

MS4 Overview /

MS4 Regionalization in Lycoming County



Megan Lehman, AICP, Lead Planner

Presentation Outline

- Stormwater in PA
- MS4 Program Overview
- MCMs and other Permit Requirements
- Lycoming County MS4 Coalition
- Where We're Headed
- Takeaways
- Questions



Stormwater in PA

- **Stormwater runoff** – one of the major sources of non-point source pollution in PA
- **Runoff from impervious surfaces** – 3rd leading cause of impairment to PA's streams

Bottoms Up!



Motor Oil

- Contains heavy metals
- Reduces oxygen in water

Litter

- Degrades stream quality and habitat

Pet Waste

- Contains harmful bacteria

Yard Waste

- Pesticides kill aquatic life
- Fertilizers cause excess algae growth and degrade water quality

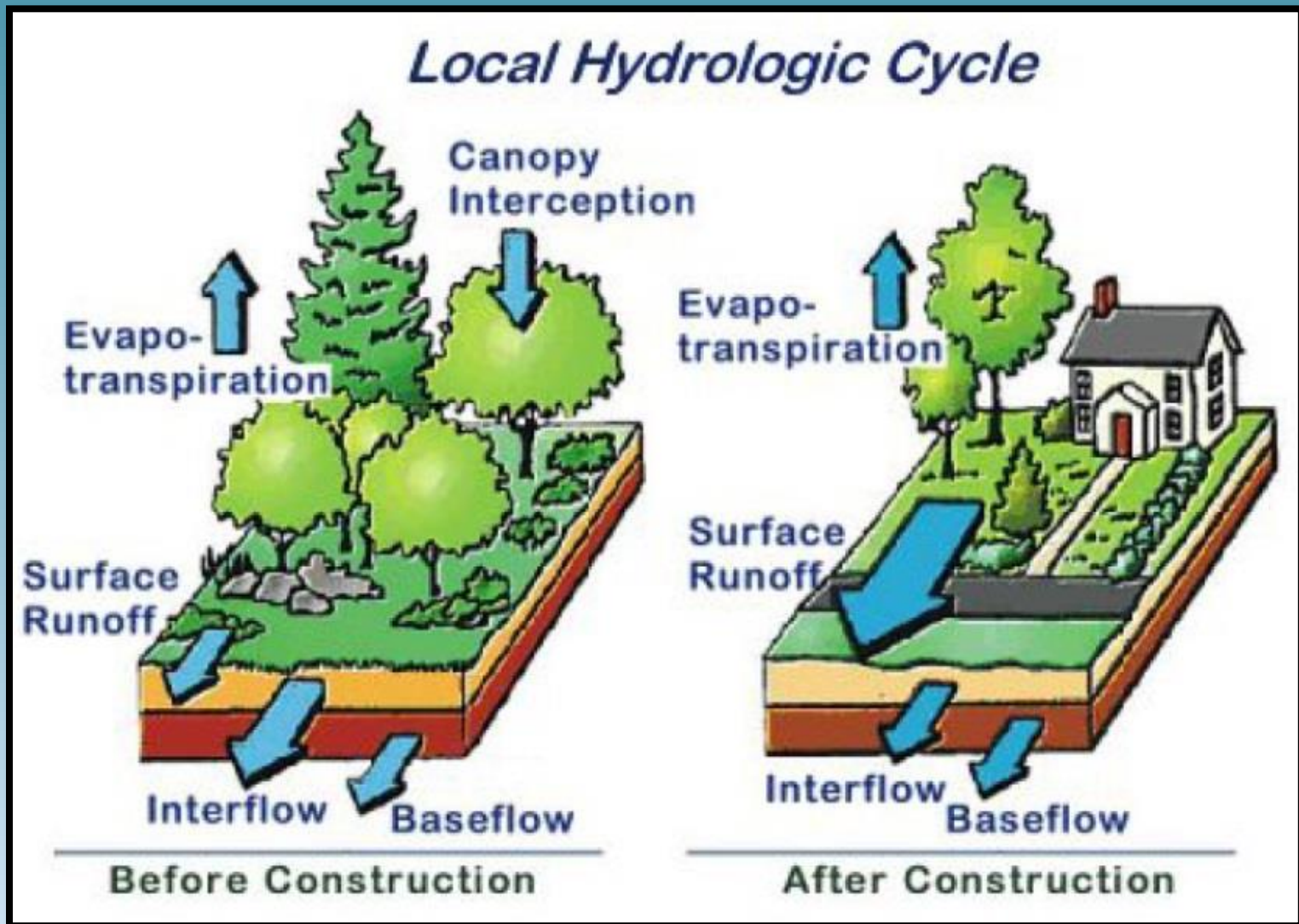
When it rains, pollutants from pet waste, cars, and our lawns find their way into our streams.

Healthy Stream Habits!

Funded by the League of Women Voters of 20 Cities Schuylkill County
Water Resources Education Network
Through a Section 105 Federal Clean Water Act grant from the US EPA administered by Pennsylvania DEP

A project of the Borough of Catasauque
Allentown
The Schuylkill County Aquatic Resource Monitoring Team at the University of Delaware

Development = Runoff



Built Environment: Grey vs. Green



Rain falls onto streets and sidewalks. Most of it becomes runoff.



Rain falls into trees and other green areas, so less of it becomes runoff.

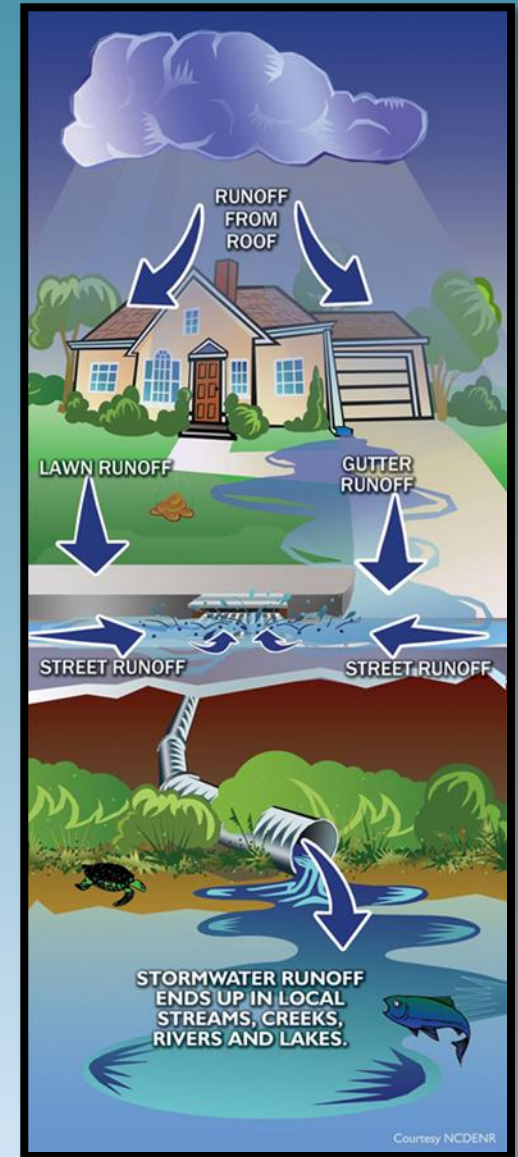
Municipal Separate Storm Sewer Systems (MS4) Permit Program

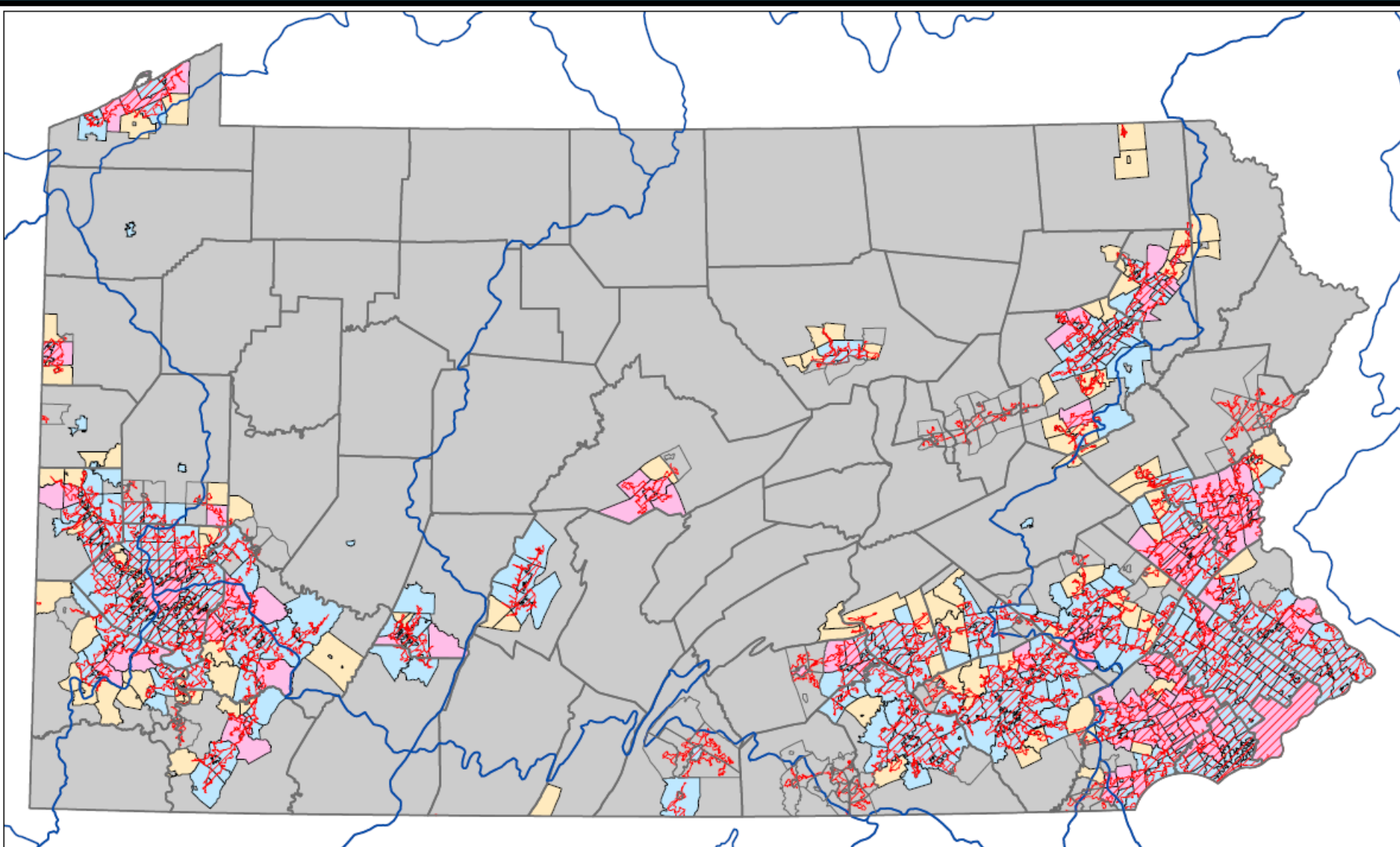
- EPA → PA DEP → local permittees (munis + others)
- Phase I Permits: 1990s
Large MS4s (Cities over 100,000)
- Phase II Permits: 2000s
Small MS4s (Urbanized Areas)
- Renewed EPA attention: 2010s
- Heightened importance with Chesapeake Bay TMDL



MS4 Permit Program

- Polluted stormwater runoff is transported by MS4 and discharged (untreated) into local waterbodies
- Goals of MS4 permit program:
 - Reduce Nitrogen, phosphorus, and sediments
 - Slow down runoff velocity
 - Address localized impairments
- Velocity = Stream erosion
- Close to 1,000 MS4s in PA





MS4 Municipalities / 2010 Urbanized Areas

Permit Status as of May 2012

General	Municipalities	2010 Urbanized Area
Individual	County Boundaries	Major Watershed Boundary
Walver		

0 15 30 60 90 120 Miles

MS4 Permit Requirements

- 6 Minimum Control Measures (MCMs)
- Sub-plans for MCMs
- Chesapeake Bay Pollutant Reduction Plan (CBPRP)
- Annual Reports
- DEP Inspections
- Documentation!



6 Minimum Control Measures (MCMs)

1. Public Education and Outreach Program
2. Public Involvement and Participation Program
3. Illicit Discharge Detection and Elimination Program
4. Construction Site Stormwater Runoff Control
5. Post-Construction Stormwater Management in New and Re-Development



6. Pollution Prevention/Good Housekeeping for Municipal Operations

MS4 Minimum Control Measures (MCMs)

MCM #1 PUBLIC EDUCATION & OUTREACH ON STORMWATER IMPACTS

- BMP #1** Develop, implement, and maintain a written Public Education & Outreach Program (PEOP)
- BMP #2** Develop and maintain lists of target audience groups present with areas served by your MS4. (Residents, developers, schools, municipal employees and commercial, industrial, & retailers businesses)
- BMP #3** Annually publish at least one educational item on your Stormwater Management Program
- BMP #4** Distribute stormwater educational material to target audiences (Select & utilize at least two distribution methods in each permit year).

MCM #2 PUBLIC INVOLVEMENT/PARTICIPATION

- BMP #1** Develop, implement, and maintain a written Public Involvement & Participation Program (PIPP)
- BMP #2** Prior to adoption of any ordinance (municipal permittees) or SOP (non-municipal permittees) required by this permit, provide adequate public notices and opportunities for public review, input, and feedback
- BMP #3** Regularly solicit public involvement & participation from the target audience groups. This should include an effort to solicit public reporting of suspected illicit discharges. Assist the public in their efforts to help implement your SWMP. Conduct public meetings to discuss the on-going implementation on your SWMP. (Conduct at least one public meeting per year and present a summary of your progress, activities, and accomplishments with implementation of your SWMP).

MCM #3 ILLICIT DISCHARGE DETECTION & ELIMINATION (IDD&E)

- BMP #1** Develop & implement a written program for the detection, elimination, and prevention of illicit discharges into your regulated MS4s. Your program shall include dry weather field screening of outfalls for non-stormwater flows, and sampling of dry weather discharges for selected chemical & biological parameters. Test results shall be used as indicators of possible discharge sources.
- BMP #2** Develop & maintain a map of your regulated small MS4. The map must also show the location of all outfalls and the locations & names of all surface waters of the Commonwealth (e.g. creek, stream, pond, lake, basin, swale, channel) that receive discharges from those outfalls.
- BMP #3** In conjunction with the map(s) created under BMP#2 (either on same map or different map), new permittees shall show, and renewal permittees shall update, the entire storm sewer collection systems; including roads, inlets, piping, swales, catch basins, channels, & any other features of the permittee's storm sewer system including municipal boundaries and/or watershed boundaries.
- BMP #4** Following the IDD&E program created pursuant to BMP #1, the permittee shall conduct outfall field screening, identify the source of any illicit discharges, & remove or correct any illicit discharges using procedures developed under BMP #1.
- BMP #5** Enact a stormwater management ordinance (municipal entities) or develop an SOP (non-municipal entities) to implement & enforce a stormwater management program that includes prohibition of non-stormwater discharges to the regulated small MS4.
- BMP #6** Provide educational outreach to public employees, business owners & employees, property owners, the general public & elected officials (i.e. target audiences) about the program to detect & eliminate illicit discharges. (Should include: distribution of brochures & target audiences, incl. schools; programs to encourage & facilitate public reporting of illicit discharges; organizing volunteers to local & visually inspect outfalls & to stencil storm drains; implement & encourage recycling programs for common wastes such as motor oil, antifreeze & pesticides)

MCM #4 CONSTRUCTION SITE STORMWATER RUNOFF CONTROL

- BMP #1** Develop your program consisting of all procedures necessary to comply with the requirements of this MCM. Your program shall provide for construction stormwater permitting, construction inspection, & enforcement of installation & maintenance of the necessary E&S control measures. Your program shall describe clearly how your program will be coordinated with DEP's NPDES Construction Stormwater Permitting program.
- Recommendation: Develop a tracking system that summarizes your actions to comply with this BMP (e.g. # of active construction sites, inspections, enforcement actions, etc.) & which can be described in a summary report format.
- BMP #2** The permittee shall enact, implement, & enforce an ordinance to require the implementation of E&S control, as well as sanctions to ensure compliance.
- Permittees shall submit a letter signed by a municipal official, municipal engineer, or the municipal solicitor as an attachment to their first periodic report certifying the enactment & implementation of the stormwater management ordinance that meets all requirements of this permit.

BMP #3 Develop & implement requirements for construction site operators to control waste at the construction site that may cause adverse impacts to water quality. While sediments is the most common pollutant of concern for MCM #4, there are other types of pollutants that also can be a concern & the intent of the BMP is to address these other types of pollutants, such as, but not limited to, discarded building materials, washout from concrete trucks, chemicals, litter, & sanitary waste.

Recommendation: Verification of proper waste handling procedures can be determined at the same time that E&S control inspections are conducted under BMP#1 described above.

BMP #4 Develop & implement procedures for the receipt & consideration of public inquiries, concerns, and information submitted by the public (to the permittee) regarding local construction activities. The permittee shall demonstrate acknowledgement & consideration of the information submitted, whether submitted verbally or in writing.

Recommendation: Develop a tracking system that can keep a record of information submitted by the public as well as your responses to such public inquiries. The tracking system should be capable of producing periodic summary reports.

MCM #5 POST-CONSTRUCTION STORMWATER MANAGEMENT IN NEW DEVELOPMENT & REDEVELOPMENT

- BMP #1** Develop a written procedure that describes how the permittees shall address all required components of this MCM. Guidance can be found in the PA Stormwater BMP Manual. (Shall incl. minimum requirements for use of structural and/or non-structural BMPs in plans for development & redevelopment; criteria for selecting & standards for sizing stormwater BMPs; implementation of an inspection program to ensure that BMPs are properly installed) (Intent is for the permittee to describe how the listed tasks will be accomplished).
- BMP #2** Require the implementation of a combination of structural and/or non-structural BMPs that are appropriate to the local community, that minimize water quality impacts, & that are designed to maintain pre-development runoff conditions. This requirement can be met by ensuring that the selected BMPs comply with the municipal Stormwater Management Ordinance that meets the requirements of the permit. (A tracking system (e.g. database, spreadsheet, or written list) shall be maintained to record qualifying projects & their associated BMPs in your records, you shall note if there are no qualifying projects in a calendar year).
- BMP #3** Ensure that controls are installed that shall prevent or minimize water quality impacts. (Track the inspection conducted and track the results of the inspections (e.g. BMPs were, were not, installed properly).
- BMP #4** The permittee shall enact, implement, & enforce an ordinance (municipal) or SOP or other regulatory mechanism (non-municipal) to address post-construction stormwater runoff from new development & redevelopment projects, as well as sanctions & penalties associated with non-compliance, to the extent allowable under State or local law. (All permittees shall submit a letter signed by a municipal official, municipal engineer, or the municipal solicitor as an attachment to their first periodic report certifying the enactment of a stormwater management ordinance that meets the requirements of this permit).
- BMP #5** Develop & implement measures to encourage & expand the use of Low Impact Development (LID) in new & redevelopment. Measures should be included to encourage retrofitting LID into existing development. DEP's PA SW BMP Manual provided guidance on implementing LID practices.
- BMP #6** Ensure adequate operational & maintenance (O&M) of all post-construction stormwater management BMPs installed at all qualifying development or redevelopment projects (incl. those owned or operated by the permittees). (An inventory of PCSMBMPs shall be developed by permittees & shall be continually updated during the term of coverage under the permit as development projects are reviewed, approved, & constructed. Shall include all PCSMBMPs installed since March 10, 2003 that discharge directly or indirectly to your regulated small MS4s.)

MCM #6 POLLUTION PREVENTION / GOOD HOUSEKEEPING

- BMP #1** Identify & document all facilities & activities that are owned or operated by the permittee and have the potential for generating SW runoff to the regulated small MS4. Includes activities conducted by contractors for the permittee, such as street sweeping, snow removal/deicing, inlet/outfall cleaning, lawn/grounds care, general storm sewer system inspections & maintenance/repairs, park & open space maintenance, vehicle operation (fueling, washing, & maintenance), material transfer operations. Facilities can incl. streets, roads, highways, parking lots, maintenance & storage yards, waste transfer stations, parks, fleet or maintenance shops, wastewater treatment plants, stormwater conveyances, riparian buffers, & stormwater storage or treatment units (e.g. basins, infiltration/filtering structures, constructed wetlands, etc.). (This inventory list shall be reviewed & updated each year of permit coverage, as needed.)
- BMP #2** Develop, implement, & maintain a written O&M program for all municipal operations & facilities that could contribute to the discharge of pollutants from the regulated small MS4s, as identified under BMP #1. This

MCM #1: Public Education



- Key idea is to educate the public

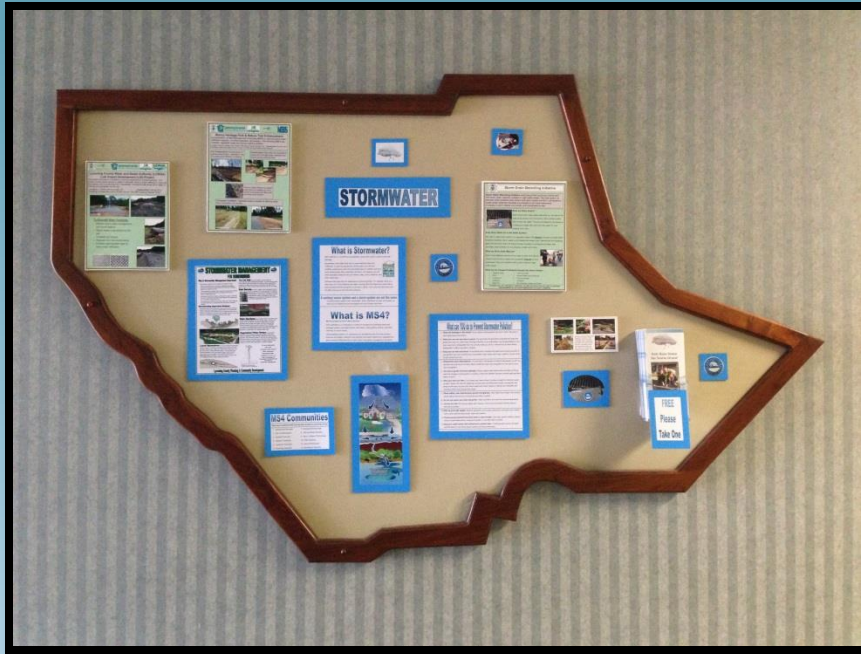
Storm Drain Marker Project



- Over 600 markers installed in urbanized areas of the County
- Public education and awareness
- Calls have been received
- Strong support of local officials
- Paired with brochure: "Only Rain Down the Storm Drain"

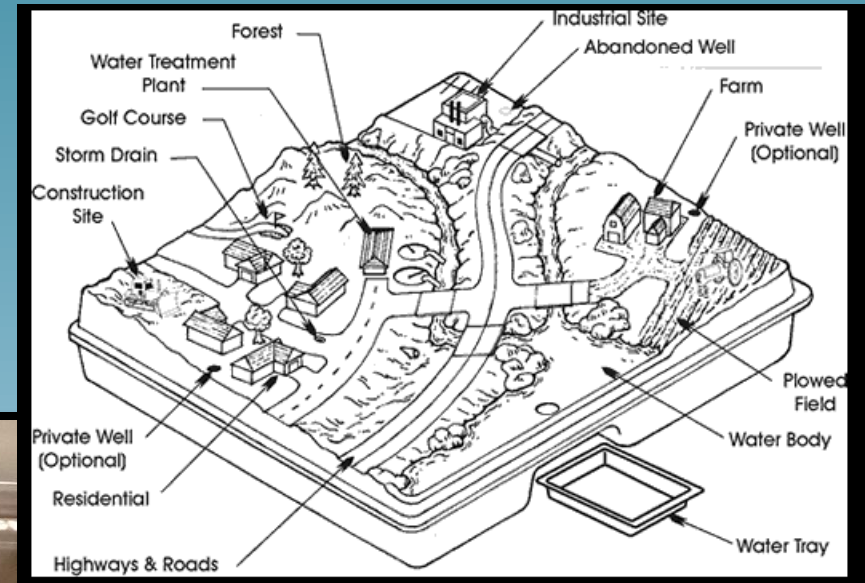


Display Boards



EnviroScape

- Watershed Educational learning tool
- Donated to the County



MCM #2: Public Involvement



- Key idea is to involve the public in MS4 activities

MCM #3: Illicit Discharge Detection and Elimination (IDDD&E)



- Key idea is to locate and stop non-stormwater discharges
- Map your MS4 system (includes ditches, swales, BMPs)

MCM #4: Construction Site Runoff Control



- Key idea is to apply erosion/sedimentation controls during construction
- Generally handled by County Conservation District

MCM #5: Post-Construction Stormwater Management



- Key idea is to apply post-construction stormwater management controls (BMPs)
- BMP criteria and standards; inspection program
- Future of TMDL compliance lies in MCM #5

BMPs Everywhere

At-Home Practices:

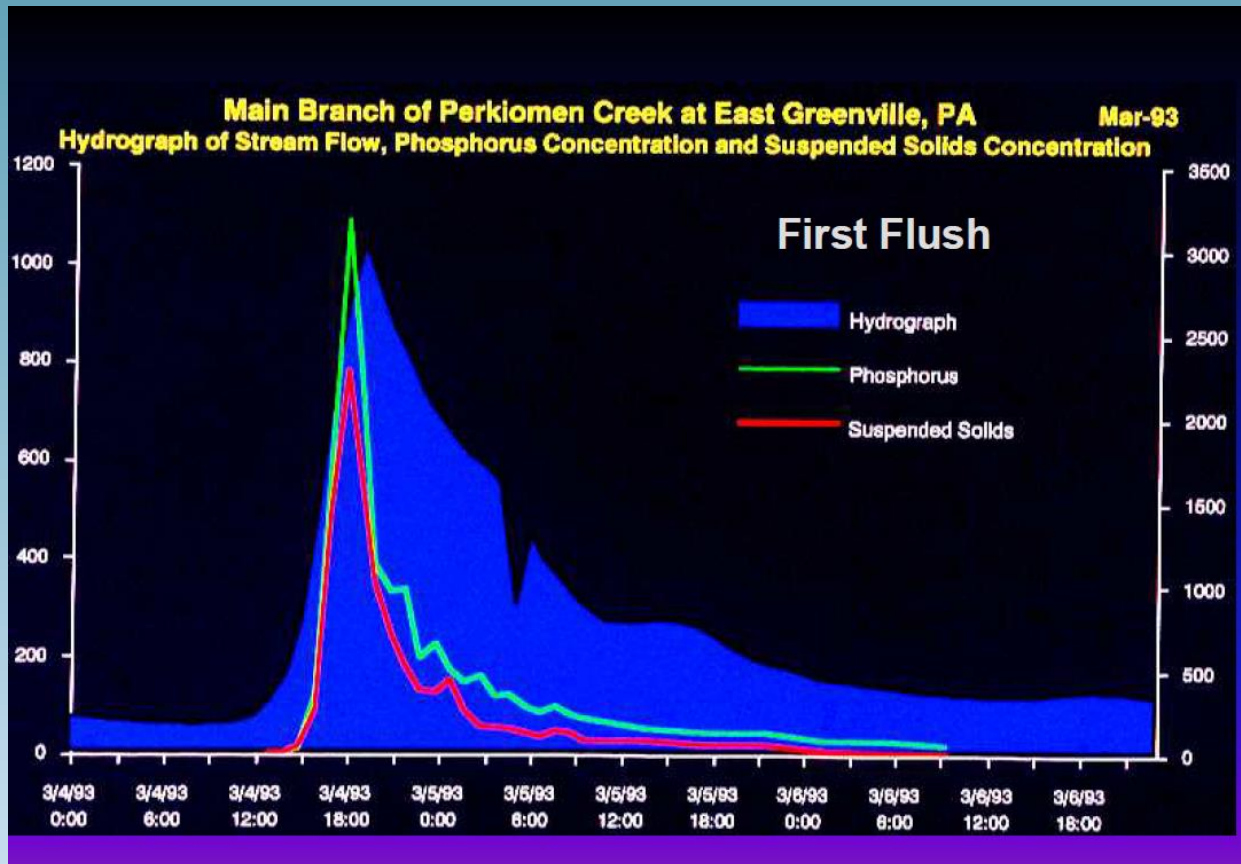
- Disconnect downspouts
- Rain barrels
- Rain gardens

Municipalities/Developers:

- Street trees
- Pervious pavement
- Infiltration practices (rain gardens, bioswales, etc.)
- Retrofit older stormwater facilities
- Underground storage
- Green roofs



Understanding BMP Function: Two Key Concepts Concepts



Smaller-Scale Examples



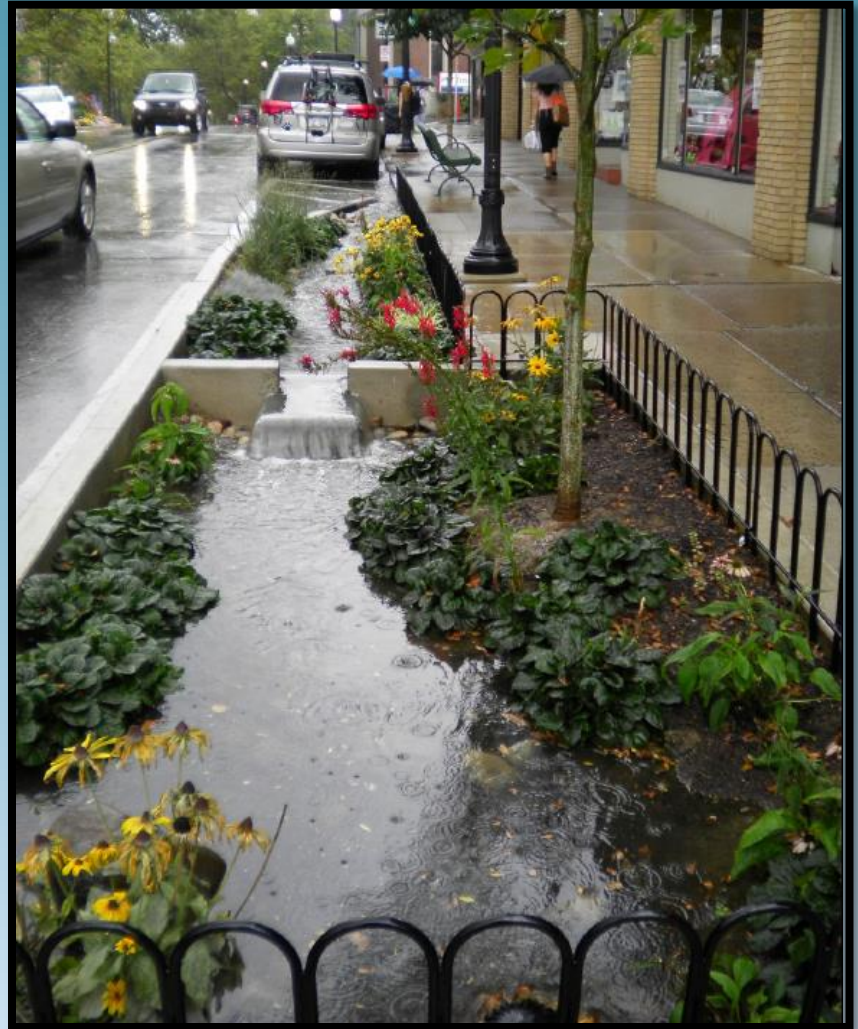
Larger-Scale Examples



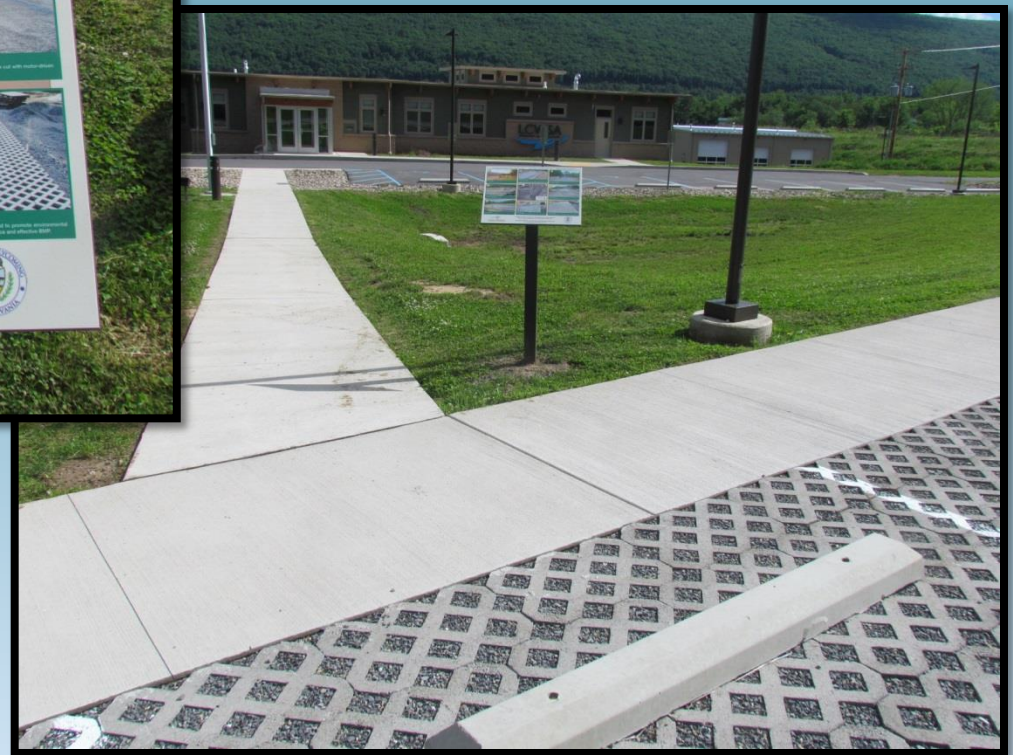
Retrofit Existing Practices



Doubling Down on MCMs



BMP Demonstration Projects



MCM #6: Good Housekeeping



Photo 13: Oil/Water separator located at Loyalsock Township maintenance building.

- Key idea: minimize stormwater pollution from municipal operations

Chesapeake Bay Pollutant Reduction Plan

Williamsport Area Joint MS4s Permit
Lycoming County, Pennsylvania

April 1, 2015

Prepared by:
Michael Baker Jr., Inc.
and
Lycoming County Department of Planning and Community Development

University Center
of the Environment

MONTICELLO
LYCOMING
PENNSYLVANIA COLLEGE
GRADUATE SCHOOL OF TECHNOLOGY
WILLIAMSPORT

APRIL 1, 2015

Revised April 10, 2015

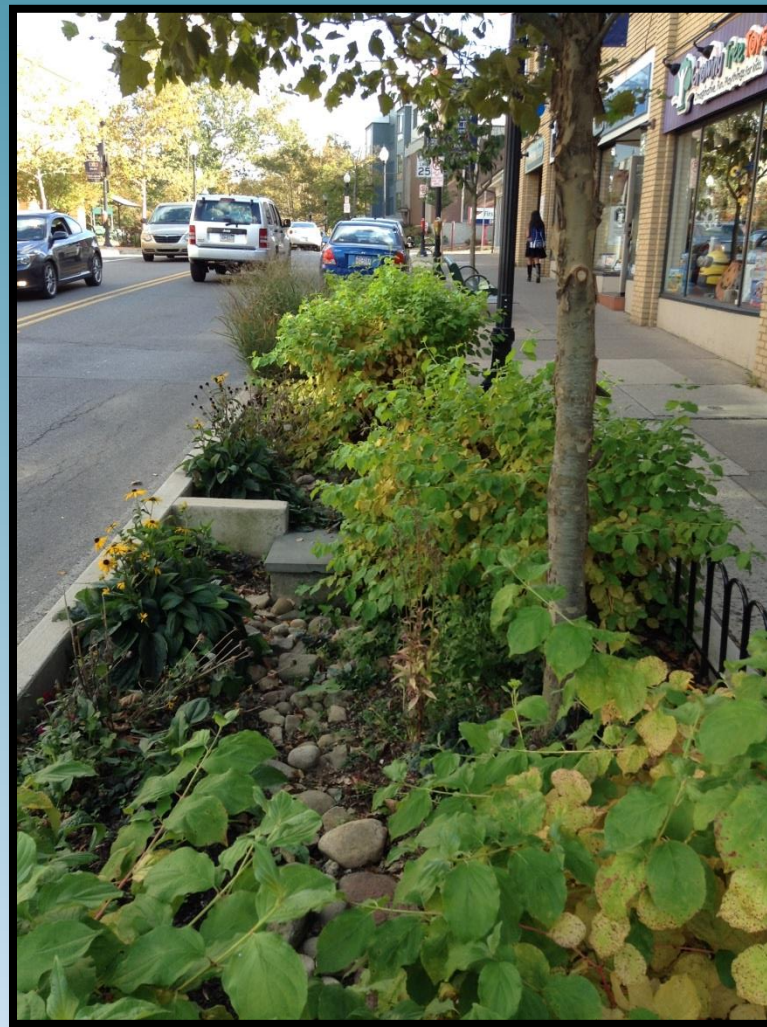
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- STRUCTURAL IMPROVEMENTS**
1. Laurel Run Circle Detention Basin
 2. Old Lyscoming Twp. Recycling Facility Relocation
 3. Recycling Center Basin Garden
 4. PCT Infiltration Trench
 5. PCT Inlet Curb
 6. Loyalton Twp. Senior HS Detention & Infiltration Basin
 7. Loyalton Twp. Senior HS Rain Garden
 8. Loyalton Twp. School District Detention Basin
 9. Indian Park Improvement Project
 10. PCT Old Water Separator
- Locations for Best Management Practices**
- Williamsport Urbanized Area Joint MS4 Permit Group**
- City of Williamsport - Fairfield Township
Hepburn Township - Loyalton Township
Lyscoming Township - Montoursville Borough
Old Lyscoming Township
Pennsylvania College of Technology*
- Appendix E: Map 3**
Orographic Air Pollution Reduction Plan
- 1 inch = 5,500 feet**
- | | | | |
|---|-------|-------|--------|
| 0 | 2,750 | 5,500 | 11,000 |
| | | | Feet |

MS4 Challenge: New Way of Thinking for Municipalities

- Collect and convey vs. retain and infiltrate
- Cost investment
 - Retrofits vs. new construction
- Perception that “it doesn’t work”
- Maintenance concerns
- Difficulty with documenting/inspecting/maintaining privately owned facilities
- Overcoming status quo is difficult



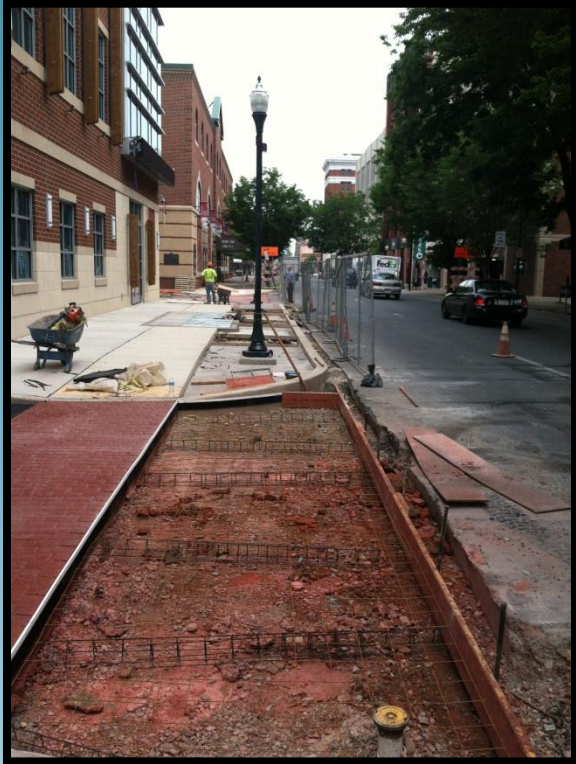
Missed Opportunities



Missed Opportunities



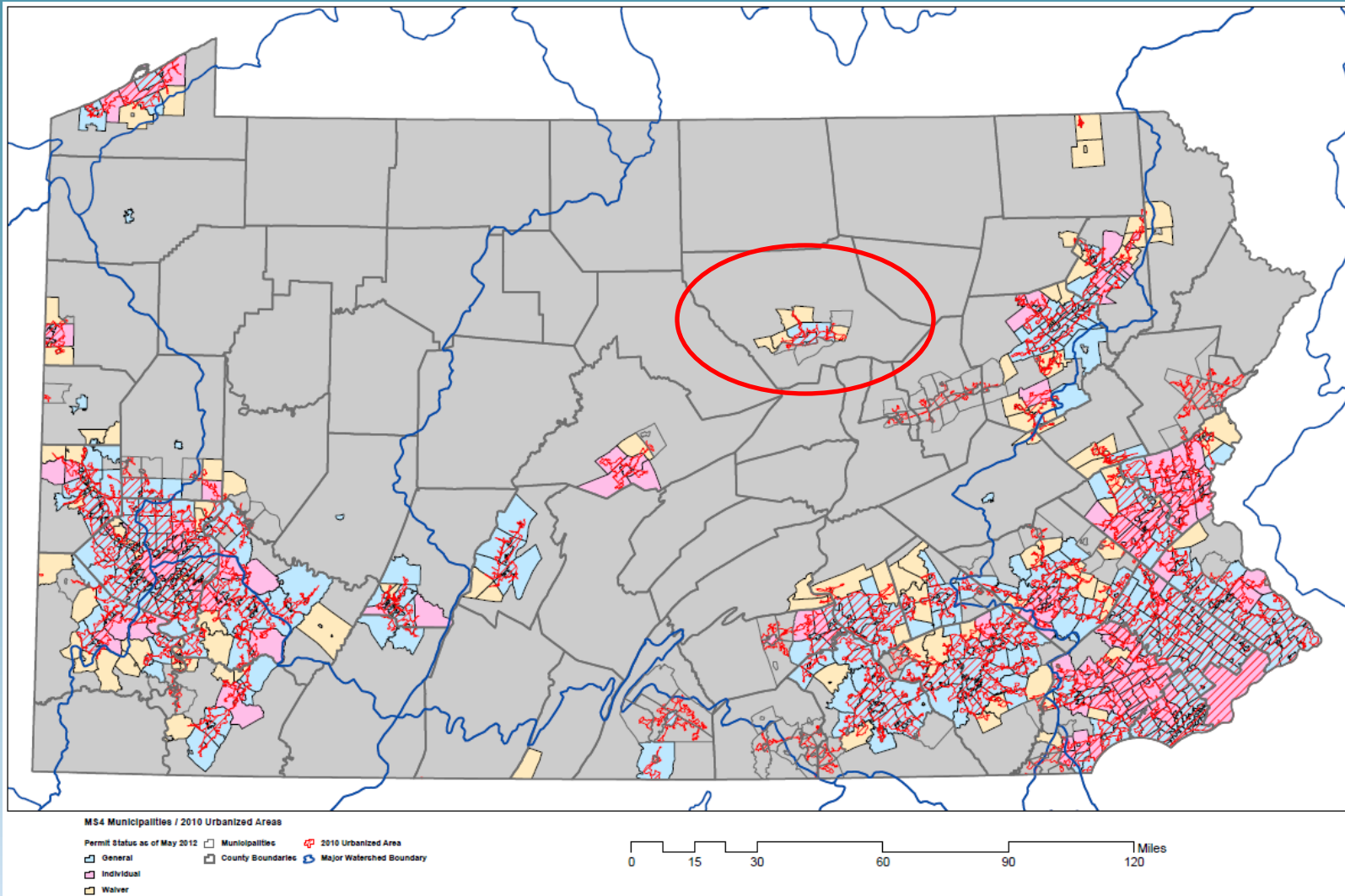
Missed Opportunities



Missed Opportunities



Where is Lycoming County?






MS4 Permittees in Lycoming County

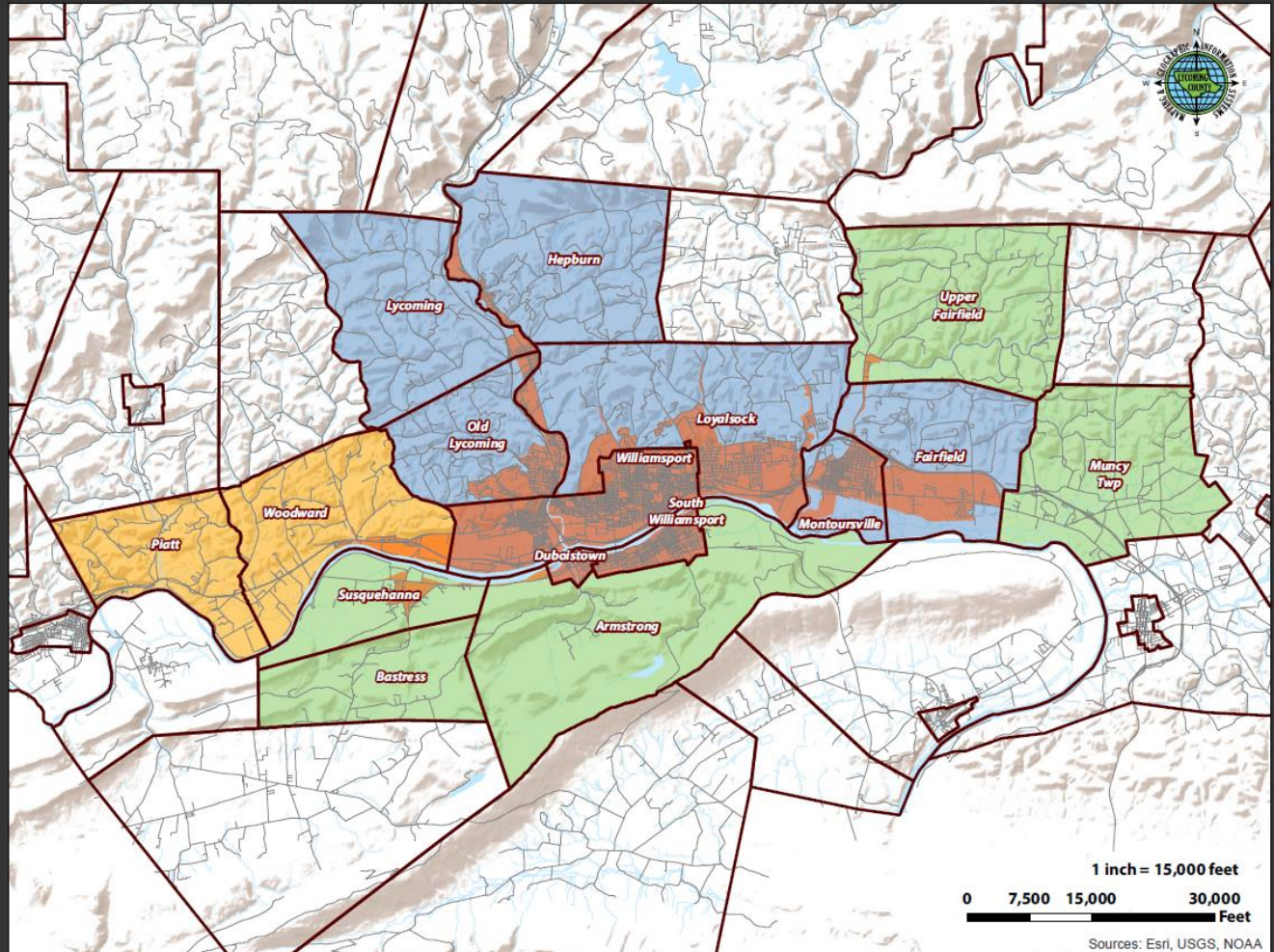
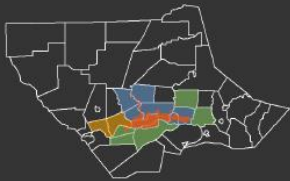
DEP MS4 Permit Update

Lycoming County, PA

 2010 Census Defined Urbanized Area

MS4 Permit Status

-  Existing
-  New
-  Waiver



First Generation MS4 Permit

- 2003-2013: First permit cycle for Lycoming County MS4s (5 year cycle + extensions)
 - 7 permittees and Lycoming County began working together cooperatively to apply for MS4 permits
 - Others obtained waivers



First Generation MS4 Permit

- Group met approximately 1-3 times/year
- County Environmental Planners offered free organization and support through multiple staff changes
- Undertook some joint activities, coordinated with DEP, and worked on annual reports
- “Good faith effort” enforcement by DEP

Second Generation MS4 Permit

- 2013-now: Second permit cycle for Lycoming County MS4s
 - Permits issued in 2013/2014
 - New requirements and accountability measures from DEP / EPA
 - MS4 compliance no longer a “part-time job”



Second Generation MS4 Permit

- 8 MS4s on Joint IP
- 2 PAG-13s
 - Staggered permit timelines = potential barrier to future collaboration
- MS4 Planner housed at County Planning
- MS4 Coalition meets monthly
 - Sets priorities and provides direction
- Formal partnership agreement established in 2014 via MOA
 - Renewed 2015—unanimously*

Where We're Headed

Next permit cycle:

- New MS4s
- Working to align timelines
- CBPRP due with permit application
- 10% sediment reduction through BMP implementation
- More aggressive inspections

Open questions:

- Nutrient trading
- Costs and financing options



Takeaways

1. Build partnerships

MS4s, County Government, Conservation Districts, PSU
Master Gardeners, non-profits, colleges/schools, others

2. Variety of organizational structures can work
3. Need a “spark plug” to pull it all together
4. Talk to DEP early and often (regional and central)
5. Share costs, share burdens
6. Double up on MS4 activities
7. Prepare your elected officials
8. Start reserving space for BMPs
9. Look at retrofits, flood buyouts, municipal property
10. Early adoption of BMPs has pros and cons

Contact Information

Megan Lehman, AICP

Lead Planner

mlehman@lyco.org

570-320-2115

Kaelyn Koser

MS4 Planner

kkoser@lyco.org

570-320-8117

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