



Gannett Fleming

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A Pennsylvania Municipal Authority as a Storm Water Utility



Pittsburgh Section Meeting
June 21, 2011

ISO 9001:2008
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Presentation Outline

- **Background**
- **Existing Programs**
- **Storm Water Utilities in the U.S.**
- **Management Strategies**
- **Role of PA Municipal Authorities**
- **Developing a Storm Water Authority**
- **Steps Going Forward**



Why Storm Water is a Problem

- **Impervious surfaces and disturbed land contribute to changes in quality, ponding and flooding**
- **Pollutants include sediments, nutrients, bacteria, chemicals, metals, etc.**
- **Problems include scouring, temperature changes, siltation, fish kills, shellfish bans, etc.**



Impervious Surfaces and Disturbed Land Contribute to Changes in Quality and Quantity

Increased Stormwater Runoff Due to Development (Increased Imperviousness)

PRE-DEVELOPMENT

Evapotranspiration

Surface
Runoff

Interflow

Base flow

POST-DEVELOPMENT

Transpiration

Surface
Stormwater
Runoff

Interflow

Base flow

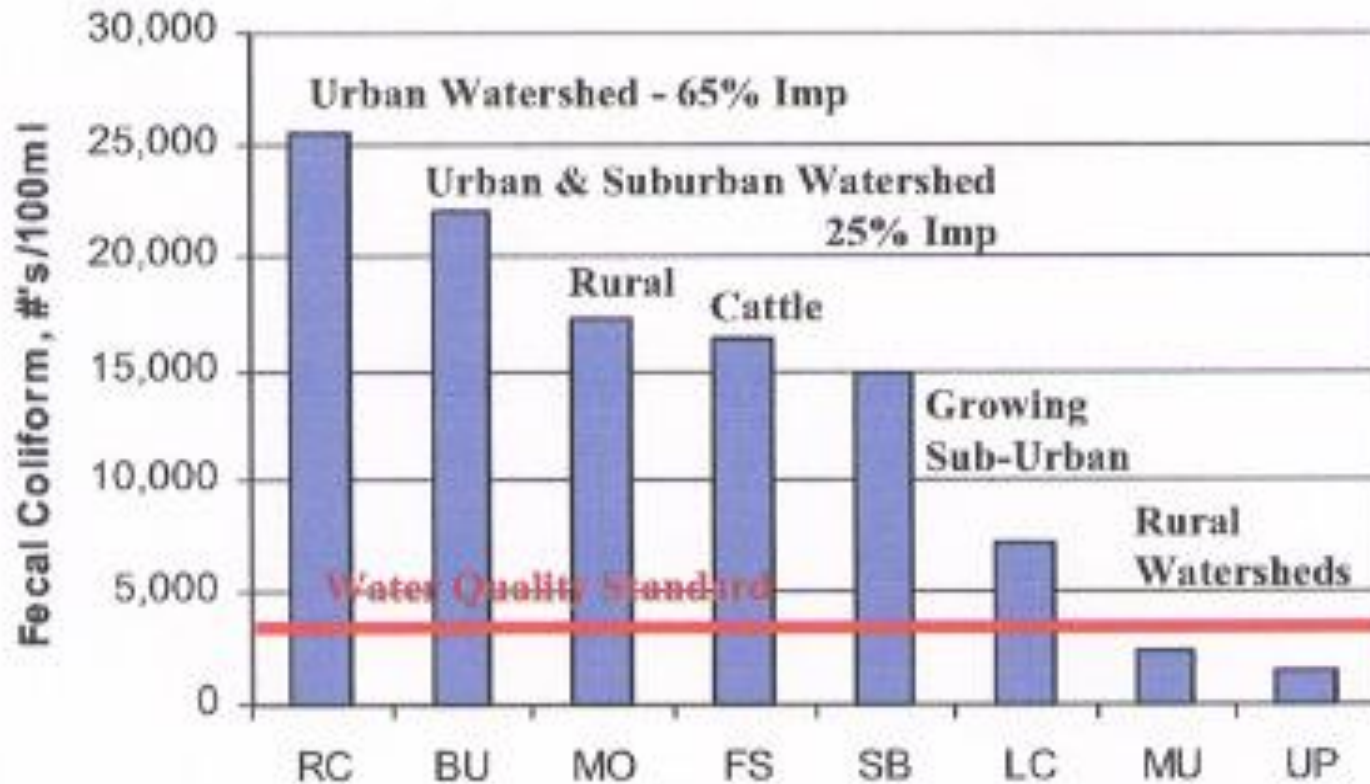


Pollutants Include Sediments, Nutrients, Bacteria, Chemicals, Metals, Etc.



WATER QUALITY ADVISORY
DUE TO STORM WATER RUN-OFF
FROM RECENT RAINS, BACTERIA
LEVELS IN THE WATER HERE
EXCEED STATE WATER QUALITY
STANDARDS.
FULL BODY CONTACT IS NOT
RECOMMENDED.

Average Wet Weather Fecal Coliform Concentration by Watershed



Regulatory History

- **Before 1987, storm water covered as a non-point source**
- **Water Quality Act of 1987 brought some storm water into the NPDES program**
 - Permits required for municipalities over 100,000
 - Permits required for industrial activities
 - Permitting Authority must consider who else to permit ***“to protect water quality”***



Regulatory History

- **SWPh I – 1990**

- Medium and large municipalities (over 100,000)
- Construction sites (over 5 acres)
- Industrial activity (10 categories)

- **SWPh II – 1999**

- Smaller municipalities in “urbanized areas”
- Construction sites (1-5 acres)
- “No exposure” expanded



Pennsylvania's Urbanized Areas

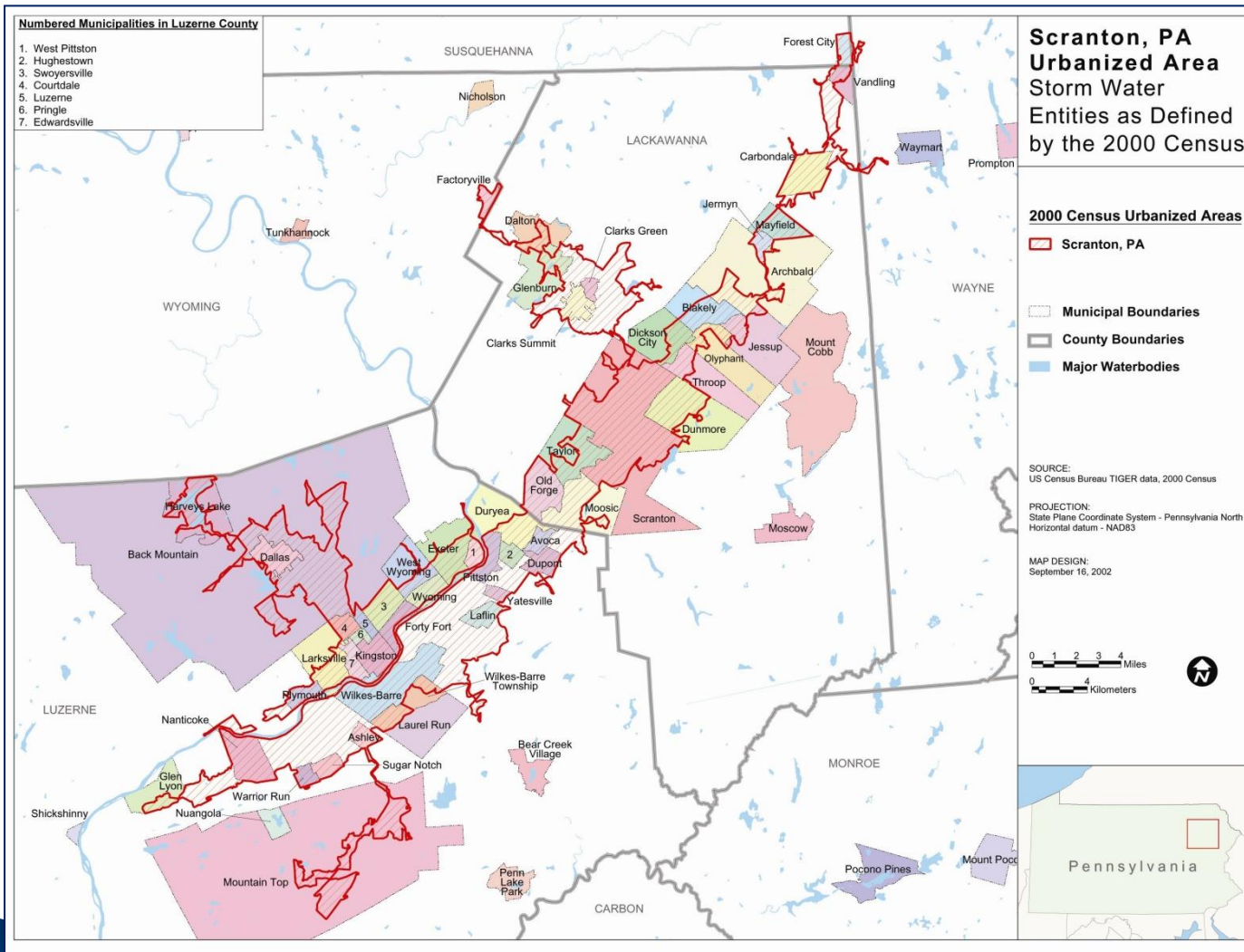
24 Designated UA's Across the State

- ✓ Allentown
- ✓ Altoona
- ✓ Bethlehem/Easton
- ✓ Binghamton
- ✓ Erie
- ✓ Hagerstown
- ✓ Harrisburg
- ✓ Hazelton
- ✓ Johnstown
- ✓ Lancaster
- ✓ Lebanon
- ✓ Monessen
- ✓ Philadelphia
- ✓ Pittsburgh
- ✓ Pottstown
- ✓ Reading
- ✓ Scranton/Wilkes-Barre
- ✓ State College
- ✓ Uniontown/Connellsville
- ✓ Steubenville-Weirton
- ✓ Trenton
- ✓ Williamsport
- ✓ York
- ✓ Youngstown

Over 900 Municipalities Impacted Across the State



Scranton Urbanized Areas



What is an MS4 ? (Municipal Separate Storm Sewer System)

An MS4 is:

- A conveyance or system of conveyances...owned by a state, city, town, or other public entity that discharges to waters of the U.S. and is:
 - designed or used for collecting or conveying storm water
 - not a combined sewer
 - not part of a Publicly Owned Treatment Works (POTW)



SWPhII Program NPDES

Permit requirements include:

- Develop, implement and enforce a program to:
 - Reduce the discharge of pollutants to the maximum extent practicable (MEP),
 - Protect water quality, and
 - Satisfy the appropriate water quality requirements of the Clean Water Act
- Implement storm water management program that includes:
 - Six minimum control measures
 - Evaluation/assessment efforts & recordkeeping



Six Minimum Control Measures

- **Public Education and Outreach**
- **Public Involvement/Participation**
- **Illicit Discharge Detection and Elimination**
- **Construction Site Runoff Control**
- **Post-Construction Storm Water Management in New and Redevelopment**
- **Pollution Prevention/Good Housekeeping for Municipal Operations**



PADEP Protocols

- **Building on existing state and local programs**
- **Credit given to existing state and local programs that meets the requirements of the six minimum measures**
- **Avoidance of programmatic duplication**



Protocols Build on Existing State and Local Programs

- **Act 167 - Storm Water Management Plan**
- **Erosion and Sedimentation Plan (Ch.102)**
- **State recycling/reuse programs**
- **On-lot sewage permitting**
- **Household hazardous waste collection**
- **Street sweeping**
- **Local newsletters**
- **Storm drain stenciling**



SWPhII & Existing Wastewater Authorities

- **Integration in TMDLs**
- **Cooperation in Chesapeake Bay Strategy**
 - Nutrient reduction
 - Pollutant credit trading
- **CSO Long Term Control Plans**
 - Sewer separation strategy
 - Treatment options
- **Separate Sanitary Sewer System**
 - I & I control
 - Clear water systems



Management Strategies and Trends

- **Management Strategies**

- 32% are combined with other utility department of public works
- 16% are part of a wastewater utility
- 49% are separate utilities

- **Management Trends**

- SWPhII has dramatically increased the trend toward storm water utilities
- Management at a watershed level is increasing



Status of Pennsylvania SWPhII Program

- **940 Designated MS4 municipalities**
- **727 Permits issued**
 - Individual Permit or General Permit (PAG-13)
 - Over 200 exemptions or waivers
- **Permits originally issued in 2005**
- **Renewal of 5-year permits**
 - Extended two years, currently until June 11, 2012
 - Applications required for extension
- **Proposed revision to PAG-13 in 2009**
- **Model ordinance available**



Pennsylvania Trends

- **Consideration of co-permitting**
- **Act 167 Storm Water Management Plans**
 - 43 underway by counties
 - Many are considering county storm water authorities
- **Municipal reluctance to transfer MS4 role to county authority**
- **CSO Long Term Control Plan implementation**
 - CSO Sewer Authorities may create separate storm sewer systems
 - CSO Nine Minimum Controls overlap MS4 Six Minimum Controls
- **TMDLs are realistic concerns**



MS4 Programs in Other States

- **Storm water utilities are common in other states**
 - Ohio, West Virginia, Wisconsin, Florida, Washington, North Carolina, Oklahoma, etc.
- **Generally fee-based services**
- **Services include SW Ph I & II programs and other storm water services**
- **Often represent multiple MS4s via co-permitting**



Ohio EPA MS4 Program

- **Phase I MS4 – 4 Individual Permits**
- **Phase II MS4 – 307 General Permits**
- **Many Co-Permittees and Storm Water Utilities**
- **MS4 Permit Performance**
 - Permit compliance improved over time
 - All NPDES permits have been renewed.
- **Special Watershed Districts (TMDL)**
 - Require riparian buffer for water quality protection
 - Additional controls probable



Ohio Storm Water Utilities

- **City-Based Utilities**

- 34 in Operation & Several Pending
- Fee Structure
 - Typically per Equivalent Residential Unit (ERU)
 - Range (monthly) - \$1 to \$5 per ERU
 - Average Monthly Residential Fee - \$3.25 / ERU
 - Some Flat Residential Fees with Higher Fees for Non-Residential

- **County-Based Utilities**

- Servicing up to 45 MS4 communities in a county
- Five to ten in operation or pending
- Similar fee-based revenues



Storm Water Management Trends

- **EPA's Storm Water Program is expanding responsibilities**
- **Clean Water Act amendments require pollutant reduction to "Maximum Extent Practicable" (MEP)**
- **Total Maximum Daily Load (TMDL) studies**
- **Quality of life expectations**
- **Watershed management of storm water along with other water resources**

Requires a new Paradigm – *Storm water is a Resource*



Why a Watershed Based Storm Water Authority (Utility)?

- **Municipalities currently lack statutory authority to charge for storm water systems maintenance outside of tax revenues**
- **Authorities have successful history of operating successfully on an intermunicipal basis**
- **Storm water management is a legitimate and legal purpose for creating a municipal authority**



PA Authorities Positioned for Storm Water Service

- **Respected county or regional authority**
- **Flood protection authority**
- **Sewer authority implementing CSO LTCP and having contiguous service area with permitted MS4s**



Program Costs

- **The average monthly fee for single-family homeowners in Ohio, Wisconsin and Minnesota is about \$3.00 per month per ERU**
- **Costs that could be covered by the utility fee include everything from street sweeping and culvert cleaning to writing a comprehensive storm water management plan and capital improvements**



Potential Storm Water Authority Responsibilities

- **Storm water management planning**
- **System inventory and mapping**
- **Illicit discharge detection and elimination**
- **Storm water inlet basin cleaning and repair**
- **Expansion of storm water service**
- **Pipeline inspection, replacement and cleaning**
- **Culvert maintenance**
- **Street sweeping**
- **Water quality monitoring**
- **Regulatory reporting**



Storm Water Authority Development Framework

- **Concept Study**
- **Feasibility Study**
- **Utility Implementation Process**
 - Public / Stakeholder involvement
 - Program structuring
 - Financial business model and legal structure
 - Database development for managing program and service charges



Storm Water Authority Fee Development

- **User Fee-Based Revenue**
 - Define utility services
 - Determine business plan based budget
 - Construct fair and equitable basis for fee
 - Typically based on impervious area
 - Combinations of gross area and intensity of development
 - ERUs
- **Customer Classifications**
 - Residential
 - Non-residential
- **Feasibility of Implementing User Fee**



Philadelphia Water Department

- **Storm Water Management Resulted From**
 - Combined Sewer Overflow Long-Term Control Plan
 - Green Solutions to Storm Water Problems
 - Inequities in Funding Combined Wastewater Via Water Consumption-Based Billings
- **Citizens' Advisory Group (CAG) Provided Input**
- **Storm Water Charges**
 - Apply to All Properties that Contribute Run-Off
 - Parking Lots and Other Largely Vacant Parcels Contribute Storm Water; Now Pay a Fair Share of Cost



Philadelphia Water Department

- **Storm Water Charge Basis**

- Storm Water Charge =

- (Gross Area Rate x Gross Area of Property)

- +

- (Impervious Area Rate x Impervious Area of Property)

- **Phase-In for Implementation**

- Increases Use of New Fee Phased in Over Four Year Period



Philadelphia Water Department

- **Storm Water Credits and Appeals Process**
 - Procedures in Manual
 - Credits for Privately-Owned Storm Water Management Practices (SMP)
 - Adjustment Appeals for Correcting Inaccurate Assessments
- **Storm Water Management Incentives Program**
 - Low Interest Financing to Stimulate SMP Investments



Scranton Sewer Authority

- **Service to City of Scranton and Borough of Dunmore Primarily**
 - 86,000 Population
- **Sewer System**
 - 275 Miles of Sewers
 - 2/3 Combined Type
 - 7 Pumping Stations
 - 20 MGD WWTP
 - 85 CSOs



Scranton Sewer Authority

- **CSO Long-Term Control Plan**
 - Under Development
 - EPA/DOJ Oversight
 - Incorporating Green Solutions
 - Storm Water Leader Disconnect Program
- **Considering Storm Water Utility**
 - Recently Acquired Storm Water Catch Basins
 - Conduct Nine Minimum Controls Throughout Scranton/Dunmore



Critical Issues Going Forward

- **TMDL Obligations**
- **Legal Basis for Pennsylvania Municipal Authorities providing Fee-Based Storm Water Services**
- **Cooperative Arrangements to Undertake MS4 Obligations**



Questions?

