### **Maryland Phase II WIP Strategies**

# ST MARYS Agriculture - Annual Practices

		2010 Progress	2017 Interim Strategy	2025 Final Strategy
BMP Name	Unit			
Conservation Tillage	Acres/Year	14,461	15,361	15,360
Cover Crop	Acres/Year	3,747	11,800	12,000
Cropland Irrigation Management	Acres/Year	0	358	358
Dairy Manure Incorporation	Acres/Year	0	148	247
Nutrient Management (All forms)	Acres/Year	20,791	36,147	36,742
Poultry Litter Incorporation	Acres/Year	0	838	1,399
Soil Conservation and Water Quality Plans	Acres/Year	21,482	28,993	32,350

• 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)

# ST MARYS Agriculture - Additional BMPs

		2010 Progress	2017 Interim Strategy	2025 Final Strategy
BMP Name	Unit			
Barnyard Runoff Control	Acres	31	40	48
Forest Buffers	Acres	334	415	470
Grass Buffers / Vegetated Open Channel	Acres	575	657	711
Land Retirement	Acres	701	1,233	1,650
Loafing Lot Management	Acres	0	12	20
Off Stream Watering Without Fencing	Acres	873	1,472	1,873
Prescribed Grazing	Acres	0	300	500
Stream Access Control with Fencing	Acres	12	12	12
Tree Planting / Vegetative Environmental Buffers	Acres	268	268	268
Wetland Restoration	Acres	95	106	113
Non Urban Stream Restoration / Shoreline Erosion Control	Linear Feet	0	300	500

- 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.

### **ST MARYS Forest BMPs**

			2010 Progress	2017 Interim Strategy	2025 Final Strategy
BMP Name	Zone	Unit			
Forest Harvesting Practices	harvested forest	Acres	1,149	1,135	1,135

<sup>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)</sup> 

### **ST MARYS Developed Land BMPs**

		2010 Progress	2017 Interim Strategy	2025 Final Strategy
BMP Name	Unit			
Abandoned Mine Reclamation	Acres	0	250	250
Dry Detention Ponds and Hydrodynamic Structures	Acres	375	373	373
Dry Extended Detention Ponds	Acres	808	811	811
Impervious Urban Surface Reduction	Acres	0	2	2,741
MS4 Permit Stormwater Retrofit	Acres	106	129	129
Stormwater Management Generic BMP (1985 to 2002)	Acres	6,600	6,627	6,627
Stormwater Management Generic BMP (2002 to 2010)	Acres	7,546	7,577	7,577
Urban Filtering Practices	Acres	41	37	12,298
Urban Forest Buffers	Acres	0	19	1,426
Urban Infiltration Practices	Acres	102	98	98
Urban Tree Planting / Urban Tree Canopy	Acres	0	34	34
Wet Ponds and Wetlands	Acres	420	389	389
Erosion and Sediment Control on Construction	Acres/Year	1,686	1,686	1,686
Erosion and Sediment Control on Extractive	Acres/Year	0	0	0
Forest Conservation	Acres/Year	8,027	7,802	7,802
Street Sweeping Mechanical Monthly	Acres/Year	0	32	32
Urban Nutrient Management	Acres/Year	6,889	16,016	32,168
Urban Stream Restoration / Shoreline Erosion Control	Linear Feet	0	1,000	1,000

<sup>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)</sup> 

### **ST MARYS Septic System BMPs**

			2010 Progress	2017 Interim Strategy	2025 Final Strategy
BMP Name	Zone	Unit			
Septic Connection	Critical Area	Systems	0	712	1,812
	Outside of the Critical Area, not within 1000 ft of a perennial stream	Systems	0	2,447	4,579
	Within 1000 ft of a perennial stream	Systems	0	77	77
	Septic ConnectionTotal		0	3,236	6,468
				I	
Septic Denitrification	Critical Area	Systems	33	127	3,794
	Outside of the Critical Area, not within 1000 ft of a perennial stream	Systems	70	34	27
	Within 1000 ft of a perennial stream	Systems	37	23	3,145
	Septic DenitrificationTotal		139	184	6,966
	,		1	I	
Septic Pumping	Critical Area	Systems	0	734	1,897
	Outside of the Critical Area, not within 1000 ft of a perennial stream	Systems	0	1,433	5,568
	Within 1000 ft of a perennial stream	Systems	0	944	4,718
	Septic PumpingTotal		0	3,111	12,183

<sup>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)</sup> 

### **Maryland Phase II WIP Strategies**

### **ST MARYS 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	0.010	0.003	0.003	0.005
	CAFO	0.000	0.000	0.000	0.000
	Crop	0.365	0.307	0.296	0.245
	Nursery	0.013	0.012	0.012	0.012
	Pasture	0.025	0.024	0.024	0.021
	Subtotal	0.412	0.346	0.334	0.284
Forest	Harvested	0.011	0.011	0.011	0.013
	Natural	0.223	0.225	0.227	0.223
	Subtotal	0.234	0.236	0.238	0.235
Non Tidal Atm	Non Tidal Atm	0.047	0.047	0.017	0.017
Non-Tidal Atm	Non-Tidal Atm  Subtotal	0.017 <b>0.017</b>	0.017 <b>0.017</b>	0.017 <b>0.017</b>	0.017 <b>0.017</b>
Septic	Septic	0.241	0.210	0.124	0.153
	Subtotal	0.241	0.210	0.124	0.153
Stormwater	CSS	0.000	0.000	0.000	0
	Construction	0.021	0.021	0.021	0.023
	Extractive	0.005	0.003	0.003	0.004
	Non-Regulated Developed	0.199	0.188	0.140	0.161
	Regulated Developed	0.000	0.000	0.000	0.000
	Subtotal	0.224	0.212	0.164	0.189
Wastewater	CSO	0.000	0.000	0.000	0
	Industrial	0.006	0.006	0.006	0.006
	Municipal	0.122	0.067	0.085	0.085
	Subtotal	0.128	0.073	0.090	0.090
	Total	1.257	1.094	0.967	0.968

<sup>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.</sup> 

### **ST MARYS 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	0.002	0.000	0.000	0.001
	CAFO	0.000	0.000	0.000	0.000
	Crop	0.035	0.030	0.030	0.027
	Nursery	0.006	0.005	0.005	0.005
	Pasture	0.004	0.003	0.004	0.003
	Subtotal	0.047	0.040	0.039	0.036
Forest	Harvested	0.000	0.000	0.000	0.000
	Natural	0.008	0.008	0.008	0.008
	Subtotal	0.008	0.009	0.009	0.008
Non-Tidal Atm	Non-Tidal Atm	0.001	0.001	0.001	0.001
	Subtotal	0.001	0.001	0.001	0.001
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	0.005	0.005	0.005	0.006
	Extractive	0.001	0.001	0.001	0.001
	Non-Regulated Developed	0.022	0.021	0.013	0.013
	Regulated Developed	0.000	0.000	0.000	0.000
	Subtotal	0.028	0.027	0.019	0.021
Wastewater	CSO	0.000	0.000	0.000	0
	Industrial	0.001	0.001	0.001	0.001
	Municipal	0.018	0.005	0.007	0.007
	Subtotal	0.018	0.006	0.007	0.007
	Total	0.103	0.082	0.076	0.074

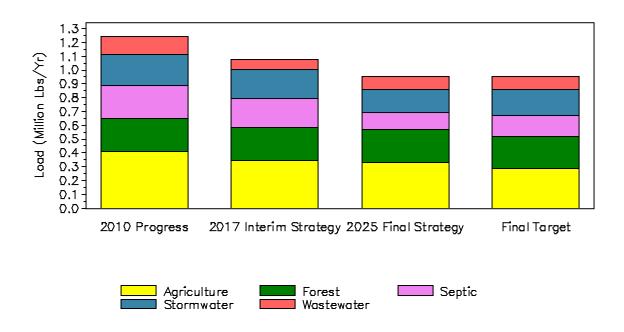
<sup>The agricultural sector strategies were set to meet basin targets rather than county targets. Therefore, agricultural strategies are likely to overshoot or undershoot county targets, which can be reflected in the total countywide target results.
Stormwater sector strategies may overshoot the county 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.</sup> 

# ST MARYS Total Sediment Loads

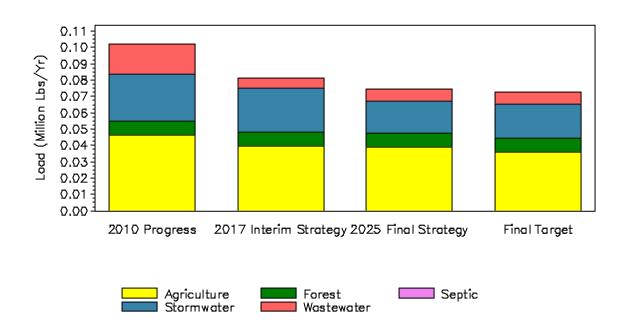
		2010 Progress	2017 Interim Strategy	2025 Final Strategy
Source Sector	Landuse	Million Lbs/Yr	Million Lbs/Yr	Million Lbs/Yr
Agriculture	AFO	0.057	0.053	0.050
	CAFO	0.000	0.000	0.000
	Crop	25.325	22.842	22.029
	Nursery	0.043	0.036	0.035
	Pasture	0.313	0.309	0.318
	Subtotal	25.738	23.240	22.432
Forest	Harvested	0.395	0.442	0.442
	Natural	8.735	8.800	8.875
	Subtotal	9.130	9.242	9.317
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	4.487	4.608	4.608
	Extractive	1.474	0.823	0.823
	Non-Regulated Developed	9.343	9.379	5.458
	Regulated Developed	0.014	0.016	0.010
	Subtotal	15.318	14.826	10.899
Wastewater	CSO	0.000	0.000	0.000
	Industrial	0.026	0.027	0.027
	Municipal	0.132	0.482	0.645
	Subtotal	0.159	0.509	0.672
			<b></b>	
	Total	50.344	47.817	43.319

<sup>•</sup> 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.

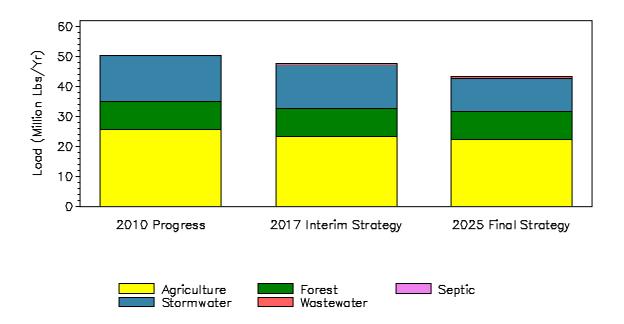
ST MARYS Total Nitrogen Loads



ST MARYS Total Phosphorus Loads



### ST MARYS Total Sediment Loads



<sup>•</sup> 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**

## ST MARYS 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							
Abandoned Mine Reclamation	Acres	0	250	250	250	250	0	0
Dry Detention Ponds and Hydrodynamic Structures	Acres	375	373	373	373	373	0	-0
Dry Extended Detention Ponds	Acres	808	811	811	811	811	0	-0
Impervious Urban Surface Reduction	Acres	0	2	2	2	2,741	0	2,739
MS4 Permit Stormwater Retrofit	Acres	106	129	129	129	129	0	0
Stormwater Management Generic BMP (1985 to 2002)	Acres	6,600	6,627	6,627	6,627	6,627	0	-0
Stormwater Management Generic BMP (2002 to 2010)	Acres	7,546	7,577	7,577	7,577	7,577	0	0
Urban Filtering Practices	Acres	41	37	37	37	12,298	0	12,261
Urban Forest Buffers	Acres	0	19	19	19	1,426	0	1,407
Urban Infiltration Practices	Acres	102	98	98	98	98	0	0
Urban Tree Planting / Urban Tree Canopy	Acres	0	34	34	34	34	0	-0
Wet Ponds and Wetlands	Acres	420	389	389	389	389	0	-0
Erosion and Sediment Control on Construction	Acres/Year	1,686	1,686	1,686	1,686	1,686	0	-0
Erosion and Sediment Control on Extractive	Acres/Year	0	0	0	0	0	0	0
Forest Conservation	Acres/Year	8,027	7,802	7,802	7,802	7,802	0	0
Street Sweeping Mechanical Monthly	Acres/Year	0	32	32	32	32	0	-0
Urban Nutrient Management	Acres/Year	6,889	16,007	16,016	16,007	32,168	9	16,161
Urban Stream Restoration / Shoreline Erosion Control	Linear Feet	0	1,000	1,000	1,000	1,000	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 intedend 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 precedance 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.

### **ST MARYS 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 Connection	Critical Area	Systems	0	712	712	1,812	1,812	0	0
	Outside of the Critical Area, not within 1000 ft of a perennial stream	Systems	0	2,447	2,447	4,579	4,579	0	0
	Within 1000 ft of a perennial stream	stream	0						
	Septic ConnectionTotal		0	3,236	3,236	6,468	6,468	168 0	0
					1				1
Denitrification	Critical Area	Systems	33	127	127	3,794	3,794	0	0
	70	34	34	27	27	0	0		
	Within 1000 ft of a perennial stream	Systems	37	23	23	3,145	3,145	7 (C	0
	Septic DenitrificationTotal		139	184	184	6,966	6,966	0	0
Septic Pumping	Critical Area	Systems	0	734	734	1,897	1,897	0	0
	Outside of the Critical Area, not within 1000 ft of a perennial stream  Systems  0 1,433 1,433 5,568 5,568	0	0						
	Within 1000 ft of a perennial stream	Systems	0	944	944	4,718	4,718	0	0
	Septic PumpingTotal		0	3,111	3,111	12,183	12,183	0	0

<sup>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)</sup> 

### **Maryland Phase II WIP Team MAST Submittals**

# ST MARYS 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	WIP   Interim   WIP   2025 Final   Strategy   Team   Strategy   Million   Million   Lbs/Yr   Lbs/Yr	Million Lbs/Yr			
Sector Stormwater	CSS	0.000	0.000	0.000	0.000	0.000	0
	Construction	0.021	0.021	0.021	0.021	0.021	0.023
	Extractive	0.005	0.003	0.003	0.003	0.003	0.004
	Extractive Non-Regulated Developed	0.199	0.193	0.188	0.193	0.140	0.161
	Regulated Developed	0.000	0.000	0.000	0.000	Team         Strategy           Iiilion bs/Yr         Million Lbs/Yr           0.000         0.000           0.021         0.021           0.003         0.003           0.193         0.140           0.000         0.000           0.217         0.164	0.000
	Subtotal	0.224	0.217	0.212	0.217	0.164	0.189
Septic	Septic	0.241	0.210	0.210	0.123	0.124	0.153
	Subtotal	0.241	0.210	0.210	0.123	0.124	0.153

- 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.

# ST MARYS 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
Sector Stormwater	CSS	0.000	0.000	0.000	0.000	0.000	0
	Construction	0.005	0.005	0.005	0.005	0.005	0.006
	Extractive	0.001	0.001	0.001	0.001	0.001	0.001
	Non-Regulated Developed 0.022 0.021 0.021 0.021	0.013	0.013				
	Regulated Developed	0.000	0.000	0.000	0.000	Strategy  Million Lbs/Yr  0 0.000  5 0.005  1 0.001  1 0.013  0 0.000  7 0.019	0.000
	Subtotal	0.028	0.027	0.027	0.027	0.019	0.021
Septic	Septic	0.000	0	0.000	0	0.000	0.000
	Subtotal	0.000	0	0.000	0	0.000	0.000

<sup>•</sup> The columns labeled Team include the State Highway Administration (SHA) strategies as well as 2010 Progress levels for other entities.

<sup>•</sup> 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.

# ST MARYS 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	4.487	4.487	4.608	4.487	4.608
	Extractive	1.474	0.823	0.823	0.823	0.823
	Non-Regulated Developed	9.343	9.378	9.379	9.378	5.458
	Regulated Developed	0.014	0.016	0.016	0.016	0.010
	Subtotal	15.318	14.704	14.826	14.704	10.899
					1	
Septic	Septic	0.000	0	0.000	0	0.000
	Subtotal	0.000	0	0.000	0	0.000

<sup>•</sup> The columns labeled Team include the State Highway Administration (SHA) strategies as well as 2010 Progress levels for other entities.

<sup>•</sup> 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.