

MUNICIPAL ACTIONS



to PROTECT *and* IMPROVE
WATER QUALITY

IN THE DELAWARE RIVER WATERSHED

2018 Coalition for the Delaware River Watershed Forum
September 26, 2018

Chris Linn, AICP



Project Background



- Funded by the William Penn Foundation
- June 2015 to December 2017



- Interdisciplinary project team:

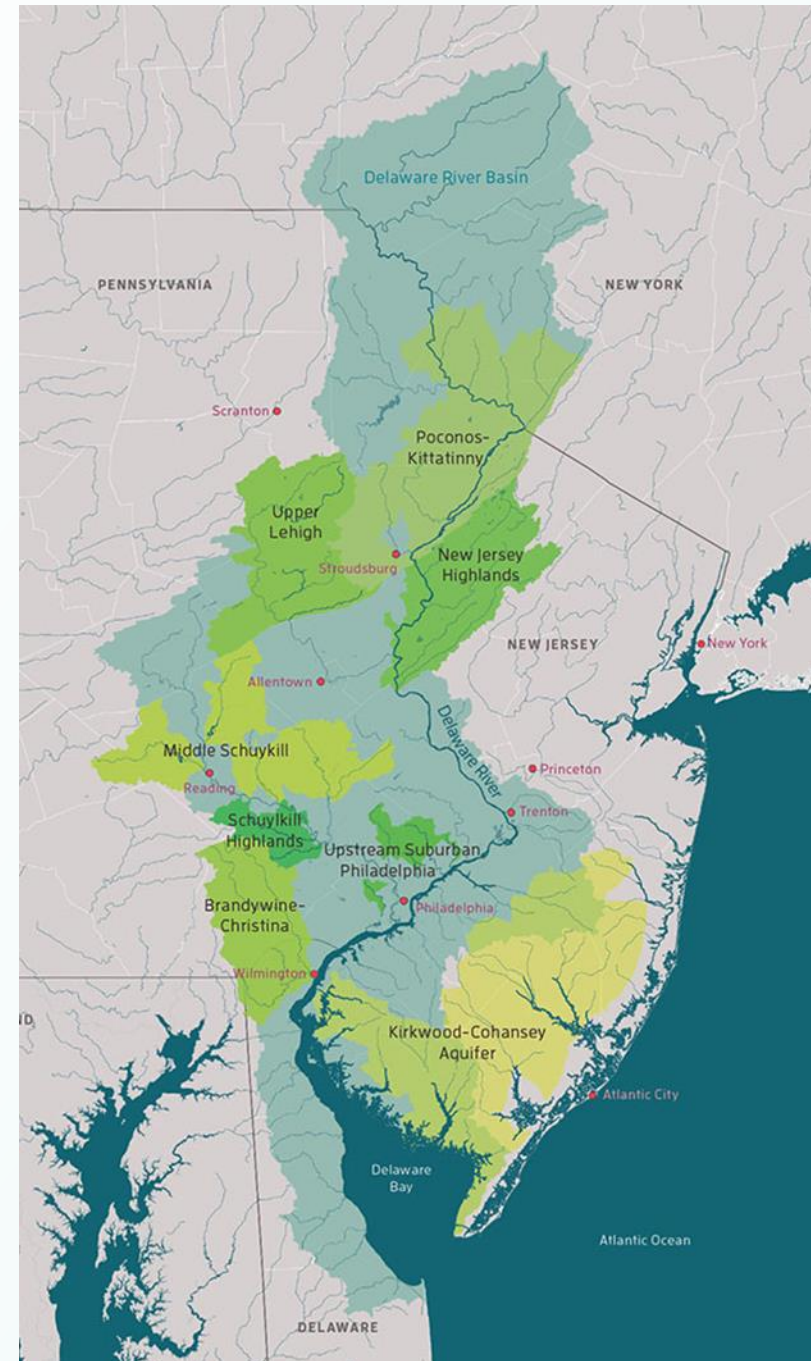
- Alison Hastings; Patty Elkis; Chris Linn; Melissa Andrews; Christina Arlt; Robert Beatty; Stephanie Lipartito; interns





Project Scope

- Delaware River Watershed
- 843 municipalities
- Advisory panel of over 50 individuals
- 6 advisory panel meetings





Project Elements

- Outreach interviews:
 - What are the barriers to, and conditions of, success for municipal-based conservation practices?
 - How could municipal technical assistance be more effective?
- Municipal Case Studies
- Action Plans
 - What actions can be taken to help municipalities protect their water quality?



Qualitative Interviews

- **Content Experts**
 - Outreach for Municipal Technical Assistance Advisory Panel (MTAAP)
 - 60+ interviews

- **Municipalities**
 - Outreach to nearly 60 municipalities
 - Inform case studies, ground-truth MTAAP interview findings and early recommendations
 - 37 participated in individual interviews



Outreach Interviews

- Significant threats to water quality

Stormwater runoff from highly developed communities upstream.

Improper land development and too much impervious coverage.

Agriculture

On-lot septic systems.

Lack of enforcement.



Outreach Interviews

- Important actions to take in response

Public education and outreach to property owners.

Retrofitting basins and restoring streams.

Agricultural BMPs

Updated ordinances (for example, SALDO, riparian buffer).

Active land preservation program.



Outreach Interviews

- Limitations to those actions

Staffing and
capacity

Funding

Private
property rights

Competing
priorities

The public isn't
demanding
action

Case Studies





Case Studies

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MUNICIPAL CASE STUDY

Abington Township, Pennsylvania

Because Abington was largely developed before more modern stormwater management, the township has long experienced severe flooding events during heavy rains including some that caused residents to lose their lives. The township has spent millions over the past 15 years addressing runoff and flooding issues. Projects include scale flood abatement (such as the purchase of homes for flood management scale on-lot grading (to encourage infiltration and channel stormwater).



By: John Gaadt, AICP
Gaadt Perspectives, LLC.

Background

Abington Township is an inner-ring bedroom community of Philadelphia, predominantly suburban with mixed-use commercial development. The community was largely built before stormwater management and flood control were incorporated into site engineering. The township is 15.5 square miles with a 2015 population of 55,590 (approximately 3,586 persons per square mile). According to township staff, the community is approximately 96 percent developed. Likewise, Delaware Valley Regional Planning Commission 2010 land use data estimates that less than 2 percent of the township's land area was considered "vacant," and about 12 percent of its land area was wooded.

The township falls within three watersheds: the Pennypack Watershed, the Wissahickon Watershed, and the Tookany/Tacony-Frankford (TTF) Watershed. These watersheds provide recreational opportunities and are sources of water supply and wastewater.

Pennypack Watershed

The headwaters of the Pennypack lie in the upper portions of Montgomery County and the creek's middle mainstem traverses through Upper and Lower Moreland townships before entering Philadelphia's Fairmont Park and Pennypack Park and ultimately discharges into the Delaware River. Approximately 40 percent of Abington's land area falls within the watershed. All in all, the stream is approximately 125 linear miles. The Pennypack watershed, which covers approximately 56 square miles, is approximately 33 percent impervious, and is home to several species of fish.

Quick Stats
Abington Township
Watersheds:
and Tookany/
Population: 55,590
Land area: 15.5 square miles
Population density: 3,586 persons per square mile

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MUNICIPAL CASE STUDY

Cooks Creek Watershed Association, Pennsylvania

The Cooks Creek Watershed Association (CCWA) achieves its goals by working with municipalities, providing education and public outreach, and serving on environmental councils (EACs), planning commissions, and open space commissions.



By: Julie Schneider, Watershed Planner
Center for Watershed Protection

Background

CCWA was created in 1974 and has very active volunteer board members. These individuals may be among the most important contributors to the success of water quality protection efforts in Durham and Springfield townships in Bucks County. Many have been active for over 30 years and are passionate about watershed protection. CCWA board member Hans Reimann's passion for open space began as a child exploring the woods and streams in his backyard. In the early 2000s, he joined Springfield Township's Open Space Committee. "I knew I needed to get involved after hearing a local official discuss removing trees along a stream so they don't fall into the stream."

Water Resources

Located in northeastern Bucks County, Pennsylvania, the 30-square-mile Cooks Creek Watershed drains to the Delaware River. The majority of the watershed is in Springfield Township (70.29 percent) and Durham Township (19.39 percent). Smaller portions are in Lower Merion Township (7.29 percent), Upper Merion Township (1.99 percent), and Richland townships in Bucks County. The watershed is underlain with limestone bedrock, a high-quality drinking water aquifer that serves many of the residents. It is classified as an Outstanding Aquifer under the Pennsylvania Chapter 93 Water Quality Standards, as it supports trout and native brook trout fishery. In addition, the watershed contains numerous rare and special species, was rated Priority 1 in the 1999 Bucks County Natural Areas Inventory, and is designated as a special concern by the Highlands Coalition.

Quick Stats
Cooks Creek Watershed
Major adjoining watersheds:
Delaware River
Land area: 29.6 square miles
Other special characteristics:
Exceptional Value Watershed
brook trout fishery
Watershed association

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MUNICIPAL CASE STUDY

East Bradford Township, Pennsylvania

Motivated by watershed impairment caused by suburban development over the past 30 years, a township with a full slate of water quality improvement programs looks outside its boundaries and examines new funding strategies to continue protecting its waterways.



By: Paul Racette
Pennsylvania Environmental Council

Background

East Bradford Township is a suburban community located in northwestern Chester County with abundant rural character. It contains many high-quality environmental resources, such as the Brandywine Creek and its tributary streams, floodplains, and woodlands. The township has prioritized open space preservation, conserving 34 percent of its land base through fee simple acquisition and conservation easements (*East Bradford Township Strategic Comprehensive Plan Update 2004-2014*). Steep slopes and floodplains place limits on the amount of new developable land in the township. The township is developing a greenway trail system that connects its parks and open spaces.

East Bradford is currently 40 percent developed, with about 95 percent residential land, as well as 5 percent commercial/industrial land focused on the southeast corner of the township. The township is located downstream of more densely developed municipalities, such as West Chester Borough and Downingtown Borough.

The total population of the township is 9,942 (2015 Five-Year American Community Survey [ACS]). The median household income is over \$109,000.

Water Quality Problems

Like many other municipalities, East Bradford Township is facing stormwater management and watershed impairment issues caused by urban and suburban development trends. Land converted from forests and meadows to impervious surfaces, such as roads, parking lots, and buildings, increases the amount of stormwater runoff. This in turn has led to increases in flooding, stream bank erosion, and water pollution.

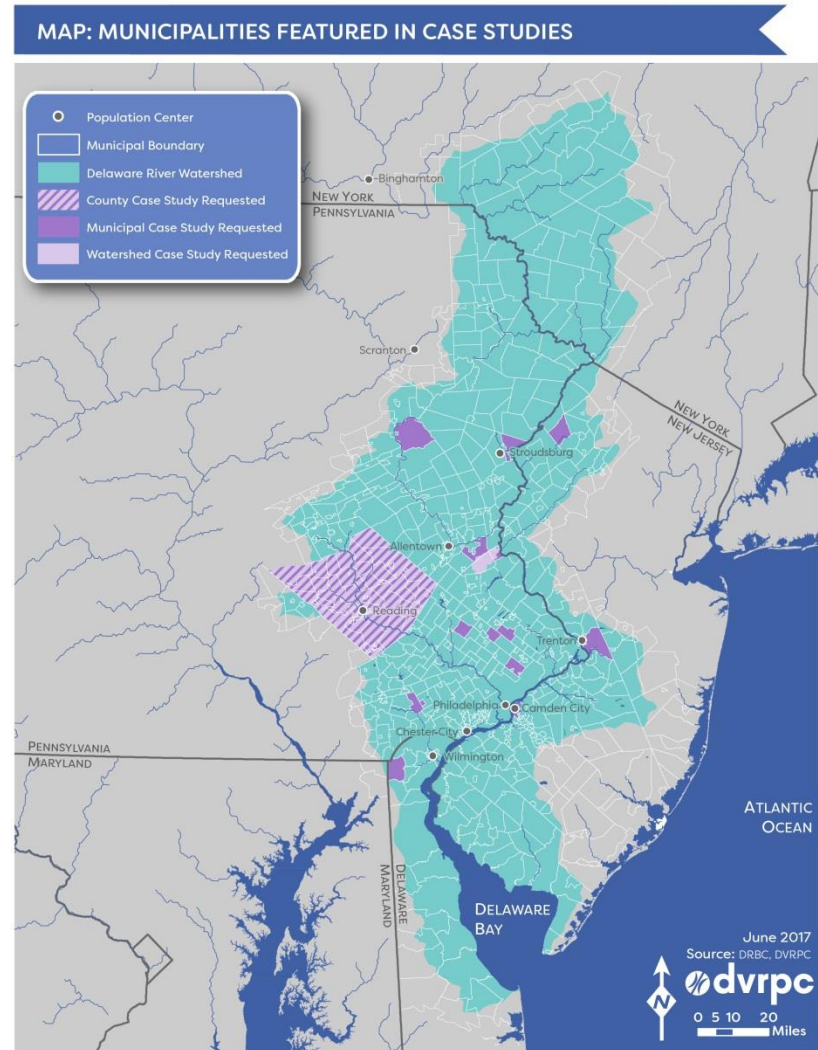


Quick Stats
East Bradford Township
Major water body:
Brandywine Creek
Population: 9,942 (2015 Five-Year ACS)
Land area: 15.0 square miles
Water area: 0.1 square miles (0.66%)
Total stream miles: 50.1
Impaired stream miles: 27.9 (55.7%)

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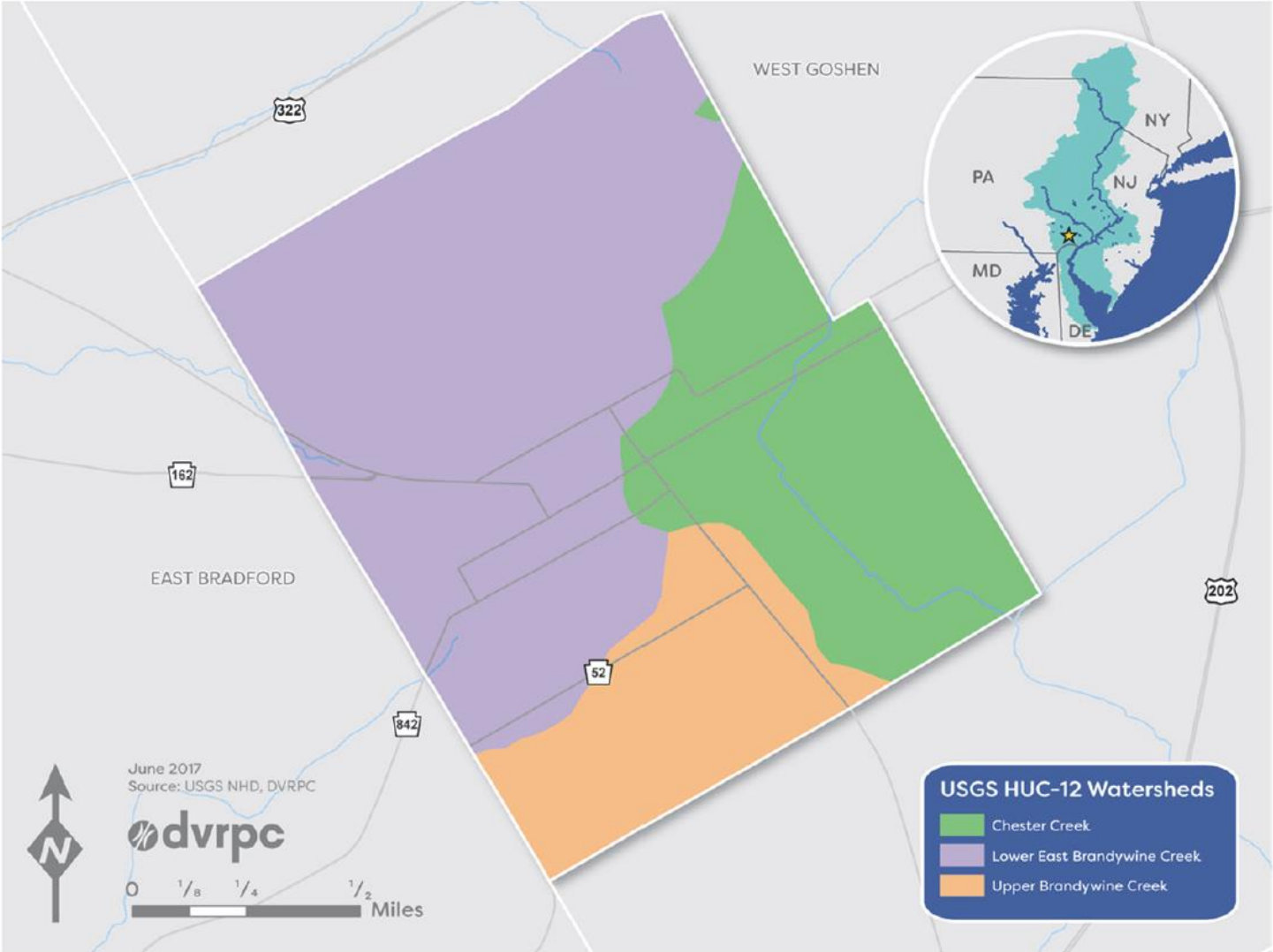
15 Case Studies

- Abington Township, Montgomery County
- Berks County Water and Sewer Association
- Camden City, New Jersey
- Durham Township, Bucks County
- East Bradford Township, Chester County
- Hamilton Township, Mercer County
- Kidder Township, Carbon County
- Lower Salford Township, Montgomery County
- Lower Saucon Township, Northampton County
- Montgomery Township, Montgomery County
- Newark CCD, New Castle County
- Smithfield Township, Monroe County
- Stillwater Township, Sussex County
- Warrington Township, Bucks County
- **West Chester City, Chester County**



West Chester, Chester County, PA

Authored by Paul Racette, PEC



Stormwater Runoff Problems in West Chester

■ Impaired waters in local streams

- Goose Creek
- Taylor Run
- Blackhorse Run
- Plum Creek

■ Excessive amounts of runoff impact health, safety, and welfare

- Flooding
- Stream bank erosion

■ Strains historic infrastructure

- Pipes, inlets, and other stormwater infrastructure require inspections, cleaning, and rehabilitation and replacement



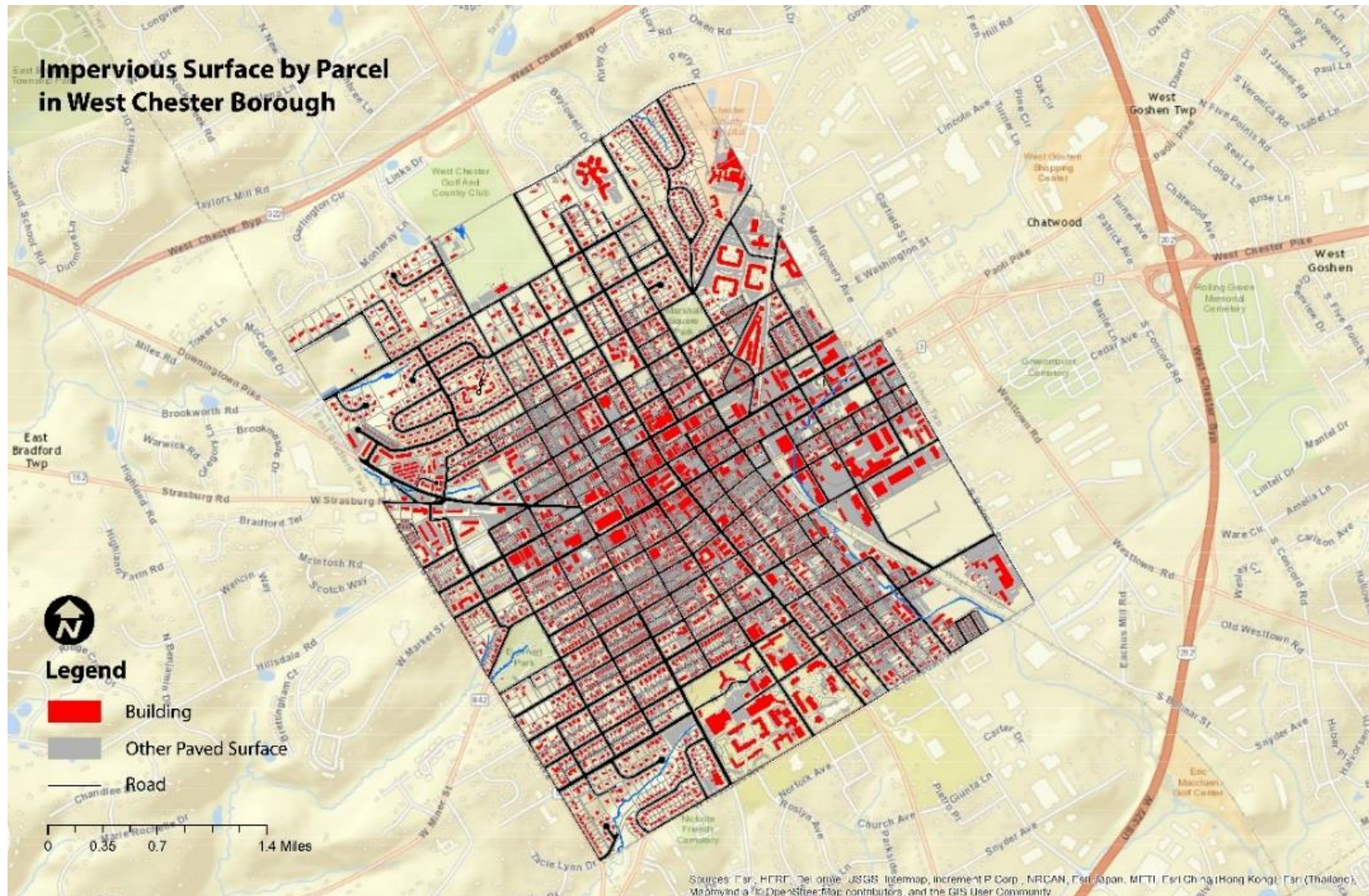
West Chester's Streams are Impaired

- Stormwater Assessment Advisory Committee (SWAAC) was formed in 2013 to recommend to Borough Council how to address the problem & fund it
- Included representatives from:
 - Residential
 - Business
 - Institutions (Chester County Hospital)
 - Non-Profits (Church)
 - West Chester University
 - Chester County
 - Borough Council and Staff

The SWAAC :

Met 7 times between July 2013 and October 2015 on funding options and policy issues

Fee based on impervious area



Source: West Chester Borough

Final Stream Protection Fee Structure

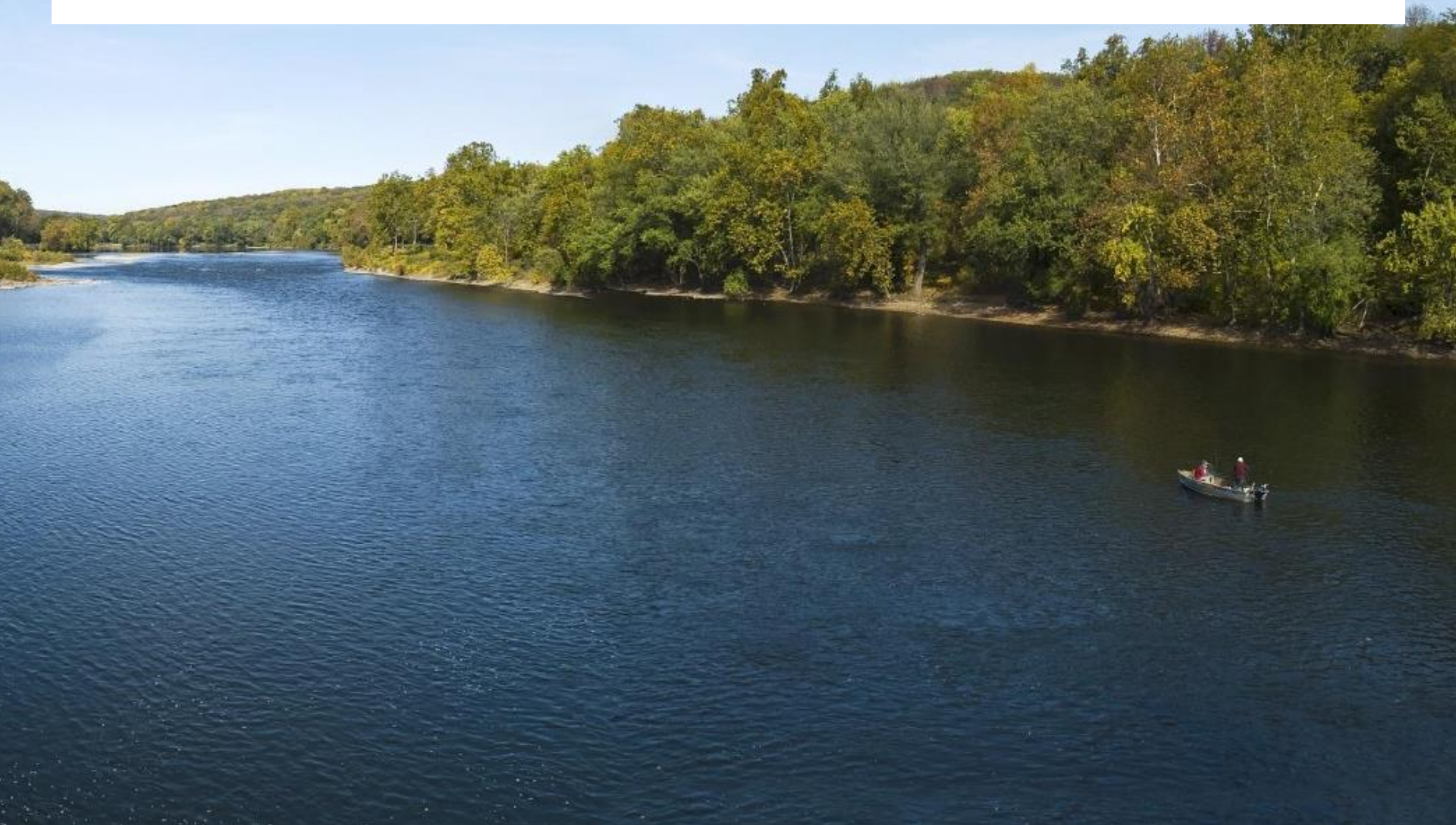
Stream Protection Fee Rate Structure:

SPF rates are grouped into Tiers based on the amount of impervious area in a parcel.

<u>Tier</u>	<u>Impervious Area/Parcel</u>	<u>Monthly Fee*</u>
1	0-1,000 square feet (ft ²)	\$3.35
2	1,000–1,500 ft ²	\$8.38
3	1,500–2,000 ft ²	\$11.73
4	2,000–2,500 ft ²	\$15.08
5	2,500–3,000 ft ²	\$18.43
6	> 3,000 ft ²	\$20.10 and up

***The base rate has been set at \$6.70 per 1,000 ft² of IA per month. Tiers 1-5 are charged a flat fee as shown above. Tier 6 properties are charged based on actual impervious area. The monthly fee is multiplied by 12 to determine annual costs.**

Prioritized Recommendations





Prioritizing Recommendations

- Identified over 500 recommendations/ideas
- Project Team consolidated into 48 distinct recommendations/ideas grouped by four “actors”
 - Municipalities
 - Nonprofits
 - State Agencies (PADEP)
 - Collaborations (all three working in concert)
- Prioritized by MTAAP
- Identified “coalition of the willing” to lead priority actions



Final Recommendation

Through several phases of this stakeholder research project, MTAAP members and municipal water quality champions provided ideas for tools and partnerships that enable municipalities to protect their water quality. The DVRPC team synthesized these ideas into discrete recommendations and asked the MTAAP members to prioritize them.

More detailed recommendations will be released in Summer 2017. Below are broad recommendations, listed in priority order as identified by MTAAP members.

Municipal Actions

These recommendations were identified to be the most important actions municipalities should take to improve and maintain water quality.

Ranking	Recommendation	Shorthand Recommendation
1	Lead by example by implementing Best Management Practices (BMPs)/Green Stormwater Infrastructure (GSI) projects in parks and other municipal-owned properties with high visibility, and supplement with educational signage and outreach.	Lead by example (with BMPs/GSI)
3	Enact municipal stormwater fees (without creating a new stormwater authority) to pay for water quality BMP projects.	Municipal stormwater fee
5	Create locally-funded open space programs that prioritize land protection for water quality purposes.	Ballot initiatives to preserve open space

Action Plans





15 Action Plans

- Organized by Category
 - Expand Existing Efforts
 - Educate Riparian Landowners
 - Innovative New Ideas
 - Create a Watershed Academy
 - Advocacy and Policy Campaigns
 - Create a New State Funding Source for Stormwater Best Management Practices



Environmental Defense Fund

Co-authored by Alice Baker, PennFuture, and Alison Hastings, DVRPC

- A resource, administered by an established municipal assistance organization, that gives legal defense to municipalities faced with a legal challenge to environmental protective measures.





Environmental Defense Fund

Co-authored by Alice Baker, PennFuture, and Alison Hastings, DVRPC

- Membership fee
- Access to legal expertise
- Attorney fee reimbursement if the Fund enters into a court case on behalf of a municipality and wins the suit
- Short-term result: more legal actions
- Long-term result: increase in case law, fewer legal actions, more ordinances



Watershed Academy

Co-authored by Jen Adkins, Ann Hutchinson, Dulcie Flaharty, John Theilacker, Carol Collier, Susan Caughlan and Patty Elkis

- Newly branded training, educational, and networking program that brings together expert, targeted technical assistance providers, municipal training organizations AND receptive municipalities.





Watershed Academy

- The concept:
 - Train and certify professionals
 - Educate and certify municipalities
- The delivery: Coordinated by an existing organization in partnership certified experts
 - Build on existing programs
 - Provide access to peer network





Watershed Academy

- The Incentives:
 - Academy trained professionals get put on “Pre-Qualified” list of consultants
 - Academy educated municipal officials become eligible for funding subsidies





New State Funding Source

Co-authored by Chris Linn and Henry Felsman, DVRPC

- An incentive program modeled after state/local funding partnerships for land preservation
- Takes advantage of the ability of PA municipalities to charge stormwater fees





New State Funding Source

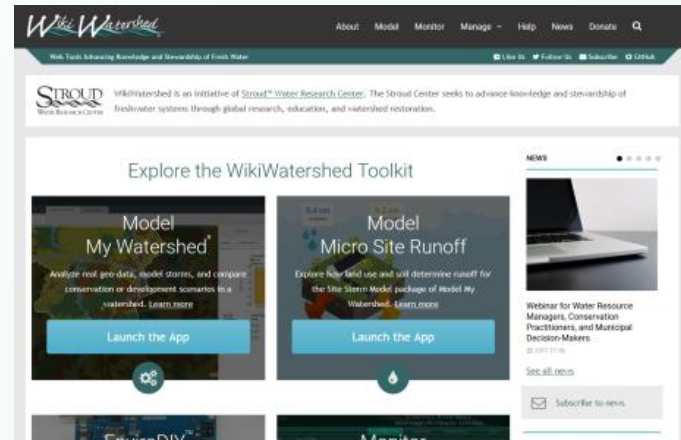
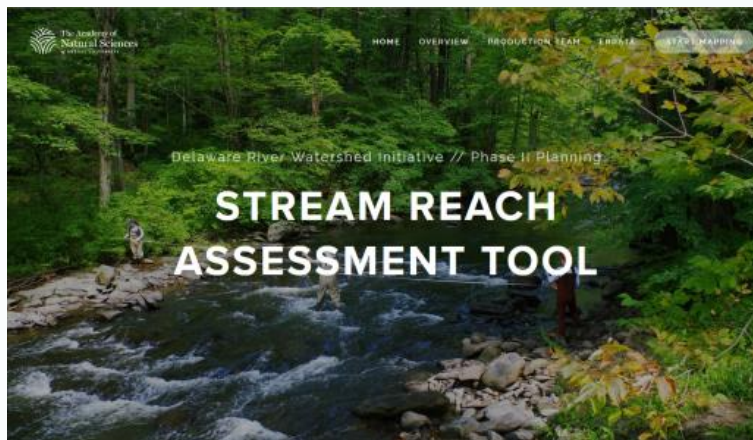
- Incentivizes municipalities to enact stormwater fees to generate local revenue
- Provides a smaller incentive for municipalities without fees to encourage municipal-funded BMPs and allow wider participation
- Projects evaluated based on their effectiveness at reducing pollutants causing impairments
- Will require a statewide campaign





Ongoing Work

- DRWI Data/GIS/Modeling Workgroup
- Implement Action Plans by working with MTAAP partners





Thank you!



Full report:

dvrpc.org/Environment/Water/MunicipalActions/



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