GOVERNANCE AND FINANCIAL OPTIONS REPORT

BRANDYWINE-CHRISTINA HEALTHY WATER FUND

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Governance and Financial Options Report

Brandywine Christina Healthy Watershed Fund
Draft September 2017

Background

The Nature Conservancy of Delaware (TNC) and University of Delaware Water Resources Center (UD) are supported by the William Penn Foundation (WPF) to explore the feasibility of developing a Brandywine Christina Healthy Watershed Fund (BCHWF). The objective of the water fund is to invest in restoration of the Brandywine Christina watershed cluster to meet the fishable, swimmable, and potable water quality goals of the Federal Clean Water Act and Safe Drinking Water Act by 2027. The streams in the watershed (Brandywine, Red Clay, White Clay, and Christina creeks) are impaired due to high loads of nitrogen, sediment, and pathogens (bacteria, cryptosporidium). Water purveyors in the watershed in Delaware and Pennsylvania are concerned about the difficulty and costs of treating high levels of sediment and nitrogen in the source water streams with associated concerns about health risks due to pathogen outbreaks. The premise of the water fund is that the downstream beneficiaries invest upstream in watershed services to reduce pollutant loads (Figure 1). The upstream watershed in Pennsylvania has significant economic value in the agriculture sector (Table 1).

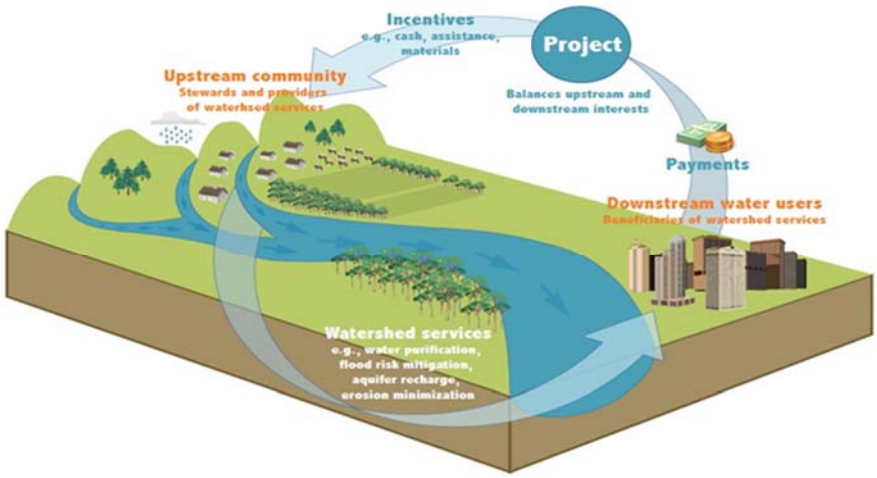


Figure 1. Investment in watershed services

Table 1. Economic value of agricultural operations in Chester County, Pennsylvania. (Chester County Agricultural Development Council, USDA National Agricultural Statistics Service.

Industry	Economic Value	Rank
Dairy farming	$73 million	6th in Pennsylvania
Horse farming	$5.2 million	22nd in United States
Nursery, greenhouse, floriculture	$79 million	1st in United States
Row crops	$8.7 million	7th in Pennsylvania
Mushroom farming	$412 million	1st in United States

Study Objectives

The objectives of this financial analysis of the Brandywine Christina Healthy Water Fund are to:

- Identify benefits/costs of watershed restoration based technical analysis and modeling.
- Analyze water fund options based on governance, organizational, and ownership issues.
- Conduct impact analysis on end-user water rates/charges by water fund contributors.

Benefit-Cost Analysis

The benefits of improved water quality due to restoration of the Brandywine Christina watershed to meet fishable, swimmable, and potable goals range from a low bound of $5.9 million to a high bound of $20.2 million annually in the water supply, forest, agriculture, navigation, and nonuse willingness to pay from clean water sectors (Table 2).

Table 2. Benefits of improved water quality in the Brandywine Christina watershed

Sector	Activity	Low Bound 2010 ($ mil)	High Bound 2010 ($ mil)
Water Supply	Reduced sediment by 4% decreases water treatment costs by 1% for withdrawals (55 mgd)	2.5	2.5
Forests	10% increase in 133,760 ac of forests reduces water treatment costs (55 mgd) by 20% ($33/mgd)	0.3	0.3
Agriculture	Reduced soil erosion and avoided loss of crop sales from 135,000 acres of farmland	0.7	7.4
Navigation	Reduced loads by 48%-56% by TMDL avoids dredging costs for 200,000 CY sediment ($8.09/CY)	0.8	0.9
Nonuse	Willingness to pay ($10.62-$60.00/person) for swimmable water quality for adult watershed population (461,000)	1.6	9.1
Total		**5.9**	**20.2**

Water purveyors in Delaware and Pennsylvania stand to save $2.5 million/year in water treatment costs through reduced sediment loads from a Brandywine Christina watershed restoration program (Table 3)

Table 3. Water treatment savings due to reduced sediment in the Brandywine Christina

State	Watershed	Purveyor	With-drawal (mgd)	Water Rate ($/ 1000 gal)	Value ($/yr)	15% Treated Water Cost ($/yr)	Sediment TMDL (%)	Water Treatment Savings ($/yr)
PA	Brandywine	PA American	4	9.21	13,446,600	2,016,990	48%	242,039
PA	Brandywine	Downingtown	2	7.65	5,584,500	837,675	48%	100,521
PA	Brandywine	AQUA PA	4	10.27	14,994,200	2,249,130	48%	269,896
DE	Brandywine	Wilmington	20	4.88	35,624,000	5,343,600	48%	641,232
			30		**69,649,300**	**10,447,395**		**1,253,687**
DE	White Clay	Newark	2	5.92	4,321,600	648,240	56%	90,754
DE	White Clay	Artesian Water	2	10.74	7,840,200	1,176,030	56%	164,644
DE	Red/White	SUEZ DE	20	6.28	45,844,000	6,876,600	56%	962,724
			24		**58,005,800**	**8,700,870**		**1,218,122**
DE	Christina	SUEZ DE	1	6.28	2,292,200	343,830	50%	42,979
Total			**55**		**129,947,300**	**25,989,460**		**2,514,788**

A technical analysis based on the USGS HSPF, SPARROW, EPA SWAT, MAPSHEDS, and SRAT models indicate the costs to reduce nitrogen and sediment loads in the Brandywine Christina watershed range from $4.4 to $5.5 million per year over the next 10 to 15 years (Table 4).

Table 4. Annual costs to reduce nitrogen and sediment in the Brandywine Christina

Watershed	Nitrogen ($ million/yr)	Sediment ($ million/yr)
Brandywine	1.6	0.5
Red Clay	1.4	1.3
White Clay	2.0	2.6
Christina	0.5	No DE TMDL
Brandywine-Christina	**5.5**	**4.4**

1. Capital cost financed @ 3% interest rate and 10-15 year term.
2. Gross annual P + I payment. 3 Includes land conservation costs.

The annual benefits ($5.9-$20.2 million) of watershed restoration exceed the costs ($4.4-$5.5 million), therefore net benefits (B-C) range from $1.5-$14.7 million/year (Table 5.).

Table 5. Benefits/costs of improved water quality in the Brandywine Christina watershed

Parameter	Low Bound ($ mil/yr)	High Bound ($ mil/yr)
Benefits (B)	5.9	20.2
Costs (C)	4.4	5.5
Net Benefits (B-C)	**1.5**	**14.7**

Ownership and Institutional Criteria

The feasibility of water funds is based on ownership and institutional criteria such as:

- Implementation of watershed restoration projects
  - Guarantee of dependable delivery of projects & services
  - Efficiency and economics in implementing watershed restoration projects
- Allocation of costs among users/beneficiaries
  - Equity of apportionment of costs & related services
  - Beneficiaries (water purveyors) that make financial obligation,obtain capacity rights
- Financing of improvements
  - Ability to obtain tax-exempt financing
  - Ability to obtain guarantees (take or pay) from customers
  - Support from states, county, and local governments

Water Fund Ownership Options

TNC and UD evaluated the feasibility of the following water fund options based on institutional, governance, and economic criteria (Table 6):

- Non Profit Corporation(LLC)
- Non Profit Watershed Organization(s)
- Water Utility Ownership (Consortium)
- Public Corporation

Table 6. Water fund ownership options

Water Fund Option	Institutional	Board Governance	Economics ($/yr)
Non Profit Corporation(LLC)	Independent nonprofit entity with new staff/offices	Watershed cluster members/water purveyors	Administrative need: $250,000
Non Profit Watershed Organization(s)	Hosted by existing nonprofit organization	Watershed cluster members/water purveyors	Annual administrative need: $25,000
Water Utility Ownership (Consortium)	Hosted by existing water purveyor	Board of consortium of water purveyors	Annual administrative need: $25,000
Public Corporation	Hosted by existing firm such as bank or trust	Board composed of watershed cluster members	Annual administrative need: $100,000

Non Profit Corporation (LLC)

The water fund would be run by an autonomous nonprofit corporation with new offices and staff at a Year 1 administrative cost of $250,000. The LLC option was recommended by legal counsel as it provides a legally enforceable framework to adhere to investment protocols (Table 7). The independent nonprofit LLC would seek to avoid conflicts of interest with existing nonprofits with the potential to be acceptable to the implementing partners because it is not controlled by another nonprofit. By contractual agreement, the LLC can be staffed by new personnel and hosted within an existing nonprofit. The LLC

model may require new legislation or charter agreements, creation of new administrative structures, and operational capability may need to be ramped up (hire new staff and lease new offices.

Table 7. Non profit corporation (LLC) considerations

Option	Advantages	Disadvantages
Non Profit Corporation (LLC)	▪ Recommended by pro-bono legal counsel and TNC legal department ▪ Provides legally enforceable framework to assure adherence to investment protocols ▪ Avoids conflicts of interest and political entanglements inherent with existing watershed non-profits ▪ Acceptable to implementing partners because not controlled by another non-profit ▪ Brings professional business standards and operational certainty not typically associated with non-profit organizations ▪ Readily replicable and scalable across multiple watersheds ▪ Allows for apportionment of tax benefits (including profits and losses) among beneficiaries and interest holders ▪ Flexible and permissive business structure capable of adaptation to multiple situations and uses ▪ By contractual agreement, can be minimally staffed by existing or new personnel from non-profit entity	▪ May require new enabling legislation ▪ Creation of new administrative structures ▪ Operational capability may need to be "ramped-up"

Non Profit Watershed Organization

The water fund would be hosted by the administrative and budget staff of an existing nonprofit watershed organization such as the Brandywine Red Clay Alliance or Partnership for the Delaware Estuary. The BRCA has offered to host the water fund as an incubator in the first few years of operation. The PDE operates the successful Schuylkill Action Network in the adjacent watershed to the north that awards $500,000 in annual funding. Nonprofit watershed organizations have a long term familiarity with the watershed, have earned trust yet independence from customers (water providers), and maintain existing in house budget and financing capability as an incubator of long term water fund solution (Table 8).

Table 8. Non profit watershed organization considerations

Option	Advantages	Disadvantages
Non Profit Watershed Organization(s)	▪ Long term familiarity with watershed ▪ Trust yet independence from customers (water utilities) ▪ Existing in house budget and financing capability as incubator	▪ High potential for actual of perceived conflicts of interest ▪ Not palatable to other non-profits who compete for visibility and funding ▪ No actual and/or practical legal enforceability ▪ Lacks professional operating standards typically employed by private business ▪ Operational capability may need to be "ramped-up" ▪ Not a new entity

Water Utility Ownership

The water fund would be hosted by the administrative and budget staff of one of the participating water providers either in sole ownership or in collaboration with other water providers in the watershed cluster (Table 9). The City of Wilmington has served in this capacity in the past as part of the water supply for New Castle County water supply committee. With experienced in house budget staff, the water provider could quickly initiate and develop the water fund and readily process revenue and expenditure transactions. A private utility would not be tax exempt and water utility with attention to the boundaries of its service area as required by the Delaware Public Service Commission or Pennsylvania Board of Public Utilities may not necessarily be regional or independent in its perspective

Table 9. Water utility ownership considerations

Option	Advantages	Disadvantages
Water Utility Ownership (either individual or consortium of utilities)	▪ Could quickly initiate/ develop project ▪ Experienced in operations and needs	▪ Private utility not tax exempt ▪ Tax-exempt financing may be difficult for private utility to obtain (need to seek bond capacity) ▪ Not "independent" or "regional" in perspective

Public Corporation

The water fund would be managed by a public corporation that would be willing to incur responsibilities with ownership and financing (Table 10).

Table 10. Public corporation considerations

Option	Advantages	Disadvantages
Public Corporation	▪ No new authority powers need be granted if proper parent organization can be found	▪ Need to identify willing organization to incur responsibilities or ownership and financing ▪ Organization will not necessarily have water expertise which would lead to staffing-up and extra costs

Water Fund Board

The water fund board would be composed of operating members from the Brandywine Christina Watershed Cluster and water providers that contribute to the water fund (Table 11).

Table 11. Water fund board members

Operating Members	Water Providers
William Penn Foundation Nature Conservancy of Delaware UD Water Resources Center Brandywine Conservancy Brandywine Red Clay Alliance Stroud Water Research Center Natural Lands Trust	City of Wilmington City of Newark SUEZ Water DE AQUA PA PA American Water Downingtown MUA

Financing Options

Finance of the water fund would be conducted initially by the beneficiaries (water providers) in accordance with the following criteria:

- Apportion contributions based on water allocations and withdrawals (mgd) by each water utility in each watershed.
- Estimate service costs which are likely to be incurred to finance each of the alternative asset configuration under consideration
- Perform sensitivity analysis based on interest rates and capital costs
- Comment on alternative modes of financing where appropriate

Water providers withdraw and treat 55 MGD from the Brandywine, Red Clay, White Clay, and Christina creeks for delivery to over 200,000 customers or 600,000 people from the Brandywine Christina watershed (Table 12).

Table 12. Water utility services by provider

State	Watershed	Purveyor	Customers	Withdrawal (mgd)
PA	Brandywine	PA American		4
PA	Brandywine	Downingtown		2
PA	Brandywine	AQUA PA		4
DE	Brandywine	Wilmington	34,150	20
				30
DE	White Clay	Newark	8,400	2
DE	White Clay	Artesian Water	49,929	2
DE	Red/White	SUEZ DE	27,252	20
				24
DE	Christina	SUEZ DE	27,252	
				55

At 100% of need ($5.5 million), the cost allocation analysis indicates that water rates would need to be accessed at $0.146/1000 gal in the Brandywine watershed to $0.388/1000 gal in the Red Clay/White Clay watershed or $8.77 to $23.29/customer/year based on 60,000 gallons per customer per year. (Table 13). At 10% of need ($550,000), water rates needed would be $0.015/1000 gal to $0.039/1000 gal or $0.88 to $2.30/customer/year (Table 14). Tables 15, 16, and 17 summarize the water rate cost allocations needed to finance the water fund.

Table 13. 100% of need - cost allocation scenario - Brandywine-Christina watershed

State	Watershed	Purveyor	With-drawal (mgd)	%	Water Rate ($/ 1000 gal)	Δ Water Rate ($/ 1000 gal)	Cost/ Customer ($/yr)	Fund ($/yr)	100% of Need ($/yr)
PA	Brandywine	PA American	4	13.3%	9.21	0.146	8.77	213,333	
PA	Brandywine	Downingtown	2	6.7%	7.65	0.146	8.77	106,667	
PA	Brandywine	AQUA PA	4	13.3%	10.27	0.146	8.77	213,333	
DE	Brandywine	Wilmington	20	66.7%	4.88	0.146	8.77	1,066,667	
			30					1,600,000	**1,600,000**
DE	White Clay	Newark	2	8.3%	5.92	0.388	23.29	283,333	
DE	White Clay	Artesian Water	2	8.3%	10.74	0.388	23.29	283,333	
DE	Red/White	SUEZ DE	20	83.3%	6.28	0.388	23.29	2,833,333	
			24					3,400,000	**3,400,000**
DE	Christina	SUEZ DE	1	100.0%	6.28	1.370	82.19	500,000	**500,000**
Total			**55**					5,500,000	**5,500,000**

Table 14. 10% of need - cost allocation scenario - Brandywine-Christina watershed

State	Watershed	Purveyor	With-drawal (mgd)	%	Water Rate ($/ 1000 gal)	Δ Water Rate ($/ 1000 gal)	Cost/ Customer ($/yr)	Fund ($/yr)	10% of Need ($/yr)
PA	Brandywine	PA American	4	13.3%	9.21	0.015	0.88	21,333	
PA	Brandywine	Downingtown	2	6.7%	7.65	0.015	0.88	10,667	
PA	Brandywine	AQUA PA	4	13.3%	10.27	0.015	0.88	21,333	
DE	Brandywine	Wilmington	20	66.7%	4.88	0.015	0.88	106,667	
			30					160,000	**160,000**
DE	White Clay	Newark	2	8.3%	5.92	0.039	2.33	28,333	
DE	White Clay	Artesian Water	2	8.3%	10.74	0.039	2.33	28,333	
DE	Red/White	SUEZ DE	20	83.3%	6.28	0.039	2.33	283,333	
			24					340,000	**340,000**
DE	Christina	SUEZ DE	1	100.0%	6.28	0.137	8.22	50,000	**50,000**
Total			**55**					550,000	**550,000**

Table 15. Cost allocation scenarios for the Brandywine-Christina Healthy Watershed Fund

Watershed	5% of Need ($/yr)	10% of Need ($/yr)	25% of Need ($/yr)	50% of Need ($/yr)	100% of Need ($/yr)
Brandywine	80,000	160,000	400,000	800,000	1,600,000
Red Clay	70,000	140,000	350,000	700,000	1,400,000
White Clay	100,000	200,000	500,000	1,000,000	2,000,000
Christina	20,000	50,000	120,000	250,000	500,000
Brandywine-Christina	**270,000**	**550,000**	**1,370,000**	**2,750,000**	**5,500,000**

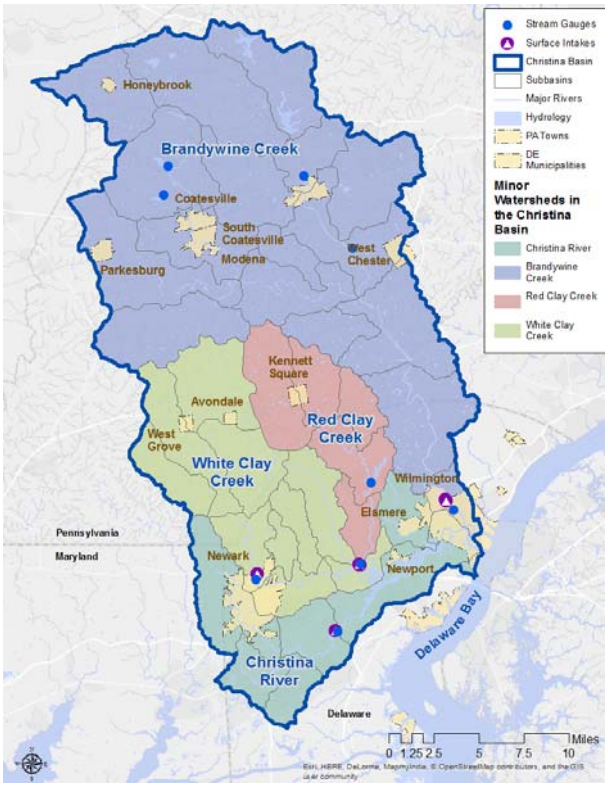
Table 16. Cost allocations ($/1000 gal) Brandywine-Christina watershed

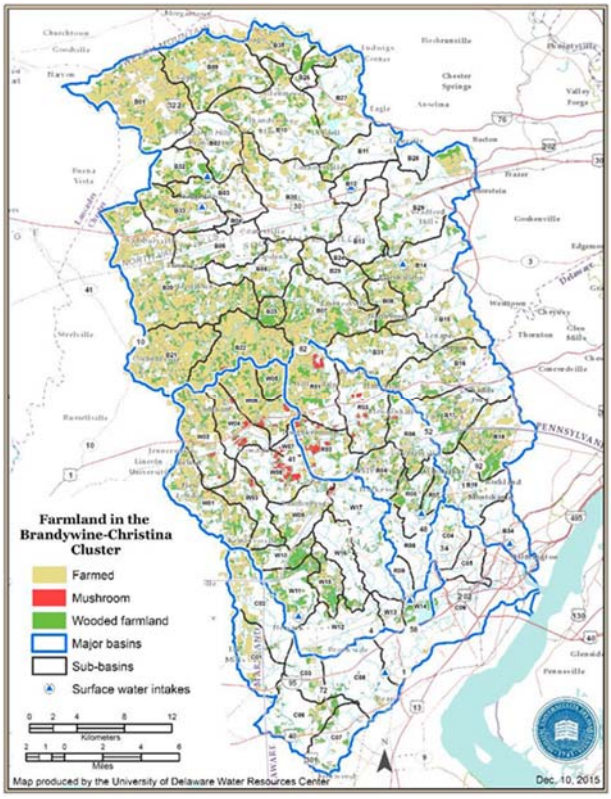
State	Watershed	Purveyor	5% of Need ($/1000 gal)	10% of Need ($/1000 gal)	25% of Need ($/1000 gal)	50% of Need ($/1000 gal)	100% of Need ($/1000 gal)
PA	Brandywine	PA American	0.007	0.015	0.037	0.073	0.146
PA	Brandywine	Downingtown	0.007	0.015	0.037	0.073	0.146
PA	Brandywine	AQUA PA	0.007	0.015	0.037	0.073	0.146
DE	Brandywine	Wilmington	0.007	0.015	0.037	0.073	0.146
DE	White Clay	Newark	0.019	0.039	0.097	0.194	0.388
DE	White Clay	Artesian Water	0.019	0.039	0.097	0.194	0.388
DE	Red/White	SUEZ DE	0.019	0.039	0.097	0.194	0.388
DE	Christina	SUEZ DE	0.055	0.137	0.329	0.685	1.370

Table 17. Cost allocations ($ per customer) Brandywine-Christina watershed

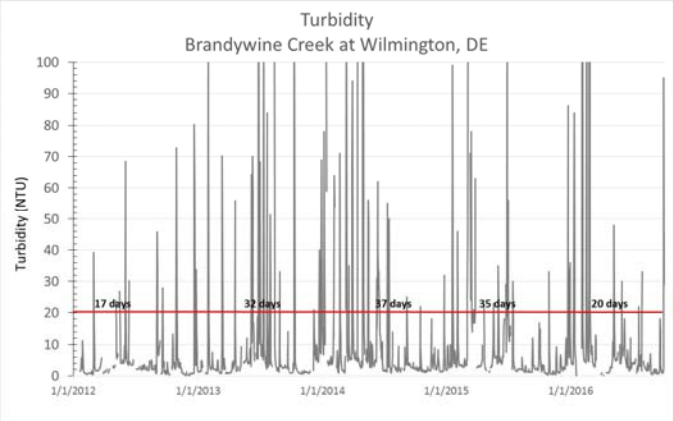
State	Watershed	Purveyor	5% of Need ($/yr)	10% of Need ($/yr)	25% of Need ($/yr)	50% of Need ($/yr)	100% of Need ($/yr)
PA	Brandywine	PA American	0.44	0.88	2.19	4.38	8.77
PA	Brandywine	Downingtown	0.44	0.88	2.19	4.38	8.77
PA	Brandywine	AQUA PA	0.44	0.88	2.19	4.38	8.77
DE	Brandywine	Wilmington	0.44	0.88	2.19	4.38	8.77
DE	White Clay	Newark	1.16	2.33	5.82	11.64	23.29
DE	White Clay	Artesian Water	1.16	2.33	5.82	11.64	23.29
DE	Red/White	SUEZ DE	1.16	2.33	5.82	11.64	23.29
DE	Christina	SUEZ DE	3.29	8.22	19.73	41.10	82.19

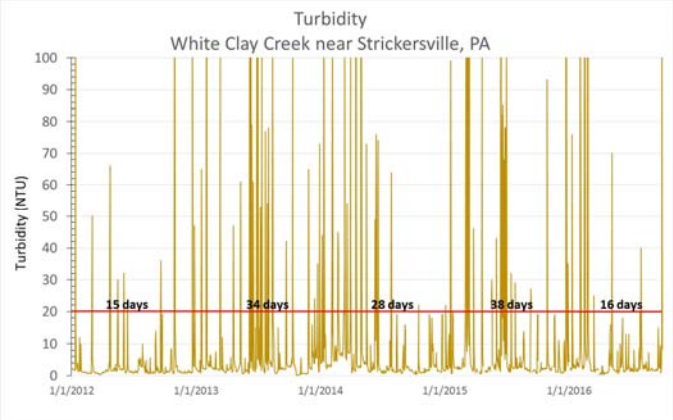
Attachment 1. Brandywine Christina Watershed Mapping

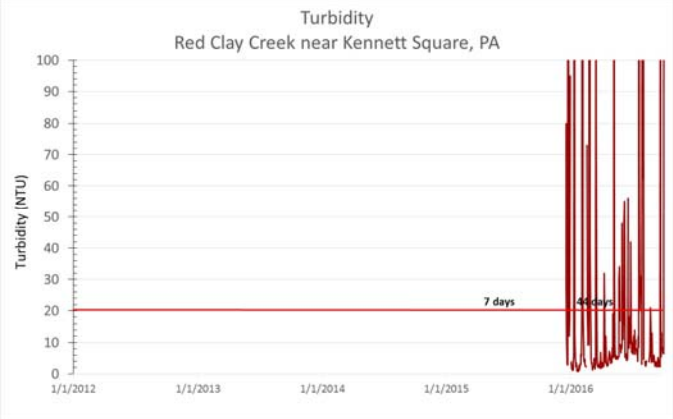




Attachment 2. Stream Turbidity Data

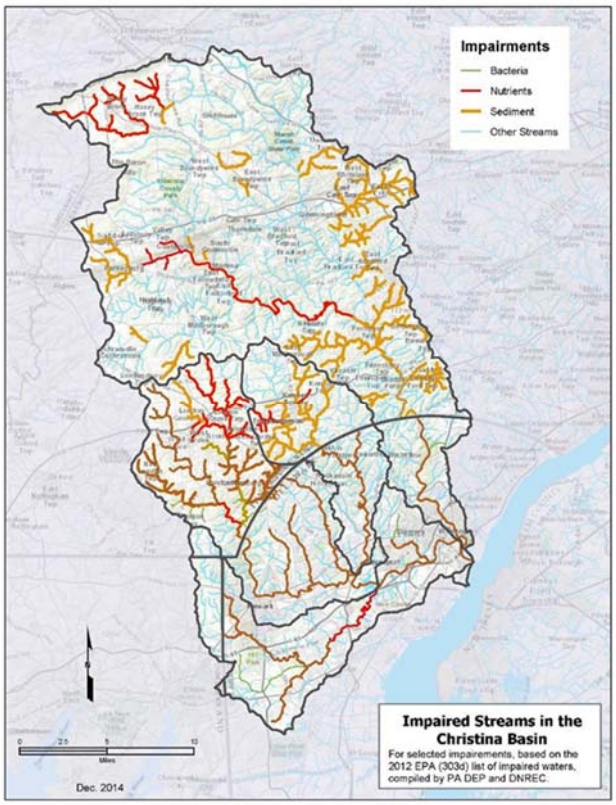






		Number of Days above Turbidity of 20 NTU					
Stream	**Water Purveyor**	**2012**	**2013**	**2014**	**2015**	**2016**	**Mean**
Brandywine Cr. at Wilmington, DE	City of Wilmington	17	32	37	35	20	28
White Clay Cr. near Stricknersville, PA	City of Newark	15	34	28	38	16	26
Red Clay Cr. near Kennett Square, PA	SUEZ DE					44	44
EB Brandywine Cr. below Downingtown, PA	AQUA PA and Downingtown	55	52	45	48	30	46
WB Brandywine Cr. at Modena, PA	PA American Water Co.	57	76	73	69	46	64

Attachment 3. Impaired Streams Map



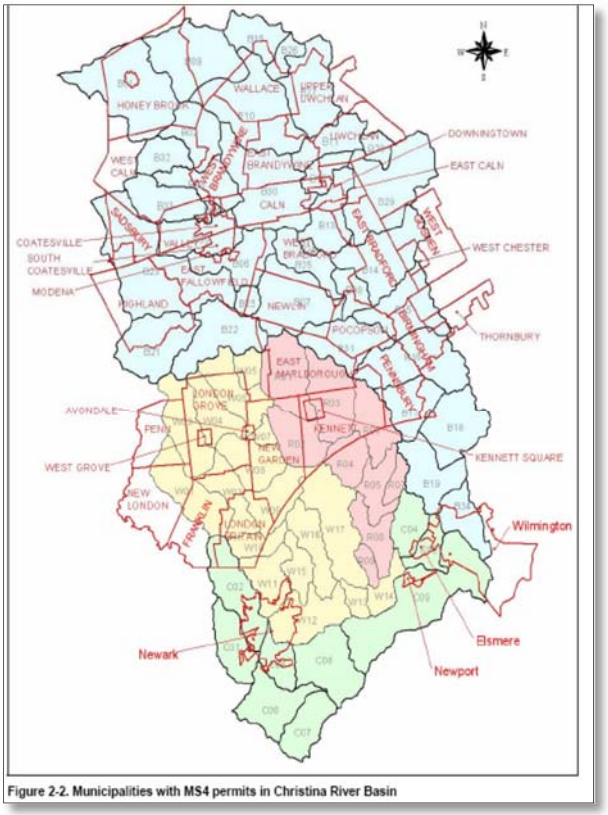
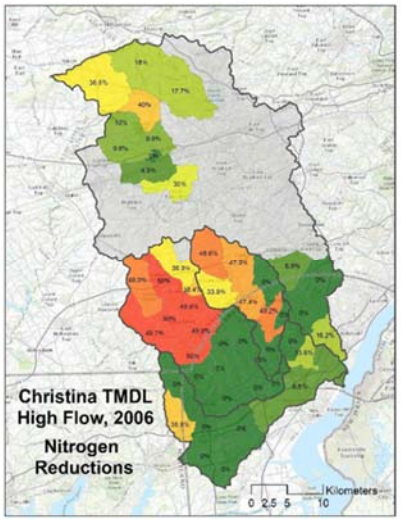
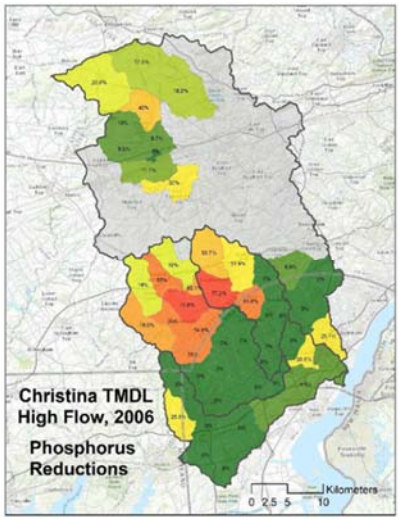
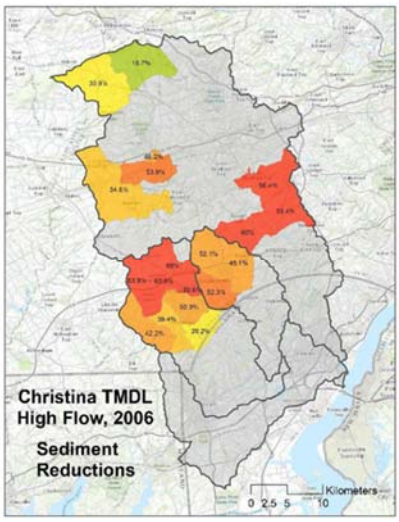


Figure 2-2. Municipalities with MS4 permits in Christina River Basin

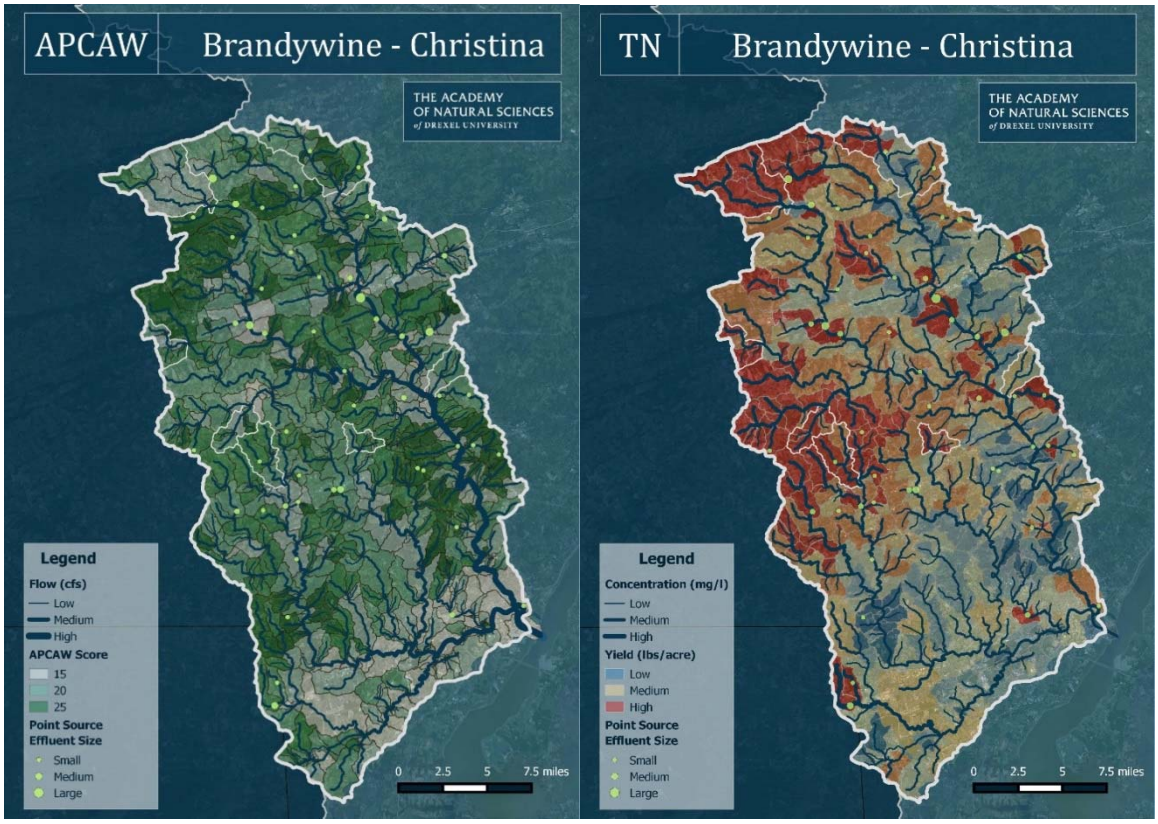
Attachment 4. TMDL Maps

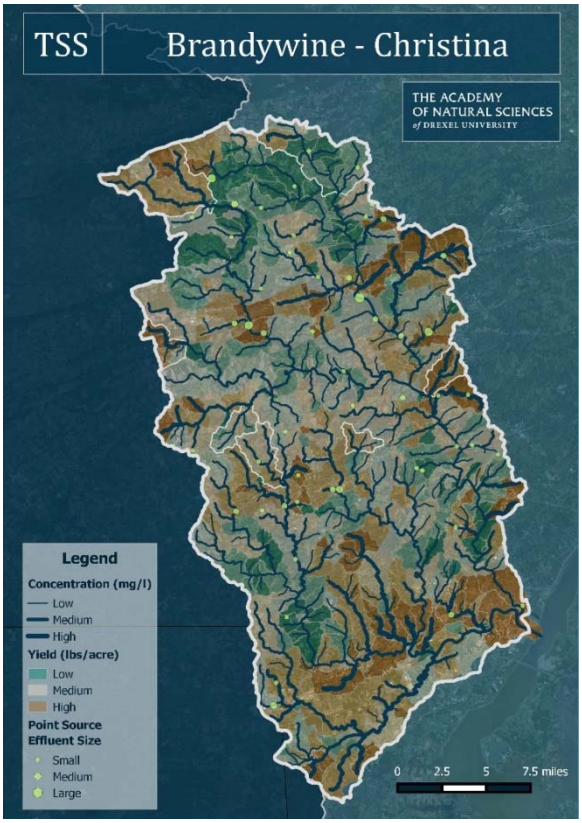




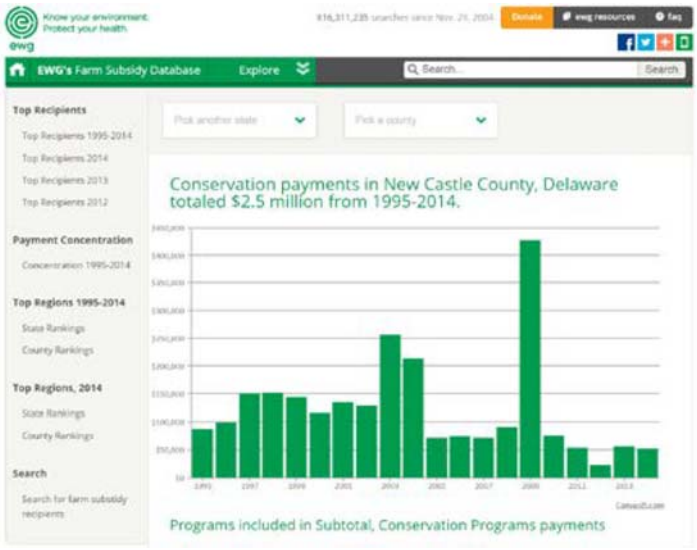


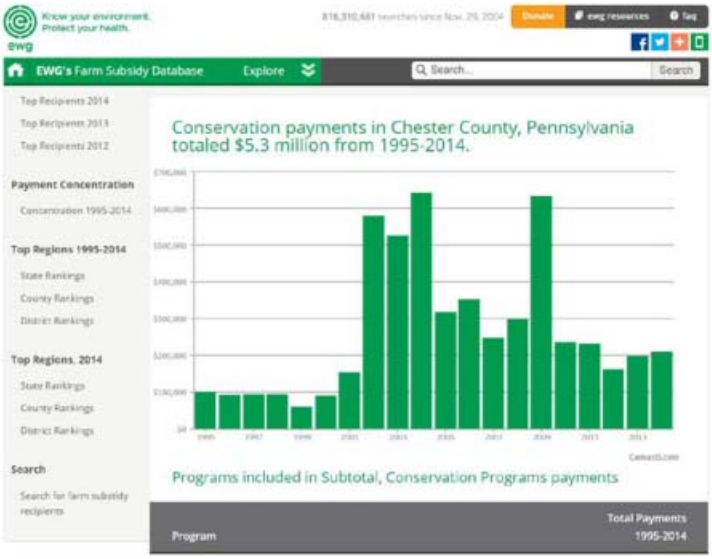
Attachment 5. SRAT Maps

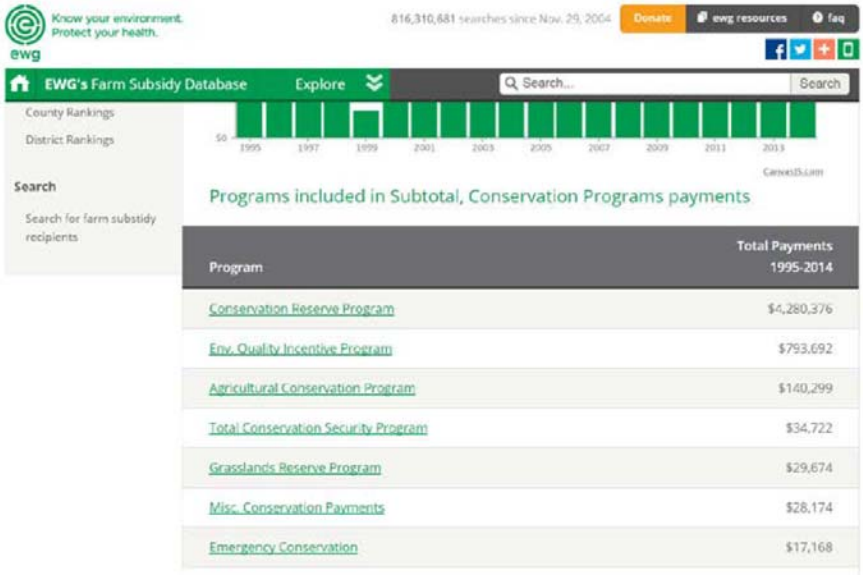




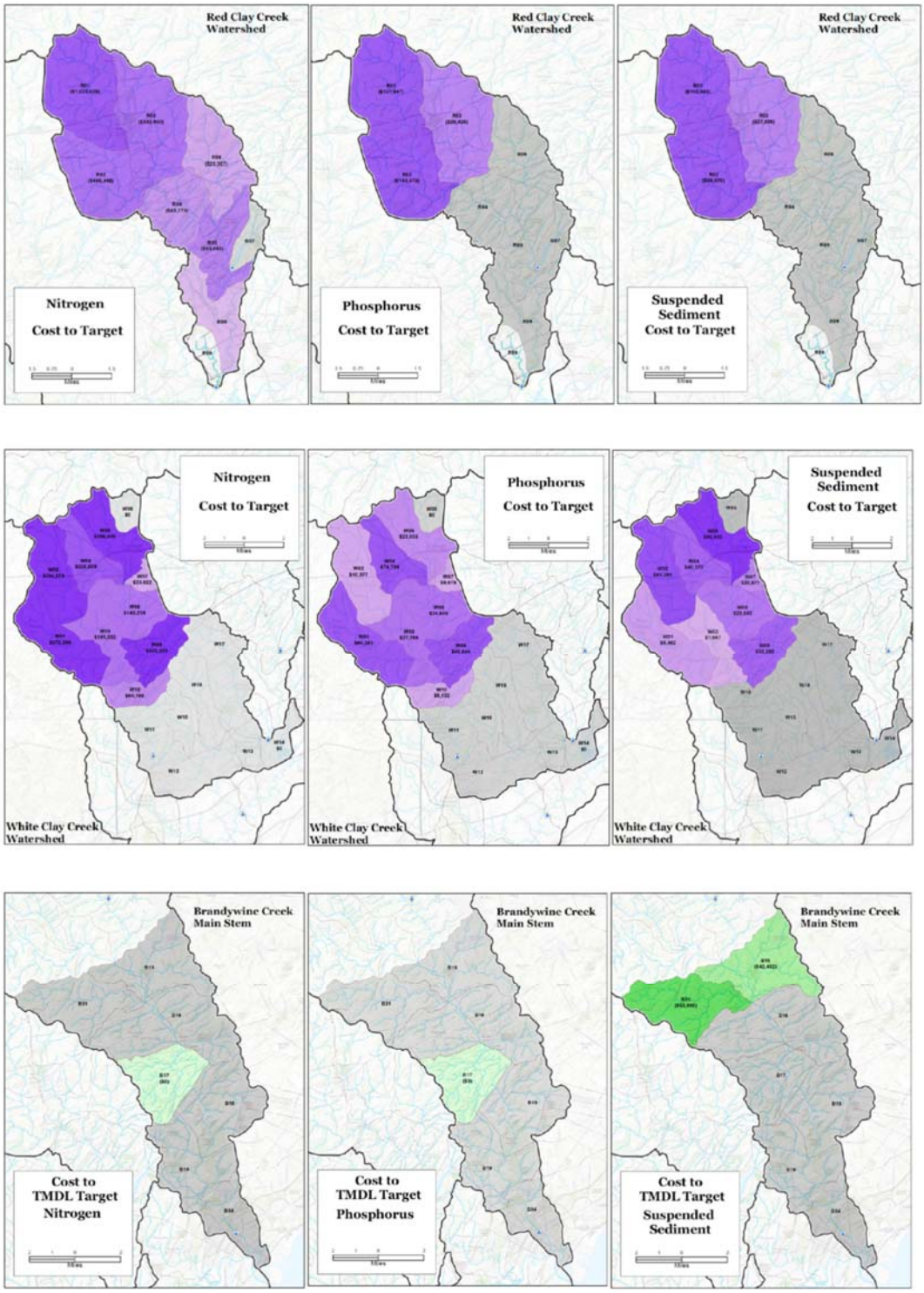
Attachment 6. USDA Conservation Payments



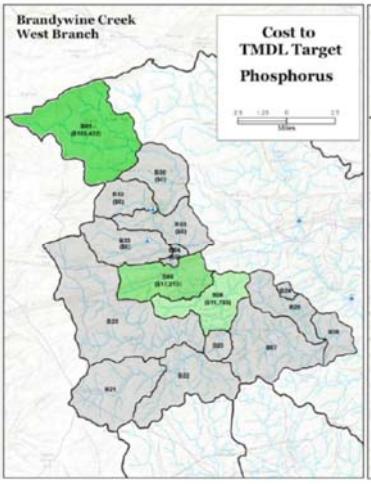


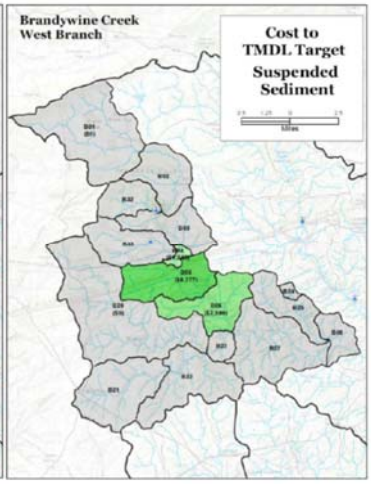


Attachment 7. TMDL Cost to Target Maps

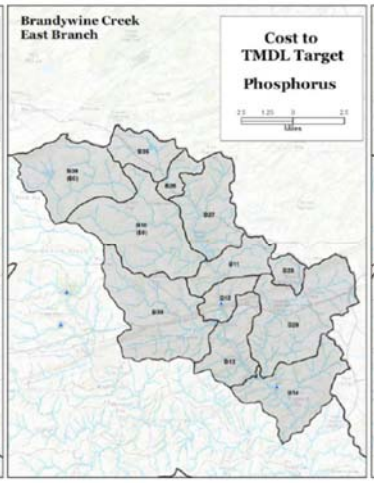



Brandywine Creek
West Branch
Cost to
TMDL Target
Nitrogen


Brandywine Creek
West Branch
Cost to
TMDL Target
Phosphorus

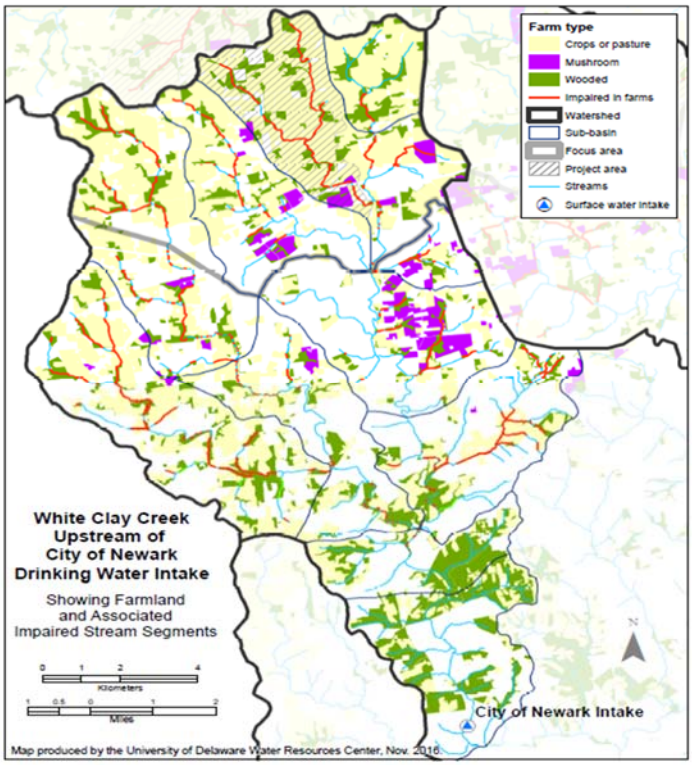

Brandywine Creek
West Branch
Cost to
TMDL Target
Suspended
Sediment

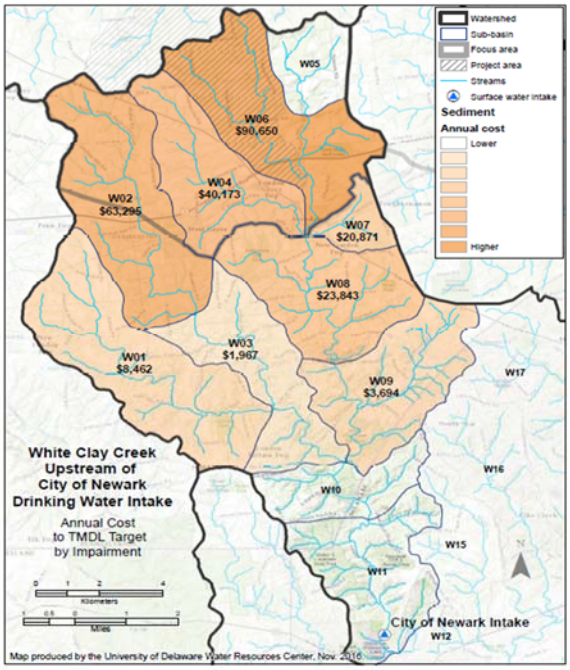

Brandywine Creek
East Branch
Cost to
TMDL Target
Nitrogen

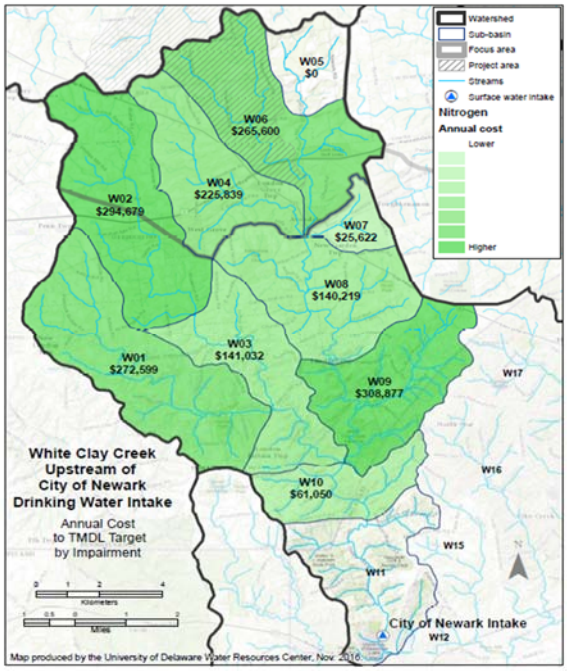

Brandywine Creek
East Branch
Cost to
TMDL Target
Phosphorus


Brandywine Creek
East Branch
Cost to
TMDL Target
Suspended
Sediment

Attachment 8. White Clay Creek Maps







Attachment 9. Cost to Treat Water

Cost·to·Treat·Water¶

http://www.ct.gov/dph/lib/dph/drinking_water/pdf/dwc_fed_fund.pdf¶

- → $2/1000gal·=·$2000/1Mgal¶
- → This·is·to·treat·and·deliver·water;·lower·for·larger·water·systems·and·higher·for·smaller·ones¶
- → About·15%·of·this·cost·is·for·treatment:·$0.30/1000gal·=·$300/1Mgal¶
- → Average:·100gal/person/day·=·$73/person/yr;·treatment·alone·(15%)·=·$10.95/person/yr¶

Cost·/·Energy·Required·to·Pump·Water¶

http://cetulare.ucanr.edu/files/82040.pdf¶

- → Energy·Required·=·Weight·of·water·x·feet·of·lift¶

Table 1. The Amount of Energy in Kilowatt-Hours (kWh) Required to Lift One Acre-foot of Water (325,851 gallons) One Foot of Elevation

Overall Plant Efficiency (%)	Energy to Lift One Acre-foot (325,851 gallons) One Foot in Elevation (kWh)	Cost to Lift One Acre-Foot One Foot in Elevation ($0.10/kWh)
100	1.02	$.102
75	1.37	.137
70	1.46	.146
65	1.58	.158
60	1.71	.171
55	1.86	.186
50	2.05	.205
45	2.28	.228
40	2.56	.256

¶

Energy·and·Cost·Example·Calculations¶

- → Cost·to·pump·3M·gallons·100ft·(100%·efficiency):¶
  - → 9.39·kWh/ft·→·939·kWh/100ft¶
  - → (if·$0.10/kWh)·cost·=·$93.90·to·pump·3M·gallons·100ft¶
- → Cost·to·pump·3M·gallons·100ft·(75%·efficiency):¶
  - → 12.61·kWh/ft·→·1261·kWh/100ft¶
  - → (if·$0.10/kWh)·cost·=·$126.10·to·pump·3M·gallons·100ft¶

Attachment 10. Cost of Implemented Agricultural BMPs

Table 6.13-- MapShed BMPs with unit cost range.

Type	Unit	Unit Cost Low	Unit Cost High
Cover crops	ha	$ 86.49	$ 128.49
No till	ha	$ 6.72	$ 98.84
Contouring	ha	$ 12.36	$ 24.71
Nutrient management	ha	$ 7.41	$ 24.71
Riparian forest buffer	km	$ 40.36	$ 371.89
Animal fencing	km	$ 2,405.11	$ 2,405.11

Table 6.14 -- Total implemented cost of agricultural BMPs as of 2012 in the Red Clay Creek watershed.

Sub-shed	Cover crops	No till/conservation till	Nutrient management	Riparian buffer	Stream fencing	TOTAL
R01	$ 14,393	$ 35,337	$ 1,413	$ 185	$ 3	$ 51,331
R02	$ 7,535	$ 18,500	$ 740	$ 185	$ 3	$ 26,962
R03	$ 8,459	$ 20,769	$ 831	$ 143	$ -	$ 30,202
R04	$ 2,526	$ 6,202	$ -	$ 53	$ -	$ 8,780
R05	$ 1,688	$ 4,143	$ -	$ 37	$ -	$ 5,868
R06	$ 5,181	$ 12,720	$ 254	$ 211	$ -	$ 18,367
R07	$ 462	$ 1,135	$ -	$ 48	$ -	$ 1,644
R08	$ 387	$ 950	$ -	$ 5	$ -	$ 1,342
R09	$ -	$ -	$ -	$ -	$ -	$ -
Totals	**$ 40,631**	**$ 99,755**	**$ 3,239**	**$ 867**	**$ 5**	**$ 144,496**

Table 6.15 -- Total implemented cost of agricultural BMPs as of 2012 in the White Clay Creek watershed.

Sub-shed	Cover crops	No till/conservation	Nutrient management	Riparian buffer	Stream fencing	TOTAL
W01	$ 12,458	$ 30,586	$ 372	$ 804	$ -	$ 44,220
W02	$ 13,683	$ 33,595	$ 409	$ 804	$ -	$ 48,491
W03	$ 5,525	$ 13,565	$ 165	$ 392	$ -	$ 19,646
W04	$ 8,438	$ 20,716	$ -	$ 515	$ -	$ 29,670
W05	$ 5,471	$ 13,433	$ -	$ -	$ -	$ 18,904
W06	$ 15,607	$ 38,319	$ 233	$ 680	$ -	$ 54,839
W07	$ 881	$ 2,164	$ -	$ 103	$ -	$ 3,148
W08	$ 5,579	$ 13,697	$ -	$ 495	$ -	$ 19,770
W09	$ 4,386	$ 10,767	$ -	$ 536	$ 4,810	$ 20,499
W10	$ 2,214	$ 5,436	$ -	$ 186	$ -	$ 7,836
W11	$ 2,461	$ 6,043	$ -	$ 103	$ -	$ 8,608
W12	$ 1,408	$ 3,457	$ -	$ 289	$ -	$ 5,154
W13	$ 86	$ 211	$ -	$ -	$ -	$ 297
W14	$ -	$ -	$ -	$ -	$ -	$ -
W15	$ 3,407	$ 8,366	$ -	$ 41	$ -	$ 11,814
W16	$ 806	$ 1,979	$ -	$ 82	$ -	$ 2,868
W17	$ 1,752	$ 4,302	$ -	$ 165	$ -	$ 6,219
Totals	**$ 84,163**	**$ 206,636**	**$ 1,180**	**$ 5,194**	**$ 4,810**	**$ 301,983**

Table 6.16-- Total implemented cost of agricultural BMPs as of 2012 in the Brandywine Creek, Main Stem watershed.

Sub-shed	Cover crops	No till/conservation	Nutrient management	Riparian buffer	Stream fencing	TOTAL
B15	$ 5,976	$ 14,673	$ 89	$ 515	$ -	$ 21,254
B16	$ 6,675	$ 16,388	$ 100	$ 515	$ -	$ 23,678
B17	$ 3,977	$ 9,764	$ 59	$ 371	$ -	$ 14,172
B18	$ 204	$ 501	$ -	$ 2,102	$ -	$ 2,808
B19	$ 1,795	$ 4,407	$ -	$ 907	$ -	$ 7,109
B31	$ 8,481	$ 20,822	$ 127	$ 453	$ -	$ 29,883
B34	$ -	$ -	$ -	$ -	$ -	$ -
Totals	**$ 27,109**	**$ 66,556**	**$ 375**	**$ 4,864**	**$ -**	**$ 98,905**

Table 6.17-- Total implemented cost of agricultural BMPs as of 2012 in the Brandywine Creek, West Branch watershed.

Sub-shed	Cover crops	No till/conservation	Nutrient management	Riparian buffer	Stream fencing	TOTAL
B01	$ 26,603	$ 65,316	$ 398	$ 1,270	$ 72	$ 93,659
B02	$ 4,482	$ 11,005	$ 67	$ 447	$ 24	$ 16,025
B03	$ 3,741	$ 9,184	$ 56	$ 412	$ 24	$ 13,417
B04	$ 64	$ 158	$ 1	$ -	$ -	$ 224
B05	$ 2,709	$ 6,650	$ 40	$ 662	$ 48	$ 10,109
B06	$ 5,353	$ 13,142	$ 80	$ 482	$ 24	$ 19,082
B07	$ 16,328	$ 40,087	$ 244	$ 1,340	$ 144	$ 58,142
B08	$ 6,030	$ 14,805	$ 90	$ 346	$ 48	$ 21,320
B20	$ 38,169	$ 93,712	$ 570	$ 2,566	$ 241	$ 135,258
B21	$ 23,604	$ 57,953	$ 353	$ 1,639	$ 120	$ 83,669
B22	$ 24,314	$ 59,695	$ 363	$ 1,453	$ 120	$ 85,945
B23	$ 2,472	$ 6,070	$ 37	$ 136	$ 24	$ 8,739
B24	$ 43	$ 106	$ 1	$ 70	$ -	$ 219
B25	$ 4,429	$ 10,873	$ 66	$ 554	$ 48	$ 15,970
B32	$ 3,171	$ 7,785	$ 47	$ 276	$ 24	$ 11,304
B33	$ 7,417	$ 18,209	$ 111	$ 482	$ 24	$ 26,243
Totals	**$ 168,929**	**$ 414,750**	**$ 2,524**	**$ 12,136**	**$ 986**	**$ 599,325**

Table 6.18 -- Total implemented cost of agricultural BMPs as of 2012 in the Brandywine Creek, East Branch watershed.

Sub-shed	Cover crops	No till/conservation	Nutrient management	Riparian buffer	Stream fencing	TOTAL
B09	$ 19,520	$ 47,925	$ 292	$ 581	$ 72	$ 68,390
B10	$ 12,264	$ 30,111	$ 183	$ 719	$ 96	$ 43,375
B11	$ 2,623	$ 6,439	$ 39	$ 105	$ -	$ 9,206
B12	$ 408	$ 1,003	$ 6	$ 64	$ -	$ 1,481
B13	$ 1,559	$ 3,827	$ 23	$ 266	$ -	$ 5,674
B14	$ 9,190	$ 22,564	$ 137	$ 435	$ -	$ 32,326
B26	$ 1,537	$ 3,774	$ 23	$ 132	$ -	$ 5,466
B27	$ 6,170	$ 15,148	$ 92	$ 575	$ -	$ 21,985
B28	$ 43	$ 106	$ 1	$ 47	$ -	$ 197
B29	$ 6,224	$ 15,280	$ 93	$ 344	$ -	$ 21,941
B30	$ 9,878	$ 24,253	$ 148	$ 660	$ -	$ 34,938
B35	$ 7,212	$ 17,708	$ 108	$ 303	$ -	$ 25,331
Totals	**$ 76,629**	**$ 188,136**	**$ 1,145**	**$ 4,232**	**$ 168**	**$ 270,310**

Table 6.19 -- Summary of agricultural BMP investment as of 2012 in the watersheds of the Brandywine-Christina Basin.

Watershed	Ag BMP Cost
Red Clay	$144,496
White Clay	$301,983
Main Stem Brandywine	$98,905
West Branch Brandywine	$599,325
East Branch Brandywine	$270,310
Brandywine-Christina Total	**$1,415,020**

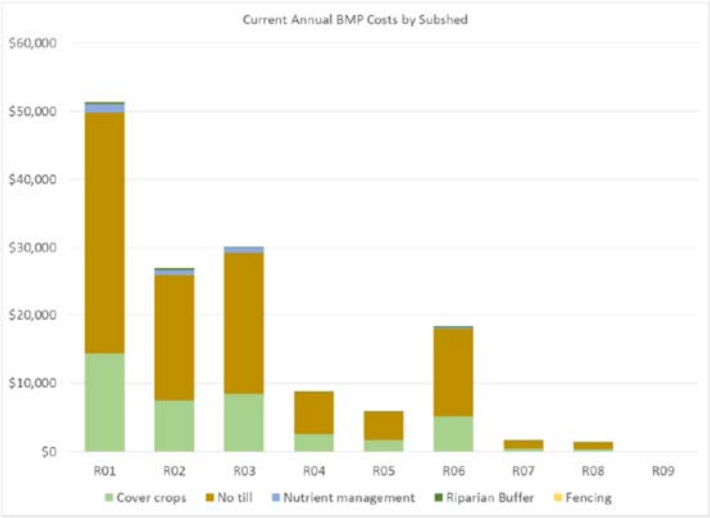


Figure 6.27 -- Total agricultural BMP investments in 2012 by catchment in the Red Clay Creek watershed.

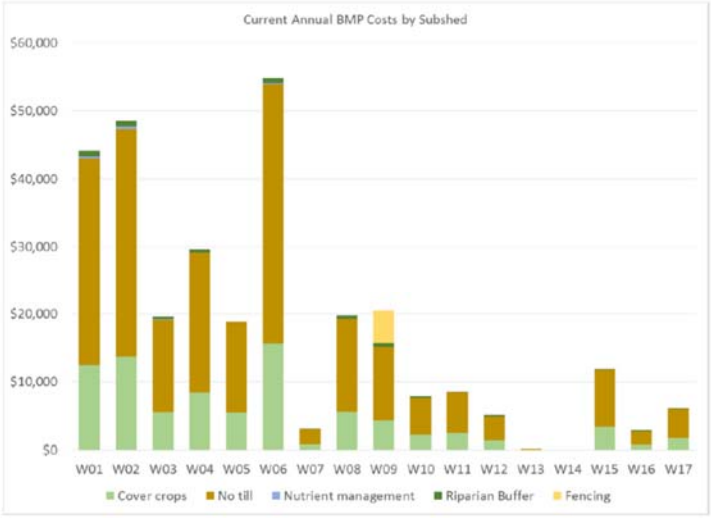


Figure 6.28 -- Total agricultural BMP investments in 2012 by catchment in the White Clay Creek watershed.

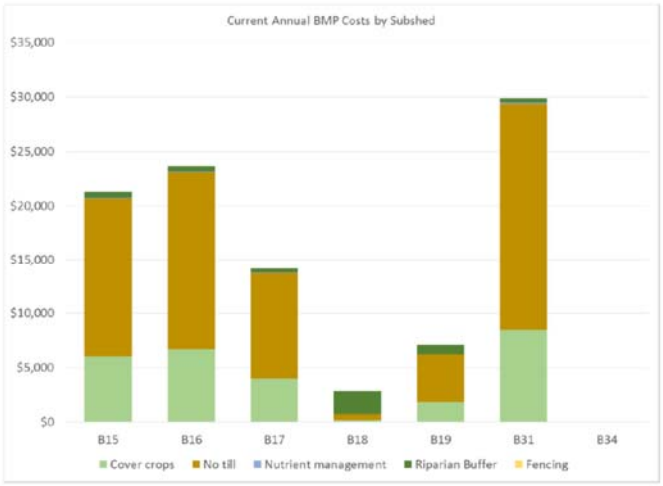


Figure 6.29 -- Total agricultural BMP investments in 2012 by catchment in the Brandywine Creek, Main Stem watershed.

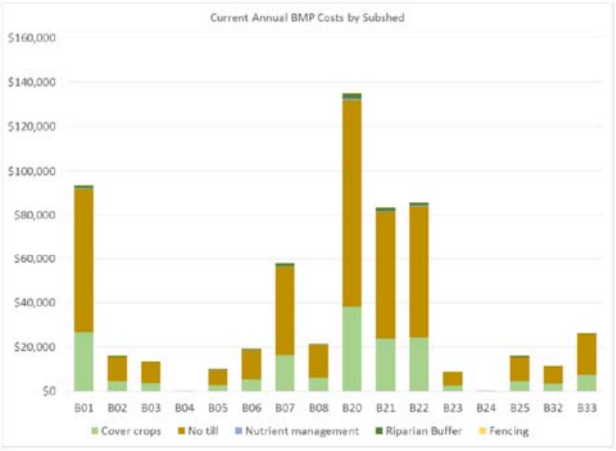


Figure 6.30 -- Total agricultural BMP investments in 2012 by catchment in the Brandywine Creek, West Branch watershed.

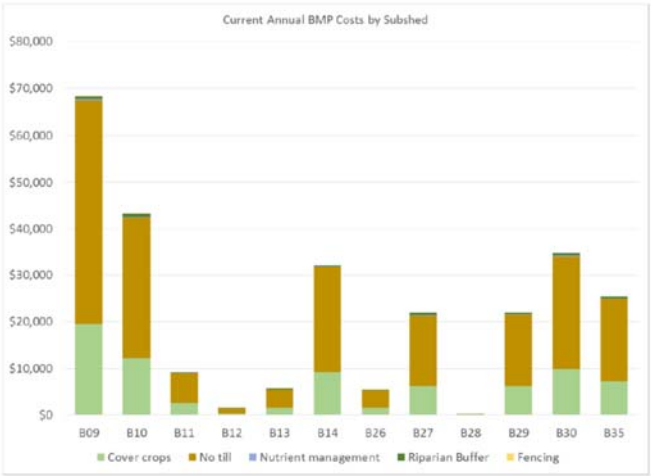


Figure 6.31 -- Total agricultural BMP investments in 2012 by catchment in the Brandywine Creek, East Branch watershed.

Attachment 11. Costs to Achieve Water Quality Goals

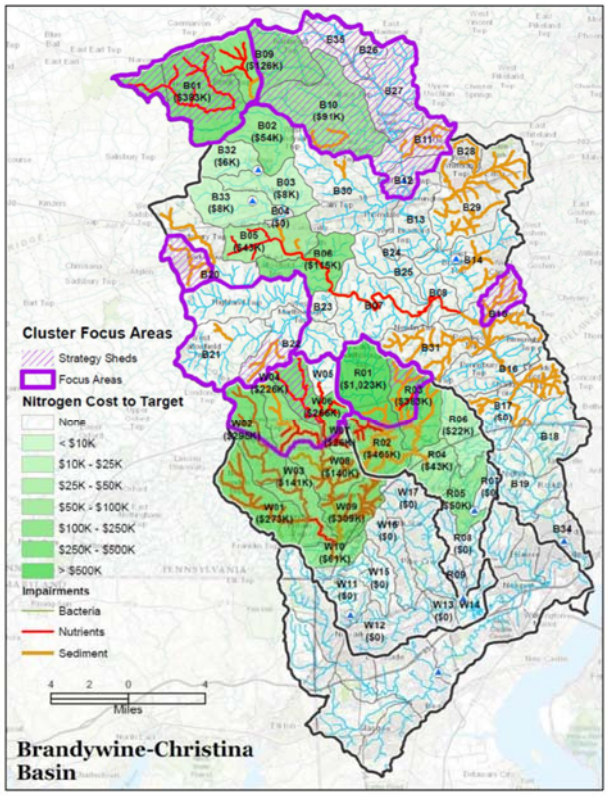


Figure 6.32 -- Estimated total annual costs to achieve water quality goals for nitrogen reduction by catchment, based on MapShed derived estimates.

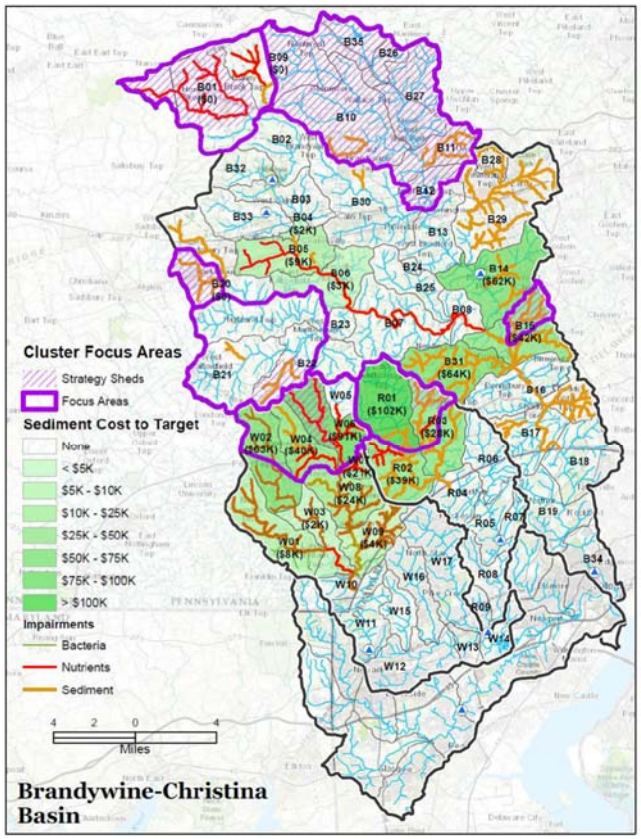


Figure 6.34 -- Estimated total annual costs to achieve water quality goals for sediment reduction by catchment, based on MapShed derived estimates.

Attachment 12. Summary of Reduction Unit Costs

Table 6.20 -- Summary of reduction unit costs, target reductions and estimated annual cost to reduction targets for nitrogen, phosphorus, and suspended sediment, based on MapShed analysis, for the Red Clay Creek watershed.

	TN			TP			TSS		
Sub-shed	Cost per kg	Target reduction (kg)	Total cost to target	Cost per kg	Target reduction (kg)	Total cost to target	Cost per kg	Target reduction (kgx1000)	Total cost to target
R01	$ 34	30,036	$ 1,023,029	$ 47	2,572	$ 121,947	$ 123	834	$ 102,482
R02	$ 23	20,443	$ 465,448	$ 32	3,190	$ 102,372	$ 80	488	$ 39,070
R03	$ 18	21,464	$ 382,950	$ 48	627	$ 29,928	$ 83	336	$ 27,836
R04	$ 6	7,453	$ 43,067	$ 51	-	$ -	$ 17	-	-
R05	$ 8	6,296	$ 50,362	$ 172	-	$ -	$ 27	-	-
R06	$ 11	2,125	$ 22,357	$ 55	-	$ -	$ 40	-	-
R07	$ 10	-	$ -	$ 110	-	$ -	$ 43	-	-
R08	$ 13	-	$ -	$ 35	-	$ -	$ 40	-	-
R09	$ -	-	$ -	$ -	-	$ -	-	-	-
Totals		**87,818**	**$ 1,987,212**		**6,388**	**$ 254,247**		**1,658**	**$ 169,388**

Table 6.21 -- Summary of reduction unit costs, target reductions and estimated annual cost to reduction targets for nitrogen, phosphorus, and suspended sediment, based on MapShed analysis, for the White Clay Creek watershed.

	TN			TP			TSS		
Sub-shed	Cost per kg	Target reduction (kg)	Total cost to target	Cost per kg	Target reduction (kg)	Total cost to target	Cost per kg	Target reduction (kgx1000)	Total cost to target
W01	$ 11	24,249	$ 272,599	$ 51	1,173	$ 60,283	$ 135	63	$ 8,462
W02	$ 11	27,921	$ 294,679	$ 59	177	$ 10,377	$ 172	368	$ 63,295
W03	$ 11	13,174	$ 141,032	$ 43	649	$ 27,769	$ 81	24	$ 1,967
W04	$ 12	19,320	$ 225,839	$ 62	1,198	$ 74,734	$ 167	240	$ 40,173
W05	$ 65	-	$ -	$ 106	-	$ -	$ 84	-	$ -
W06	$ 15	18,199	$ 265,600	$ 78	295	$ 23,033	$ 140	650	$ 90,650
W07	$ 11	2,397	$ 25,622	$ 64	141	$ 9,079	$ 615	34	$ 20,871
W08	$ 9	16,303	$ 140,219	$ 36	973	$ 34,845	$ 320	74	$ 23,843
W09	$ 20	15,088	$ 308,877	$ 63	535	$ 33,724	$ 100	37	$ 3,694
W10	$ 10	6,315	$ 61,050	$ 35	100	$ 3,457	$ 328	-	$ -
W11	$ 10	-	$ -	$ 37	-	$ -	$ 335	-	$ -
W12	$ 16	-	$ -	$ 79	-	$ -	$ 577	-	$ -
W13	$ 85	-	$ -	$ 192	-	$ -	$ 437	-	$ -
W14	$ -	-	$ -	$ -	-	$ -	$ -	-	$ -
W15	$ 12	-	$ -	$ 38	-	$ -	$ 434	-	$ -
W16	$ 14	-	$ -	$ 54	-	$ -	$ 574	-	$ -
W17	$ 13	-	$ -	$ 49	-	$ -	$ 468	-	$ -
Totals		**142,965**	**$ 1,735,518**		**5,239**	**$ 277,301**		**1,491**	**$ 252,954**

Table 6.22 -- Summary of reduction unit costs, target reductions and estimated annual cost to reduction targets for nitrogen, phosphorus, and suspended sediment, based on MapShed analysis, for the Brandywine Creek, Main Stem watershed.

	TN			TP			TSS		
Sub-shed	Cost per kg	Target reduction (kg)	Total cost to target	Cost per kg	Target reduction (kg)	Total cost to target	Cost per kg	Target reduction (kgx1000)	Total cost to target
B15	$ 17	-	$ -	$ 82	-	$ -	$ 151	282	$ 42,452
B16	$ 66	-	$ -	$ 160	-	$ -	$ 259	-	$ -
B17	$ 9	-	$ -	$ 39	-	$ -	$ 55	-	$ -
B18	$ 30	-	$ -	$ 228	-	$ -	$ 2,035	-	$ -
B19	$ 14	-	$ -	$ 53	-	$ -	$ 84	-	$ -
B31	$ 22	-	$ -	$ 84	-	$ -	$ 190	338	$ 63,995
B34	$ -	-	$ -	$ -	-	$ -	$ -	-	$ -
Totals		**-**	**$ -**		**-**	**$ -**		**619**	**$ 106,447**

Table 6.23 -- Summary of reduction unit costs, target reductions and estimated annual cost to reduction targets for nitrogen, phosphorus, and suspended sediment, based on MapShed analysis, for the Brandywine Creek, West Branch watershed.

	TN			TP			TSS		
Sub-shed	Cost per kg	Target reduction (kg)	Total cost to target	Cost per kg	Target reduction (kg)	Total cost to target	Cost per kg	Target reduction (kgx1000)	Total cost to target
B01	$ 10	40,151	$ 382,592	$ 65	1,621	$ 105,432	$ 197	-	$ -
B02	$ 7	7,309	$ 54,385	$ 38	-	$ -	$ 87	-	$ -
B03	$ 8	1,083	$ 8,413	$ 39	-	$ -	$ 98	-	$ -
B04	$ 89	-	$ -	$ 249	-	$ -	$ 393	4	$ 1,546
B05	$ 6	7,060	$ 42,661	$ 33	524	$ 17,213	$ 83	105	$ 8,777
B06	$ 11	10,500	$ 114,648	$ 49	241	$ 11,733	$ 117	22	$ 2,590
B07	$ 10	-	$ -	$ 36	-	$ -	$ 71	-	$ -
B08	$ 11	-	$ -	$ 47	-	$ -	$ 105	-	$ -
B20	$ 11	-	$ -	$ 64	-	$ -	$ 159	-	$ -
B21	$ 9	-	$ -	$ 56	-	$ -	$ 160	-	$ -
B22	$ 10	-	$ -	$ 54	-	$ -	$ 147	-	$ -
B23	$ 7	-	$ -	$ 25	-	$ -	$ 53	-	$ -
B24	$ 10	-	$ -	$ 65	-	$ -	$ 264	-	$ -
B25	$ 11	-	$ -	$ 49	-	$ -	$ 95	-	$ -
B32	$ 10	605	$ 5,943	$ 60	-	$ -	$ 185	-	$ -
B33	$ 9	906	$ 7,905	$ 44	-	$ -	$ 103	-	$ -
Totals		**67,614**	**$ 616,547**		**2,386**	**$ 134,377**		**132**	**$ 12,912**

Table 6.24 -- Summary of reduction unit costs, target reductions and estimated annual cost to reduction targets for nitrogen, phosphorus, and suspended sediment, based on MapShed analysis, for the Brandywine Creek, East Branch watershed.

	TN			TP			TSS		
Sub-shed	Cost per kg	Target reduction (kg)	Total cost to target	Cost per kg	Target reduction (kg)	Total cost to target	Cost per kg	Target reduction (kgx1000)	Total cost to target
B09	$ 13	9,543	$ 125,954	$ 61	-	$ -	$ 149	-	$ -
B10	$ 9	9,621	$ 91,371	$ 45	-	$ -	$ 103	-	$ -
B11	$ 17	-	$ -	$ 76	-	$ -	$ 170	-	$ -
B12	$ 28	-	$ -	$ 121	-	$ -	$ 319	-	$ -
B13	$ 11	-	$ -	$ 62	-	$ -	$ 85	-	$ -
B14	$ 20	-	$ -	$ 67	-	$ -	$ 110	567	$ 62,098
B26	$ 9	-	$ -	$ 44	-	$ -	$ 73	-	$ -
B27	$ 9	-	$ -	$ 45	-	$ -	$ 75	-	$ -
B28	$ 17	-	$ -	$ 194	-	$ -	$ 3,932	-	$ -
B29	$ 20	-	$ -	$ 87	-	$ -	$ 139	-	$ -
B30	$ 14	-	$ -	$ 79	-	$ -	$ 141	-	$ -
B35	$ 14	-	$ -	$ 76	-	$ -	$ 178	-	$ -
Totals		**19,165**	**$ 217,325**		**-**	**$ -**		**567**	**$ 62,098**

Attachment 13. Total Annual Costs

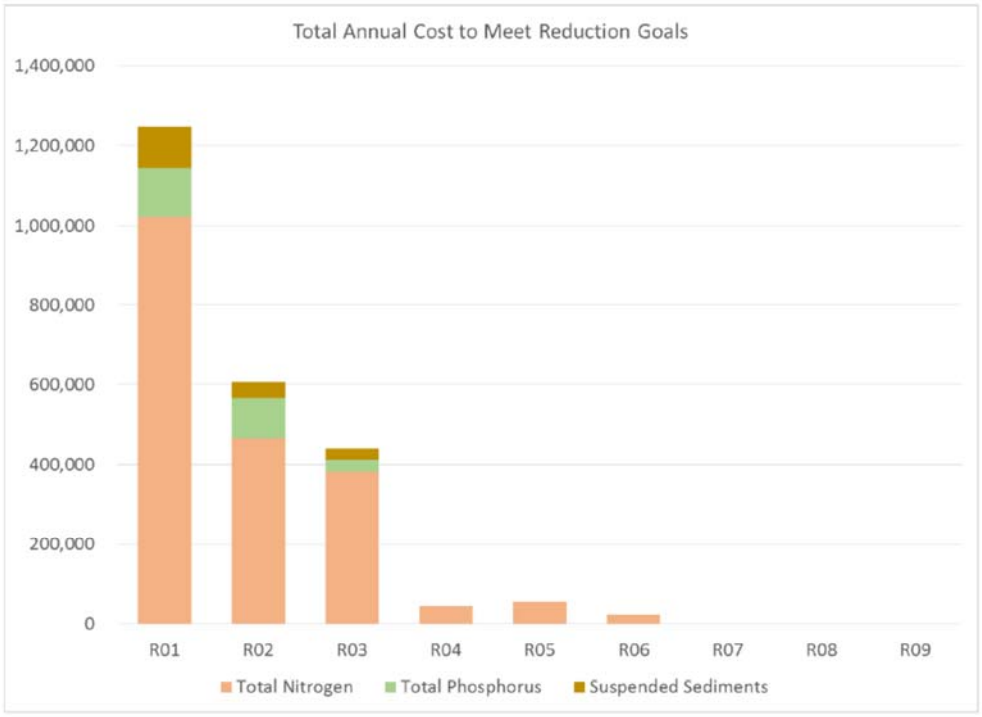


Figure 6.35 -- Total estimated annual cost to meet reduction goals for nitrogen, phosphorus, and suspended sediment, based on MapShed analysis for the Red Clay Creek watershed.

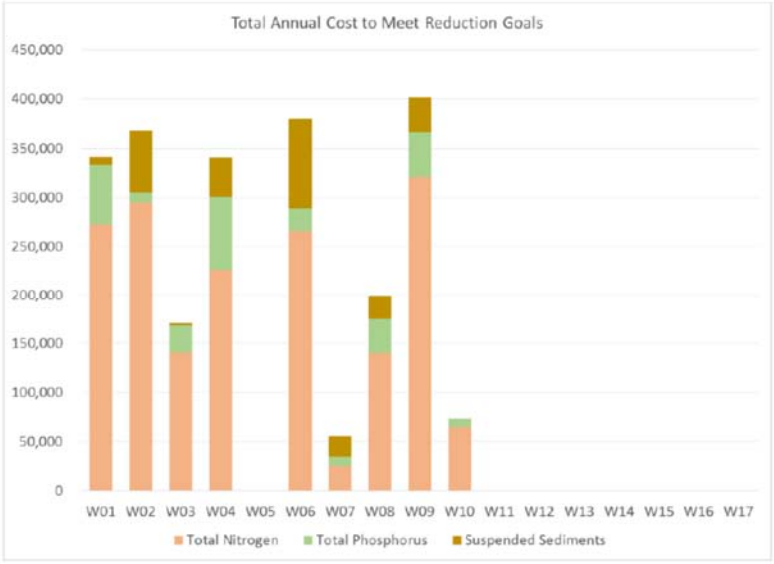


Figure 6.36 -- Total estimated annual cost to meet reduction goals for nitrogen, phosphorus, and suspended sediment, based on MapShed analysis for the White Clay Creek watershed.

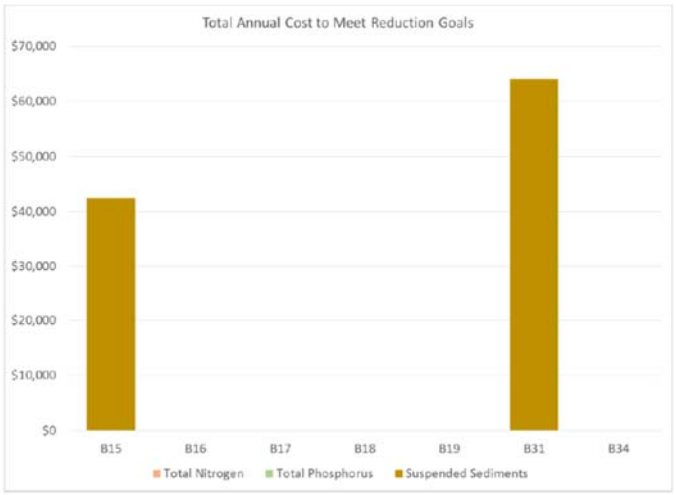


Figure 6.37 -- Total estimated annual cost to meet reduction goals for nitrogen, phosphorus, and suspended sediment, based on MapShed analysis for the Brandywine Creek, Main Stem watershed.

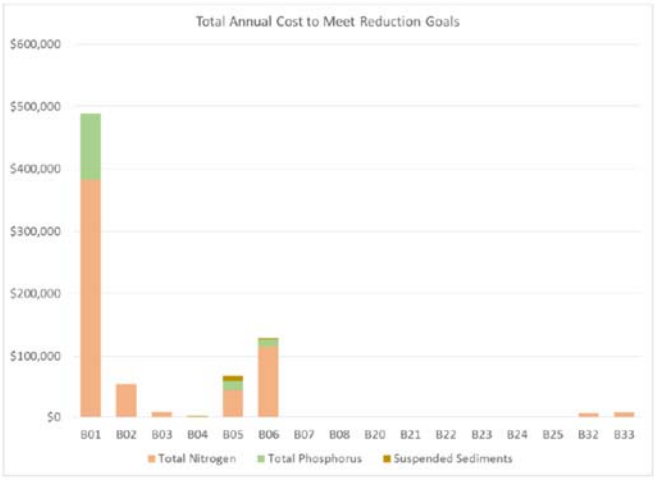


Figure 6.38 -- Total estimated annual cost to meet reduction goals for nitrogen, phosphorus, and suspended sediment, based on MapShed analysis for the Brandywine Creek, West Branch watershed.

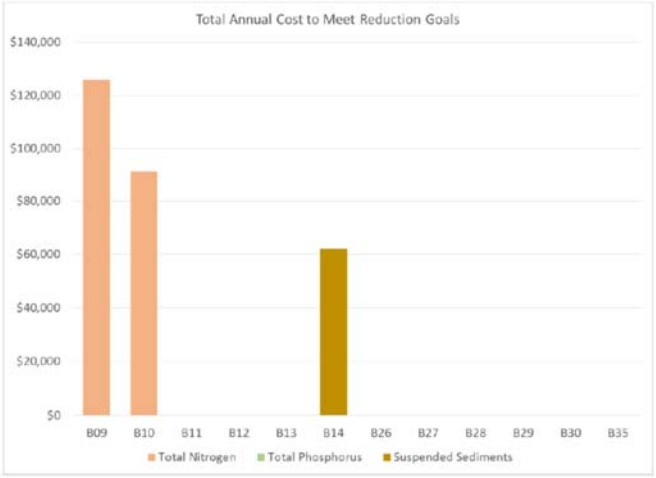


Figure 6.39 -- Total estimated annual cost to meet reduction goals for nitrogen, phosphorus, and suspended sediment, based on MapShed analysis for the Brandywine Creek, East Branch watershed.

Attachment 14. Summary of Target Cost Reductions

Table 6.25 -- Summary of target reductions and estimated cost to targets, based on MapShed analysis for the Red Clay Creek watershed.

Red Clay Creek

Constituent	Target reduction	Unit	Cost to target
Nitrogen	87,818	kg	$1,987,212
Phosphorus	6,388	kg	$254,247
Sediment	1,658	kgx1000	$169,388
			$2,410,847

Table 6.26 -- Summary of target reductions and estimated cost to targets, based on MapShed analysis for the White Clay Creek watershed.

White Clay Creek

Constituent	Target reduction	Unit	Cost to target
Nitrogen	142,965	kg	$1,735,518
Phosphorus	5,239	kg	$277,301
Sediment	1,491	kgx1000	$252,954
			$2,265,773

Table 6.27 -- Summary of target reductions and estimated cost to targets, based on MapShed analysis for the Brandywine Creek, Main Stem watershed.

Brandywine, Main Stem

Constituent	Target reduction	Unit	Cost to target
Nitrogen	0	kg	$-
Phosphorus	0	kg	$-
Sediment	619	kgx1000	$106,447
			$106,447

Table 6.28 -- Summary of target reductions and estimated cost to targets, based on MapShed analysis for the Brandywine Creek, West Branch watershed.

Brandywine, West Branch

Constituent	Target reduction	Unit	Cost to target
Nitrogen	67,614	kg	$616,547
Phosphorus	2,386	kg	$134,377
Sediment	132	kgx1000	$12,912
			$763,836

Table 6.29 -- Summary of target reductions and estimated cost to targets, based on MapShed analysis for the Brandywine Creek, East Branch watershed.

Brandywine, East Branch

Constituent	Target reduction	Unit	Cost to target
Nitrogen	19,165	kg	$217,325
Phosphorus	0	kg	$-
Sediment	567	kgx1000	$62,098
			$279,423

Red Clay Creek

Constituent	Target reduction	Unit	Cost to target
Nitrogen	$ 88,657	kg	$ 1,995,017
Phosphorus	$ 5,223	kg	$ 254,247
Sediment	$ 1,658	tonne	$ 169,388
			$ 2,418,652

White Clay Creek

Constituent	Target reduction	Unit	Cost to target
Nitrogen	$ 143,953	kg	$ 1,751,112
Phosphorus	$ 5,563	kg	$ 293,896
Sediment	$ 1,807	tonne	$ 284,552
			$ 2,329,560

Brandywine, West Branch

Constituent	Target reduction	Unit	Cost to target
Nitrogen	66100	kg	$ 602,699
Phosphorus	1864	kg	$ 134,377
Sediment	88	tonne	$ 12,912
			$ 749,988

Brandywine, East Branch

Constituent	Target reduction	Unit	Cost to target
Nitrogen	19,165	kg	$ 217,325
Phosphorus	0	kg	$ -
Sediment	567	tonne	$ 62,098
			$ 279,423

Brandywine, Main Stem

Constituent	Target reduction	Unit	Cost to target
Nitrogen	0	kg	$ -
Phosphorus	0	kg	$ -
Sediment	619	tonne	$ 106,447
			$ 106,447

Attachment 15. Newark and Wilmington FY17 Budgets

CITY OF NEWARK, DELAWARE
CAPITAL BUDGET - PROJECT DETAIL

DEPARTMENT:	Public Works and Water Resources	DIVISION:	Water

PROJECT NO:	PROJECT TITLE:	PROJECT LOCATION:
W1702	Source Water Protection	White Clay Creek Watershed

PROJECT STATUS (CHECK ONE): ☑ NEW ☐ IN PRIOR PROGRAM ☐ IN PROGRESS

PRIORITY: 3 - Medium-High — The City would be taking a calculated risk in the deferral of this item

COMPREHENSIVE DEVELOPMENT PLANNING VISION ELEMENT: Sustainable Community

Charter § 806.1(2) DESCRIPTION & JUSTIFICATION:

This project will fund source water protection efforts in the White Clay Creek watershed, upstream from our surface water intake at the Curtis Water Treatment Plant. The goal for these projects is to reduce risk of contamination from both point and non point source pollution sources. Additionally, projects may also seek to reduce bacterial, nutrient, and sediment loading in the creek which will improve water quality, improving treatment efficiency, while reducing electrical and chemical costs slowly over time.

Previously, projects of this sort have been funded on an ad-hoc basis using operating funding when available. In order to realize a benefit this will require a long term commitment allowing community partners with leveraging funding a reliable matching funding source. Additionally, the PWWR Department is working with the UD Water Resources Agency and the Nature Conservancy with funding from the William Penn Foundation to develop the Brandywine-Christina Healthy Water Fund. The goal of this fund is to implement a funding mechanism and science-based investment protocol to restore the Brandywine-Christina watershed to fishable, swimmable, and potable status within 10 years. A water fund is a mechanism for downstream beneficiaries to invest in upstream conservation measures designed to secure freshwater resources – both quality and quantity. Our funding would be leveraged to access other funding sources, multiplying our impact. Assuming the fund moves forward as planned, there will be a consistent source of projects, prioritized by their cost effectiveness at achieving the fishable, swimmable, potable goal. For more information on the fund please visit: http://www.wra.udel.edu/brandywine-christina-healthy-water-fund/

§ 806.1(3) SUMMARY OF PROJECT DATA	
First Year in Program	2017
Est. Completion Date	2027
Est. Useful Life (in years)	20
Est. Total Cost	130,000
Est. Spend @ 12/31 (if underway)[1]	-
Balance to be funded[1]	130,000
% Complete (if underway)	0%

PROJECT COST BY CATEGORY		
CLASSIFICATION	ACCOUNT NUMBERS	AMOUNT
Labor		
Materials		
Other Contracts	5295206.9760	$ 130,000
Total Project Cost		$ 130,000

[1]For ongoing projects, we must estimate total spent since inception through current year to derive the balance to be funded thereafter.

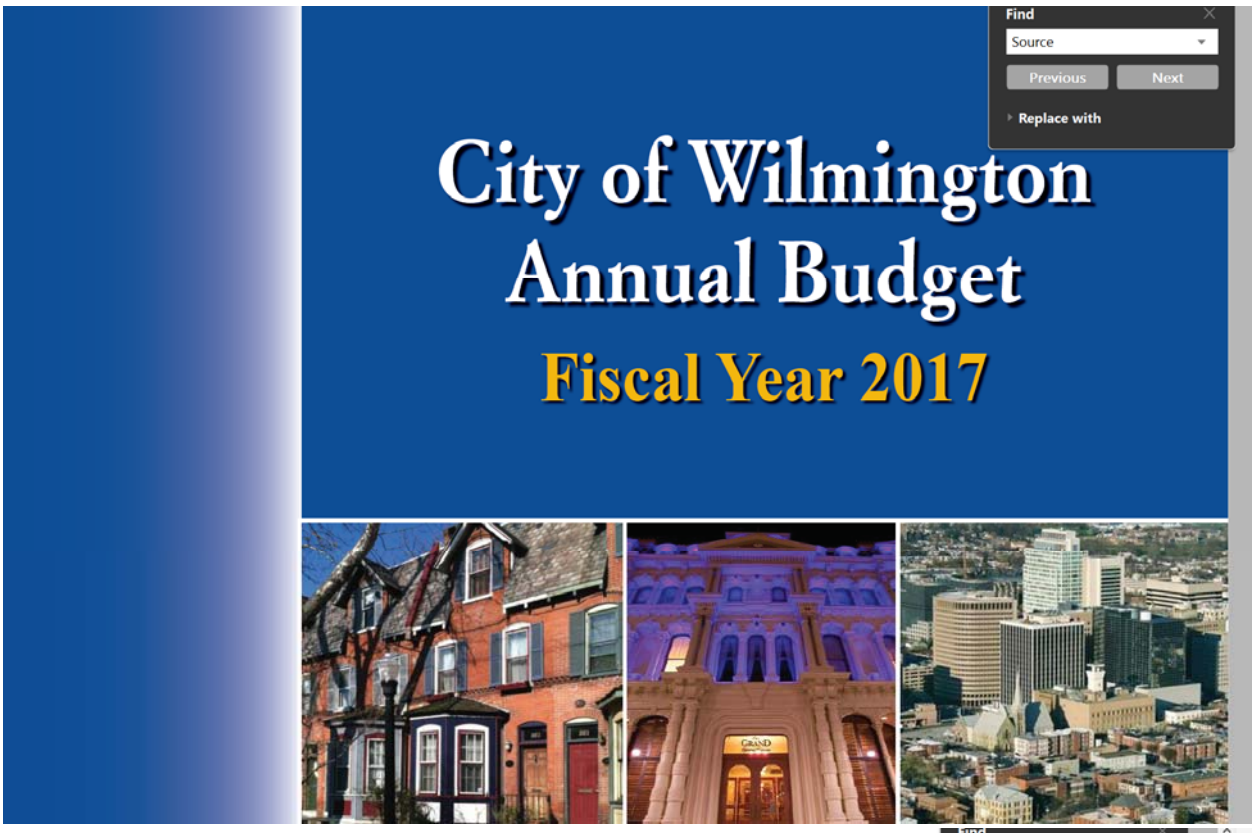
PROJECT FINANCING BY PLAN YEAR

§ 806.1(3) SOURCE OF FUNDS	PRIOR[2]	2017	2018	2019	2020	2021	TOTAL
CURRENT RESOURCES		20,000	20,000	20,000	30,000	40,000	130,000
CAPITAL RESERVES							-
EQUIPMENT REPLACEMENT							-
BOND ISSUES							-
GRANTS (Specify)							-
OTHER (Specify)							-
OTHER (Specify)							-
TOTAL	-	20,000	20,000	20,000	30,000	40,000	130,000

[2]"Prior" refers to that portion of project funding that was authorized in a prior year but which is not expected to be spent through 12/31 of the current year. Accordingly, Council is not required to authorize budget year funding for that portion, but that portion of the project will indeed represent a cash outflow in the budget year and/or "out years."

§ 806.1(4) ESTIMATED ANNUAL COST OF OPERATING / MAINTAINING PROJECT OR ASSET

OPERATING IMPACT	2017	2018	2019	2020	2021	TOTAL
INCREMENTAL COSTS (NET SAVINGS)						



Budget Request: $500,000.
Program Request: $1,000,000.

Budget: Provides funds for tree planting and stump removal in support of green storm water control, and 2-for-1 tree replacement mandates.

Program: Ongoing.

Annual Debt Service Impact	*$20,000*
Annual Operational Impact Personal Services	*$0*
Annual Operational Impact M. S. & E.	*$0*

18. Stormwater Mitigation (Green Infrastructure)

Budget Request: $1,000,000. (Other Funds: $100,000)
Program Request: $4,000,000. (Other Funds: $400,000)

Budget: Provides funds for green infrastructure implementation projects to mitigate CSOs through citywide source control of storm water, and within the CSO '4a' drainage area. Matching funds are also provided for storm water mitigation at the Ed Oliver Golf Course.

Program: Ongoing.

Annual Debt Service Impact	*$40,000*
Annual Operational Impact Personal Services	*$0*
Annual Operational Impact M. S. & E.	*$0*

Attachment 16. Term Sheet - Brandywine Christina Healthy Water Fund

The following is a summary of certain proposed terms to be included in a limited company agreement (the "Agreement") for a newly formed Delaware limited liability company that will create a water fund for the Brandywine-Christina watershed. This term sheet is for discussion purposes only and the actual terms will be set forth in a definitive Agreement. Nothing contained in this term sheet is intended to create any obligation on the part of any person or entity or influence the interpretation of the terms of the Agreement. [A1]

Company:

Entity Type ("Company"). A newly formed Delaware limited liability company

Purpose: The Company will be formed for the purpose of, and the nature of the business to be conducted and promoted by the Company will be, maintaining and improving the health of the Brandywine-Christina watershed for the benefit of people who rely on it and plants and animals who live in the watershed and engaging in such other lawful acts or activities as may be determined by the board of managers of the Company (the "Board") to be necessary, advisable, convenient or incidental thereto.

Management The Company will be managed by the Board in the manner described below.

Term: The term of the Company will be perpetual and the Company will not dissolve without [the consent 66 2/3% of the members of the Company.]

Investors:

Initial Investors Initial investors (i) will be admitted as members of the Company,

(ii) will receive a limited liability company interest in the Company, and (iii) will make an initial capital contribution to the Company.

The Nature Conservancy of Delaware ("TNC of Delaware") will be admitted as a member of the Company at the time of the formation of the Company but will not receive a limited interest in, or make a capital contribution to, the Company.

Additional Investors Additional investors may be admitted as members of the Company,

receive a limited liability company interest in the Company and/or make a capital contribution to the Company upon the approval of [the Board.

Additional Contributions Additional capital contributions to the Company by existing members of the Company may be made upon the consent of the

Board and the member desiring to make an additional capital contribution to the Company. No member will be required to make any capital contribution to the Company without its consent.

Percentage Interests Each member of the Company will own a percentage of the limited liability company interests (the "Percentage Interests") in the Company equal to a fraction, the numerator of which is the aggregate capital contributions made by such member to the Company and the denominator of which is the total capital contributions made by all members to the Company.

[*Taxation* The Company will elect to be taxed as a partnership for federal income tax purposes.]

Profits and Losses The Company's profits and losses will be allocated to the members of the Company in accordance with their Percentage Interests. [A4

Distributions Distributions may be made to the members of the Company in accordance with their Percentage Interests at the times and in the amounts determined by the Board. [It is not expected that any distributions will be made to the members of the Company.]

Assignments The limited liability company interests in the Company will not be assignable by a member of the Company without approval of [the Board.]

Resignation A member of the Company may resign from the Company. A member that resigns from the Company would not be entitled to any payment or distribution from the Company and its limited liability company interest in the Company would be automatically cancelled.

Management:

Board Composition Each member of the Company will have the right to appoint one individual as a manager to the Board (and to remove and replace such individual as a manager). [A5] [The Board will have the authority to appoint (and remove and replace) one or more additional individuals as managers.]

Board Decision-Making the Board will decide upon investments for the Company in accordance with a science-based prioritization protocol (the "Protocol"). The decision of a majority of the managers on the Board made in accordance with the Protocol (as determined by

the manager appointed by TNC of Delaware) will constitute the decision of the Board.

Prioritization Protocol	[Further explanation of the Protocol to be added.]
Enforcement of Protocol	[The consent of the manager appointed to the Board by TNC of Delaware will be required to give effect to any decision that is not made in accordance with the [Protocol]]. TNC of Delaware will have the authority to enforce adherence to the Protocol in court. [TNC DE will have the right to remove any manager for Cause[1].]
Compensation of Managers	Unless otherwise approved by the Board, the Company will not pay any compensation to any manager for serving the Company as a manager or reimburse any manager for his or her expenses incurred in attending meetings of the Board.
Appointment of Officers	the Board may appoint one or more individuals as officers of the Company.
Indemnification	Each manager will be entitled to indemnification (and advancement of expenses) from the Company for any loss incurred by such manager by reason of any act or omission performed or omitted by such manager by reason of the Agreement, except that no such manager will be entitled to be indemnified in respect of any loss incurred by reason of its intentional misconduct or fraud with respect to such acts or omissions.
Exculpation	No manager will be liable to the Company or any other person or entity bound by the Agreement for any loss incurred by reason of any act or omission of such manager, except that a manager shall be liable for any loss incurred by reason of such manager's intentional misconduct or fraud.

Miscellaneous:

Governing Law,	The Agreement will be governed by Delaware law.
Jurisdiction	Each party to the Agreement will agree to resolve any disputes [in arbitration]/[in the courts of the State of Delaware].
Fiduciary Duties	Fiduciary duties of the members and managers of the Company under Delaware law to the Company, the members and any other person or entity that is a party to, or otherwise bound by, the

Agreement will be eliminated to the fullest extent permitted by law.

Limited Liability Except as otherwise required by the Delaware Limited Liability Company Act, the debts, obligations and liabilities of the Company, whether arising in contract, tort or otherwise, will be solely the debts, obligations and liabilities of the Company, and no member, manager or officer will be obligated personally for any such debt, obligation or liability of the Company solely by reason of being a member, manager or officer of the Company.

Amendments Amendments to the Agreement will require the written approval of each member of the Company.

Third Party Beneficiaries No person/entity will be a third party beneficiary of the Agreement.

Attachment 17. UMD EFC Recommendations for the BCHWF

Prepared by:
The Environmental Finance Center
University of Maryland

November 4, 2016

UNIVERSITY OF MARYLAND
ENVIRONMENTAL FINANCE CENTER

www.umd.edu

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INTRODUCTION

The William Penn Foundation asked the Environmental Finance Center (EFC) at the University of Maryland to provide recommendations on the design and implementation of the Brandywine-Christina Healthy Water Fund (BCHWF or the "Fund").

1. Environmental Objectives

The EFC believes a water fund concept could work in the Brandywine- Christina Watershed. But, the "how" has not been adequately addressed and was the subject of discussion among the Innovative Financing Panel. *The EFC strongly recommends that the BCHWF, in developing its business plan, describes the types of business or investment activities that it anticipates will generate water quality outcomes that will motivate investors to capitalize the Fund and that will complement or catalyze new or scaled-up restoration activity.* These points speak to how the Fund will deliver greater value or outcomes than what is already happening.

The Fund should articulate the types of investment or enterprise activities that will enable potential "downstream" funders, such as DE water purveyors, to invest in BCHWF restoration work in Pennsylvania portions of the watershed. Discussion of these activities needs to go beyond a general strategy of targeting agricultural properties to discuss the scale and approaches for agricultural restoration, along with the structure and processes for how capital is deployed.

2. Market Stage

The foundation should scale its investment in the Fund based on the level of commitment BCHWF secures from funders and implementation partners. The Fund should provide a road map to full implementation. In discussing this growth, the business plan should include: (1) an estimate of the anticipated time and costs that scale from delivering two to three small pilots to full implementation; (2) how different levels of capital impact the scale of Fund activity; and, (3) clear milestones and performance metrics to trigger progressive payments from the Foundation as the Fund grows.

3. Barrier(s)

The BCHWF should identify barriers, discuss how William Penn's previous investments have helped establish the groundwork for overcoming those barriers, and identify how additional funding will be used to address any remaining barriers to implementation. The EFC recommends linking this discussion of barriers and challenges to the business plan's financial forecasts. This connection will increase transparency and helps relate how overcoming barriers impact critical assumptions in: (1) the Fund's scale and breadth of activities; and (2) capital requirements (egg, growth path with restoration implementation, anticipated contributions from purveyors or other sources, ability to leverage the foundation's investment).

4. **Role of Capital**

As the project develops its governance structure and business plan, it should consider the different types of capital that could support its operationalization. The business plan will be more robust if it can set out how much capital is needed to operationalize the Fund, the anticipated sources of this capital and their distinct roles. *At minimum, the business plan should address the role of William Penn Foundation funding and purveyor contributions, articulating how much is needed from these sources, how the funding will be used and how the capitalization impacts the Fund's financial sustainability. It should also explore how investment from purveyors or other stakeholders could be leveraged through the Fund's governance and legal structure (egg, board composition, not-for-profit status, etc.).*

5. **Applicability**

provide a model for how one-time or time-limited injections of capital by a foundation can catalyze self-sustaining watershed restoration and protection activities.

6. **Self-Sustaining**

With the expectation that the BCHWF is a mechanism that leverages philanthropic capital with private capital, the business plan needs to show how the Fund will become financially self-sustaining. *The business plan should have the following components: (1) clear identification of the sources and amount of required start-up capital; (2) projected revenue stream associated with the types and scale of restoration activity undertaken by the Fund; (3) staffing needs; and (4) projected costs for staffing, operations and overhead. Importantly, the business plan should also include an "exit strategy" for the foundation.* The exit strategy defines the timing and conditions under which the Fund has satisfactorily answered the proof of concept question (i.e., that the Fund concept can or cannot work in the Brandywine-Christina Basin). The business plan should also include performance metrics against which its progress towards financial sustainability can be evaluated (by the foundation and other investors).

CONCLUSION

The William Penn Foundation invested substantial resources in the Fund's conceptual development. It needs to determine if the Fund:

- has a strong enough business model to become financially self-sustaining;
- should be treated as a learning laboratory that creates knowledge to support the implementation of water funds in other watersheds; or
- is not likely to succeed in the watershed.

The EFC recommends that the Fund's business plan be the basis for the foundation's decision. A well-developed business plan should:

- clearly explain how the Fund will be managed through its three core processes of capitalization, deployment and administration; and,
- demonstrate how the Fund will meet its goal of accelerating watershed health by incentivizing and layering investments from multiple beneficiaries.

To help guide the elements of the business plan, the EFC applied a diagnostic framework with five specific recommendations for the BCHWF team as it develops its business plan. They are:

1. articulate the types of investment or enterprise activities that will enable potential "downstream" funders, such as DE water purveyors, to invest in BCHWF restoration work in Pennsylvania portions of the watershed;
2. include a pilot stage in the business plan that provides "proof of concept" to trigger funding so that the Fund can advance to the next market stage (i.e., full implementation);
3. incorporate discussion of barriers that impact the Fund's financial forecasts and growth;

Attachment 18. Investments in the Delaware River Watershed

Investment in the Delaware River Watershed	DE (FY14 & 15)	PA (FY14 & 15)	Performance Metrics	Funding/$	Other
Federal					
Conservation Reserve Program	210,056	1,449,809	Eligibility: https://www.fsa.usda.gov/programs-and-services/conservation-programs/prospective-participants/index Sign Up Info: https://www.fsa.usda.gov/FSA/printapp?fileName=pf_20060601_consv_en_crpcsup06.html&newsType=prfactsheet	CONTRACT EXPIRATIONS (ACRES) 1/ All signup types Delaware: 2016: 1,619.8 2017: 510.6 2018: 393.5 2019: 264.5 See CRP Contract Expirations Excel file in folder for more info	Conservation Reserve Enhancement program (Delaware Info): http://origin.www.fsa.usda.gov/FSA/newsReleases?area=newsroom&subject=landing&topic=pfs&newstype=prfactsheet&type=detail&item=pf_20110214_consv_en_de.html
Wetlands Reserve Program	453,157	578,666	Intro and Enrollment Options: https://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/easements/wetlands/	Financial Info: Total obligations in thousands of dollars (Delaware): FY2014 $114.3 FY2015 $28.8 https://www.nrcs.usda.gov/Internet/NRCS_RCA/reports/fb08_cp_wrp.html#fa	
Environmental Quality Incentives Program	3,221,251	2,175,860	Who can apply and how it works: https://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/financial/eqip/	"Payments received by producers through EQIP contracts after February 7, 2014 may not exceed $450,000 for all EQIP contracts entered into during the period 2014 to 2018." https://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/financial/eqip/	2017 EQIP Practice Payment Lists and Funding Distribution: https://www.nrcs.usda.gov/wps/portal/nrcs/main/wa/programs/financial/eqip/
Wildlife Habitat Incentive Program	139,858	141,113	Eligibility: https://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb1041995.pdf	Financial Info: Total obligations in thousands of dollars (Delaware): FY2014 $6.5 FY2015 $9.5 https://www.nrcs.usda.gov/Internet/NRCS_RCA/reports/	

				fb08_cp_wmp.htm#ta¤		¤
Agricultural·Management·Program¤	23,461¤	0¤	Eligibility:·https://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/financial/ama/¤	Financial·Info:·¶Total·obligations·in·thousands·of·dollars·(Delaware):·¶FY2014·$19.5¶FY2015·$14.4¶https://www.nrcs.usda.gov/Internet/NRCS_RCA/reports/fb08_cp_ama.html¤	¤	¤
State¤	¤	¤	¤	¤	¤	¤
Section·319¤	400,000¤	¤	Eligibility:¶http://www.dnrec.delaware.gov/swc/district/Pages/319Eligibility.aspx¤	Funding:¶http://www.dnrec.delaware.gov/swc/district/Pages/319Funding.aspx¤	Info·and·Applications·for·319·Grants:¶http://www.dnrec.delaware.gov/swc/district/Pages/319Grants.aspx¤	¤
Clean·Water·State·Revolving·Fund¤	4,800,000¤	¤	Eligibility:·https://www.epa.gov/sites/production/files/2016-07/documents/overview_of_cwsrf_eligibilities_may_2016.pdf¤	Delaware·FY·14·Allotments:¶Title·VI·State·Allotment:·$6,953,000·604(b)·Allotment:·$100,000·Allotment·Less·604(b):·$6,853,000¶Delaware·FY·15·Allotments:¶Title·VI·State·Allotment:·$6,917,000·604(b)·Allotment:·$100,000·Allotment·Less·604(b):·$6,817,000¶Delaware·FY·16·Allotments:¶Title·VI·State·Allotment:·$6,625,000·604(b)·Allotment:·$100,000·Allotment·Less·604(b):·$6,525,000¶¶FY·14,·15,·and·16·Final·Allotments·info·for·all·states·can·be·found·as·pdf's·in·folder¤	Total·funds·for·FY14:·$1,448,887,000¶Total·Funds·for·FY15:·$1,439,386,731.11¶Total·Funds·for·FY16:·$1,381,210,000¤	¤
Drinking·Water·State·Revolving·Loan·Fund¤	4,700,000¤	¤	Eligibility:·https://www.epa.gov/drinkingwatersrf/how-drinking-water-state-revolving-fund-	Annual·Allotments:¶https://www.epa.gov/drinkingwatersrf/annual-allotment-	Congress·appropriated·$863.2·million·for·the·DWSRF·program·for·FY2016·(P.L.·114-	¤

			works#tab-2¤	federal-funds-states-tribes-and-territories¶ ¶ Delaware:·¶ Receives·1%·of·federal·funding·¶ 2014:·$8,845,000¶ 2015:·$8,787,000¶ 2016:·$8,312,000¤	113).·The·conference·report·provided·that·each·state·must·use·20%·of·its·capitalization·grant·"to·provide·additional·subsidy·to·eligible·recipients·in·the·form·of·forgiveness·of·principal,·negative·interest·loans,·or·grants·(or·any·combination·of·these)."¶ https://fas.org/sgp/crs/misc/RS22037.pdf¤
PENNVEST·Growing·Greener¤	¤	8,500,000¤	Program·and·Funding·Info:·http://www.pennvest.pa.gov/Information/Funding-Programs/Pages/Green-Initiatives.aspx¶ Growing·Greener:·http://www.dep.pa.gov/Citizens/GrantsLoansRebates/Growing-Greener/Pages/What-is-Growing-Greener.aspx¶ Growing·Greener·2:¶ http://www.dep.pa.gov/Citizens/GrantsLoansRebates/Growing-Greener/Pages/What-is-Growing-Greener-II.aspx¤	¤	¤
Community·Conservation·Partnerships·Program¤	¤	17,500,000¤	Eligibility·and·Program·policies:·http://www.dcnr.state.pa.us/brc/grants/grantpolicies/index.htm¤	¤	¤
Conservation·District·¤	¤	¤	¤	¤	¤
New·Castle·Conservation·District¤	2,100,000¤	¤	Urban·Water·Management·Program:·¶ http://www.newcastleconservationdistrict.org/Programs/About_Water.html¶ Cost·Share·Program:¶ http://newcastleconservationdistrict.org/Programs/Cost_Share.html¶ Nutrient·Management:¶ http://www.dda.delaware.gov/nutrients/index.shtml¤	¤	¤
Chester·County·Conservation·District¤	¤	651,084¤	http://www.chesco.org/DocumentCenter/View/5770¶ http://www.chesco.org/205/Conservation-District¤	¤	¤
Nonprofit¤	¤	¤	¤	¤	¤

Community Conservation Partnerships Program	¤	17,500,000	Eligibility and Program policies: http://www.dcnr.state.pa.us/brc/grants/grantpolicies/index.htm	¤	¤	¤
Conservation District	¤	¤	¤	¤	¤	¤
New Castle Conservation District	2,100,000	¤	Urban Water Management Program: ¶ http://www.newcastleconservationdistrict.org/Programs/About_Water.html¶ Cost Share Program:¶ http://newcastleconservationdistrict.org/Programs/Cost_Share.html¶ Nutrient Management:¶ http://www.dda.delaware.gov/nutrients/index.shtml	¤	¤	¤
Chester County Conservation District	¤	651,084	http://www.chesco.org/DocumentCenter/View/5770¶ http://www.chesco.org/205/Conservation-District	¤	¤	¤
Nonprofit	¤	¤	¤	¤	¤	¤

Brandywine Conservancy	¤	2,696,525	http://www.brandywine.org/conservancy/resources/conservation-easements	¤	¤	¤
Brandywine Valley Association	¤	678,395	http://www.brandywineredclay.org/	¤	¤	¤
Stroud Water Research Laboratory	¤	898,162	http://www.stroudcenter.org/research/projects/StroudPreserve/	¤	¤	¤

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Attachment 19. Summary of Water Fund Case Studies

Table 3.1. Summary of Select Case Studies

Program Name	Location	Acres Enrolled/Protected	Funding Source	Revenue
N. Everglades & Estuaries PES Program	Lake Okeechobee watershed, FL	171,000 acre-feet of storage created	Water Management District budget allocation	$46 million committed through 2016
San Antonio Water Fund	San Antonio, TX	116,683 acres	1/8 cent sales tax approved	$225 million since 2000
Upper Neuse Clean Water Initiative	Raleigh and Durham, NC	6,170 acres, 63 miles of stream	Raleigh: 1 cent/100 gallons/month in water rate; Durham: 1 cent/cubic foot in water rate	$17.7 million since 2005
New York City Source Water Protection Program	Catskill, NY (East Branch/West Branch Delaware River)	156,690 acres acquired or under easement; 93% of farms with Whole Farm Plans	NYC-DEP budget allocation	$186 million to date; $300 million committed 2007-2017
Eugene Water and Electric Board	Eugene, OR (Mackenzie River)	N/A	1% utility rate increase to fund initial program	$200,000 to $250,000 annually anticipated
Denver Water Forest to Faucets Partnership	Denver, CO (South Platte River)	4,700 acres treated	14 cents per household per month or 4 cents per 1,000 gallons of water	$16.5 million from USFS; $16.5 million from Denver Water
Truckee River Fund	Lake Tahoe, CA/ Reno, NV	101 watershed projects completed	2% of utility annual budget	$9,200,000 since 2004
Central Arkansas Water	Near Little Rock, AR	1800 acres	Utility rate includes watershed protection fee based on meter size; averages 45 cents/ month	Fee raises approximately $1 million/year
Saugatuck River Watershed Compact	Fairfield County, CT	Opened up 7 miles of river to fish passage	Annual contributions of $5000 from larger municipalities; $1000 from smaller municipalities	$306,624 in contributions (municipal, private individual and foundation); $243,849 in federal grants
Rhode Island Water Board	Providence, RI (Narragansett Bay)	2,410 acres protected	Initial state budget allocation; 10 cents per 1,000 gallons surcharge	$18,343,382 allocated for source water protection since 1991
New Jersey Water Supply Authority	Raritan and Manasquan River basins; Delaware & Raritan Canal basin, NJ	4,000 acres protected	Source water protection component to water rate; $24 per million gallons	$112,536 for 2014
Crooked River Watershed Initiative	Portland, ME	1,500 acres	Budget allocation	$175,000 annual allocation; $500,000 in NRCS grant, $500,000 in-kind match
Fondo para la Proteccion del Aqua (FONAG)	Quito, Ecuador	1.2 million acres	Voluntary; 2 % of Quito water utility revenue	$8 million in fund
Agua Por la Vida	East Cauca Valley, Columbia	19,000 acres	Voluntary contributions from water users	$3,891,340 through Dec 2013; $4,700,000 with matching funds through Dec 2010
Conserve to Enhance (C2E)	Tucson, AZ	N/A	Donation of water conserve savings and voluntary check-off on	$40,000 since 2011
Intergovernmental Cooperation Agreement for the Implementation of the York County Regional Chesapeake Bay Pollutant	York County, PA Susquehanna River	N/A	Budget allocations	$200,000 per year over 5 years

Attachment 20. Chester County Conservation District

CHESTER COUNTY CONSERVATION DISTRICT

Conserving Natural Resources for Our Future

BMP Incentive Fee Reduction Request

There is a 25% incentive review fee reduction of the E&SPC Base Fee for Best Management Practices. The request for this reduction must be submitted with the initial submission of the project. A project is not eligible for the incentive if applying for an Emergency Review.

Date:__________ Project Name:____________________________ Municipality:___________

Applicant (Owner/Firm):____

Applicant Phone:____________________ Applicant Email:___________________________

Plan Designer (Name & Firm):____

Plan Designer Phone:_________________ Plan Designer Email:________________________

Development Type & Description:____________________________

Number of Lots/Units:_______ Total Project Acres:__________ Total Disturbed Acres:_________

Receiving Stream Name:________________________ Designation (HQ, EV, etc.):__________

Description of how BMP will be implemented and percent of BMP coverage:____________________

____

____

____

____

(Applicant Signature)

Please check BMPs that apply. All BMPs must be clearly illustrated on the Post Construction Stormwater Management plans.

BMP Incentives:

( ) Green Roof - Must cover at least 50% of the proposed roof system

( ) Redevelopment - Redevelopment projects that reduce impervious by 20% based on a comparison of pre-development to post-development impervious area within the limits of disturbance

~~~~~~

District Use Only

______ The project has been **approved** for BMP discount.

______ The project has been **denied** for BMP discount.

____

(Director/Urban Team Leader Signature)
~~~~~~

Are you concerned about environmental regulations?

Are you interested in minimizing regulatory problems for your farm, while bringing fish and wildlife back to your stream?

Pennsylvania farmers have improved the quality of our land and water (non-farmers are now required to do more also). Farmers want to meet clean water regulations, but low commodity prices limit options.

The Buffer-Bonus program offers a new option for Plain Sect farms in Lancaster and Chester Counties. Better income is available to landowners who fence cattle away from streams *and* plant trees to create buffers of forests along the stream. 35 feet per side is the minimum width for this program.

Cows and streams — Healthier *apart!*

For more information on the Buffer-Bonus program and eligible BMPs please call any of the following people:

Chester County Conservation District
688 Unionville Road, Suite 200
Kennett Square, PA 19348
610.925.4920 ext. 119 for Dan Miller

Chesapeake Bay Foundation
614 North Front Street
Harrisburg, PA 17101
717-234-5550 ext. 212 for Lamonte Garber
299-5361 ext 127 for Ashley Spotts (CREP)

Comprehensive Land Services, Inc.
1911 Barren Road , Oxford PA 19363
610.564.5222 for Pat Fasano

Lancaster County Agricultural Preserve Board
150 N. Queen Street, Suite 325
Lancaster PA 17603
717.299.8355 for Matt Knepper

Lancaster County Conservation District
1383 Arcadia Road, Room 200
Lancaster, PA 17601
717.299.5361 ext 155 for Dennis Eby

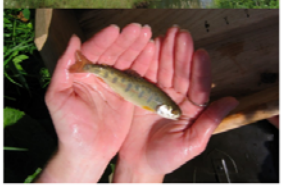
Lancaster Farmland Trust
125 Lancaster Avenue
Strasburg, PA 17579
717.687.8484 for Darren Shenk

Red Barn, Inc.
1383 Arcadia Road, Suite 001
Lancaster PA, 17601
717.393.2176 for Peter Hughes

TeamAg, Inc.
120 Lake Street
Ephrata, PA 17522
717.721.6795 for Chris Frame

The Buffer-Bonus Program for Plain Sect Farms

Stream Buffers Now Earn <u>More</u> Money For Local Landowners



The Buffer-Bonus Program for Plain Sect Farms

In Lancaster and Chester Counties (Chesapeake Bay Watershed) Plain Sect farmers who install forested stream buffers at least 35 feet wide per side can earn additional cash payments to help pay for other conservation projects on their farms.

Buffers help you *and* your stream. Conservation Reserve Enhancement Program (CREP) and a new Bonus Payment make buffers a good deal.

Streams need trees. Their roots, leaves, and shade are essential for fish populations and cleaner water.

Streamside trees also generate income through CREP which pays for all or most project costs plus annual rental income. Now the benefits are even better: a new program typically pays $4,000 for every acre of buffer that Plain Sect landowners establish along their streams. These funds are to be used for other conservation practices on the farm.

Interested?
Start by contacting anyone listed on the back. Participants need a conservation plan and a manure management plan. Bonus payments can then help pay for practices and equipment like barnyard upgrades, no-till, etc. If you need a conservation plan, we can help you get one for free or reduced cost *and* help with implementation costs.

Quality buffers that work
Landowners plant thousands of acres of buffers through CREP. *Why?*

- CREP pays 90-140% of installation costs, plus annual rental payments
- High quality fencing, crossings and watering systems are covered
- Post-planting care is paid
- Contracts are 10 to 15 years. Rent payments are typically $2,000 to $4,000 per acre over 15 years
- Cows are healthier if they do not contact muddy water.

Weed and pest control mean healthy trees.

Neighbors working together
Human activity takes a toll on fish and other stream life. When landowners restore buffers in a small watershed, fish can come back.

Through this program, cooperating neighbors can qualify their stream for construction of structures that attract trout, bass, and other fish.

Basic stream assessments provided by the program show cooperating landowners how their farms are making a difference.

A "mud sill" protects the stream bank and provides cover for fish.

The National Fish and Wildlife Foundation and others provide financial assistance for this project.

Photo credits: This page: aerial buffer: USDA-NRCS; Rows of trees: David Wise; Stream structure: CBF; Opposite: Feeding cows: Kelly O'Neill; Tree tubes and stream: Steve Smith; Small fish: Matt Kofroth; Cows in pasture: USDA-NRCS

Chester County Conservation District
688 Unionville Road, Suite 200, Kennett Square, PA 19348
(610) 925-4920 ~ Fax: (610) 925-4925 ~ www.chesco.org/conservation

DISTRICT AGRICULTURAL SERVICES
Revised 01.21.16

The following is a schedule of District Services that are available to the agricultural community. Services include writing, reviewing, and updating Mushroom Farm Environmental Management Plans and Conservation Plans, writing Manure Management Plans, reviewing REAP Applications, and providing Permit Assistance. Currently, there is no charge for writing or reviewing Act 38 plans or any plan being written as part of a USDA Farm Bill program or PL-566.

MUSHROOM FARM ENVIRONMENTAL MANAGEMENT PLAN (MFEMP)

Writing
Base Fee: **$600.00 plus**
Growing Operation: $5.00 per 10,000 ft²/year
Composting Operation:
Fresh - $1.00 per 100 yard³/year
Spent - $100.00/acre

Reviewing
Minimum Fee: $200.00 minimum
Growing Operation: $1.65 per 10,000 ft²/year
Composting Operation:
Fresh - $0.33 per 100 yard³/year
Spent - $33.00/acre

Updating
Base Fee: $100.00
Minor Revision: Base Fee plus 25% of CCCD's cost to write original plan
Criteria: 1. CCCD wrote original MFEMP
2. Operation has increased in size by 10% or less (Growing and/or Composting)
3. Other criteria as determined by CCCD staff
Major Revision: Base Fee plus 50% of CCCD's cost to write original plan
Criteria: 1. Private consultant wrote original MFEMP
2. Operation has increased in size > 10% (Growing and/or Composting)
3. Other criteria as determined by CCCD staff

Note: *In some instances, only the Base Fee will be charged for Minor or Major Revisions. This decision will be made by staff when plan is reviewed.*

CONSERVATION PLAN

Writing*
Base Fee: $500.00 plus $10/acre

Reviewing

Small Operation	0-100 acres	**$250.00**
Medium Operation	>100-500 acres	**$400.00**
Large Operation	>500 acres	**$600.00****

** **Consult Conservation District for additional fees**

Updating
Base Fee: $250.00
Minor Revision: Base Fee plus 25% of cost District would charge for a new plan
Major Revision: Base Fee plus 50% of cost District would charge for a new plan

MANURE MANAGEMENT PLAN

Writing
Base Fee: $250.00 for a one-on-one visit to complete the plan

REAP APPLICATION

Reviewing
Base Fee: $100.00

PERMIT ASSISTANCE

Basic General Permit (GP Chapter 105)
Base Fee: $250.00

General Permit (GP Chapter 105) for Endangered Species and Wetland Impacts
Base Fee: $500.00

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- Checks are payable to the Chester County Conservation District.
- *If Chester County Conservation District writes the plan, no fee will be charged for the review of the plan.
- The service fee for MFEMP and Conservation Plan reviews covers a site visit, the initial review and one (1) re-submission. The full service fee will be charged for two (2) additional reviews until an adequate letter is issued. The service fee for writing Manure Management Plans includes a one-on-one visit to complete the plan. The service fee for reviewing REAP applications includes review and verification of Conservation Plans, ACAs, uncompleted BMPs, and Agricultural E&S Plans that are part of an individual REAP application. The service fee for Permit Assistance includes the completion of all documents related to the permit application.
- Minor and Major Revisions submitted by private consultants to approved MFEMP and Conservation Plans may require an additional service fee based upon the decision of CCCD staff.
~~~

GROWING GREENER PLUS
GRANT APPLICATION
2016

For DEP use only:

1. **Short Title:** _____

2. **Applicant/Sponsor Information:**

APPLICANT	SPONSOR (Only If different from Applicant)
Organization: _____	Organization: _____
Street: _____	Street: _____
_____	_____
City/State/(9 Digit) Zip:	City/State/(9 Digit) Zip:
Contact: _____	Contact: _____
Tel: (___) ___-____ Fax: (___) ___-____	Tel: (___) ___-____ Fax: (___) ___-____
E-Mail: _____	E-Mail: _____
Federal Employer ID #/SAP Vendor #: _____	Federal Employer ID #/SAP Vendor #: _____

3. **Type of Organization:**

- ☐ School District / School
- ☐ Conservation District
- ☐ Council of Governments
- ☐ County or Municipality
- ☐ Educational Institution (Not eligible for SMCRA Bond Forfeiture and AMD Set-Aside)
- ☐ Municipal Authority
- ☐ Incorporated Watershed Association
- ☐ Incorporated Non-profit Organization
  - 501(c)(3) status? → Yes ☐ No ☐
  - PA Charitable Organization status? → Yes ☐ No ☐ Exempt ☐ (must provide proof)

4. **Project Location:**

County(ies): _____ → Municipality(ies): _____

- **(Include an 8.5"x11" copy of a USGS 1:24000 topographic map with project boundaries and quadrangle name clearly marked.)**

Quadrangle Map Name(s): _____ → Chapter 93 Stream Name/Designation: _____

Latitude: _____ → Longitude: _____ → Percent of Project in the Chesapeake Bay Watershed: _____ →

5. **Application/Project Category:**

Watershed Protection Grants (Growing Greener) ***(check only one)***

- **a.** ☐ Develop a watershed plan
- **b.** ☐ Education/outreach
- **c.** ☐ Design and/or construction
- **d.** ☐ Operation, maintenance and replacement
- **e.** ☐ Technical Assistance
- **f.** ☐ Evaluation, Assessment or Monitoring Tools
- **g.** ☐ Watershed group organization/support
- **h.** ☐ Watershed Renaissance Initiative
- **i.** ☐ Healthy Watersheds Initiative

Section 319 Nonpoint Source Grants

- **j.** ☐ 319 NPS Project

Surface Mining Conservation and Reclamation Act (SMCRA)

- **k.** ☐ SMCRA Grants (Bond Forfeiture)
- **l.** ☐ AMD Set-Aside Grants

6. Name of the DEP Regional Watershed Manager, Mining staff or Office of Water Resources Planning staff person with whom you consulted about the proposed project (see the DEP Contacts Information document #°1010-FM-GC0001l): _____

7. **Budget Summary:** (Must be consistent with attached DEP Task and Deliverable Budget Worksheet forms – do not include cents; round to the nearest dollar.)

Category	Grant Request	+	Match (15% minimum)	=	Project Cost
Salaries/Benefits		+		=	
Travel		+		=	
Equipment and Supplies		+		=	
Administration (grant max 5%)		+		=	
Contractual		+		=	
Construction		+		=	
Other		+		=	
Total for each column:		+		=	

8. → Are·you·willing·to·accept·federal·funding·for·this·project?¶ Yes·☐··No·☐¶

9. → Will·your·project·be·conducted·on·land·you·either·own·or·control?¶ Yes·☐··No·☐¶

10. → Will·your·project·be·conducted·on·land·owned·by·other·Commonwealth·agencies¶ Yes·☐··No·☐¶

→ Have·you·contacted·the·appropriate·agency?¶ Yes·☐··No·☐¶

→ If·yes,·identify·the·person·and·agency·contacted:··°°°°° → Yes·☐··No·☐¶

11. → Will·your·project·directly·or·indirectly·preclude·access·to·or·use·of·any·forested·land·for·the·practice·of·sustainable·forestry?¶ Yes·☐··No·☐¶

12. → Is·this·project·consistent·with·local·comprehensive·land·use·plans·and·zoning·ordinances·under·Acts·67·&·68·of·2000?¶ Yes·☐··No·☐··N/A·☐¶

13. → Will·your·project·address·Commonwealth·Investment·Criteria?¶ Yes·☐··No·☐¤

If·you·answered·"Yes"·to·#13,·complete·a·and·b·below.¤

¤	Permanent¶ Full-time¤	Permanent¶ Part-time¤	Temporary¶ Full-time¤	Temporary¶ Part-time¤	¤
13a.→ Number·of·NEW·jobs·created·by·project¤	°°°°°¤	°°°°°¤	°°°°°¤	°°°°°¤	¤
13b.→ Number·of·jobs·RETAINED·resulting·from·project¤	°°°°°¤	°°°°°¤	°°°°°¤	°°°°°¤	¤

14a.→ Is·your·project·located·in·an·area·designated·as·an·Environmental·Justice·community?¶ Yes·☐··No·☐¶ ¤

14b.→ Is·your·project·located·in·an·Act·47·Financially·Distressed·Municipality?¤ Yes·☐··No·☐¤

15. → Project·Eligibility·and·General·Priority·Identification·(see·the·documents·relating·to·the·Special·Watershed·Initiatives·(1010-FM-GC0001h),·Growing·Greener·Priorities·Outside·of·the·Bay·Watershed·(1010-FM-GC0001i)·and·AMD·Prioritizations·(1010-FM-GC0001j)·if·applicable):¶

°°°°°¤

16. → Regional·Priority·Activity·and·Watershed·Identification·for·Growing·Greener·and·Section·319·Nonpoint·Source·Applications·(see·the·documents·relating·to·the·Special·Watershed·Initiatives·(1010-FM-GC0001h),·Growing·Greener·Priorities·Outside·of·the·Bay·Watershed·(1010-FM-GC0001i)·and·EPA·Section·319·Priorities·(1010-FM-GC0001k)·if·applicable):¶

°°°°°¤

17. → Mining·Program·Priorities·for·SMCRA·Bond·Forfeiture·and·AMD·Set-Aside·Grants·(see·the·document·titled·Abandoned·Mine·Drainage·(AMD)·Prioritization·Activities·and·Watersheds·(1010-FM-GC0001j)·if·applicable):¶

°°°°°¤

18. → Project·Executive·Summary:··(Please·limit·to·space·provided)¶ ¤

°°°°°¤

18. → Project·Executive·Summary·(continued):··(Please·limit·to·space·provided)¶

°°°°°¤ ¤

¶

ATTACH·THE·APPLICATION·CHECKLIST·AND·THE·REQUIRED·ATTACHMENTS¶

CERTIFICATION·AND·SIGNATURE·OF·APPLICANT·(REQUIRED)·AND·SPONSOR·(IF·APPLICABLE)¶

Applicant:··I·certify·that·the·information·in·this·application·is·true·and·correct·to·the·best·of·my·knowledge.¶

°°°°° → → °°°°° → ¶
→ Applicant·Organization → Date¶
°°°°° → → → °°°°° → ¶
→ Printed·Name → Signature → Title¶

Sponsor:··I·certify·that·the·information·in·this·application·is·true·and·correct·to·the·best·of·my·knowledge.··I°certify·that·I·am·willing·to·accept·responsibility·for·a·grant·on·behalf·of·the·applicant.¶

°°°°° → → °°°°° → ¶
→ Sponsor·Organization → Date¶
°°°°° → → → °°°°° → ¶
→ Printed·Name → Signature → Title¶

TWO·SIDED·PAGES·ONLY·-·NO·PERMANENT·BINDING·(USE·STAPLES·ONLY)—·NO·FAXES¶

SEE·THE·GROWING·GREENER·PLUS·APPLICATION·SUBMITTAL·INSTRUCTIONS·↵ (form·#·1010-FM-GC0001c),¶

DEADLINE·FOR·SUBMITTAL·IS·JANUARY·13,·2017¶

¶

Section 319 Funding

Section 319 Nonpoint Source Grant Applications are due May 10 for funding in the next fiscal year. Projects selected for funding can begin work after the contract is executed, usually in the summer/fall of the next year (approximately one year after the application is submitted). Delaware's 319 grant is divided into base and incremental funds. Projects funded by the grant can fall into either one or both of these categories.

Base funds are used to provide staffing and support to manage and implement the state Nonpoint Source Management Program. Base funds help in implementing projects to identify and address nonpoint source problems and threats, as well as funding activities that involve specific waterbodies in that state or statewide or regional projects. A portion of these funds (up to 20 percent) may be used for planning and assessment activities such as conducting assessments, developing Total Maximum Daily Loads (TMDLs), and creating programs to solve nonpoint source problems. EPA has issued supplemental grant guidelines that identify priority activities to be funded with section 319 incremental and base funds.

Incremental Funds are used for the development and implementation of watershed-based plans and Total Maximum Daily Loads (TMDLs) for impaired waters. These funds are used to restore impaired waters.

Section 319 funds are intended to be startup funds, not a continuous funding source. Sponsors may seek funding for two phases of a large project, such as Phase I planning and Phase II implementation, however, sponsors are generally not funded more than two or three times for similar efforts.

Payment of 319 funds is made in arrears for costs incurred as work is completed and upon receipt of an invoice and other applicable documentation. Invoices must be accompanied by an itemization of invoice expenditures and a report of in-kind/cash match contributions. Other cost-share documentation may also be required (see Cost Share Funds below). Payment can be expected 4-6 weeks after DNREC receives the invoice.

The following items ***cannot*** be funded with Section 319 funds:

- dredging, drainage or flood control,
- work required by regulations or permits, such as an NPDES permit,
- permit fees of any type,
- office furniture

Equipment purchased with 319 funding becomes the property of the NPS Program upon completion of the project.

Funding from the grant may also be used to support an established cost-share program. Cost-share funds from Section 319 grants ***may not*** be used to reimburse a sponsor for the following:

- Purchase of agricultural equipment, or other large pieces of equipment (equipment modifications and leasing are allowable)
- Purchase of land or land easements (these activities can be counted as matching funds in some cases)
- Any project which is directed at water *quantity* rather than water *quality*, such as dredging, drainage, or flood control
- Any practices, equipment, or supplies used to *fulfill the requirements* of any federal permit, such as a NPDES permit, or to meet enforcement requirements.
- Wetland mitigation sites
- Incentive payments or yield losses
- Practices not sanctioned by DNREC or a partner agency of DNREC
- Practices not installed in accordance with standards and specifications developed by NRCS, DNREC or other recognized standards.

Attachment 21. Rio Grande Water Fund

Comprehensive Plan for Wildfire and Water Source Protection
September 2014, Updated November 2014

Vision, Goals and Objectives

The Rio Grande Water Fund is established to achieve the vision of healthy forests and watersheds that provide a reliable supply of high-quality Rio Grande water and other benefits for New Mexico. The goal of the water fund is to protect storage, delivery and quality of Rio Grande water through landscape-scale forest restoration treatments in tributary forested watersheds, including the headwaters of the San Juan Chama Project.

The objectives of the water fund are to:

- Restore watershed functions by improving the health of streams and riparian areas,
- Mitigate the downstream effects of flooding and debris flows after wildfires,
- Reduce forest fuels in areas identified as high risk for wildfire and debris flow,
- Support forest products industries' use of wood by-products from forest fuel reduction,
- Maintain the reduced wildfire hazard in treated areas, and
- Secure sustainable financing from water users, government, investors and donors
- Facilitate payments to upstream land managers.

The Nature Conservancy convened an advisory board in April 2013 to guide the formation of the Rio Grande Water Fund. Initially, 23 organizations and agencies participated and over the course of a year the board grew to more than 45 New Mexico entities. Each advisory board member represents a unique constituency or stakeholder who cares about water security and wants to help implement large-scale forest and watershed restoration (Appendix A). The advisory board has two important roles:

- Involve local, state, federal, and tribal government and water managers, the business sector, foresters, conservation organizations and other stakeholders in the creation of a water fund that connects the Rio Grande, Rio Chama and tributaries to surrounding forested watersheds.
- Provide direction for the creation of a water fund including guidance about studies needed, creation of a comprehensive water security plan that will complement and inform other plans, and determination of the water fund structure, governance and fund raising.

The advisory board represents diverse interests, with many meeting for the first time at the comprehensive planning process.

Funding Plan

A coordinated, leveraged, multi-partner effort is needed to scale-up restoration ten-fold. The existing actions of the many agencies and organizations in the Rio Grande Water Fund provide a perfect foundation for coordinated action in a public-private partnership. Separately, the work of the key agencies and organizations has been unable to achieve the economy of scale needed to restore large areas to protect water sources. This Comprehensive Plan proposes an integrated solution that leverages existing programs and investments to achieve a larger outcome.

The Rio Grande Water Fund will collect private investments from individuals, businesses, corporations and foundations. The funding will be available for thinning, controlled burns, stream restoration, post-fire watershed restoration, planning, education and outreach, and activities that contribute to the monitoring program (see Appendix D). The Nature Conservancy will administer private donations to the Rio Grande Water Fund, drawing upon the track record and lessons learned from 12 existing water funds in Latin America. [I] An executive committee of diverse stakeholders and investors will determine which projects in the focal areas receive funding.

Written agreements, such as Memorandum of Understanding (MOU), may be needed to organize the public-private partnership and to specify the necessary commitments and fiscal agency to coordinate and leverage funding resources (Figure 11). Key elements include:

- Coordination with the Forest Service, Natural Resource Conservation Service, Bureau of Land Management and other federal land management agencies so that appropriations for hazardous fuels reduction (roughly $6 million of FY13 dollars spent in the Rio Grande Water Fund area) are targeted at the high-priority focal areas.
- Water fund for wildfire and water source protection with revenue from voluntary contributions by water users, businesses, investors and donors. These private funds will be critical to match and leverage government expenditures on forest and watershed restoration in the focal areas. (see Appendix D for list of eligible activities)
- Long-term state funding plan for forest and watershed restoration to restore the focal areas (as well as other high-priority treatment areas in New Mexico) as defined by the New Mexico Legislature in Senate Memorial 95 and House Memorial 80.
- Voluntary contributions of revenue from local governments—cities, counties, tribes, municipal water utilities, irrigation districts, soil and water conservation districts, land grants and acquis associations—to either the Rio Grande Water Fund or the long-term state funding vehicle described above.
- Investment in enterprise development, workforce capacity building and business incentives to use wood and biomass, and to re-establish a significant wood industry and restoration economy in the Rio Grande Water Fund area.

Outreach and Educational Plan

A working group of education professionals developed the vision for outreach and education as part of the Rio Grande Water Fund. The working group includes educators from Albuquerque Bernalillo County Water Utility Authority, Albuquerque Public Schools, Bosque Ecosystem Management Program, New Mexico Museum of Natural History and Science, New Mexico State Land Office, Rio Rancho Public Schools, River Source, Sandia Mountain Natural History Center, Santa Fe Watershed Association and Valles Caldera National Preserve. The working group vision is to educate and engage the community of water users so that they become active in creating a secure water future. The working group goal is to promote and support educational programs that engage people in protecting storage, delivery and quality of Rio Grande water with a focus on forest health, river ecology and a sustainable water supply.

Marketing and Communications

The Nature Conservancy will create and implement a comprehensive marketing and communications plan for the Rio Grande Water Fund that will result in increased visibility of the project. The plan will initially extend over a 12-month period with the aim of increasing fundraising potential and building support for the Rio Grande Water Fund with multiple audiences. The goal is to tell the water fund story by:

- Raising awareness among water users about where their water comes from; and
- Sharing the experiences of the many New Mexicans who will benefit from the creation of the fund.
-

Tactics and strategies include: creating talking points and a message blueprint advocating for the water fund; highlighting the water fund in print publications that are disseminated throughout the state; creating digital assets including web features, online slideshows, social media postings and video; pitching the water fund story to local, regional and national media outlets; and providing opportunities for advisory board members and partners to use these materials in their communications and marketing efforts. The Rio Grande Water Fund website will provide a "clearing house" for education outreach.

Monitoring Plan for Rio Grande Water Fund

Jobs and Economic Development
To assess the progress in developing New Mexico's forest industry and job creation, the Rio Grande Water Fund proposes the following indicators be reported on an annual basis: number of full time, part time and seasonal jobs created; number of businesses created that operate in New Mexico, including those receiving wood supply from a water fund project; amount of wood product used by local communities and businesses; value of leveraged state and local resources committed to forest/watershed restoration; and value of private and public investment in forest industry infrastructure. Periodic sampling and polling can help indicate effects on New Mexico's economy. Existing Data: Unemployment data by county, as reported monthly by the U.S. Bureau of Labor Statistics, may not adequately reflect the impact of the Rio Grande Water Fund on New Mexico's forest industry.

Rio Grande Water Fund Financing
Sustainable funding is necessary to ensure the water fund meets its goals and objectives within the timeframe agreed upon by stakeholders. While some of the work may be paid for through grants and donations, much of long-term work could be paid for with reoccurring funding from the state legislature, state and federal agencies, and downstream water users such as municipalities/water utilities, agricultural districts and industry. The metrics for evaluating funding will consider two timescales: 1) short-term funding (0-20 years) to finance treatment of high-priority forested

watersheds; and 2) long-term funding (beyond 20 years) to finance maintenance of treated areas. For both timescales, the measure is whether sufficient funding is secured to accelerate restoration. The Rio Grande Water Fund will continuously track and provide quarterly reports on funds raised as well as the number of participating municipalities, water utilities, water customers and water fund donors.
Existing Data: Federal and state agencies can provide data on available funds to be used for forest and watershed treatments. Municipal water utilities can also provide data on funds used for restoration.

Outreach and Education
For youth education, the measures of progress will include: number and percentage of students reached in school programs; number and percentage of schools within watershed area participating in programs; number and percentage of youth participating in summer and after school programs; and demonstrated understanding of core forest health concepts. Metrics for adult outreach and education programs will include: dollars from individual donations to the Rio Grande Water Fund; number of people reached through marketing and outreach; number of events sponsored and the number of attendees; number of parents and teachers involved in student education programs; and digital media measures, such as website visits and Facebook likes/shares.
Existing Data: School systems and environmental education providers are already collecting and compiling data about the programs they currently offer to youth and adults.

As part of its monitoring plan, The Rio Grande Water Fund will assess changes in wildfire behavior relative to untreated areas.

The Rio Grande Water Fund will include a monitoring program to track the environmental and economic effects of restoration activities, ensure that investments are achieving their anticipated impacts, and enable corrections to management strategies.
Economic Consequences and Benefits to New Mexico

The cost of thinning one acre of dense forest is $700 in most parts of the Rio Grande Water Fund area. Multiply $700 by 30,000 acres of ponderosa pine and mixed conifer forests treated in the water fund area every year, and the total price tag could reach $420 million over 20 years. To put this large investment in the "natural infrastructure" of forested watersheds into context, Albuquerque recently invested $450 million in a water treatment plant.

The value of investing in forest restoration can be illustrated by the full cost of a single wildfire, such as the 2011 Las Concha's fire which had a price tag estimated at $246 million, or $1,000 to $2,150 per acre —more than half the cost for 20 years of increased forest restoration and substantially more per acre. Additionally, a recent study estimated the four-year cost (2009-2012) of wildfires in New Mexico at $1.5 billion, well above the $420 million investment proposed by this plan.

To accelerate the pace of this wildfire and water source protection project, $21 million a year will be needed from all sources—the Rio Grande water fund, government revenue and other sources. Currently, about one-third of this amount, or $6 million annually, is being invested in federal hazardous fuels reduction in the focal areas. Clearly, it is more cost-effective to invest in "prevention" than to pay to "react" to damaging wildfires. Over time, the cost of prevention will decline as a larger forest industry is established. A transition period will be needed, and the Rio Grande Water Fund can fill the need as described in this Comprehensive Plan.

Attachment 22. Schuylkill River Restoration Fund

SCHUYLKILL RIVER RESTORATION FUND

Grant Guidelines for 2016 Round

Goals and Purposes of Watershed Restoration grants

Watershed Restoration grants are available to non-profit organizations, county & municipal governments, and other related government agencies to undertake implementation projects that will improve the quality and quantity of water in the Schuylkill River and its tributaries. The goal of the Schuylkill River Restoration Program is to fund projects in the Schuylkill River Basin that are consistent with restoration and water management goals for the Schuylkill River.

Funding Priorities

Implementation Projects:

General Funding Area – Funding will be given to projects that mitigate water quality and quantity problems in the Schuylkill River watershed resulting from acid mine drainage, agricultural runoff, and stormwater issues.

Focus Area 1: Perkiomen Creek - At least 10% of available Exelon funds *may be* targeted toward implementation projects within the Perkiomen watershed. Eligible projects in the Perkiomen Creek Watershed may include stormwater management, agricultural runoff mitigation, and pathogen remediation.

Focus Area 2: Philadelphia Water Supply - A portion of the available funds will be used for projects that are able to demonstrate protection of the Philadelphia drinking water supply. Eligible projects will address stormwater management, agriculture runoff mitigation and pathogen remediation within the drainage of, or in areas of significant influence on the Philadelphia drinking water intakes in the Schuylkill River and the Schuylkill watershed in Philadelphia.

Land Transaction Assistance Projects:

Targeted to assist land trusts and conservation organizations with the transaction costs associated with the preservation of targeted lands within priority watersheds. A separate set of guidelines has been established for this program. Please contact the Schuylkill River Heritage Area for more information or visit http://schuylkillriver.org/Grant_Information.aspx for full program guidelines.

Evaluation Process

Projects will be evaluated in a two-step process that includes (1) a Letter of Intent followed by (2) an invitation to submit a full application if the Letter of Intent is recommended by the Advisory Committee. (Letter of Intent is not required for Land Transaction projects)

I. GENERAL APPLICATION

APPLICANT INFORMATION		
Organization		
Address		
City	State	Zip
Phone	Fax	Web
Municipality	County	
Contact Name		
Title		
Email		

MATCH SOURCES		
Source	Amount	Committed or Pending
	$	
	$	
	$	
	$	

☐ I give permission to the Schuylkill River Greenway Association and the Schuylkill River Restoration Fund Advisory Committee to forward this application to other funders for review and potential support.

SIGNATURES			
Name (print)	Title	Signature	Date

SCHUYLKILL RIVER RESTORATION FUND

Grant Guidelines for 2016 Round

Goals and Purposes of Watershed Restoration grants
Watershed Restoration grants are available to non-profit organizations, county & municipal governments, and other related government agencies to undertake implementation projects that will improve the quality and quantity of water in the Schuylkill River and its tributaries. The goal of the Schuylkill River Restoration Program is to fund projects in the Schuylkill River Basin that are consistent with restoration and water management goals for the Schuylkill River.

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Evaluation Process

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SCHUYLKILL RIVER RESTORATION FUND	2016 Grant Application

I. GENERAL APPLICATION

APPLICANT INFORMATION		
Organization		
Address		
City	**State**	**Zip**
Phone	**Fax**	**Web**
Municipality	**County**	
Contact Name		
Title		
Email		

PROJECT INFORMATION	
Project Type ❑ AMD ☐ Agriculture ☐ Stormwater Focus Area 1: Perkiomen Creek ❑ Storm water ☐ Agriculture ☐ Pathogen Remediation Focus Area 2: Philadelphia Water Supply ❑ Storm water ☐ Agriculture ☐ Pathogen Remediation Land Transaction Assistance (check all that apply) ❑ Conservation Easement ☐ Fee Ownership ☐ Donation ☐ Purchase	General Funding Area
Project Title	
Project Location	
Project Description Short description of the project approximately 50 words	

BUDGET INFORMATION	
Grant Request	**$**
Required Match	$
a. Cash Match	$
b. In-Kind contributions	$
Total Project Cost	$

MATCH SOURCES		
Source	Amount	Committed or Pending
	$	
	$	
	$	
	$	

□ I give permission to the Schuylkill River Greenway Association and the Schuylkill River Restoration Fund Advisory Committee to forward this application to other funders for review and potential support.

SIGNATURES			
Name	Titl	Signatur	Dat

APPLICATION NARRATIVE

Please address all of the following items in the order in which they are presented. This narrative is limited to a total of five pages. Any application with a narrative longer than five pages will not be eligible for funding.

1. **Objectives** – What are the specific goals and objectives of the project and how will they be completed?

2. **Background** – Describe the background of the project. Why is this project needed? How was it identified? What was the original cause or circumstance that developed the need for this project?

3. **Criteria** – Please address the priority criteria listed in the program guidelines, specifically how this project will improve the quality and quantity of the water within the watershed.

4. **Experience** – Describe your organizations experience in completing similar projects.

5. **Timeline** – Please provide a project timeline showing major tasks, sequence to be performed, and start and end dates.

6. **Deliverables –** Please list the estimated deliverables for this project. (e.g. – number of native trees planted, number of stream miles restored, total linear feet of streambank fencing installed, square feet of riparian buffer restored, etc.).

II. ATTACHMENTS

1. **Technical** – Please include the following, if available, as they relate to your project:

(a) Project location map

(b) Site plan or photograph

Please note: Do not include design drawings, sketches, multiple project photographs and other detailed technical information. You will be able to present and communicate these items during your project presentation.

2. Budget – Please attach a project budget showing the estimated expenses for the entire project. (accounting for both requested grant funds and matching funds)

Criteria

Evaluation factors include:

- The project's ability to improve the quality and quantity of water in the Schuylkill River;
- The project exhibits high standards of planning and design, including implementation of Best Management Practices;
- The relationship to previous watershed restoration efforts within a particular area;
- The project is consistent with local, state, federal, or other plans;
- The project is positioned for implementation with little or no additional planning;
- The project is single-phased or in the final phase of implementation. *Projects that will require multiple phases to have demonstrable affects on water quality or quantity will not be considered unless the submitted phase will result in measurable improvements;*
- The project will require minimal monitoring following completion to demonstrate positive environmental effects;
- The project will effectively leverage the resources of two or more partners, including a sponsoring partner with sufficient capacity to manage the project following completion or will utilize volunteers;
- How the project will impact low income or minority populations?

Award Amounts

- Grant applicants may request between $20,000 and $100,000.
- Applicants working in the Perkiomen Creek Watershed may request between $5,000 and $100,000.

Match Requirements

- All projects require a minimum of 25% match.
- Cash and in kind services are eligible match sources. However, projects showing high levels of cash match will be given priority in the ranking and grant award process.
- Matching funds derived from private, non-governmental sources are encouraged, but not required.

Grant Period

All projects must be completed by December 31, 2018.

Eligible Expenses

Grant funds may be used for the following purposes:

- Implementation: Includes labor, materials, signage, site preparation, permit fees, and any other

"hard costs."

- Project management: Up to 10% of the grant award may be utilized for direct costs Associated with project management by the applicant or subcontractor. Eligible project management expenses include: subcontractor/consultant fees, salary for organizational staffresponsible for project implementation, travel, meeting expenses and other direct costs.

- If a project has remaining design issues that need to be completed prior to implementation, the review committee will consider this as an eligible expense on a case by case basis. However, the applicant must demonstrate that the project's implementation phase will still be completed during the three year grant period.

Grant funds may NOT be used for the following purposes:
- Land acquisition (implementation grant funds cannot be used for land acquisition)
- Projects that are being undertaken to satisfy local, state, or federal regulatory requirements.

Contractor Selection:

All contractors working on projects funded by a grant through this program must be selected by a competitive process. Applicants who desire to use specific contractors not selected competitively, may request approval to do so from the Schuylkill River Heritage Area. The Schuylkill River Heritage Area reserves the right to review and approve all selected contractors.

Letter of Intent Process

Organizations must submit an electronic copy of the Letter of Intent to tfenchel@schuylkillriver.org by the stated deadline.

The Letter of Intent shall be NO LONGER than two (2) pages, should be on company letterhead and must include the following:

- Project Name andlocation
- Project Director and contactinformation
- Brief summary of theproject
- Objectives of project and how it meets the program guidelines and criteria
- Estimated grant request and matching fund sources

** Organizations should include a third page in the Letter of Intent showing a project site map and photograph, if appropriate.

Electronic copy of the Letter of Intent must be submitted no later than 4:00 p.m. on February 17, 2016.

Full Application Process

Invited organizations should submit one (1) original hard copy as well as an electronic copy of their full application. This application will include:

- □ A Cover Letter
- □ Part I – GeneralApplication.
- □ Part II - Project narrative. Maximum of five (5) pages
- □ Part III –Attachments.

Copies should **NOT** be stapled but bound by paperclip and/or butterfly clip. Applicants should also submit an electronic copy of their full application no later than the application date of April 15, 2016 at 4:00p.m.

Application narratives longer than five pages WILL NOT be considered for funding. Applicants who are invited to submit a full application will also be expected to present their proposed project to the Advisory Committee. These presentations will be held in early May at the offices of the Schuylkill River Heritage Area in Pottstown, Pennsylvania. A representative of the Schuylkill River Heritage Area will contact you to set up the presentation time.

2016 Schuylkill River Restoration Fund Grant Timeline

- January 6: Application materials available online at www.schuylkillriver.org
- February 17: Letters of Intent due to SRHA by 4:00 p.m.
- March 9:
- April 15: Invitation to submit Full Application notice sent

APRIL 15, 2016 DEADLINE

Full Applications are due to the Schuylkill River Heritage Area, Attn: Grants Program Coordinator, 140 College Drive, Pottstown, PA 19464 by 4:00 p.m. on April 15, 2016. Electronic copies sent to tfenchel@schuylkillriver.org Schuylkill River Heritage Area • 140 College Drive • Pottstown, PA 19464 • 484-945-0200 Fax 484-945-0204 •tfenchel@schuylkillriver.org

Schuylkill ActionNetwork Strategic Plan
2016-2020

Appendix A: Background on the SAN's Organizational Development Appendix B: 2016 Workplans

SAN Drinking Water ProtectionHistory

Following the passage of the Clean Water Act and the Safe Drinking Water Act in the early 1970s[1], we started to think very differently about our rivers and streams and how they impact our daily lives. The Schuylkill River, which was once seen as a place to dispose waste, is now a vital resource for our quality of life. As the largest single tributary and source of fresh water to the Delaware River, the Schuylkill River is also an important component of the Delaware Estuary. The river provides opportunities for recreation, helps to meet our energy needs, and is a major source of freshwater to the Delaware Estuary, a major economic driver for the region.

However, one of its most important benefits is something we all rely on every day, drinking water. More than 2 million people get their drinking water from the river and streams in the Schuylkill watershed, making protecting it a very important goal for water suppliers. Over a decade ago, the Philadelphia Water Department (PWD) embarked on a very ambitious effort to identify and prioritize all of the potential pollution threats to the Schuylkill River, which provides about half of the city's drinking water. This process led to the creation of a protection plan for the river, laying out a roadmap for addressing these threats. One of the primary goals of this plan was to create a mechanism for regional coordination across geographic, regulatory, and jurisdictional boundaries. The Schuylkill Action Network (SAN) was created shortly thereafter to help accomplish this goal. The SAN takes a watershed-wide approach to protecting drinking water sources by partnering with

upstream communities, other regional water suppliers, businesses, governments, and watershed protection groups.

Strategic Plan Background

Since its inception, the SAN has regularly produced a Strategic Plan to help guide the network's future growth and direction. The SAN 2016-2020 Strategic Plan (the "Plan") was developed through an effort of the SAN Planning Committee to serve as a guide for the next five years. The Plan was informed by the SAN's original goals and purposes, past priorities and long-term agenda items, as well as the current and ongoing work of its various workgroups, committees, and partners.

The SAN facilitated a variety of processes for gathering new input from partners and watershed stakeholders during the strategic planning update process. Early in 2015, the Planning Committee and Executive Steering Committee (ESC) initiated the planning process by identifying key themes for the new plan. During the summer of 2015, the Planning Committee held regional strategic planning listening sessions in Reading and Philadelphia and engaged members online through a webinar meeting. Several online surveys developed for water suppliers, recreational users, and the general public were distributed throughout the watershed to garner additional input. In total, over 300 SAN partners and stakeholders provided responses. All solicited feedback was organized by the SAN Planning Committee and incorporated into new strategies and objectives which are reflected in the Plan below.

The Plan is a tool crafted to guide and coordinate the SAN's work over the next five years and to communicate the SAN's intentions to the surrounding community of partners, potential partners, and funders. Planning is a fluid process and this plan was designed to be regularly revisited – and revised – as needed as part of the work planning process. The Plan is supported and further detailed by the yearly workplans for each SAN workgroup/committee.

The SAN is a voluntary partnership dedicated to meeting its mission and vision for the Schuylkill River. The deadlines, actions, and commitments of this Plan are subject to the availability of sufficient resources and funding to carry them out. The SAN leadership will periodically review the progress of the Plan, make adjustments as needed to reflect the latest priorities, needs and available resources, and continue to work toward the vision and mission of the SAN at an efficient and feasible pace.

Overview of SAN Strategic Goals

Strategic Goal	**Workgroup/Committee Responsible**
To advance drinking water and watershed protection for the Schuylkill River and its tributaries by **facilitating communication and decision making** on a regional, state, and federal level. Work collaboratively to **ensure the availability of resources, expertise, and commitments** to support the work.	Executive Steering Committee
Focus efforts on improving watershed management, especially activities that will **enhance the quality and flow of Schuylkill waters** for the protection of public health and aquatic resources. Create and maintain an effective network that **maximizes the resources of its membership** to protect and restore the Schuylkill watershed.	Planning Committee
Maximize reduction and/or treatment of **abandoned mine drainage** discharges.	Abandoned Mine Drainage (AMD) Workgroup

Maximize reduction and/or prevention of **agricultural impacts** to water quality.	Agricultural Workgroup
Improve **public support** for watershed protection actions.	Education & Outreach Workgroup
Engage recreational users of the watershed in activities that lead to **increased awareness** and advancement of watershed protection and restoration strategies.	Recreation Workgroup
Facilitate and strengthen communication and coordination among regulatory agencies, downstream water users, and basin stakeholders regarding **point source compliance programs** and **drinking water protection** strategies.	Pathogens/Compliance Workgroup
Maximize reduction and/or prevention of **stormwater runoff** pollution.	Stormwater Workgroup
Promote a **sustainable landscape** in the Schuylkill River watershed through strategic conservation and efficient land resource use to protect the integrity of water supplies for future generations.	Watershed Land Protection Collaborative Workgroup

Vision

The Schuylkill watershed is a healthy ecosystem and a foundation for a thriving network of communities in southeastern and central Pennsylvania. It is the largest source of fresh water to the Delaware River and an important natural resource of the Delaware Estuary. Residents recognize themselves as citizens of the watershed and they value its unique cultural and natural resources. Reflecting this common value, residents, businesses, non-profit organizations, and governments actively work to address current and past threats to drinking water sources and watershed health while working to protect these natural resources from new stress. Members of the Schuylkill Action Network share information, expertise, and technology to help each other achieve this shared vision of clean water and a healthy environment for the Schuylkill River and its tributaries. Management practices, restoration efforts, and protective measures are implemented using a sustainable source of funding to improve and protect the water resources and water quality of the Schuylkill River watershed.

Mission

The mission of the Schuylkill Action Network is to improve water resources in the Schuylkill River watershed by working in partnership with local watershed organizations and land conservation organizations, businesses, academics, water suppliers, recreational communities, local governments, and regional, state, and federal agencies to transcend regulatory and jurisdictional boundaries in the strategic implementation of protection measures. The SAN seeks to achieve this mission through enhanced communication and collaboration and, more specifically, by working cooperatively with interested parties to:

- Support existing efforts and implement actions to restore and protect water quality in the Schuylkill River watershed;
- Promote the long-term coordinated stewardship and restoration of the watershed and educate others regarding their roles in protecting the watershed and water supplies;
- Transfer the experience and lessons learned to other communities; and
- Enhance intergovernmental communication and coordination by working together on the identification and resolution of environmental issues with shared regulatory responsibility.

SAN Objectives

To improve the quality of drinking water as indicated by:

- Reduction in annual pollutant loadings to source water due to drinking water protection efforts.
- Participation of Schuylkill River water suppliers in SAN workgroups and events directly supporting utility's Source Water Protection Plans and Source Water Protection Plan goals.

To improve watershed health as indicated by:
- Increased efforts to achieve healthy and resilient aquatic ecosystems.
- Promoting the restoration of impaired stream miles and continuing to further advance the protection of stream miles through the network's many collaborative efforts and watershed strategies.

To improve public value as indicated by:
- Significant improvement in public perception of the Schuylkill River as a vital regional natural resource that should beprotected.
- A return to the river by the public for the purposes of recreation, sport, and enjoyment.

Key Strengths of the SAN

Overview

During the strategic planning process, SAN members were asked to describe the services provided by the SAN that they value most. These services should be maintained and/or improved by the SAN in order to achieve a shared vision for a clean and healthy Schuylkill watershed. The following themes represent this feedback and are incorporated throughout the goals, strategies, and objectives of the SAN leadership and workgroups.

Resource

The SAN provides valuable resources and information related to the Schuylkill watershed. This has been a primary objective of the SAN since its inception, and achieved by utilizing the SAN website as a clearinghouse of information on Schuylkill-related topics, documents, reports, guides, photos, and more. Maintaining this benefit of the SAN is important for the watershed community and is embedded as a key element of the strategies for the next 5 years. The SAN should also continue to look for additional opportunities to serve as a resource for its partners that will add value to the shared work throughout the watershed.

The SAN's key strengths as a resource include being:

- A leading source for information on watershed related issues or materials;
- Supportive, and possessing a high level of watershed knowledge and expertise;
- A resource for assisting partners in obtaining funding necessary to complete their priority projects. For example: partners submit many multi-organizational grant applications, focus on sub-award projects coordinated by the Partnership for the Delaware Estuary, and provide letters of support for SAN priority projects.

Networking and Collaboration

One of the primary goals of the SAN is to serve as a platform for individuals, organizations, agencies, utilities, schools, businesses, and others to come together to share resources, information, and strategies that improve the health of the watershed.

The SAN's key strengths in networking/collaboration include:

- Effective collaboration with partners;
- Welcoming and engaging members;
- Strategically planning events and meetings;
- Bringing together a variety of stakeholder groups. For example: environmental nonprofits, water utilities, and governments;
- Having geographical diversity among its partners;
- Continuously developing the SAN and including new members/partners;
- Providing professional connection and networking.

Issue-focused Action

The SAN is largely structured around issue-driven workgroups, tasked with addressing the most pressing problems in the watershed. This approach is valued by SAN partners in that it represents a prioritized approach and leads to high quality projects. In the strategic plan, strategies have been developed to ensure that issue- driven work continues and is expanded when possible.
The SAN's key strengths in maintaining issue-focused action include:

- The SAN's focus on many different aspects of water, while maintaining a central emphasis on watershed health and clean and safe drinking water;
- Linking together drinking water, waste water, recreation, societal issues, and economics;
- Defining clear objectives;
- Taking proven approaches to solving problems;
- Identifying tools to protect and restore the watershed.

Watershed Improvements

The SAN has positively impacted the environmental conditions of the watershed, as well as communities in the watershed, despite limited money, resources, and staff. This is especially highlighted in the Agricultural and Abandoned Mine Drainage workgroups where water quality improvements are very noticeable. Throughout this strategic plan, the SAN will focus on achieving watershed improvement results.

The SAN's key strengths in achieving watershed improvements include:

- Fostering positive environmental change;
- Positively impacting communities in the watershed;
- Clearly communicating what progress looks like to its members;
- Achieving goals despite limited money, resources, and staff;
- Identifying tools to protect and restore the watershed.

Education and Outreach

The SAN works to integrate education in many of its watershed restoration and protection goals. In addition to maintaining an Education and Outreach Workgroup, the SAN strives to implement actions that increase the understanding of and affinity for the Schuylkill Watershed across all of its work. Education and outreach is also a key focus in many of the SAN's partners' missions. When

possible, education and outreach should be further embedded throughout SAN initiatives and projects with the goal of increasing public awareness and care for the watershed.

The SAN's key strengths in education and outreach include:

- Making the connection between upstream and downstream waters;
- Including strong, clear messages about clean water in outreach materials;
- Creating and managing the Schuylkill Action Students program.

Data and Monitoring[2]

In order to advance the restoration and protection efforts of the SAN, it is important to document the extent and impact of activities. This is largely accomplished through water quality monitoring efforts. Data collection and monitoring is a key element of many SAN workgroup strategies. The SAN will work to acquire resources for monitoring and to connect local monitoring activities with larger regional monitoring and data collection and modeling efforts. A primary goal of the SAN will be to provide a mechanism for sharing data among partners to assist in identifying priority areas for program implementation, reducing contamination, and protecting public health.

The SAN's key collaborative monitoring and data collection efforts include:

- Abandoned mine drainage monitoring efforts completed by the Schuylkill Headwaters Association, Schuylkill Conservation District, United States Geological Survey, and the Army Corps of Engineers.
- Agriculture monitoring efforts by the Delaware River Watershed Initiative (DRWI).
- Conservation monitoring efforts by the DRWI Additional monitoring strategies of the SAN include:
- Provide guidance and support to workgroups for determining and measuring workgroup objectives.
- Provide guidance and support to the SAN partners for integrating watershed monitoring information into the SAN website and other outreach tools.
- Support the maintenance of key monitoring stations, such as the USGS gauge station at Norristown and other USGS gauge stations located upstream of drinking water intakes.
- Coordinate watershed monitoring and analysis needs with current or new initiatives through the Delaware River Watershed Initiative and with the Academy of Natural Sciences.
- Support water suppliers in their efforts to better coordinate and share water quality data and information.
- Encourage the involvement of colleges and universities in helping the meet additional monitoring needs in the Schuylkill River watershed.
- Identify opportunities and provide support for connecting data and monitoring activities of the Delaware Valley Early Warning System with SAN watershed outreach and planning efforts.

Water Suppliers

Since the inception of the SAN, the SAN has been actively involved in water suppliers' source water protection planning and implementation efforts.

The SAN should continue to:

- Maintain and update the water suppliers list on the SAN website.
- Share relevant information with the water suppliers listserv.
- Participate in water supplier source water protection meetings.

Appendix A:
Background on SAN Organizational Development

Creation of SAN

The Schuylkill Action Network (SAN) is a collaborative network of over 100 partners working together to improve water resources in the Schuylkill River watershed. The SAN seeks to achieve this vision by working in partnership with local watershed and land conservation organizations, businesses, academics, water suppliers, recreational communities, local governments, and regional, state, and federal agencies.

In response to source water assessment efforts in 2003, the Philadelphia Water Department (PWD) sought help from the Environmental Protection Agency (EPA) Region III to develop a network of stakeholders that would include various agencies and organizations working to protect Schuylkill watershed resources. The EPA led the creation of the Schuylkill Action Network to address major threats to drinking water in the Schuylkill watershed, including pollutants from agriculture, abandoned mines, stormwater, and sewage.

The SAN was structured as a series of integrated workgroups or committees to address the identified threats to the Schuylkill River. The original workgroups include: Abandoned Mine Drainage, Agriculture, Stormwater, and Pathogens/Compliance Workgroups. Each workgroup was designed to meet regularly, under the leadership of a volunteer chairperson, to discuss watershed issues and plan and implement projects of strategic importance related to these topics. These workgroups were designed to represent the core of the SAN and the vehicle by which most of the SAN's work is accomplished. Workgroup membership and meetings were created to be open and accessible to anyone.

In addition to the workgroups, the SAN included an Executive Steering Committee (ESC), Planning Committee, Education/Outreach Committee, and Data Team to guide and support the activities of the workgroups. The ESC met semi-annually to provide high-level guidance and buy-in from the major public agencies, while the Planning Committee met monthly to provide more hands-on strategic direction to the SAN and help insure good internal communication. The Education/Outreach Committee and Data Team provided support services, benefitting all SAN workgroups and members. Figure 1 depicts the original organization of SAN workgroups and their responsibilities as of 2004.

Evolution of SAN

Over time, the organization of the SAN has evolved in several critical ways. In 2004, a subcommittee of the Stormwater workgroup was convened to address the recommendations of the Schuylkill River Watershed Conservation Plan. This was a critical first step for the SAN, taking a preventative approach to drinking water threats. The Schuylkill River Conservation Plan led to a successful Pennsylvania Department of Environmental Protection *Growing Greener* grant to prioritize land for preservation based on drinking water protection.

Also in 2004, the PWD and the Partnership for the Delaware Estuary (PDE) submitted a successful Targeted Watershed Grant proposal to the EPA to fund a series of projects in the Schuylkill watershed. This funding ($1.15 million of federal funds, leveraging an additional $1.49 million in match from various sources) has been critical in allowing the SAN to take action on the ground. It is also an example of the SAN at its best: a diversity of organizations and agencies leveraging their individual strengths/skills to bring new resources to the watershed and tackle widespread and complex problems in a targeted, strategic way. Under this grant, local organizations acted as project managers and received and managed project funds for implementation of projects. Projects included abandoned mine drainage remediation, stormwater management improvements,

agricultural improvements, and educational pilots and case studies. This grant provided funding for the SAN to implement a set of selected projects from 2004 to 2008, during which time the SAN leadership cultivated new financial resources to continue and expand on this model of implementation.

In August 2005, the Planning Committee began the process of strategic planning by taking a critical look at SAN's organizational structure and how it could be improved to enable and encourage more stakeholder leadership within the SAN. As part of this effort, several important decisions were made, including:

- ***The decision to add a non-governmental position at the ESC level*** for more balanced representation. Based on this decision, the PDE joined the SAN ESC in the beginning of August 2006.

- ***The decision to maintain a federal lead for the ESC*** in order to provide credibility to the collaborative approach and influence for stakeholder involvement.

- ***The decision to expand Planning Committee membership to include representatives from each of SAN's workgroups*** to provide a mechanism for additional stakeholder involvement and better communication across groups.

- ***The decision to focus on the Schuylkill River Congress as the primary outreach event for the SAN each spring, and hold the SAN Annual Workshop each fall.***

In spring 2006, the SAN engaged the Institute for Conservation Leadership (ICL) to lead a stakeholder input process to inform the strategic growth and direction of SAN.

The following critical decisions were made by the SAN leadership in August 2006 in response to the ICL's recommendations:

- ***The decision to elevate the Watershed Land Collaborative (WLC) to full workgroup status*** in an effort to make the connection between land and water management more explicit. As a result, the WLC was reinvigorated and met quarterly, which re-engaged land conservation interests in the watershed.

- ***The decision to devote time/effort to and get professional help for improving SAN communications****,* including exploring new resources and ideas for improving SAN's internal communication, creating a website, and exploring the feasibility of a major public outreach campaign. As a result, one of the SAN's top priorities for organizational improvement was to hire a communications consultant to provide assistance on these critical communication issues in 2007.

- ***The decision to devote time/effort to sort and identify specific policy issues that the SAN could play a role in addressing on an issue-specific basis.*** As a result, the Planning Committee evaluated the vast number of policy suggestions made by stakeholders to identify discrete actions for the SAN and its leading agencies to undertake for improvement

- ***The decision to target municipalities as a key audience in the work of both the Stormwater Workgroup and the Watershed Land Protection Collaborative.***

Also in 2006, the SAN contracted with the Environmental Finance Center (EFC) to explore the feasibility for building a sustainable financing/funding mechanism for Schuylkill Watershed protection activities. Based on interviews and research, the EFC's report outlined the scale, sources, and institutions for financing/funding and steps to fill the financing/funding gap for each of the

SAN's priority areas/workgroups. The EFC also made a series of recommendations to the SAN leadership, including developing a unified restoration/protection plan, expanding community engagement with outreach/education and by working with relevant stakeholder groups, focusing on prevention, and convening an Implementation Task Force to help create a funding institution.

In 2004, the SAN launched a webpage. In 2007, SAN created its website: www.SchuylkillWaters.org. This website serves as a clearinghouse for information on the Schuylkill Watershed, SAN projects, and provides a public outreach component of the network. The website also features an internal component, designed to facilitate interaction amongst SAN partners, allowing for projects reports to be created and shared, news items to be shared, email between workgroups and SAN members, and the hosting of workgroup documents. Since 2007, the website was upgraded to add an interactive calendar and was integrated with social networking tools and sites.

In 2009, the SAN, through the PDE, brought on a full time coordinator to oversee the day-to-day operation of the SAN, facilitate collaboration amongst members, and advance workgroup goals by securing funding and resources for priority projects.

In 2011, the SAN updated it strategic plan for another 5 years (2011-2016). This plan renewed commitments of the SAN workgroups, integrated new initiatives and workgroups strategies into the process, and set out an ambitious agenda to strengthen SAN's presence in the watershed.

In 2013, the SAN celebrated it 10-year anniversary, which was commenced with a series of events throughout the year, including a celebration that recognized the many milestones that the SAN was able to achieve, commitments of SAN partners, and a renewal of the stakeholders that contributed to making SAN what it is today. The SAN also released a 10-year progress report that highlighted all of the workgroup accomplishments since the SAN's inception.

In 2014, the SAN secured a fellow to assist the coordinator, which has since been turned into a full time SAN specialist position. Today, SAN now has two-full-time staff members to oversee the network and assist workgroup with advancing an aggressive agenda for a clean and healthy Schuylkill Watershed.

SAN Today

Since 2003, the SAN has grown to approximately 150 organizations (over 500 people) including local watershed organizations and land conservation organizations, businesses, academics, water suppliers, recreational communities, local governments, and regional, state, and federal agencies. The SAN uses unique skills and experience of each of its partners to implement on-the-ground projects that improve water quality of the Schuylkill River and its tributaries.

Today, the SAN is composed of an Executive Steering Committee, a Planning Committee, six workgroups (Abandoned Mine Drainage, Agriculture, Education & Outreach, Pathogens/Compliance, Stormwater, and Watershed Land Collaborative) and is developing a seventh, Recreation workgroup. Figure 3 depicts the SAN's organizational structure as it is in 2016.

Over the past several years, the SAN has strived to encourage greater stakeholder participation and leadership. Because of these efforts, there are many opportunities for stakeholders to be involved in the SAN today. All workgroup meetings, times, and locations are posted on the SAN website and are open for anyone to attend. With the completion of its most recent strategic plan, an even more aggressive and inclusive agenda has been established to guide SAN through 2020. Many new

partners have become part of the SAN and together, this collaborative network will continue to lead efforts to restore and protect the Schuylkill Watershed.

Figure 1: SAN Organizational Chart 2004

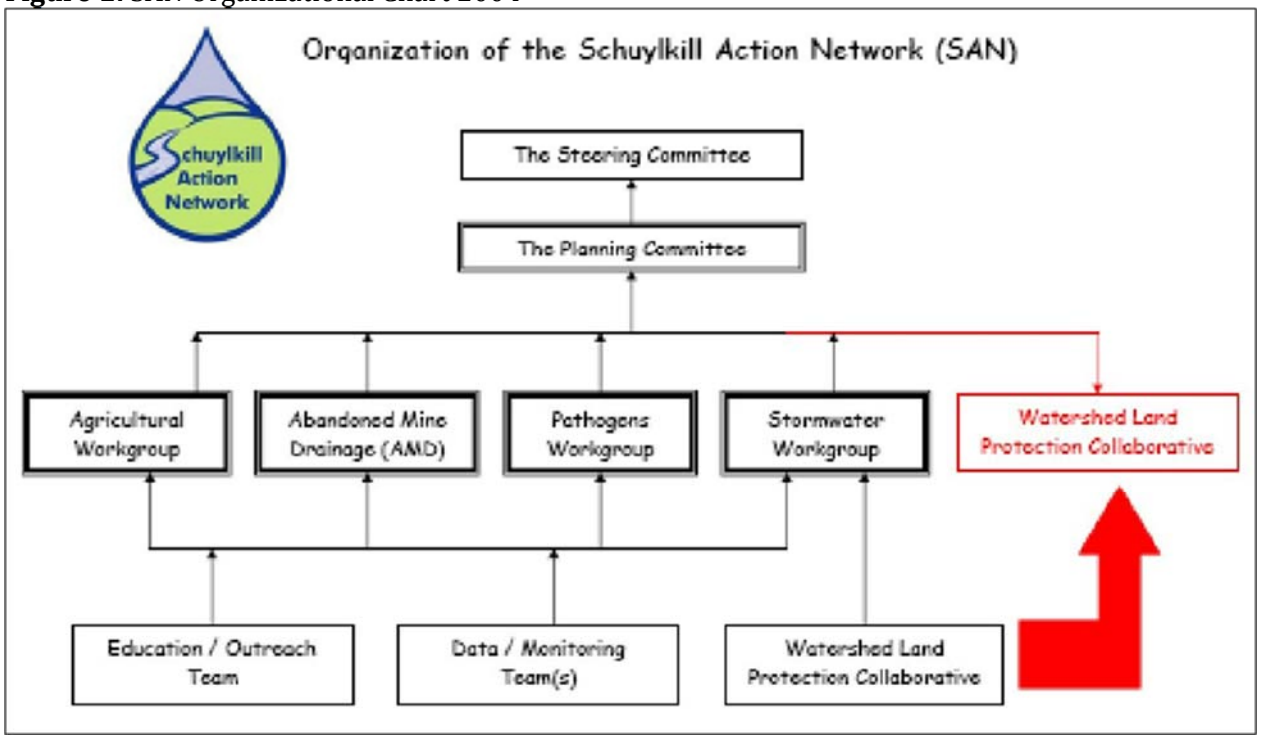


Figure 2: SAN Organizational Chart 2007

Schuylkill Action Network Financing Strategy
A White Paper Report Prepared by the Environmental Finance Center University of Maryland
January 2007

Introduction

This report was produced by the Environmental Finance Center (EFC), which is located at the National Center for Smart Growth Research and Education at the University of Maryland, College Park. EFC's work on this project was partially supported by a contract from the Partnership for the Delaware Estuary on behalf of the Schuylkill Action Network (the Network). The purpose of this report is to outline the funding and financing challenges related to restoring and protecting water resources in the Schuylkill watershed, and to provide recommendations to the Network for supporting key financing needs throughout the region. Our analysis focused on the Network's four "areas of concern" – abandoned mine drainage, agriculture, wastewater, and stormwater – highlighted in the

Recommendations for the Network

The Environmental Finance Center recommends that the Network focus on three core issues: implementing water quality programs, support land conservation efforts, and supporting farming economy initiatives. Therefore, we recommend the following next steps:

Conduct an "audit" of federal and state water quality and technical assistance funding programs. There are dozens of state and federal technical assistance and funding programs available to farmers. Though not all of them are relevant to farmers in the Schuylkill watershed, it is very likely that all available resources are not being leveraged. Participating Network partners should sponsor and support a detailed analysis of these programs. Where resource gaps

exist, partnerships should be developed to increase implementation capacity. An effective case study for this approach is the Chesapeake Bay Foundation's work on assisting farmers and NRCS offices in providing technical assistance.

Focus Network resources on developing and supporting financing land conservation programs. It is our recommendation that the Network focus its resources, specifically those in the agricultural work group, on supporting efforts to protect resource lands and critical open space throughout the watershed. One of the "truths" associated with environmental finance is that it is cheaper to protect than it is to restore, and preventing the impacts of rapid development and stormwater runoff on water resources is critically important to the success of the region's financing and implementation efforts. Protecting agricultural lands and the region's agricultural economy is the most effective way to manage population growth and to encourage new development in appropriate areas.

Leverage community partners to develop market-based farming programs. In November of 2005, the American Farmland Trust (AFT) produced a report for the Berks County Community Foundation called the Challenges and Opportunities for Agricultural Viability in Berks and Schuylkill Counties. The purpose of the study was to analyze the agricultural industry in Berks and Schuylkill Counties and to determine what actions could be taken to sustain the industry for the next 25 years.[40] In addition to providing a robust analysis of the status of agriculture in the watershed, it provides a thorough list of next steps and recommendations for the communities to take to sustain the agricultural industry. It is our recommendation that the Network use these recommendations generated by AFT as the basis for its strategic goals. The report outlines a variety of market-based tools, tax incentives, economic development programs, and technical assistance programs that, if fully implemented, would reduce the cost associated with protecting water resources.

Stormwater Management

Recommendations for the Network

Up to this point, the focus of the Network has been to use existing grant funds to implement innovative stormwater best management practices and control technologies. These types of demonstration projects are often the most effective way for organizations and communities to educate citizens and community leaders on the types of innovative options available for protecting and restoring local watersheds and water resources. However, as the Network moves forward, it should consider its ability to sustain these programs, as well as its ability to influence the financing process in communities across the watershed. Ultimately, successfully managing stormwater will require significant changes in the state's regulatory and governance structure, and the Network should focus its energies on facilitating those changes.

Focus on new development and land protection. The most significant threat to the water resources throughout the watershed is new development, specifically development in the wrong places done in the wrong way. The Network should focus on working aggressively to protect agriculture and open space in the upper part of the watershed. Preventing stormwater problems in the watershed is much less expensive than fixing them. For the same reason, the Network should also continue its efforts to implement low-impact development standards in communities across the watershed. There have been many community efforts throughout the region working with local governments to implement low impact development and stormwater standards. The Network should concentrate on continuing these efforts.

Work with communities to develop strategic approaches to financing and implementation. What is needed at the local level is a business plan approach to financing and implementing stormwater and wet weather management programs. Some common characteristics are evident

among successful stormwater utility programs. The most successful programs have relied heavily on a business plan model, which guides both the program evolution and funding decisions. The strategy for accomplishing the program is defined, the type and magnitude of costs are projected, resource requirements are determined, timing issues are resolved, and then the analysis of specific funding mechanisms take place.[52] The Network has an opportunity to work with state leaders, NGO's, academic institutions, and other stakeholder interests to develop technical assistance programs that focus on implementing this business plan approach in communities across the watershed.

Continue to focus on public education and outreach. A real strength of the Network has been its focus on education and outreach. This is critical in the financing process because it provides a way for local and state officials to communicate to their citizens and constituents the value of their investment, and the return to their community. In most communities, "needs" are the key driver of stormwater program and funding strategies. Authority, capability, and a clear vision of the mission are essential, but in the absence of compelling needs local government leaders apply their attention and resources elsewhere.[53] And, it is often the citizens of the community that identify and define these needs. The Network should focus its community outreach and education resources on this issue. As mentioned throughout this report, one of our primary goals was to provide recommendations to the Network on how it can strengthen and leverage its role in the financing and implementation process. One of the most effective ways to accomplish this would be to work in partnership with state and community officials to develop strategic education and outreach programs across the region.

Recommendations for Moving Forward

Develop unified restoration goals. One of the strengths of the Network is its ability to tap into the many studies, planning efforts, and conservation and protection strategies being developed in communities across the watershed. In addition to the source water assessment, there have been watershed protection plans developed, TMDL studies implemented, Act 167 and MS4 permits developed (and ultimately enforced), as well as a host of other planning and implementation efforts focused on protecting water resources throughout the watershed. The opportunity to leverage all of these efforts is a critical benefit for the Network and its participating organizations. However, there does not appear to be a codified, unified restoration and protection plan in place. The assessment identified the threats to drinking water resources, but it does not clearly establish pollution reduction goals, strategies for reaching these goals, or strategies for implementation. The Network has a unique opportunity to formalize and codify a water resources restoration plan and strategy.

Large-scale ecosystem restoration efforts are successful when there is a unifying theme, implementation plan, and template for success. The decision by watershed leaders to combine drinking water protection efforts with water quality protection efforts was based on an implicit understanding that the unifying theme was the need to protect and manage water resources. The goal of each organization or institution participating in the Network may be different. There are constituents and stakeholders targeting myriad issues including water quality, stormwater management, wastewater management, abandoned mine drainage, drinking water protection, habitat, and open space protection to name a few. The power of this type of approach is that by facilitating the implementation of a broad number of objectives and programs through an equally broad network of partner organizations, institutions, and communities, the larger collective goal can be more effectively and efficiently realized and maintained. The challenge is in harnessing and leveraging the necessary leadership and institutional structures necessary for sustained implementation.

This is a very important next step in the financing effort. With cost estimates for restoring and protecting water resources in the hundreds of millions, if not billions of dollars, it is critical that local and state leaders clearly define the scale of the problem, associated costs, and the strategy for achieving program goals. Successfully protecting the watershed will require the use of public revenue, and leveraging the necessary taxes and fees will require a clear understanding of how the resources will be invested and how they will allow communities to reach targeted goals and strategies. The financing process will require a mosaic of resources and tools, but the overall goal must be clearly defined. Therefore, our recommendation is that the Network lead this planning effort.

Conduct a thorough cost analysis. Successfully financing anything is very difficult, if not impossible, without a clear understanding of the associated costs. We have identified the relative scale of the costs associated with each of the four areas of concern, but a detailed cost study was beyond the capacity of this project. A cost analysis or study is critical, however, because it will not only identify the costs associated with specific best management practices and restoration strategies, but it will also help to identify the need for various financing instruments, as well as the role and responsibility of various levels of government, and the most appropriate revenue generating tools.

Adopt a green Infrastructure approach. At its core, the development and implementation of the Schuylkill Action Network was the logical next step in the region's watershed protection efforts. Resource experts have been insisting for years that communities must embrace a more comprehensive approach to watershed protection, thereby incorporating critical issues such as drinking water quality and quantity through the protection of source water resources, wet weather management, and water quality programs. From an efficiency point of view, this type of comprehensive approach makes sense because it offers a structure for addressing multiple community priorities thereby reducing implementation costs, and increasing the return on the community's investment. However, water resource protection is in many ways just the first step. The next step is for communities to incorporate environmental programs, initiatives, and goals into a unifying green or natural infrastructure plan. By adopting a green infrastructure approach, the Network would provide community leaders with a very effective tool for coordinating natural resource protection efforts, thereby increasing return on investment. In short, a green infrastructure approach would provide the Network leadership with a very effective implementation and organizational strategy.

A green infrastructure framework can help coordinate and incorporate a broader array of community priorities and programs. For example, a major threat to water resources in the Schuylkill River watershed is directly related to agricultural best management practices. However, an equally threatening situation relates to the loss of farmland within the region. Implementing aggressive water quality best management practices can be in direct conflict with trying to reduce pressure on farmers thereby keeping land in agricultural production. If farmland is lost and developed, communities face even greater water quality threats. With a green infrastructure approach, the role of working lands is incorporated into regional decision-making efforts. Green infrastructure planning can articulate the role of working lands in the regional landscape. As a result, local leaders can develop more effective land management tools that work to protect critical resource lands, thereby accomplishing multiple community objectives.

The actual on-the-ground activities may not be any different, but it reduces inherent conflicts and provides a framework for more effective utilization of limited fiscal resources.
There are other potential barriers facing the restoration effort that could be resolved with a broader green infrastructure approach. One of the strengths of the Network effort is that it highlights the connectivity of a watershed. What happens upstream has real downstream impact.

Therefore, everyone has a role to play in the outcome. This is especially true when considering drinking water protection. Those communities that rely on clear raw water for drinking water needs are very concerned, or should be concerned, about what happens upstream.

However, when considering drinking water, upstream ends at the intake pipe. In the Schuylkill River watershed, there is very little incentive, in respects to drinking water protection, for leaders within the city of Philadelphia to fund aggressive stormwater and water quality programs. If the benefits of these actions are entirely downstream of water intakes, there will be little incentive to spend limited fiscal resources on those activities. This not only impacts downstream water quality issues; it also impacts other community priorities. For example, many stormwater best management practices have positive impacts on the amount of trash in city streets and waterways, urban heat island effects, and local quality of life issues. If programs focus exclusively on watersheds and source water protection, the opportunity to leverage a variety of community priorities could be lost.

A green infrastructure approach creates linkages among environmental and natural resource protection priorities and between rural and urban communities. It has also been shown to reduce the costs associated with major stormwater and combined sewer overflow management efforts. The Low Impact Development Center, on behalf of the Natural Resource Defense Council, recently produced a report called Rooftops to Rivers, which highlighted the fiscal benefits of urban green infrastructure programs.[54] Implementing the types of programs highlighted in this report will probably not have a direct impact on drinking water resources in the Schuylkill watershed, but they will impact water resources, the quality of habitat areas, energy needs, and the development of livable communities. By taking a broader green infrastructure approach, the Network can leverage significant resources and accomplish multiple community priorities. The result is increased efficiency, and a greater return on investment.

Expand community participation and engagement. Effective financing strategies incorporate multiple financing sources, instruments, and institutions in a way that allows for sustainable, long-term implementation. There is no "silver bullet" solution for implementation. It will require the participation and commitment of each citizen in the basin and effective coordination among communities, institutions, and stakeholders throughout the region. In many ways, this is the greatest asset of the Network. It provides a structure for participation missing from other large-scale community restoration efforts.

Successful implementation requires the participation of the entire community and the integration of multiple institutions, organizations, and planning efforts. Perhaps no issue is more politically charged than that of money and the investment of scarce fiscal resources. Therefore, financing strategies require a community-based approach, incorporating all relevant stakeholder groups into the process. A strength of the Schuylkill Action Network is that it brings together multiple stakeholder groups in an integrated, cohesive way. This is an extremely important first step in protecting and restoring water resources because it focused on the role of community in the process.

Convene a state-level implementation task force. Protecting and restoring water resources is, or should be, a community priority, and success will eventually require the commitment of elected officials and local leadership at the highest levels. The Network has done a very effective job of engaging citizen activist groups, environmental organizations, and state and federal regulatory and agency partners. However, it is not clear the Network has been successful engaging and leveraging the participation of elected officials, both at the state and local level. Bottom-up citizen-based efforts are most successful when there is a concerted effort to engage leadership from the very beginning of the process. It is critical that the Network continue to engage state and local elected officials and work to have their endorsement of the process. From a financing perspective, success will require these very leaders to make a number of critical difficult decisions related to revenue

and financing. If these leaders have not been engaged throughout the process, there is less chance that the necessary resources will be dedicated.

Focus on stormwater management and land use policy. As the source water assessment indicates, the greatest threat to water resources throughout the region is inadequate stormwater and wet weather management programs. Due to rapid population growth and land conversion, stormwater is becoming exponentially more difficult and expensive to manage. Compounding

Develop a Schuylkill River Watershed Trust. There are three key areas of financing capacity that must be addressed for the Network's goals, and the community's goals, to be realized.
There must be sufficient, dedicated revenue sources; there must be the appropriate institutions to invest those resources; and there must be a concerted effort to invest those resources in a way that will reduce costs, improve efficiency, and ultimately maximize the community's return on investment. Addressing these financing priorities and capacity issues will continue to be the responsibility of the existing local, state, federal, and private financing institutions. However, there are significant financing gaps that must be addressed. The Environmental Finance Center recommends that the Network lead an effort to develop a Schuylkill River Watershed Trust (the Trust). The purpose of the Trust would be to finance green infrastructure and water resource protection and restoration projects across the watershed. Essentially, the role of the Trust would be to finance the implementation of the Network's goals, strategies, and recommended best management practices. The following section provides a few brief ideas and recommendations addressing how the Trust might be capitalized and governed, as well as a potential framework for decision-making and developing investment priorities.

Capitalizing the Trust. Our recommendation is that the Trust be capitalized by attaching a fee to every water extractor and every water discharger in the watershed. This means that not only will industry dischargers and extractors pay into the Trust, but also every residential drinking water and wastewater ratepayer in the region. Protecting natural resources, especially water resources, is something that benefits and impacts every citizen in the watershed, whether upstream or downstream. Everybody must pay in order to solve the problem. If every citizen (including corporate citizens) in the basin participates, the Trust would be capitalized with tens of millions of dollars per year.

The role of the Trust. The Trust's role would be to invest in the most efficient, cost effective strategies for protecting the region's water resources and green infrastructure. The Trust should have either the capacity to secure the revenue to fund innovative capital infrastructure projects, or it should be developed to work in partnership with other financing institutions such as PennVest and local water and wastewater authorities. The goal should not be to replace local and state financing institutions, but to expand the capacity of communities to fund and finance critical program and projects.
Potential governance structure. There are a number of different approaches and frameworks for developing an institution like the Trust.[55] However, there are a few critical issues that must be addressed when considering how the organization would be governed. First, the institution should be chartered or sanctioned by the state. The endorsement and leadership of state officials at the highest levels will be critical. Without it, the Trust would not have the capacity to effectively fulfill a financing role in the region. A good example of this type of relationship is the Chesapeake Bay Trust in Maryland.[56] Though the Trust would be charged with financing water resource programs, it would not necessarily need to be authorized to serve as a financing authority. The Trust could function much like Maryland's Chesapeake Restoration Fund program, where fees are collected by existing authorities and financing institutions.[57]

The advantages of developing the Schuylkill Watershed Trust. Ultimately, the purpose of a regional financing entity like the proposed Trust is to improve the capacity of local and state financing efforts by filling critical financing institutional gaps. One of the most significant of these gaps in Pennsylvania results from the municipal governance structure. In the Schuylkill watershed alone there are dozens of incorporated municipalities, each with their own priorities, levels of capacity, and laws and regulations. As a result, restoration and protection efforts are often scattered and uncoordinated. In addition, there are extraordinary losses of efficiency when financing cannot be implemented on a regional or unified basis. The Schuylkill Watershed Trust would have the capacity to coordinate municipal and state financing efforts and apply fiscal resources where they are critically needed, regardless of geopolitical boundaries.

Other advantages include:

1. The funds would focus on the most intractable, difficult financing issues such as land protection, AMD, and wildcat sewer systems. In effect, the Trust would fill a critical institutional gap within the watershed; and,

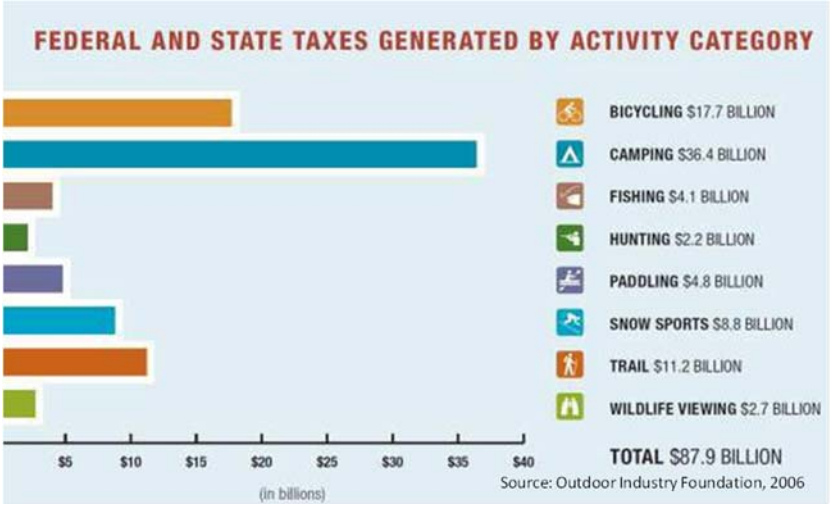
2. The funds generated and invested by the Trust would result in potentially significant cost savings to communities throughout the watershed as a result of reducing the need for significant infrastructure upgrades.

Potential barriers and challenges. Establishing the Trust would require a significant amount of coordination and overcoming significant implementation barriers. For example, political resistance would most likely be significant, especially from the drinking water and wastewater systems. It is very difficult to impose and implement significant fee-based programs for any purpose, water resource protection being no exception. The fact that the Trust would be capitalized through multiple water systems would require even more political action and energy. Implementing a program like this within multiple institutions will be difficult, and may actually require state legislation and participation. Finally, the Trust would need to be established as an independent institution. However, it may be necessary to finance best management practices at public institutions. This will almost certainly present a number of legal issues and barriers that will need to be addressed.

To help meet these challenges, it is our recommendation that the Network lead efforts to develop a strategy for implementing the Trust. The first step would be to convene a task force, as recommended above, and have the task force begin its work by conducting a feasibility study for implementing the Trust concept. Again, the task force should be endorsed and supported by all levels of government, and it should focus on outlining the appropriate structure, decision-making criteria, legal barriers, and organizational mission.

Attachment 23. An Ounce of Prevention—Protecting Natural Systems

Clean water is vital to all life, but especially important to human life and well-being. Healthy watersheds provide clean water, cleaner air, rich soils, minimization and mitigation of flooding, and provide opportunities for recreation, food and jobs. The best solution for preventing pollution impairments in healthy watersheds is to protect them from degradation, which often results from poor land use decisions and a lack of conservation.[16]



Maintaining the health of our waters can help minimize costs associated with flooding. Forests, whether upland or alongside streams, reduce the rate at which stormwater runs off the land and allows rainwater to slowly infiltrate, providing substantial groundwater recharge opportunity while reducing erosion on the landscape as well as within stream channels.[4]

Protecting healthy watersheds also helps to promote recreation and tourism. A study completed by the Outdoor Industry Foundation in 2003 found that outdoor recreation generated $88 billion in state and federal tax revenue, provided approximately 6.5 million jobs, and contributed $730 billion annually

Attachment 24. Truckee Meadows Water Fund

TRUCKEE MEADOWS WATER AUTHORITY

STAFF REPORT

TO: Board of Directors
THRU: Mark Foree, General Manager
FROM: John Enloe, Director of Natural Resources
Janet Phillips, Chairman, Truckee River Fund Advisory Committee
Sylvia Harrison, Legal Counsel
DATE: April 20, 2016
SUBJECT: **Discussion and action on adoption of Resolution No. 240: A resolution to approve funding for the projects recommended by the Truckee River Fund Advisory Committee and an authorization for the Community Foundation to fund such projects from Fund proceeds**

Recommendation

The TRF Advisors recommend that the TMWA Board authorize by resolution the funding of the following projects to be funded out of the Truckee River Fund (TRF). This recommendation stems from a Fund advisors' meeting held on February 26, 2016 where multiple grant proposals from the Winter request for proposal process were reviewed and discussed. In correspondence to the TRF Grant Priorities (see attachment), six projects are recommended for funding totaling $203,184, out of eight project funding requests for $584,184. Each of the project details are summarized below:

PROJECTS RECOMMENDED FOR FUNDING

Project: Watershed Education Initiative (WEI)
Organization: Sierra Nevada Journeys (SNJ)
Amount Recommended: $ 33,041
Organizational Match: $ 7,250 (Cash) $ 10,440 (In-Kind)
Project Description
Through this funding, SNJ will serve 783 students in 29 classrooms throughout northern Nevada. Conducted over a four-week period, WEI includes three in-class lessons, one field-study experience, pre- and post-assessments, classroom extension lessons for teachers, family and community engagement, and citizen science. Curriculum developed and delivered by SNJ's team

TMWA Benefit

This project satisfies the TRF Grant Priorities II through VI – *Watershed Improvements, Local Stormwater Improvement, Re-Vegetation Projects, Rehabilitation of Local Tributary Creeks and Stewardship and Environmental Awareness.* The project meets multiple objectives. Specifically, it will implement a water infiltration system to filter the water before it enters back into the creek channel; remove noxious weeds along the creek bank and re-vegetate the area with native and drought tolerant plants to help with soil stabilization and erosion; is part of a multi-phased restoration project to re-channelize Trout Creek near the Union Pacific Railroad; and includes an interpretive kiosk at the Trout Creek Pocket Park to educate youth and adults about the restoration efforts for Trout Creek.

Project: Johnson Canyon Westside Restoration – Construction Implementation
Organization: Truckee River Watershed Council (TRWC)
Amount Requested: $ 67,000 **Amount Recommended:** $ 67,000
Organizational Match: $ 79,000 (Cash) $ 6,000 (In-Kind)

Project Description:

The watershed assessment describes the geomorphic and hydrologic processes in the watershed and how *human actions* have interrupted these functions. From that scientific and technical basis, the assessment identified areas of erosion and impacted function within the watershed. Preliminary restoration actions and project concepts were derived from the assessment, including benefits and gains, impacts to the drainage network, sediment production, relative cost, and project sequencing. *The road network is the single largest erosion trigger for sediment yield and hydrologic modification.* Within the western portion of the watershed, the assessment identifies over a dozen high priority sites. These sites are located on property owned by the Truckee Donner Land Trust (TDLT) and US Forest Service (USFS). TRWC is partnering with these organizations to complete the restoration.

TMWA Benefit:
This project supports TRFs Grant Priorities II and VIII – *Watershed Improvements and Leverage Stakeholder Assets and Participation.* This project will reduce sedimentation by eliminating erosion sources in Johnson Canyon and TRWC will partner with the Truckee Donner Land Trust and US Forest Service to complete the restoration.

TRUCKEE RIVER FUND GRANT PRIORITIES

Based upon the aforementioned discussion, TMWA recommends that the Advisors give preference to well-prepared and thought out grant requests for projects and programs that mitigate substantial threats to water quality and the watershed, particularly those threats upstream or nearby treatment and hydroelectric plant intakes:

Aquatic Invasive Species (AIS): Projects/Programs that support the prevention or control of aquatic invasive species in the main stream Truckee River, Lake Tahoe, other tributaries and water bodies in the Truckee River system.

Watershed Improvements: Projects that reduce erosion or sediment, suspended solids, or TDS discharges to the River. Projects or programs that are located within 303d (impaired waters) sections of the River should be considered, both in California and Nevada. Innovative techniques should be encouraged.

TRUCKEE MEADOWS WATER AUTHORITY (TMWA)

RESOLUTION NO. 240
A RESOLUTION APPROVING PROJECTS FOR FUNDING UNDER THE TRUCKEE RIVER FUND
WHEREAS, the Truckee Meadows Water Authority and the Community Foundation of Western Nevada (the "Community Foundation"), a Nevada non-profit corporation, have entered into an agreement creating The Truckee River Fund (the "Fund") to foster projects that protect and enhance water quality or water resources of the Truckee River, or its watershed;
WHEREAS, pursuant to the Fund Agreement, an Advisory Committee has solicited proposals from prospective beneficiaries of the Fund;
WHEREAS, the Advisory Committee has recommended projects for funding, as listed on Exhibit A;
WHEREAS, the Advisory Committee has the responsibility of securing preliminary approval for projects from the TMWA Board, which may disapprove projects for any reason, or may approve projects by resolution, subject to Community Foundation Board approval;

I. **WHEREAS**, the Community Foundation has advised the Advisory Committee that the projects' applicants are eligible beneficiaries of the Fund;
II. **WHEREAS**, the Board has reviewed the recommendation of the Advisory Committee and has found that the projects as listed on Exhibit A are consistent with the purposes of the Fund and merits funding;
III. **NOW THEREFORE, BE IT RESOLVED** Board of Directors of the Truckee Meadows Water Authority:

IV. The projects set forth on **Exhibit A** are approved for funding under the Truckee River Fund in the amount set forth in such Exhibit, subject to final authorization by the Community Foundation Board, and subject to the provisions of the Fund Agreement, including without limitation the requirements set forth in Article VC.

Truckee Meadows Water Authority
Resolution 240 (continued)

NOW, THEREFORE, BE IT RESOLVED by the Board of Directors of the Truckee Meadows Water Authority,

Upon motion of_____, seconded by_____, the foregoing Resolution was passed and adopted on April 20, 2016 by the following vote of the Board:

Ayes: _____

Nays: _____

Abstain:_____Absent: _____

Approved April 20, 2016

_____
Geno Martini, Chairman

STATE OF NEVADA,)
: ss.
COUNTY OF WASHOE.)

On this 20th of April, 2016, Geno Martini, Chairman of the Board of Truckee Meadows Water Authority, personally appeared before me, a Notary Public in and for said County and State, and acknowledged that he executed the above instrument freely and voluntarily and for the purposes therein mentioned.

_____
Notary Public

TRUCKEE MEADOWS WATER AUTHORITY - TRUCKEE RIVER FUND AGREEMENT

This Truckee Meadows Water Authority Truckee River Fund Agreement (the "Agreement") is entered into between Truckee Meadows Water Authority, a joint powers authority under the laws of the State of Nevada (the "TMWA"), and the Community Foundation of Western Nevada (the "Community Foundation"), a Nevada non-profit corporation.

CREATION OF FUND

The Donor and the Community Foundation hereby create The Truckee River Fund (the "Fund"). The Fund is established as a component part of the Community Foundation under Section 1.170A-9(e) (11) of the Treasury Regulations. TMWA and the Community Foundation agree that nothing in this Agreement is to affect the status of the Community Foundation as an organization (a} that is described in Section 501{c)(3) of the Internal Revenue Code of 1986, as amended (the "Code") and (b) that is not a private foundation within the meaning of Section 509(a) of the Code. This Agreement *is* to be interpreted in a manner consistent with the preceding provisions and in conformance write the requirements of the Code and Treasury Regulations for "component parts" or "component funds" of a "community trust," as those terms are defined or used in Sections 1.170A-9(e) (10) and 1.170A-9(e) (11) of the Treasury Regulations.

II

FUND ASSETS

A. Description of Fund Assets. TMWA has transferred or will transfer. to the Fund an initial contribution of Three Hundred Forty Thousand Dollars ($340,000.00) in cash. In addition to the property initially transferred to the Fund, the Community Foundation may accept additional property transferred to the Fund by TMWA or by way of gift, grant, contribution, bequest, or devise from any person or entity. However, the Community Foundation may not receive or accept any property that is required to be administered in a manner that the Board of Directors of the Community Foundation (the "Foundation Board") determines, in the Foundation Board's discretion,

(1) exempt from federal income taxation under Section 501(c)(3) of the Code, and (2) classified as organizations described in Section 509(a)(1), Section 509(a)(2}, or Section 509(a)(3) of the Code.

A. Governmental Entities. The Charitable Beneficiaries also include states of the United States of America, any of their political subdivisions, the United States of America, and the District of Columbia, but only if distributions to such governmental entities are made exclusively for public purposes.

B. Variance Power. The Fund is protected from obsolescence in will (1) jeopardize the federal tax exempt status of the Community Foundation under Section 501(c)(3) of the Code, or (2) result in the Community Foundation being classified as a "private foundation" under Section 509(a) of the Code. All of the assets of the Fund are to be held, managed, invested, and reinvested, and all of the income and principal of the Fund is to be collected and disbursed, exclusively for the charitable uses and purposes described herein in compliance with the Community Foundation 's Articles of Incorporation and Bylaws, which are incorporated herein by reference and conclusively assented to and adopted as part of the governing instruments of the Fund.

C. Contingency for Transfers. Ail transfers to the Fund by TMWA or any other donor are contingent upon the Community Foundation being classified on the date of the transfer as an organization (1) that is described in Section 501(c)(3) of the Code and (2) that is not a "private foundation" as defined in Section 509(a) of the Code. Unless the contingency is waived by TMWA or other donor, the Community Foundation must return the property transferred to it within thirty (30) days after the transfer.·

m

PURPOSES OF FUND

The Fund is created and must be operated exclusively for one or more of the exempt purposes specified in Section 501(c)(3) of the Code and the cases and regulations thereunder. The primary purpose of the Fund is to distribute the net income and principal of the Fund for such exempt purposes as recommended by the Advisory Committee (as defined below), consented to by the Board of Directors of TMWA (the 'TMWA Board"), and approved by the Foundation Board subject

to Article IV, to the organizations and governmental entities described in paragraphs A and B below that are undertaking lawful projects consistent with the purposes and uses of the Fund. Specifically, the Fund shall be used exclusively for projects that protect and enhance water quality or water resources of the Truckee River, or its watershed. For purposes of this Agreement, the organizations and governmental entities described in paragraphs
An and B below are referred to collectively as the "Charitable Beneficiaries" and individually as the "Charitable Beneficiary."

ADMINISTRATION

A General Powers and Duties of Administration. The Fund is to be administered as a component part of the Community Foundation and is subject to all of its governing instruments, including, but not necessarily limited to, the Articles of incorporation and Bylaws, and the policies and procedures established by the Foundation Board from time to time. The Community Foundation is to be responsible for the preparation and filing of all income tax returns and other legal and financial reports for the Fund that are required by the internal Revenue Service, the State of Nevada, and any other governmental agencies.

B. Advisory Committee. The Fund is to be administered by an advisory committee ("Advisory Committee)"comprised of a total of nine (9) members, consisting of three (3) members selected by each of the City of Reno, the City of Sparks and Washoe County. None of the members of the Advisory Committee may be elected officials. The members of the Advisory Committee shall serve at the pleasure of their respective local governments. The Advisory Committee shall have the authority to expend up to $25,000 from the Fund, cumulative each fiscal year, for administrative purposes. For all other expenditures, the Advisory Committee shall be required to adhere to the Project Funding Protocols set forth in subpart C of this Article IV. The Advisory Committee shall make recommendations to the TMWA Board and the Foundation Board regarding {1) distributions of income and principal from the Fund to potential Charitable Beneficiaries, (2) the investments of the Fund, and (3) any other aspects of the administration of the Fund and the Community Foundation considered appropriate by the Advisory Committee. All distributions of income and principal from the Fund must be exclusively for the exempt purposes described in Article Ill above, and the Fund must be organized and operated exclusively for the exempt purposes described therein. The recommendations of the Advisory Committee to the TMWA Board, and the Foundation Board, are solely . recommendations, and the recommendations may be accepted or rejected, in whole or in part, by the TMWA Board and the Foundation Board in their sole and absolute discretion.

C. Project Funding Protocols. The Advisory Committee shall adhere to the following procedures and requirements in making its recommendations for project funding to the TMWA Board and the Foundation Board:

accordance with the provisions specified in the Articles of Incorporation and Bylaws of the Community Foundation. Should the primary purposes for which the Fund is created?
become obsolete or incapable of fulfillment, then the Foundation Board shall consult with the TMWA Board concerning distribution of the remaining assets of the Fund to Charitable Beneficiaries for uses and purposes that are as similar as possible to the
primary purposes set forth in this Agreement.

prospective Charitable Beneficiaries of the Fund.

2. The Advisory Committee shall identify and select potential projects
for funding.

3. The Advisory Committee shall be responsible for ensuring that the recommendations submitted to the TMWA Board and the Foundation Board are in compliance with the exclusive purposes of the Fund and the Community Foundation's policies.

4. The Advisory Committee shall have the responsibility of securing preliminary approval from the TMWA Board, which may disapprove projects for any reason, or may approve projects by

resolution, subject to Foundation Board approval. Thereafter, the Advisory Committee shall have the responsibility of seeing final · approval from the Foundation Board, which may disapprove a project or prospective Charitable Beneficiary if, in the-Foundation Board' s opinion, such project or prospective Charitable Beneficiary may jeopardize the status of the Community Foundation as a tax exempt entity, or which may result in its classification as a "private foundation.".

D. Administrative Fees. The Fund is to pay quarterly administrative fees to the Community Foundation for the administration, distribution, and investment management of the Fund. The quarterly administrative fee for the Fund is to be established by the Foundation with the consent of the TMWA Board. The administrative fee for each calendar quarter is to be paid in the first month of the ne>. -t

calendar quarter by automatic deduction from the assets of the Fund. The Foundation Board may in its discretion periodically review and revise the amount of administrative fees Tobe charged to the Fund to ensure that the administrative fees are at all times reasonable and proper. However, the administrative fees charged to the Fund must not be greater than the amount of fees charged to other component funds of the Community Foundation that are of comparable size. The Community Foundation must notify TMWA and the Advisory Committee of

The Advisory Committee shall accept proposals for projects from

Accountings. The Community Foundation must render accountings for the Fund

to TMWA and the members of the Advisory Committee at least annually. Unless any person to whom an accounting is required to be rendered delivers a written objection to the Foundation Board within so.1y (60) days after receipt of the accounting, the

accounting is to be final and conclusive with respect to all transactions disclosed in the accounting. After settlement of the accounting by the agreement of the parties objecting to it, or by expiration of the sixty (60) day period, the Community Foundation will no longer be liable with respect to all transactions disclosed in the accounting, except for any

intentional wrongdoing or fraud committed by any of the employees, agents, representatives, or board members of the Community Foundation.

V

DISTRIBUTIONS OF INCOME AND PRINCIPAL

A. Minimum Annual Distributions. During each taxable year of the Community Foundation, and subject to the provisions of article !II above, the Community y Foundation, subject to the procedures set forth herein, must distribute from the Fund to or for the benefit of one (1) or more Charitable Beneficiaries as determined above the minimum amount required by the governing instruments of the Community Foundation and by the Code and Treasury Regulations to maintain the Community Foundation as an organization (1) that is described in Section 501(c)(3) of the Code and (2) that is not a "private foundation" within the meaning of Section 509(a) of the Code. The minimum distributions required to be made during each taxable year pursuant to this paragraph A are hereafter referred to as the "Minimum Annual Distributions."

8. Discretionary Annual Distributions. During each taxable year of the Fund, the Community Foundation, subject to the procedures set forth herein, may also make distributions from net income and principal of the Fund in excess of the Minimum Annual Distributions to or for the benefit of one (1) or more Charitable Beneficiaries as determined in accordance with Article IV above. However, the aggregate amount of distributions made by the Community Foundation pursuant to paragraphs A and B of this article V during any taxable year of the Community Foundation may not exceed the greater of (a) the Minimum Annual Distributions or (b) the sum of the amounts described in subparagraphs 8.1, B.2, and B.3 below.

1. Ten percent (10%) of the aggregate fair market value of the Fund, determined as of the first day of the taxable year;

2. The aggregate fair market value of contributions made to the Fund during the taxable year; plus

3. The net income generated by the Fu ND for the taxable year.

For purposes of determining the fair market value of the principal and contributions to the Fund pursuant to this paragraph 8, the Foundation Board may utilize any commonly accepted valuation method, so long as such method is consistently applied. Any net income not distributed pursuant to paragraphs A and B of this Article Vis to be accumulated and
added to principal.

C. Fund Distribution Requirements. To maintain eligibility to receive distributions from the Fund, each Charitable Beneficiary must comply at all times with the following requirements:

1. Charitable Beneficiaries must be exempt from federal income taxation under Section 501(c)(3) of the Code;

Charitable Beneficiaries shall use al! Fund distributions
projects that are appropriate and legal public expenditures;

Charitable Beneficiaries must provide financial details and/or
reports of their organizations upon request;

Charitable Beneficiaries must not use any Fund distributions for
political contributions or political advocacy;

5. Charitable Beneficiaries must either implement the projects, activities, and/or programs for which they received Fund distributions within 45 days of the end of the fiscal year in which such distributions are received, or must return all such distributions to the Community Foundation forthwith;

6. Charitable Beneficiaries must provide Community Foundation a report! Detailing the completion of their projects, activities, and/or programs; and

7. Charitable Beneficiaries must sign an agreement regard in their compliance with the qualifications hereof.

D. Disposition of Fund upon Termination. Upon the termination of the Fund pursuant to paragraph A or B of Article VI below, the Fund as then constituted (including both principal and any accrued and undistributed income) must be distributed in accordance worth Paragraph C of Article IV.

TERM

A. Fixed Term. Except as provided in paragraph B. below, the Fund is
to continue until 2009.

B. Earl Termination of Fund. If at any time during the term of the Fund, the Fund contains assets with an aggregate fair market value of less than Ten Thousand Dollars {$ 10.000.00}, and the TMWA Board determines that continued administration of the Fund would be impracticable or that the costs of administration would outweigh the anticipated benefits of continued administration, then the TMV'JA Boa rd. may terminate the Fund and distribute the Community Foundation the remaining assets of the Fund
provisions are to be governed by and construed in accordance with the laws of the State of Nevada as in effect from time to time, and the Fund is to be administered in and under the laws of the State of Nevada.

Dated this__ day of___,2004.

Choice of Law. The validity of this Agreement and the construction of its

Gender and Number. As used in this Agreement, the masculine, feminine,
or neuter gender, and the singular or plural number, are to each be considered to include the others whenever the context so indicates.

accordance with Article IV above.

vu

MISCELLANEOUS

A. Compliance with Code and Treasury Regulations. The Fund must comply with and is to be restricted by the provisions of the Code and Treasury Regulations that are applicable to it. The Agreement may be amended from time to time to comply with the applicable provisions of the Code and Treasury Regulations.

B. Amendments. This Agreement may be amended by an instrument in writing executed by a majority of all persons then serving on the Advisory Committee and by a majority of the TMWA

Board, and by an authorized representative of the Community Foundation. However, the Agreement may not be amended to authorize the affairs of the Fund to be conducted in any manner or for any purposes contrary to the provisions of Section 501(c)(3) of the Code and the Treasury Regulations thereunder.

C. Binding Effect. This Agreement is to be binding upon and is to inure to the benefit and detriment of the parties hereto and their respective heirs, personal representatives, successors, and assigns.

DONOR:

Truckee Meadows Water Authority, a joint powers authority

By:

Its: Chairman of the Board

COMMUNITY FOUNDATIO t

Community Foundation of V\lestem Nevada, a Nevada non-profit corporation

By:

Attachment 25. Pinchot Foundation Water Rate Paying Regulatory Structures

There are four governor-appointed commissions that regulate rate adjustments and allowable expenditures for revenue raised from ratepayers in the Delaware Basin: The Public Utility Commission (PUC) in Pennsylvania, the Board of Public Utilities (BPU) in New Jersey, the Public Services Commission (PSC) in Delaware, and the New York Public Service Commission (PSC) housed within the NY Department of Public Service (Table 5).

Regulatory Authority	Governance	Regulated Entities (statewide)
New Jersey Board of Public Utilities (BPU)	5 Commissioners (Chairperson, Mr. Richard Mroz), supported by professional staff. Rate requests handled by the Bureau of Rates within the Division of Water.	45 investor owned utilities
Pennsylvania Public Utility Commission (PUC)	4 Commissioners (Chairperson, Ms. Gladys Brown). PUC has Exec. Director. Rates issues recommendations made by Bureau of Technical Utility Services.	23 municipal and 61 private water utilities
New York Public Service Commission (PSC)	4 Commissioners (Chairperson, Ms. Audrey Zibelman) appointed by Governor.	277 private water companies
Delaware Public Service Commission (PSC)	5 Commissioners (Chairperson, Mr. Dallas Winslow) appointed by the Governor and supported by professional staff.	11 regulated entities

Rate changes:
Many drinking water utilities around the United States have increased rates charged to their customers in order to cover protection or restoration efforts in their source watersheds. The ease with which rates were increased has varied depending on the political and governance situation in each case. Rate increases or fees likely cannot be the only source of financing for a water fund in the DRB, but as described above, should be seriously considered and supported. Rates or fees paid by utilities or their customers are among the most reliable long-term methods for financing watershed protection and restoration efforts and impose very low costs per user, individual ratepayer, or household. More discussion on basin-wide rates or fees is found under Recommendation 2; here the focus is on issues related to changing rates for a single utility or small group of utilities.

POTENTIAL SOURCES OF LOCAL FUNDING

In North Carolina, counties and municipalities have the power to levy taxes that are author- sized by the North Carolina Constitution or statute. The expenditure of funds raised through local taxes is generally restricted to purposes enumerated by statute. Among the revenue sources authorized are bonds, property taxes, and local sales taxes. General obligation bonds and property taxes are the principal local revenue sources permitted for land conservation purposes.

Bonding enables local communities to crew- ate dedicated sources of funds for land censer- ovation and to receive matching grants from state and federal programs. While it may seem difficult to gain voter approval in the current economy, local land conservation ballot mesa- rues continue to receive strong public support. To date, several watershed communities — Durham, Durham County, Orange County, Raleigh, Wake Forest and Wake County — have successfully garnered voter approval for bonds that include funding for land conserve- ton. In North Carolina, 26 of 30 (87%) land conservation measures placed on the ballot since 1996 were approved, generating more than $600 million, including roughly $400 million for parks and land conservation in these communities.[24] The jurisdictions that passed referenda represent roughly 25% of the state population and the state's largest metro- polite areas.

North Carolina counties and municipalities could be enabled by the state to utilize dedicated revenue streams for land conservation from sources other than general obligation bonds.

The property tax is the largest revenue source for many local jurisdictions, and these proceeds may be expended for parks and open space. Property taxes could generate a steady source of funding for land conservation if they can be dedicated for multiple years. Communities in the UNRB could seek state legislation that would enable them to adopt dedicated open space taxes and fees at the local level. As another option to increase the funds available for land conservation, the six water utilities in the UNRB could consider incorporating dedicated fees for land acquisition as a supplement to their rate structure, as Salt Lake City, Utah has done. Since its fund was established in 1991, Salt Lake City has purchased 400 acres of land to protect its drinking water sources.

Raleigh has already set a precedent for watershed protection in the basin, as the Raleigh City Council dedicated $500,000 from its 2005-2006 and $500,000 from its 2006-2007 water/sewer utility revenue (separate from Raleigh's general fund) to expand protection in the Falls Lake watershed. The project includes development of this Conservation Plan and the model that informs it; out- reach to landowners, local government officials, and the general public; and land protection through donation or purchase.

POTENTIAL SOURCES OF STATE AND FEDERAL FUNDING

Local supporters of land conservation could advocate for continued statewide funding for land conservation. North Carolina already undertakes and funds land conservation through a number of state agencies and pro- grams. Four separate conservation trust funds have been established since 1986: The Clean Water Management Trust Fund, Natural Her- image Trust Fund, Parks and Recreation Trust Fund, and the Farmland Preservation Trust Fund. These programs represent the bulk of state funding for land and water protection, as well as parks.[25] In 2000, the North Carolina General Assembly voted overwhelmingly in support of Governor Hunt's plan to preserve one million acres by December 31, 2009. The Million Acre Initiative would increase the per- cent age of land preserved in North Carolina from 8.8 percent to 12 percent; however, no additional money was attached to the plan beyond existing funding.

In 2005, several of the state's leading non-profit conservation organizations, along with business, government, and professional inter- sets, launched the Land for Tomorrow initial- tie. The coalition aims to secure support from the public and the North Carolina General Assembly for a

Land and Water Conservation Bond to protect land, water, and historic places throughout the state. Land for Tomorrow is seeking a commitment of state bonds in 2006 to increase conservation spending by $200 million per year for five years. The Land for Tomorrow Coalition recommends $167 million per year in additional funding for the four existing conservation trust funds and $33 mil- lion per year for a new program to support job creation and protection of historic resources, as well as coordination and planning efforts.[26]

A local match is often required to leverage these types of funds. Increased funding for the conservation trust funds would allow the state to support key land acquisitions in the basin and provide additional matching funds to help local com- munities meet their conservation goals. Local support and state leadership are needed for the state bond measure to be successful.

At the federal level, there are two distinct types of funding for land conservation: state- directed programs, in which states receive grants from the federal government but are given broad discretion to allocate funds (sub- jet to federal program rules); and direct feeder- al programs, in which the federal government makes grants to local recipients, usually local governments. State-directed federal grants include the Clean Water State Revolving Fund, the Drinking Water State Revolving Fund, and the Clean Water Act Section 319 Nonpoint Source Grant Program. Direct federal pro- grams include the Farm and Ranchland Pro- section Program and the Forest Legacy Program. Additional federal funds may be available through earmarks and grants.

Pollutant export for this subdivision according to the Site Evaluation Tool

Parcel Run-off	Pre-Development	Post-Development	Parcel Increase
Nitrogen	92 pounds per year	322 pounds per year	230 pounds per year
Phosphorous	16 pounds per year	52 pounds per year	36 pounds per year
Sediment	1.6 tons per year	4.5 tons per year	2.6 tons per year
Peak flow for the one-year/24-hour storm	17 cubic feet per second	51 cubic feet per second	34 cubic feet per second

Pollutant output analysis performed using the Upper Neuse Site Evaluation Tool, version 3.3c, April 2006. Developed by Tetra Tech, Inc. for Upper Neuse River Basin Association. See the SET website (www.unrba.org/set) for details on the SET, case selection methodology, and calculation assumptions.

Attachment 27. Delaware Public Service Commission Draft Legislation

SPONSOR: Sen. Townsend & Rep. Mulrooney
Reps. Baumbach, Keeley, Mitchell, Osienski

DELAWARE STATE SENATE
149th GENERAL ASSEMBLY

SENATE BILL NO. 135

AN ACT TO AMEND TITLE 26 OF THE DELAWARE CODE RELATING TO THE PUBLIC SERVICE COMMISSION.

BE IT ENACTED BY THE GENERAL ASSEMBLY OF THE STATE OF DELAWARE:

Section 1. Amend Title 26, Chapter 13 of the Delaware Code by making deletions as shown by strikethrough and insertions as shown by underline as follows:

§ 1309. Recovery of costs of source-water projects in rates of public utilities.

In the case of a public utility subject to the jurisdiction of the Public Service Commission, upon the determination by the Commission that a watershed enhancement project confirmed as useful in protecting source water in a report of the Water Infrastructure Advisory Council has been placed into service by the public utility and is used and useful in the provision of public utility services, the Commission may allow the public utility to recover, in its rates, its reasonable and prudently incurred capital and ongoing operating costs for such project. Nothing in this section precludes the Commission from authorizing an allowance for funds used during construction of any such enhancement project.

Section 2. Amend § 302, Title 26 of the Delaware Code by making deletions as shown by strikethrough and insertions as shown by underline as follows:

§ 302. Determination of rate base.

(a)The Commission may, from time to time, ascertain and determine the rate base of any public utility whenever, in the judgment of the Commission, it is necessary so to do for the purpose of carrying out this chapter, and in making such determination the Commission may have access to and use any books, documents, or records in the possession of any department, board, commission or agency of this State or any political subdivision thereof. In ascertaining and determining the rate base, the Commission may determine every fact, matter, or thing which, in its judgment, does or may have any bearing thereon.

(b) If a water utility is not, pursuant to § 122(3)c. of Title 16, under review concerning its water system's ability to provide adequate service to its customers under its present certificates of public convenience and necessity or subject to a review by the Commission of the appropriate rates to be charged by the water utility in light of the quality of service being

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provided to its customers, the Commission will include in the utility's rate base, treat as used and useful utility plant, and, accordingly, allow to be fully recovered in the utility's rates without imputation of revenues, all costs which are incurred by the water utility, in the exercise of its good faith business judgment, in constructing facilities (including without limitation supply, treatment and transmission facilities) to serve the needs of existing customers or of persons who are reasonably anticipated by the water utility to be its customers within 3 years from the date used by the Commission to recognize rate base in the rate proceeding. The number of customers reasonably anticipated to be added within that 3-year period will consist of customer projections which are relied on by the utility and are generated by professional engineers or planners, governmental or regulatory agencies, officials or authorities, or the water utility itself, and which are not arbitrary and capricious. If the water utility does not, by the end of the 3-year period after the date used by the Commission to recognize rate base in the rate proceeding, reach at least 75% of the total number of customers originally anticipated to be served by the facilities, the Commission may only then require the water utility to impute revenues and then only to the extent of the number of customers it originally anticipated to be served by the facilities but who have not, as of the end of the 3-year period, been added. This section does not apply to watershed enhancement projects as defined under §1309 of this title.

(c) If a water utility is not, pursuant to § 122(3)c. of Title 16, under review concerning its water system's ability to provide adequate service to its customers under its present certificates of public convenience and necessity or subject to a review by the Commission of the appropriate rates to be charged by the water utility in light of the quality of service being provided to its customers, the Commission may include in the utility's rate base, treat as used and useful utility plant, and, accordingly, allow to be fully recovered in the utility's rates without imputation of revenues, all costs which are incurred by the water utility, in the exercise of its good faith business judgment, in investments in watershed enhancement projects under terms specifically articulated under § 1309 of this title to serve the needs of existing customers or of persons who are reasonably anticipated by the water utility to be its customers within 3 years from the date used by the Commission to recognize rate base in the rate proceeding. The number of customers reasonably anticipated to be added within that 3-year period will consist of customer projections which are relied on by the utility and are generated by professional engineers or planners, governmental or regulatory agencies, officials or authorities, or the water utility itself, and which are not arbitrary and capricious. If the water utility does not, by the end of the 3-year period after the date used by the Commission to recognize rate base in the rate proceeding, reach at least 75% of the total number of customers originally anticipated to be served by the facilities, the Commission may only then require the water utility to impute revenues and then only to the extent of the number of customers it originally anticipated to be served by the facilities but who have not, as of the end of the 3-year period, been added.

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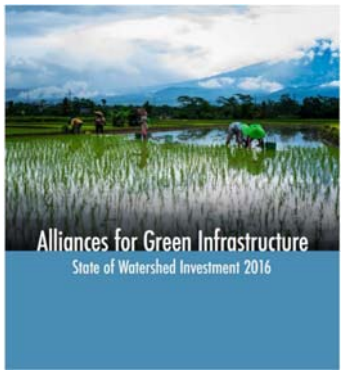
SYNOPSIS

In addition to legislation codifying the recommendations of the Clean Water & Flood Abatement Task Force, other important steps around clean water and clean-water infrastructure should be taken. This bill is intended to promote long-term freshwater security by facilitating private-sector investments in watershed enhancement projects designed to protect high-quality drinking water for Delaware. The bill provides that the Public Service Commission may allow a public utility to recover, in its rates, its reasonable and prudently incurred capital and ongoing operating costs for watershed enhancement projects that are: 1) confirmed as useful in protecting source water by Delaware's Water Infrastructure Advisory Council; 2) placed into service; and 3) used and useful in the provision of public utility service. The bill also provides that the Commission may authorize an allowance of funds used during the construction of such project. This bill is timely in that private-sector entities actively are considering such investments in areas that will improve Delaware's water supply and freshwater resources, and in that Delaware advocates are receiving national recognition and funding for the development of these models.

Author: Senator Townsend

Attachment 28. Alliances for Green Infrastructure



3 Guiding principles
Emphasize the pay-off, not the process. For example, talk about clean water and boating opportunities instead of the details of a land transaction.

Put people in the picture. For example, feature local folks doing good work on the ground, instead of framing messages in terms of organizations and technical goals.

Lead with the local, then connect to the regional. Always start with a local story and local characters, bridging to the bigger picture once those elements are in place.

WATER WORDS TO USE AND AVOID

Jargon that confuses or polarizes	**Better alternatives**
Water quality	Health of our rivers; clean, safe water to drink/swim in/etc.
Environment	Land, air and water (make it as local as possible)
Biodiversity, endangered species	Fish and wildlife, plants and animals (name specific species where possible)
Regulations	Safeguards. protections
Climate change impacts	Extreme weather, drought, floods
Ecosystem services	Clean drinking water, clean air, flood protection, etc.
Land use planning	Planning ahead, preventing sprawl
Nonpoint source pollution, storm water	Polluted runoff1
Watershed	Land around rivers/streams, river system or basin
Nutrients	Excess fertilizer, pesticides, and other chemicals
Impervious surfaces	Pavement and other hard surfaces
Permeable surfaces	Soil and plants that filter and absorb rain water
Infiltration	Rain percolating slowly into the ground
Green infrastructure, bio swale, etc.	Nature-based solutions, rain gardens, living roofs
Riparian buffers	Streamside spaces, strips of trees along river banks
Agricultural BMP's	Farmers caring for their land and water

1 We recognize that stormwater, as a regulatory term, is essential in legal filings and formal policy contexts. We suggest avoiding the term in public-facing materials.

MESSENGERS
A communications truism holds that the messenger is more important than the message. We trust people we relate to, and people we perceive as experts. Our media scan revealed a preponderance of NGO and government messengers. These experts help establish the facts, but the most compelling stories are personal, not technical. We recommend investing more time in identifying individuals that have a personal stake in water quality and conservation: farmers for those working on agriculture, suburban moms for those working on clean streams in the suburbs, fishers for those working at the coast, etc.

Attachment 29. Schuylkill River Restoration Fund

DRBC Helps Announce Grant Funding for Water Quality Improvement Projects in the Schuylkill Watershed

More Information

Schuylkill River Restoration Fund (SRRF)

Schuylkill River Heritage Area (SRHA)

DRBC Executive Director Steve Tambini gives remarks at the 2017 SRRF grant announcement. Photo courtesy of SRHA.

DRBC Executive Director Steve Tambini participated in the Schuylkill River Restoration Fund (SRRF) awards ceremony on September 20, 2017, which announced the distribution of over $364,000 to various water quality improvement projects throughout the Schuylkill River Watershed. The ceremony took place at Meadowood Senior Living, Worcester, Pa., which received a grant from the SRRF in 2012 to create rain gardens and improve stormwater management on their property, which also serves as an outdoor classroom for the Worcester Elementary School.

Award ceremony speakers included Mr. Tambini, along with Schuylkill River Heritage Area's Executive Director Elaine Paul Schaefer, Philadelphia Water Department's Kelly Anderson, and Exelon Generation Limerick Generating Station's Chris Gerdes. Mr. Tambini focused his remarks how the SRRF helps support local conservation projects, which benefit all who rely on the Schuylkill River and its tributaries. He thanked everyone who has worked on/completed improvement projects through the SRRF and stated that DRBC is proud to be a long-standing partner in this very worthwhile effort.

The $364,193 distributed from the SRRF in 2017 will directly support eight projects and three land transaction grants, all of which will improve the water quality in the Schuylkill River and its tributaries, a source of drinking water for 1.5 million people. The funded projects will mitigate stormwater runoff, abandoned mine drainage, and agricultural pollution, while the land transaction grants will assist with costs associated with permanent protection of priority watershed parcels. View a listing of the funded projects in 2017 (pdf 180 KB).

Contributors to the SRRF in 2017 included Exelon Generation's Limerick Generating Station, the Philadelphia Water Department, Aqua PA, Coca-Cola, the Partnership for the Delaware Estuary, and MOM's Organic Market. Administered by the Schuylkill River Heritage Area (SRHA), the SRRF was initiated 12 years ago with funds from Exelon Corporation, which has participated every year. To date, the SRRF has awarded over $3.3 million to 95 projects that help reduce pollution entering the Schuylkill River and its tributaries.

The SRRF is a great example of how partnering works to accomplish great things, bringing together government agencies, private industries, non-profit organizations, local businesses, and local community members to achieve positive environmental results for the Schuylkill River Watershed.

The SRRF was created under a DRBC docket and Exelon Generation LLC's desire to assist the restoration of the Schuylkill River Watershed, by providing large grants for on-the-ground improvements. DRBC approves the projects that are selected for funding using the Exelon funds and is one of several entities that sits on an advisory committee that chooses which projects get funded annually.

- Click here (pdf 202 KB) to view the SRHA press release "Schuylkill River Heritage Area Distributes Over $364,000 in Grants to Improve Water Quality in the River and Streams."
- For additional information on the creation of the SRRF, how it's managed, and its contributors, please click on the link in the "More Information" box.
- To learn more about SRHA and their administration of the SRRF, please click on the SRHA link in the "More Information" box.

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Thanks to NJ for hosting the DRBC website

Schuylkill River Restoration Fund

2017 Grant Awards & Project Summaries

IMPLEMENTATION PROJECTS

Berks County Conservation District
Irish Creek Stormwater Project
$19,800

This project will implement stream and floodplain restoration best management practices on an agricultural operation in Center Township. These efforts will aid in the reduction of accelerated erosion from unstable stream banks. Stream bank stabilization and restoration will occur along 350' of the Irish Creek. Additional work will include increased riparian buffer and 700' of livestock exclusion fencing.

Berks Nature
Younker & Kunkle Farms
$96,000

Installation of agricultural best management practices on two dairy farms in the headwaters of Mill and Maiden Creeks. Both projects will benefit the drinking water supply for City of Reading and Berks County residents. These projects will install liquid and/or dry manure storage facilities as well as implement storm water controls, stream bank fencing for animal exclusion and improved riparian buffers.

Berks Nature
Youse Farm
$50,000

The Youse Farm is located on an unnamed tributary of the Manatawny Creek and will complete similar agricultural BMP's as the Younker and Kunkle farms. The installation of a manure storage facility will assist the farmer in safely storing manure produced from farm production and will reduce excessive nutrient levels in the watershed.

Lehigh County Conservation Dist.
Bennecoff Hog Farm
$23,393

The Bennecoff Hog farm is located within the impaired Mill Creek in Weisenberg Township. The project will install agricultural BMP's including improved animal heavy use area, stream bank fencing, newly vegetated riparian buffers and over 900' of protected stream. This project is consistent with the Reading Area Water Authority's Source Water Protection Plan and the Schuylkill Watershed Conservation Plan.

Montgomery County Conserv. Dist.
Perkiomen Creek Improvements
$18,000

The Conservation District is partnering with Trout Unlimited and Upper Perkiomen High School to improve a 340' section of the Perkiomen Creek along the American Legion property in East Greenville. The project will include stream bank stabilization, riparian buffer restoration, stream channel improvements, and aquatic habitat enhancement.

IMPLEMENTATION PROJECTS (continued)

Schuylkill Banks
Bioswale Project
$15,000

The Schuylkill River Development Corp. will create a bioswale along an erosion prone area of the Schuylkill River Trail and will install native plantings that will help reduce storm water runoff and filter non point source pollution before it can enter the Schuylkill River. The project will also enhance urban wildlife habitat and create a safer experience for trail users.

Schuylkill Headwaters Assn.
Dyer & West Creeks Project
$80,000

This project will include the direct deposit of high calcium limestone sand into West Creek and Dyer Run stream channels which will result in increased pH and alkalinity to improve water quality in both tributaries of the Schuylkill River. Water quality monitoring will also be completed as a part of this project.

West Norriton Township
Jeffersonville Storm water
$50,000

West Norriton Township will undertake a storm water management and improvement project along 1,100 liner feet of stream corridor within the township owned Jeffersonville Golf Course. The project will improve stream bank stabilization, increase riparian buffers, convert mowed turf grass to native grasses and will plant over 200 trees and shrubs.

LAND TRANSACTION ASSISTANCE PROJECTS

Berks Nature
Love Property
$4,000

This 74 acre property contains sourcewater, streams, farm fields and forestland lands in the headwaters of the Hay Creek. Water values on this property will be placed in the High Protection Area in the PALTA model easement document. Berks Nature will hold the conservation easement on this property.

Natural Lands Trust
Buck Hollow Preserve
$4,000

The Natural Lands Trust will complete the fee simple purchase of this 20 acre property and it will be added to the PA Forestry's 80 acre Buck Hollow Preserve. The property is located within the Exceptional Value Hay Creek watershed.

West Pikeland Township
Ker Feal Property
$4,000

West Pikeland Township will purchase the conservation and trail easement on this 138 acre parcel owned by the Barnes Foundation through the Natural Lands Trust who will hold the easement. This project will preserve highly valued land from development and will protect the headwaters of several local streams.

SCHUYLKILL RIVER
NATIONAL & STATE HERITAGE AREA

Schuylkill River Heritage Area
140 College Drive
Pottstown, PA 19464
www.schuylkillriver.org

For Immediate Release
September 20, 2017

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Schuylkill River Heritage Area Distributes Over $364,00 in Grants to Improve Water Quality in the River and Streams

POTTSTOWN — The Schuylkill River Heritage Area distributed grants totaling $364,193 to 11 projects that will improve water quality in the Schuylkill River.

The Schuylkill River Restoration Fund grants were awarded to eight projects that will focus on stormwater runoff, abandoned mine drainage and agricultural pollution. Also awarded were three land transaction grants that will assist with protection of a priority watershed parcel. (See 2017 Project Summaries for list of recipients and project descriptions).

The grant fund is administered by the Schuylkill River Heritage Area. This year, funds were provided by Exelon Generation's Limerick Generating Station, the Philadelphia Water Department, Coca Cola, Partnership for the Delaware Estuary, Aqua PA and MOM's Organic Market.

The grant announcement took place at Meadowood Senior Living, a 2012 grant recipient for a project that includes stormwater management and rain gardens for a preserve that serves as outdoor classroom for Worcester Elementary School.

The Schuylkill River Restoration Fund announcement was held in conjunction with a Schuylkill Action Network Project Tour that visited several watershed project sites.

Speakers included Schuylkill River Heritage Area Executive Director Elaine Paul Schaefer, Delaware River Basin Commission Executive Director Steve Tambini, Environmental and Chemistry Manager for Limerick Generating Station Chris Gerdes and Kelly Anderson, Source Water Protection, Philadelphia Water Department.

"Over the past 12 years, the Schuylkill River Restoration Fund has distributed $3.3 million—and leveraged another $5 million—for 95 projects that improve water quality in the Schuylkill River watershed," said Schuylkill River Heritage Area Executive Director