

10.0 Permit Requirements

Part IV. Program Review and Annual Progress Reporting

A. Annual Reporting

1. Annual progress reports, required under 40 CFR 122.42(c), will facilitate the long-term assessment of Baltimore County’s NPDES stormwater program. The County shall submit annual reports on or before June 15th of each year that include:

e. The identification of water quality improvements or degradation

10.1 Introduction

The following analysis provides a summary of the pollutant load reductions (water quality improvements) that have resulted from implementation of the management programs required under this permit. It includes reductions due to implementation of stormwater Best Management Practices (Section 1); reductions due to street sweeping and storm drain cleaning programs (Section 3), and reductions due to capital restoration projects (Section 7). Further reductions resulting from illicit connection removals (Section 5) and education activities (Section 4) are discussed under the appropriate section. Actual pollutant load reductions due to illicit connection removals and education activities have not been determined.

With the completion of a number of Total Maximum Daily Load analyses for impaired waters, target load reductions for nutrient, sediment, and bacteria have been determined for a number of watersheds. Table 10-1 summarizes the reductions required for urban stormwater where they have been determined, on a percentage basis.

Table 10-1: Status of TMDLs and TMDL Reduction Requirements for Urban Stormwater

Watershed	Total Phosphorus	Total Nitrogen	Sediment	Bacteria	Biological	Other (Metals, Toxics)
Deer Creek	NA	NA	NA	NA	Not Comp.	NA
Prettyboy	54%	NA	NA	Not Comp.	Not Comp.	Complete
Loch Raven	50%	NA	25%	NA	Not Comp.	Complete
Lower Gunpowder	Not Comp.	Not Comp.	NA	NA	Not Comp.	NA
Little Gunpowder	Not Comp.	Not Comp.	NA	NA	Not Comp.	NA
Bird River	NA	NA	Not Comp.	NA	Not Comp.	NA
Gunpowder River	Not Comp.	Not Comp.	Not Comp.	NA	Not Comp.	Not Comp.
Middle River	Not Comp.	Not Comp.	Not Comp.	NA	NA	Not Comp.
Liberty Res.	Not Comp.	Not Comp.	Not Comp.	Not Comp.	Not Comp.	Complete
Patapsco	15%	15%	Not Comp.	NA	Not Comp.	Not Comp.
Gwynns Falls	15%	15%	Not Comp.	67.2-93.2%	Not Comp.	NA

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Jones Falls	15%	15%	Not Comp.	92.4-95.3%	Not Comp.	Not Comp.
Back River	15%	15%	Not Comp.	95%	Not Comp.	Complete
Baltimore Harbor	15%	15%	Not Comp.	Not Comp.	Not Comp.	Complete

Additional TMDLs have been completed for chlordane (Back River and Lake Roland), and for mercury in fish tissue (Prettyboy Reservoir, Loch Raven Reservoir, and Liberty Reservoir). However, these TMDLs have limited options to address inputs from storm water discharge due to the nature of the source of pollution (chlordane – historic, mercury – air deposition). A number of listings for impairment have been removed due to Water Quality Assessments that have indicated that the level of particular pollutants is below the existing standards. A summary of the current status of all TMDLs and Water Quality Assessments can be found on the Maryland Department of the Environment web site; <http://www.mde.state.md.us/Programs/WaterPrograms/TMDL/Sumittals/index.asp>.

The Maryland Tributary Strategies for meeting the Chesapeake Bay Program goals has identified a 24% reduction in nitrogen and a 42% reduction of phosphorus from urban non-point sources. This provides an additional reduction target for nutrients that in some cases exceeds the reductions determined by the TMDL analysis. The differences are due to the target water body being local tidal waters versus the entire Chesapeake Bay. Thus it may be possible to meet local tidal water quality standards, but need additional nutrient reductions to permit the Chesapeake Bay to meet its water quality standards. In the case of the reservoirs the TMDLs are for phosphorus only due to the fact that fresh water is usually phosphorus limited. The models indicate that reductions in nitrogen would result in limited improvement in reservoir water quality.

10.2 Summary of Pollutant Reduction Programs

Four components of the County’s overall effort to reduce pollutant loads are summarized in Tables 10-2 and 10-3, which address the Upper Western Shore and the Patapsco/Back River drainages respectively. The components are the Stormwater Management Program, the Vac-Con Program, the Street Sweeping Program, and the Capital Improvement Program. The land use was derived utilizing 2002 MDP Landuse, assigning pollutant loadings from Table 1-6 (Section 1), and intersecting landuse with watersheds. Only urban landuses were used for this analysis. TSS for Street Sweeping was based on tons removed.

Table 10-2: Pollutant Removal (Pounds) by Upper Western Shore Watersheds Attributed to BMP’s

Upper Western Shore					
Deer Creek					
	TSS	TP	TN	TPb	TZn
SWM	0	0	0	0	0
VC	0	0	0	0	0
SS	0	0	0	0	0
CIP	0	0	0	0	0
Totals	0	0	0	0	0
WS Load	92,636	366	3,769	30	144
% R’vd	0.0	0.0	0.0	0.0	0.0

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Table 10-2: Pollutant Removal (Pounds) by Upper Western Shore Watersheds Attributed to BMP's (continued)

Prettyboy Reservoir					
	TSS	TP	TN	TPb	TZn
SWM	2,010	4.2	50	3	1.4
VC	0	0	0	0	0
SS	0	0	0	0	0
CIP	0	0	0	0	0
Totals	2,010	4.2	50	3	1.4
WS Load	310,937	1,365	14,607	79	365
TMDL % Red	NA	54%	NA	NA	NA
% R'vd	0.7	0.3	0.3	3.8	0.4
Loch Raven Reservoir					
	TSS	TP	TN	TPb	TZn
SWM	260,660	485.3	4,046	161.3	449.0
VC	59,195	1.0	4	2.2	7.5
SS	435,200	7.6	31	16.5	55.5
CIP	84,335	129.6	1,033	12.6	46.5
Totals	839,390	623.5	5,114	192.6	558.5
WS Load	4,889,041	18,456	188,846	1,765	7,695
TMDL % Red	25%	50%	NA	NA	NA
% R'vd	17.2	3.4	2.7	10.9	7.3
Lower Gunpowder River					
	TSS	TP	TN	TPb	TZn
SWM	123,751	251.8	2,366	56.5	145.4
VC	40,345	.7	3	1.5	5.1
SS	242,200	4.2	17	9.2	30.9
CIP	49,257	67.7	456	0	0
Totals	455,553	324.4	2,842	67.2	181.4
WS Load	1,627,658	6,156	62,946	612	2,871
% R'vd	28	5.2	4.5	11	6.3
Little Gunpowder River					
	TSS	TP	TN	TPb	TZn
SWM	14,557	29.9	303	2.4	9.0
VC	7,606	0.1	1	0.3	1
SS	53,000	.9	4	2.0	6.8
CIP	0	0	0	0	0
Totals	75,163	30.9	308	4.7	16.8
WS Load	499,533	2,110	22,349	139	630
% R'vd	15.1	1.5	1.4	3.4	2.7
Bird River					
	TSS	TP	TN	TPb	TZn
SWM	167,984	330.1	2,850	100	260.1
VC	14,551	0.3	1	.6	1.8
SS	223,200	3.9	16	8.5	28.4
CIP	122,810	182.0	1,549	19.9	55.3
Totals	528,545	516.3	4,416	129	345.6
WS Load	1,693,727	5,590	51,248	863	3,805

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% R'vd	31.2	9.2	8.6	15	9.1
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Table 10-2: Pollutant Removal (Pounds) by Upper Western Shore Watersheds Attributed to BMP's (continued)

Gunpowder River					
	TSS	TP	TN	TPb	TZn
SWM	7,823	19	166	4.9	16
VC	2,646	.1	0	.1	.3
SS	22,800	.4	2	.9	2.9
CIP	7,750	18.1	189	2.8	10.7
Totals	41,019	37.6	357	7	29.9
WS Load	303,755	952	9,255	140	517
% R'vd	13.5	4.0	3.9	6.2	5.8
Middle River					
	TSS	TP	TN	TPb	TZn
SWM	32,058	72.8	435	21.4	33.1
VC	13,889	.2	1	0.5	1.8
SS	83,200	1.5	6	3.2	10.6
CIP	7,692	15.4	148	1.6	4.6
Totals	136,839	89.9	590	26.7	50.1
WS Load	928,671	2,917	26,486	481	2,339
% R'vd	14.7	3.1	2.2	5.6	2.1

Table 10-3: Pollutant Removal (Pounds) by Patapsco/Back River Watersheds Attributed to BMP's

Patapsco / Back River					
Liberty Reservoir					
	TSS	TP	TN	TPb	TZn
SWM	13,523	16.8	268	3.7	12.6
VC	10	0	0	0	0
SS	22,800	.4	2	.9	2.9
CIP	0	0	0	0	0
Totals	36,333	17.2	270	4.6	15.5
WS Load	468,447	1,740	18,475	143	657
% R'vd	7.8	1	1.5	3.2	2.4
Patapsco River					
	TSS	TP	TN	TPb	TZn
SWM	122,704	237.9	1,944	98.3	200.1
VC	69,116	1.2	5	2.6	8.7
SS	522,200	9.1	37	19.8	66.5
CIP	15,400	25.8	158	1.0	3.5
Totals	729,420	274	2,144	121.7	278.8
WS Load	2,763,909	9,457	90,616	1,278	5,139
TMDL % Red	NA	15%	15%	NA	NA
% R'vd	26.4	2.9	2.4	9.5	5.4
Gwynns Falls					
	TSS	TP	TN	TPb	TZn
SWM	368,146	629.4	6,057	222.5	522.6
VC	156,090	2.7	11	5.9	19.7
SS	983,800	17.2	70	37.3	125.4

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CIP	34,263	112.3	406	13.2	17.4
Totals	1,542,299	761.6	6,544	278.9	685.1
WS Load	4,041,432	13,439	128,991	1,932	8,994
TMDL % Red	NA	15%	15%	NA	NA
% R'vd	38.2	5.7	5.1	14.4	7.6

Table 10-3: Pollutant Removal (Pounds) by Patapsco/Back River Watersheds Attributed to BMP's (continued)

Jones Falls					
	TSS	TP	TN	TPb	TZn
SWM	116,008	222.8	2,145	60.9	189.1
VC	31,086	0.5	2	1.2	3.9
SS	208,200	3.6	15	7.9	26.5
CIP	27,089	49.5	407	9.5	36.2
Totals	382,383	276.4	2,569	79.5	255.7
WS Load	2,629,397	9,225	96,071	958	4,517
TMDL % Red	NA	15%	15%	NA	NA
% R'vd	14.5	3.0	2.7	8.3	5.7
Back River					
	TSS	TP	TN	TPb	TZn
SWM	181,304	322.2	2,743	97.5	145.6
VC	66,471	1.2	5	2.5	8.4
SS	700,000	12.2	50	26.6	89.2
CIP	97,486	188.6	1,229	46.7	143.9
Totals	1,045,261	524.2	4,027	173.3	387.1
WS Load	3,388,146	11,019	101,844	1,713	7,474
TMDL % Red	NA	15%	15%	NA	NA
% R'vd	32.5	4.8	4.0	10.1	5.2
Baltimore Harbor					
	TSS	TP	TN	TPb	TZn
SWM	17,845	35.0	233	15.4	28.4
VC	30,755	0.5	2	1.2	3.9
SS	287,600	5.0	21	10.9	36.6
CIP	58,427	109.5	815	40.3	106.0
Totals	394,627	150	1,071	67.8	174.9
WS Load	2,393,557	8,097	61,122	1,604	4,764
TMDL % Red	NA	15%	15%	NA	NA
% R'vd	16.5	1.9	1.8	4.2	3.7

This analysis presents an attempt to track pollutant load reductions by watershed due to various NPDES-management programs. The percent removal rates reported here should be considered lower estimates since important data for removal rates attributed to certain practices is lacking.