

# Brandywine – Christina Basin

- A Culture of Collaboration, Preservation & Conservation -



Clean Water - A Bi-State Solution

May 3, 2018

# Laying the Foundation of Implementation

## - Chester County Programs -

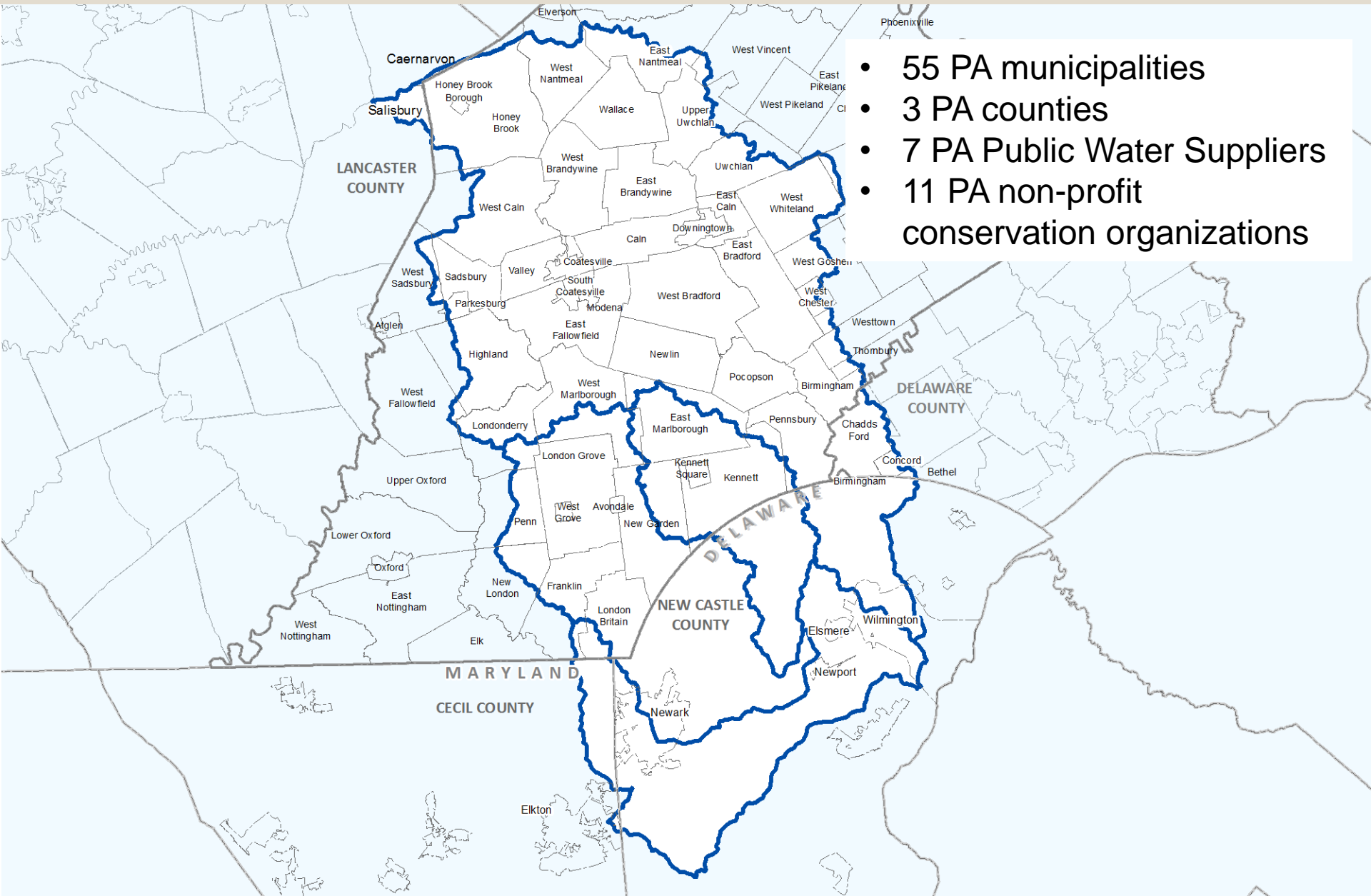
- **Open Space Planning & Preservation Grant Programs (1989)**
- **Pro-active Conservation District Programs (1952-present)**
  - \$millions funding accessed and funneled to BMP implementation
  - Agricultural & Urban BMP Outreach & Implementation (1952-present)
- **“Landscapes” County Comprehensive Land Use Plan**
  - Growth management & preservation (1996, 2006, 2018)
  - Municipal “Tool Box” – guidance, template ordinances, GIS mapping
- **Vision Partnership Program** – municipal grants for implementation
- **County-wide Water Management Planning**
  - Brandywine Watershed Work Plan (1952 to present)
  - “Watersheds” Integrated Water Resources Plan (2002)
  - County-wide Stormwater Management Plan & Ordinances (2013)
- **Environment Health Permitting for Water Quality Protection**
  - Onlot water well construction/abandonment & septic system regulations

# Catalyst for Preservation & Conservation

- **Chester Co. Investment in Brandywine-Christina** -
- ***\$112,200,000 County grant funding*** invested in Brandywine-Christina land preservation, stormwater improvements, and resources conservation since 1989
  - ***\$4,000,000 funding to 49 B-C municipalities*** for sustainable land use planning, ordinances, & special studies since 1996
  - ***\$18,500,000 funding to 9 B-C boroughs*** for stormwater improvements since 2002
  - ***\$89,700,000 funding to preserve 26,300 acres of land*** in B-C since 1990
    - 16,400 acres agricultural lands
    - 6,300 acres permanently preserved lands
    - 3,600 acres municipal parks & public recreation areas
- ***All of the Above Made Possible by Substantial Additional Funding from:*** municipalities, land owners, state agencies, non-profit and philanthropic partners

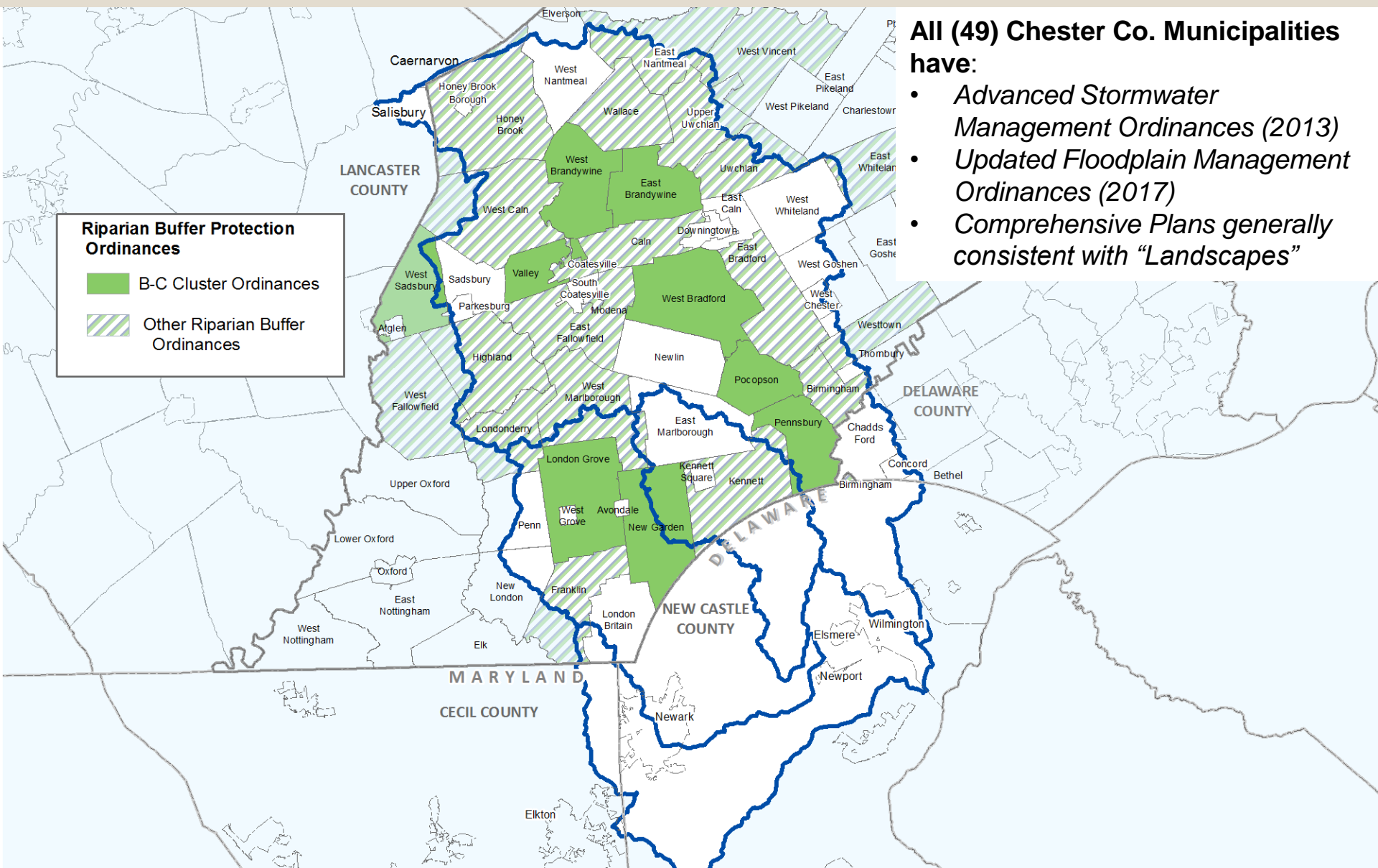
# Many Engaged Stakeholders

- 55 PA municipalities
- 3 PA counties
- 7 PA Public Water Suppliers
- 11 PA non-profit conservation organizations





# 75% of PA B-C Watersheds Now Covered by Municipal Riparian Buffer Protection Ordinances



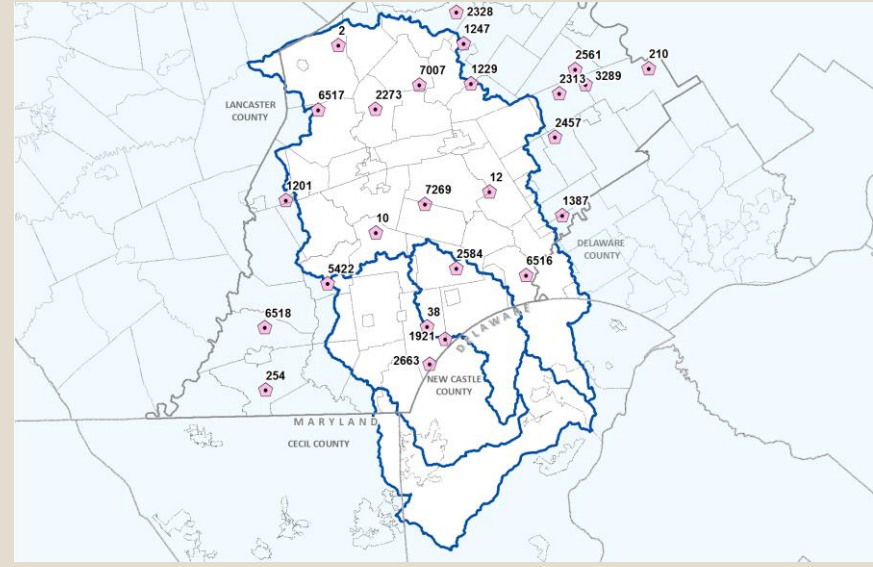
**All (49) Chester Co. Municipalities have:**

- *Advanced Stormwater Management Ordinances (2013)*
- *Updated Floodplain Management Ordinances (2017)*
- *Comprehensive Plans generally consistent with “Landscapes”*

# Chester County/USGS– Long-Term Monitoring Programs (1970s to present)

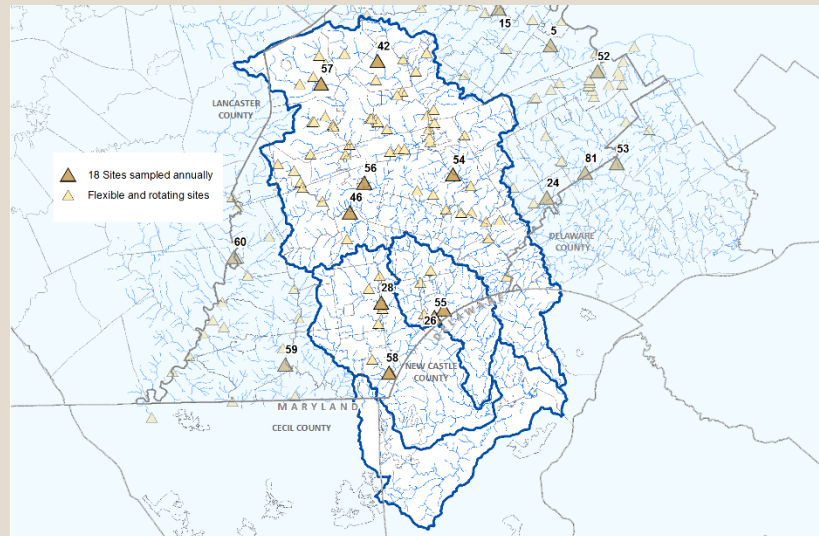


***Continuous Stream  
Flow Gages***

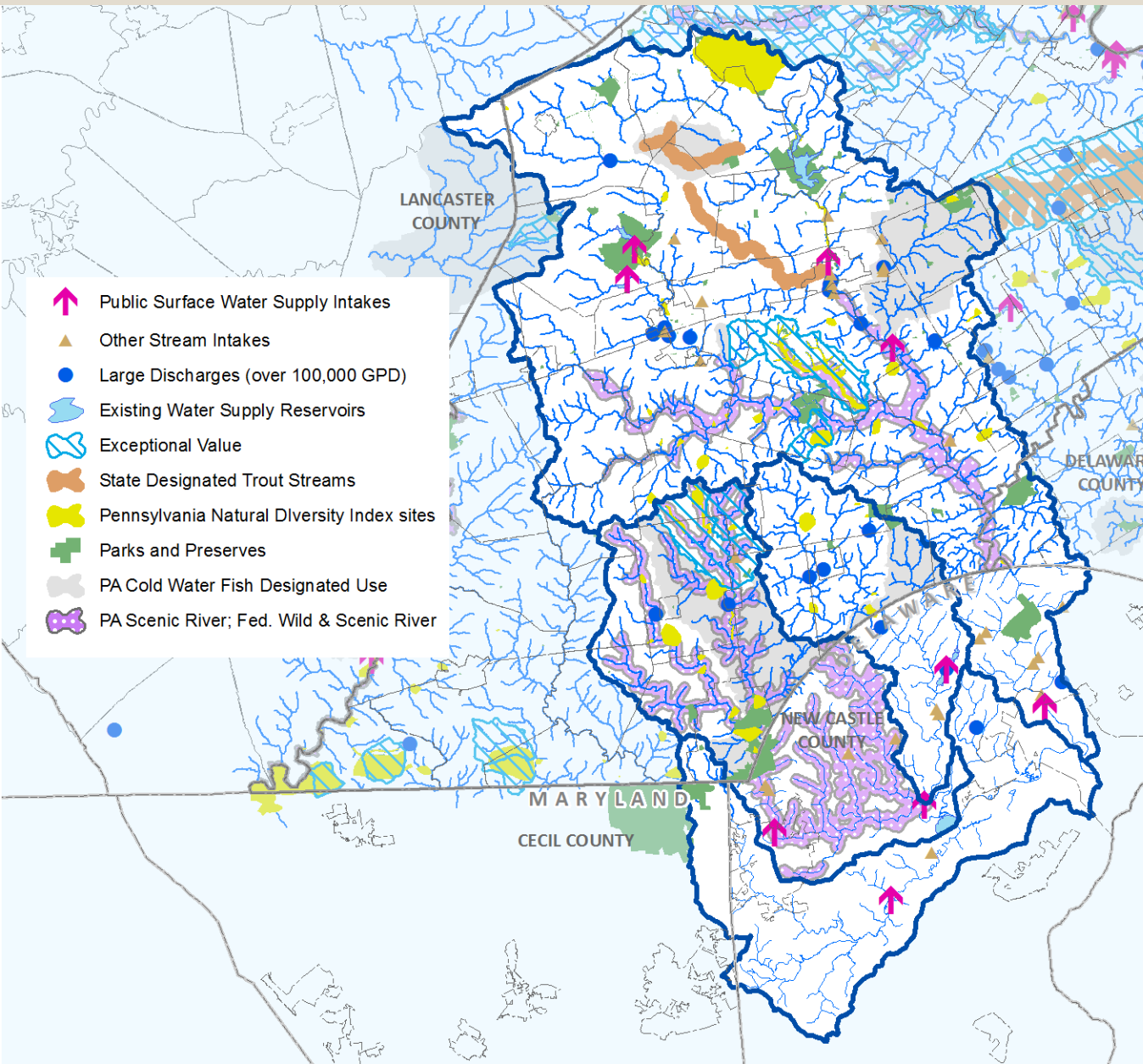


***Groundwater  
Monitoring Network***

***Instream Chemistry  
& Biological  
Diversity Monitoring***



# Significant Inter-State Resources At Risk



**PA –**

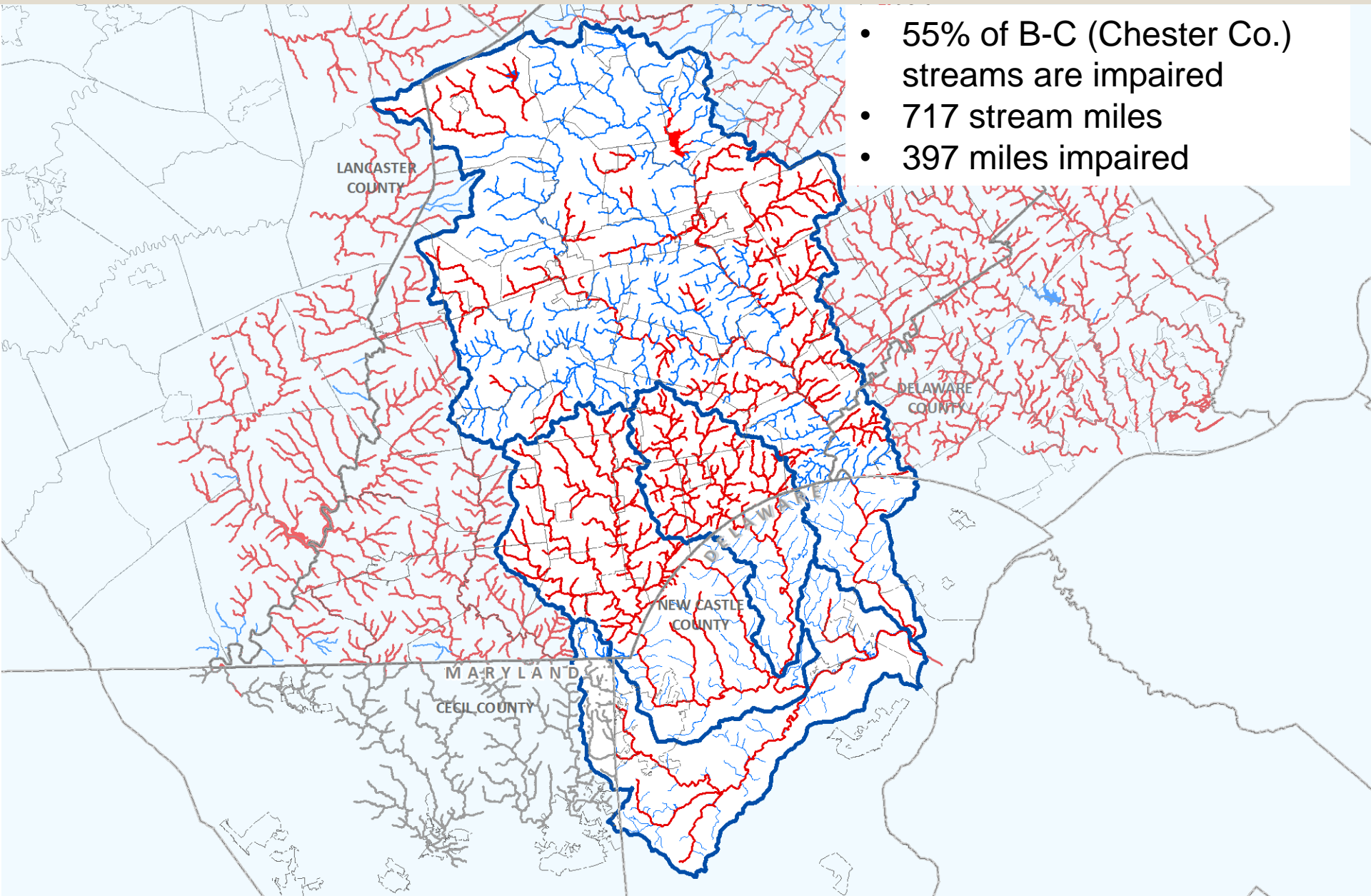
- **3 water supply reservoirs**
- **4 public water supply surface water intakes**

**DE –**

- **2 water supply reservoirs**
- **5 public water supply surface water intakes**



# Widespread Stream Impairments & TMDLs





# 50 PA MS4 Regulated Municipalities



# Christina Watersheds Municipal Partnership (CWMP)

## Objective

- *Test viability of small-scale, multi-municipal collaboration to comply with pollution reduction targets*

## Designed three pilots for collaboration

- *2-6 municipalities per pilot*
- *Three landscapes: agricultural/rural, urban and suburban*








## Pilot involvement

- *Municipal representatives*
- *Municipal engineers*
- *CWMP team*
- *PA DEP*

## Christina Watersheds Partnership

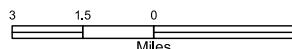
### Potential Pilot Areas

#### Pilot Areas

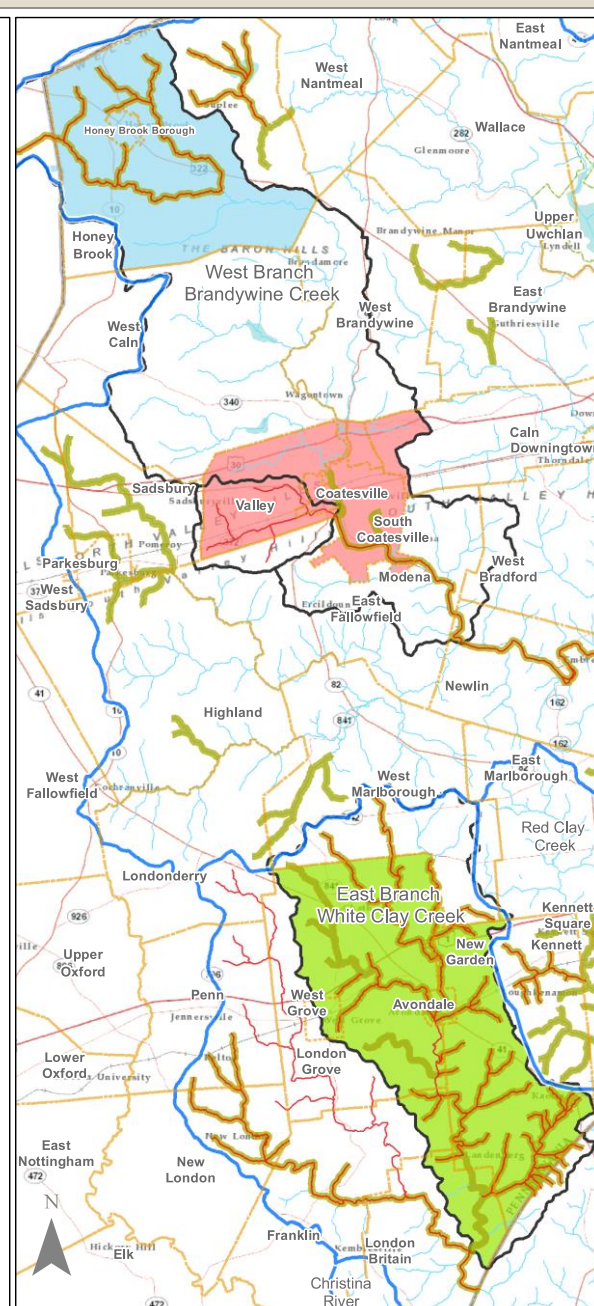
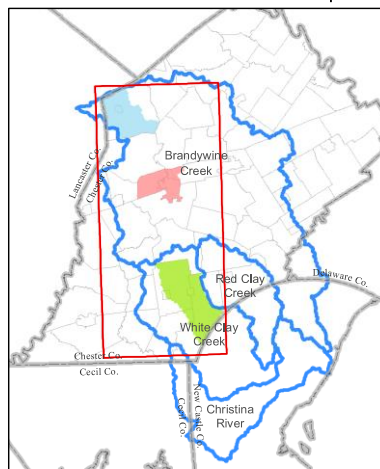
-  Agricultural
-  Suburban
-  Urban
-  Watershed boundary
-  USGS HUC12 unit
-  Municipal boundary
-  Stream

#### 2014 Stream Impairments

-  Nutrients
-  Sediment



Christina Basin Locator Map



# CWMP Outcomes

1. *Facilitator coordinating collaboration was helpful*
2. *One collaborative plan (Honey Brook cluster)*
3. *Findings –*
  - *Need a mix of expertise  
(GIS, engineering, planning)*
  - *Local knowledge and existing relationships facilitate collaboration*
  - *Smaller doesn't mean easier*
  - *Dissimilar regulatory responsibilities between neighboring municipalities create challenges to collaboration*
  - *Other opportunities to collaborate*
    - *O&M and MCMs*
    - *Identify emerging BMP opportunities*
    - *Broader water quality issues through WIP planning*

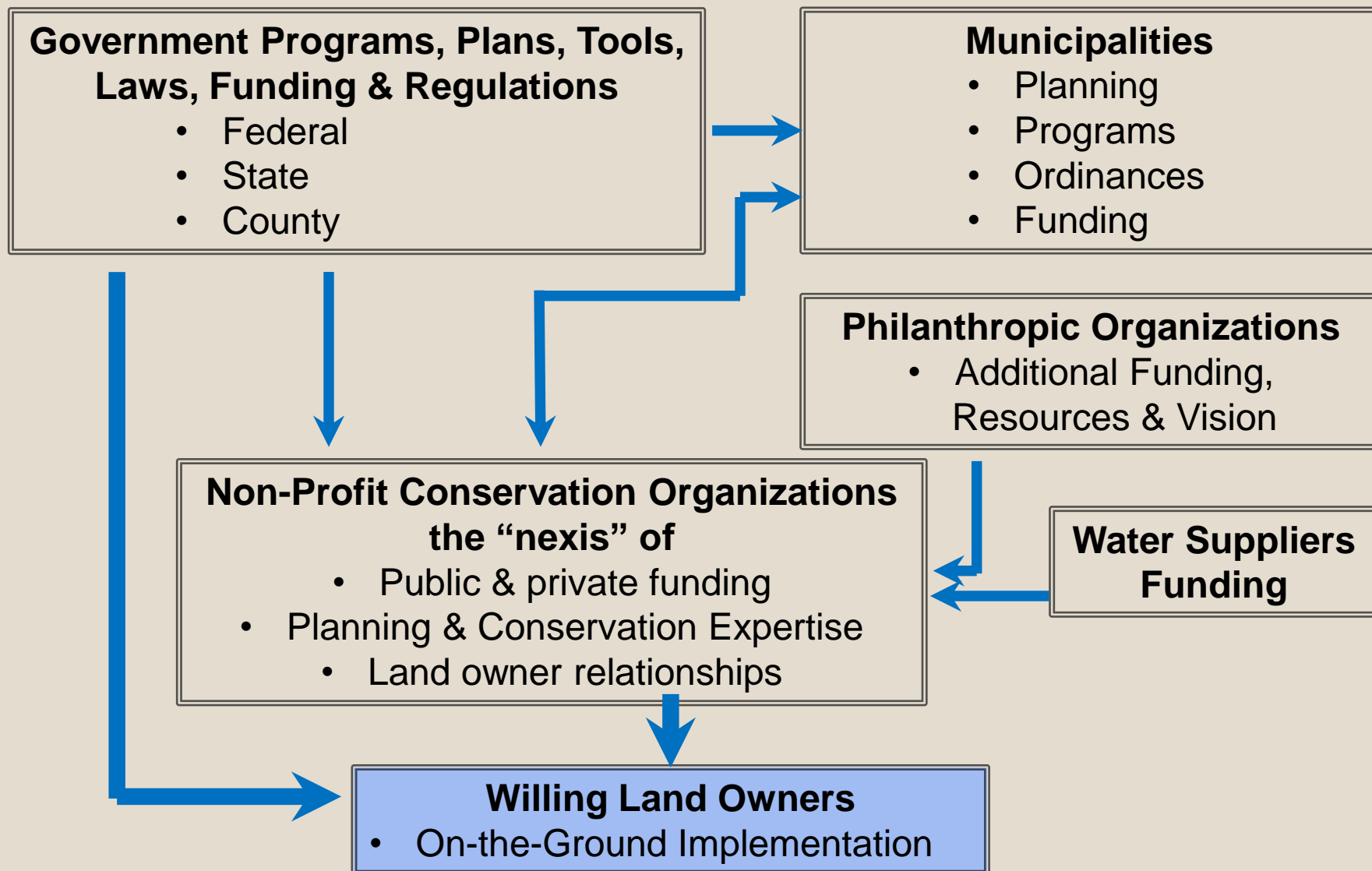


## .... Status ....

- *Awaiting PADEP review letters*
- *First 5-year cycle of MS4 pollution reduction implementation projects will be completed in late 2023.*

# Brandywine-Christina

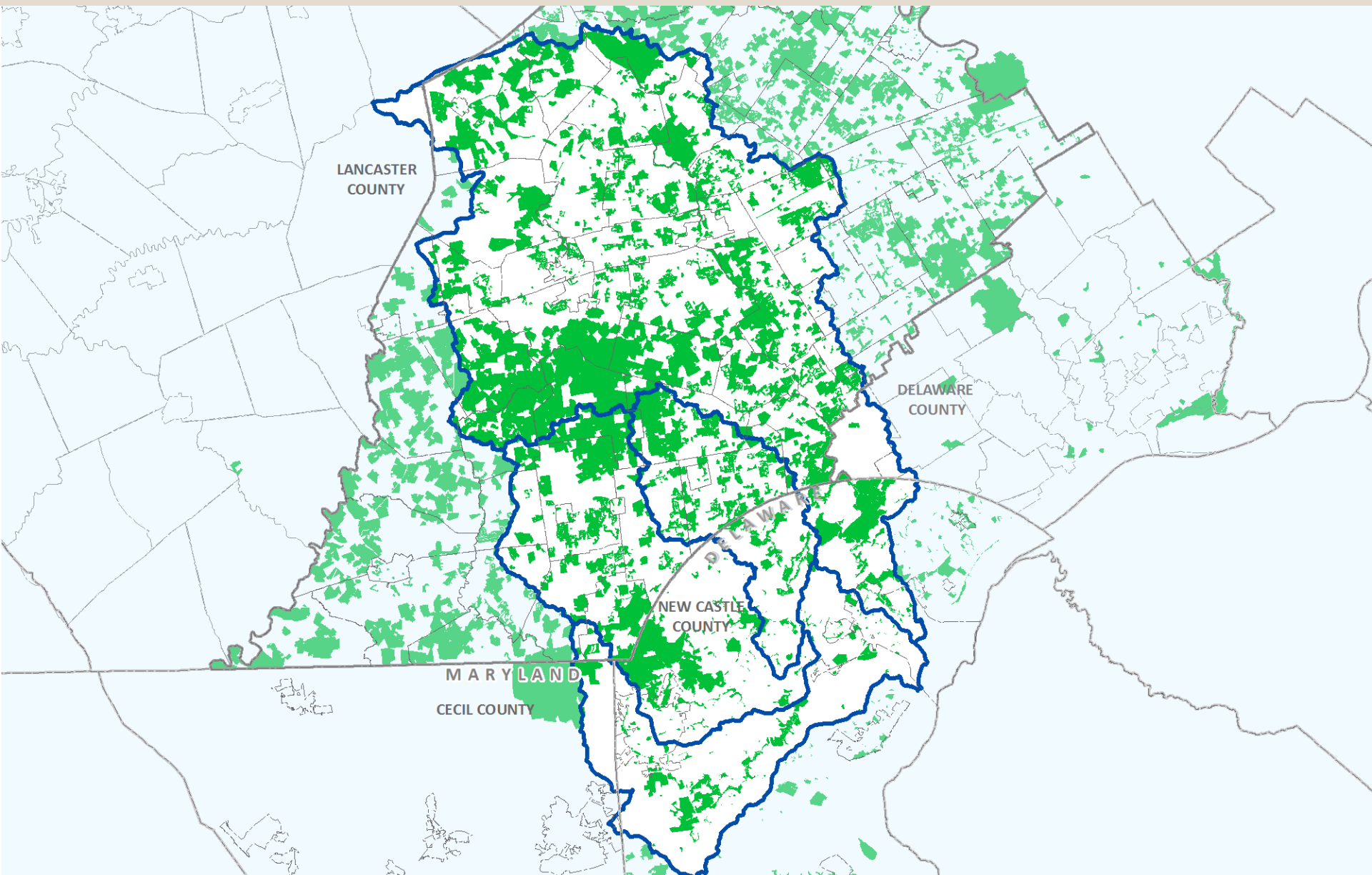
Implementation = Participation at ALL Levels



Why Do We Collaborate ... ??



# Commitment to Open Space Preservation



# We Collaborate Because We Have ...

- *Deeply-rooted community conservation ethic*
- *Inter-state water and aquatic resources to protect*
- *Increasing demands - water use, water supply, wastewater effluent disposal*
- *Highly valued agricultural community*
- *Foundation of conservation-based water and land use planning and programs*
- *Funding opportunities*
- *Planning & conservation professionals*
- *Water science*
- *Impairments & regulatory mandates*
- ***Better results when everyone works together***

# CWMP Outcomes

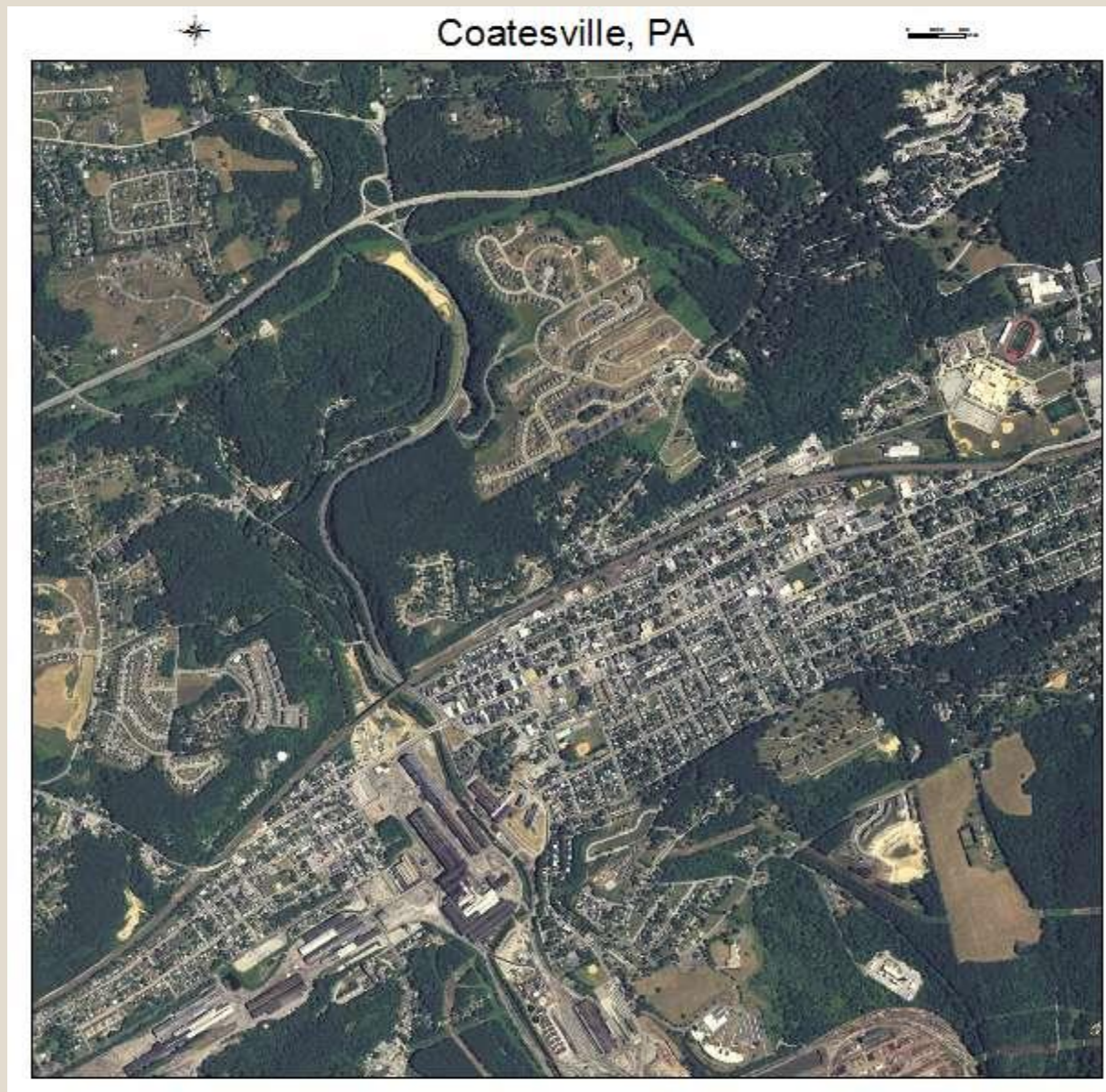
- *Success 1: One collaborative plan*
  - *Joint PRP plan and agreement in Honey Brook Pilot Area*
  - *White Clay Creek Pilot Area collaborated on mapping and calculations*
- *Success 2: Lots of peer-to-peer sharing*
  - *Regular, well-attended meetings with entire Partnership (around 30 municipalities)*
- *Success 3: PA DEP engagement*
  - *PA DEP presence at several meetings*
  - *PA DEP guidance tailored to Christina TMDL for Sediments and Nutrients*
- *Success 4: Increased municipal awareness about water quality issues*
  - *Meetings with Township & Borough Managers*
  - *Presentations to Municipal Boards*



# Honey Brook Pilot Area



# Coatesville Pilot Area





# White Clay Creek Pilot Area





# Brandywine-Christina Basin

## - A Heritage of Over 66 Years of Partnerships -

- **1952 - Brandywine Watershed Conservation Plan**
- **1962 ( to 2018) – Brandywine Watershed Work Plan**
- **1980 – 2000 – Inter-state Brandywine Flow Management Coordination Committee**
- **1994 – Christina Clean Water Partnership**
  - PA & DE
  - Federal agencies, states, counties, municipalities, non-profit organizations, wastewater/water utilities, convened by DRBC
  - Assist EPA to develop Christina sediment & nutrient TMDLs
  - Pilot implementation projects (1998)
  - EPA Targeted Watershed Grant – Bi-State Award (2003)
- **2003 – PA NPDES municipal stormwater permit program began**
- **2006 – Christina sediment & nutrient TMDLS established**
- **2008 – Christina TMDL Implementation Partnership (CTIP)**
- **2016 – Christina Watersheds Municipal Partnership (CWMP)**

# CWMP Pollution Reduction Planning Assistance

- *Provided MS4s with –*
  - *Technical workshops*
  - *Coordination/liaison with PADEP*
  - *GIS mapping layers, formatting tools & templates*
  - *Christina MapShed modeling and loading rates*
  - *Christina BMP load reduction calculator tool*
- *MS4 TMDL and pollution reduction plans submitted September 2017*

# Partnering with Municipalities

## - Christina TMDL Implementation Partnership (CTIP) -

- **~2008 – 2016**
- ***BVA lead coordinator, CCWRA, CCCD, 35 municipalities, conservation organizations***
- *Regular coordination meetings*
- ***Holistic watershed-based approach***
- *Address TMDLs and all listed impairments*
- *Numerous interactions with PADEP & EPA in attempt to do “watershed” approach for TMDL implementation*
- *Municipal TMDL MS4 plan template/calculator tool*
- *Calibrated, tailored Christina MapShed model*
- *Christina TMDL Implementation Plan – entire Basin*
- *2016 – recognized the need to “re-scale” planning area*