Homeowner BMP Crediting Policy

Background on Homeowner BMPs

- Almost 50 communities and watershed groups offer incentives and technical assistance to homeowners
- Strong interest from many stakeholders to get credit for qualifying projects
- Individual practices have small impact on pollutant reduction, but collectively may be an effective load reduction strategy

Homeowner BMP Crediting

UNM Plan for 9200 Bradford Pear Lane: 0.5 acres		
1	Get Expert Lawn Advice	✓
2	Maintain Dense Cover on Turf	✓
3	Choose NOT to fertilize	✓
4	Recycle Lawn Clippings and Compost Fallen Leaves	✓
5	Correct Fertilizer Timing	N/A
6	Use Slow Release Fertilizer	N/A
7	Set Mower Height at 3 inches	✓
8	No off-target fertilization	N/A
9	Fertilizer free buffer zones around water features	✓
10	Increase soil porosity and infiltration	✓

Urban Nutrient Mgmt
Rain gardens
Rainwater Harvesting
Downspout Disconnection
Tree Planting
Conservation Landscaping
Permeable Driveways

Work Done in 2013

- Stakeholder engagement
- CSN Memo on crediting mechanisms
- Development of tracking/verification tools
- Pilot in Howard County, MD
- Homeowner BMP Guide released
- Homeowner Policy approved by USWG on 11/19/2013
- Seeking WTWG Approval today

Action Requested Today

- Approve policy allowing localities to only report aggregate homeowner BMP data to states (still need to retain individual practice data).
- Approve alternative verification methods for homeowner BMPs (sub-sampling, self-inspection, e-mail transmittal of digital photos)

Key Elements of Homeowner BMP Policy

- Framework for crediting
- Only BMPs that have had expert panels
- Short term credit duration (5 years)
- Visual indicator for verification
- Web-based reporting and tracking tool
- Bay-wide guidance on design and installation of qualifying practices

Possible Framework for Piloting Homeowner BMP Crediting in MD

	Homeowner	Local Watershed Group / Local gov't	MD	EPA
ROLE	•Install and maintain BMPs •Report them on website	•Initial verification of BMP installation •Maintain homeowner BMP records and summary tracking database •Ongoing inspection for BMP verification •Homeowner recognition program (*optional*)	•Aggregate locally supplied BMP data, and provide quality control •Modify existing guidance and reporting tools	•Enter into CBP progress runs •Lead BMP crediting team •Review and adopt "Framework for accepting homeowner BMPs"
TOOLS NEEDED TO IMPLEMENT	•Help in measuring lot cover ★ Homeowner BMP toolbox ★ Home self-audit procedure	•Homeowner BMP option added to MDE Draft Guidance (2011) and new BMP reporting system •Homeowner access website template ★ Visual Inspection Protocols	•Need EPA or CBP approved homeowner BMP framework	•Support Expert Panels to develop new homeowner BMPs •Revise Scenario Builder, MAST to deal with homeowner BMPs
WHAT IS REPORTED	•Lot area, by land cover type •Practice Type, Area and Rainfall treated	•BMPs installed •Nutrient Reductions •Year installed	•Summary of local BMP data and expiring BMPs	•Report progress made in nutrient reduction due to homeowner BMPs
VERIFICATION	•Provide contact info •Allow on-site access for inspection	•Conduct visual inspections on prescribed cycle, or allow BMPs to expire	•Ensure local verification occurs, or let BMPs expire	•Develop BMP data metrics to detect BMP reporting anomalies
ROLE IN PILOT	•Provide feedback on customer satisfaction	•Select an existing community offering BMP incentives and a second one who is considering offering an incentive program, as test pilots	•Make sure that the crediting system works administratively	•Depending on pilot, make homeowner BMP framework and tools available to other states

Local governments can opt out of crediting framework

Link Between Expert Panel Reports and Homeowner BMPs Credits

Individual BMP	*Status*	*Notes*
Rain Garden	Approved	Define DA and rainfall depth treated by each individual practice and then use the retrofit adjustor curves of expert panel for on-site retrofits
Rain Barrel	Approved	
Permeable Pavement	Approved	
Downspout Disconnection	Approved	
UNM Pledge [1]	Approved	Define turf area (TA) and associated removal rates based on risk factor for each individual urban nutrient management plan or pledge, as specified in expert panel report
UNM Plan, Hi Risk [2]	Approved	
Conservation Landscaping [3]	None	Convert turf to meadow
Tree Planting	Interim/ Pending	Interim rate exists for sf of tree canopy, but an expert panel is expected to modify rate in 2104
Impervious Cover Removal [4]		Impervious cover converted to pervious cover

Notes:

[1] May not acceptable in some Bay states

[2] Communities in MD may not be eligible for this credit

[3] Not currently being accepted for crediting, although it will be addressed by a future expert panel

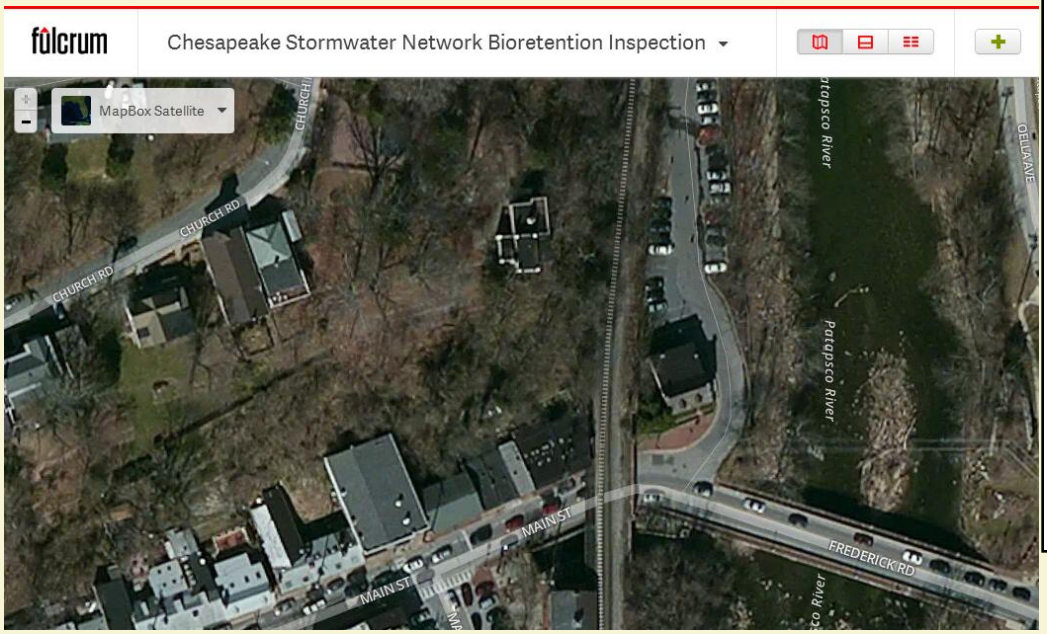
[4] Model as a land use change from impervious load to pervious load

Inspection and Verification of Homeowner BMPs

- Challenge: how to track and verify a few hundred thousand practices down the road
- Visual indicators developed for rapid inspection and verification of homeowner BMPs.
- Use of web-based and smart phone technology

Inspection App

- Final stages of testing
- Online tracking
- Upload photos directly from phone/tablet
- Creates PDF report



Schueler's

Created	2013-08-23 17:32:35 UTC by Stormwater Maintenance & Consulting
Updated	2013-08-31 20:08:35 UTC by Stormwater Maintenance & Consulting
Location	39.27427, -76.732554

Project Information

Client Name	Schueler's
Site Name	Schueler
Site Address	
Facility ID	1
Inspection Date	2013-08-23
Inspector Name	Ted & Cecilia

Overview Photos of Facility

Overview of facility

www.chesapeakestormwater.net

Homeowner uploads basic data to local web site…

	User input
	Calculated values
	Constants
	Default

	USER INFORMATION
NAME	Tom Schueler
ADDRESS 1	1234 Main Street
ADDRESS 2	
CITY	Catonsville
ZIP	21228

SITE DATA			LOAD GENERATED FROM SITE	
LOT COVERAGE	Area: ft²	% of Lot	TN Load	TP Load
Impervious Cover				
Rooftop	3360	15%	1.18	0.13
Driveway/Sidewalk	2790	13%	0.98	0.11
Total	**6150**	28%	**2.16**	**0.24**
Pervious Cover				
Trees/Landscaping	5500	25%	1.36	0.05
Rain Garden/BMP	600	3%	0.15	0.01
Lawn	9530	44%	2.36	0.09
Total	15630	72%	**3.88**	**0.15**
TOTAL	**21780**	**100%**	**6.04**	**0.39**

LOADING RATES*	TN	TP
	(lbs/ac/yr)	(lbs/ac/yr)
Impervious	15.3	1.69
Pervious	10.8	0.43

BMP INFORMATION

	SITE DATA			RAIN GARDEN INFORMATION	
		AREA (sq ft)	TYPE OF BMP	SURFACE AREA OF PRACTICE (sq ft)	DEPTH (in)
IMPERVIOUS COVER	ROOFTOP	3360	Rain Garden 1	600	6
				400	6
		672	Rain Barrel 1	672	
		672	Downspout Disconnection 1		
	Total		3	1672	
	DRIVEWAY/SIDEWALK	2790	Permeable Pavement	2790	3.5
	Total			2790	
				SURFACE AREA OF PRACTICE (sq ft)	TREES PLANTED (#)
PERVIOUS COVER	LAWN	9530	UNM Plan, Hi Risk	9530	
			Conservation Landscaping	500	
			Tree Planting		5
	Total				

USER INPUT | LOCAL GOVT

LOAD REDUCTION INFORMATION

BMP INFORMATION							LOAD REMOVED			
Impervious Cover BMPs						Rainfall Depth	% Removal			
Rain Garden	DA to practice (sf)	Target Storage (cf)	SA of Practice: (sf)	Depth (in)	Runoff storage volume (cf)	(in)	TN	TP	TN	TP
Rain Garden #1	3360	280	600	6	300	1.07	61%	71%	0.72	0.09
Rain Garden #2										
Rain Garden #3										
Rain Garden #4										
Rain Garden #5										
Rain Garden #6										
Rain Barrel	DA to practice (sf)	(cf)	RB Capacity (gal)		RB Capacity (cf)	RT (in)	TN	TP	TN	TP
Rain Barrel #1	672	56	55		7.35	0.09	11%	13%	0.13	0.02
Rain Barrel #2										
Rain Barrel #3										
Rain Barrel #4										
Rain Barrel #5										
Rain Barrel #6										

Downspout Disconnection	DA to practice (sf)	Target Storage (cf)	SA of Practice (sf)	Infiltration ranking	R v
Downspout Disconnection #1	672	56	193	1	
Downspout Disconnection #2					
Downspout Disconnection #3					
Downspout Disconnection #4					
Downspout Disconnection #5					
Downspout Disconnection #6					

Permeable Pavement	DA to practice (sf)	Target Storage (cf)	SA of Practice: (sf)	Depth (in)	R v
Permeable Pavement	2790	233	2790	3.5	

Pervious Land BMPs	SA of Practice: (sf)	# of trees
UNM Pledge		N/A
UNM Plan, Hi Risk	9530	N/A
Tree Planting	500	5
Conservation Landscaping	500	N/A

Other tools to manage and aggregate homeowner BMP from local and state databases directly into CBWM

Removal rates are based on expert panel reports

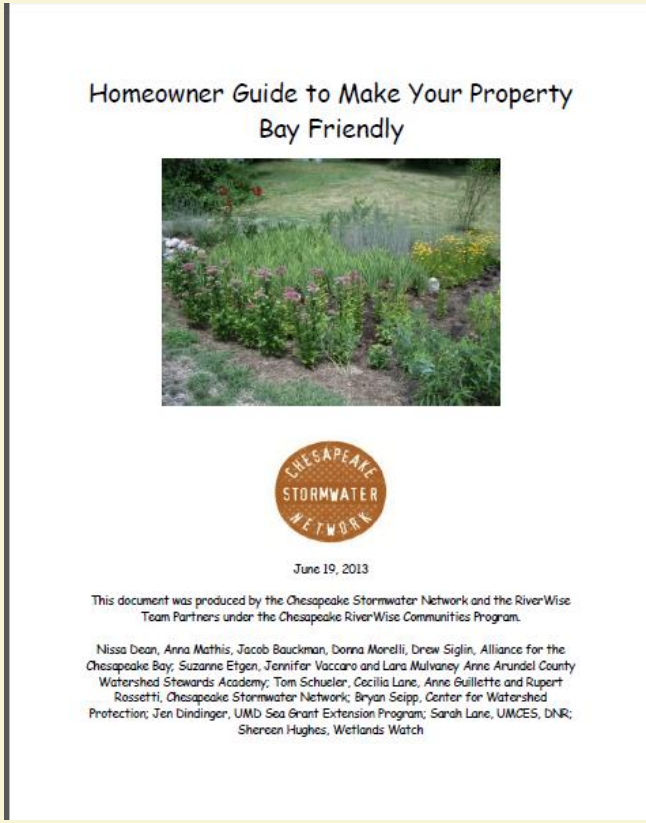
Table 2 How Unit Removal Rates Would Be Derived and Default Values

Homeowner BMP	Credit	Homeowner Supplied Input	Default Rate For the BMP Credit	BMP Removal Rates		Unit Nutrient Load Reduced Per BMP (lbs)	
				TN(%)	TP(%)	TN	TP
Rain Garden	5 yrs	sf Roof Area/sf Rain Garden * RG depth (in)	RT= 1 in, DA= 500 sf	60	70	0.10	0.014
Rain Barrel	5 yrs	sf Roof Area/cf of barrel capacity	RT =0.25 in DA= 500 sf	28	33	0.05	0.006
Permeable Pavement	5 yrs	sf of permeable pavement * 0.4 (storage depth)	RT= 0.5 in DA=1000 sf	45	52	0.16	0.020
Downspout Disconnection	5 yrs	sf of roof area/sf of filter path	RT = 0.5 in DA = 500	45	52	0.08	0.010
UNM Pledge	3 yrs	Lawn Size in sf	TA=5000 sf	6	3	0.075	0.0015
UNM Plan, Hi Risk	3 yrs	Lawn Size in sf & Risk factor(s)	TA =5000 sf	20	10	0.25	0.005
Conservation Landscaping	3 yrs	Landscaping Area (sf)	CA = 500 sf	--	--	0.044	.002
Tree Planting (per tree)	5 yrs	# of trees	Tree = 100 sf			0.0014	--
Impervious Cover Removal	5 yrs						

Notes: RT = rainfall depth treated, sf = square feet, in= inches, DA=drainage area to BMP, TA= turf area
UNM= Urban nutrient management, CA= area of conservation landscaping

Standardization of Homeowner BMP Design, Installation and Upkeep in the Bay Watershed

- CSN Homeowner Guide
  - Open- source "adaptable" document
- For homeowner or their contractors
- Non –technical design approach, but step by step "standards" for assessment, design, installation and maintenance
- Supplies the key parameters needed as input to tools to compute load reduction



Homeowner Guide to Make Your Property Bay Friendly

CHESAPEAKE STORMWATER NETWORK

June 19, 2013

This document was produced by the Chesapeake Stormwater Network and the RiverWise Team Partners under the Chesapeake RiverWise Communities Program.

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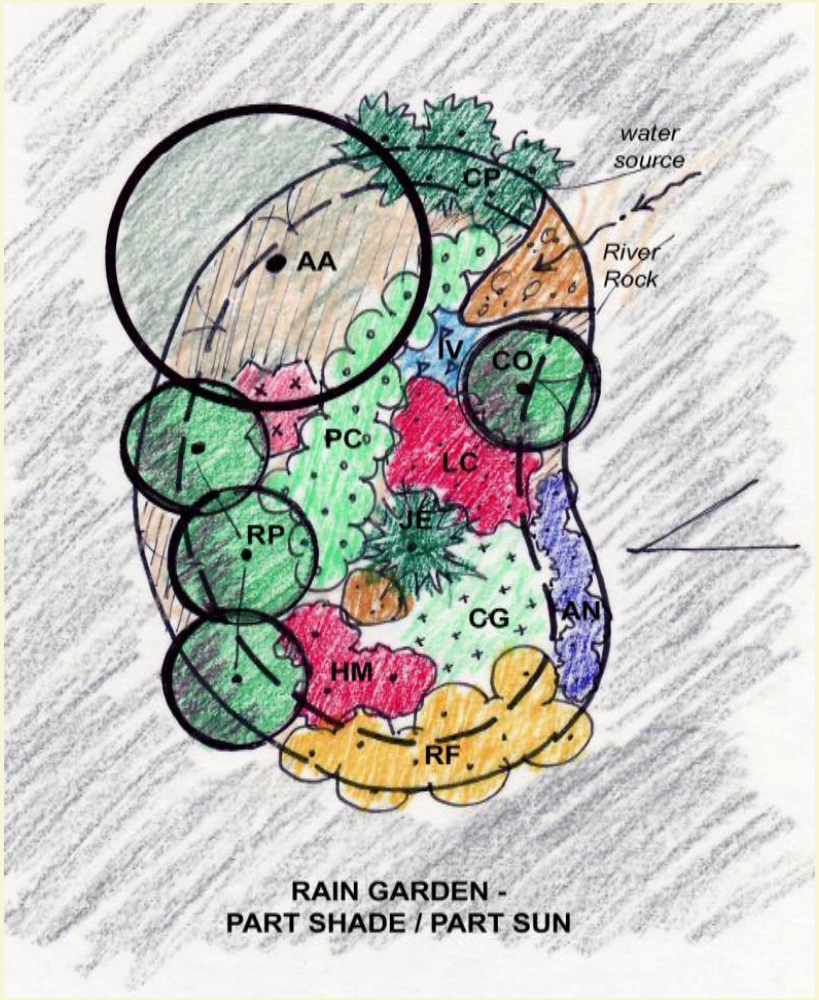
Bay-Friendly Homeowner Guide: Key Elements

Section 2. Practices to Make Your Property Bay Friendly

Section 3. Assessing Your Property

Section 4. Designing Your Practice:

- Urban Nutrient Management
- Rain Gardens
- Conservation Landscaping
- Tree Planting
- Rainwater Harvesting Devices
- Permeable Hardscapes



SMART Tool

INPUTS:

- Identifiers – who, what, where, photo upload
- BMP Type, size and design factors
- Cost and funding source

OUTPUTS:

- Nutrient and Sediment reduction estimates for homeowners
- Verified BMPs displayed on an online map

SMART Tool: Update

- UMD SeaGrant in the process of building certification training program for:
  - County staff
  - Volunteers (watershed stewards and master gardeners etc.)
  - Inspecting and verifying BMPs
- Pilot counties to submit data to MDE
- MDE to submit to CBP
- SMART tool released in VA in January 2014

Next Steps

- WQGIT APPROVAL
- Roll out in 2014 with a series of webcasts
- Allow for crediting in next progress run
- Further development of tools and local program guides

Thanks to Many Partners

- Alliance for Chesapeake Bay, National Fish and Wildlife Foundation, Center for Watershed Protection, University of MD Extension, MDE, Howard County, MD, EPA CBPO staff, Watershed Stewards Academy, and a dozen watershed groups.