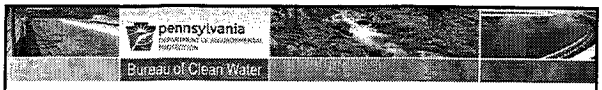

PRP/TMDL Mapping

MS4 Workshops – Pollutant Reduction and TMDL Stormwater Plans

Fall 2016

Tom Wolf, Governor

John Quigley, Acting Secretary

Training Goal

1. **Describe the content required in maps submitted with Pollutant Reduction Plans (Appendices D and E)**
2. **Discuss the pros and cons of parsing**
3. **Describe where BMPs may be located**

Importance of Mapping to PRPs

Storm sewershed delineation used in:

- –Determining the planning area
- –Calculating pollutant loads
- –Determining necessary pollutant reductions
- –Determining BMP size and placement to meet the necessary pollutant reductions

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PRP Map Content

- Land uses and/or impervious/pervious surfaces
- Storm sewershed boundary associated with MS4 outfall discharges to impaired surface waters or surface waters draining to the Chesapeake Bay
- Location(s) of proposed structural BMP(s)

Aerial maps, may be zoning?

Map Scale

The map must be sufficiently detailed to:

- identify the "planning area" relevant to Appendix D and/or Appendix E
- demonstrate that BMPs will be located in appropriate storm sewersheds

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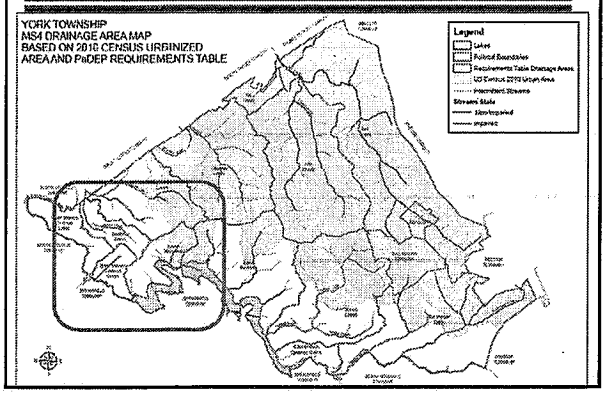
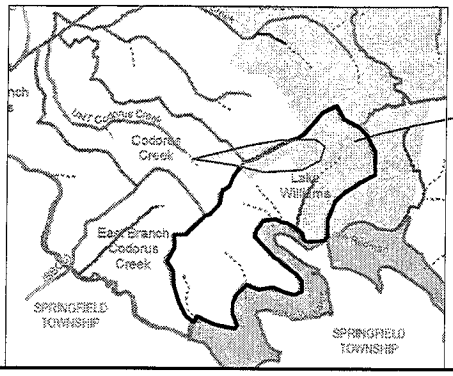
Not a predetermined scale,

Watershed Delineation



Watershed vs Storm Sewershed



You could have storm sewershed that runs from the UA into an impaired stream in the non-UA.

The more urbanized, the more likely the stormwater will follow streets & not look like watersheds.

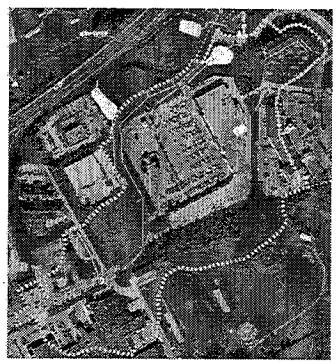
Storm Sewershed Delineation

What are some methods used to delineate storm sewersheds?

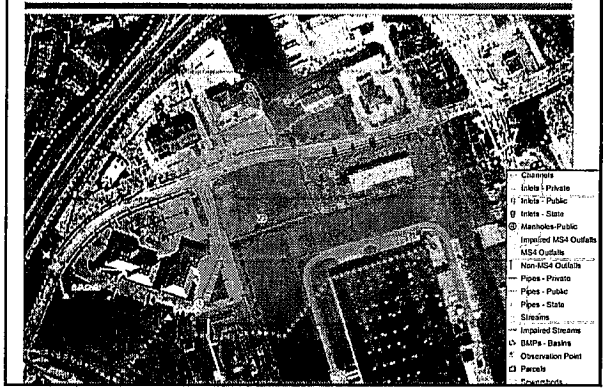
- Manually - paper topo maps or other
- Tools in a GIS platform (e.g. ESRI's Arcmap)
  - Generate contour lines from DEM data and "draw" the sewershed
  - Multi-step DEM data processing to delineate sewershed "automatically" (not really)

DEM - Digital Elevation Model, based on aerial/LIDAR imagery.

Storm Sewershed Delineation



Mapping Examples



What is your planning area?

Within the boundaries of your municipality

AND

Within your MS4-regulated storm sewershed

AND

Within your Urbanized Area

AND/ OR

Upstream of your Urbanized Area

Where may BMP's be located?

Within the Planning Area

OR

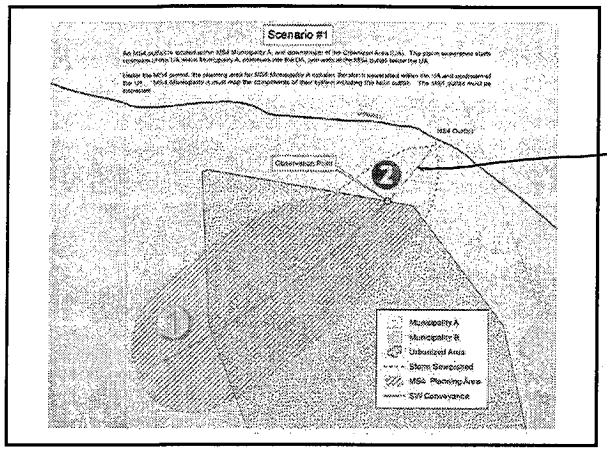
Area outside of the planning area that drains the Urbanized Area

BMP's may only be outside of the municipality if there is a written agreement.

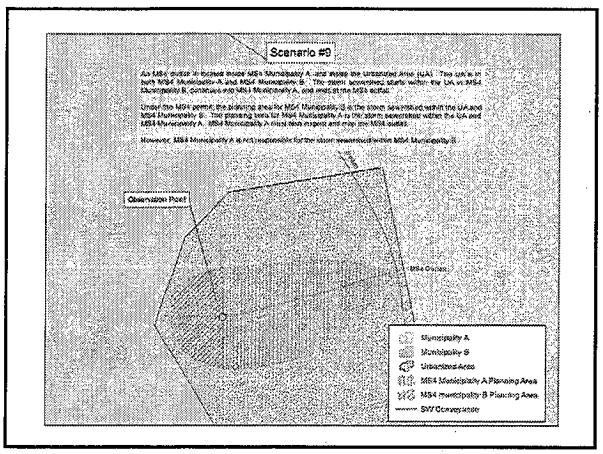
Upstream projects are OK!!!

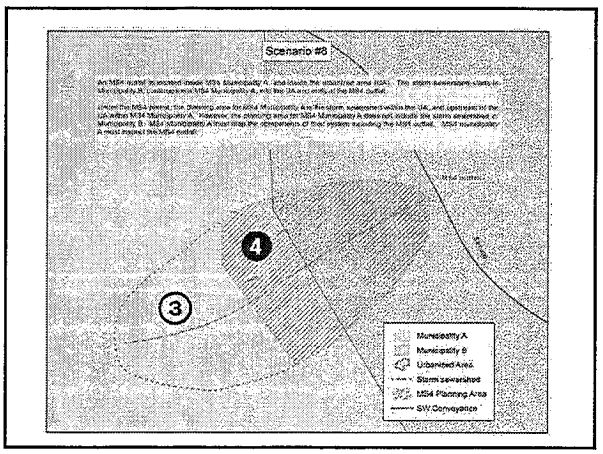
Downstream

(*) either a joint PRP (if they are an MS4) or a written agreement (if they are not MS4).



Could put a BMP below the UA if it intercepts flow from the UA.





Some Basic Requirements...

- **Multiple PRPs require a map that addresses each PRP**
- **Joint PRPs require a combined storm sewershed for all of the MS4 permittees**

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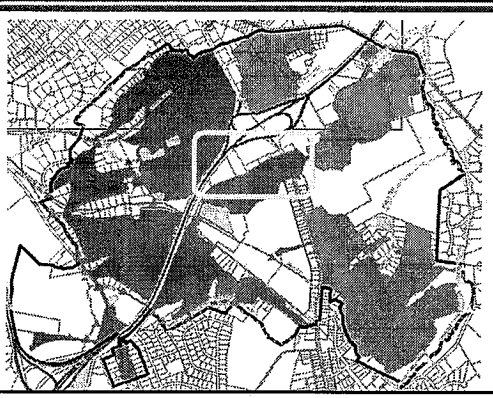
Load Calculation Exclusions

Once storm sewersheds are delineated:

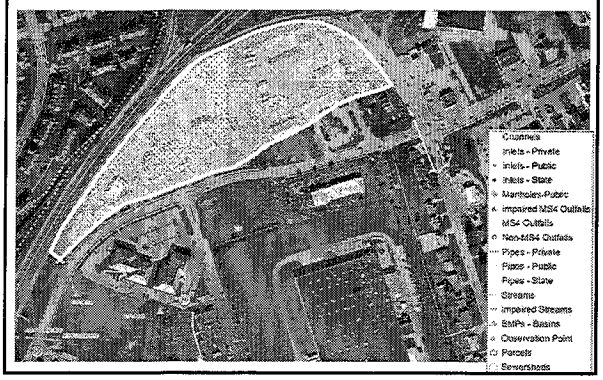
- Area outside the MS4-regulated storm sewershed
- Area downstream of the UA (optional)
- Area within the MS4-required planning area, but has a stormwater permit (optional)

Examples:
Industrial facility w/ an industrial stormwater permit
CSO could be example
Non-muni MS4
PennDOT (encompass permitted areas we work w/ PennDOT to develop PRPs).

Outside the MS4 Regulated Sewersheds



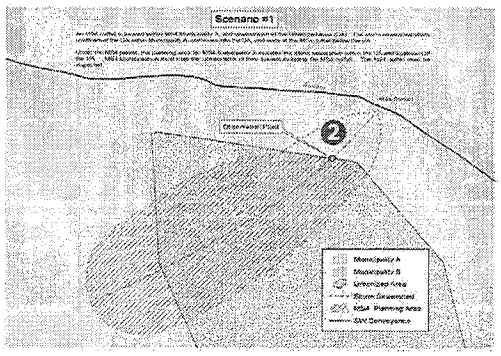
Optional Planning Area



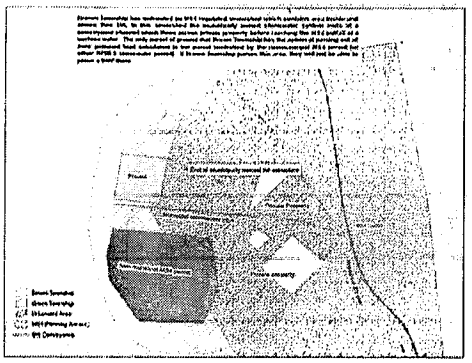
You can place a BMP in an optional area to meet your overall req'mt, but downside is you have to require the calculation.

Total Municipal Sewersheds

Area Below the UA



Load Calculation Exclusion/Parsing



Can't parse out private property

Load Calculation Rule

BMPs may only be located in areas used to calculate load

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(A) What about upstream of BMPs?

Summary

- Features to be included in maps
- Area to map
- Parsing
- Delineation
- Map examples
- Strategy for combined PRPs