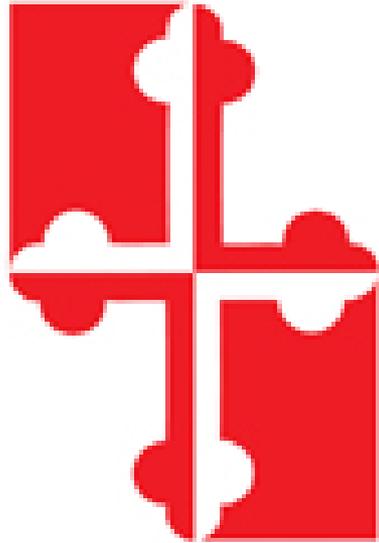


Accounting for Growth in Maryland

MPCA



Maryland Planning
Commissioners Association

October 25, 2013
Conference

Chris Rogers, AICP
302 781-5945
Christopher.rogers@urs.com

Outline of Presentation

- AFG Background
- AFG Principles
- AFG Calculations\Examples
- AFG Miscellaneous Issues
- AFG Workgroup
- AFG Regulations Status
- Questions and Answers

Ø Sources of Information

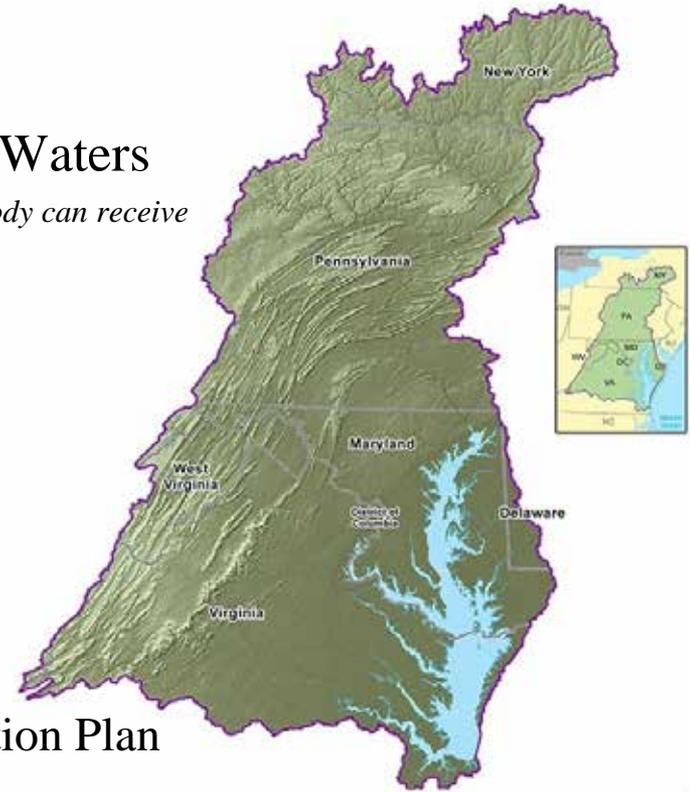
Accounting for Growth Background

Chesapeake Bay TMDL

- EPA Mandated Pollution Diet for Impaired Waters

A TMDL is a calculation of the maximum amount of a pollutant that a waterbody can receive and still meet water quality standards.

- Nitrogen, Phosphorous and Sediment
 - Nitrogen – 25% reduction
 - Phosphorus – 24% reduction
 - Sediment – 20% reduction
- Pollution Control Measures in Place by 2025
- 60% of the Actions Completed by 2017
- Each State Must Submit Watershed Implementation Plan



Accounting for Growth Background

Maryland Watershed Implementation Plan (WIP)

- Maryland Phase I Plan Submitted to EPA in December 2010
 - Commits to 2025 Deadline
 - Commits to 60% of Reductions by 2017
- Maryland Phase II Plan Submitted to EPA in March 2012
- Maryland Phase II Plan Includes County Plans and Allocates Nutrient and Sediment Load by Sector. (Reductions of *Existing Loads*)
 - Agriculture
 - Wastewater
 - Septic
 - Urban/Stormwater
 - Forest
 - Atmospheric
- Maryland Phase II Plan Includes Allocating for Growth Policy to Address *New Loads*

Accounting for Growth Principles*

Nitrogen Loads from New Development Must be Offset:

- Wastewater
- Septic
- Urban/Stormwater
- Atmospheric

* 9 Principles established by AFG Task Force

Accounting for Growth Calculations\Examples

Nitrogen Loads from New Development Must be Offset:

- Wastewater
 - Ø If new development served by WWTP with adequate capacity and load allocation, then no offset required.
 - Ø If capacity\allocation does not exist in WWTP:
 - Secondary WWTP – 11 lbs/year/HH Nitrogen
 - BNR WWTP – 6.0 lbs/year/HH Nitrogen
 - ENR WWTP – 2.5 lbs/year/HH Nitrogen



Accounting for Growth Calculations\Examples

Nitrogen Loads from New Development Must be Offset:

- Septic
 - No Load Allocation in WIP for New Septics, so ALL New Septics Must be Offset
 - Best Available Technology (BAT) Systems Required for All New Septics
 - New BAT Systems = 4.93 lbs/year/HH of Nitrogen



Accounting for Growth Calculations\Examples

Nitrogen Loads from New Development Must be Offset:

- Urban/Stormwater
 - Basic Stormwater Regulations require Environment Site Design to the Maximum Extent Practical (ESD to the MEP).
 - One acre of impervious surface = 15.34 lbs/year of Nitrogen
 - ESD to the MEP reduces Nitrogen load by 50%
 - Example: 0.5 acre lots / 30% impervious (Medium Density) = 3.0 lbs/year/HH of Nitrogen

Accounting for Growth Calculations\Examples

Nitrogen Loads from New Development Must be Offset:

- **Low Density Residential**

(2 acre lots with BAT; 10% impervious, 90% pervious)

$4.93 \text{ (WW)} + 11.24 \text{ (SW)} + 1.0 \text{ (Air)} = 17.17 \text{ lbs/year/HH Nitrogen}$

- **Medium Density Residential**

(0.5 acre lots on BNR WWTP with no capacity below cap; 30% impervious, 70% pervious)

$4.8 \text{ (WW)} + 3.0 \text{ (SW)} + 1.0 \text{ (Air)} = 8.8 \text{ lbs/year/HH Nitrogen}$

- **High Density Residential**

(0.1 acre lots on ENR WWTP with capacity below cap; 70% impervious, 30% pervious)

$0 \text{ (WW)} + 0.7 \text{ (SW)} + 0.5 \text{ (Air)} = 1.2 \text{ lbs/year/HH Nitrogen}$

Source: July 2012 AFG WG

Accounting for Growth

Miscellaneous Issues

Applicability/Trigger

Private Nutrient Credit Market

Fee-in-Lieu

Incentives for Infill/Redevelopment

Accounting for Growth Miscellaneous Issues

Acceptable Best Management Practices (BMP's)

Estimated costs of BMP's for water quality improvement for existing areas with the highest loads for TN, TP, and SS (lb/acre)

Sector	BMP	Unit	Lifespan	Construction				Annual				Total				
				Cost per unit	Land Purchase	Rental	O&M	Cost per unit	Land Purchase	Rental	O&M	annual TN load reduction (lbs/unit)	annual TP load reduction (lbs/unit)	annual SS load reduction (lbs/unit)	annual TN load reduction (lbs/unit)	annual TP load reduction (lbs/unit)
Ag	Prescribed Grazing	acre	5	\$3,000	\$0	\$0	\$0	\$0	\$0	0.45	\$1,333	\$0	\$0	\$1,333	\$0	\$0
Ag	Precision Intensive Rotational Grazing	acre	5	\$3,000	\$0	\$0	\$0	\$0	\$0	0.64	\$938	\$0	\$0	\$938	\$0	\$0
Ag	Water Control Structures	acre	10	\$520	\$0	\$0	\$0	\$0	\$0	3.72	\$14	\$0	\$0	\$14	\$0	\$0
Ag	Wetland Restoration	acre	15	\$3,375	\$0	\$83	\$0	\$0	\$0	11.11	\$20	\$7	\$0	\$28	\$0	\$0
Forest	Forest Harvesting Practices	acre	1	\$0	\$0	\$0	\$45	\$0	\$0	7.21	\$0	\$0	\$6	\$6	\$0	\$0
WWTP	Set Permitted Load	MGD	20	\$0	\$0	\$0	\$0	\$0	\$0	9198.00	-	\$0	\$0	-	\$0	\$0
Urban	Bioretention/raingardens	acre treated	20	\$9,469	\$3,000	\$0	\$383	\$0	\$0	4.16	\$114	\$36	\$92	\$242	\$0	\$0
Urban	Bioswale	acre treated	20	\$9,000	\$2,000	\$0	\$233	\$0	\$0	5.97	\$75	\$17	\$39	\$131	\$0	\$0
Urban	Urban Forest Buffers	acre	20	\$6,507	\$0	\$0	\$206	\$0	\$0	5.73	\$57	\$0	\$36	\$93	\$0	\$0
Urban	Urban Infiltration Practices - no sand/veg no under drain	acre treated	20	\$10,863	\$5,000	\$0	\$217	\$0	\$0	5.68	\$96	\$44	\$38	\$178	\$0	\$0

1. Most of the Urban BMP's are for best management practices for only the cost of implementation for the load reduction and not the cost of the land acquisition cost. Urban Forest Buffers and Urban Wetland
2. The Urban BMP's listed include the cost of the land acquisition cost, the cost of the land acquisition cost, and the cost of the BMP that are required to implement the BMP's.
3. The Urban BMP's listed include the cost of the land acquisition cost, the cost of the land acquisition cost, and the cost of the BMP that are required to implement the BMP's.
4. The Urban BMP's listed include the cost of the land acquisition cost, the cost of the land acquisition cost, and the cost of the BMP that are required to implement the BMP's.
5. The Urban BMP's listed include the cost of the land acquisition cost, the cost of the land acquisition cost, and the cost of the BMP that are required to implement the BMP's.
6. The Urban BMP's listed include the cost of the land acquisition cost, the cost of the land acquisition cost, and the cost of the BMP that are required to implement the BMP's.
7. The Urban BMP's listed include the cost of the land acquisition cost, the cost of the land acquisition cost, and the cost of the BMP that are required to implement the BMP's.
8. The Urban BMP's listed include the cost of the land acquisition cost, the cost of the land acquisition cost, and the cost of the BMP that are required to implement the BMP's.

Sector	BMP	Unit	Lifespan	Construction Cost per unit	Land Purchase Cost per unit	Land Rental Cost per unit per year	Annual Cost per unit per year	annual TN load reduction (lbs/unit)	Construction cost per pound	Land Acquisition cost per pound	O&M or Annual cost per pound	Total annual cost per pound of TN reduction
Ag	Prescribed Grazing	acre	5	\$3,000	\$0	\$0	\$0	0.45	\$1,333	\$0	\$0	\$1,333
Ag	Precision Intensive Rotational Grazing	acre	5	\$3,000	\$0	\$0	\$0	0.64	\$938	\$0	\$0	\$938
Ag	Water Control Structures	acre	10	\$520	\$0	\$0	\$0	3.72	\$14	\$0	\$0	\$14
Ag	Wetland Restoration	acre	15	\$3,375	\$0	\$83	\$0	11.11	\$20	\$7	\$0	\$28
Forest	Forest Harvesting Practices	acre	1	\$0	\$0	\$0	\$45	7.21	\$0	\$0	\$6	\$6
WWTP	Set Permitted Load	MGD	20	\$0	\$0	\$0	\$0	9198.00	-	\$0	\$0	-
Urban	Bioretention/raingardens	acre treated	20	\$9,469	\$3,000	\$0	\$383	4.16	\$114	\$36	\$92	\$242
Urban	Bioswale	acre treated	20	\$9,000	\$2,000	\$0	\$233	5.97	\$75	\$17	\$39	\$131
Urban	Urban Forest Buffers	acre	20	\$6,507	\$0	\$0	\$206	5.73	\$57	\$0	\$36	\$93
Urban	Urban Infiltration Practices - no sand/veg no under drain	acre treated	20	\$10,863	\$5,000	\$0	\$217	5.68	\$96	\$44	\$38	\$178



Accounting for Growth

AFG Workgroup

- Representatives from Agricultural, Development, Environmental and Local Government Community
- Ten (10) Meetings in 2013
- Issued Final Report in August 2013

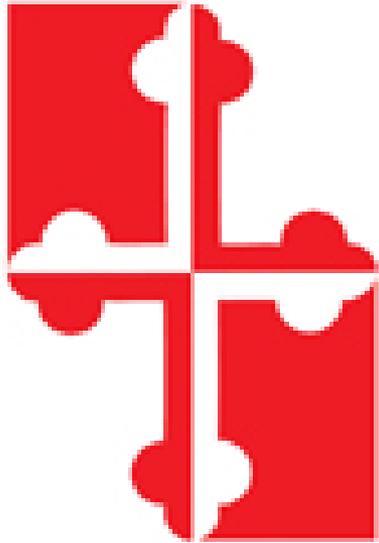
Accounting for Growth

AFG Regulations Status

- Regulations currently being drafted
- Review by Joint Administrative, Executive, and Legislative Review Committee of the GA before being regulations submitted to Maryland Register
- January 2015, earliest implementation

Accounting for Growth Questions\Answers

MPCA



Maryland Planning
Commissioners Association

October 25, 2013
Conference

Chris Rogers, AICP
302 781-5945
Christopher.rogers@urs.com