

MUNICIPAL ACTIONS



to PROTECT *and* IMPROVE  
**WATER QUALITY**

IN THE DELAWARE RIVER WATERSHED

---

Local Actions, Regional Results

APA-PA Annual Conference

October 2017

# What is DVRPC?



- Federally-designated MPO for nine-county Philadelphia region in PA and NJ
- Created in 1965 to plan for “orderly growth and development”
- Transportation, economic development, land use and the **environment**
- Short, medium and long term transportation plans, provide funding for projects



## Interactive Questions

**Text DVRPC to 22333**  
to Join our Poll

# Which major Pennsylvania watershed do you live in?

Erie

Ohio

Genesee

Susquehanna

Delaware

Potomac

Other/None of state/Other

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n the audience? Which category best describes

Consultant

Municipal Employee

Other government employee  
(county, regional, state)

Nonprofit

Elected Official

Planning Commission  
Member

Other

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## What is this project?

- Municipal Actions to Improve Water Quality
- Funded, in large part, by the William Penn Foundation
- Part of the Foundation's Delaware River Watershed Initiative (DRWI)
- Stakeholder-based research
- Improve the ability of organizations to assist municipalities in their efforts to improve and protect water quality.



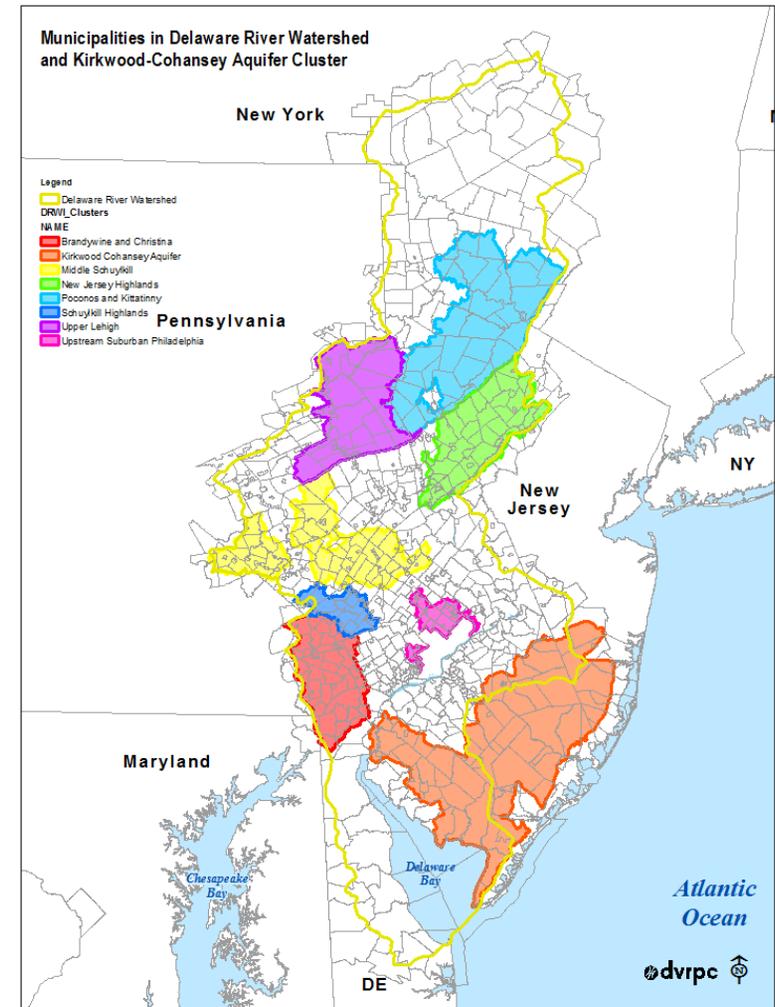
# What is this project?

- Main research questions:
  - What are the barriers to, and conditions of, success for municipal-based conservation practices?
  - Where and how could municipal technical assistance be more effective?



# Project Scope

- Delaware River Watershed
- 843 municipalities
- Advisory Panel (MTAAP) of 60 professionals/ experts
- Political science
- Blend of qualitative/quantitative





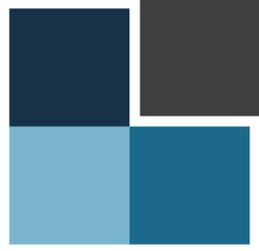
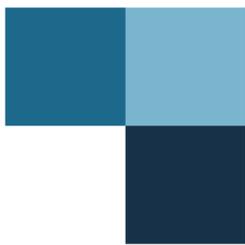


# Qualitative Interview Findings

- Municipal Technical Assistance Advisory Panel (MTAAP) – Content Experts
  - Outreach for Advisory Panel
  - 60+ interviews
- Municipal Outreach – Primary Target Audience
  - Inform case studies, ground-truth MTAAP interview findings and early recommendations
  - Outreach to 58 municipalities
  - 37 participated in individual interviews
  - **15 Case Studies**



do you think is the biggest threat to water qu

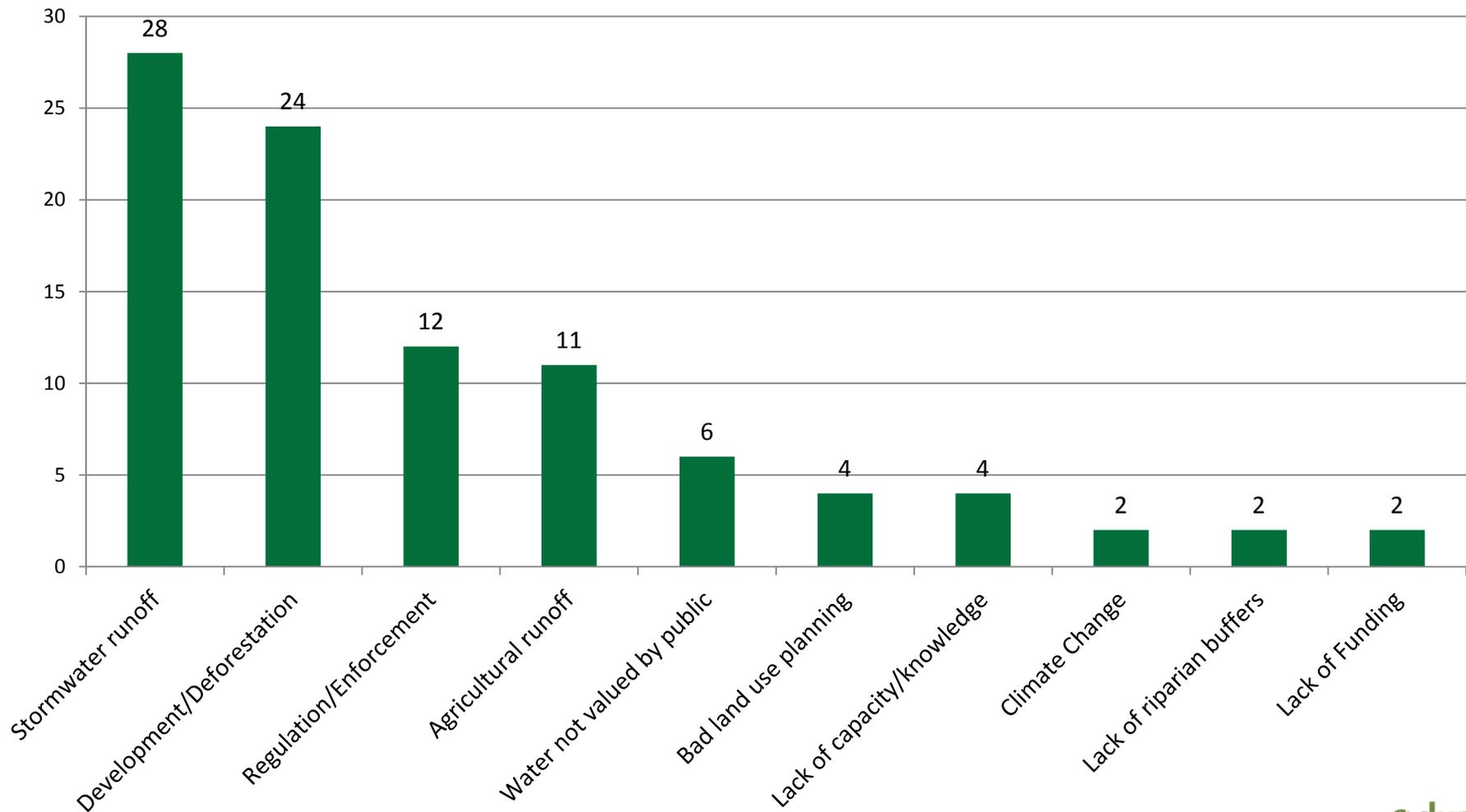


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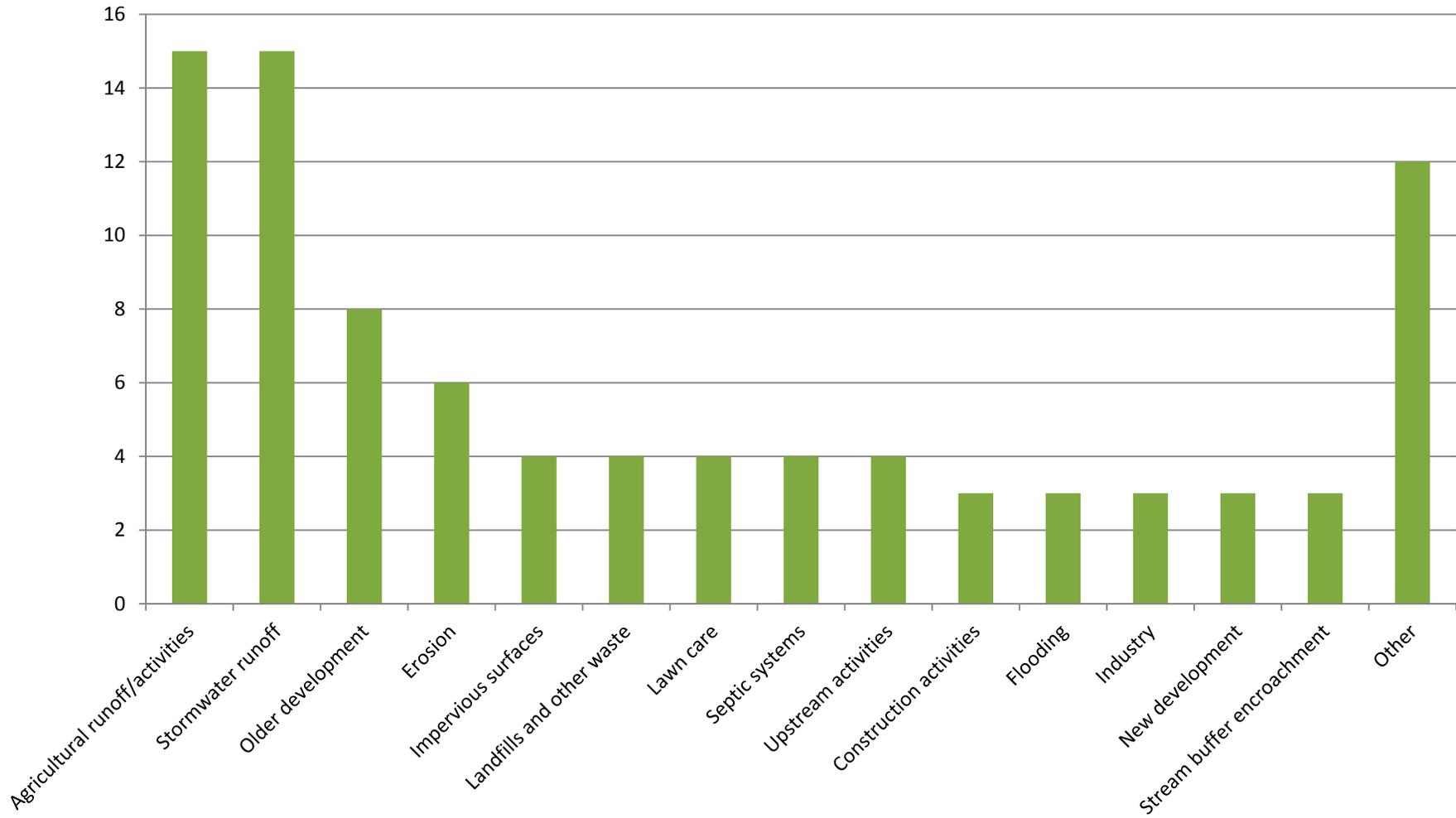


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# Biggest Threats – to the watershed (MTAAP interviews)

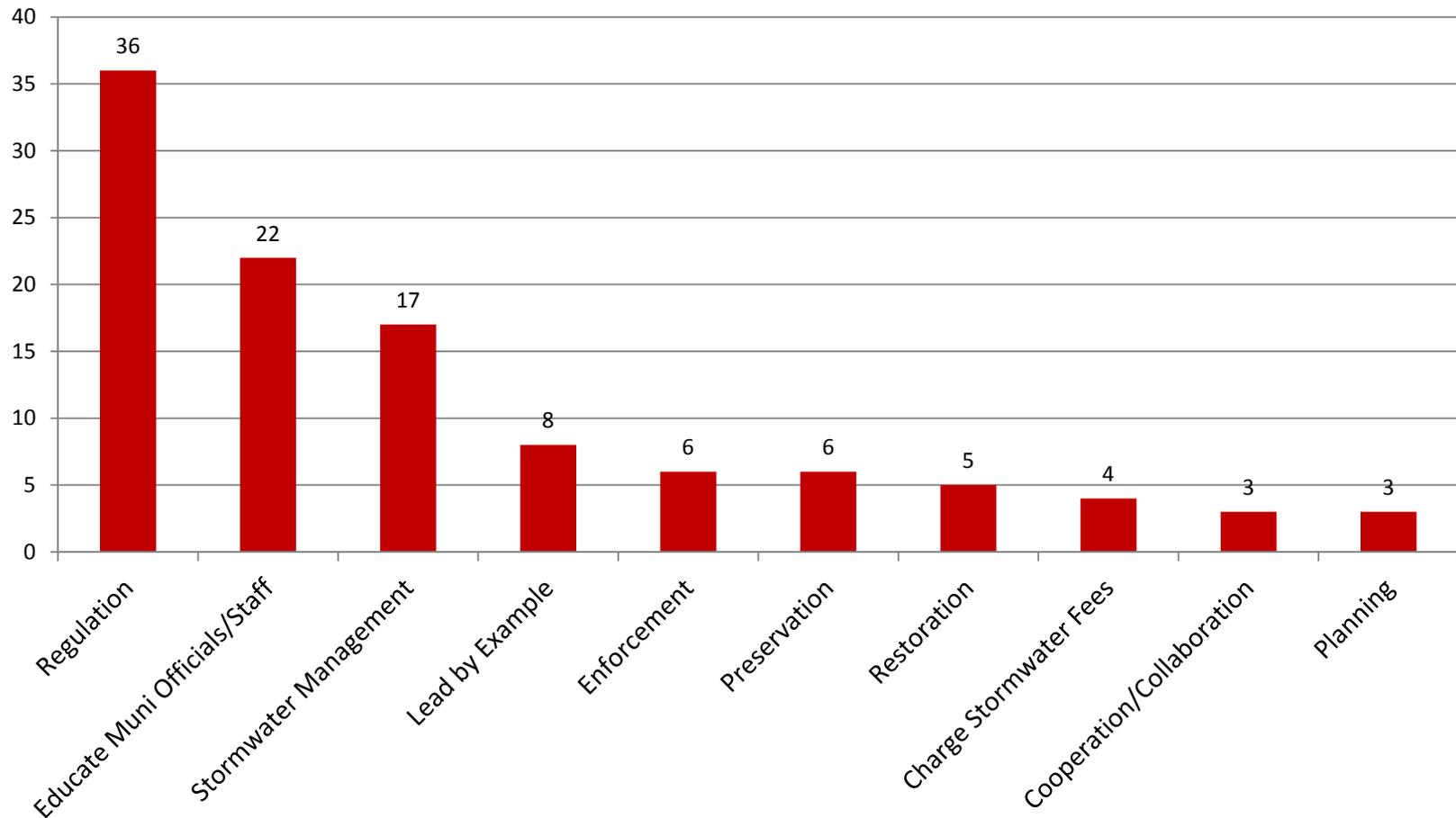


# Biggest Threats – to your watershed (municipal interviews)

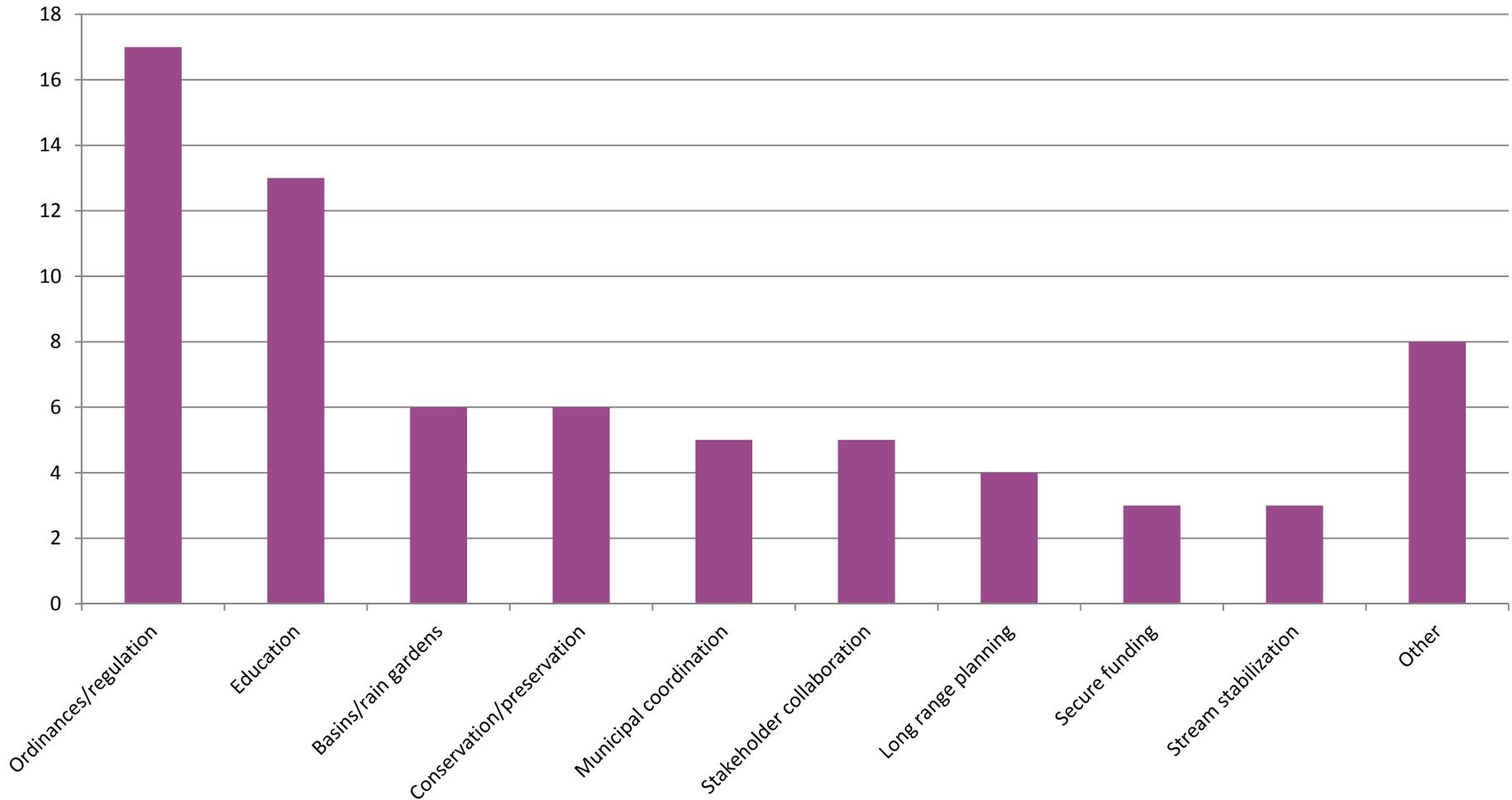


n = 91 responses, 37 respondents

# Important Municipal Actions (MTAAP Interviews)

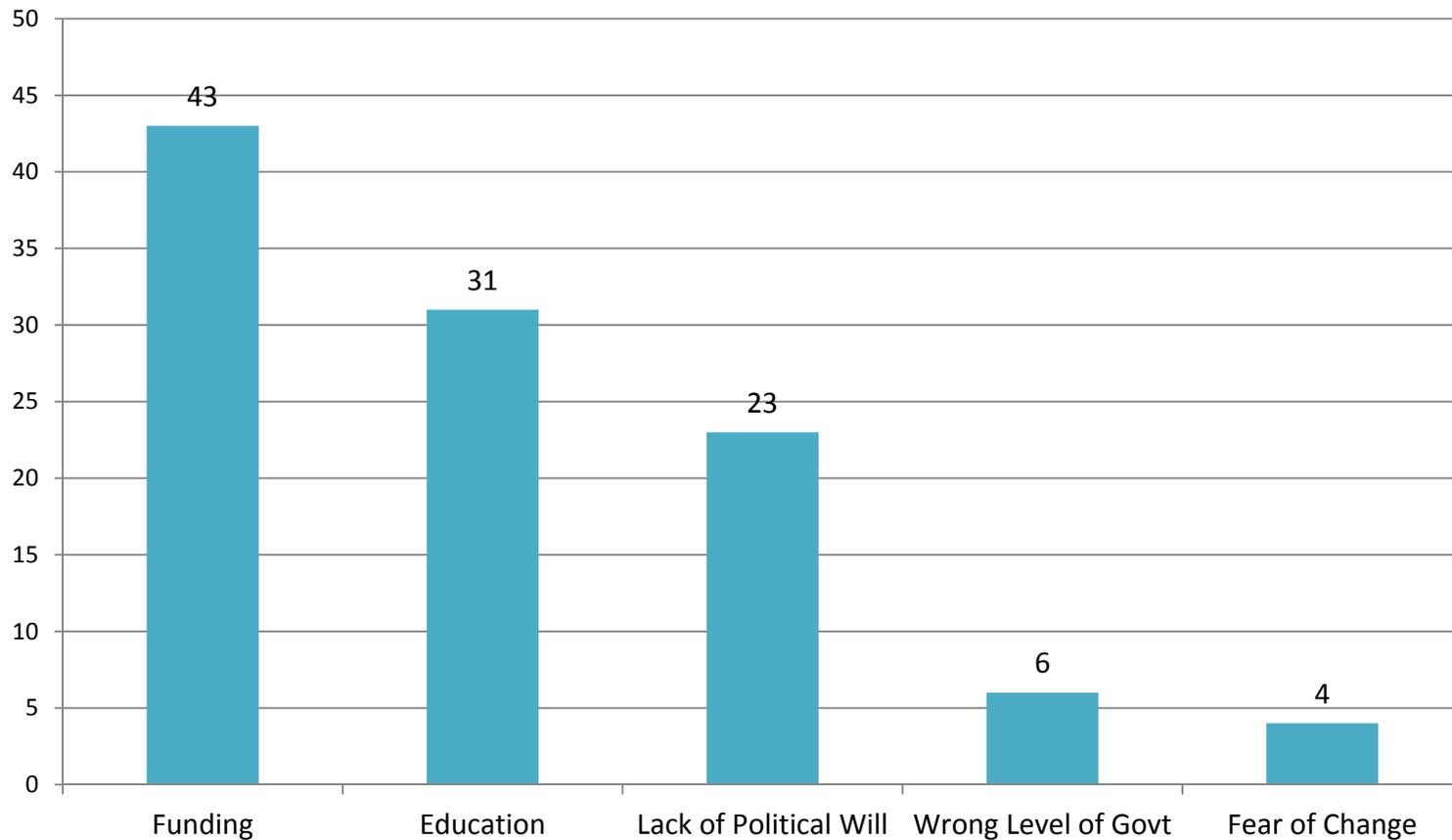


# Important Municipal Actions (Municipal Interviews)

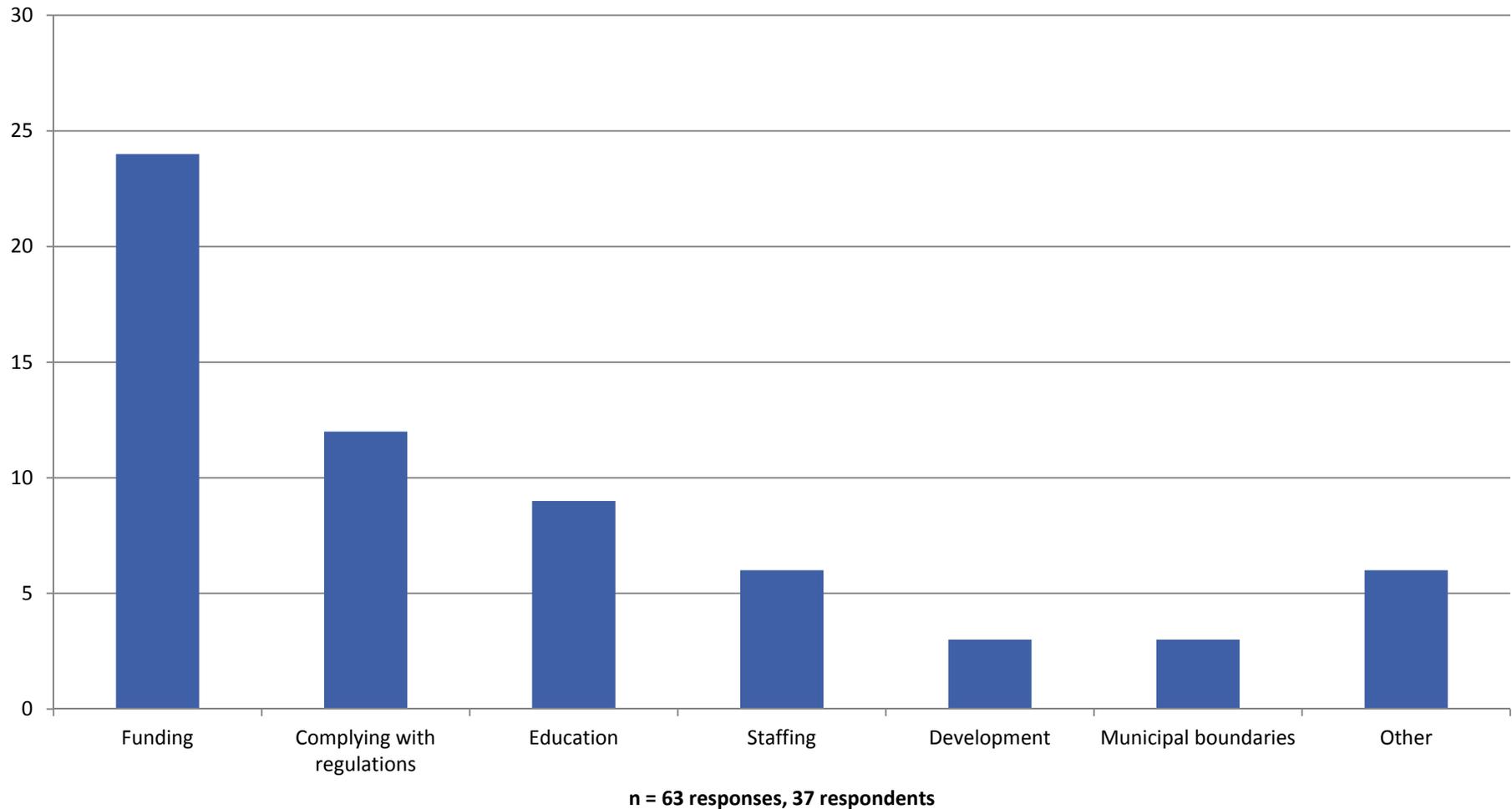


n = 70 responses, 37 respondents

# Greatest Limitation faced by municipalities (MTAAP Interviews)



# Greatest Limitations faced by municipalities (Municipal Interviews)





## Prioritized Recommendations

- Identified over 400 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)
- Municipal Technical Assistance Advisory Panel (MTAAP) prioritized list via survey
- Identified “coalition of the willing”
  - Action Plans



## Municipal Actions

- A municipality should...
  - **Lead by example** by managing its stormwater runoff
  - Enact a municipal **stormwater fee** without creating a new stormwater authority (if an MS4 municipality)
  - Create a **locally-funded open space program** that prioritizes land protection for water quality purposes

Complete List:

<https://www.dvrpc.org/waterquality/MunicipalActions/Recommendations/>



# Case Studies

## MUNICIPAL ACTIONS

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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) and 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. The TTF Watershed systems 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 Pennypack Watershed. All in all, the stream is approximately 125 linear miles. The Pennypack Watershed is approximately 56 square miles, is approximately 33 percent impervious, and is home to many people.

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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 of the watershed drain Lower Saucon, Upper Saucon, and Williams townships in Northampton County and Richland townships in Bucks County. The watershed is underlain with limestone bedrock and 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 watershed: Delaware River  
Land area: 29.6 square miles  
Other special characteristics: Exceptional Value Watershed, brook trout fishery  
Watershed association: CCWA

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## MUNICIPAL ACTIONS

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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 (Gaadt)
- Berks County Water and Sewer Association (DVRPC)
- Camden City, New Jersey (Gaadt)
- Durham Township, Bucks County (Center for Watershed Protection)
- East Bradford Township, Chester County (PEC)
- Hamilton Township, Mercer County (NLT)
- Kidder Township, Carbon County (DVRPC)
- Lower Salford Township, Montgomery County (PHS)
- Lower Saucon Township, Northampton County (DVRPC)
- Montgomery Township, Montgomery County (Brandywine Conservancy)
- Newark CCD, New Castle County (SSM)
- Smithfield Township, Monroe County (DVRPC)
- Stillwater Township, Sussex County (DVRPC)
- Warrington Township, Bucks County (Gaadt)
- West Chester City, Chester County, PA (PEC)

# Consultants



BRANDYWINE  
CONSERVANCY

CENTER FOR  
WATERSHED  
PROTECTION



**gaadt**  
perspectives



**pec**

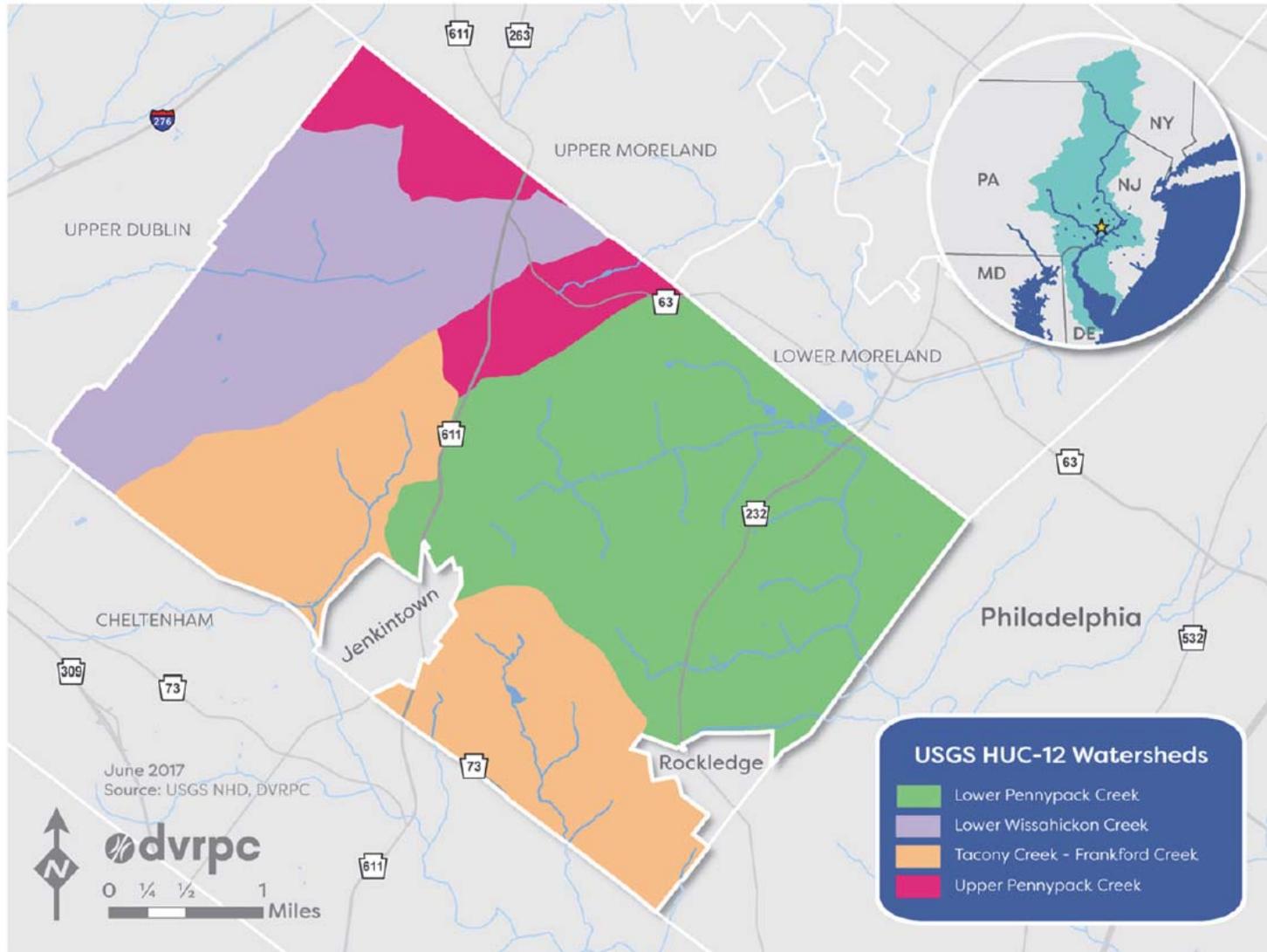


**PHS**



**SSM**

# Abington, Montgomery County, PA



# Abington, Montgomery County, PA



Source: Abington Township

# Abington, Montgomery County, PA



Source: Abington Township

# Abington, Montgomery County, PA



Source: Abington Township

# Abington, Montgomery County, PA



Source: Abington Township

# Abington, Montgomery County, PA



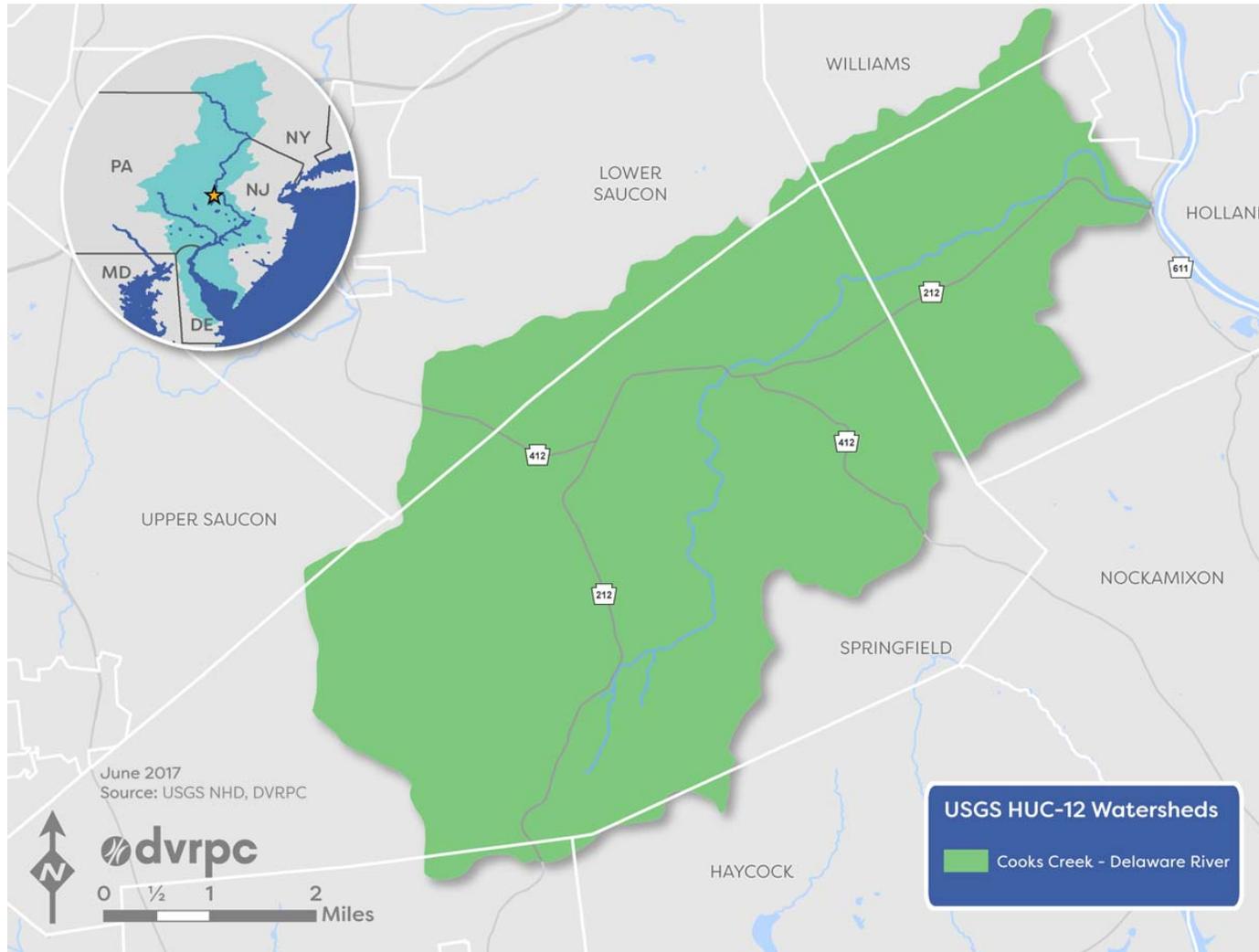
Source: Abington Township



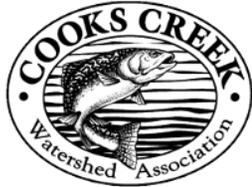
## Relevant Recommendations:

- Buy out of repetitive loss properties
- Wants new state funding source
- Municipality leading by example
- Educate landowners (done by EAC)

# Durham Township, Bucks County, PA



# Durham Township, Bucks County, PA



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## PROTECTING COOKS CREEK FOR MORE THAN 40 YEARS

Our goal is to "protect, preserve and improve the quality of water, land and life in the Cocks Creek Watershed."

The Cocks Creek Watershed Association (CCWA) was organized in 1974. In the 40 years since its founding, Cocks Creek Watershed Association has worked to further its goal:

*"To protect, preserve and improve the quality of water, land and life in the Cocks Creek Watershed."*

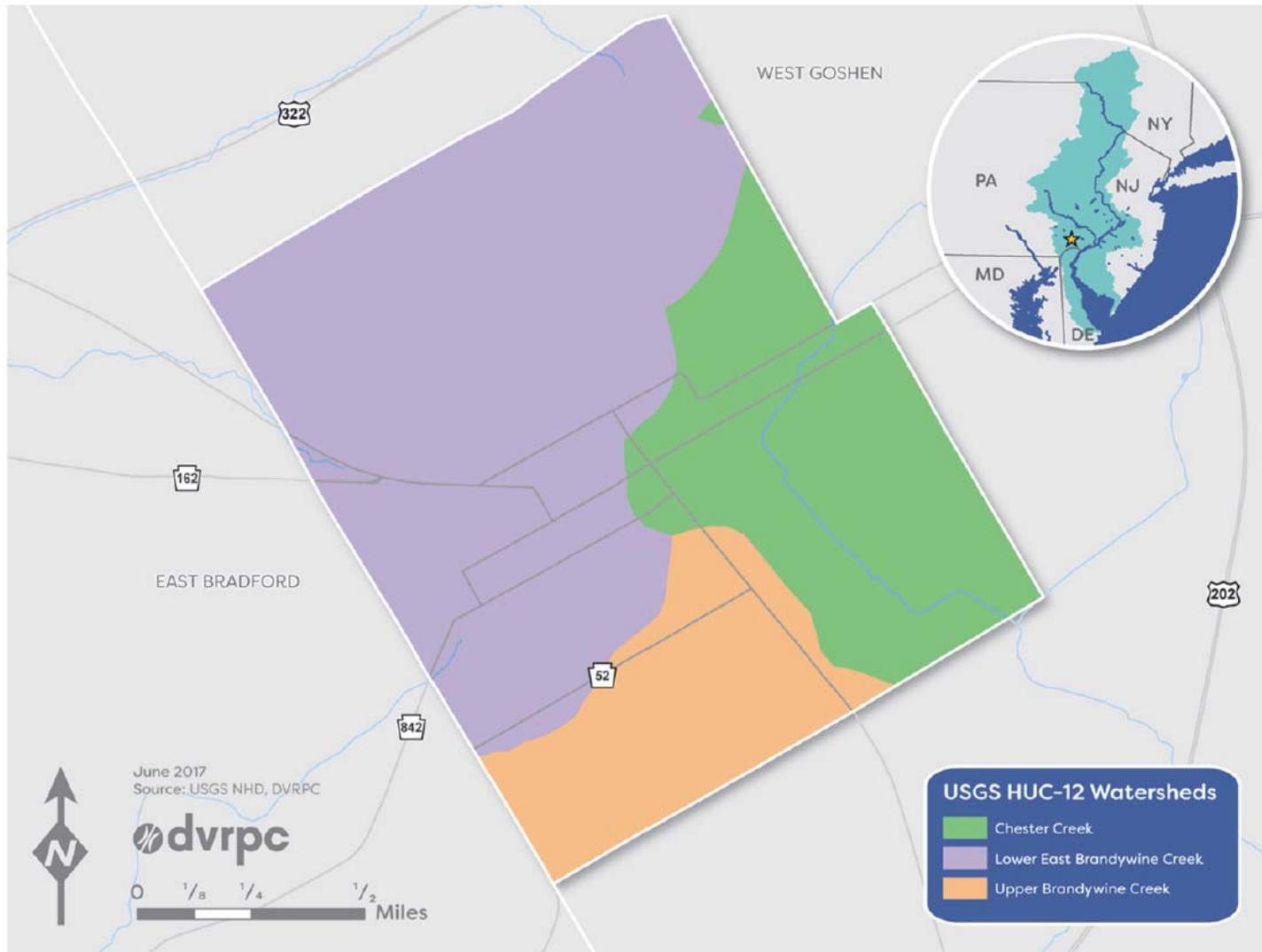




## Relevant Recommendations:

- Expand existing organizations/alliances at county/subwatershed level
- Educate riparian landowners

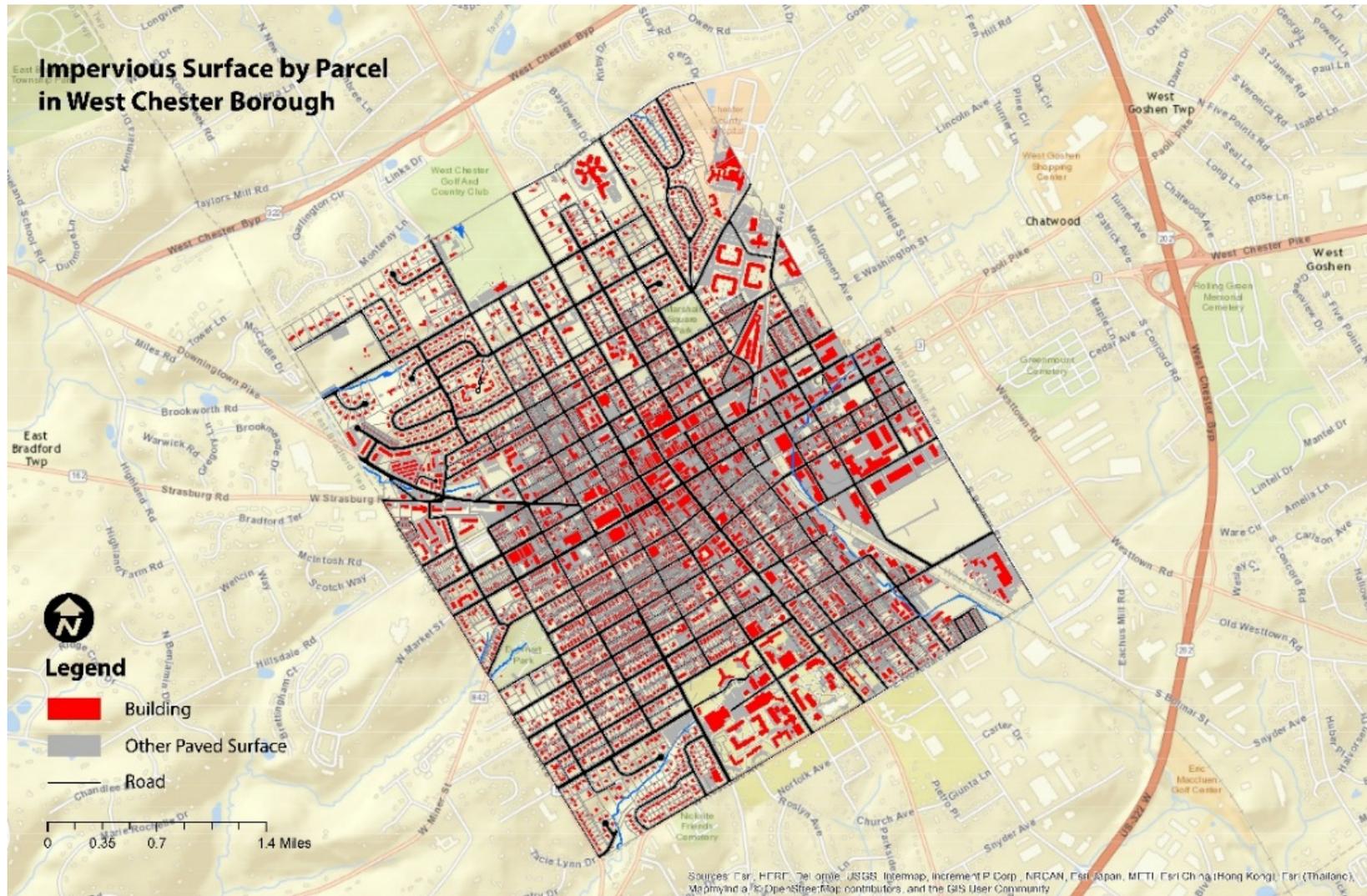
# West Chester, Chester County, PA



# West Chester, Chester County, PA



# West Chester, Chester County, PA



Source: West Chester Borough

# West Chester, Chester County, PA



Source: West Chester Borough

# West Chester, Chester County, PA

## Stream Protection Fee Rate Structure:

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

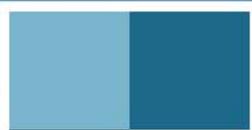
<u>Tier</u>	<u>Impervious Area/Parcel</u>	<u>Monthly Fee*</u>
1	0-1,000 square feet (ft <sup>2</sup> )	\$3.35
2	1,000–1,500 ft <sup>2</sup>	\$8.38
3	1,500–2,000 ft <sup>2</sup>	\$11.73
4	2,000–2,500 ft <sup>2</sup>	\$15.08
5	2,500–3,000 ft <sup>2</sup>	\$18.43
6	> 3,000 ft <sup>2</sup>	\$20.10 and up

\*The base rate has been set at \$6.70 per 1,000 ft<sup>2</sup> 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.

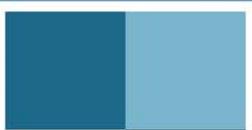


## Relevant Recommendations:

- Downstream municipalities pay for improvements in **upstream** municipalities
- Create a **stormwater fee**



## your community discussing a stormwater fee



es, a community where I  
work

Yes, the community where I  
live

Both where I work AND  
where I live

I don't know

My community is not  
dering a stormwater fee

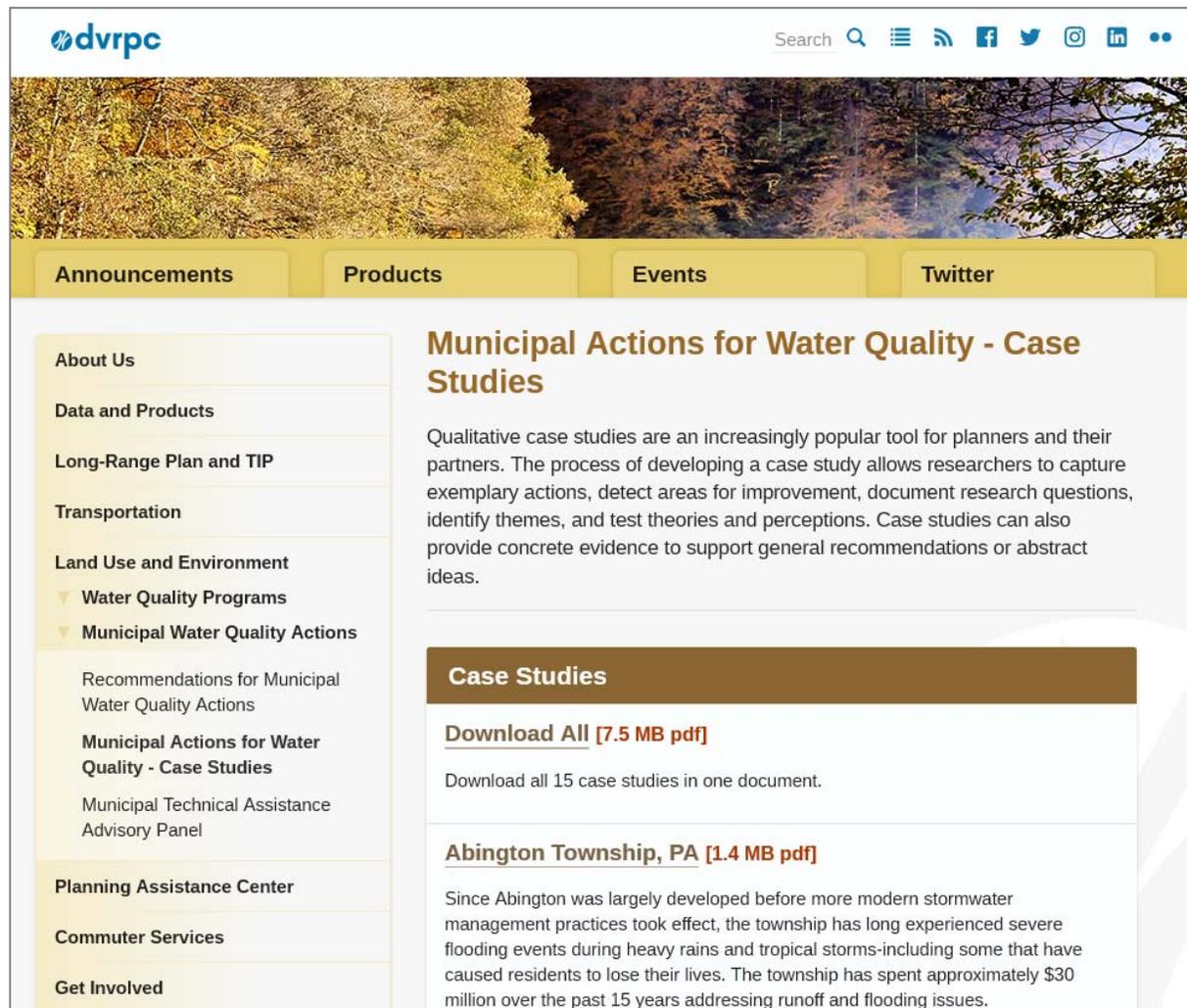
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# Read these case studies and more!

[www.dvrpc.org/waterquality/MunicipalActions/CaseStudies/](http://www.dvrpc.org/waterquality/MunicipalActions/CaseStudies/)



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Recommendations for Municipal Water Quality Actions

**Municipal Actions for Water Quality - Case Studies**

Municipal Technical Assistance Advisory Panel

**Planning Assistance Center**

**Commuter Services**

**Get Involved**

## Municipal Actions for Water Quality - Case Studies

Qualitative case studies are an increasingly popular tool for planners and their partners. The process of developing a case study allows researchers to capture exemplary actions, detect areas for improvement, document research questions, identify themes, and test theories and perceptions. Case studies can also provide concrete evidence to support general recommendations or abstract ideas.

### Case Studies

**[Download All \[7.5 MB pdf\]](#)**

Download all 15 case studies in one document.

**[Abington Township, PA \[1.4 MB pdf\]](#)**

Since Abington was largely developed before more modern stormwater management practices took effect, the township has long experienced severe flooding events during heavy rains and tropical storms-including some that have caused residents to lose their lives. The township has spent approximately \$30 million over the past 15 years addressing runoff and flooding issues.



## Action Plans

- 48 Recommendations resulting in 14 Action Plans
  - Coalition of the willing – MTAAP/DVRPC Project Team
  - Some ideas combined
- Today – get your feedback on
  - Watershed Academy
  - Environmental Defense Fund



 Natural  
Lands

# A Watershed Academy





# Land Use Decisions Influence Water Quality



Water quality a high priority for your municipal c

Absolutely yes

Mostly when triggered by  
MS4 or stormwater runoff  
issues (ie complaints)

There are far too many  
other priorities to worry  
about besides water

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# The Perfect Nexus





# Certified Professionals





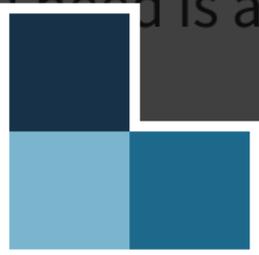
Are you interested in becoming a certified water quality professional?



Tell me where to sign up, this would be a great addition to my practice, interests, etc.

Maybe if I knew more about the time involved

Are you kidding, the last thing I need is another certification



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# Access to Expertise and \$





believe your municipal clients would take advantage of the expertise & funding from a Watershed Academy?

Yes

Only if there were money available

Unlikely

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thank you.





## Environmental Defense Fund

- The Municipal Environmental Defense Fund could be housed an organization like the Pennsylvania Municipal League (PML)
- Provide legal defense of Pennsylvania's municipalities' environmentally protective measures when faced with legal a challenge.





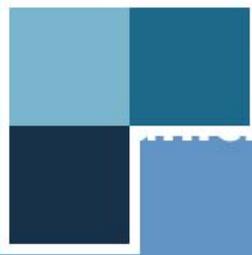
## Environmental Defense Fund

- Participating municipalities could pay a “membership fee” or an “insurance premium”
- Municipality’s counsel could access legal expertise
  - Specialized training
  - Additional review of ordinances

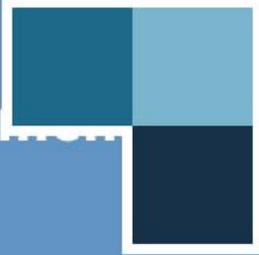


## Environmental Defense Fund

- If the Fund enters into a court case on behalf of a municipality, and wins the suit, the Municipal Environmental Defense Fund will seek reimbursement of attorneys' fees and costs as allowed under the Municipal Planning Code.
- Recovered fees and costs will be used by the Municipal Environmental Defense Fund to sustain future activities.



Would an Environmental Defense Fund motivate  
municipality to adopt and/or enforce more environ-  
protection ordinances?



Yes; this is the type of  
reassurance they need

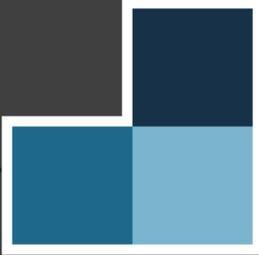
No way; they're not  
interested in doing more

Maybe; it depends on the  
details

They don't need it. They  
already stick their necks out

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**THANK YOU!**

**Text LEAVE to 22333**

**To exit the poll**



# Thank you!

Full report:

[dvrpc.org/Environment/water/MunicipalActions/](https://dvrpc.org/Environment/water/MunicipalActions/)

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