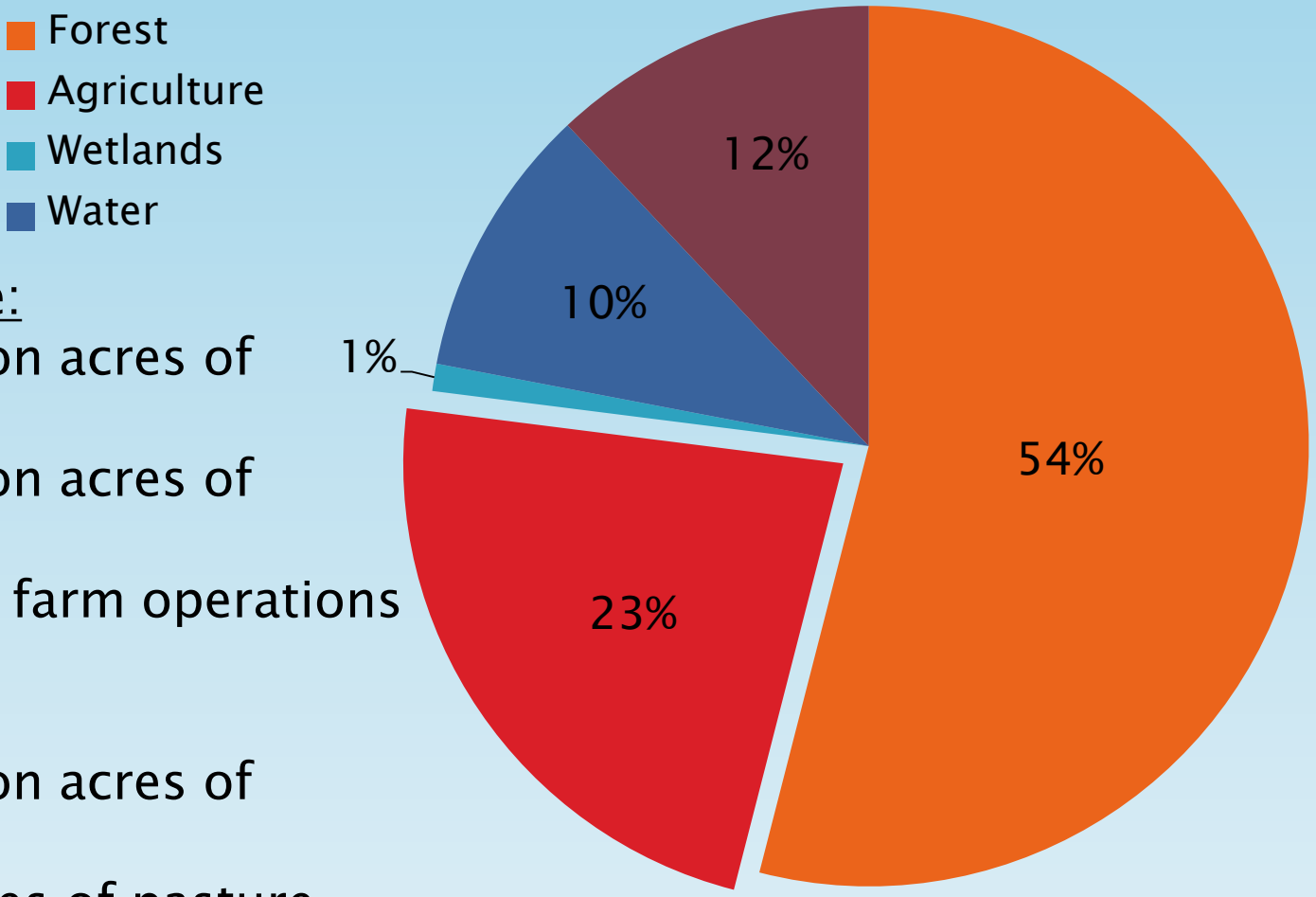
Agricultural Water Quality Programs & Progress

Maryland Agricultural Water Quality Programs

- Technical Assistance: to evaluate on-farm conditions and recommend & design BMPs
- Regulatory Programs
- Financial Assistance Programs
  - BMP cost share for implementation
  - Cover Crop Program
  - Manure Transport
- Outreach: Information, Education, Demonstration

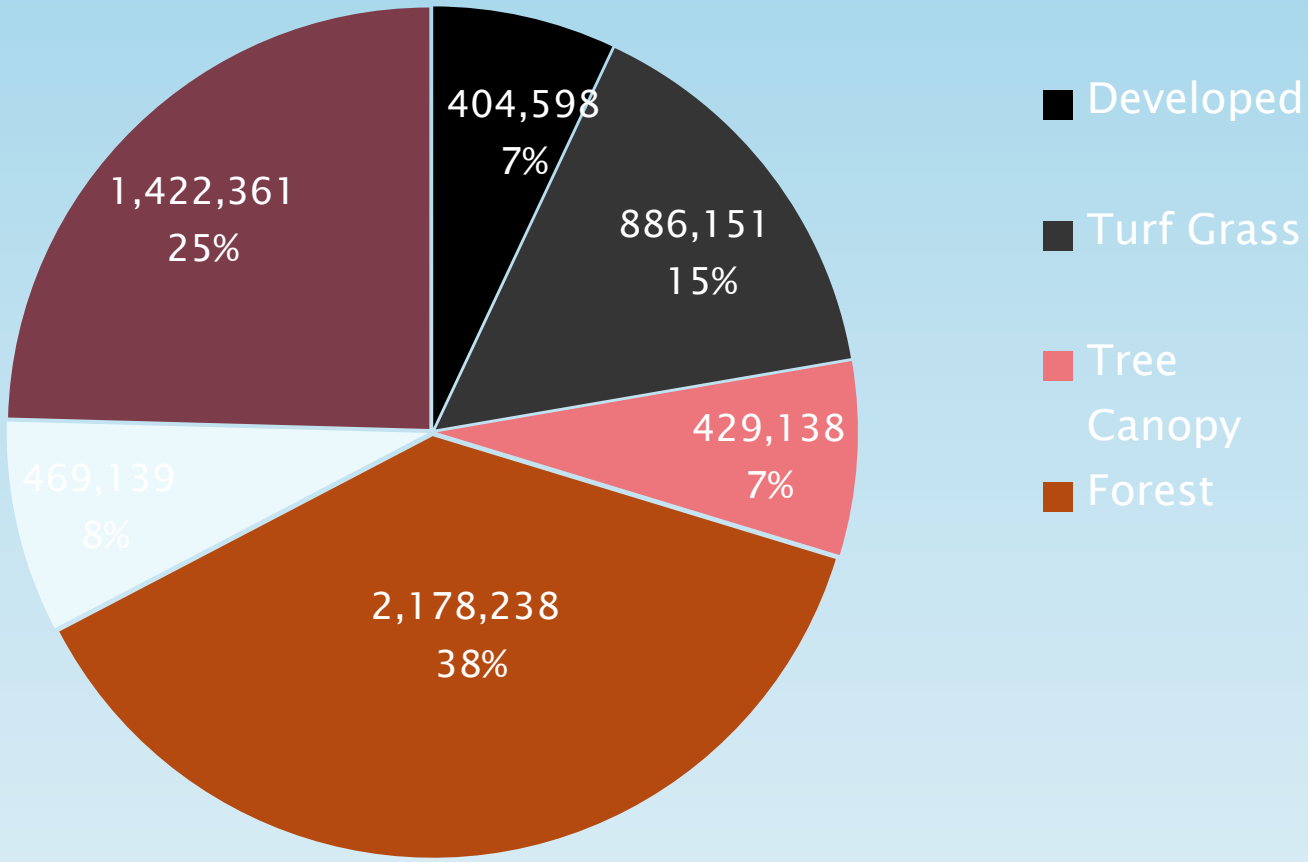
Land Uses within the Bay Watershed (2010)



Bay-wide:
8.5 million acres of cropland
2.5 million acres of pasture
87,000+ farm operations

MD:
1.3 million acres of cropland
160k acres of pasture
12,256 farm operations

Maryland's Estimated Land Acreage (2012)



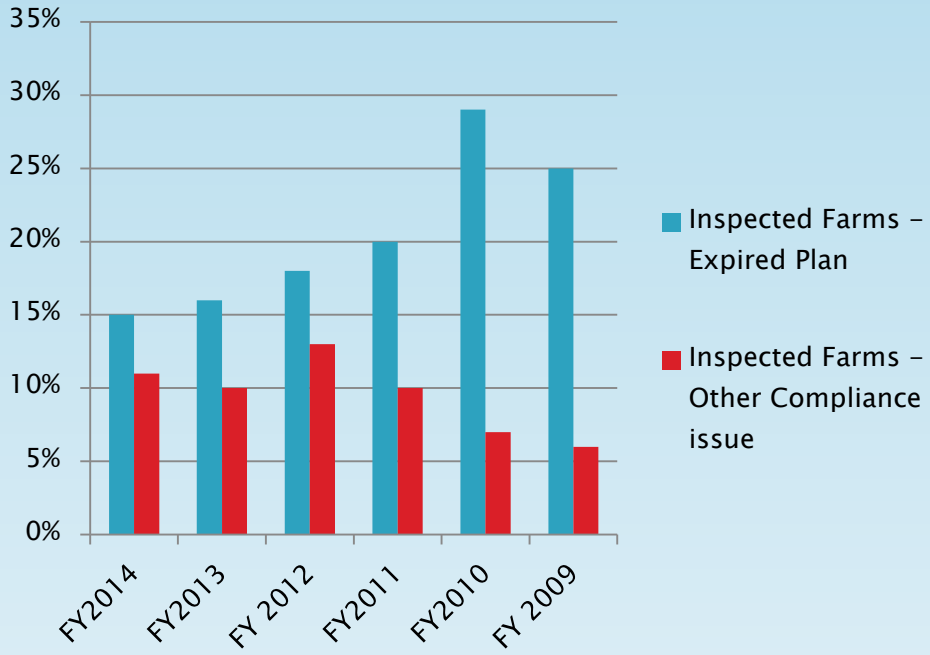
Source: Chesapeake Bay Program

Regulatory Requirements

Requirement	Deadline
Nutrient Management Plans–most farms in MD	2001
Phosphorus –Based Nutrient Management	2005
CAFO/NPDES Permits for Animal Operations (MDE)	2009
Incorporation/Injection Manure Nutrients	2013
No fertilizer in Fall & Winter on Small Grains	2013
Fertilizer Application Setbacks from waters 10–35’	2014
Livestock Exclusion from Streams	2014
No phosphorus on Fields w/P FIV of 500 or more	2015
Prohibit Manure Application in Winter	2016
New Phosphorus Mgt Tool for P–based NMP	2018–2022

Nutrient Management Program

FISCAL YEAR	FY2014	FY2013	FY 2012	FY2011	FY2010	FY 2009
Total Farms Regulated	5,426	5,382	5,433	5,725	5,727	5,902
On-Farm Inspections Completed	733	738	647	469	416	452



Agricultural BMPs

Nutrient Management
- Nutrient Management
- Precision Agriculture
- Enhanced Nutrient Management

Conservation Tillage
- Continuous No-Till
- Other Conservation Tillage

Cover Crops
- Cover Crops – Late Planting
- Cover Crops – Early Planting

Pasture Grazing BMPs
- Pasture Fencing
- Precision/Intensive Rotational Grazing
- Horse Pasture Management
- Water Control Structures

Other Agricultural BMPS
- Forest Buffers
- Wetland Restoration
- Land Retirement
- Grass Buffers
- Tree Planting
- Carbon Sequestration/Alternative Crops
- Conservation Plans/SCWQP
- Non-Urban Stream Restoration
- Manure transport
- Animal Waste Management Systems
- Mortality Composters
- Poultry & Swine Phytase
- Dairy Precision Feed and/or Forage Management
- Ammonia Emissions Reductions
- Barnyard Runoff Controls

Agricultural BMP Installation-MD

SFY year	# BMPs installed	state funds	farmer match
2014	460	$4,811,103	$685,000
2013	645	$5,111,321	$1,000,000
2012	519	$5,281,760	$1,000,000
2011	539	$4,476,331	$643,000
2010	589	$8,200,000	$950,000
2009	570	$7,501,430	$923,000
TOTAL	**3,322**	**$35,381,945**	**$5,201,000**

Cover Crops (statewide)

	Applications Received		Contract & Acres	
Program Year	No.	Acres	No.	Acres
2009/2010	1233	330,469	1046	206,810
2010/2011	1688	508,304	1542	382,256
2011/2012	1773	571,427	1565	400,795
2012/2013	1860	607,433	1621	414,558
2013/2014	1815	608,427	1571	415,550
2014/2015	1841	631,374	1661	475,560
Totals	**10,210**	**3,257,434**	**9,006**	**2,295,529**

Manure Transport Program

Year	Tons Transported annually	Tons Poultry Litter Transported	Tons Non-Poultry Litter Transported	State Cost Share	Poultry Co Cost Share
FY 09	119,892	62,505	57,387	$663,177	$504,024
FY 10	80,899	51,383	29,516	$469,398	$402,846
FY 11	61,150	37,807	23,343	$354,011	$294,383
FY 12	35,380	32,544	2,837	$297,587	$283,951
FY13	52,481	38,238	14,243	$377,007	$339,252
FY14	118,995	46,906	72,089	$608,259	$419,929
FY15 (9 mos)	89,166	25,348	63,818	$421,411	$244,625
TOTAL	**438,071**	**232,225**	**205,846**	**$3,190,850**	**$2,489,010**

CHESAPEAKE BAY MILESTONES

Milestone Progress— as of June 30,2014

MILESTONE	GOAL	STATUS AS Of JUNE 30, 2014	PERCENTAGE Of 2015 MILESTONE ACHIEVED
Cover Crops	Plant 386,007 acres annually	410,530** acres planted during 2013-2014 planting season	106%
Manure Transport	Annually transport 44,000 tons of excess poultry litter or livestock manure to farms or alternative use facilities that can use the manure safely and in accordance with nutrient management plans	118,995 tons of manure transported in 2014	270%
Retirement of Highly Erodible Land	Retire 973 acres of highly erodible land by 2015	832 acres retired and planted with protective vegetation	86%
Streamside forest Buffers	Plant 353 acres of forest buffers next to streams by 2015	356 acres planted	100%
Streamside Grass Buffers	Plant 866 acres of grassed buffers next to streams by 2015	1,038 acres planted	119%
Waste Storage Structures/ Livestock	Construct 55 livestock waste storage structures by 2015	47 structures installed	85%
Waste Storage Structures/ Poultry	Construct 12 poultry waste storage structures by 2015	15 structures installed	125%

Tracking progress

Websites

- Baystat- Solutions
  - baystat.maryland.gov , click on “solutions to the problems”
- MDA- TMDL progress, statewide & county level
  - mda.maryland.gov, click on “conservation” & then “Chesapeake Bay TMDL/WIP” link

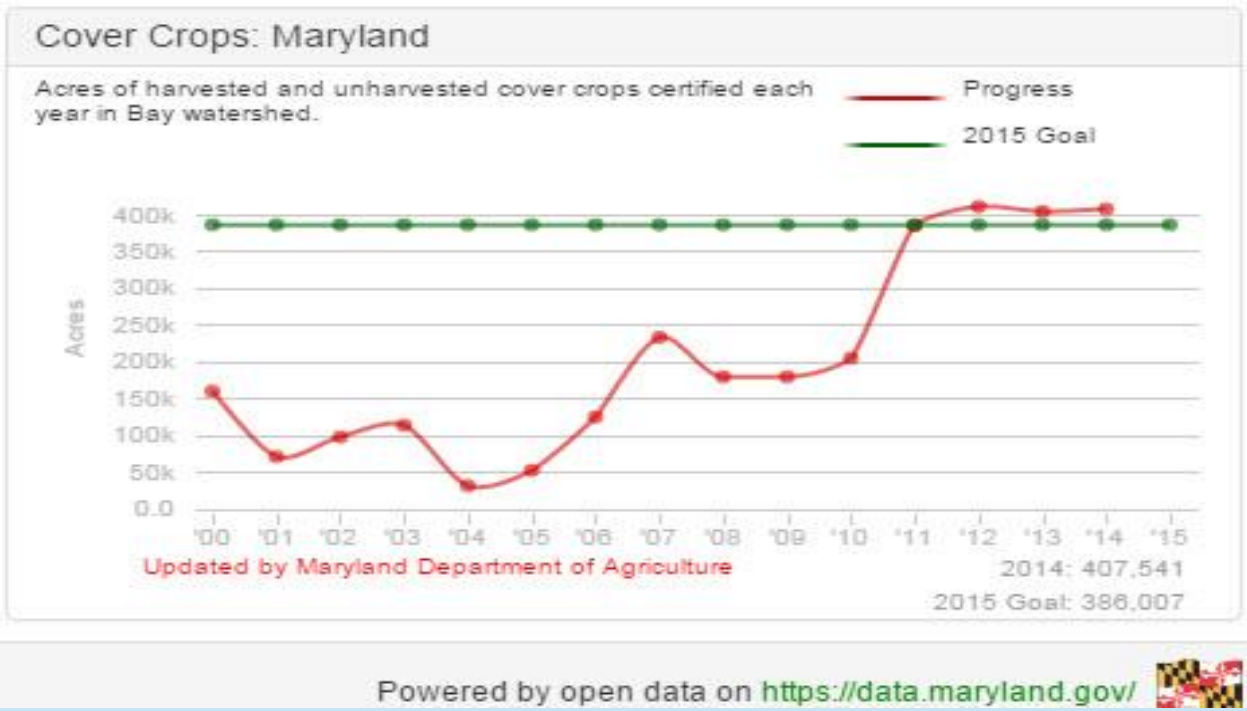
Howard County Progress

Howard Soil Conservation District
Agricultural Phase II Watershed Implementation Plan

BMPs to be Implemented Annually	Unit	7/1/13-6/30/14 Progress	2015 Milestone	Percentage
Conservation Tillage	Acres/Year	3,771.10	8,687.26	43%
Cover Crop	Acres/Year	3,275.50	1,820.42	180%
Cropland Irrigation Management	Acres/Year	213.70	160.00	134%
Dairy Manure Incorporation	Acres/Year	500.00	148.57	337%
Decision Agriculture	Acres/Year	1,406.00	5,818.31	24%
Enhanced Nutrient Management	Acres/Year	1,429.60	2,099.05	68%
Manure Transport	Tons/Year	-	-	-
Nutrient Management	Acres/Year	3,662.00	2,171.47	169%
Nutrient Management on Pasture	Acres/Year	1,637.00	4,478.65	37%
Poultry Litter Incorporation	Acres/Year	118.00	-	-
Poultry Litter Treatment	Operations/Year	-	-	-
Soil Conservation and Water Quality Plans	Acres/Year	12,813.40	13,100.68	98%

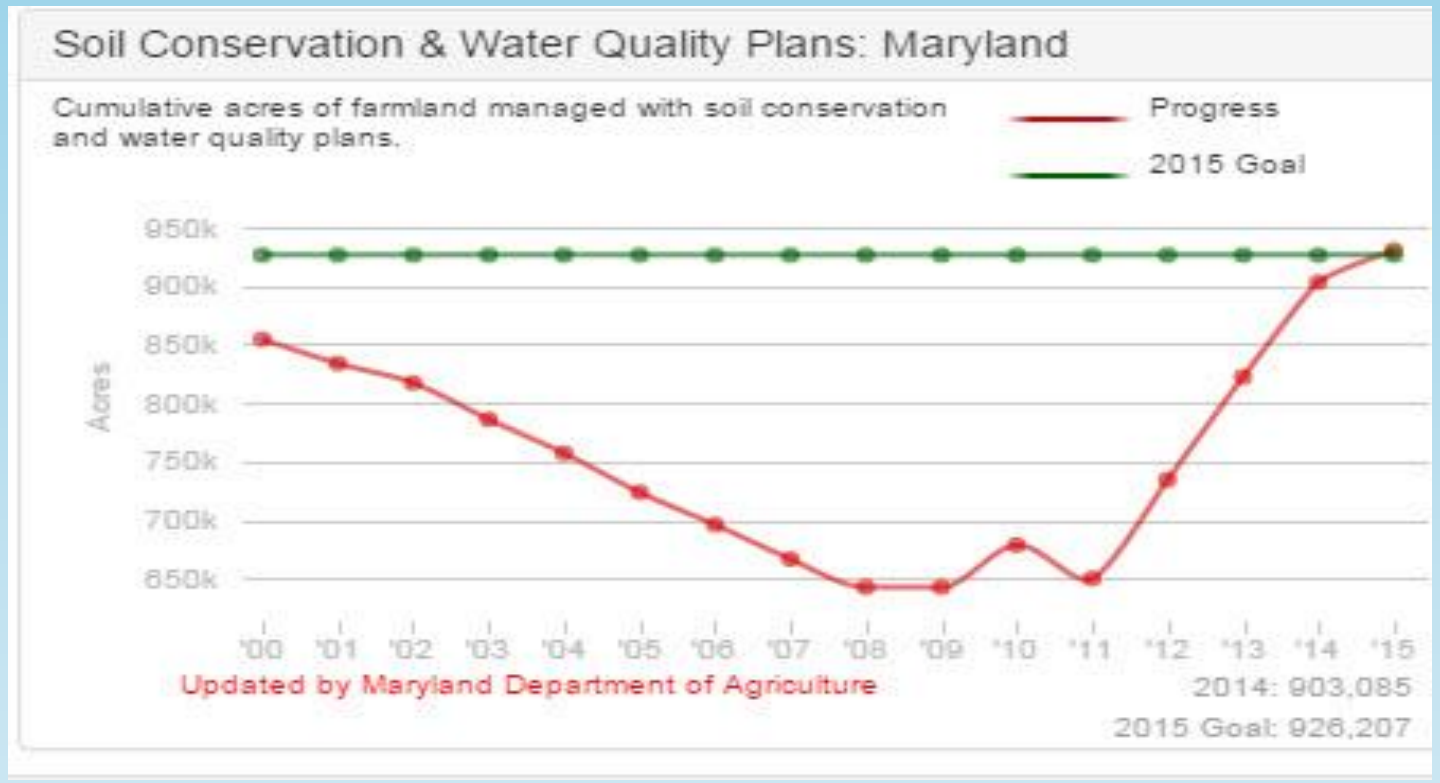
Additional BMPs to be Implemented	Unit	Progress	2015 Milestone	Percentage
Alternative Crop	Acres	-	-	-
Barnyard Runoff Control	Projects	-	3.50	0%
Forest Buffers	Acres	-	2.29	0%
Grass Buffers	Acres	1.90	28.34	7%
Horse Pasture Management	Acres	-	157.14	0%
Land Retirement	Acres	0.20	5.71	4%
Livestock Heavy Use Area Protection	Acres	0.11	1.17	9%
Livestock Waste Storage Facilities	Projects	-	1.50	0%
Mortality Composters	Projects	-	-	-
Non Urban Stream Restoration	Linear Feet	-	-	-
Nursery and Greenhouse Runoff Capture and Reuse	Acres	36.50	-	-
Off Stream Watering without Fencing	Acres	225.00	45.71	492%
Phosphorus Sorbing Materials in Ag Ditches	Acres	-	-	-
Poultry Heavy Use Area Concrete Pads	Acres	-	-	-
Poultry Waste Storage Facilities	Projects	-	-	-
Prescribed Grazing	Acres	-	60.22	0%
Shoreline Erosion Control	Linear Feet	-	-	-
Stream Access Control with Fencing	Acres	-	0.73	0%
Vegetative Environmental Buffers on Poultry Operations	Acres	-	-	-
Water Control Structures (Drainage Ditches)	Acres	-	-	-

Cover Crops



Maryland's 2014 – 2015 Milestone Goals and Progress Report

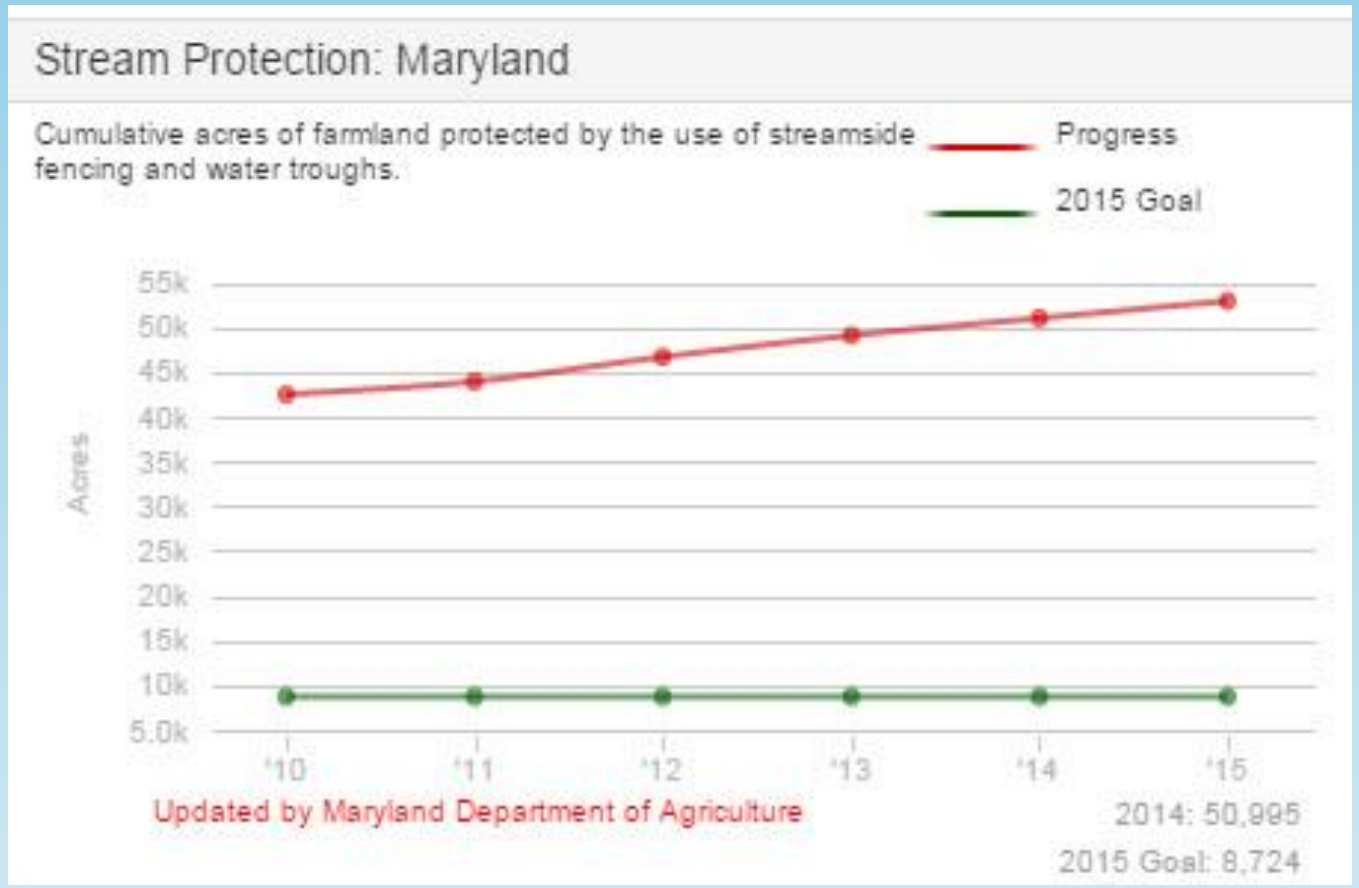
Soil Conservation and Water Quality Plan



Maryland's 2014 – 2015 Milestone Goals and Progress Report

4/30/15

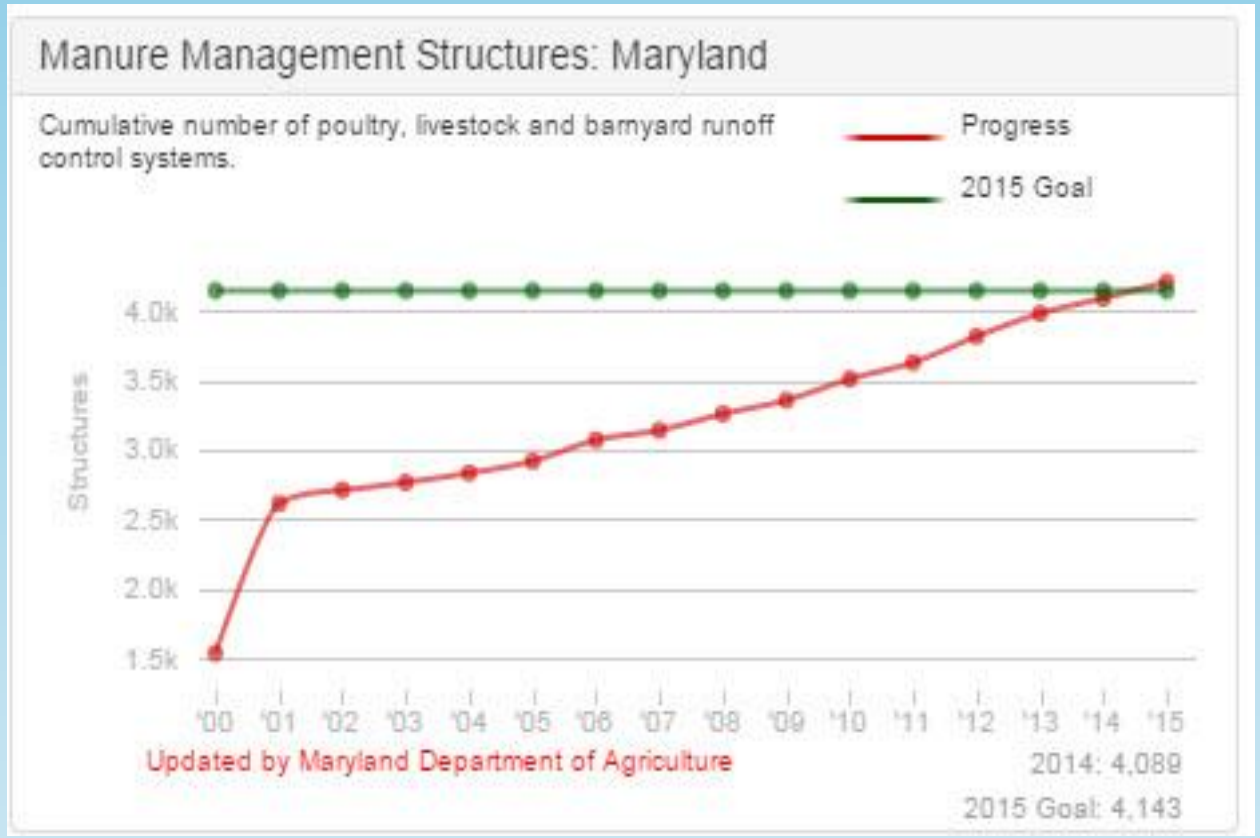
Stream Protection-Fenced w/riparian grass buffer



Maryland's 2014 – 2015 Milestone Goals and Progress Report

4/30/15

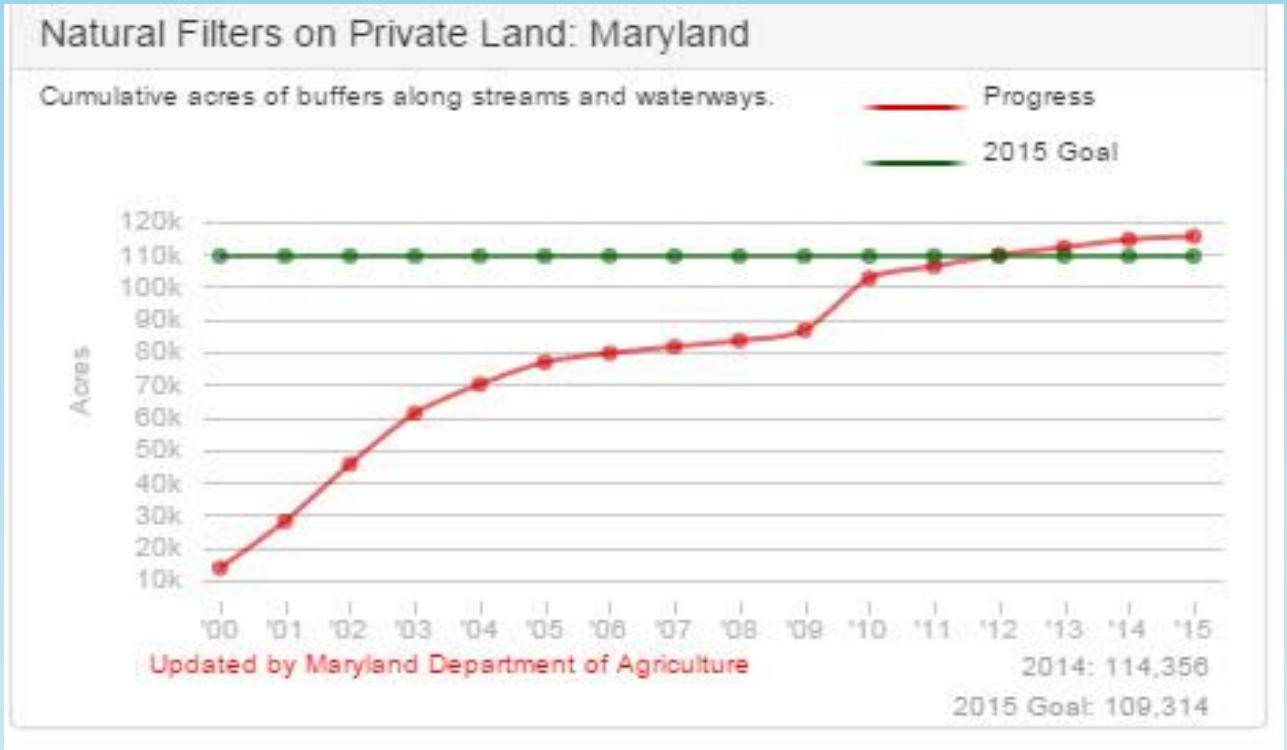
Animal manure storage



Maryland's 2014 – 2015 Milestone Goals and Progress Report

4/30/15

Riparian Vegetative Buffer



Maryland's 2014 - 2015 Milestone Goals and Progress Report

4/30/15

Fenced Riparian Grass Buffer

The Bay TMDL – *What?*

A "Pollution Diet" – load limits for entire Bay watershed

Set by EPA in 2010 to achieve goal of clean, healthy Bay

Developed in collaboration with Bay jurisdictions

Target: From 2009 levels, reduce annual Nitrogen load to Bay by 72 m lbs, Phosphorus by 4.8 m lbs

MD Target: Reduce Nitrogen load by 10.8 m lbs, Phosphorus by 0.5 m lbs

Deadline to reach Interim Target (60 %) → 2017

Deadline to reach Final Target → 2025

NEIEN Reporting Schema

June 2015

Sources of Data

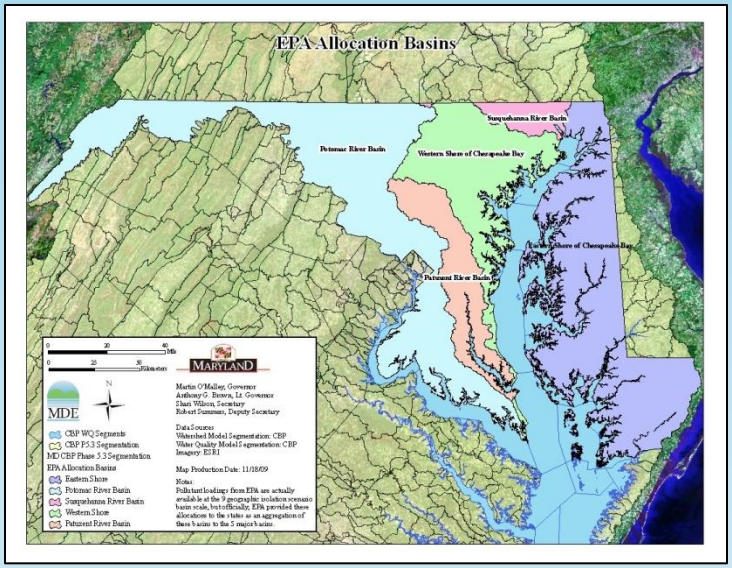
- NEIEN Reporting Option
- MDA – Conservation Tracker
- MDA – MACS database
- MDA – NM Database

CBPO BMP Category	BMP Codes
LitAmend	591 – Amendments for the Treatment of Ag Waste
Animal Waste Management Systems	313 – Waste Storage Structure 359 – Waste Treatment Lagoon 425 – Waste Storage Pond RI 1 – Dry Waste Storage Structure
Barnyard Runoff Controls	558 – Roof Runoff Structure RI 16 – Barnyard Clean Water Diversion
Forest Buffers	391 – Riparian Forest Buffer RI 9 – Forest Nutrient Exclusion Area RI 10 – Forest Buffer on Watercourse
Grass Buffers	386 – Field Border 390 – Riparian Herbaceous Cover 393 – Filter Strip 412 – Grassed Waterway RI 7 - Grass Nutrient Exclusion Area RI 8 – Grass Buffer on Watercourse
Land Retirement to Pasture or Open Space Horse Pasture Management	512 – Forage and Biomass Planting RI 13 /14– Conversion to Pasture or Hayland
Mortality Composters	327 – Conservation Cover 342 – Critical Area Planting*
Off-stream Watering w/o Fencing	316 – Animal Mortality Facility 318 – Dead Bird Composting Facility RI 2 – Animal Compost Structure
Carbon Sequestration/Alternative Crops	614 – Watering Facility RI 18 – Watering Trough
Exclusion Fence w/ Grass or Forest Buffer Exclusion Fence w/ Narrow Grass of Forest Buffer	RI 3 – Alternative Crop/Switchgrass
Precision Rotation Grazing	382 – Fencing* RI 4a/b – Watercourse Access Control - narrow grass or trees RI 5/6 - Watercourse Access Control - grass or trees
Stream Restoration Ag	528 – Prescribed Grazing RI 15 – Rotational Grazing
Tree Planting	580A/B – Streambank Protection or Shoreline Protection 584 – Channel Bed Stabilization
Loafing Lot Management	380 – Windbreak/Shelterbelt Establishment 612 – Tree/Shrub Establishment RI 11/12– Veg. Buffer on Poultry – grass or trees
Water Control Structure	561 – Heavy Use Area Protection (excl. poultry)
Wetland Restoration	587 – Structure for Water Control RI 17 – Water Control Structure
Cover Crop	657 – Wetland Restoration
Manure Transport	
Nutrient Management Conservation Tillage & High Residue Management	
Conservation Plans/SCWQP	

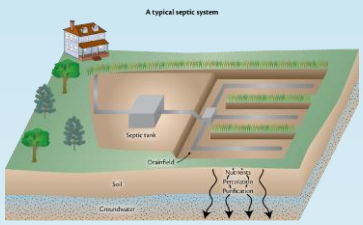
* These BMPs are tracked and recorded as 342A or 342B, and 382A, 382B, 382C, or 382D for additional reporting needs

Allocating Responsibility in MD

Maryland's Allocation:
41.1 Million lbs of Nitrogen
2.8 Million lbs of Phosphorus



MD's Allocation Methodology



MD's Reduction Responsibility, by 2025:

- Reduce 10.8 Million lbs of Nitrogen
- Reduce 0.5 Million lbs of Phosphorus

Maryland's Allocation Principles

State's approach:

- Consider existing policy
- Equity and fairness
  - *Equivalent level of effort*
  - *Feasibility*
  - *Credit for past reduction actions*
  - *Geographic proximity to Bay*
  - *Effectiveness of nutrient reductions*
- Do not include cost

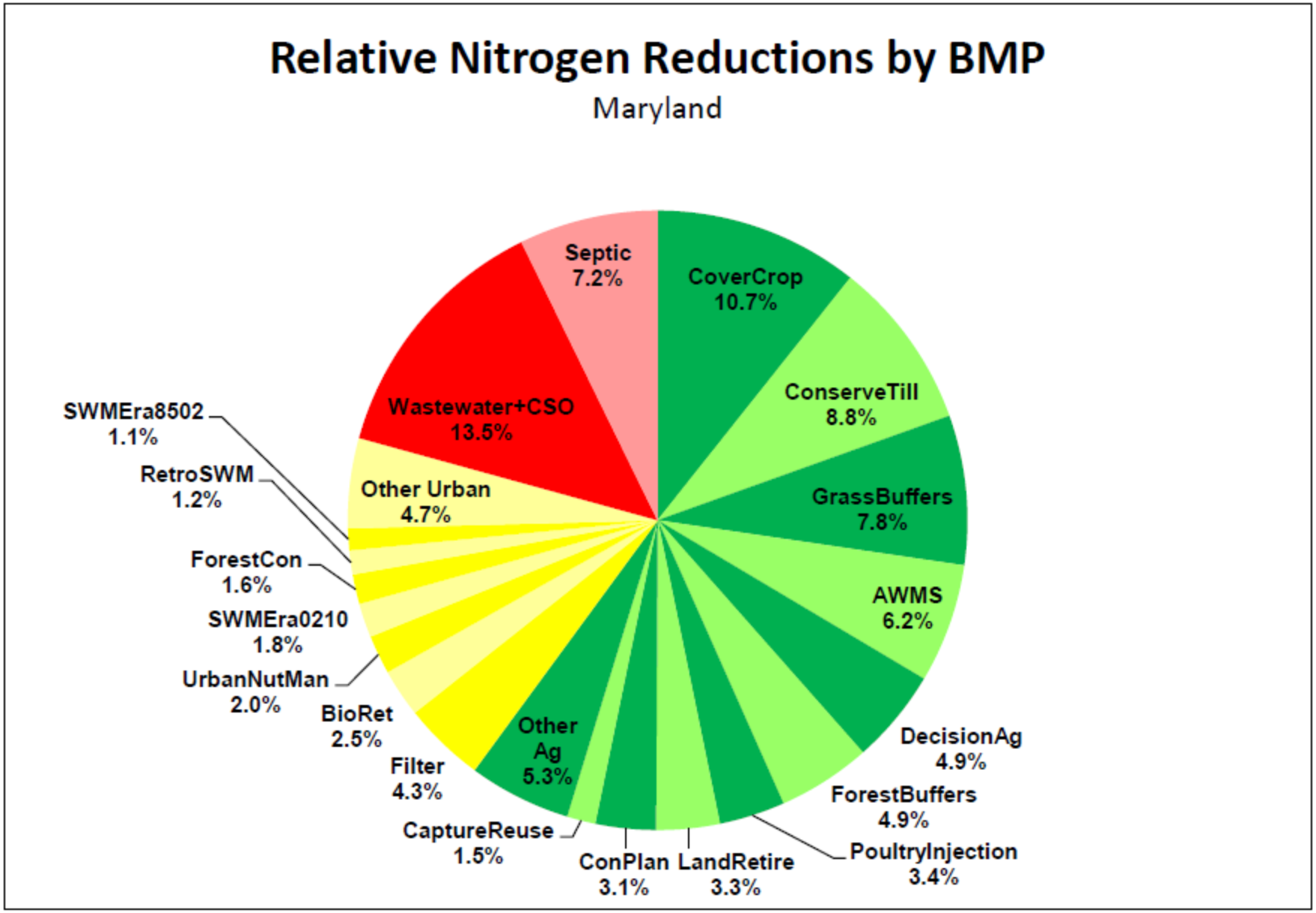
Allocation Results

Nitrogen – Millions of Pounds

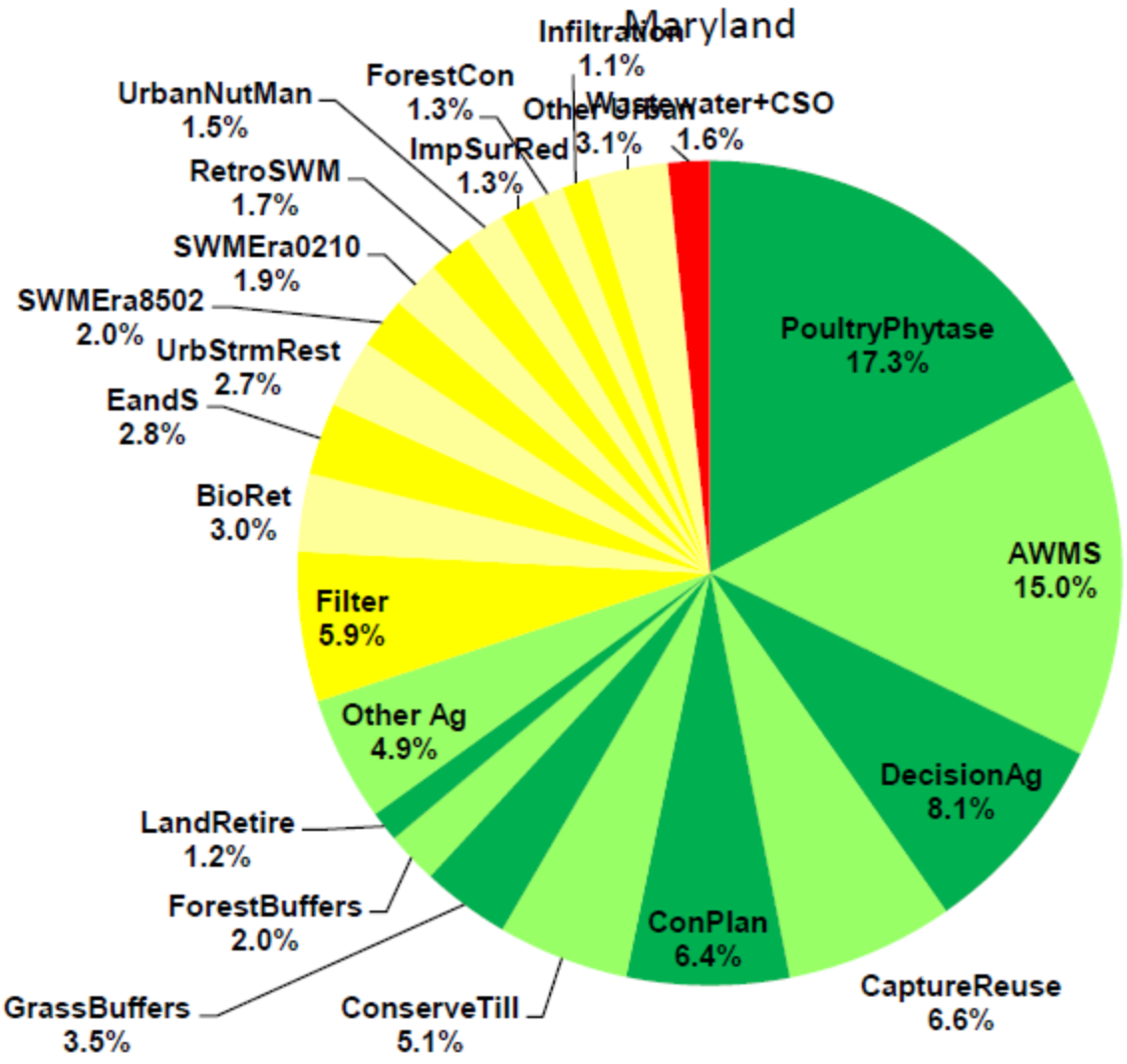
Source Sector	2010 Load	2025 Load	Load Reduction	Percent Reduction
Wastewater Plants	14.37	8.92* (10.58)	5.45 (3.79)	38% (26%)
Agriculture	19.95	15.22	4.73	24%
Urban Retrofits	9.48	7.55	1.93	20%
Septic Systems	3.00	1.85	1.15	38%

Source: Computed from Table 2, Maryland Phase II WIP.

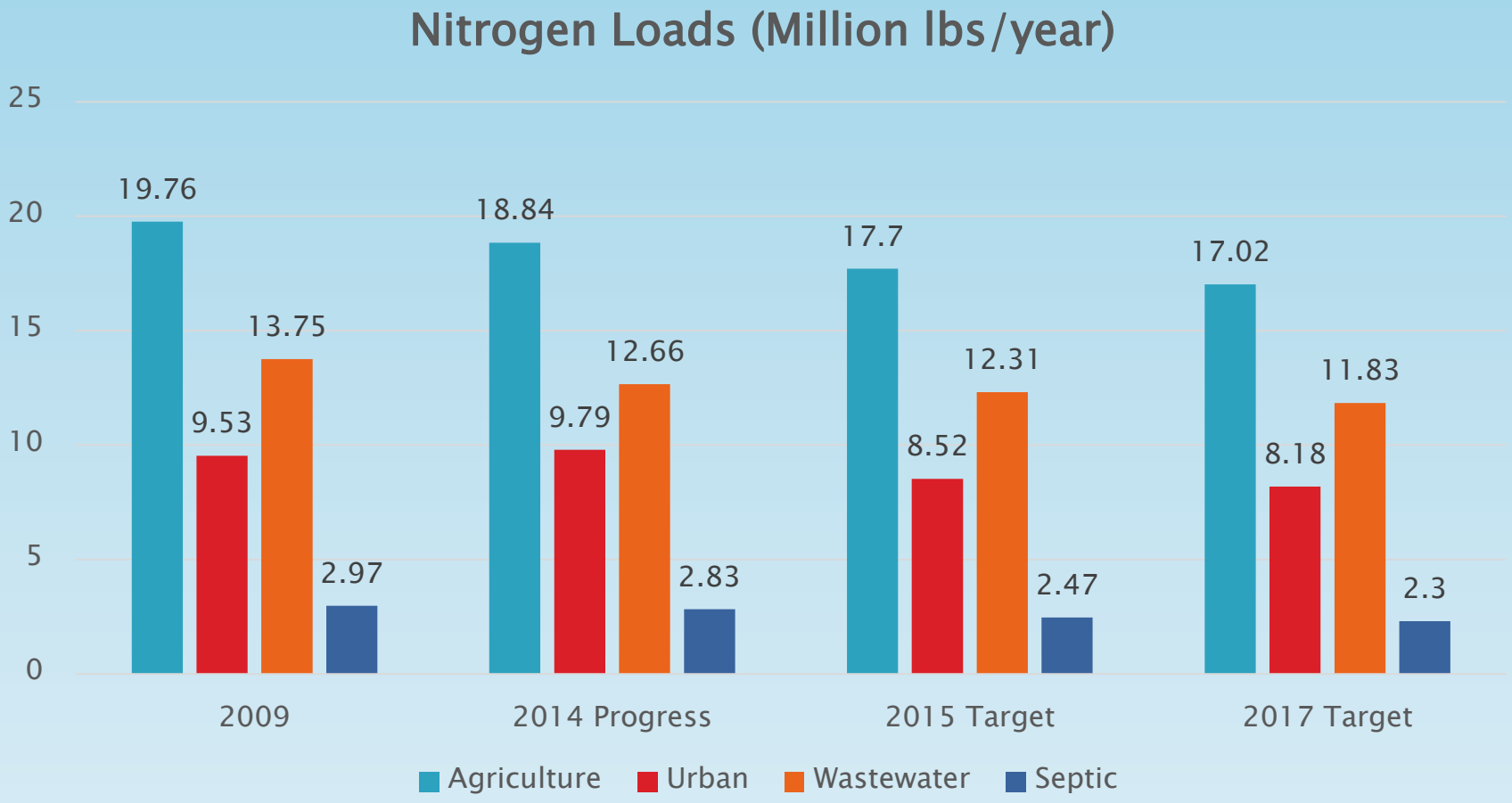
* Full reduction at 2017 after which loads increase toward a cap of 10.58 million lbs, 5.3 million lbs of forest


Relative Nitrogen Reductions by BMP
Maryland
Septic 7.2%
CoverCrop 10.7%
ConserveTill 8.8%
GrassBuffers 7.8%
AWMS 6.2%
DecisionAg 4.9%
ForestBuffers 4.9%
PoultryInjection 3.4%
LandRetire 3.3%
ConPlan 3.1%
CaptureReuse 1.5%
Filter 4.3%
Other Ag 5.3%
BioRet 2.5%
UrbanNutMan 2.0%
SWMEra0210 1.8%
ForestCon 1.6%
RetroSWM 1.2%
SWMEra8502 1.1%
Other Urban 4.7%
Wastewater+CSO 13.5%

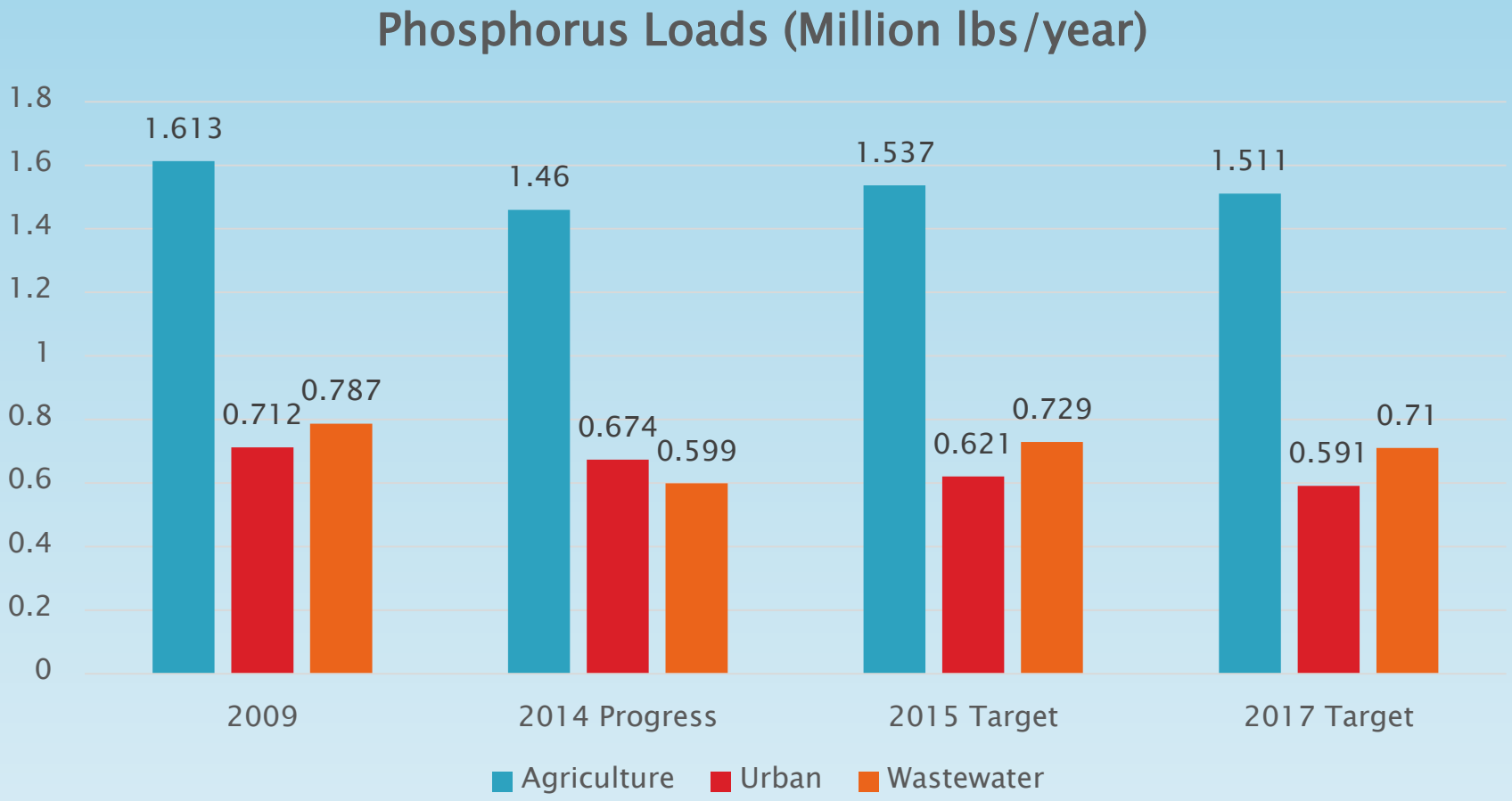
Relative Phosphorus Reductions by BMP



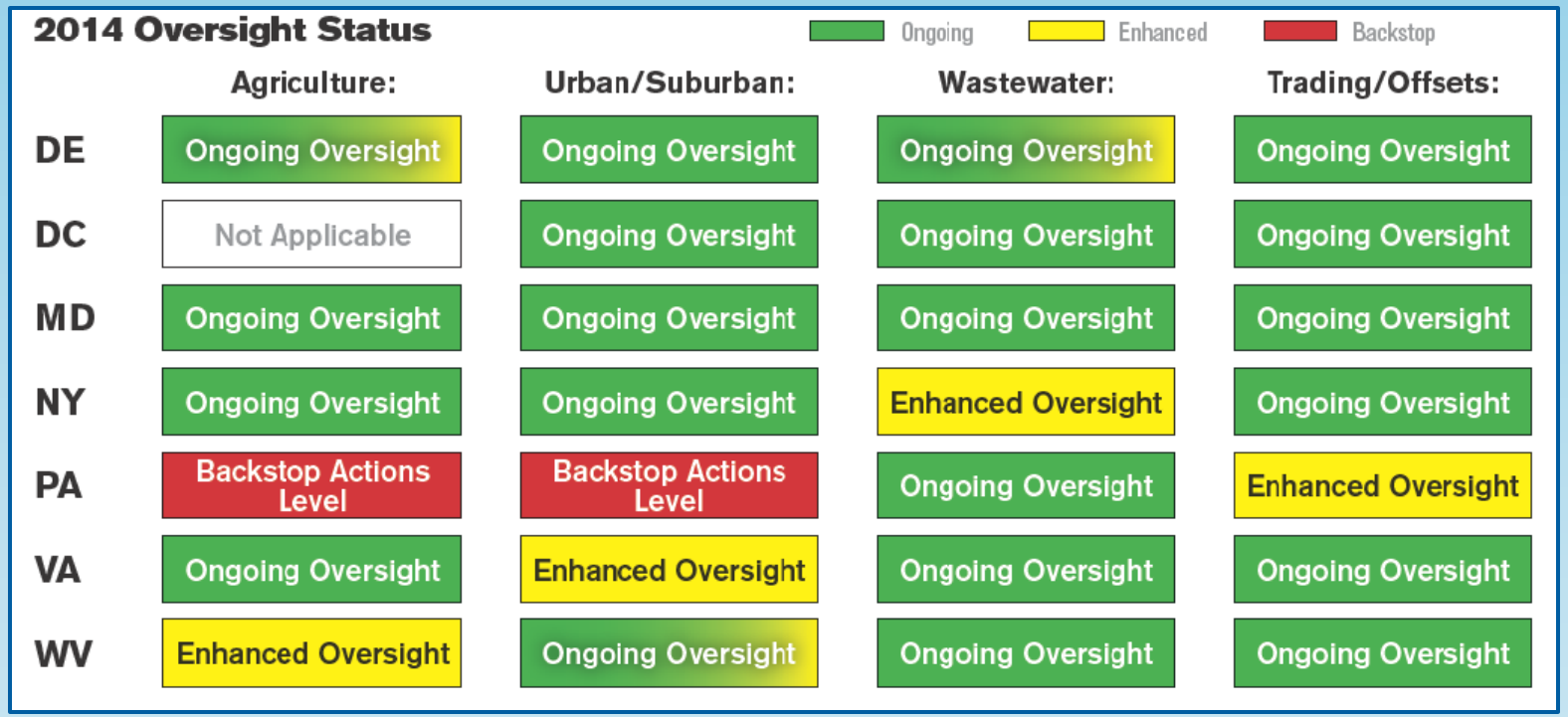
Maryland's Source Sector Progress & Goals



Maryland's Source Sector Progress & Goals



Federal Oversight & Consequences



ONGOING – Normal oversight to ensure progress continues, no major concerns

ENHANCED – Greater scrutiny, concerns about ability to implement cleanup strategy

BACKSTOP ACTIONS –To address substantial problems, get jurisdiction back on track. **Examples:**

- Expand areas under federal regulation
- Condition or redirect EPA grants
- Require net improvement offsets

EPA INTERIM EVALUATION OF MARYLAND'S 2014-2015 MILESTONES (agriculture)

- Commend actions to implement PMT
- Recognized progress in cover crop, conservation tillage, buffers, and decision agriculture implementation
- NMP reporting useful in tracking nutrient applications & mgt practices
- MDA reporting annual compliance rate NMP implementation
- Supports MD financial commitment to advance technologies that address manure nutrient imbalances.

Mike Scheffel, Resource Conservation, MDA
mike.scheffel@maryland.gov

Land Management Planning

The Key to a Clean Bay and Healthy Environment:

A Conservation Plan completed by professionals for and with landowners

Topics

- **Land Management: expand your awareness of natural resource issues, problems and solutions**

- **TMDL: Why it is important to you, Howard County, and the Bay**

Principles

- Every action causes a reaction,
- Fix the causes of the problems before they become insurmountable,
- Treat it like it's yours and you want to pass it on to your children or grandchildren.

Pollutants

- Sediment; (erosion: sheet, rill, gully)fills up streams, ditches, roads, reduces light
- Nitrogen: (fertilizer loss, too much for plant needs)causes algal blooms, depletes oxygen, causes dead zones
- Phosphorus: usually attached to soil particles, same problems
- Carbon: causes global warming, can be mitigated and sequestered by good management

Typical Problems

- Too much water…causing loss of soil (erosion)and nutrients
- Too little water…causing loss of plants and then erosion,
- Too many livestock leading to too little grass, leading to erosion,
- Mismanagement: the wrong activity in an unsuitable place

Land Management

Nutrient Management

- Basic Principles of Fertilizer Management
  - "The Four R's"
- The Right Fertilizer,
- In the Right Amounts
- in the Right Place,
- at the Right Time

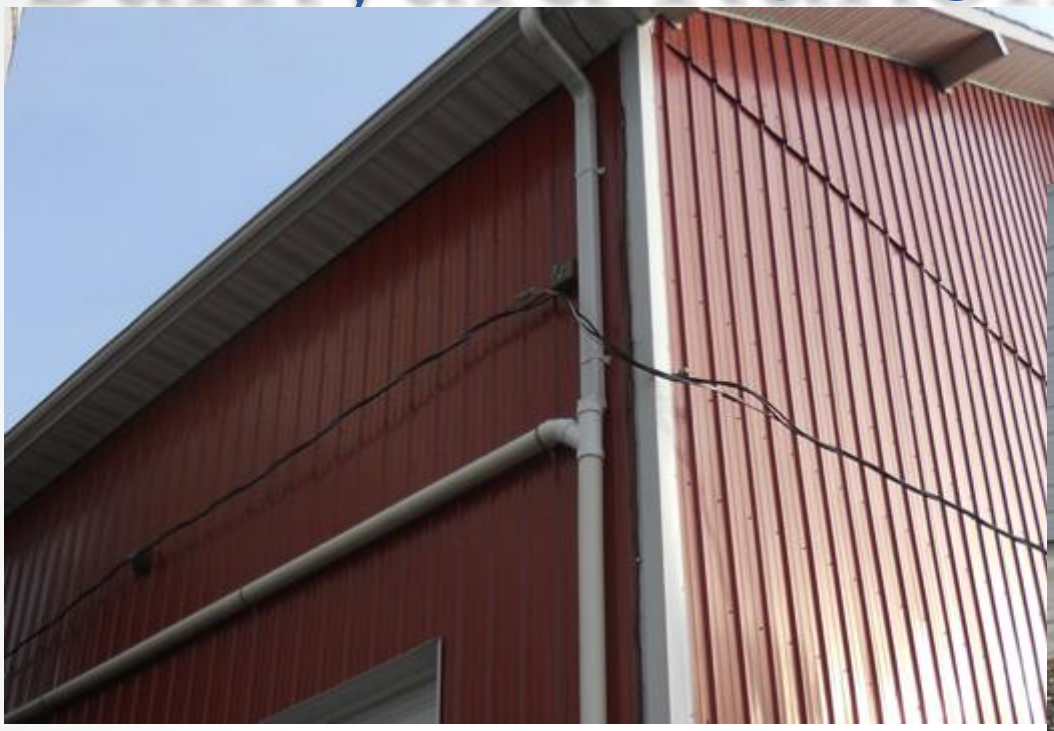
Nutrient Management

- Plans are required for larger farm operations
- The plans must be completed and filed with the Maryland Department of Agriculture
- Annual Implementation Plans must be filed with MDA for those plans covering more than 1 year, up to 3 years.
- They are NOT available to the public

Field Erosion

Nitrogen and Phosphorus

Barnyard Runoff Control



Animal Compost Structure

Manure Pack or Pen Pack

Concentrated Area Protection

Vegetative Buffer for Poultry

Keeping cattle out of stream

Watercourse Fencing (Trout approved)

Grass Buffer for Stream

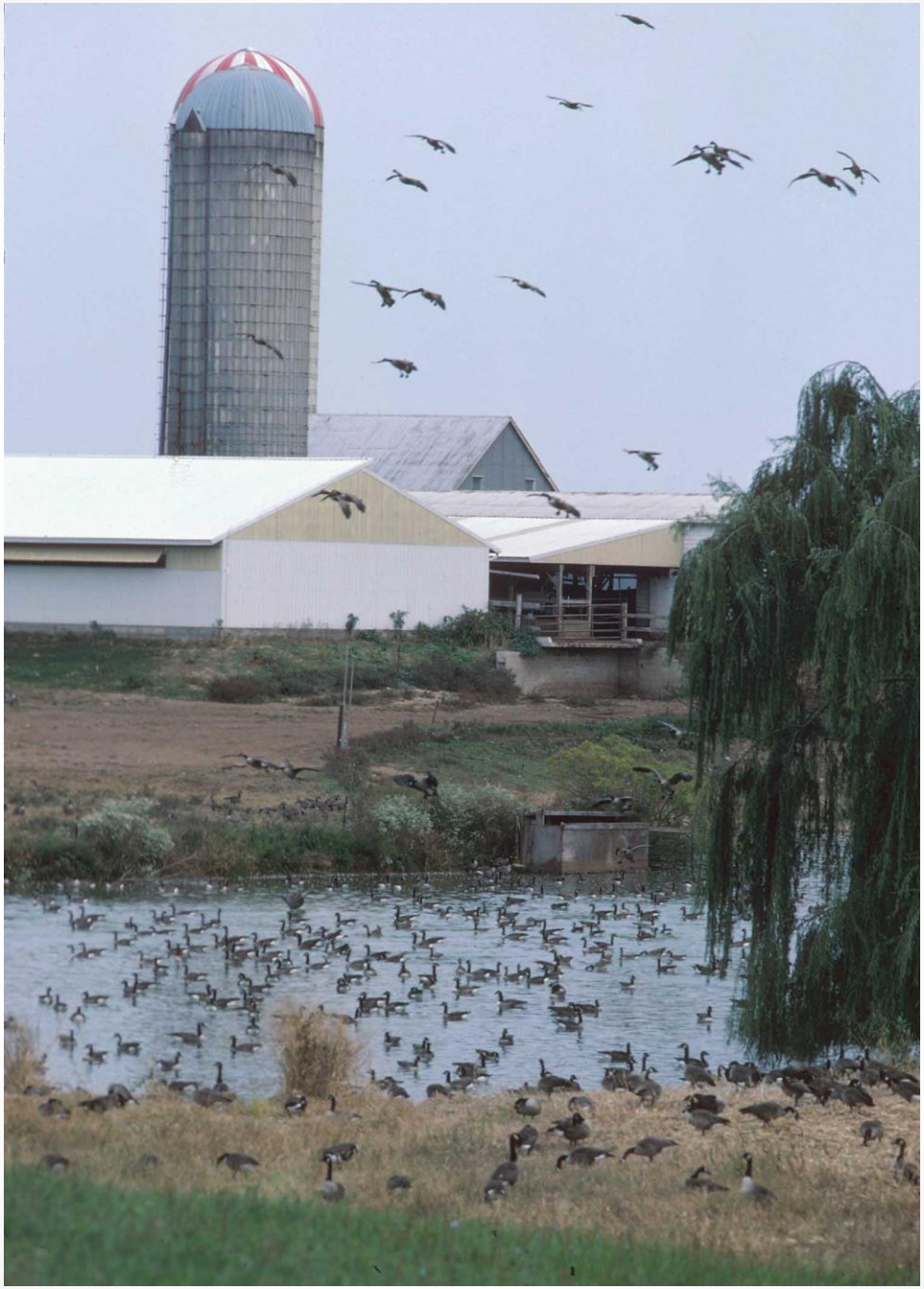
Grass Buffer on Ditch and Stream; Switchgrass Planting

Wetland with 20′ Buffer

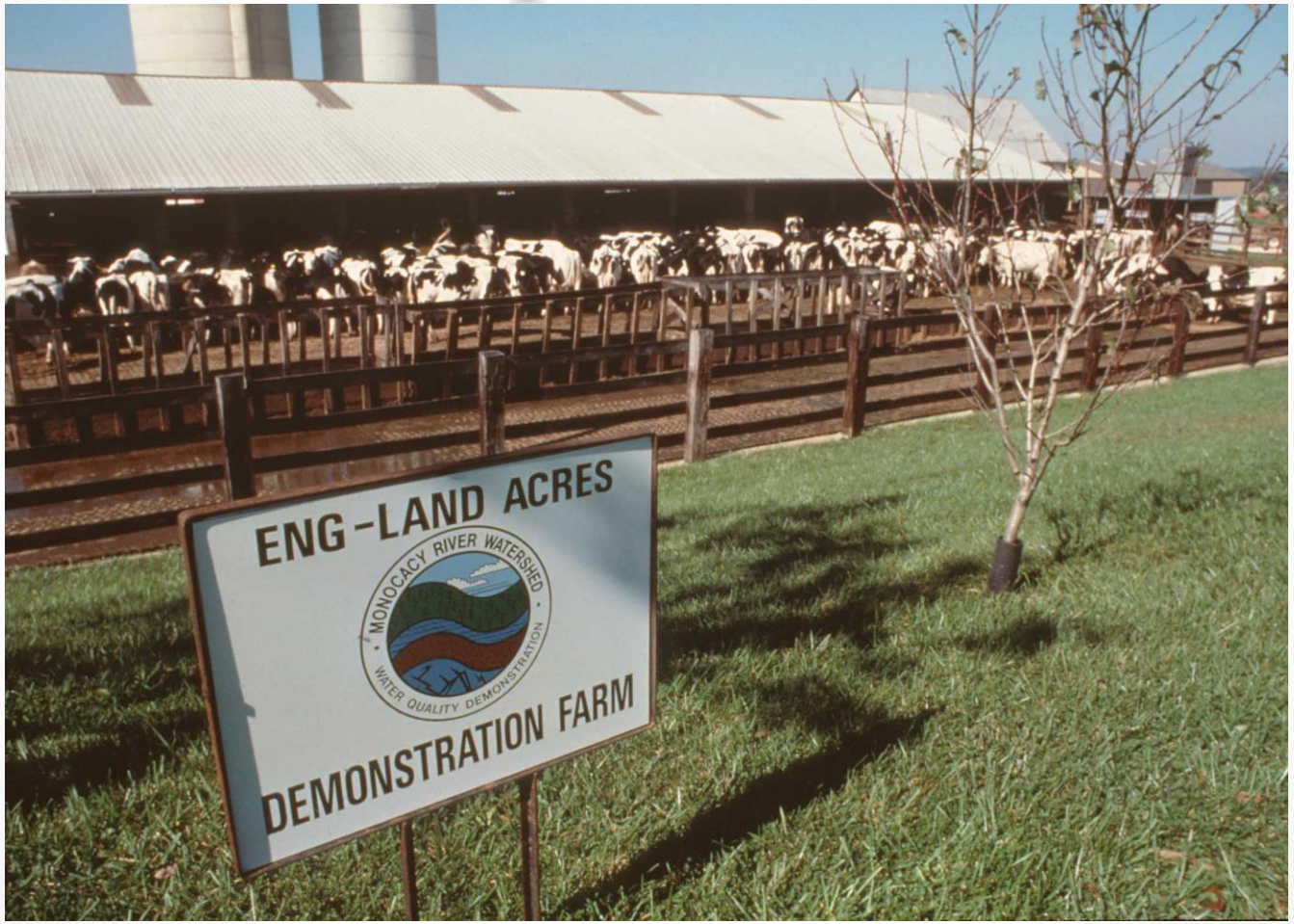
Watering Trough for Cattle, away from stream

Field Stacking of Manure for short periods

Manure Holding Facility, for longer periods



It is possible!



Clean and Green

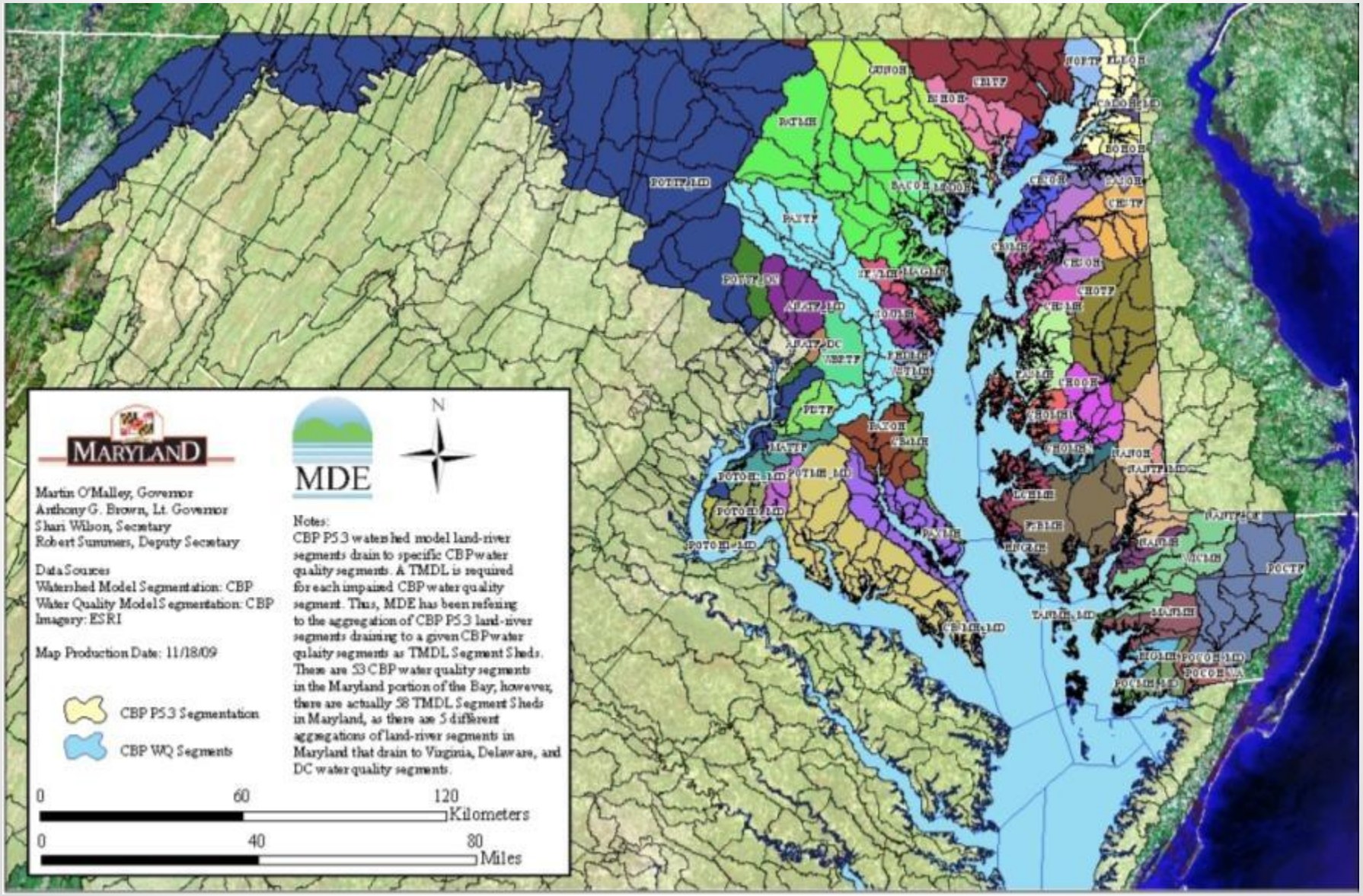
It can work for all of us!

Questions?

Michael Calkins
Howard Soil Conservation District
410-313-0680

TMDL: Total Maximum Daily Load

58 Sub-Allocation (TMDL) Segmentsheds



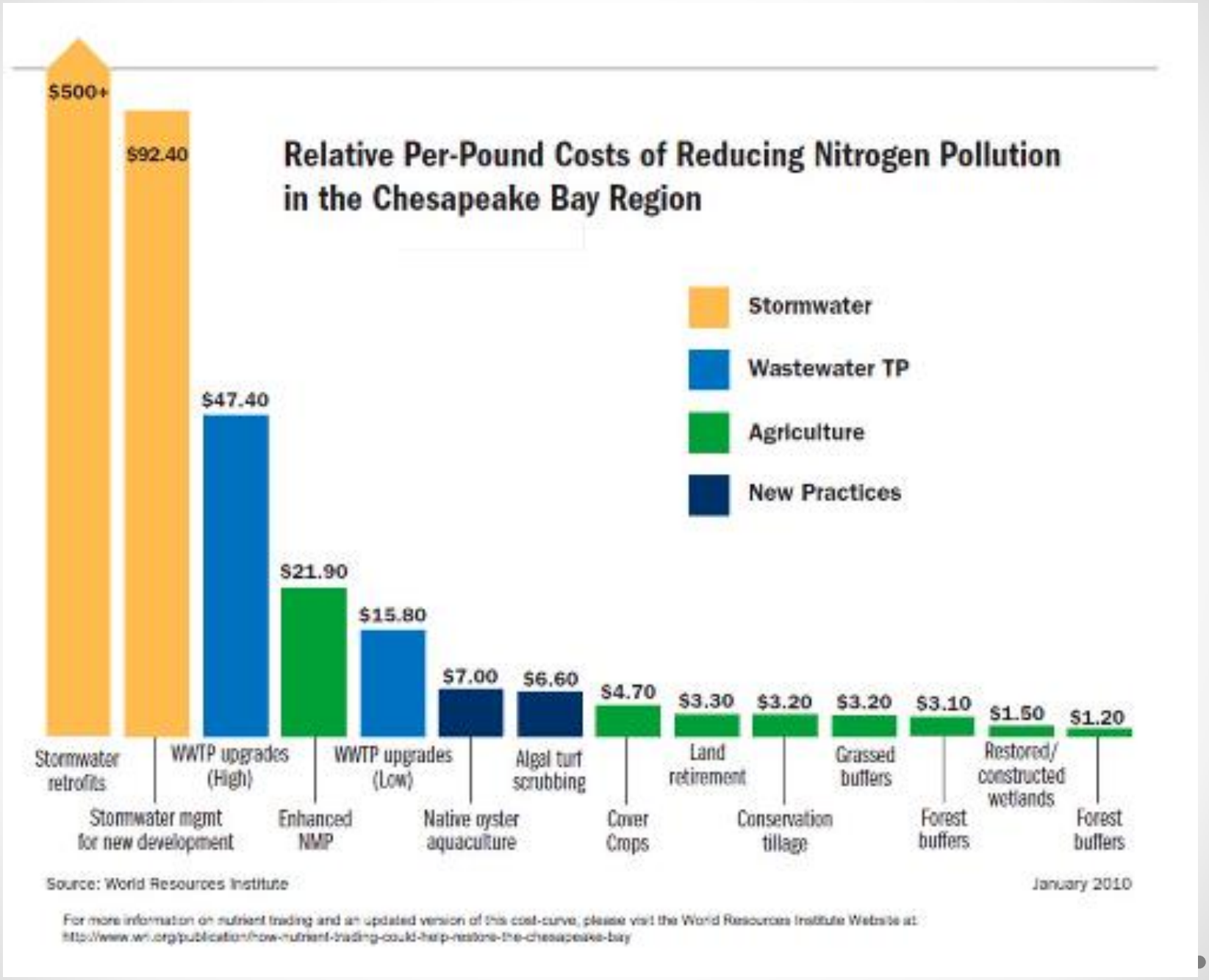
Why is it Important to have a Complete Inventory Agricultural BMP's in Maryland Counties?

-To More Accurately Determine where the nutrients are coming from: Urban, Suburban, Storm Water, or Septic Tanks…..

-To Determine how many additional practices <u>really</u> need to implemented to meet the TMDL in Maryland…..

-To Determine How Much it will "Cost" to clean up the Bay…

-To Determine if Agricultural Offsets are available for trading….


Relative Per-Pound Costs of Reducing Nitrogen Pollution in the Chesapeake Bay Region
Stormwater
Wastewater TP
Agriculture
New Practices
$500+
$92.40
$47.40
$21.90
$15.80
$7.00
$6.60
$4.70
$3.30
$3.20
$3.20
$3.10
$1.50
$1.20
Stormwater retrofits
Stormwater mgmt for new development
WWTP upgrades (High)
Enhanced NMP
WWTP upgrades (Low)
Native oyster aquaculture
Algal turf scrubbing
Cover Crops
Land retirement
Conservation tillage
Grassed buffers
Forest buffers
Restored/ constructed wetlands
Forest buffers
Source: World Resources Institute
January 2010
For more information on nutrient trading and an updated version of this cost-curve, please visit the World Resources Institute Website at
http://www.wri.org/publication/how-nutrient-trading-could-help-restore-the-chesapeake-bay

Ecosystem Trading – Why is it Important in Maryland

Key Principles

- All new and expanded point source nutrient loads must be fully offset
- Trades must be consistent with County Water and Sewerage Plans
- Trading will not be available in lieu of required Enhanced Nutrient Removal upgrades
- Point source trades will be implemented and enforced via NPDES permits

Key Principles

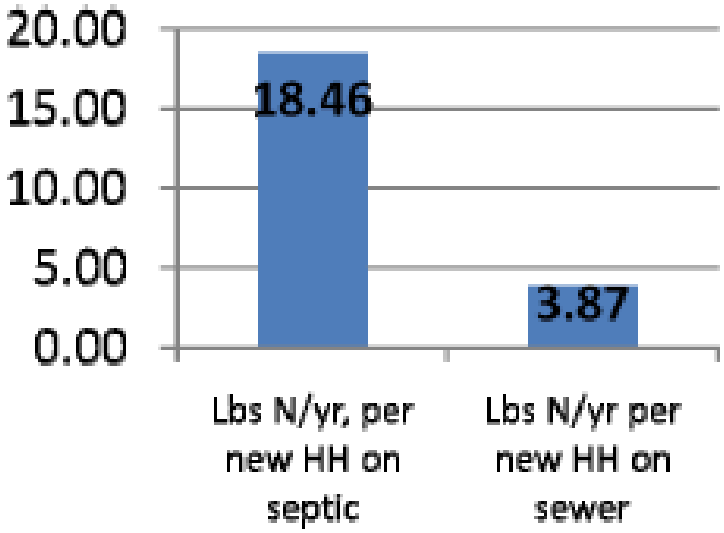
- Trades must be consistent with TMDLs
- Trades must protect local water quality
- Adequate public outreach/stakeholder participation

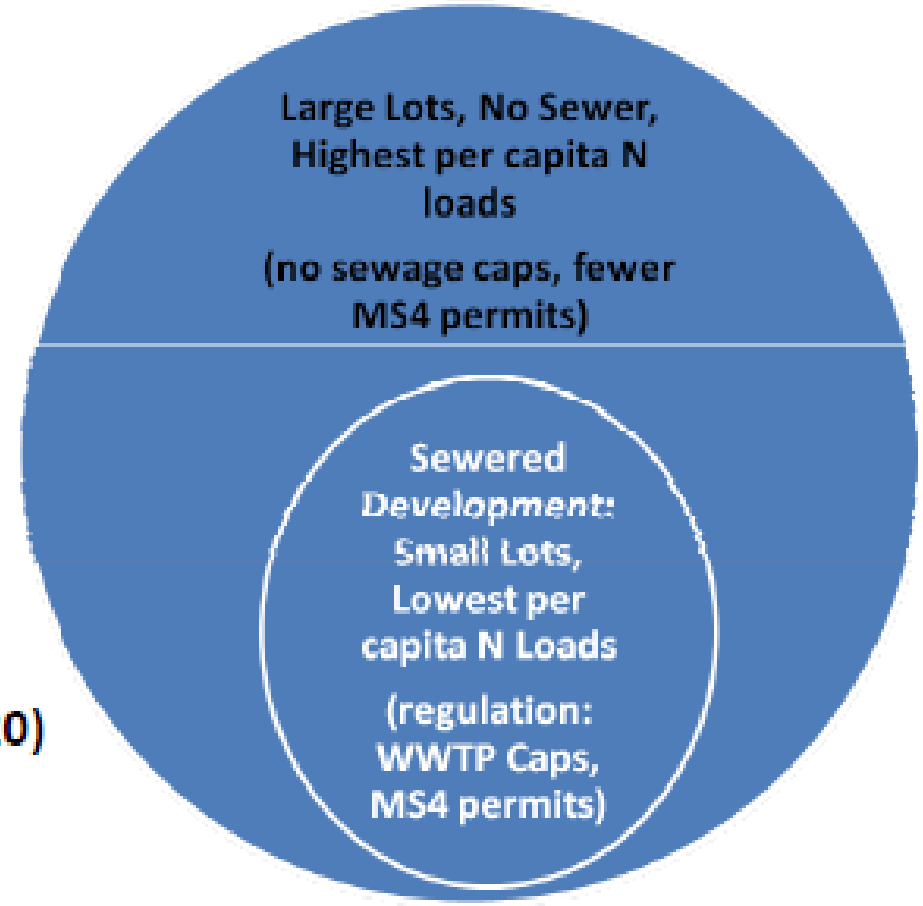
Trading In Maryland

Is there a market for nutrient credits?

- **Yes,** we are starting to get inquires from Nutrient Trading **Aggregators**. Credits above the TMDL on Maryland farms could generate **"tradable" credits** which typically could be used as a "**bridge loan**" to get the purchaser **from where they are**, (ie: failing septic)-- **to where they need to be** (ie: updated and upgraded sewage treatment)--within a certain time frame such as 5 years. The purchase would provide an **annual payment to the farm owner** for the necessary time frame agreed to.

Housing Forecast in Maryland 2010-2020





263,225 Additional Households Forecasted in Maryland (2010 -2020)

29% served by septic tanks

71% served by ENR WWTP

If Counties are going to Meet the Requirements of the TMDL and allow Continued Growth— Agricultural Offsets can Be the Answer!

- **Trading will give developers hope that if they can meet part of the need (80-90%)-- then through purchase of Agricultural offsets they will be able to complete the project (County and State policy TBD)**

- **Agricultural offsets can provide funding to help farmers continue to keep conservation practices on the ground to meet the TMDL and potentially help install additional conservation practice on their land.**

Phase II – Agricultural Nutrient Trading in Maryland

Buyer

Compensation ($)

Nutrient Credits

Seller

Agricultural Nutrient Trading in Maryland

A program designed to provide Maryland farmers a payment for conservation practices.

A. The practices provide offsets to address new or increased loads associated with a growing population:

WWTP, Development, Industrial Facilities, Septic Tanks

B. Private purchase of nutrient reduction projects and practices (retirement credits):

Chesapeake Bay Foundation

Ducks Unlimited

"Baseline" Requirements for Agricultural Non-point sources

- Maryland's agricultural non-point nutrient trading program requires that operators of agricultural operations or other landowners wishing to generate credits must have achieved a level of nutrient reduction known as baseline

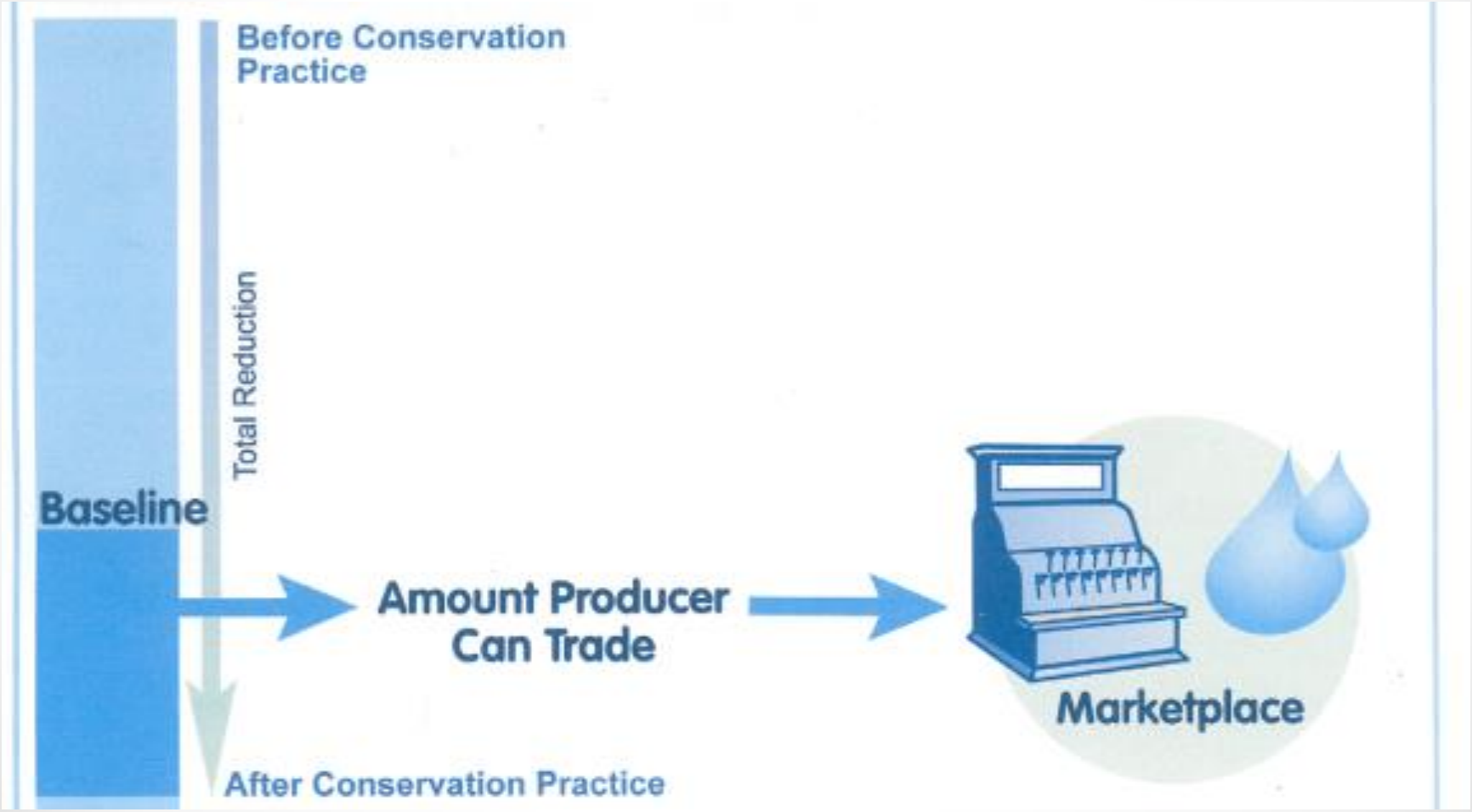
- Baselines are applied to all the pasture/field/animal areas within a tract that is being used to generate credits and must first achieve the stricter of:
  a) the level of nutrient reduction called for in the Bay TMDL; or
  b) the level of nutrient reduction called for in an applicable TMDL for the watershed where the credits are generated from.

- Current agronomic and structural practices can be utilized to meet baseline.

- Baseline requirements may require additional implementation of BMP's.

- An agricultural operator or landowner may use federal, state or private cost-share assistance to implement BMP's that are used to meet the baseline nutrient reductions.

Determining How To Meet Baselines

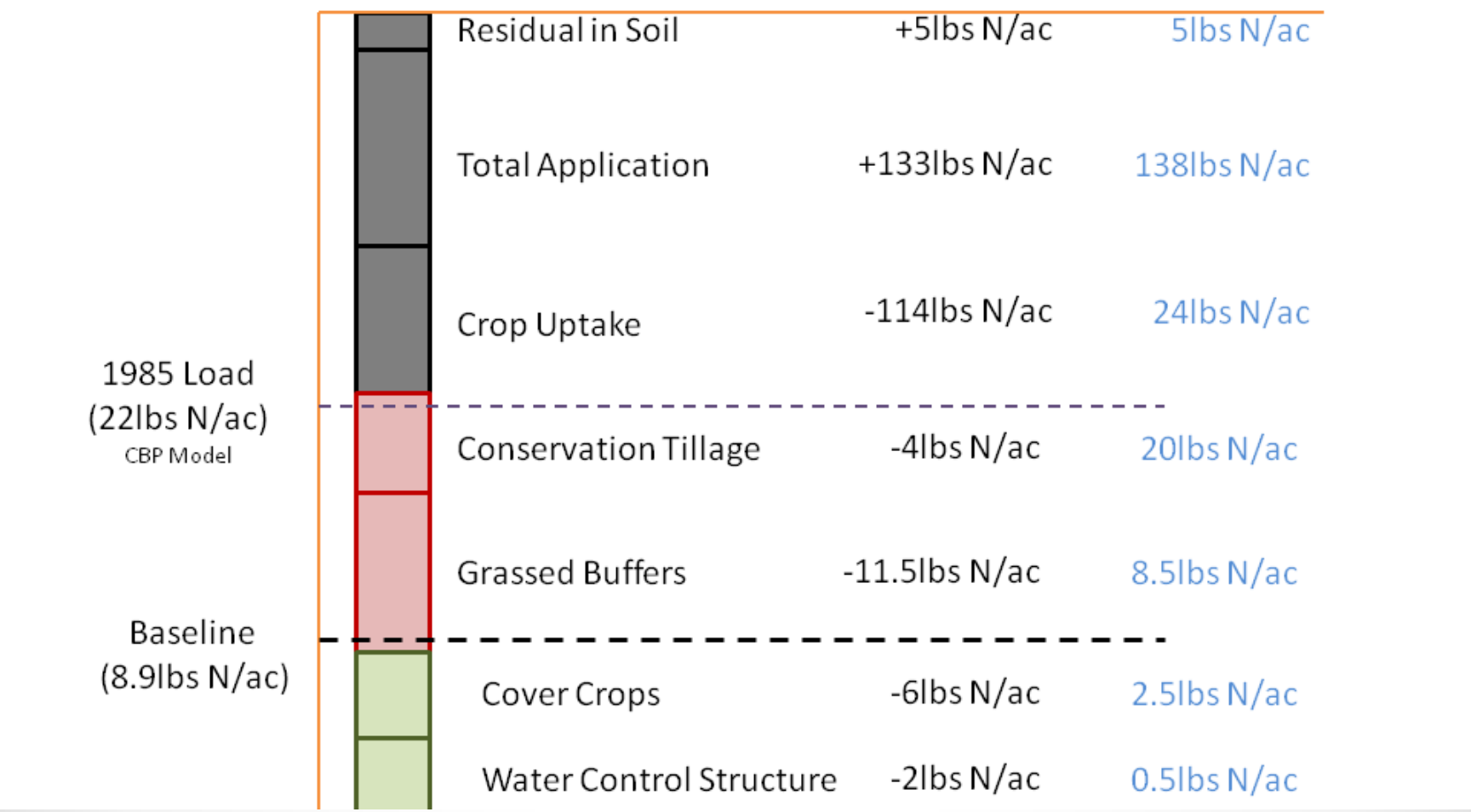


What is Tradeable ?

How to Generate Credits:

- Once a landowner and/or operator has determined the tract has achieved the baseline requirements for the watershed additional implementation of water quality improvements can be considered as a tradable credit. There are no partial credits for BMPs utilized to meet baseline.
- Tradable credits can be generated from any planned agronomic, land conversion (agricultural), or structural practice.

Baseline and Credit Calculation Example



MDA Nutrient Trading Website: http://mdnutrienttrading.org/

Results So Far?

- In a project in Howard County we have found as many as **50% of the practices on your farms have been "farmer funded"** and never recorded in the EPA model.
- More exciting is that **almost all the farms meet the TMDL baseline** and have **nitrogen credits**, and half of the farms have **phosphorus credits** (by Version 2 of MDNTT).

Early Howard County MDNTT Results:

MDNTT Howard County Results*

Farm	Baseline Met?	N Red EOS	N Red to Bay	Bay N Credits Generated		P Red EOS	P Red Bay	P Credits Generated
Farmer 1	N Only	21.9	2.6	3		0	0	0
Farmer 2	Yes	42.6	35.8	36		7.5	5.4	5
Farmer 3	Yes	10.3	1.2	1		4.7	3.4	3
Farmer 4	Yes	48.1	5.8	6		10.3	7.4	7
Farmer 5	N Only	9.4	7.9	8		0	0	0
Farmer 6	Yes	443.1	367.8	368		16.4	15.6	16
Farmer 7	Yes	42.2	35.5	35		18.2	13.1	13
Farmer 8	N Only	76.3	9.2	9		0	0	0
Farmer 9	Yes	304.9	36.6	37		20.3	14.6	15
Farmer 10	Yes	217.1	26.1	26		2	1.4	1
Farmer 11	N Only	485	58.2	58		0	0	0
Farmer 12	Yes	173	20.8	21		7.5	5.4	5
SUBTOTAL		**1873.9**	**607.5**	**608**		**86.9**	**66.3**	**65**
***Version 2 MDNTT**								

It can work for all of us!

Questions?

Bob Ensor
Howard Soil Conservation District
410-313-0680

Financial incentives for water-friendly landscaping

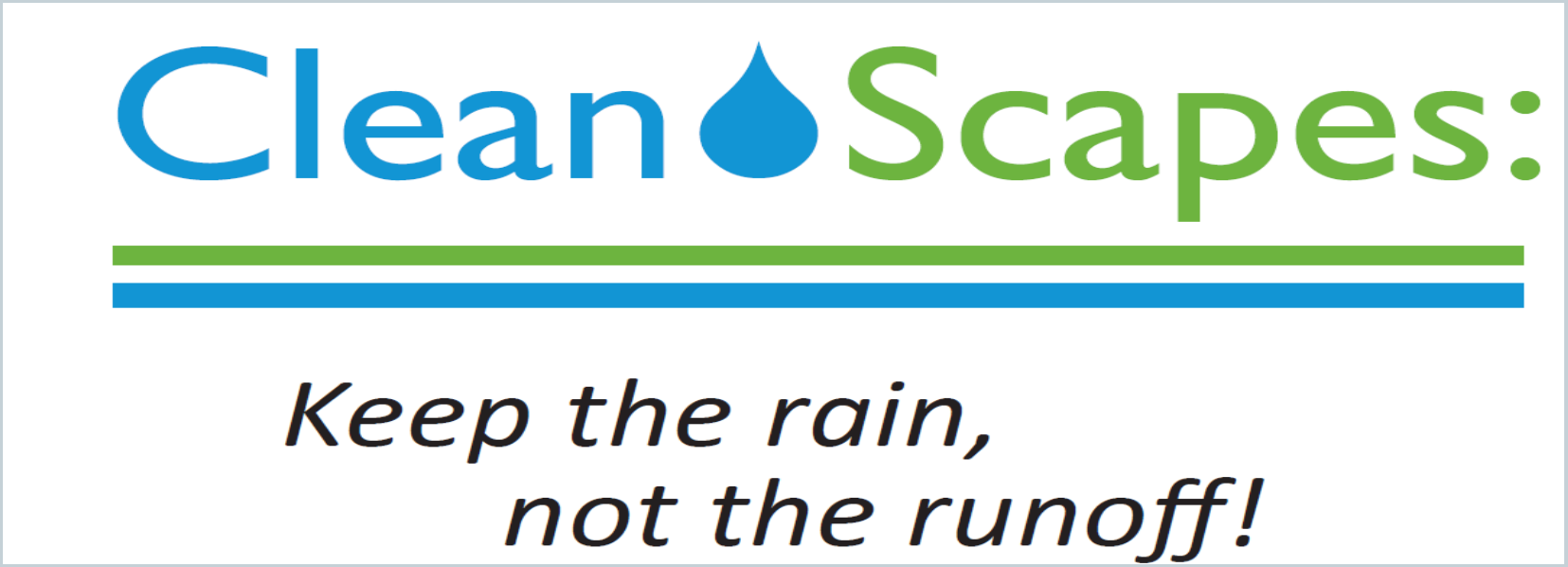
GET MONEY BACK FOR DOING THE RIGHT THING

Benefits of water-friendly landscaping

- Attract local wildlife
- Helps solve drainage and erosion problems
- Protect local water quality
- Beautiful conversation pieces
- Don’t have to mow!

Financial Incentives-Reimbursement and Credit

- Reimbursements-typically 50% of the cost incurred up to a cap.
- Credit-20% credit toward annual Watershed Protection Fee



Contractor or Do-It-Yourself?

Do-It-Yourself

- Homeowner's Guide for a More Bay-Friendly Property

Contractor


Eco Friendly Gardening Cheat Sheet
Resources
Do-it-yourself Installation Guide
Homeowner Guide for a More Friendly Bay
http://chesapeakestormwater.net/2013/04/homeowner-bmp-guide/
Financial Resources
Howard County's residential credit and reimbursement program
http://www.cleanwaterhoward.com/what-is-your-role/residential-properties
Materials-Green Registry:
Lowes (Elkridge), Sun Nurseries, and Grandfather's Garden Center
Property Stormwater Site Assessments
Howard County Watershed Stewards Academy
http://howardwsa.org/
Contractors
Lauren's Garden Service
www.laurensgardenservice.com
410-461-2535
Village Gardeners
www.villagegardenerscapes.com
301-748-9872
McHale Landscape
www.mchalelandscape.com
301-599-8300
UNIVERSITY OF MARYLAND EXTENSION
Solutions in your community
clean HOWARD
Disclaimer: Inclusion in this list does not confer certification, an official endorsement, or approval from the Howard County Government or any of its agencies, or from the University of Maryland
The University of Maryland is an Equal Opportunity Employer and Offers Equal Access Programs

What is eligible?

CleanScape Eligible Practices

Creditable & Reimbursable

Rain Garden

Rain Barrels/Cistern

Permeable Pavers

Green Roof

Pavement Removal

Dry Well

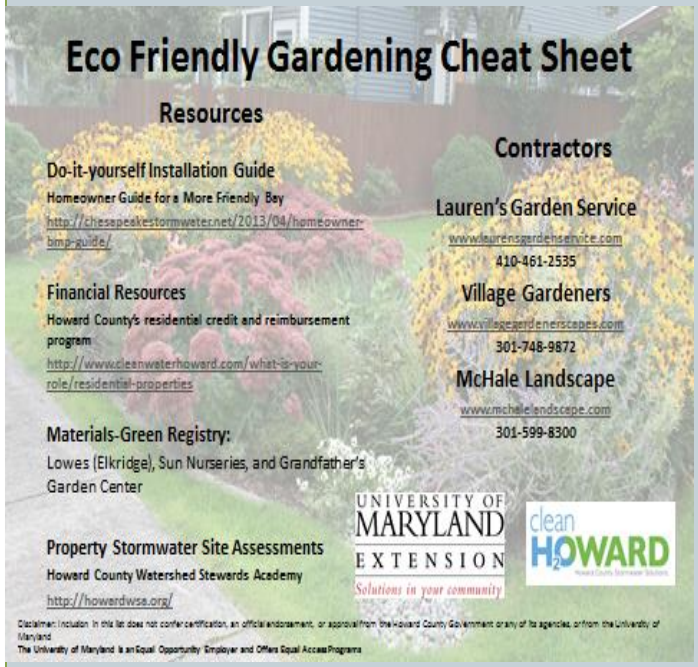
Reimbursable

Tree Canopy

Conservation Landscape


1. Install a CleanScape
2. Fill out the SMART Tool
3. Complete Application
- Residential Reimbursement Form
- Residential Credit Form
4. Smart Certifier Inspection
5. Application Review
6. Award Decision

Useful Resources



GREEN REGISTRY

Connect with Stores That Sell What You Need for Your Next Eco-Landscaping Project

CleanScapes:

Keep the rain, not the runoff!

CleanScapes:

Keep the rain, not the runoff!

Residential Best Management Practice (BMP) Incentive Program Criteria:

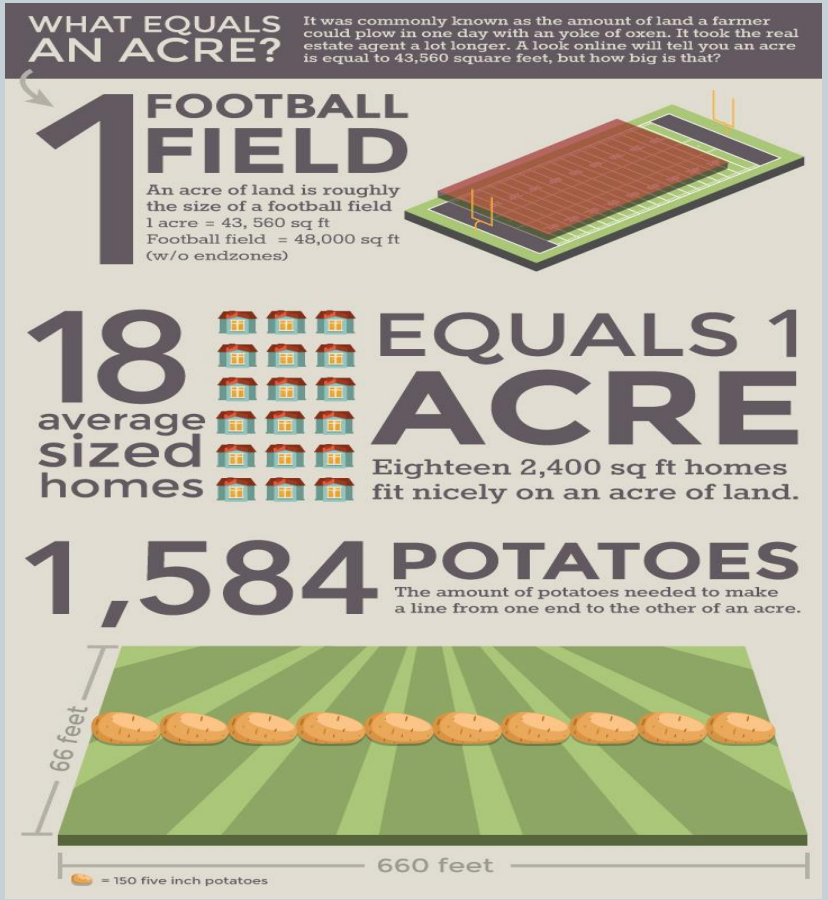
Columbia Association

WSA

Howard County · Watershed Stewards Academy

CleanScapes Program to Date

- $54,275.03 incentives since December 2013
- 1.65 impervious acres
- 112 residential lots



http://www.wagrown.com/what-does-an-acre-look-like

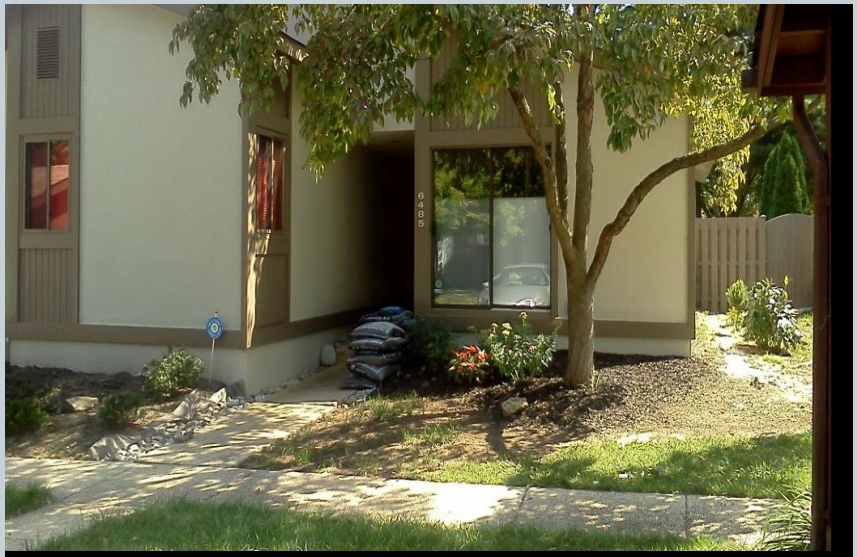
From CleanScapesParticipants

Rain Garden

Keith and Kathy Glennan

From CleanScapesParticipants

•“Yes, many neighbors have come to look at the rain garden and installed their own.I had no weeds for three years but the last year the weeds have been prolific!!It solved my drainage problem and help stop water from running down the street into Wilde Lake. It covered a barren, ugly area in my front yard and always looks attractive.”—Suzanna Merrit



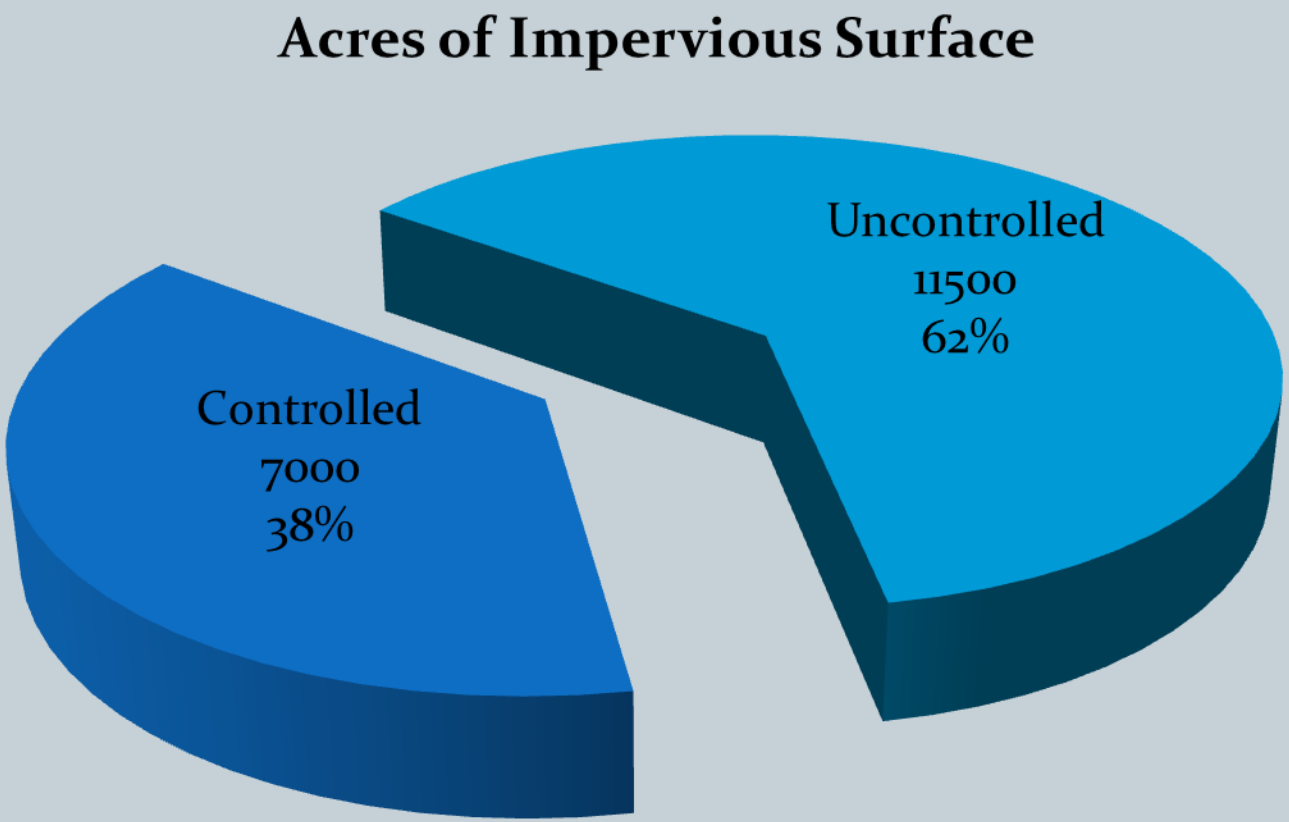
Before installation of the rain garden a view of the right side of our house

From CleanScapes Participants

Where does the funding come from?

- Funded by WPF
  - $10.4 M received in first year
  - 52% of impervious surface is residential
- $100,000 allotted for residential reimbursements annually

Where does the funding come from?



New State permit requires County to control approx. 2,500 existing impervious acres in the next 5 years.

Need help along the way?

Rachel Beebe
(410) 313-0678
rbeebe@howardcountymd.gov

www.cleanwaterhoward.com

How to Get Free Trees

Howard County
Recreation and Park's
Stream ReLeaf
and
Tree Canopy
Programs

Definitions
(and why we should care about planting trees)

- A STREAM BUFFER is a protective strip of trees, shrubs and other vegetation along a stream which help to maintain the health of the waterway by:
  - Stream buffers prevent stream bank erosion because the vegetation dissipates the energy and friction of moving water and roots help to hold the soil in place
  - The vegetation traps sediment, nutrients and other pollutants before they can enter our waterways, absorbing and utilizing many nutrients
  - Plants provide shade which reduces water temperatures, an important aspect of fish habitat

- TREE CANOPY is the layer of leaves, branches, and stems of trees that cover the ground when viewed from above. Among its many benefits, Tree Canopy helps to reduce storm water runoff by:
  - Leaves and branches slow rainfall while roots hold soil into place, filter pollutants and absorb water
  - Less runoff and flooding means lower stress on storm water facilities and a reduced flow of pollutants going into the Chesapeake Bay

The Stream ReLeaf Program

- Trees and/or shrubs are provided to homeowners who can plant them on their own property within 75' of a stream
- Stream include drainage ditches, swales, intermittent streams and ponds
- You must commit to planting a minimum of 12 trees and/or shrubs
- Plant material is delivered to your house in the Spring and Fall*

*Fall only starting 2016

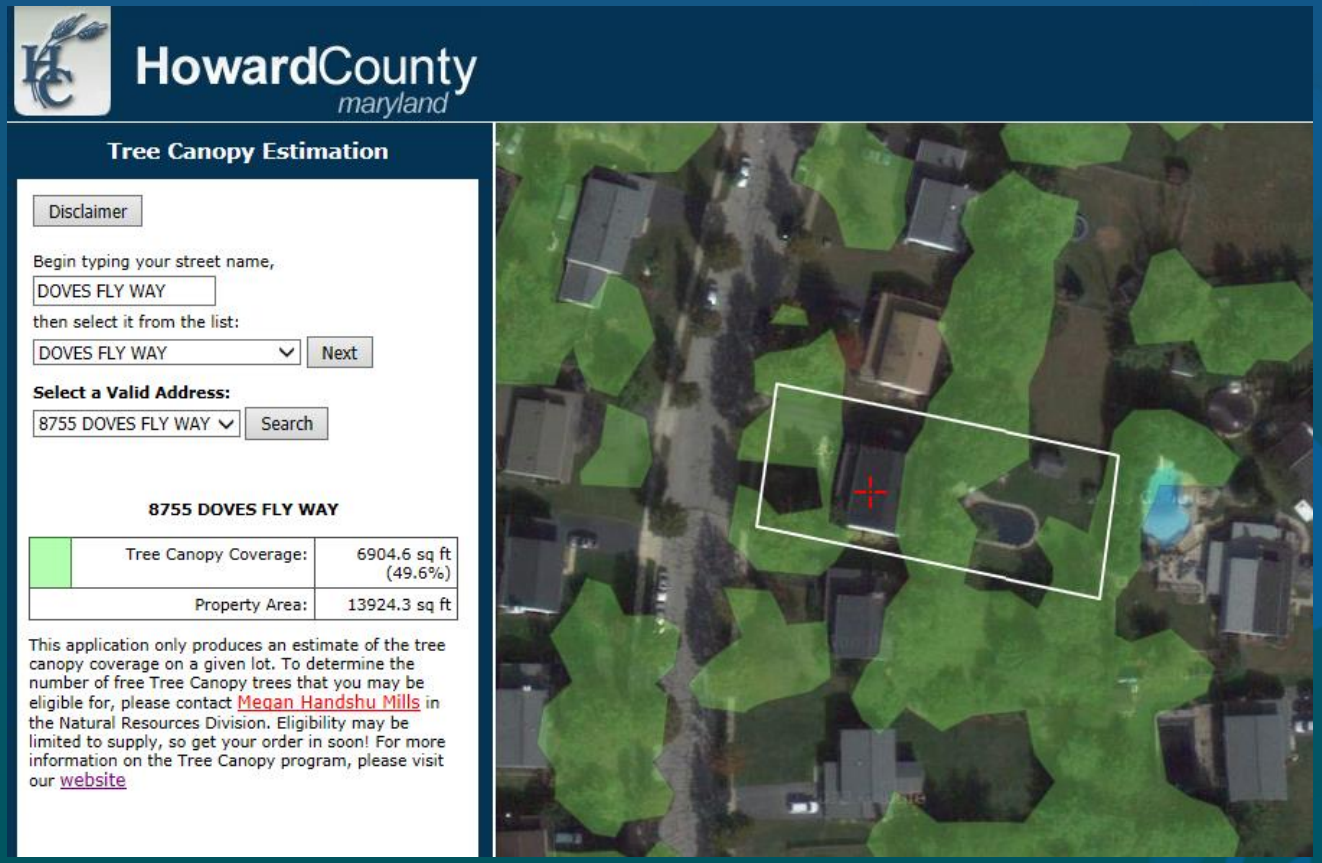
Large Stream ReLeaf Orders

- If your property qualifies for over 75* trees and/or shrubs; you may qualify for a contractor planting as well
- We will work with you to create a planting plan and schedule the planting
- Our contractors will come out and plant the trees and shrubs for you!
- HOA and multiple neighbor plantings are welcome (minimum 100 plants in the same neighborhood to qualify)

*minimum order requirement is subject to change

The Tree Canopy Program

Trees are provided to homeowners with a maximum of 40% canopy coverage, to be planted on their property in areas which will increase tree canopy.



http://data.howardcountymd.gov/gtreecanopycalculation/gtreecanopycalculation.asp