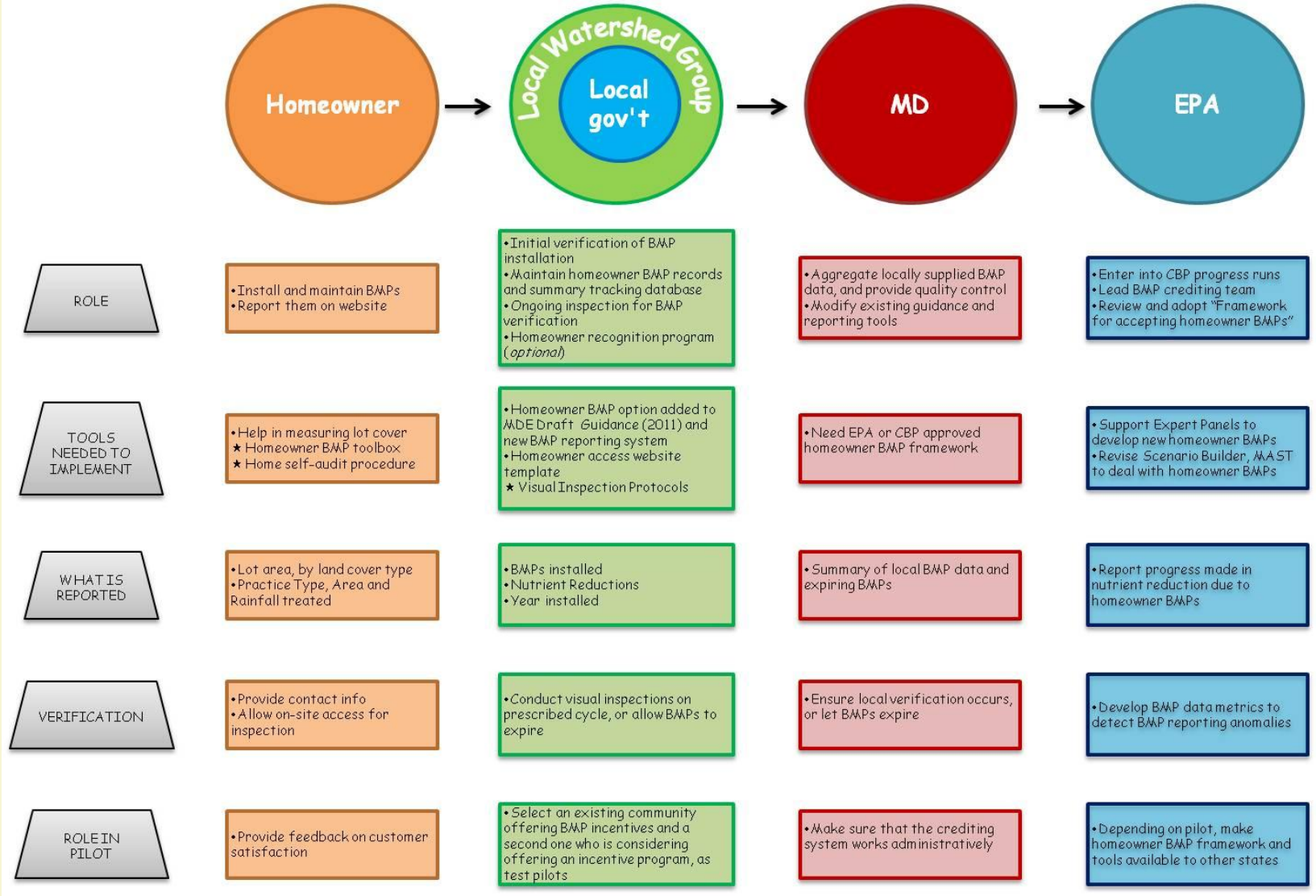
Update on Homeowner BMPs

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

Possible Framework for Piloting Homeowner BMP Crediting in MD



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

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						

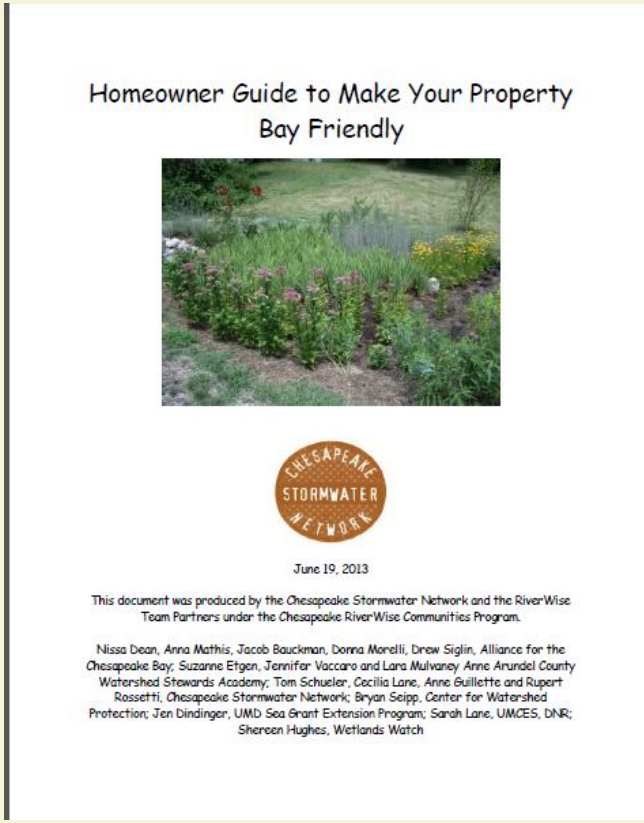
Notes: RT = rainfall depth treated, sf = square feet, in= inches, DA=drainage area to BMP, TA= turf area
UNM= Urban nutrient management, CA= area of conservation landscaping

Homeowner BMP Delivery Issues

- Expand to non-residential properties
- Link to local BMP incentive/subsidy programs
- Credit BMPs installed to reduce stormwater utility fees
- Training of on-site homeowner BMP evaluators
- Link to other practices inside the home (e.g., energy conservation)

Tools for Homeowner BMP Delivery and Verification

- Homeowner BMP Guide
  - Open- source "adaptable" document
- SMART Tool
  - For tracking, inspecting and verifying
- Visual indicators for inspection and verification



Homeowner Guide to Make Your Property Bay Friendly

June 19, 2013

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

Nissa Dean, Anna Mathis, Jacob Bauckman, Donna Morelli, Drew Siglin, Alliance for the Chesapeake Bay; Suzanne Etgen, Jennifer Vaccaro and Lara Mulvaney Anne Arundel County Watershed Stewards Academy; Tom Schueler, Cecilia Lane, Anne Guillette and Rupert Rossetti, Chesapeake Stormwater Network; Bryan Seipp, Center for Watershed Protection; Jen Dindinger, UMD Sea Grant Extension Program; Sarah Lane, UMCES, DNR; Shereen Hughes, Wetlands Watch

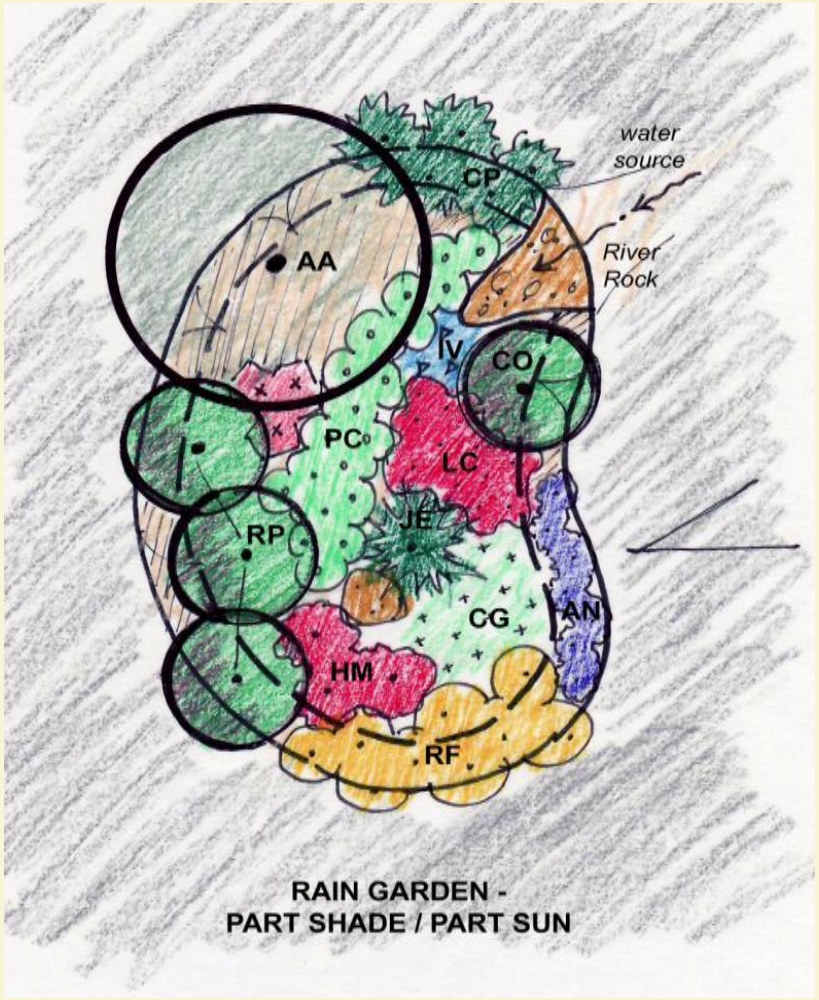
Bay-Friendly Homeowner Guide: Key Elements

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



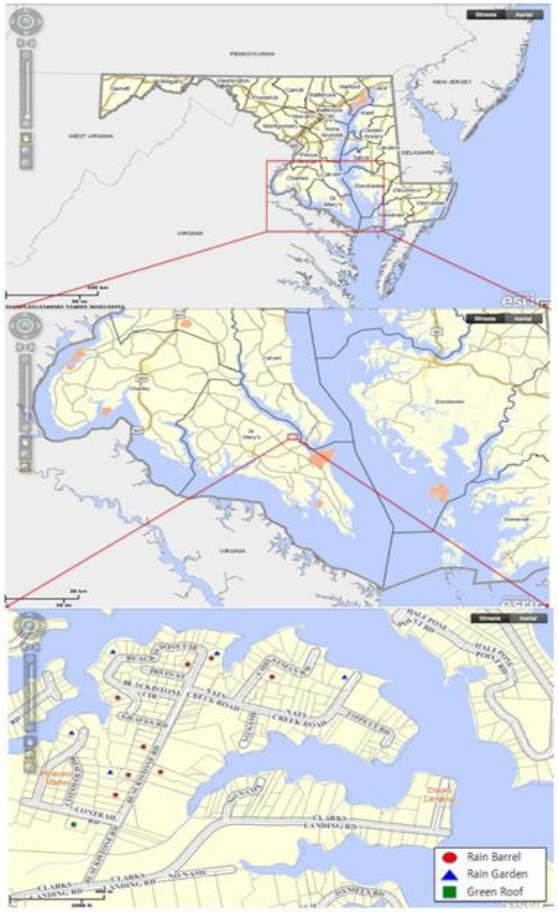
SMART Tool:

Stormwater Management And Restoration Tracker

Online data entry system and mobile app tool to input stormwater and natural filter BMP information

Going From Here

To Here



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

Inspection and Verification of Homeowner BMPs

- Development of visual indicators for inspection and verification of homeowner BMPs
- Incorporated into SMART tool certification program
- Webcast series

New CSN Products

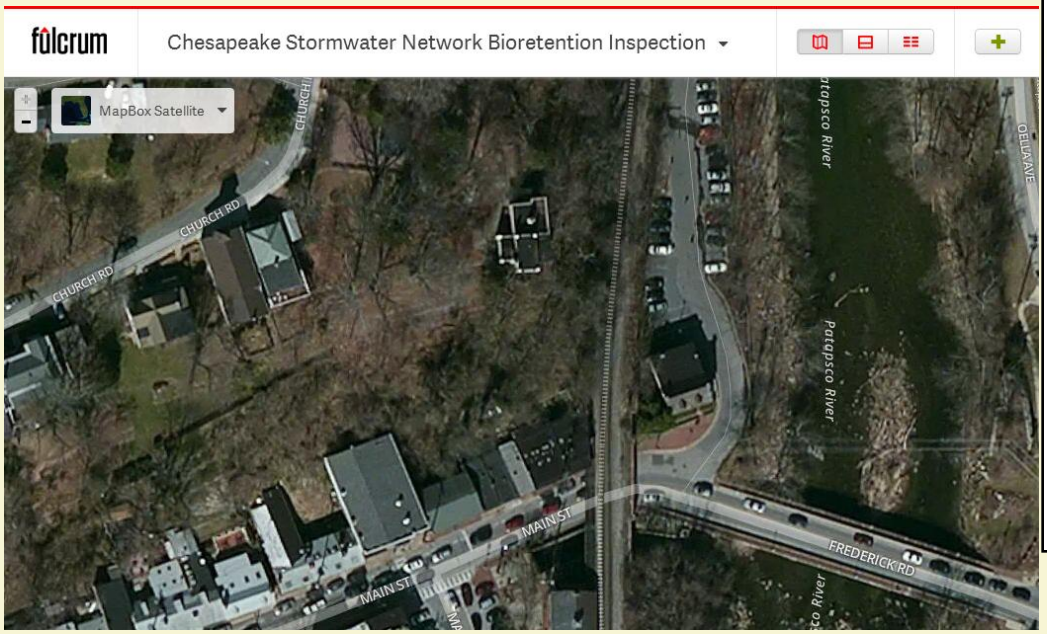
New CSN Products

- Homeowner BMP Guide
- TB# 10 Bioretention Illustrated!
  - Complete visual indicators for LID practices including:
    - Bioretention
    - Permeable Pavement
    - Infiltration
    - Grass Channels
    - Filter Strips
  - Workshop Resources
- Inspection and Maintenance tablet/smart phone app for Bioretention in BETA mode
- BUBBAs – *coming soon to an urban drainage way near you*
- Very own TED talk!!

www.chesapeakestormwater.net

Inspection App

- Currently only for Bioretention
- In BETA mode
- 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

Chesapeake Bay Stormwater Training Partnership

2014 Training Schedule

- Webcasts! Webcasts! Webcasts!
  - Homeowner BMPs
  - Expert Panel Findings
  - Advanced Stormwater Design
    - Bay-wide Specs
    - Specialty Topics
  - State-specific needs…

What are YOUR stormwater training needs for 2014??