

Innovative Financing Strategies for Reducing Nutrients Webinar Series

PRIVATE SECTOR FINANCING SOLUTIONS FOR NUTRIENT REDUCTIONS



June 26, 2019

Agenda



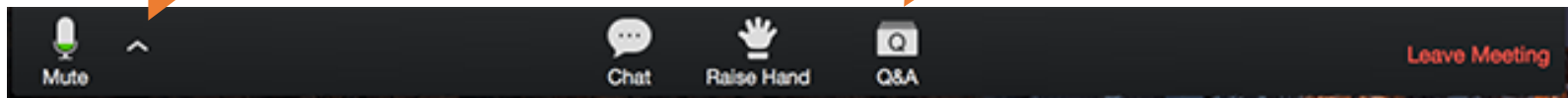
- Welcome and Agenda Overview
- How to Participate in the Webinar
- Webinar Series: Innovative Financing Strategies for Reducing Nutrients
- Opening Polls
- Featured Presentations:
 - **Environmental Impact Bonds**
Eric Letsinger, CEO, Quantified Ventures
 - **The Revolving Water Fund**
Ashley Allen Jones, Founder and CEO, i2 Capital
- Q&A
- Adjourn

How to Participate in the Webinar



The **Q&A window** allows you to ask questions to the host and panelists.

To adjust your audio settings in the webinar, click on **Audio Options**.



Send a **chat to the host** (Rob Willis) if you have a technical issue.

Webinar Series: Innovative Financing Strategies for Reducing Nutrients



- This is the second in a four-part webinar series featuring case studies of successful approaches from across the country for funding nutrient reductions.
 - June 26: Private Sector Financing Solutions for Nutrient Reductions
 - July 10: Funding Landscape-Scale Nutrient Reductions
 - July 24: Stormwater Financing Solutions for Nutrient Reductions
- For more information on this webinar series, please contact waterfinancecenter@epa.gov.

Opening Poll #1



- What type of organization are you from?
 - Utility
 - Local government (not a utility)
 - State government
 - Federal government
 - Nongovernmental organization
 - Agricultural organization
 - Other

Opening Poll #2



- What is your experience/familiarity with financing for nutrient reductions?
 - Funded one or more nutrient reduction projects in the past
 - Have nutrient-reduction initiatives/projects and looking for additional funding/financing
 - Do not have immediate projects to fund, but interested to learn more
 - Familiar with potential financing opportunities, but would like to learn more
 - No or very little experience/familiarity with the topic



Environmental Impact Bonds

Eric Letsinger
CEO, Quantified Ventures





Environmental Impact Bonds

EPA/USDA Webinar: Private Sector Financing for Nutrient Reductions

June 25, 2019



Quantified Ventures is an **outcomes-based capital firm** seeking to **drive positive impacts** for health, social and environmental challenges

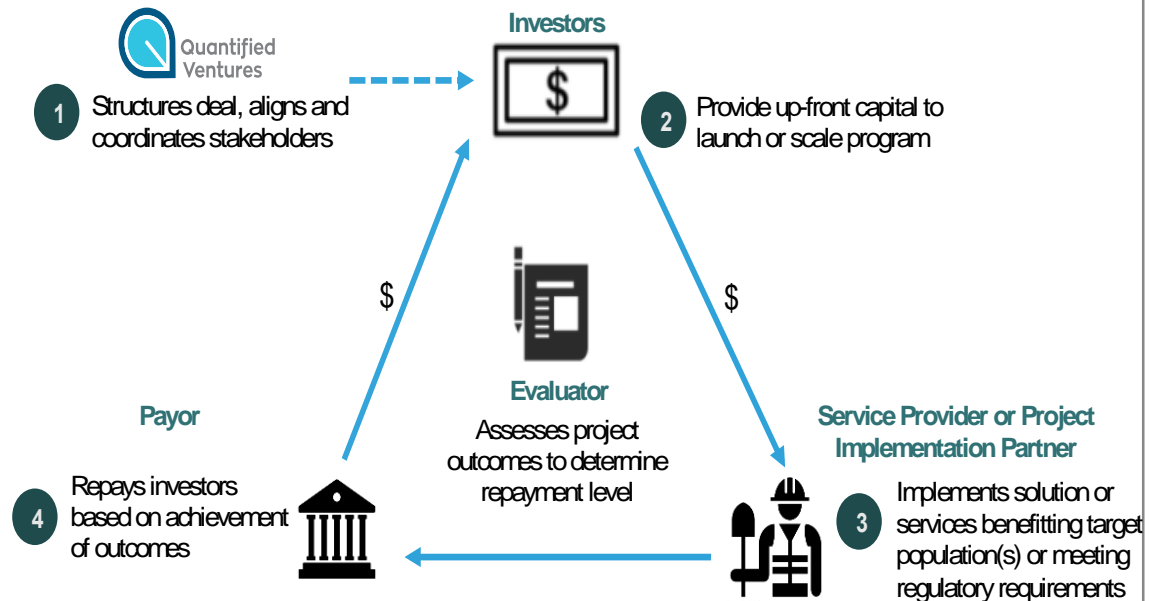
We structure catalytic investments across the environmental infrastructure sector

- Paying for results, not process
- Predictable evaluation of impact
- Accountability to outcomes
- Investor diversification and engagement

By connecting capital with outcomes, we catalyze innovation

Our True North involves a commitment to:

- Driving impact
- Linking financial results to proven outcomes
- Making a sustainable impact bond marketplace



Daunting problems require innovative solutions – and innovative ways to pay for them

Outcomes-based capital can help cities:

- **Align incentives** around social and environmental outcomes
- **Transfer performance risk** of innovative projects to investors
- **Access new sources of investment capital**
- **Showcase themselves and their projects**, attracting internal and external support
- **Engage other stakeholders** benefitting from projects
- **Track and collect data** on outcomes through baked-in performance evaluation
- Using this data, **build an evidence base** to inform future planning decisions



Photo: WEF

Quantified Ventures Brings Impact Capital to Critical Environmental Projects

- We work across three Practice Areas:
 - Forestry & Land Use
 - Agriculture
 - Urban & Coastal Resilience



Calvert
Impact Capital™



THE
ROCKEFELLER
FOUNDATION



EDF
ENVIRONMENTAL
DEFENSE FUND®
Finding the ways that work



 **U.S. Endowment**
for Forestry and Communities

THE
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spring
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Quicken Loans

The Nature
Conservancy 



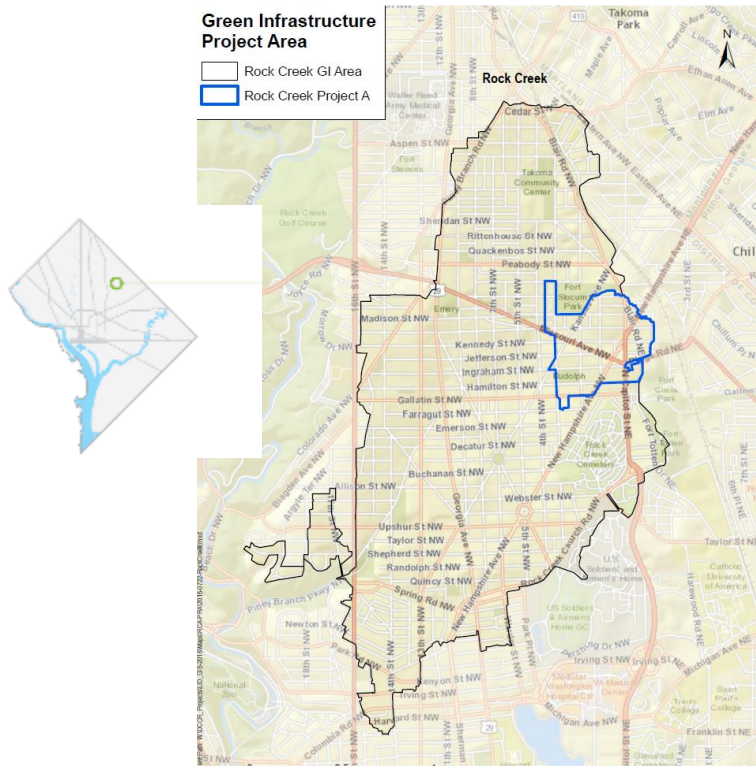
CHESAPEAKE BAY
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Saving a National Treasure



Resilience - Urban Green Infrastructure EIBs serve different purposes.

	 WASHINGTON, DC	 ATLANTA, GA	 BALTIMORE, MD
Primary Value Proposition of EIB	What is the cost-effectiveness of green vs. grey infrastructure for CSO reduction?	How can green infrastructure improve local flooding, water quality, and economic conditions?	What are the ongoing operational costs and viability associated with green infrastructure?
Size	\$25,000,000	\$14,020,000	\$6,200,000 (est.)
Term	30 years (5 year re-tender)	10 years	7 years
Placement	Private	Limited Public	Private
Structure	3-tiered	2-tiered	3-tiered
Outcome Metric	Volume capture (<i>flow / runoff</i>)	Volume capture (<i>capacity / storage</i>)	Plant survivability
Regulatory Driver?	Yes	No	Partial
Types of GI	<ul style="list-style-type: none"> • Right of way planters • Bioretention on public parks 	<ul style="list-style-type: none"> • Right of way planters • Bioretention on public parks • Stream & floodplain restoration 	<ul style="list-style-type: none"> • Right of way planters • Bioretention on public parks • Stream & floodplain restoration • Impervious surface removal

Case Study: Green Infrastructure in Washington, DC



- Replace planned grey infrastructure with green infrastructure alternatives
- Manage the volume equivalent of 1.2” of runoff from 20 impervious acres
- Meet regulatory requirements
- Enhance DC Water’s reputation for innovation, efficiency and engagement

Case Study: Green Infrastructure in Washington, DC



- Volume Management (Gallons)
 - Control Combined Sewer Overflows
- Cost Effectiveness
 - Responsibility to Rate Payers
- Maintenance/Asset Management
 - Safety, Aesthetics, Performance
- Outreach
 - Coordination with Agencies, Build Public Awareness and Stewardship
- Triple Bottom Line Benefits
 - Deliver Multiple Benefits to the Community

Case Study: Green Infrastructure in Atlanta



Objectives for the project:

- Reduce stormwater runoff for environmentally and economically distressed neighborhoods using new, impact-driven sources of financing
- Improve green space and recreation
- Advance the City's capacity to implement green infrastructure
- Showcase the City's leadership-in-action by addressing pressing environmental, social and economic equity challenges

Case Study: Green Infrastructure in Atlanta



Example of a stormwater planter “bump-out” in Southeast Atlanta

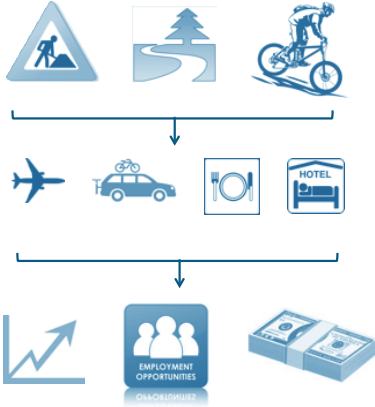
Benefits

- Manage stormwater
- Reduce local flooding
- Alleviate water quality impacts
- Provide workforce development opportunities
- Increase access to greenspace
- Connect private investment returns directly to community outcomes

Forestry - Multi-payor transaction enables mountain bike trail development in Ohio.



- **EIB Goal:** Provide much-needed up-front capital to construct new community recreation assets and engage additional possible payors who benefit from the development
- **Outcomes:** economic development, health, connectivity



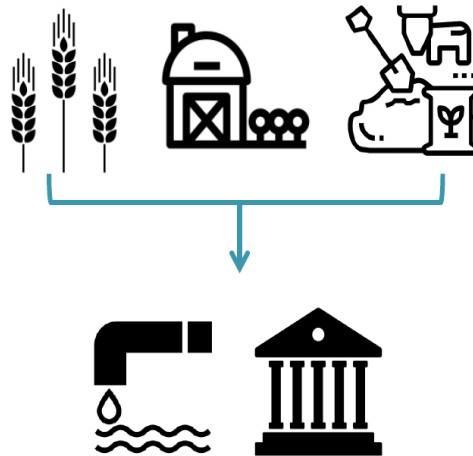
Constructing an 88-mile mountain biking trail system in southeast Ohio will lead to greater visitation and local recreation opportunities

Greater visitation will result in increased spending from local and out of town outdoor enthusiasts and increased economic activity for local communities

Increased economic activity will result in job opportunities and tax revenue

Agriculture - Best Management Practices align stakeholder incentives.

- **EIB Goal:** Deploy agricultural Best Management Practices to address water quality and flooding issues of downstream municipalities and water users
- **Outcomes:** reduced costs in addressing flooding and water quality issues



Upstream farmers implement Agricultural BMPs to reduce run-off into water systems, while raising their crops and animals more sustainably

Downstream water bodies require less treatment, reducing regulatory requirements on municipalities



Questions?

Eric Letsinger, CEO

letsinger@quantifiedventures.com



The Revolving Water Fund

Ashley Allen Jones

Founder and CEO, i2 Capital





THE REVOLVING WATER FUND

An Innovative Model to Finance Water Conservation

A PARTNERSHIP BETWEEN



WITH SUPPORT FROM



Transfer of **Risk** from Munis to Investors

\$ Investors provide pool of capital to fund conservation innovation

\$ RWF funds ag-based pollution reductions

\$ Solutions Implemented by Conservation Partners

\$ Pollution Reductions Translated into EIUs that align with regulatory standards

CONSERVATION INVESTORS

REVOLVING WATER FUND

CONSERVATION PARTNERS

ENVIRONMENTAL IMPACT UNITS

MUNICIPALITIES

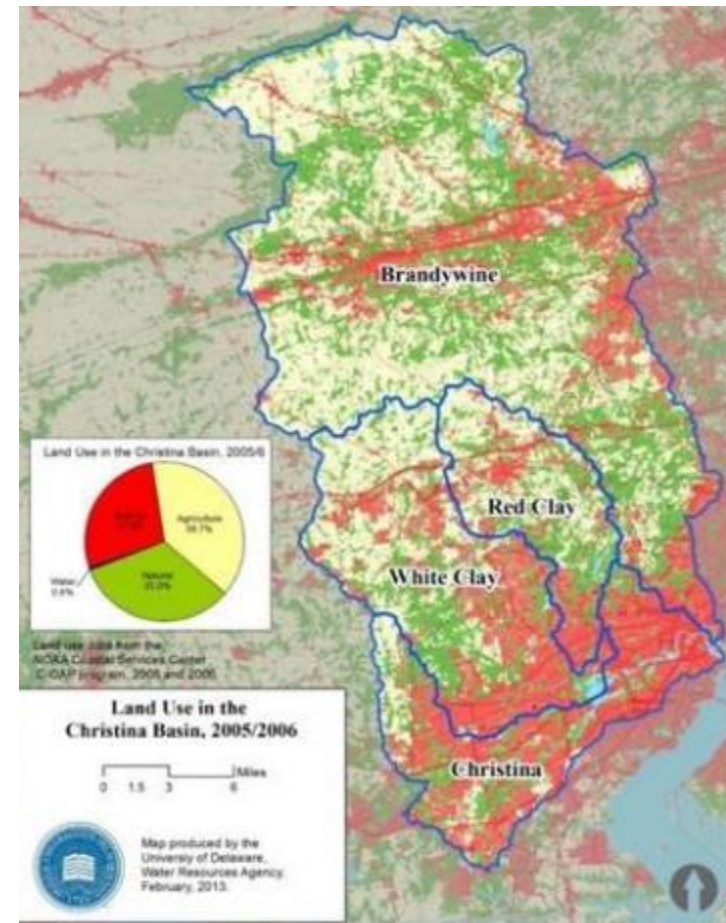
EIUs included in Plans

\$ Municipal Agreement to pay for EIUs if/when regulatory obligations satisfied

Transfer of **Liquidity** from investors to Municipalities

Municipal Challenge in the Mid-Atlantic Brandywine-Christina Watershed

- Pennsylvania Department of Environmental Protection (PADEP) requires MS4 permits for 45 of the 55 PA municipalities in the BC watershed.
- Majority of watershed “impaired” under the Clean Water Act.
- Agricultural run-off generates a substantial portion of pollutants (sediment/nutrients) flowing into rivers.
- Agriculture-based conservation solutions (BMPs) potentially offer the most cost effective approach to **meet MS4 obligations** while supporting maximum pollution reduction and watershed restoration.
- PADEP MS4 permits allow for “alternative compliance” methods.
- **Municipalities have limited capacity to meet evolving MS4 obligations.**



Source: University of Delaware Water Resources Center

Municipal Challenge in the Brandywine-Christina Watershed

Problem

Solution

Hidden costs

BMP sticker price does not include scoping, pre-construction, O&M, and cost-overruns

The Water Fund price is a total cost per pound of reduction

Budget uncertainty

Total cost unknown until after initial study is done

Knowing the price-per-pound of upstream pollution reductions lets municipalities plan ahead, and with more clarity

O&M Costs

Operation and maintenance requirements keep BMPs on municipal financial statements for years

Reducing its urban BMP portfolio means a reduction in municipal O&M obligations

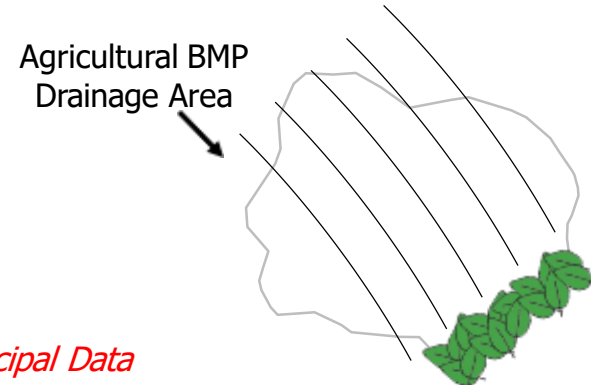
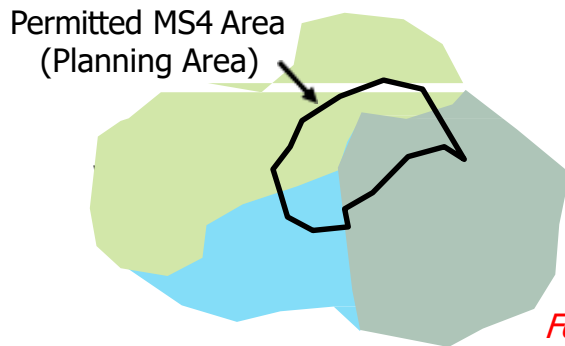
Regional approach

Focusing on urban BMPs puts all the burden on downstream entities

Using both urban and agricultural BMPs means stakeholders across the watershed are working together for pollution reduction

PA Regulatory Framework

- ✓ Municipalities submitted TMDL/PRP plans Sept 2017
- ✓ Plans are in different stages of review by PADEP
- ✓ PADEP guidance allows for Offsets and Aggregation
- ✓ All Pollution reduction quantification methods face baseline requirements (i.e., Chapter 83, 91, 92, and/or 102)
- ✓ Pollution reductions outside of the Urban Area may face threshold requirements to meet farm's portion of TMDL

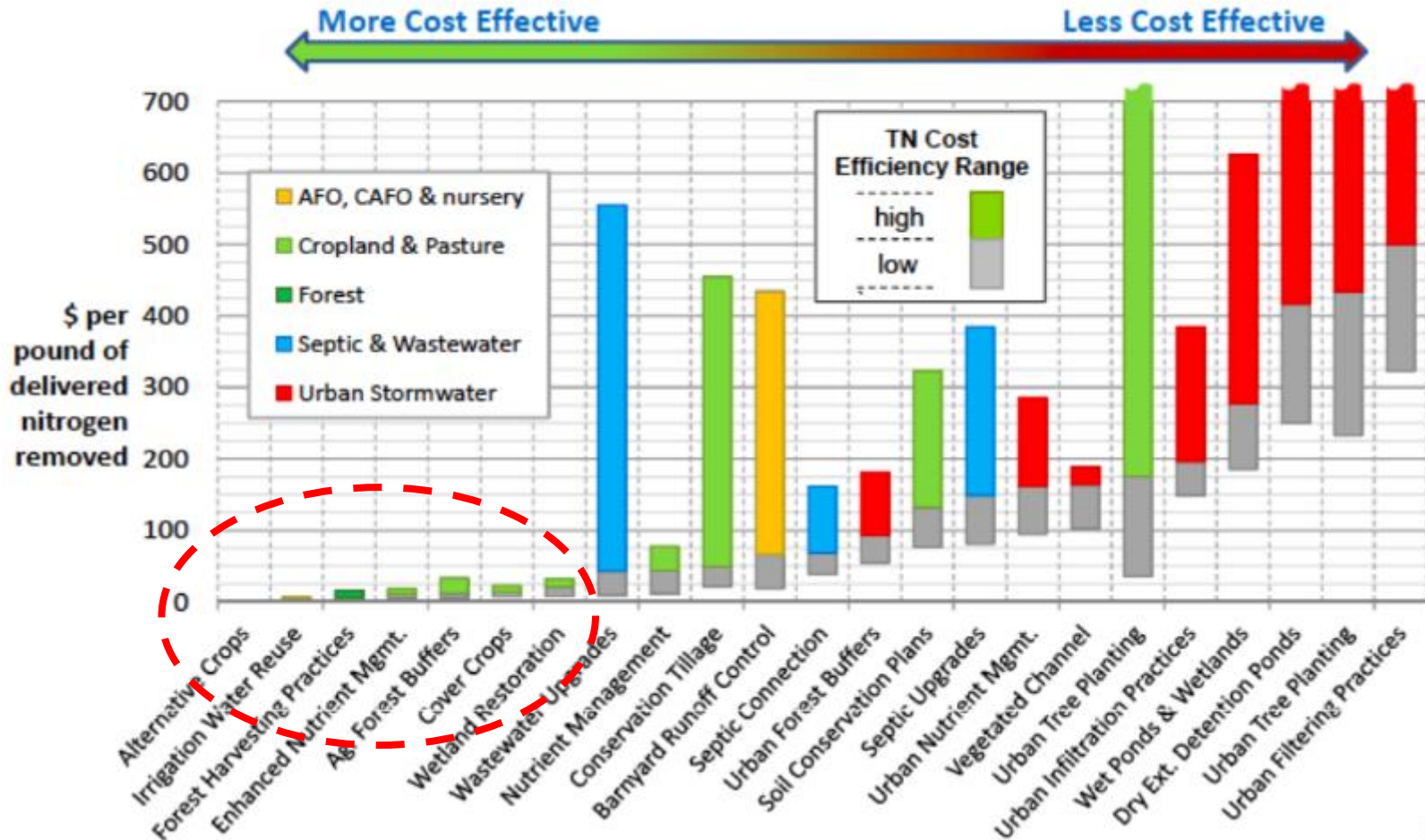


For Example Only – Not Real Municipal Data

Description	Lbs/Yr
TS Existing Load	1,000,000
TS Load Reduction Target (10%)	100,000
Stormwater BMP TS Reduction	99,000
EIU TS Reduction	1,000

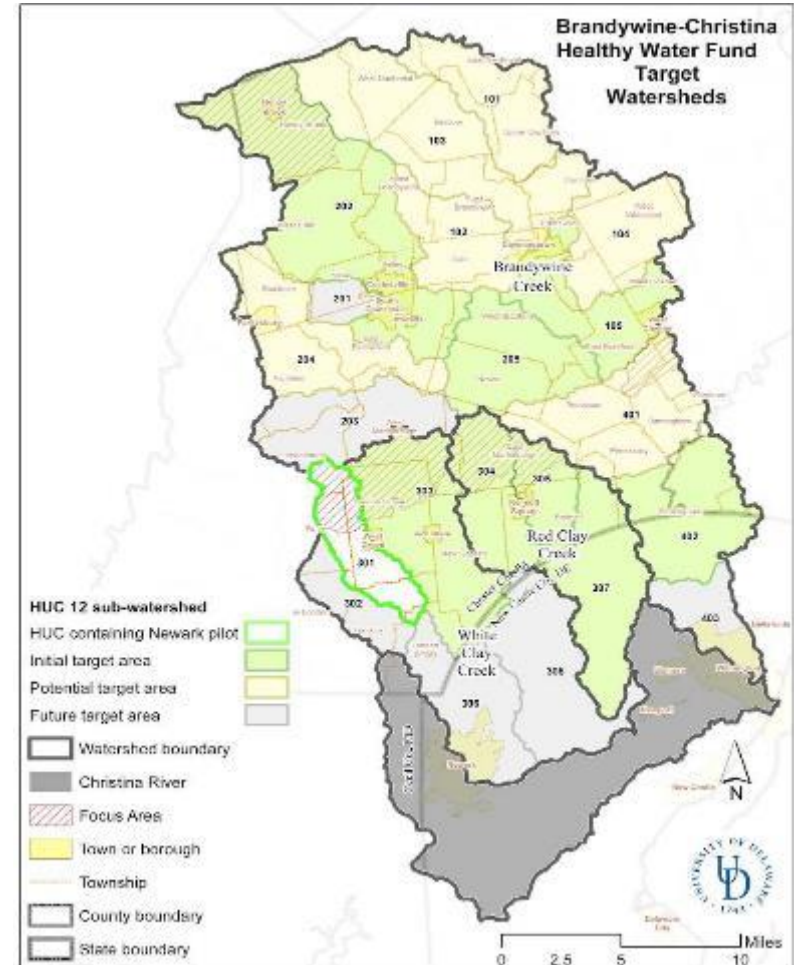
Description	Lbs/Yr
TS Existing Load	5,000
Agricultural BMP TS Reduction	4,000
TS Baseline & Threshold Reduction	3,000
EIUs Generated	1,000

As a Category, Ag-BMPs are more cost effective per pound of pollution reduction than Urban BMPs



Aggregated Conservation Solution

- Service areas based on aggregating demand in HUC-12 watersheds.
- Target HUCs with multiple municipalities that have budget and potential future demand in Urban Area with potential supply inside and out of Urban Area.
- Coordination with conservation partners to agglomerate and prioritize targeted projects.
- Benefits to farmers from implementation of Whole Farm Plans + BMPs = reduced soil erosion, improved soil health, water management
- First pilot completed (City of Newark, DE); additional pilots identified.



Load Reduction Options

- EIU reductions may be generated from any voluntary agricultural BMPs with MapShed, CAST, or NRCS effectiveness values once baseline requirements are met
- Sources of effectiveness values (i.e., MapShed, CAST, or NRCS) adjust pollutant removal rates based on project variables such as plant species, installation technique, and others
- Agricultural loading dependent on watershed and model (Simplified, MapShed, TMDL)

Cover Crops



Conservation Tillage



Riparian Buffers



Agricultural Wetlands



Sources: *Agricultural Wire*, *University of Minnesota Extension*, *Mississippi River Basin Conservation Network*, *Oregon State University*

EIU Calculation Methodology

1. Drainage Area Inputs
2. Starting Load
3. Baseline BMP Inputs
4. Baseline Load (%)
5. Voluntary BMP Inputs
6. Post-Voluntary BMP Load (%)
7. Threshold Inputs
8. Post-Threshold Load (%)
9. Delivery Ratio*/Reserve (10%)
10. Load Reduction - Planning Area

	Outside Urban Area	Inside Urban Area
1. Drainage Area Inputs	✓	✓
2. Starting Load	✓	✓
3. Baseline BMP Inputs	✓	✓
4. Baseline Load (%)	✓	✓
5. Voluntary BMP Inputs	✓	✓
6. Post-Voluntary BMP Load (%)	✓	✓
7. Threshold Inputs	✓	—
8. Post-Threshold Load (%)	✓	—
9. Delivery Ratio*/Reserve (10%)	✓	✓
10. Load Reduction - Planning Area	✓	✓

*Delaware municipalities only

Municipal Benefits

The Water Fund Municipal Benefits Calculator assesses options to replace the least cost – efficient municipal BMP options with the most cost-effective ag-based Water Fund projects.

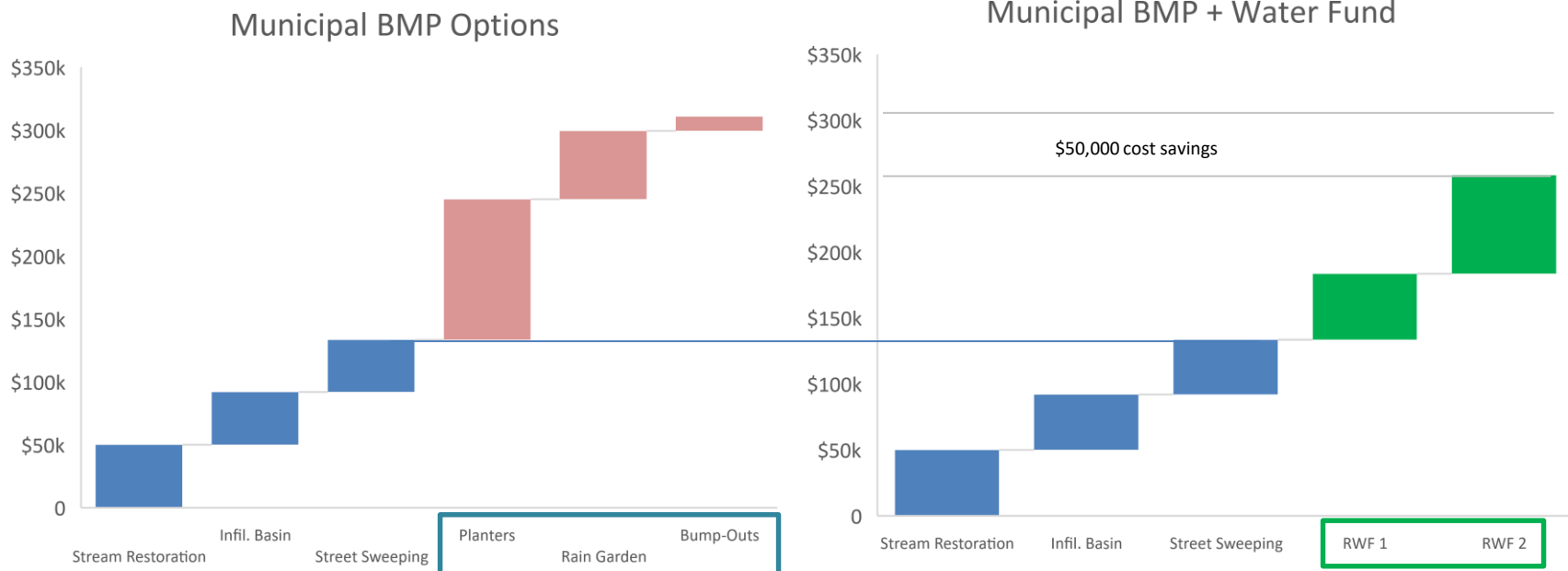
Sample output from the Benefits Calculator

0. Summary + Results			
Muni Intro		Results	
Municipality	Example	TSS reduction w/ RWF	7000
Impervious acres (UA)	45	Total cost of BMPs	\$ 173,999
TSS reduction required	18,290	Total cost of RWF	\$ 125,000
		Potential cost savings	\$ 48,999
			% of required TSS reduction replaced
			38.3%
			% of planned BMP cost replaced
			55.9%

Municipal Benefits

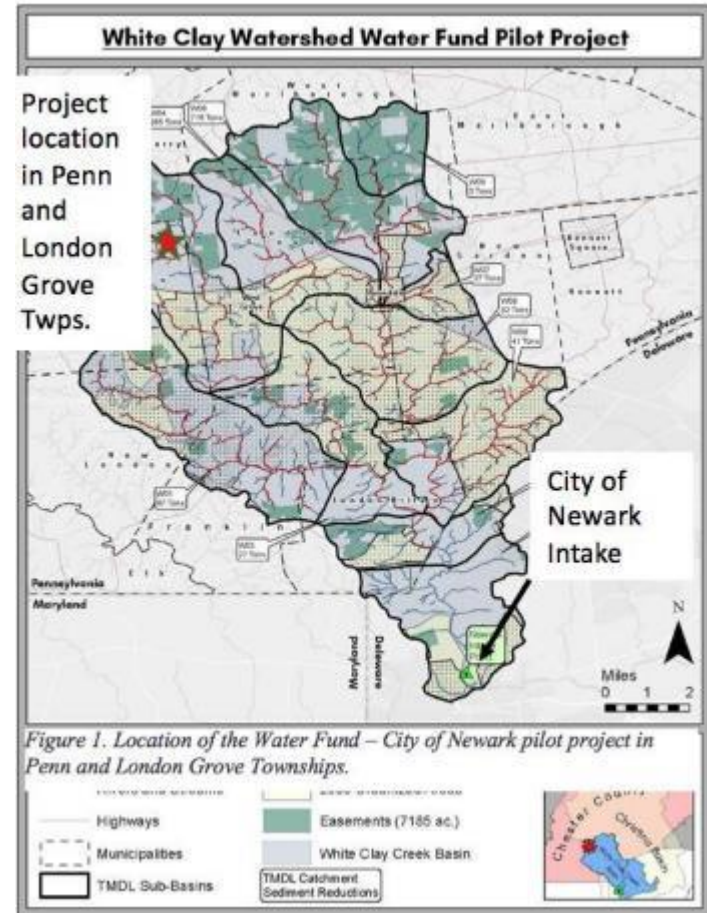
In this example, stream restoration, infiltration basin, and street sweeping are cost effective relative to the Water Fund.

Planters, rain gardens, and bump-outs are not, and are replaced with Water Fund pollution reductions

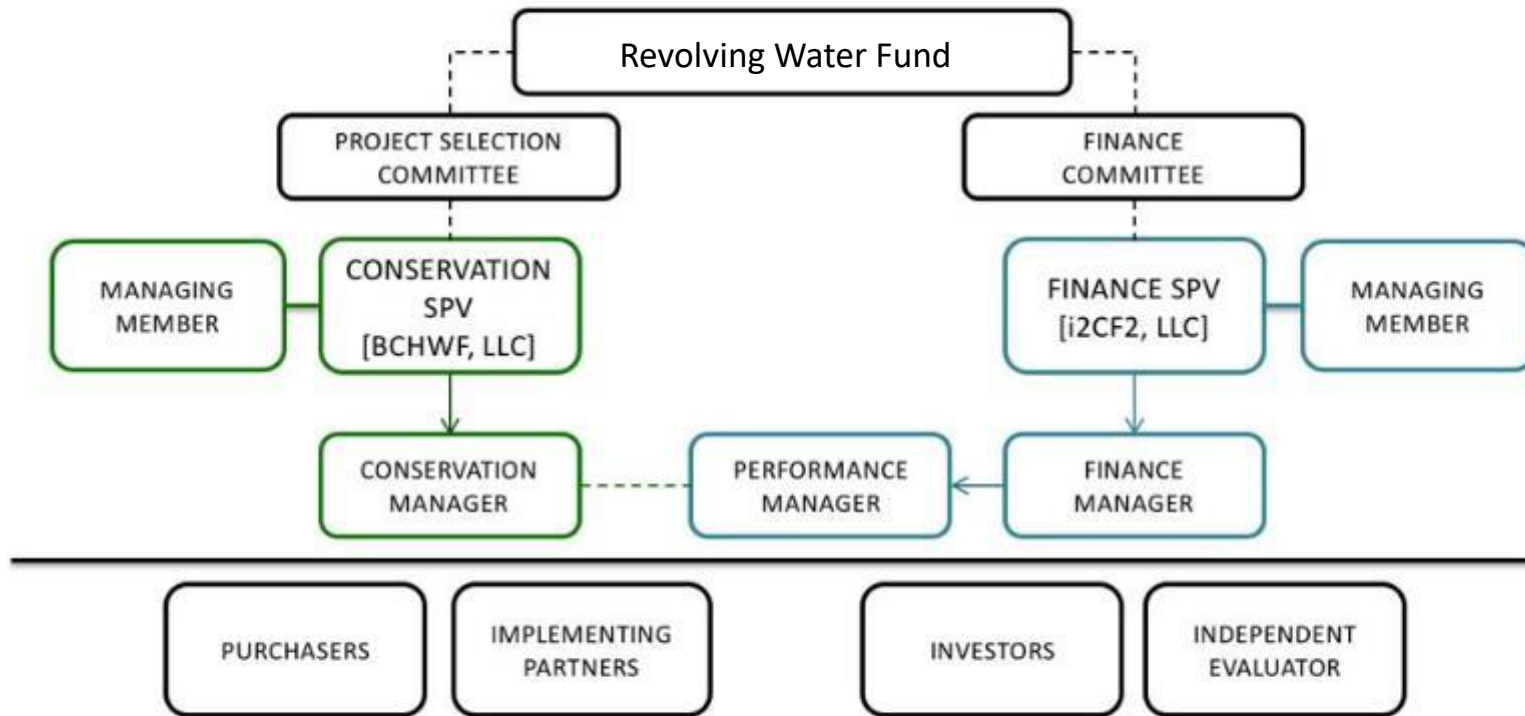


Newark Pilot I Completed June 2018

- **Provided objective:** to secure DNREC approval for MS4 compliance from an agricultural project in Pennsylvania
- Funds allocated from Source Water Protection Capital Budget
- City and other funds helped implement agricultural best management practices as well as plant 2 acres of forested headwater buffer
- **Other project funds**
 - William Penn Foundation
 - DuPont Clear into the Future
 - White Clay Wild and Scenic
 - Brandywine Conservancy (Project Manager)
- DNREC indicated the nutrients reduced were able to be written into the City of Newark MS4 Plan
- **Source Water Protection**
The permanent preservation of the 180 acre farm a \$1m investment by township, county and state funds will ensure source water protection for the City of Newark into the future.



Governance Model



 External Parties
 Finance SPV
 Conservation SPV
 - - - - Non-Governing
 — Governing
 — External

* SPV – Special Purpose Vehicle



Open Q&A



Q&A

Thank you!



Thank you for attending the webinar.