage.

View Full Details

Download

Details



Dataset
Feature Layer

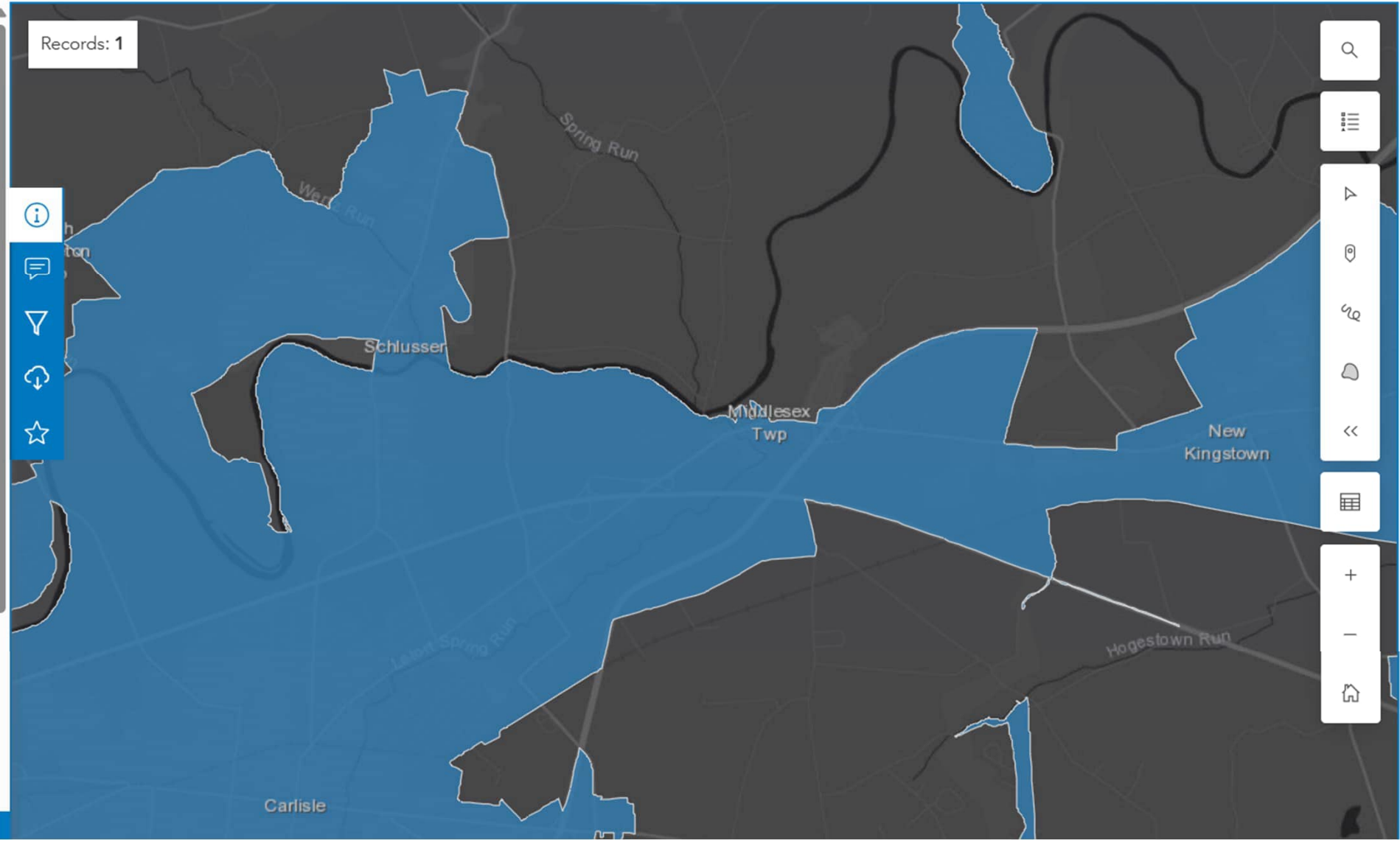


October 24, 2025 at 7:09:25 AM EDT
Info Updated



October 24, 2025 at 7:09:25 AM EDT

I want to use this



PA DEP Authoritative MS4 Boundary

Download
boundary
from PA DEP

newdata-padep-1.opendata.arcgis.com/datasets/PADEP-1::ms4-regulated-areas/about

PA Department of Environmental Protection



pennsylvania
DEPARTMENT OF ENVIRONMENTAL
PROTECTION

BUREAU OF
CLEAN WATER

AUTHORITATIVE FEATURE SERVICE

View Map

Download

More ▾

Summary

MS4 Regulated Areas (BCW_MS4RegulatedAreas) Pennsylvania Department of Environmental Protection, Bureau of Clean Water, MS4 Regulated Areas. Areas that require NPDES MS4 permit coverage.

Municipalities and other entities, such as universities and prisons, that meet certain standards must obtain NPDES permit coverage for discharges of stormwater from their municipal separate storm sewer system (MS4s). The part of the municipality regulated by the permittee's MS4 permit is the portion of the municipality designated by the 2010 Census as urbanized area, plus any additional areas designated by the 2020 Census as urban areas with a population of 50,000 or more. This dataset was created using two shapefiles from the Census Bureau. The census data is a snapshot in time. When data from the 2030 Census becomes available a new dataset will be created. This dataset shows the current area regulated by MS4 permits throughout the state.

[Read Less ^](#)

<https://newdata-padep-1.opendata.arcgis.com/datasets/PAD-EP-1::ms4-regulated-areas/about>

SKELLY AND LOY

A Terracon Company

Impervious Mapping Sources

Acceptable sources include:

- Municipal-scale mapping
- Latest version of the National Land Cover Database (NLCD)
- Chesapeake Conservancy High Resolution Land Cover Data Set (*Chesapeake Bay Drainage Basin only*)

The MEP Calculator Instructions provides impervious area conversion percentages by land use category

IMPERVIOUS ANALYSIS RESULTS



CHESAPEAKE BAY CONSERVANCY LAND COVER



Map of GIS-based impervious surface analysis of all of Middlesex Township using Chesapeake Bay Conservancy Land Cover data set supplemented by more recent aerial imagery and verification by Township Staff.



Impervious Area Treated, UA %

- Quantify Impervious UA by SCMs that capture and reduce volume through infiltration and/or evapotranspiration.
 - 1-inch of runoff treatment minimum
 - Managed Release Concept is eligible in areas where infiltration is infeasible
 - SCMs must be maintained, functional, and inspected within past two years
- Report as a percent of the UA



Maximum Extent Practicable (MEP) Calculator SCM Types Worksheets

- The SCM Inventory Worksheets document treated impervious for Step 1.
- Used for any SCM identified in BMP Manual, PCSM Manual, or DEP's list of approved alternative SCMs

Clicking the box activates the corresponding SCM Worksheet

SCM Types

Select the types of SCMs in your inventory. Populate your inventory on the SCM-specific worksheets.

- ☐ Stream Restoration with Floodplain Restoration Component
- ☐ Stream Restoration without Floodplain Restoration
- ☐ Rate/Flood Control Retrofits
- ☒ Infiltration/ET and Other Volume Management SCMs
- ☐ Other SCMs

> MEP Calculator | **SCM Types** | Volume SCMs | +

Volume Management SCM Example

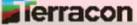
- Enter information in yellow boxes
- White box calculated based on yellow box information

SCM Name	Latitude	Longitude	Owner Name	SCM Surface Area (SF)	Depth to Lowest Orifice (ft)	SCM Storage Volume (CF)	Impervious Treated (ac)	Chapter 102 PCSM?	Year Installed	Year Last Inspected
Bioretention	40.226105	-77.160538	Middlesex Township	2,050	2.00	3,668	1.01	No	2024	2024
Bioretention	40.226105	-77.170538	Middlesex Township	2,050	0.00	3,668	1.01	No	2024	2024
TOTAL:							2.02			

Other SCM Example

- Enter information in yellow boxes
- White boxes calculated based on yellow box information

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB
1																												
2	Other SCMs																											
3	CLEAR FORM																											
4																												
5	☐ Tree Planting																											
14																												
15	☒ Impervious Area Reduction																											
16																												
17	Area converted from impervious to pervious: 5 acres																											
18																												
19	Hydrologic Soil Group (HSG): B																											
20																												
21	Reduced Runoff Volume @ 1.2-inch/2-hour storm: 14,355 CF																											
22																												
23	Equivalent Impervious Area Treated (acres): 3.95																											
24																												


A  Company

< > MEP Calculator SCM Types Volume SCMs Other SCMs +

Explore with us

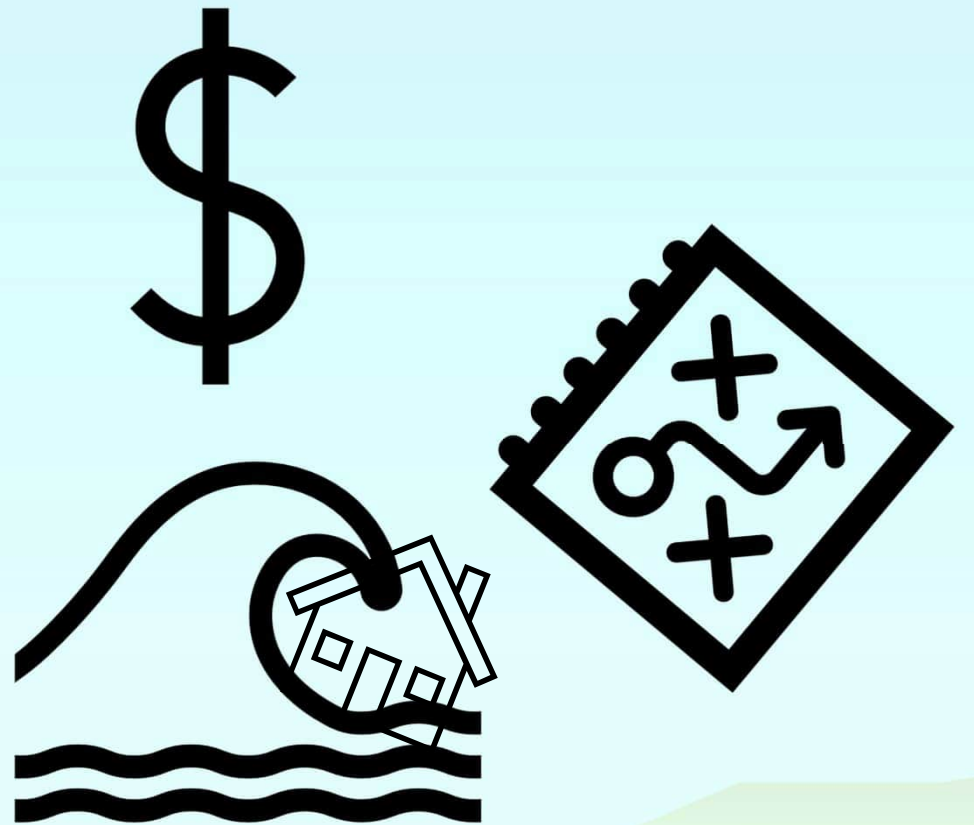
Step 2 - Calculate Feasibility Index

Financial/Socioeconomic Factors

- What can the permittee afford?

SCM Opportunities

- What factors enhance or constrain constructing SCMs?
- Property ownership, untreated impervious areas, existing flooding, development rate and supportive regulations



Financial / Socioeconomic Factors

Municipal MS4's only

- A. 2020 Municipal Lowest Quintile Household Income (LQI) Ratio
- B. Municipal Poverty Rate Ratio using latest available published data
- C. Unemployment Rate (UR) Ratio using Pennsylvania and municipal data from the PA Department of Labor and Industry Website
- D. Standard Utility Bill Ratio based on municipal applicant's average household sewer, water, and stormwater fees and the factors provided in the instructions



ALL MS4 Applicants

- E. Long-Term Affordability Indicator

2020 Municipal Lowest Quintile Household Income (LQI) Ratio Process

Enter:

1. Lowest Quintile Household Income (LQI) for municipality
2. MEP Calculator generates LQI Ratio by dividing the Municipal LQI by PA LQI of \$14,400

* Instructions provide a link to the American Community Survey (ACS) 5-year Estimates Subject Mean Household Income of Quintiles where the lowest Quintile value is found.

Municipal MS4 Applicant only



Municipal Poverty Rate Ratio and Unemployment Rate (UR) Ratio Process

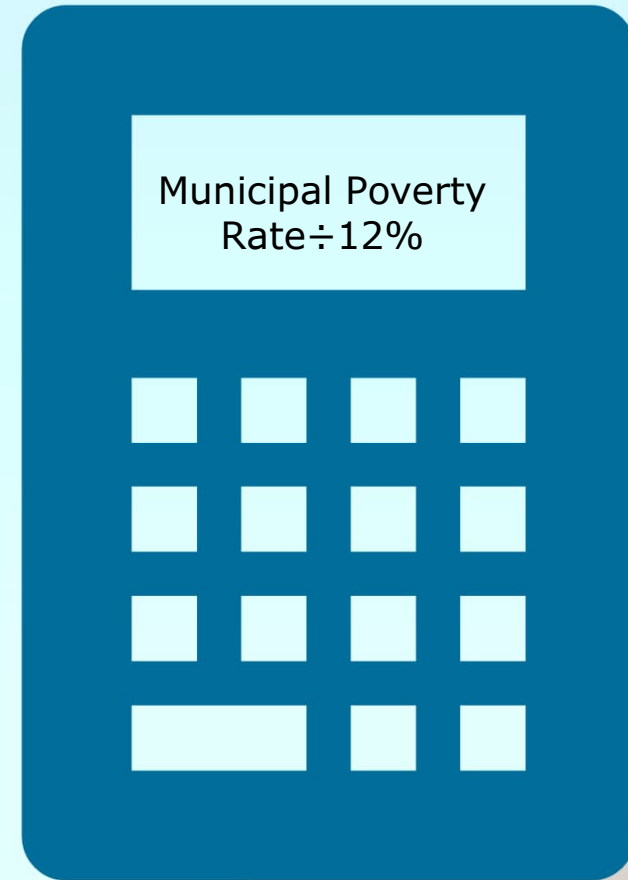
Poverty Rate Ratio:

1. Enter municipal poverty rate
2. MEP Calculator generates Poverty Rate Ratio which is the municipal poverty rate divided by PA poverty rate of 12%

Unemployment Rate (UR) Ratio:

1. Enter the PA and municipal unemployment rates from the PA Department of Labor and Industry Website
2. MEP Calculator automatically generates Unemployment Rate ratio

Municipal MS4 Applicant only



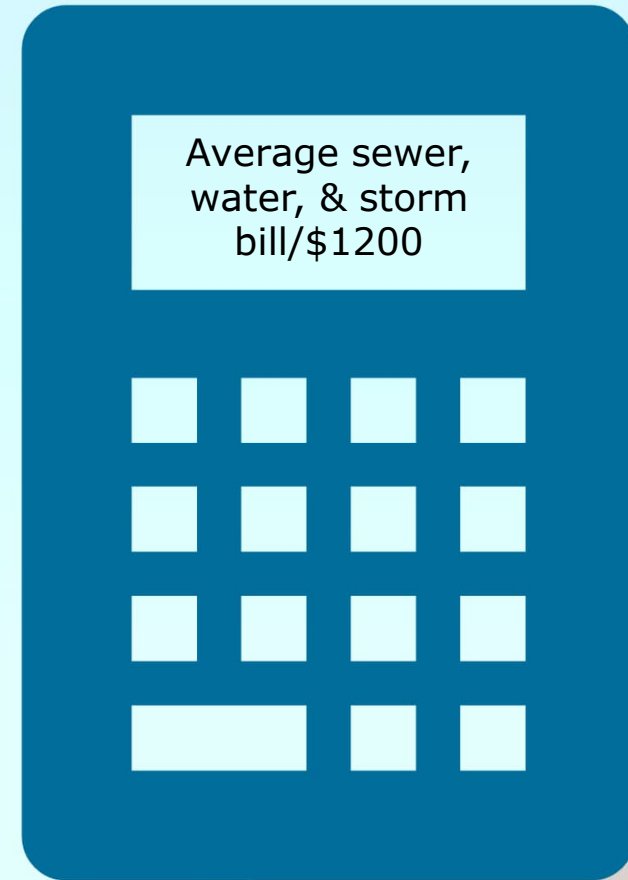
Standard Utility Bill Ratio Process

Enter:

1. Total annual utility bill for the average household in the municipality.
2. Include water, sewer, and stormwater, but not electric, gas, or refuse
3. The MEP calculator generates the Standard Utility Bill Ratio

* The ratio is based on the input municipal average annual utility bill divided by standard utility bill for Pennsylvania, which is \$1200, or of 8% of Lowest Quantile Household Income (LQI)

Municipal MS4 Applicant only



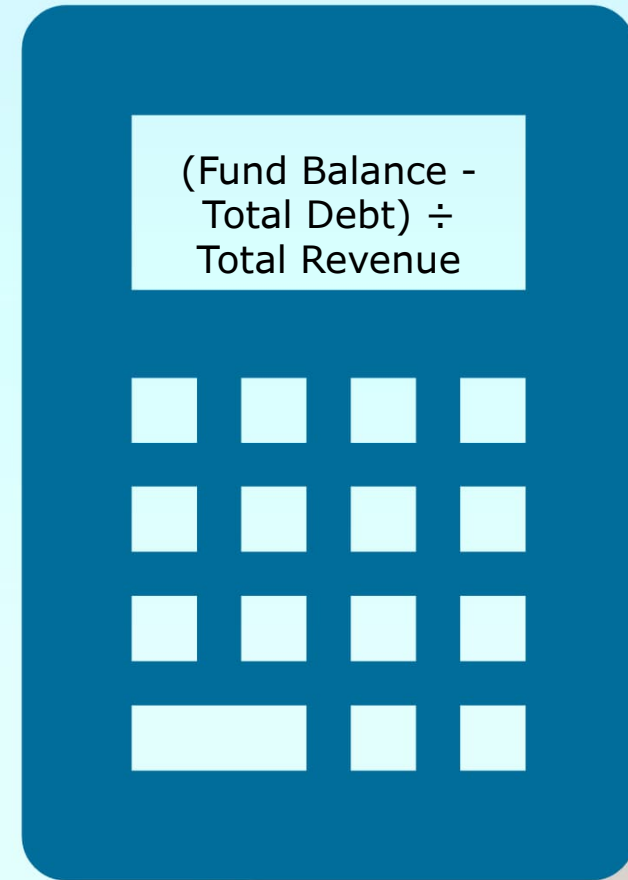
Long-Term Affordability Indicator Process

Enter:

1. Total revenues received in the prior year
2. Total debt as of 12/31 of prior year
3. Fund balance (retained earnings) as of 12/31;

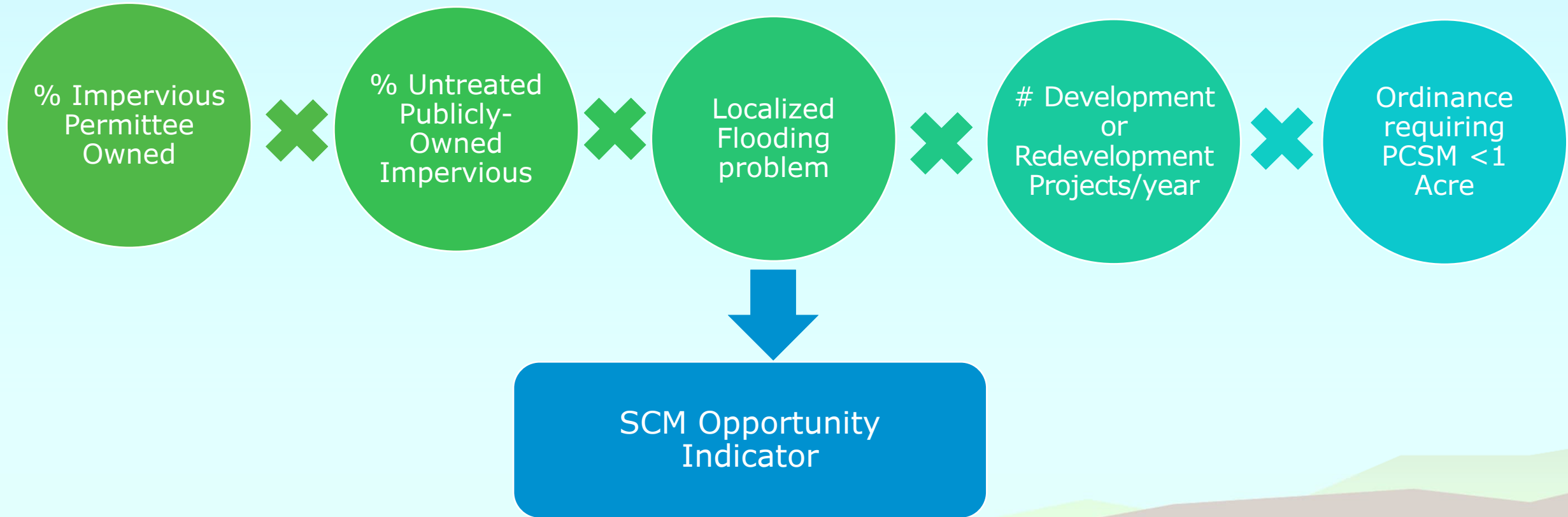
* MEP Calculator automatically generates Long-term Affordability Indicator by subtracting total debt from fund balance (retained earnings) and dividing by total revenues

All MS4 Applicants



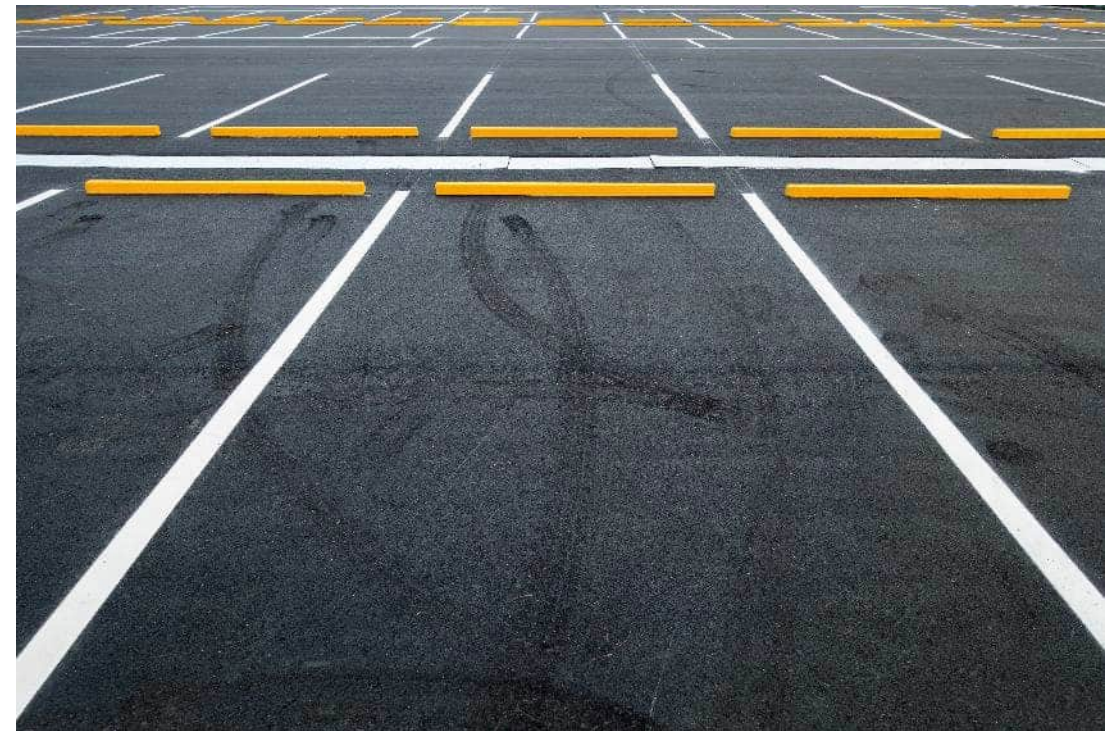
SCM Opportunity Indicator

Qualitative assessment of potential SCM opportunities...the higher the value the lower the estimated opportunities for SCMs



% Impervious Permittee Owned and % Untreated Publicly-Owned Impervious

- % Impervious Permittee Owned:
 - Enter Total Impervious Area within UA reported in Step 1
 - The MEP Calculator assigns a factor value between 0.5 and 1.5
 - * The higher the %, the higher the SCM opportunity and the lower the assigned factor value
- % Untreated Publicly-Owned Impervious
 - Enter % of publicly-owned impervious area from “% Impervious Permittee Owned”
 - The MEP Calculator assigns a factor value between 0.5 and 1.5
 - * The higher the %, the lower the SCM opportunity and the higher the assigned factor value



Localized Flooding Problem, # Development or Redevelopment Projects/Year, and Ordinance Requiring PCSM <1 Acre

Localized Flooding Problem:

1. Enter “Yes” or “No”
2. The MEP Calculator assigns 0.75 for “Yes” and 1.0 for “No”
3. If “Yes”, must be documented with pictures, maintenance reports, and records of federal and state flood mitigation assistance

Development or Redevelopment Projects/Year

1. Enter average number of projects over a 3-year period
2. The MEP Calculator assigns a factor between 0.5 and 1.5
 - * The higher the #, the higher the SCM opportunity and the lower the assigned factor value

Ordinance Requiring PCSM <1 Acre:

1. Enter “Yes” or “No”
2. The MEP Calculator assigns 0.75 for “Yes” and 1.0 for “No”

Feasibility Index

The higher the value, the lower the estimated opportunities for SCMs

A. 2020 Municipal Lowest Quintile Household Income (LQI) Ratio

✖ B. Municipal Poverty Rate Ratio

✖ C. Unemployment Rate (UR) Ratio

✖ D. Standard Utility Bill Ratio

✖ E. Long-Term Affordability Indicator

✖ F. SCM Opportunity Indicator

▬ **FEASIBILITY INDEX**

Step 3 - Determine Maximum Extent Practicable (MEP)

Adjusted Annualized Volume Management Objective (VMO)

- Annualized VMO ÷ Feasibility Index

Collaboration Credit

- Add number of additional MS4s collaborating in Volume Management Plan; add to NOI
- Answer whether collaborating MS4s are co-permittees
- Collaboration Credit is product of two credits, up to a maximum of 50%

Entries for NOI

MEP Annualized VMO

Adjusted
Annualized
VMO

Collaboration Credit

rounded to the nearest 1,000 cf/yr (unless the VMO in Step 1 = "0")

2X MEP Annualized VMO

3800-PM-BCW0100b 1/2025
NOI

VOLUME MANAGEMENT PLAN

☐ A completed MEP Calculator Spreadsheet has been attached to the NOI.

Annualized MEP Volume Management Objective (VMO): CF/Yr

~~VMO for 2026-2031 General Permit Term:~~  CF (VMO x 2 years)

Identify all anticipated collaborators in the VMP and their VMOs (attach additional sheets as necessary):

[illegible]

Total for Collaboration (CF):

Volume Management Plan (VMP)

Volume Management Plan (VMP)

Due date 9/30/2028 with Annual MS4 Report

Includes VMO, SCM Summary, Collaborators, SCM Identification Sheet, Preliminary Design Drawings, SCM Site Map, O&M Plan, VMP Spreadsheet, and optional completion certificate



SCM Summary includes Total Volume Management Credit derived from VMP Spreadsheet, which is not available yet



SCM Identification Sheet completed for each proposed SCM

Attachment B: SCM Identification Sheet

- SCM written description include dimensions, depths, media, vegetation, and drainage area
 - Enter surface water SCM drains to, existing use of receiving water, if it is impaired, and cause of applicable impairment
 - Check appropriate boxes to indicate whether SCM is new or retrofit, vegetated or non-vegetated, and if underdrain is present
 - Check box if SCM will comply with MRC design standards

Attachment B: SCM Identification Sheet (cont.)

- Report design infiltration rate (in/hr) if Volume Management Credit will include an infiltration credit
- At least 3 infiltration tests must be taken in footprint or within 25 ft of footprint
- Report runoff volume in SCM drainage area, during 2-year/24-hour storm event, and volume routed to SCM
- Report ponding depth within SCM during 2-year/24-hour storm event and infiltration period

Attachment B: SCM Identification Sheet (cont.)

- Check box if SCM design will meet standards in BMP Manual and/or PCSM Manual
- Provide landowner name and person responsible for O&M
- Report anticipated funding source for construction SCM
- Enter Volume Management Credit from VMP Spreadsheet
- Check box if SCM will be within EJ area or will help alleviate local flooding

Funding New SCMs

Compliance Funding Ideas: Grants, Loans, and Fees

- Growing Greener Plus
 - Also covers Act 167 planning, which complements standards and criteria in the 2028 model ordinance
- DCED Small Water and Sewer Program and Watershed Restoration and Protection Program
- PennVEST Clean Water State Revolving Loan Fund and Advance Funding Program
- Stormwater Utility Fee
- Stormwater Impact Fees
- Capital Improvement Plan Fund



Funding Sources	Description	Eligible Applicant									Eligible Grant Activity							
		Landowner	Business	Community Watershed Group	Nonprofit Group	Educational Institution	Conservation District	Water and Wastewater Utility	Local Government	State Agency	Collaborative Planning	Computer Hardware and Software	Field Data Acquisition	Digital Base Mapping	Design/Engineering	Construction	Operation and Maintenance	Land Acquisition
PA DEP and PennVEST Growing Greener	Provide grants to assist citizen groups, conservation districts, and local governments in developing and implementing watershed remediation plans or watershed restoration projects and protective measures			●	●	●	●		●					*	*	*		
U.S. EPA 319 Nonpoint Source Implementation Program	Funding to assist in implementing Pennsylvania's nonpoint source management program including acid mine drainage (AMD), agriculture and urban runoff, and natural channel design/stabilization projects	●	●	●	●	●	●	●	●	●	*		*	*	*	*	*	
U.S. Fish and Wildlife Service Coastal Zone Management	Implement study plans, designs, land acquisition, research, and minor land acquisition within the Delaware Estuary and Lake Erie Costal Zones	●	●	●	●	●	●		●	●	*		*	*	*	*		*
Pennsylvania State Conservation Commission Dirt and Gravel Road Maintenance	Reduce non-point source pollution from dirt and gravel roads						●			●				*	*			
DCNR-Community Conservation Partnerships Program (C2P2)	Sustainable and green park projects, rehabilitation and universal access, trails, land conservation, emerging trends, rivers implementation, partnerships		●	●	●	●	●	●	●		*				*	*		*
U.S. EPA Environmental Education Grants	Funds schools, colleges, county conservation districts, non-profits, conservation and education organizations, municipalities, authorities, and businesses to educate on local and regional environmental issues				●	●				●	*							
CFA (DCED) – PA Act 13 – Marcellus Shale	Watershed restoration protection program, AMD, baseline water quality data program, flood mitigation, greenways trails, recreation, sewer, and water		●	●	●		●	●	●	●	*		*	*	*	*	*	
DCED – H2O PA	Water supply, sanitary sewer, and stormwater project construction							●	●						*			*
DCED – Municipal Assistance Program (MAP)	Shared services, community planning, and floodplain management								●		*	*	*	*				
Pennsylvania Association of Conservation Districts (PACD)	Mini grants for education					●					*							

Funding Sources	Description	Eligible Applicant									Eligible Grant Activity							
		Landowner	Business	Community Watershed Group	Nonprofit Group	Educational Institution	Conservation District	Water and Wastewater Utility	Local Government	State Agency	Collaborative Planning	Computer Hardware and Software	Field Data Acquisition	Digital Base Mapping	Design/ Engineering	Construction	Operation and Maintenance	Land Acquisition
USACE 313	Environmental infrastructure							●	●		*		*	*	*	*		
DCED – Local Share Account (LSA)	- Funds acquired from gaming and horse race tracks under DCED oversight - Distributions in block grants that need to promote local economic development; retain, create, or provide training for jobs; improve quality of life of affected communities; or improve/create civic, cultural, or recreational activities or facilities								●		*					*		
(National Fish and Wildlife Foundation (NFWF))	Variety of planning, education, construction, and maintenance grants (also see Keystone Center)		●	●	●	●	●		●	●	*			*	*	*	*	*
PennVEST	Loans and grants for water wastewater and stormwater infrastructure, brownfield remediation and redevelopment, grayfields, AMD, and estuaries	●	●	●	●	●		●	●						*	*		*
Alliance of the Chesapeake Bay	Largely appears to be an applicant for grants rather than a distributor of funds																	
Chesapeake Bay Foundation	Grants for design and implementation of Nutrient Management Plans										*				*	*	*	
Watershed Associations and Commissions	Major watersheds in Pennsylvania include Delaware River, Genesee River, Lake Erie, Ohio River, Potomac River, and Susquehanna River																	
Ducks Unlimited	Grant matches state funds for wetlands conservation	●	●	●	●				●	●	*		*		*	*		*
Trout Unlimited	“Embrace a Stream Grants” for CWF and partners with federal agencies for restoration projects			● Trout Unlimited Chapter Only							*		*			*		

Conclusion

Conclusion

- Knowing the characteristics of your community and PRP compliance this permitting cycle will help build a strategy for developing and economizing on MS4 compliance
- Collaborations are one potential approach to save costs and expand SCM implementation opportunities
- There are tasks municipalities can self-perform
- Consultants like Skelly and Loy are here to assist you when an expanded team makes sense.



Question & Answer

Contacts

Carrol Ehrhart
Sr. Landscape Architect
D (717) 510-7734
M (717) 917-7994
cehrhart@skellyloy.com

Jennifer Strauss
Sr. Staff Scientist
D (717) 510-7750
M (970) 420-8198
jstrauss@skellyloy.com

SKELLY_{AND} LOY

A  **Terracon** Company



Explore with us