

Maryland Phase II WIP Strategies

GARRETT Agriculture - Annual Practices

		2010 Progress	2017 Interim Strategy	2025 Final Strategy
BMP Name	Unit			
Conservation Tillage	Acres/Year	202	444	444
Cover Crop	Acres/Year	156	74	75
Nutrient Management (All forms)	Acres/Year	5,953	20,850	21,086
Soil Conservation and Water Quality Plans	Acres/Year	3,473	8,144	9,088

- The BMP values are the amount credited in the Bay watershed model. It is the amount of BMP submitted minus the amount not given credit for (e.g., due to overlapping with other BMPs)

GARRETT Agriculture - Additional BMPs

		2010 Progress	2017 Interim Strategy	2025 Final Strategy
BMP Name	Unit			
Barnyard Runoff Control	Acres	13	19	24
Forest Buffers	Acres	42	51	57
Grass Buffers / Vegetated Open Channel	Acres	99	101	103
Land Retirement	Acres	259	265	298
Loafing Lot Management	Acres	0	10	16
Off Stream Watering Without Fencing	Acres	263	347	403
Prescribed Grazing	Acres	4	240	399
Stream Access Control with Fencing	Acres	20	64	64
Tree Planting / Vegetative Environmental Buffers	Acres	515	515	514
Wetland Restoration	Acres	7	7	7

- The BMP values represent the total amount of implementation in place.
- The BMP values are the amount credited in the Bay watershed model. It is the amount of BMP submitted minus the amount not given credit for (e.g., due to overlapping with other BMPs)

Please note: The Agricultural BMP tables represent Land BMPs that can be shown as acres or feet and do not show those BMPs that are based on percentages such as Animal Waste Storage and Poultry Litter Treatment (Alum). Manure Transport is also not represented in these tables.

**GARRETT
Forest BMPs**

			2010 Progress	2017 Interim Strategy	2025 Final Strategy
BMP Name	Zone	Unit			
Forest Harvesting Practices	harvested forest	Acres	427	1,031	1,031

- The BMP values represent the total amount of implementation in place.
- The BMP values are the amount credited in the Bay watershed model. It is the amount of BMP submitted minus the amount not given credit for (e.g., due to overlapping with other BMPs)

GARRETT
Developed Land BMPs

		2010 Progress	2017 Interim Strategy	2025 Final Strategy
BMP Name	Unit			
Dry Detention Ponds and Hydrodynamic Structures	Acres	32	32	32
Dry Extended Detention Ponds	Acres	13	13	13
Impervious Urban Surface Reduction	Acres	0	0	0
MS4 Permit Stormwater Retrofit	Acres	27	27	27
Stormwater Management Generic BMP (1985 to 2002)	Acres	210	210	210
Stormwater Management Generic BMP (2002 to 2010)	Acres	95	95	95
Urban Filtering Practices	Acres	1	1	1
Urban Forest Buffers	Acres	0	0	0
Urban Infiltration Practices	Acres	23	23	23
Wet Ponds and Wetlands	Acres	25	25	25
Erosion and Sediment Control on Extractive	Acres/Year	0	0	3,650
Urban Nutrient Management	Acres/Year	73	73	73

- The BMP values represent the total amount of implementation in place.
- The BMP values are the amount credited in the Bay watershed model. It is the amount of BMP submitted minus the amount not given credit for (e.g., due to overlapping with other BMPs)

GARRETT Septic System BMPs

			2010 Progress	2017 Interim Strategy	2025 Final Strategy
BMP Name	Zone	Unit			
Septic Denitrification	Critical Area	Systems	0	0	0
	Outside of the Critical Area, not within 1000 ft of a perennial stream	Systems	3	3	3
	Within 1000 ft of a perennial stream	Systems	2	2	480
	<i>Septic Denitrification Total</i>		5	5	483

- The BMP values represent the total amount of implementation in place.
- The BMP values are the amount credited in the Bay watershed model. It is the amount of BMP submitted minus the amount not given credit for (e.g., due to overlapping with other BMPs)

Maryland Phase II WIP Strategies

GARRETT Total Nitrogen Loads

		2010 Progress	2017 Interim Strategy	2025 Final Strategy	Final Target
Source Sector	Landuse	Million Lbs/Yr	Million Lbs/Yr	Million Lbs/Yr	Million Lbs/Yr
Agriculture	AFO	0.000	0.000	0.000	0.000
	CAFO	0.000	0.000	0.000	0.000
	Crop	0.010	0.010	0.010	0.009
	Nursery	0.000	0.000	0.000	0.000
	Pasture	0.004	0.004	0.004	0.003
	Subtotal		0.015	0.014	0.014
Forest	Harvested	0.002	0.001	0.001	0.002
	Natural	0.026	0.026	0.026	0.026
	Subtotal	0.028	0.027	0.027	0.028
Non-Tidal Atm	Non-Tidal Atm	0.000	0.000	0.000	0.000
	Subtotal	0.000	0.000	0.000	0.000
Septic	Septic	0.000	0.000	0.000	0.000
	Subtotal	0.000	0.000	0.000	0.000
Stormwater	CSS	0.000	0.000	0.000	0
	Construction	0.000	0.000	0.000	0.000
	Extractive	0.006	0.006	0.004	0.005
	Non-Regulated Developed	0.002	0.002	0.002	0.002
	Regulated Developed	0.000	0.000	0.000	0.000
	Subtotal		0.008	0.008	0.007
Wastewater	CSO	0.000	0.000	0.000	0
	Industrial	0.000	0.000	0.000	0.000
	Municipal	0.000	0.000	0.000	0.000
	Subtotal		0.000	0.000	0.000
	Total	0.051	0.050	0.049	0.049

- The agricultural sector strategies were set to meet basin targets rather than county targets. Therefore, agricultural strategies are likely to overshoot or undershoot county targets, which can be reflected in the total countywide target results.
- Stormwater sector strategies may overshoot the county target for nitrogen (N) to meet the phosphorus (P) target, or vice versa. This is because the N and P reduction targets differ and the same BMP has different effects on the reduction of N and P.

GARRETT
Total Phosphorus Loads

		2010 Progress	2017 Interim Strategy	2025 Final Strategy	Final Target
Source Sector	Landuse	Million Lbs/Yr	Million Lbs/Yr	Million Lbs/Yr	Million Lbs/Yr
Agriculture	AFO	0.000	0.000	0.000	0.000
	CAFO	0.000	0.000	0.000	0.000
	Crop	0.003	0.003	0.003	0.003
	Nursery	0.000	0.000	0.000	0.000
	Pasture	0.003	0.003	0.003	0.003
	Subtotal		0.007	0.006	0.006
Forest	Harvested	0.000	0.000	0.000	0.000
	Natural	0.004	0.004	0.004	0.004
	Subtotal	0.005	0.005	0.005	0.005
Non-Tidal Atm	Non-Tidal Atm	0.000	0.000	0.000	0.000
	Subtotal	0.000	0.000	0.000	0.000
Septic	Septic	0.000	0.000	0.000	0.000
	Subtotal	0.000	0.000	0.000	0.000
Stormwater	CSS	0.000	0.000	0.000	0
	Construction	0.000	0.000	0.000	0.000
	Extractive	0.005	0.005	0.003	0.004
	Non-Regulated Developed	0.001	0.001	0.001	0.001
	Regulated Developed	0.000	0.000	0.000	0.000
	Subtotal		0.006	0.006	0.004
Wastewater	CSO	0.000	0.000	0.000	0
	Industrial	0.002	0.001	0.001	0.001
	Municipal	0.000	0.000	0.000	0.000
	Subtotal	0.002	0.001	0.001	0.001
Total		0.020	0.018	0.016	0.017

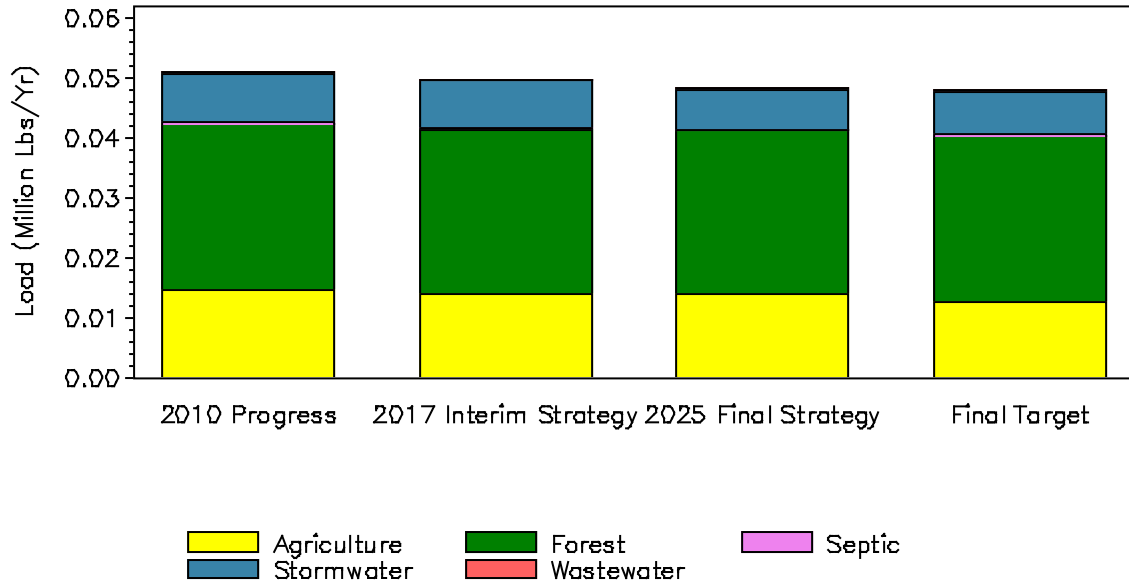
- The agricultural sector strategies were set to meet basin targets rather than county targets. Therefore, agricultural strategies are likely to overshoot or undershoot county targets, which can be reflected in the total countywide target results.
- Stormwater sector strategies may overshoot the county target for nitrogen (N) to meet the phosphorus (P) target, or vice versa. This is because the N and P reduction targets differ and the same BMP has different effects on the reduction of N and P.

GARRETT
Total Sediment Loads

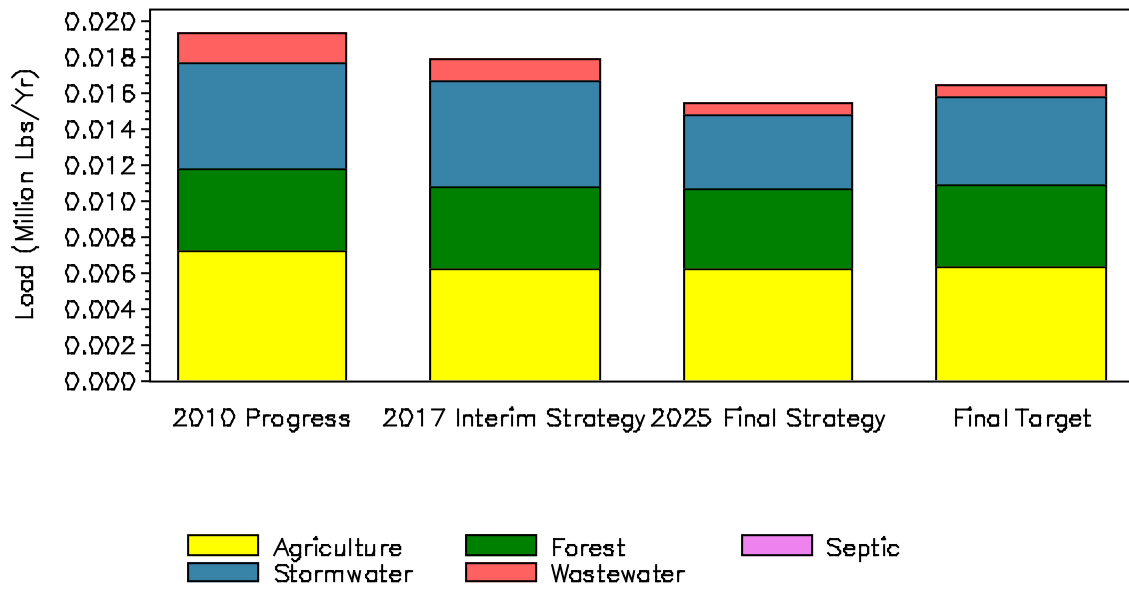
		2010 Progress	2017 Interim Strategy	2025 Final Strategy
Source Sector	Landuse	Million Lbs/Yr	Million Lbs/Yr	Million Lbs/Yr
Agriculture	AFO	0.020	0.018	0.016
	CAFO	0.000	0.000	0.000
	Crop	1.538	1.508	1.496
	Nursery	0.002	0.002	0.002
	Pasture	0.611	0.549	0.545
	Subtotal		2.171	2.077
Forest	Harvested	0.266	0.187	0.187
	Natural	1.350	1.355	1.355
	Subtotal	1.616	1.542	1.542
Non-Tidal Atm	Non-Tidal Atm	0.000	0.000	0.000
	Subtotal	0.000	0.000	0.000
Septic	Septic	0.000	0.000	0.000
	Subtotal	0.000	0.000	0.000
Stormwater	CSS	0.000	0.000	0.000
	Construction	0.000	0.000	0.000
	Extractive	4.007	4.007	2.536
	Non-Regulated Developed	0.486	0.488	0.488
	Regulated Developed	0.000	0.000	0.000
	Subtotal		4.493	4.495
Wastewater	CSO	0.000	0.000	0.000
	Industrial	0.004	0.009	0.009
	Municipal	0.000	0.000	0.001
	Subtotal	0.004	0.010	0.011
	Total	8.285	8.124	6.636

• The State did not distribute EPA's state and basin targets at the county or sector scale for sediment. Hence a Final Target column is not shown.

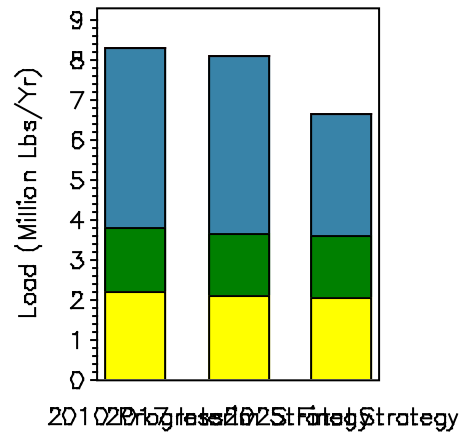
GARRETT
Total Nitrogen Loads



GARRETT
Total Phosphorus Loads



GARRETT
Total Sediment Loads



• The State did not distribute EPA's state and basin targets at the county or sector scale for sediment. Hence a Final Target bar is not shown.

Maryland Phase II WIP Team MAST Submittals

GARRETT Developed Land BMPs

		2010 Progress	2017 WIP Team	2017 Interim Strategy	2025 WIP Team	2025 Final Strategy	Change in 2017 Submittal	Change in 2025 Submittal
BMP Name	Unit							
Dry Detention Ponds and Hydrodynamic Structures	Acres	32	32	32	32	32	0	0
Dry Extended Detention Ponds	Acres	13	13	13	13	13	0	0
Impervious Urban Surface Reduction	Acres	0	0	0	0	0	0	0
MS4 Permit Stormwater Retrofit	Acres	27	27	27	27	27	0	0
Stormwater Management Generic BMP (1985 to 2002)	Acres	210	210	210	210	210	0	0
Stormwater Management Generic BMP (2002 to 2010)	Acres	95	95	95	95	95	-0	0
Urban Filtering Practices	Acres	1	1	1	1	1	0	0
Urban Forest Buffers	Acres	0	0	0	0	0	0	0
Urban Infiltration Practices	Acres	23	23	23	23	23	0	0
Wet Ponds and Wetlands	Acres	25	25	25	25	25	0	-0
Erosion and Sediment Control on Extractive	Acres/Year	0	0	0	3,650	3,650	0	0
Urban Nutrient Management	Acres/Year	73	73	73	73	73	0	0

- The BMP values represent the total amount of implementation in place.
- The BMP values are the amount credited in the Bay watershed model. It is the amount of BMP submitted minus the amount not given credit for (e.g., due to overlapping with other BMPs)
- Acres of BMPs might be observed to decrease in subsequent scenarios for several reasons:
 - To meet the countywide sector target, the State supplemented the Team scenarios with a generic set of BMPs.
 - Some aspects of the State strategies were automated, such that BMP levels were computed as a percentage of available acres. The application of some BMPs convert the acres of developed land to forest land, or impervious to pervious. This reduces/increases the available acres so that, if the same percentage level of other BMPs is applied to these lands, then a decrease/increase in BMP acreage might be observed even though the implementation level was intended to remain equal.
 - Because the Bay watershed model is not able to account for BMPs that treat overlapping areas (nested BMPs), the acreage available for BMPs can be used up before the Final Target is achieved. In such cases the State gave precedence to the more effective BMPs.
- The columns labeled Team include the State Highway Administration (SHA) strategies as well as 2010 Progress levels for other entities.
- The columns for Interim and Final strategies include numbers for SHA, federal facilities, State lands, industrial facilities, Phase I and II MS4 and non-regulated stormwater where applicable. They also reflect changes made by the State.

GARRETT Septic System BMPs

			2010 Progress	2017 WIP Team	2017 Interim Strategy	2025 WIP Team	2025 Final Strategy	Change in 2017 Submittal	Change in 2025 Submittal
BMP Name	Zone	Unit							
Septic Denitrification	Critical Area	Systems	0	0	0	0	0	0	0
	Outside of the Critical Area, not within 1000 ft of a perennial stream	Systems	3	3	3	3	3	0	0
	Within 1000 ft of a perennial stream	Systems	2	2	2	2	480	0	478
Septic DenitrificationTotal			5	5	5	5	483	0	478

- The BMP values represent the total amount of implementation in place.
- The BMP values are the amount credited in the Bay watershed model. It is the amount of BMP submitted minus the amount not given credit for (e.g., due to overlapping with other BMPs)

Maryland Phase II WIP Team MAST Submittals

GARRETT Total Nitrogen Loads

		2010 Progress	2017 WIP Team	2017 Interim Strategy	2025 WIP Team	2025 Final Strategy	Final Target
Source Sector	Landuse	Million Lbs/Yr	Million Lbs/Yr	Million Lbs/Yr	Million Lbs/Yr	Million Lbs/Yr	Million Lbs/Yr
Stormwater	CSS	0.000	0.000	0.000	0.000	0.000	0
	Construction	0.000	0.000	0.000	0.000	0.000	0.000
	Extractive	0.006	0.006	0.006	0.004	0.004	0.005
	Non-Regulated Developed	0.002	0.002	0.002	0.002	0.002	0.002
	Regulated Developed	0.000	0.000	0.000	0.000	0.000	0.000
	Subtotal		0.008	0.008	0.008	0.007	0.007
Septic	Septic	0.000	0.000	0.000	0.000	0.000	0.000
	Subtotal	0.000	0.000	0.000	0.000	0.000	0.000

- The columns labeled Team include the State Highway Administration (SHA) strategies as well as 2010 Progress levels for other entities.
- The columns for Interim and Final strategies include numbers for SHA, federal facilities, State lands, industrial facilities, Phase I and II MS4 and non-regulated stormwater where applicable. They also reflect changes made by the State.

GARRETT Total Phosphorus Loads

		2010 Progress	2017 WIP Team	2017 Interim Strategy	2025 WIP Team	2025 Final Strategy	Final Target
Source Sector	Landuse	Million Lbs/Yr	Million Lbs/Yr	Million Lbs/Yr	Million Lbs/Yr	Million Lbs/Yr	Million Lbs/Yr
Stormwater	CSS	0.000	0.000	0.000	0.000	0.000	0
	Construction	0.000	0.000	0.000	0.000	0.000	0.000
	Extractive	0.005	0.005	0.005	0.003	0.003	0.004
	Non-Regulated Developed	0.001	0.001	0.001	0.001	0.001	0.001
	Regulated Developed	0.000	0.000	0.000	0.000	0.000	0.000
	Subtotal		0.006	0.006	0.006	0.004	0.004
Septic	Septic	0.000	0	0.000	0	0.000	0.000
	Subtotal	0.000	0	0.000	0	0.000	0.000

- The columns labeled Team include the State Highway Administration (SHA) strategies as well as 2010 Progress levels for other entities.
- The columns for Interim and Final strategies include numbers for SHA, federal facilities, State lands, industrial facilities, Phase I and II MS4 and non-regulated stormwater where applicable. They also reflect changes made by the State.

GARRETT Total Sediment Loads

		2010 Progress	2017 WIP Team	2017 Interim Strategy	2025 WIP Team	2025 Final Strategy
Source Sector	Landuse	Million Lbs/Yr	Million Lbs/Yr	Million Lbs/Yr	Million Lbs/Yr	Million Lbs/Yr
Stormwater	CSS	0.000	0.000	0.000	0.000	0.000
	Construction	0.000	0.000	0.000	0.000	0.000
	Extractive	4.007	4.007	4.007	2.431	2.536
	Non-Regulated Developed	0.486	0.487	0.488	0.487	0.488
	Regulated Developed	0.000	0.000	0.000	0.000	0.000
	Subtotal		4.493	4.494	4.495	2.918
Septic	Septic	0.000	0	0.000	0	0.000
	Subtotal	0.000	0	0.000	0	0.000

- The columns labeled Team include the State Highway Administration (SHA) strategies as well as 2010 Progress levels for other entities.
- The columns for Interim and Final strategies include numbers for SHA, federal facilities, State lands, industrial facilities, Phase I and II MS4 and non-regulated stormwater where applicable. They also reflect changes made by the State.