

## Maryland Phase II WIP Strategies

### CECIL Agriculture - Annual Practices

		2010 Progress	2017 Interim Strategy	2025 Final Strategy
BMP Name	Unit			
Conservation Tillage	Acres/Year	17,966	18,350	18,352
Cover Crop	Acres/Year	9,490	19,666	20,001
Cropland Irrigation Management	Acres/Year	0	1,122	1,122
Dairy Manure Incorporation	Acres/Year	0	1,800	3,000
Nutrient Management (All forms)	Acres/Year	32,548	58,565	59,785
Poultry Litter Incorporation	Acres/Year	0	1,499	2,498
Soil Conservation and Water Quality Plans	Acres/Year	36,312	42,850	47,813

- 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)

### CECIL Agriculture - Additional BMPs

		2010 Progress	2017 Interim Strategy	2025 Final Strategy
BMP Name	Unit			
Barnyard Runoff Control	Acres	43	58	70
Forest Buffers	Acres	414	439	456
Grass Buffers / Vegetated Open Channel	Acres	2,421	2,540	2,619
Horse Pasture Management	Acres	0	77	128
Irrigation Water Capture Reuse	Acres	0	138	230
Land Retirement	Acres	1,155	3,027	4,463
Loafing Lot Management	Acres	0	22	36
Off Stream Watering Without Fencing	Acres	1,758	1,930	2,043
Prescribed Grazing	Acres	2	239	399
Sorbing Materials in Ag Ditches	Acres	0	240	400
Stream Access Control with Fencing	Acres	9	64	64
Tree Planting / Vegetative Environmental Buffers	Acres	759	758	758
Water Control Structures	Acres	134	240	402
Wetland Restoration	Acres	536	552	563
Non Urban Stream Restoration / Shoreline Erosion Control	Linear Feet	0	780	1,300

- 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.

**CECIL  
Forest BMPs**

			<b>2010 Progress</b>	<b>2017 Interim Strategy</b>	<b>2025 Final Strategy</b>
<b>BMP Name</b>	<b>Zone</b>	<b>Unit</b>			
Forest Harvesting Practices	harvested forest	Acres	831	843	843

- 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)

**CECIL  
Developed Land BMPs**

		<b>2010 Progress</b>	<b>2017 Interim Strategy</b>	<b>2025 Final Strategy</b>
<b>BMP Name</b>	<b>Unit</b>			
Bioretention / Raingardens	Acres	0	6	6
Bioswale	Acres	0	30	80
Dry Detention Ponds and Hydrodynamic Structures	Acres	517	699	675
Dry Extended Detention Ponds	Acres	73	188	179
Impervious Urban Surface Reduction	Acres	0	260	1,683
MS4 Permit Stormwater Retrofit	Acres	51	260	299
Stormwater Management Generic BMP (1985 to 2002)	Acres	8,046	7,486	7,298
Stormwater Management Generic BMP (2002 to 2010)	Acres	6,379	5,790	5,647
Urban Filtering Practices	Acres	26	2,477	20,385
Urban Forest Buffers	Acres	0	1,154	2,133
Urban Infiltration Practices	Acres	30	111	126
Urban Tree Planting / Urban Tree Canopy	Acres	0	193	412
Vegetated Open Channels	Acres	0	469	444
Wet Ponds and Wetlands	Acres	466	700	674
Erosion and Sediment Control on Construction	Acres/Year	570	570	570
Erosion and Sediment Control on Extractive	Acres/Year	0	0	587
Forest Conservation	Acres/Year	5,573	5,387	5,577
Urban Nutrient Management	Acres/Year	6,506	18,422	26,219
Street Sweeping Pounds	Lbs/Year	0	381,098	381,098
Urban Stream Restoration / Shoreline Erosion Control	Linear Feet	0	2,396	4,012

- 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)

**CECIL  
Septic System BMPs**

			<b>2010 Progress</b>	<b>2017 Interim Strategy</b>	<b>2025 Final Strategy</b>
<b>BMP Name</b>	<b>Zone</b>	<b>Unit</b>			
Septic Denitrification	Critical Area	Systems	6	2,134	3,556
	Outside of the Critical Area, not within 1000 ft of a perennial stream	Systems	22	22	9,858
	Within 1000 ft of a perennial stream	Systems	8	8	4,673
	<b><i>Septic Denitrification Total</i></b>		<b>37</b>	<b>2,164</b>	<b>18,087</b>

- 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

### CECIL 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	0.040	0.013	0.012	0.023
	CAFO	0.001	0.001	0.001	0.002
	Crop	0.805	0.664	0.619	0.461
	Nursery	0.079	0.059	0.048	0.074
	Pasture	0.076	0.070	0.070	0.054
	<b>Subtotal</b>		<b>1.001</b>	<b>0.807</b>	<b>0.750</b>
Forest	Harvested	0.012	0.012	0.012	0.012
	Natural	0.249	0.257	0.261	0.249
	<b>Subtotal</b>	<b>0.260</b>	<b>0.270</b>	<b>0.273</b>	<b>0.261</b>
Non-Tidal Atm	Non-Tidal Atm	0.037	0.037	0.037	0.037
	<b>Subtotal</b>	<b>0.037</b>	<b>0.037</b>	<b>0.037</b>	<b>0.037</b>
Septic	Septic	0.183	0.164	0.098	0.099
	<b>Subtotal</b>	<b>0.183</b>	<b>0.164</b>	<b>0.098</b>	<b>0.099</b>
Stormwater	CSS	0.000	0.000	0.000	0
	Construction	0.010	0.010	0.010	0.011
	Extractive	0.009	0.009	0.007	0.007
	Regulated Developed	0.320	0.277	0.201	0.218
	<b>Subtotal</b>	<b>0.338</b>	<b>0.296</b>	<b>0.217</b>	<b>0.235</b>
Wastewater	CSO	0.000	0.000	0.000	0
	Industrial	0.011	0.220	0.201	0.188
	Municipal	0.093	0.092	0.127	0.135
	<b>Subtotal</b>	<b>0.104</b>	<b>0.311</b>	<b>0.328</b>	<b>0.323</b>
<b>Total</b>		<b>1.923</b>	<b>1.884</b>	<b>1.704</b>	<b>1.569</b>

- 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.

**CECIL  
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	0.006	0.002	0.002	0.004
	CAFO	0.000	0.000	0.000	0.000
	Crop	0.038	0.033	0.032	0.031
	Nursery	0.019	0.014	0.011	0.017
	Pasture	0.005	0.005	0.005	0.003
	<b>Subtotal</b>		<b>0.069</b>	<b>0.054</b>	<b>0.050</b>
Forest	Harvested	0.000	0.000	0.000	0.000
	Natural	0.006	0.006	0.006	0.006
	<b>Subtotal</b>	<b>0.006</b>	<b>0.006</b>	<b>0.006</b>	<b>0.006</b>
Non-Tidal Atm	Non-Tidal Atm	0.002	0.002	0.002	0.002
	<b>Subtotal</b>	<b>0.002</b>	<b>0.002</b>	<b>0.002</b>	<b>0.002</b>
Septic	Septic	0.000	0.000	0.000	0.000
	<b>Subtotal</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>
Stormwater	CSS	0.000	0.000	0.000	0
	Construction	0.001	0.001	0.001	0.001
	Extractive	0.001	0.001	0.001	0.001
	Regulated Developed	0.014	0.012	0.008	0.008
	<b>Subtotal</b>	<b>0.016</b>	<b>0.015</b>	<b>0.010</b>	<b>0.010</b>
Wastewater	CSO	0.000	0.000	0.000	0
	Industrial	0.005	0.007	0.006	0.006
	Municipal	0.008	0.009	0.012	0.015
	<b>Subtotal</b>	<b>0.013</b>	<b>0.016</b>	<b>0.018</b>	<b>0.020</b>
<b>Total</b>		<b>0.106</b>	<b>0.093</b>	<b>0.086</b>	<b>0.093</b>

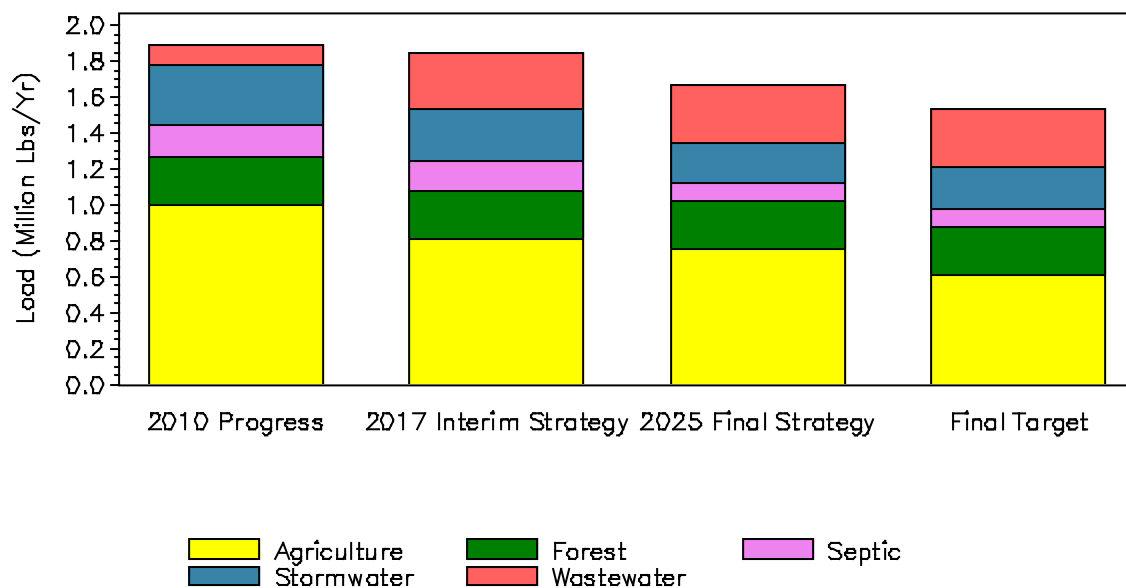
- The agricultural sector strategies were set to meet basin targets rather than county targets. Therefore, agricultural strategies are likely to overshoot or undershoot county targets, which can be reflected in the total countywide target results.
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**CECIL  
Total Sediment Loads**

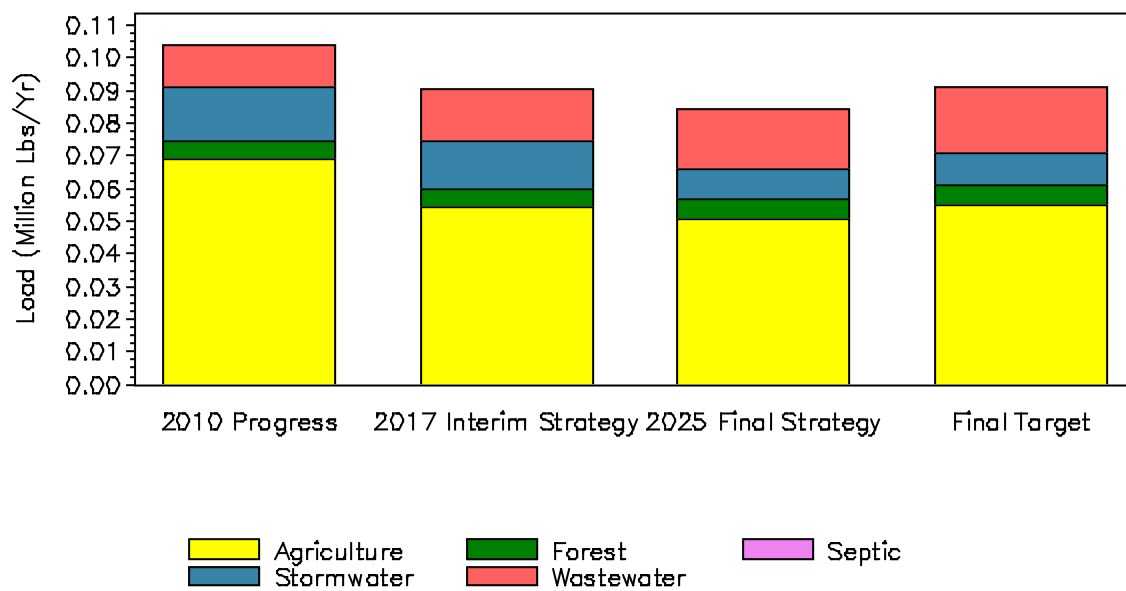
		2010 Progress	2017 Interim Strategy	2025 Final Strategy
Source Sector	Landuse	Million Lbs/Yr	Million Lbs/Yr	Million Lbs/Yr
Agriculture	AFO	0.076	0.064	0.055
	CAFO	0.005	0.004	0.004
	Crop	44.982	41.240	39.041
	Nursery	0.406	0.362	0.356
	Pasture	1.004	1.020	1.123
	<b>Subtotal</b>		<b>46.473</b>	<b>42.689</b>
Forest	Harvested	0.364	0.462	0.462
	Natural	3.866	4.017	4.071
	<b>Subtotal</b>	<b>4.230</b>	<b>4.480</b>	<b>4.533</b>
Non-Tidal Atm	Non-Tidal Atm	0.000	0.000	0.000
	<b>Subtotal</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>
Septic	Septic	0.000	0.000	0.000
	<b>Subtotal</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>
Stormwater	CSS	0.000	0.000	0.000
	Construction	1.738	1.801	1.801
	Extractive	1.742	1.742	1.193
	Regulated Developed	11.439	9.820	5.056
	<b>Subtotal</b>	<b>14.918</b>	<b>13.364</b>	<b>8.050</b>
Wastewater	CSO	0.000	0.000	0.000
	Industrial	0.019	0.262	1.276
	Municipal	0.099	0.548	0.881
	<b>Subtotal</b>	<b>0.118</b>	<b>0.810</b>	<b>2.157</b>
<b>Total</b>		<b>65.739</b>	<b>61.342</b>	<b>55.320</b>

• 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.

CECIL  
Total Nitrogen Loads

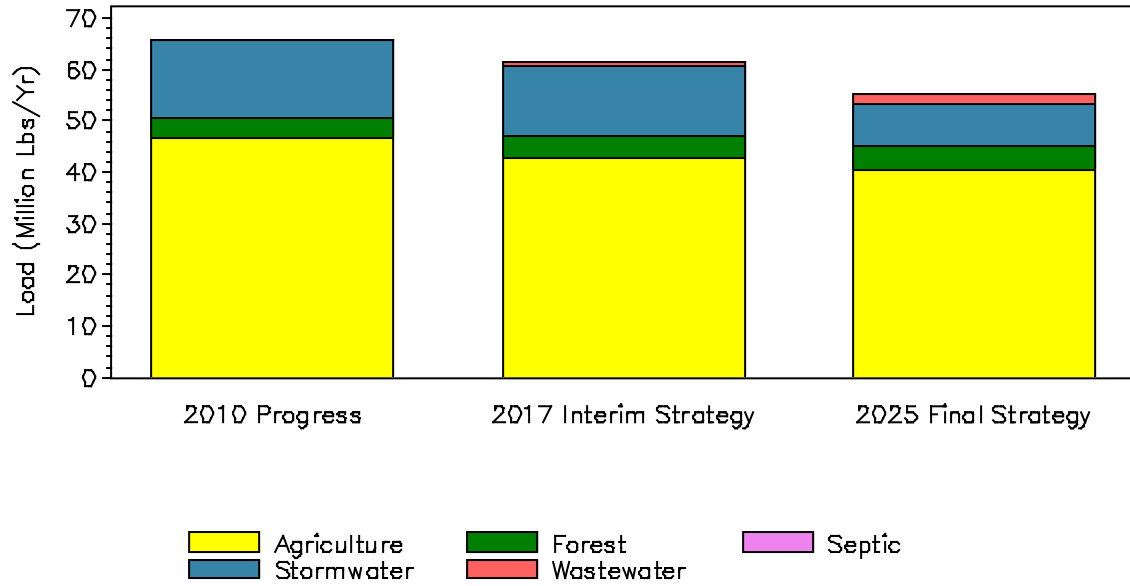


CECIL  
Total Phosphorus Loads





CECIL  
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

### CECIL 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							
Bioretention / Raingardens	Acres	0	6	6	6	6	0	-0
Bioswale	Acres	0	30	30	80	80	0	0
Dry Detention Ponds and Hydrodynamic Structures	Acres	517	713	699	700	675	-14	-24
Dry Extended Detention Ponds	Acres	73	190	188	183	179	-2	-3
Impervious Urban Surface Reduction	Acres	0	0	260	0	1,683	260	1,683
MS4 Permit Stormwater Retrofit	Acres	51	262	260	302	299	-1	-2
Stormwater Management Generic BMP (1985 to 2002)	Acres	8,046	7,704	7,486	7,677	7,298	-218	-379
Stormwater Management Generic BMP (2002 to 2010)	Acres	6,379	5,961	5,790	5,947	5,647	-171	-301
Urban Filtering Practices	Acres	26	66	2,477	75	20,385	2,411	20,310
Urban Forest Buffers	Acres	0	1	1,154	1	2,133	1,153	2,132
Urban Infiltration Practices	Acres	30	112	111	128	126	-1	-1
Urban Tree Planting / Urban Tree Canopy	Acres	0	193	193	412	412	0	-0
Vegetated Open Channels	Acres	0	469	469	444	444	0	-0
Wet Ponds and Wetlands	Acres	466	712	700	696	674	-13	-22
Erosion and Sediment Control on Construction	Acres/Year	570	570	570	570	570	0	0
Erosion and Sediment Control on Extractive	Acres/Year	0	0	0	0	587	0	587
Forest Conservation	Acres/Year	5,573	5,346	5,387	5,346	5,577	41	232
Urban Nutrient Management	Acres/Year	6,506	5,947	18,422	5,947	26,219	12,475	20,272
Street Sweeping Pounds	Lbs/Year	0	381,098	381,098	381,098	381,098	0	0
Urban Stream Restoration / Shoreline Erosion Control	Linear Feet	0	2,396	2,396	4,012	4,012	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.

## CECIL 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	6	6	2,134	6	3,556	2,127	3,550
	Outside of the Critical Area, not within 1000 ft of a perennial stream	Systems	22	22	22	22	9,858	0	9,836
	Within 1000 ft of a perennial stream	Systems	8	8	8	8	4,673	0	4,664
<b>Septic Denitrification Total</b>			<b>37</b>	<b>37</b>	<b>2,164</b>	<b>37</b>	<b>18,087</b>	<b>2,127</b>	<b>18,050</b>

- 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

### CECIL 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	0.010	0.010	0.010	0.010	0.010	0.011
	Extractive	0.009	0.009	0.009	0.009	0.007	0.007
	Regulated Developed	0.320	0.318	0.277	0.314	0.201	0.218
	<b>Subtotal</b>	<b>0.338</b>	<b>0.336</b>	<b>0.296</b>	<b>0.333</b>	<b>0.217</b>	<b>0.235</b>
Septic	Septic	0.183	0.183	0.164	0.183	0.098	0.099
	<b>Subtotal</b>	<b>0.183</b>	<b>0.183</b>	<b>0.164</b>	<b>0.183</b>	<b>0.098</b>	<b>0.099</b>

- 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.

### CECIL 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	0.001	0.001	0.001	0.001	0.001	0.001
	Extractive	0.001	0.001	0.001	0.001	0.001	0.001
	Regulated Developed	0.014	0.014	0.012	0.014	0.008	0.008
	<b>Subtotal</b>	<b>0.016</b>	<b>0.016</b>	<b>0.015</b>	<b>0.016</b>	<b>0.010</b>	<b>0.010</b>
Septic	Septic	0.000	0	0.000	0	0.000	0.000
	<b>Subtotal</b>	<b>0.000</b>	<b>0</b>	<b>0.000</b>	<b>0</b>	<b>0.000</b>	<b>0.000</b>

- 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.

**CECIL  
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	1.738	1.738	1.801	1.738	1.801
	Extractive	1.742	1.742	1.742	1.742	1.193
	Regulated Developed	11.439	10.863	9.820	10.649	5.056
	<b>Subtotal</b>	<b>14.918</b>	<b>14.342</b>	<b>13.364</b>	<b>14.128</b>	<b>8.050</b>
Septic	Septic	0.000	0	0.000	0	0.000
	<b>Subtotal</b>	<b>0.000</b>	<b>0</b>	<b>0.000</b>	<b>0</b>	<b>0.000</b>

- 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.