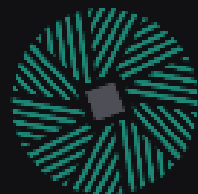


Agricultural Restoration and Land Preservation



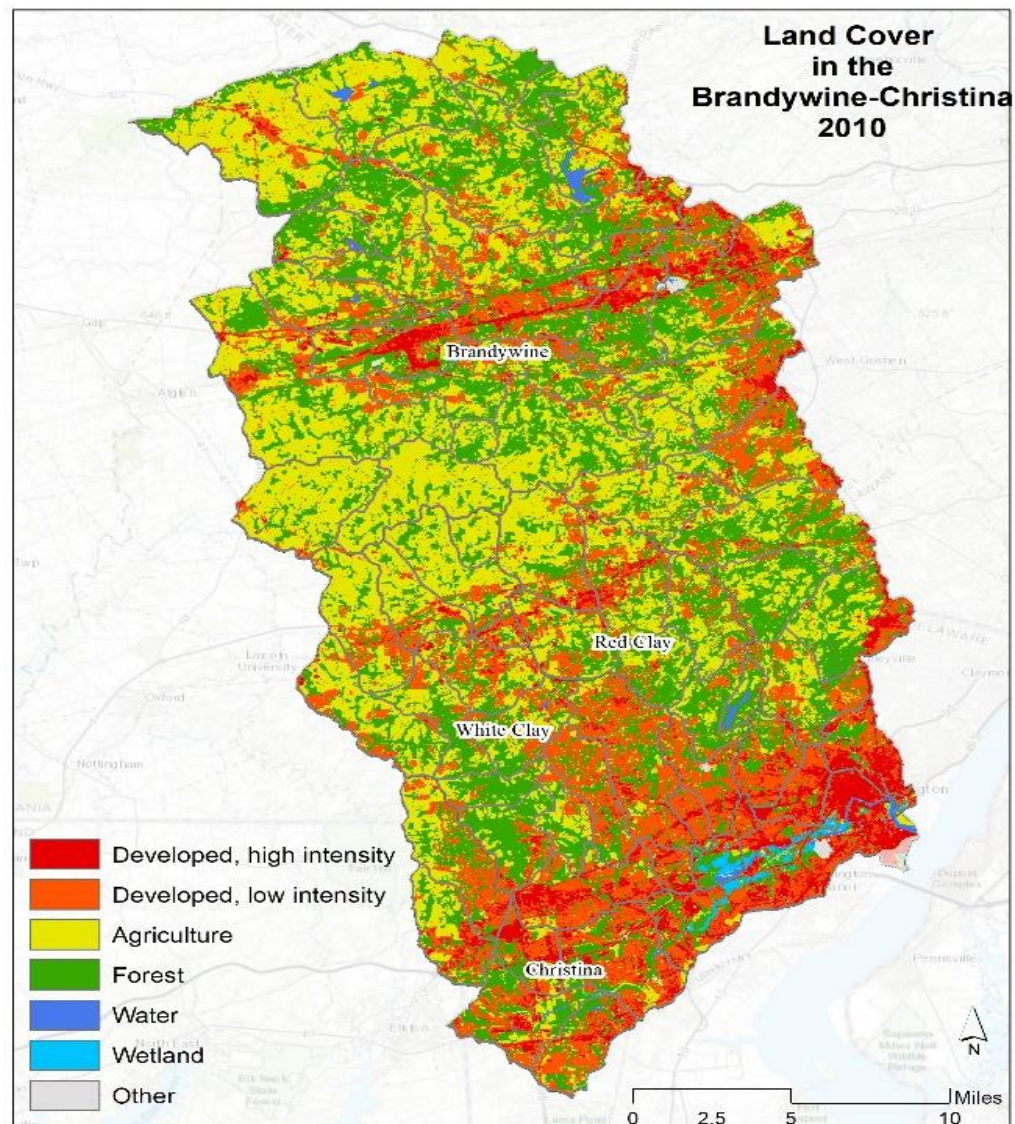
Clean Water: A Bi-State Solution
Medenhall Inn
May 3, 2018



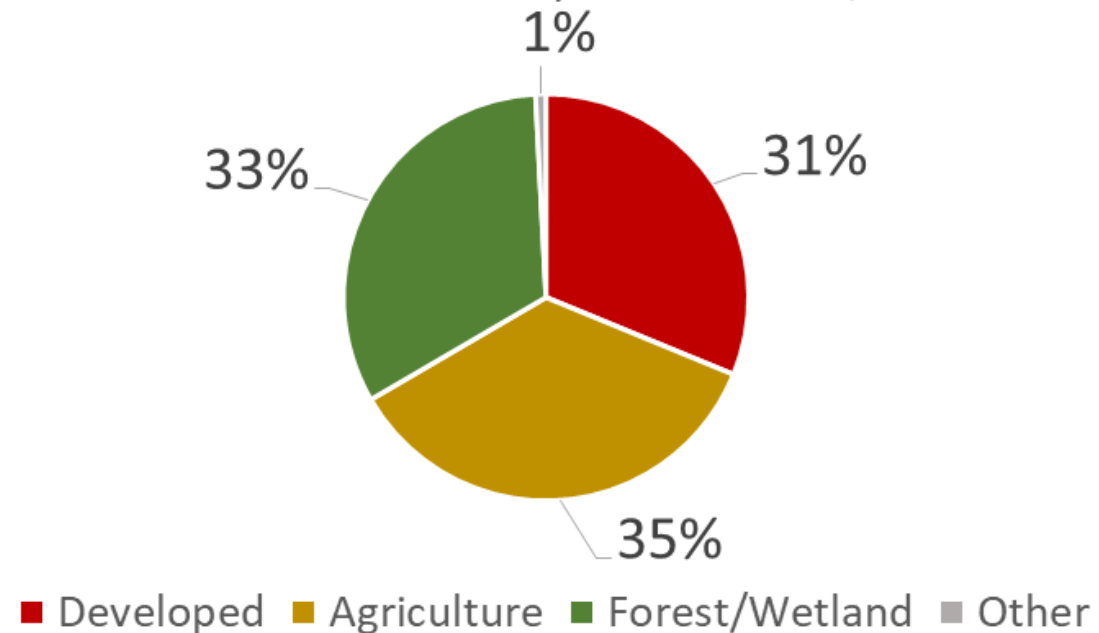
BRANDYWINE
CONSERVANCY

Grant DeCosta
Senior Planner for Land Conservation

Why Farmland?



Land Cover in the Brandywine-Christina, 2010



Why Farmland?



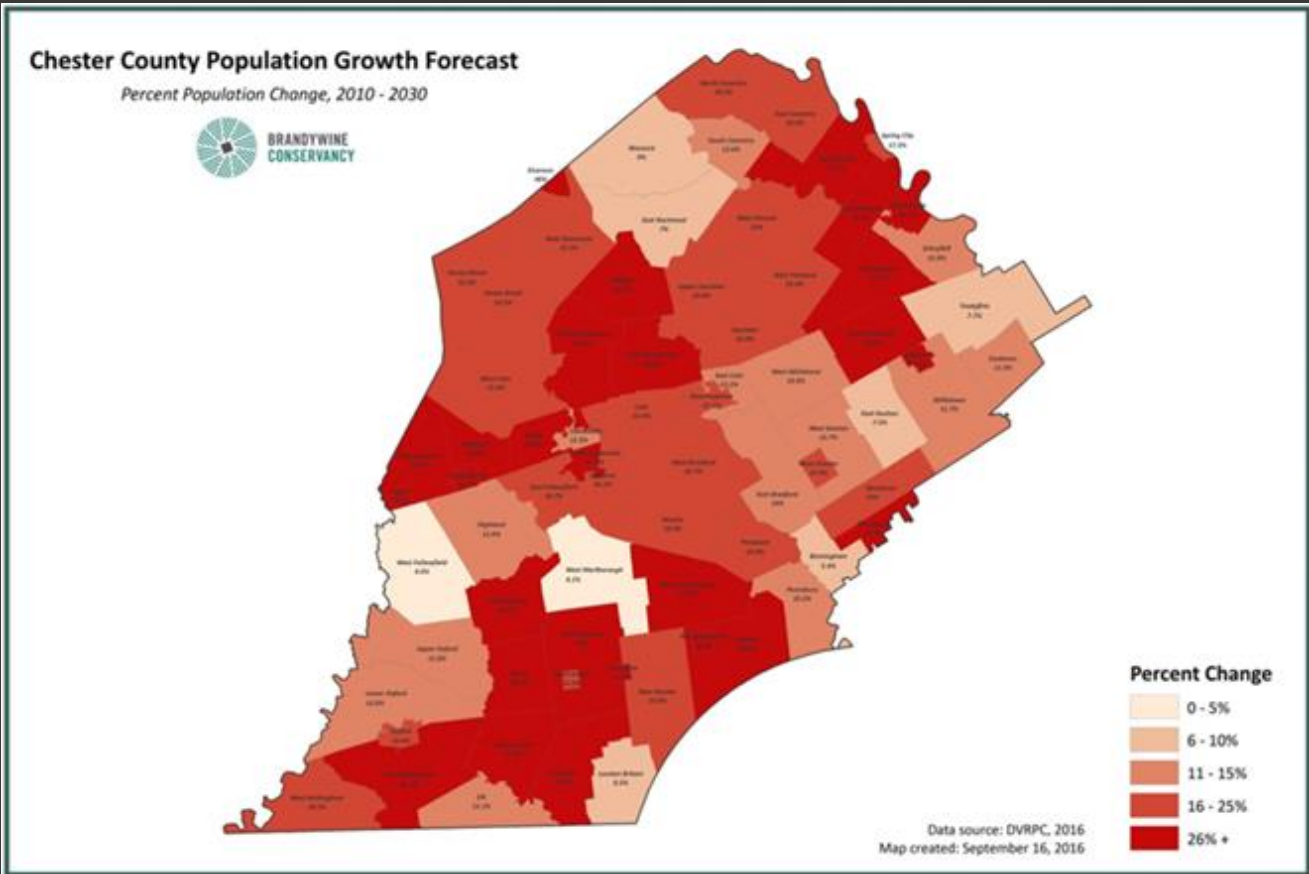
Greater Philadelphia's Agricultural Land Needs

DEMAND				SUPPLY	DEFICIT
DVRPC REGION 2005 POPULATION (PERSONS)		TOTAL AGRICULTURAL LAND NEEDS PER CAPITA (ACRES)*	=	DVRPC REGION 2007 TOTAL CROPLAND AND PASTURELAND (ACRES)**	(ACRES)
5,519,051	x	1.23	=	379,481	-6,408,952
100-MILE FOODSHED 2003 POPULATION (PERSONS)		TOTAL AGRICULTURAL LAND NEEDS PER CAPITA (ACRES)*	=	100-MILE FOODSHED 2007 TOTAL CROPLAND AND PASTURELAND (ACRES)**	(ACRES)
30,954,544	x	1.23	=	4,127,348	-33,946,741

*Assumes a diet that meets recommended total caloric value of 2,000 calories per person, and includes about nine ounces of cooked meat and eggs and 91 grams of fat.

**Excludes "woodland not pastured" and "land in farmsteads, buildings, etc."

Source: USDA 2009, DVRPC 2009



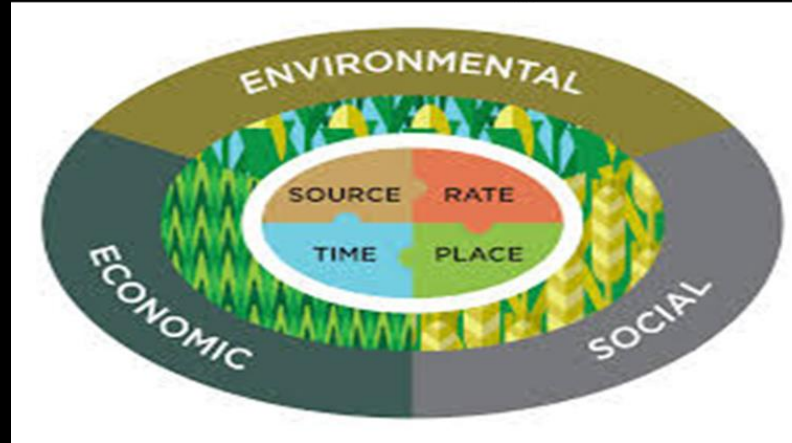
Erosion & Sedimentation – PA Chapter 102



Manure Management – PA Chapter 91

All operations that import or direct apply manure must develop a plan to manage nutrients

4 R's of Nutrient Management



SUSTAINABLE PLANNING
260 WEST ESSEX AVENUE
LANDOWNE, PA 19050
610-909-4573

LANDOWNER:
JAKE FISHER
803 WELSH ROAD
HOWEY BROOK, PA 17348

CONSERVATION PLANNER:
JUSTIN KAUFFMAN, SUSTAINABLE PLANNING
PLAN DATE: 12/1/2011

OBJECTIVE: Landowner is raising poultry and operating a dairy. Crop fields are used to supply feed needs for dairy cows.

328 - Conservation Crop Rotation

328 - Conservation Crop Rotation
Current crop rotation is one to two years of corn silage followed by three to four years of alfalfa. A cover crop of barley or similar crop is planted after harvesting. No-till and moldboard plow is used for planting.

Generally High residue no-till crops such as corn, grain, or hay crops may be added to the rotation without knowledge of soil conditions. Crops with residue that will likely generally be added to the rotation without the additional use of conservation practices or by adding additional years of high residue no-till crops or hay to the rotation. Lime and fertilizer will be applied based on soil tests and current PSU Agronomy Guide recommendations. When soil tests are high in P and/or K, recommendations may indicate that no nutrient applications are needed. Pest management will be based on Pest Management

Field	Planned Amount	Month	Year	Applied Amount	Date
2	30.54 ac	10	2012	30.54 ac	12/1/2012
3	13.11 ac	10	2012	10.11 ac	12/1/2012
Total	48.65 ac			48.65 ac	

42952019

Conservation Plan

LANDOWNER: Jake Fisher
PLANNER: Justin Kauffman
DATE: 12/1/2011



Age group	Condition A	Condition B	Condition C	Condition D
0	150	300	450	600
150	150	300	450	600
300	150	300	450	600
600	150	300	450	600



Legend



Grazing Plan

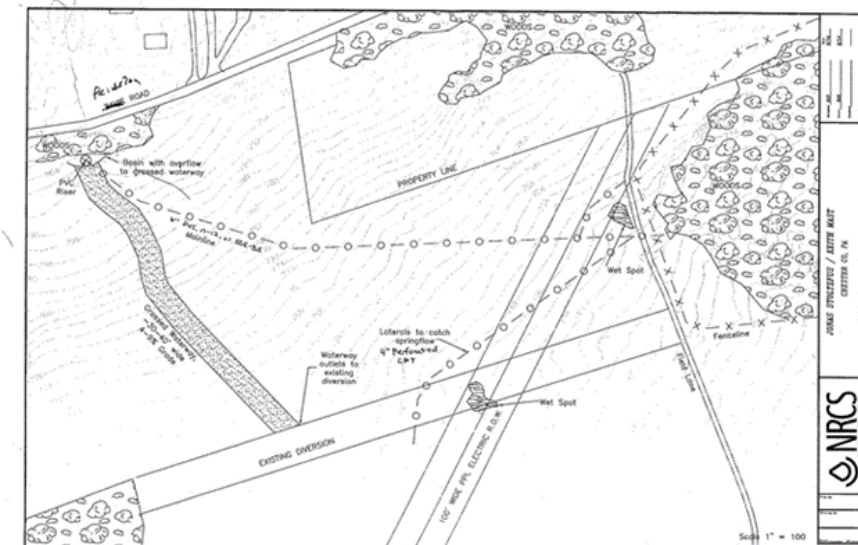
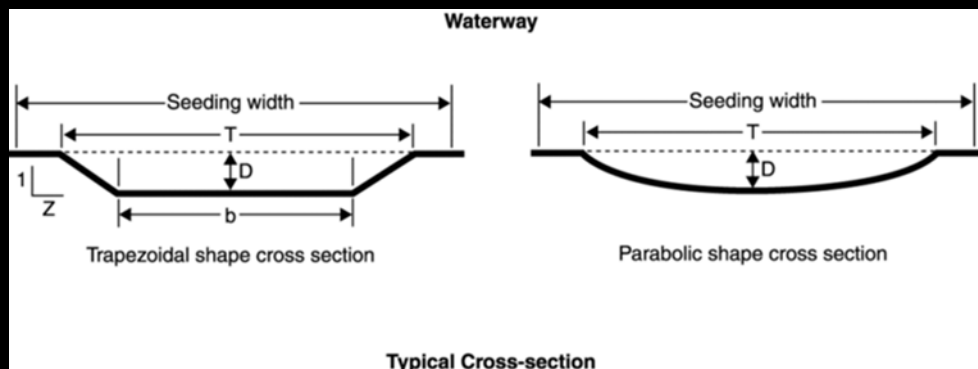
Structural BMPs

Waste Storage Facility (313)



Structural BMPs

Grassed Waterway (412)



Stream Crossing (578)



Structural BMPs

Fence (382)



Whole-Farm BMP Implementation

Address everywhere the rain drop falls



Whole-Farm BMP Implementation

Manage everywhere the rain drop flows on its way to the stream



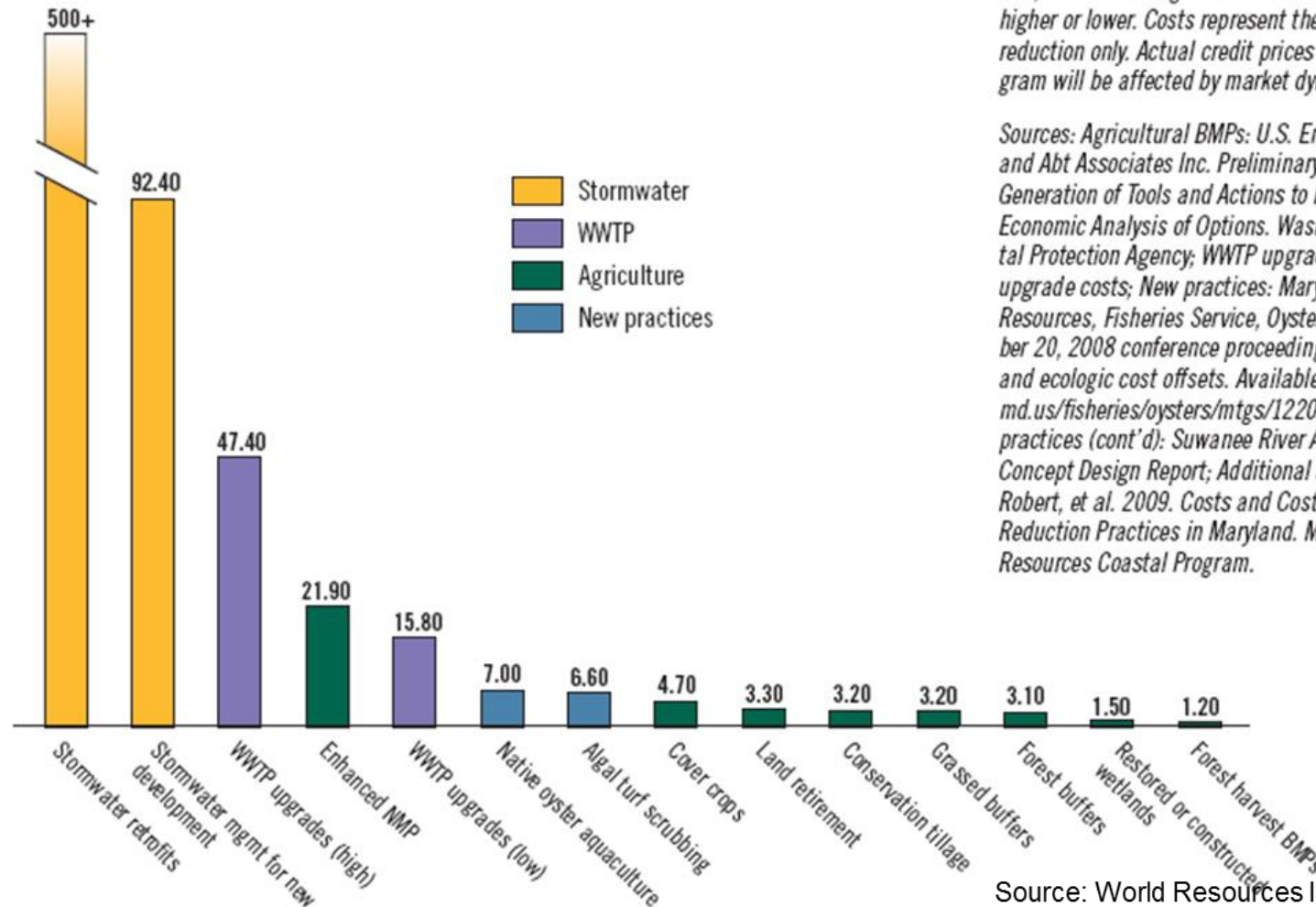
Trees are THE Best Management Practice

Riparian Forest Buffer (391) & Fence (382)



Riparian Buffer Costs vs. other BMPs

FIGURE 1. Average Cost of Selected Nitrogen Reduction Measures
Dollars per pound of annual nitrogen reduction



Note: Cost estimates do not take into account the baseline or minimum practices that agriculture will have to implement prior to selling credits. Depending on which practices farmers implement first, the costs of agricultural nutrient reduction measures may be higher or lower. Costs represent the costs of achieving the nitrogen reduction only. Actual credit prices under a nutrient trading program will be affected by market dynamics of supply and demand.

Sources: Agricultural BMPs: U.S. Environmental Protection Agency and Abt Associates Inc. Preliminary, 2009. Chesapeake Bay: Next Generation of Tools and Actions to Restore the Bay: Preliminary Economic Analysis of Options. Washington, D.C.: U.S. Environmental Protection Agency; WWTP upgrades: WRI analysis using plant upgrade costs; New practices: Maryland Department of Natural Resources, Fisheries Service, Oyster Advisory Commission. December 20, 2008 conference proceedings: Oyster restoration economic and ecologic cost offsets. Available online at: <http://www.dnr.state.md.us/fisheries/oysters/mtgs/122007/meeting122007.html>; New practices (cont'd): Suwanee River Algal Turf Scrubbing System Concept Design Report; Additional agricultural BMPs from Wieland, Robert, et al. 2009. Costs and Cost Efficiencies for Some Nutrient Reduction Practices in Maryland. Maryland Department of Natural Resources Coastal Program.

Source: World Resources Institute, 2009

Honey Brook Township

Township: 25 square miles
16,000 acres
6,200 people

Roughly 70% of the township is in agricultural use.
Roughly 80% of township farmland owned/operated by Plain Sect community

Honey Brook Preservation & Conservation



Honey Brook Township Protected Lands

2004 -1012.26 acres (6% of township)


Legend

 City of Wilmington Priority Protection Areas

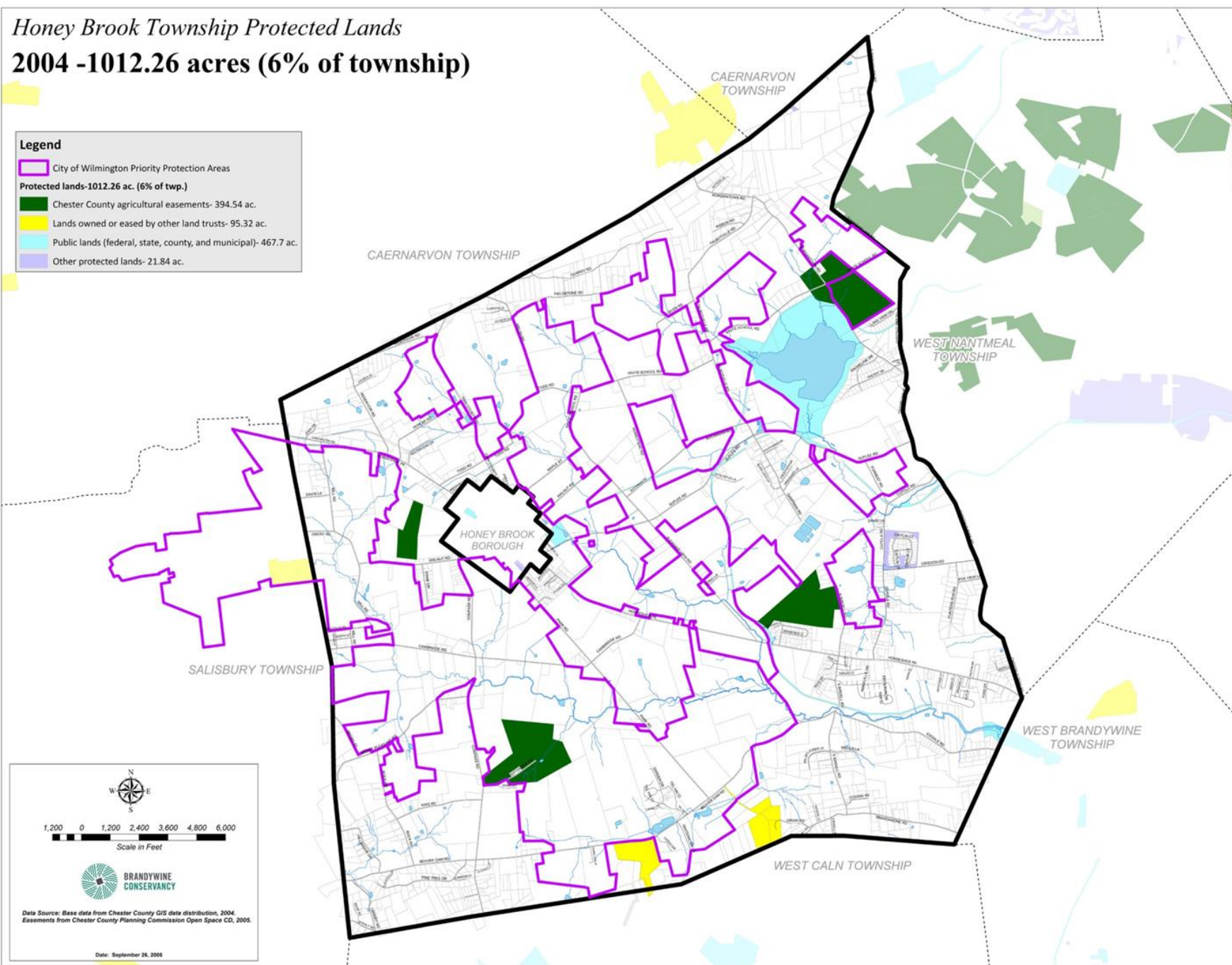
Protected lands-1012.26 ac. (6% of twp.)

 Chester County agricultural easements- 394.54 ac.

 Lands owned or eased by other land trusts- 95.32 ac.

 Public lands (federal, state, county, and municipal)- 467.7 ac.

 Other protected lands- 21.84 ac.



Honey Brook Township Protected Lands

2008 -1403.0 acres (8.6% of township)

Legend

 City of Wilmington Priority Protection Areas

Protected Lands- 1403.0 acres (8.6% of township)

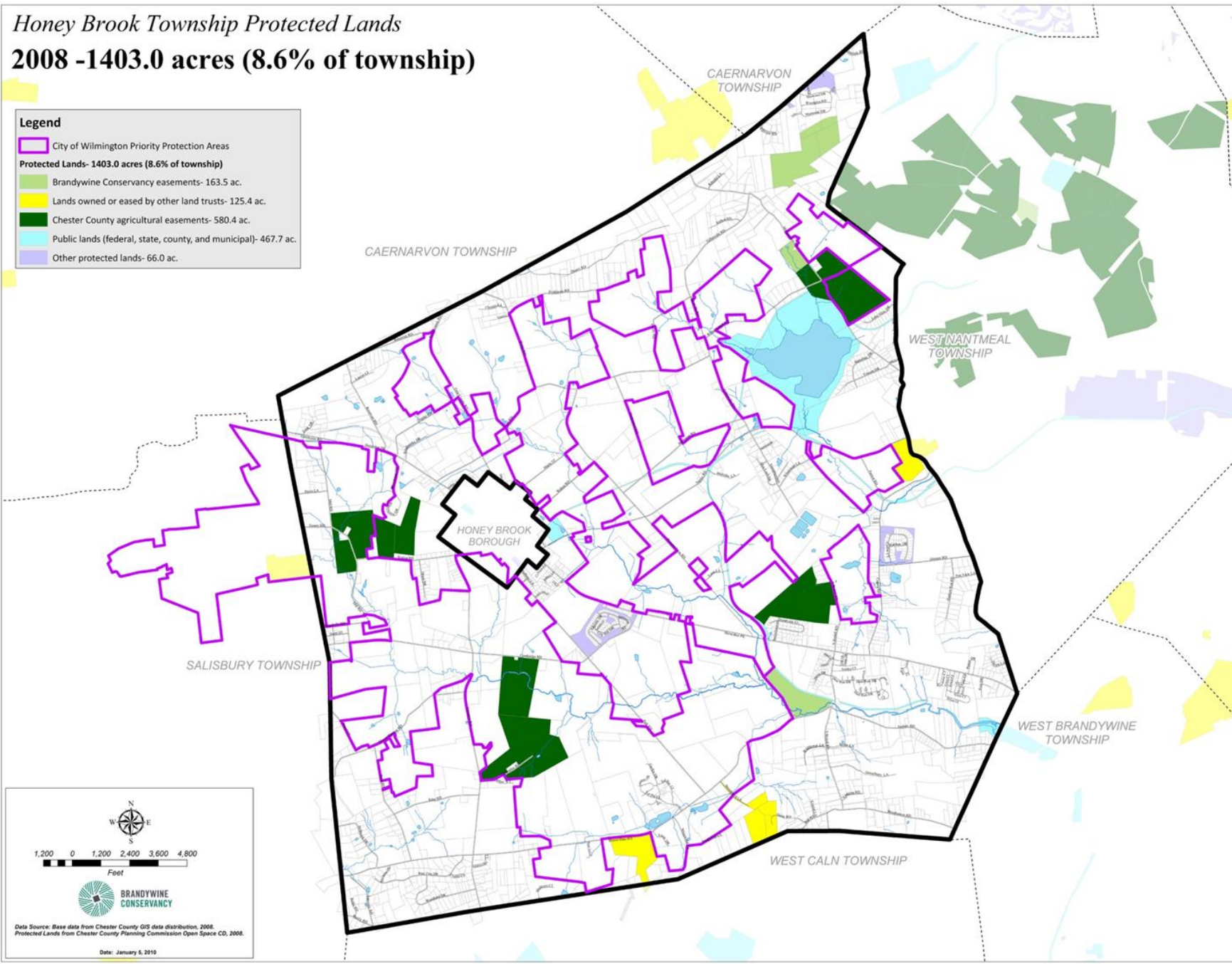
 Brandywine Conservancy easements- 163.5 ac.

 Lands owned or eased by other land trusts- 125.4 ac.

 Chester County agricultural easements- 580.4 ac.

 Public lands (federal, state, county, and municipal)- 467.7 ac.

 Other protected lands- 66.0 ac.



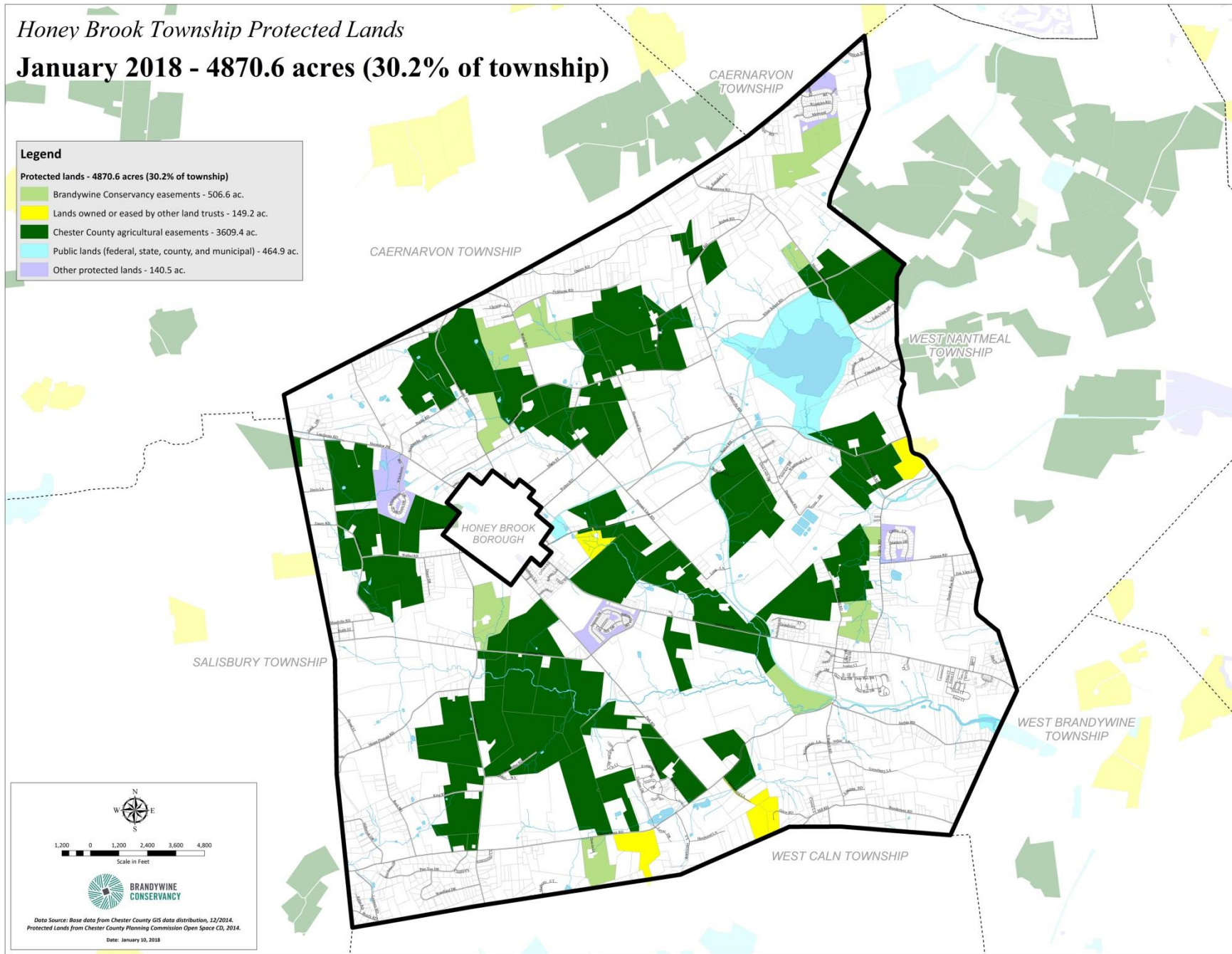
Honey Brook Township Protected Lands

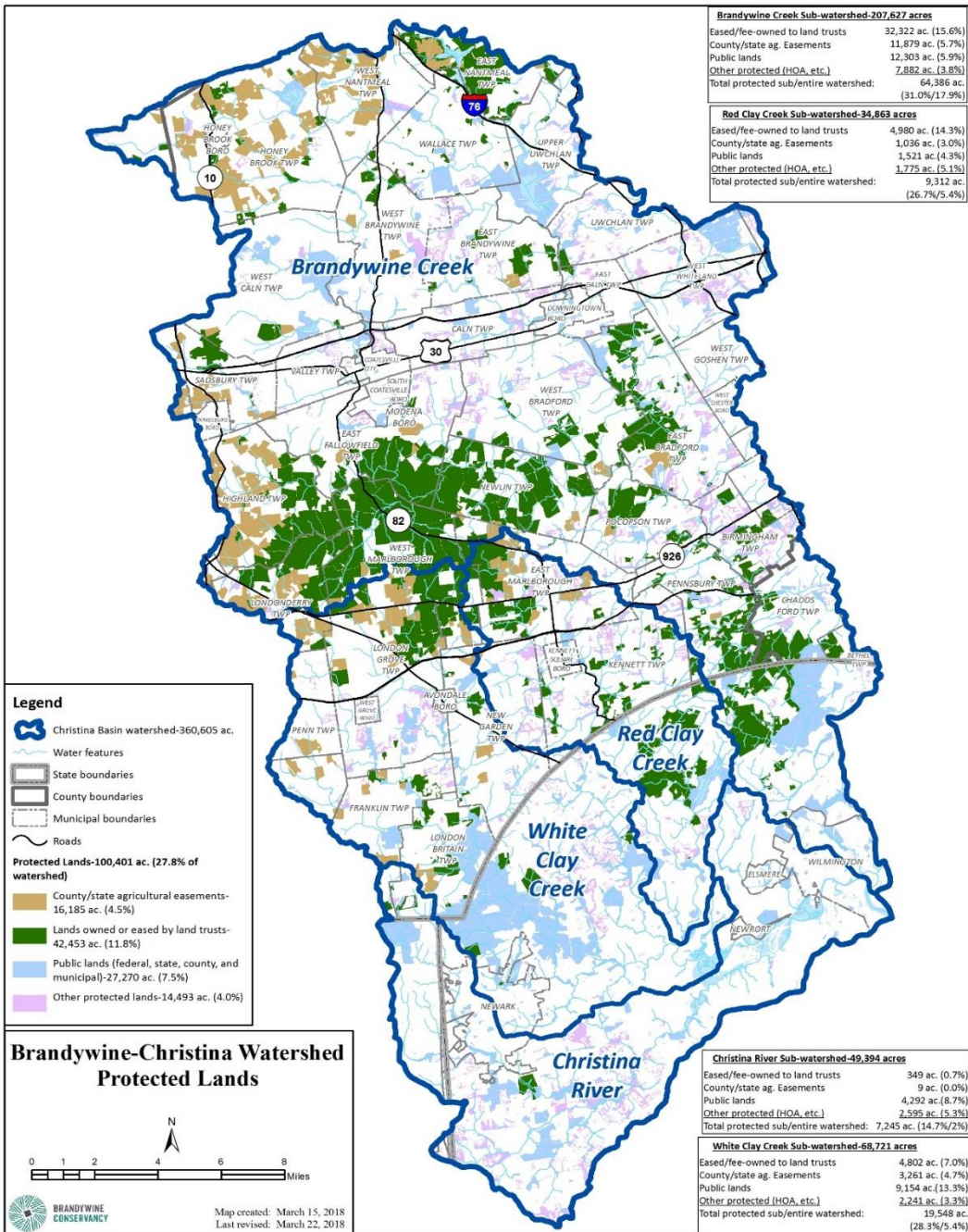
January 2018 - 4870.6 acres (30.2% of township)

Legend

Protected lands - 4870.6 acres (30.2% of township)

- Brandywine Conservancy easements - 506.6 ac.
- Lands owned or eased by other land trusts - 149.2 ac.
- Chester County agricultural easements - 3609.4 ac.
- Public lands (federal, state, county, and municipal) - 464.9 ac.
- Other protected lands - 140.5 ac.





Preservation in the Watershed:

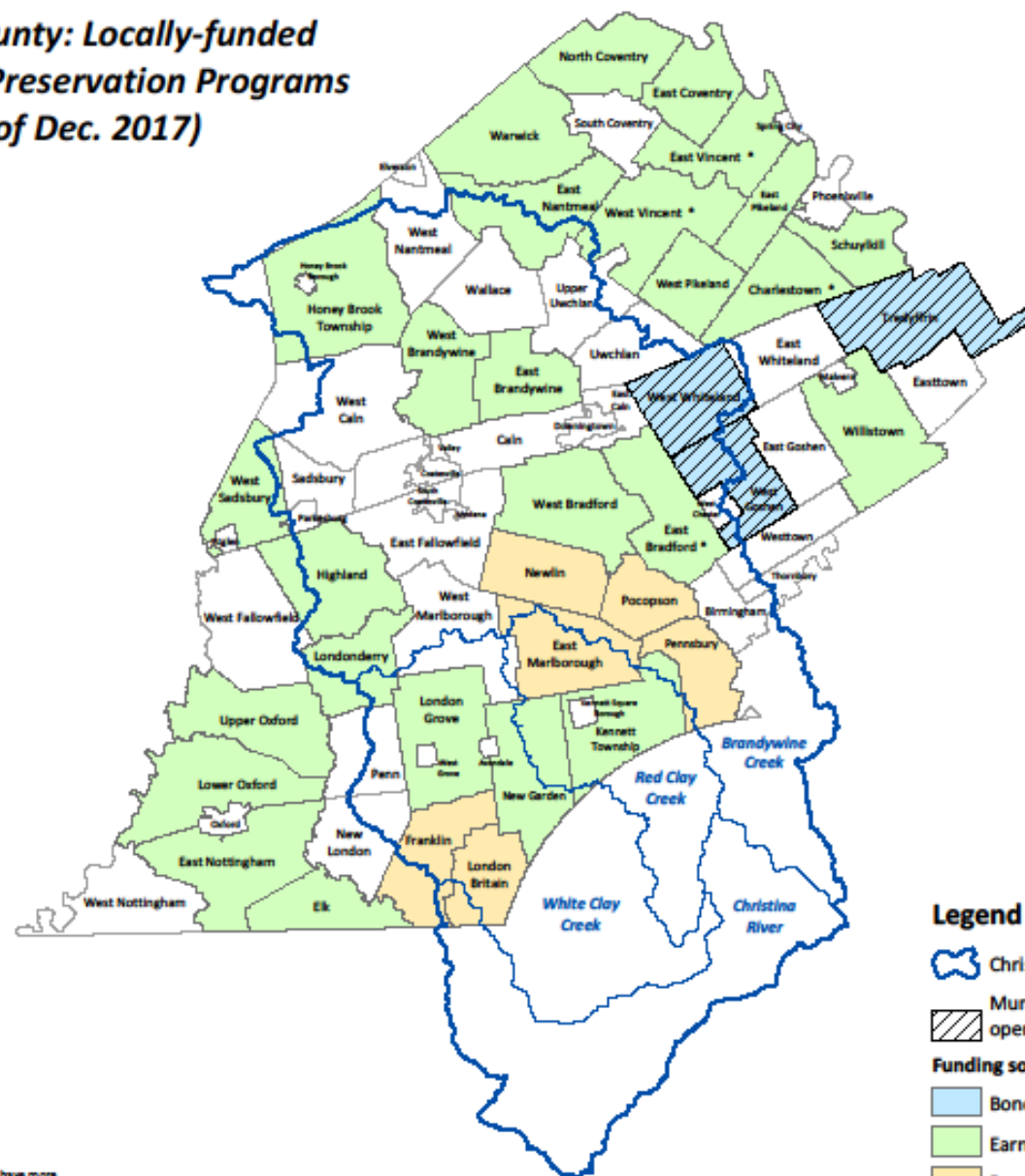
Brandywine Creek: 64,386 acres – 31%

Christina River: 7,245 acres – 15%






Red Clay Creek: 9,312 acres – 27%

White Clay Creek: 19,458 acres – 28%

**Chester County: Locally-funded
Open Space Preservation Programs
(as of Dec. 2017)**

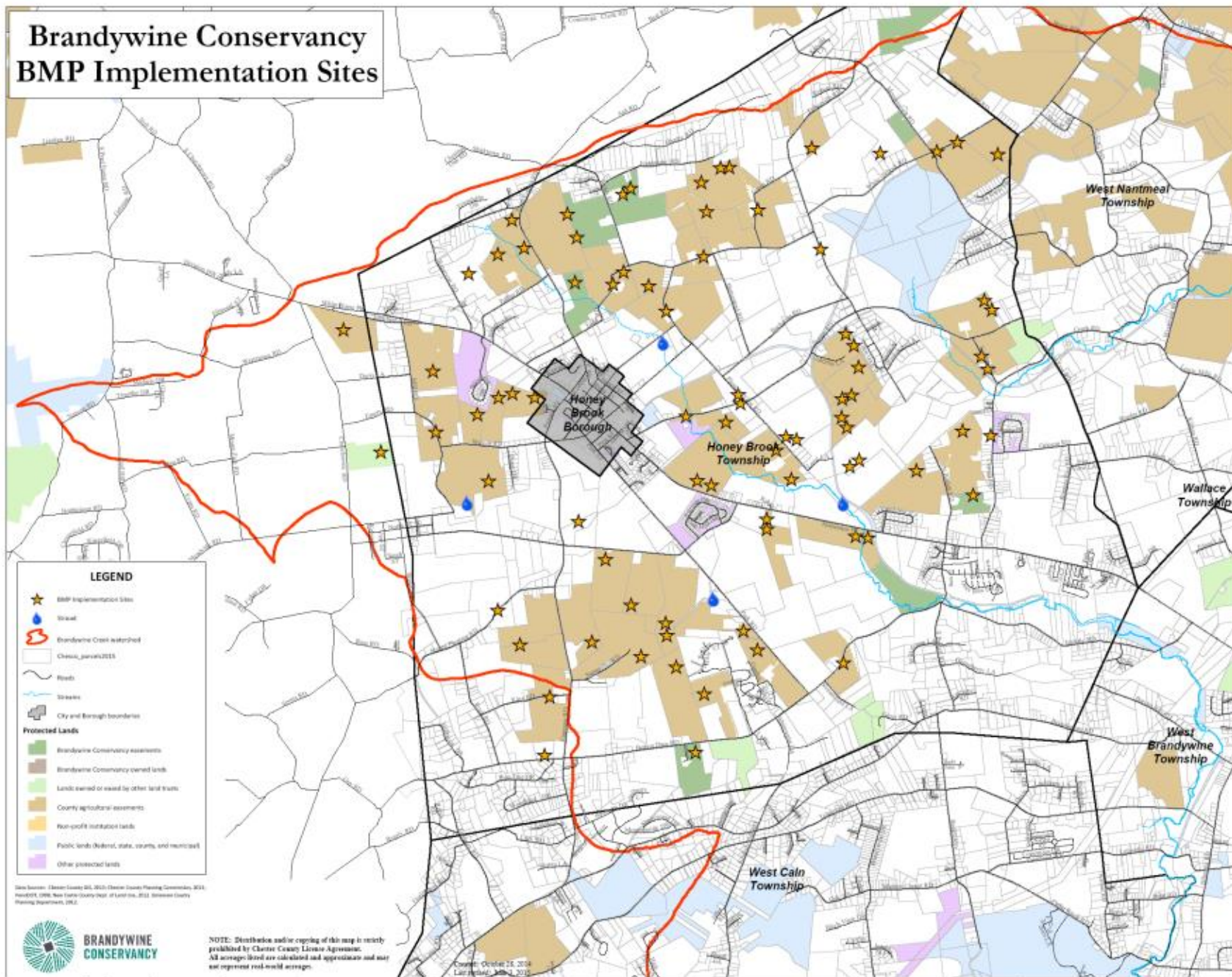


Legend

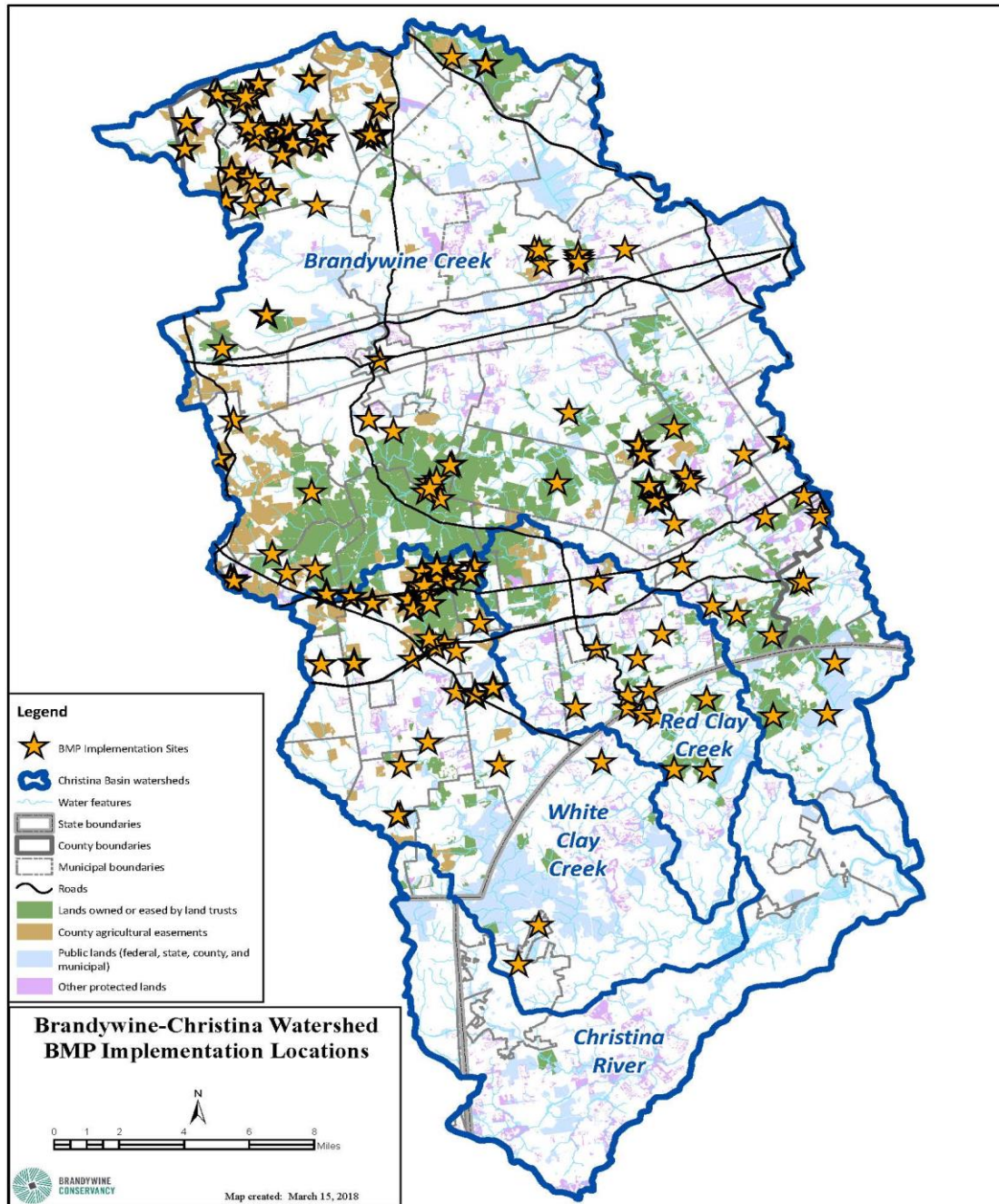
-  Christina Basin watersheds
-  Municipalities without voter-approved open space referendum (3)
- Funding source (voter-approved: 32 townships)**
 -  Bond
 -  Earned income tax
 -  Property tax

Note: Those municipalities marked with a * have more than one voter-approved open space referendum.

Brandywine Conservancy BMP Implementation Sites



NOTE: Distribution and/or copying of this map is strictly prohibited by Chester County License Agreement. All acreage listed are calculated and approximate and may not represent real-world acreage.



Conservation in the Watershed:

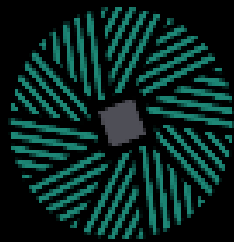
Riparian Buffer Restoration

- 92,700+ trees planted
- 391+ acres
- 45.8+ miles



QUESTIONS / DISCUSSION

Grant DeCosta
Senior Planner for Land Conservation
gdecosta@brandywine.org



**BRANDYWINE
CONSERVANCY**