

Maryland Phase II WIP Strategies

CALVERT Agriculture - Annual Practices

		2010 Progress	2017 Interim Strategy	2025 Final Strategy
BMP Name	Unit			
Conservation Tillage	Acres/Year	1,522	1,764	1,764
Cover Crop	Acres/Year	1,261	2,534	2,577
Cropland Irrigation Management	Acres/Year	0	124	124
Nutrient Management (All forms)	Acres/Year	8,048	12,323	11,887
Soil Conservation and Water Quality Plans	Acres/Year	9,353	10,730	11,973

- 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)

CALVERT Agriculture - Additional BMPs

		2010 Progress	2017 Interim Strategy	2025 Final Strategy
BMP Name	Unit			
Barnyard Runoff Control	Acres	29	37	42
Forest Buffers	Acres	77	83	88
Grass Buffers / Vegetated Open Channel	Acres	106	113	117
Horse Pasture Management	Acres	0	116	194
Irrigation Water Capture Reuse	Acres	0	3	5
Land Retirement	Acres	246	1,359	2,190
Loafing Lot Management	Acres	0	1	0
Off Stream Watering Without Fencing	Acres	1,260	1,425	1,535
Prescribed Grazing	Acres	55	300	500
Stream Access Control with Fencing	Acres	6	6	6
Tree Planting / Vegetative Environmental Buffers	Acres	194	194	194
Wetland Restoration	Acres	15	22	26
Non Urban Stream Restoration / Shoreline Erosion Control	Linear Feet	0	10,404	17,340

- 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.

CALVERT Forest BMPs

			2010 Progress	2017 Interim Strategy	2025 Final Strategy
BMP Name	Zone	Unit			
Forest Harvesting Practices	harvested forest	Acres	717	717	717

- 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)

CALVERT Developed Land BMPs

		2010 Progress	2017 Interim Strategy	2025 Final Strategy
BMP Name	Unit			
Bioretention / Raingardens	Acres	0	4,258	5,627
Bioswale	Acres	0	515	736
Dry Detention Ponds and Hydrodynamic Structures	Acres	586	585	585
Dry Extended Detention Ponds	Acres	1,342	1,341	1,341
MS4 Permit Stormwater Retrofit	Acres	325	325	250
Stormwater Management Generic BMP (1985 to 2002)	Acres	5,335	5,332	4,378
Stormwater Management Generic BMP (2002 to 2010)	Acres	2,059	2,058	1,587
Urban Filtering Practices	Acres	122	122	122
Urban Forest Buffers	Acres	2	2	2
Urban Infiltration Practices	Acres	1,004	4,289	5,540
Urban Tree Planting / Urban Tree Canopy	Acres	0	15	22
Vegetated Open Channels	Acres	0	515	589
Wet Ponds and Wetlands	Acres	441	3,525	4,404
Erosion and Sediment Control on Construction	Acres/Year	537	537	537
Forest Conservation	Acres/Year	6,471	6,471	6,471
Urban Nutrient Management	Acres/Year	6,084	6,080	6,078
Urban Stream Restoration / Shoreline Erosion Control	Linear Feet	0	7,000	8,500

- 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)

CALVERT Septic System BMPs

			2010 Progress	2017 Interim Strategy	2025 Final Strategy
BMP Name	Zone	Unit			
Septic Connection	Critical Area	Systems	0	155	441
	Outside of the Critical Area, not within 1000 ft of a perennial stream	Systems	0	0	39
	Within 1000 ft of a perennial stream	Systems	0	0	481
	<i>Septic ConnectionTotal</i>		0	155	961
Septic Denitrification	Critical Area	Systems	29	2,894	4,394
	Outside of the Critical Area, not within 1000 ft of a perennial stream	Systems	83	7,278	9,180
	Within 1000 ft of a perennial stream	Systems	42	3,716	6,037
	<i>Septic DenitrificationTotal</i>		154	13,889	19,611

- 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

CALVERT 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	0.003	0.001	0.001	0.002
	CAFO	0.000	0.000	0.000	0.000
	Crop	0.127	0.105	0.095	0.081
	Nursery	0.002	0.001	0.001	0.002
	Pasture	0.009	0.011	0.012	0.008
	Subtotal		0.141	0.118	0.109
Forest	Harvested	0.007	0.007	0.007	0.008
	Natural	0.145	0.146	0.146	0.143
	Subtotal	0.152	0.153	0.153	0.151
Non-Tidal Atm	Non-Tidal Atm	0.010	0.010	0.010	0.010
	Subtotal	0.010	0.010	0.010	0.010
Septic	Septic	0.303	0.224	0.177	0.179
	Subtotal	0.303	0.224	0.177	0.179
Stormwater	CSS	0.000	0.000	0.000	0
	Construction	0.007	0.007	0.007	0.008
	Extractive	0.000	0.000	0.000	0.000
	Non-Regulated Developed	0.174	0.127	0.113	0.130
	Regulated Developed	0.000	0.000	0.000	0.000
	Subtotal		0.181	0.134	0.120
Wastewater	CSO	0.000	0.000	0.000	0
	Industrial	0.028	0.026	0.022	0.014
	Municipal	0.014	0.012	0.018	0.018
	Subtotal		0.042	0.037	0.040
	Total	0.830	0.677	0.609	0.602

- 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.

CALVERT 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	0.001	0.000	0.000	0.000
	CAFO	0.000	0.000	0.000	0.000
	Crop	0.011	0.009	0.008	0.009
	Nursery	0.001	0.001	0.001	0.001
	Pasture	0.001	0.002	0.002	0.001
	Subtotal		0.014	0.012	0.011
Forest	Harvested	0.000	0.000	0.000	0.000
	Natural	0.004	0.004	0.004	0.004
	Subtotal	0.004	0.004	0.004	0.004
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	0.002	0.002	0.002	0.002
	Extractive	0.000	0.000	0.000	0.000
	Non-Regulated Developed	0.016	0.010	0.008	0.009
	Regulated Developed	0.000	0.000	0.000	0.000
	Subtotal		0.018	0.012	0.010
Wastewater	CSO	0.000	0.000	0.000	0
	Industrial	0.015	0.007	0.003	0.003
	Municipal	0.003	0.001	0.001	0.001
	Subtotal		0.018	0.008	0.005
Total		0.054	0.036	0.030	0.031

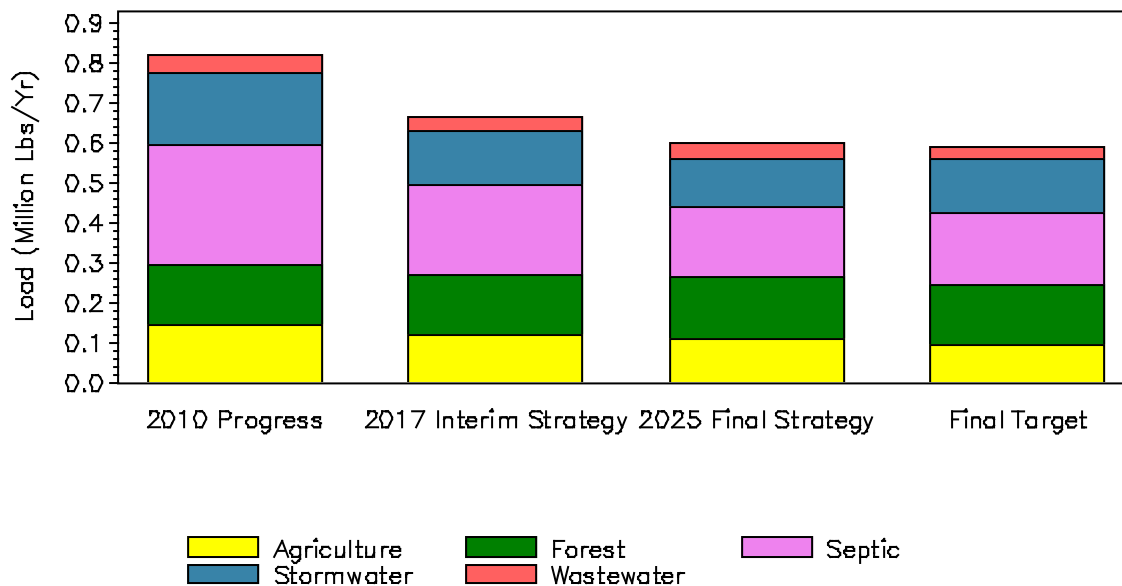
- The agricultural sector strategies were set to meet basin targets rather than county targets. Therefore, agricultural strategies are likely to overshoot or undershoot county targets, which can be reflected in the total countywide target results.
- Stormwater sector strategies may overshoot the county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

**CALVERT
Total Sediment Loads**

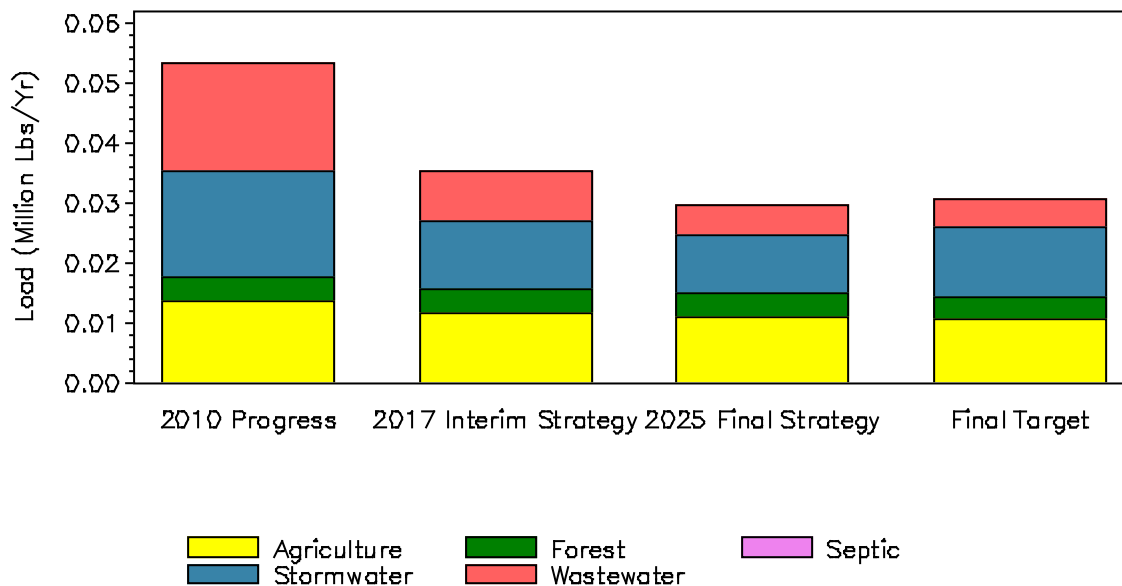
		2010 Progress	2017 Interim Strategy	2025 Final Strategy
Source Sector	Landuse	Million Lbs/Yr	Million Lbs/Yr	Million Lbs/Yr
Agriculture	AFO	0.033	0.029	0.027
	CAFO	0.000	0.000	0.000
	Crop	11.439	9.667	8.628
	Nursery	0.013	0.011	0.011
	Pasture	0.179	0.240	0.282
	Subtotal		11.663	9.948
Forest	Harvested	0.099	0.114	0.114
	Natural	1.557	1.564	1.564
	Subtotal	1.656	1.678	1.678
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	0.856	0.875	0.875
	Extractive	0.042	0.042	0.042
	Non-Regulated Developed	4.195	2.045	1.561
	Regulated Developed	0.005	0.005	0.005
	Subtotal		5.099	2.966
Wastewater	CSO	0.000	0.000	0.000
	Industrial	0.038	0.052	0.052
	Municipal	0.020	0.080	0.127
	Subtotal		0.058	0.131
	Total	18.476	14.723	13.288

• 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.

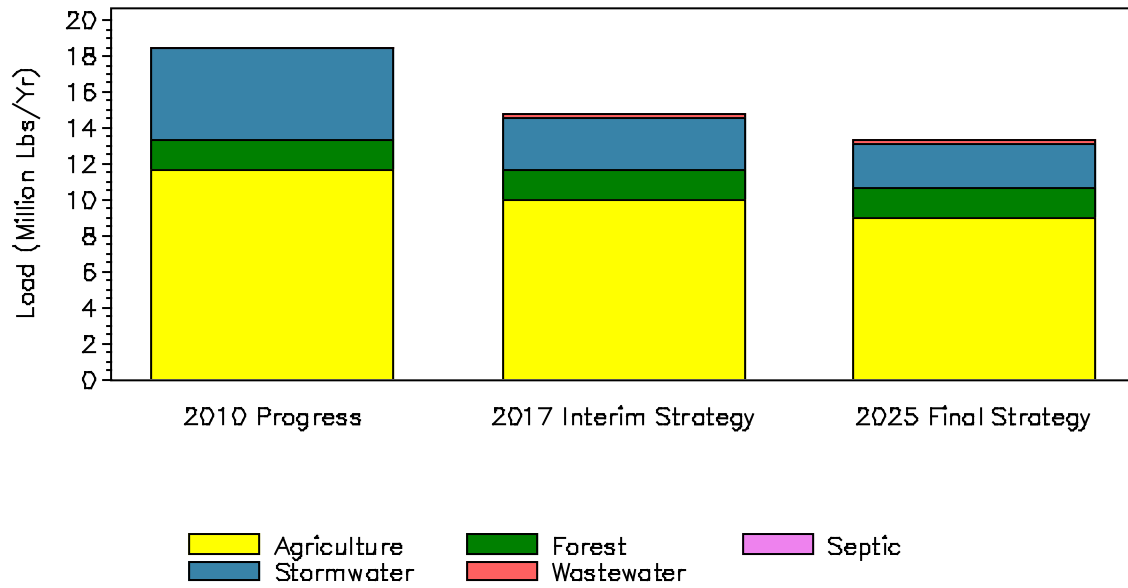
CALVERT
Total Nitrogen Loads



CALVERT
Total Phosphorus Loads



CALVERT
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

CALVERT 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	4,258	4,258	5,627	5,627	0	0
Bioswale	Acres	0	515	515	736	736	0	0
Dry Detention Ponds and Hydrodynamic Structures	Acres	586	585	585	585	585	0	-0
Dry Extended Detention Ponds	Acres	1,342	1,341	1,341	1,341	1,341	0	0
MS4 Permit Stormwater Retrofit	Acres	325	325	325	250	250	0	0
Stormwater Management Generic BMP (1985 to 2002)	Acres	5,335	5,332	5,332	4,378	4,378	0	0
Stormwater Management Generic BMP (2002 to 2010)	Acres	2,059	2,058	2,058	1,587	1,587	0	0
Urban Filtering Practices	Acres	122	122	122	122	122	0	-0
Urban Forest Buffers	Acres	2	2	2	2	2	0	0
Urban Infiltration Practices	Acres	1,004	4,289	4,289	5,540	5,540	0	-0
Urban Tree Planting / Urban Tree Canopy	Acres	0	15	15	22	22	0	0
Vegetated Open Channels	Acres	0	515	515	589	589	0	0
Wet Ponds and Wetlands	Acres	441	3,525	3,525	4,404	4,404	0	0
Erosion and Sediment Control on Construction	Acres/Year	537	537	537	537	537	0	0
Forest Conservation	Acres/Year	6,471	6,471	6,471	6,471	6,471	0	-0
Urban Nutrient Management	Acres/Year	6,084	6,080	6,080	6,078	6,078	0	0
Urban Stream Restoration / Shoreline Erosion Control	Linear Feet	0	7,000	7,000	8,500	8,500	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.

CALVERT 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	155	155	441	441	0	0
	Outside of the Critical Area, not within 1000 ft of a perennial stream	Systems	0	0	0	39	39	0	0
	Within 1000 ft of a perennial stream	Systems	0	0	0	481	481	0	0
	Septic ConnectionTotal		0	155	155	961	961	0	0
Septic Denitrification	Critical Area	Systems	29	2,894	2,894	3,374	4,394	0	1,020
	Outside of the Critical Area, not within 1000 ft of a perennial stream	Systems	83	7,278	7,278	9,180	9,180	0	0
	Within 1000 ft of a perennial stream	Systems	42	3,716	3,716	4,382	6,037	0	1,655
	Septic DenitrificationTotal		154	13,889	13,889	16,936	19,611	0	2,675

- 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

CALVERT 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	0.007	0.007	0.007	0.007	0.007	0.008
	Extractive	0.000	0.000	0.000	0.000	0.000	0.000
	Non-Regulated Developed	0.174	0.130	0.127	0.116	0.113	0.130
	Regulated Developed	0.000	0.000	0.000	0.000	0.000	0.000
	Subtotal		0.181	0.137	0.134	0.124	0.120
Septic	Septic	0.303	0.224	0.224	0.197	0.177	0.179
	Subtotal	0.303	0.224	0.224	0.197	0.177	0.179

- 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.

CALVERT 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	0.002	0.002	0.002	0.002	0.002	0.002
	Extractive	0.000	0.000	0.000	0.000	0.000	0.000
	Non-Regulated Developed	0.016	0.010	0.010	0.008	0.008	0.009
	Regulated Developed	0.000	0.000	0.000	0.000	0.000	0.000
	Subtotal		0.018	0.012	0.012	0.010	0.010
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.

CALVERT 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	0.856	0.856	0.875	0.856	0.875
	Extractive	0.042	0.042	0.042	0.042	0.042
	Non-Regulated Developed	4.195	2.013	2.045	1.519	1.561
	Regulated Developed	0.005	0.005	0.005	0.005	0.005
	Subtotal	5.099	2.916	2.966	2.422	2.482
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.