

Revision of Root River Total Maximum Daily Load Report (originally approved 2017)

July 2025

A recent review of the total maximum daily load (TMDL) for the Root River Watershed—[Root River Total Maximum Daily Load Report](#) (HUC-8 07040008)—which was approved in February 2017, discovered errors in total suspended solids (TSS) and *Escherichia coli* (*E. coli*) wasteload allocations (WLAs). These errors were largely due to errors or inconsistencies in rounding or wastewater treatment facility (WWTF) design flows. In addition, two National Pollutant Discharge Elimination System (NPDES) permits have been terminated and their WLAs eliminated (MnDOT High Forest Rest Area [MN0044377] and Milestone Materials – Panhandle Quarry [MN0062804]). One NPDES permit (Great River Energy–Pleasant Valley [MN0067717]) has been determined to be an industrial stormwater discharge only and does not need a wastewater WLA because its WLA need is addressed by the categorical ISW WLA.

Table 1 presents the wastewater NPDES permits with TSS and *E. coli* WLAs, the applicable impairments for each WLA, and sum of the wastewater WLAs for each applicable impairment. Original and revised TMDL tables follow. Table 1 of this revision memo **replaces** Table 31 and Appendix C in the TMDL report, and the revised TMDL tables in this memo replace the information in Section 4.2 in the 2017 TMDL report.

The basis for the TMDL remains the same: water quality standards, pollutant source assessment, and load duration curve approach to TMDL calculation. The approaches to calculating wastewater WLAs and load allocations (LAs) in the TMDL report (Section 4.1.3.3 and 4.1.2, respectively) were used to recalculate the TMDL tables presented here. The following TMDL table components did not change: loading capacity, WLAs for permitted stormwater, and margin of safety.

Eight of the TSS TMDL revisions resulted in reductions to the WLA and increases to the LA. Four of the TSS TMDL revisions resulted in increases to the WLA. Of these four TMDLs, three did not result in a change in LA because the change in WLA was lower than the LA rounding margin. The LA of one of the TMDLs was reduced by 6% (reach 550 in Table 50). The three *E. coli* TMDL revisions resulted in increases to the WLA and proportional decreases in the LA, all of which are less than a 0.2% decrease. The TMDL revisions do not change the reasonable assurance in Section 6 or the implementation strategy in Section 8 of the approved TMDL. The more recent [Root River Watershed Total Maximum Daily Load Report 2024](#) (MPCA 2024), which presents *E. coli* and TSS TMDLs for additional impairments, provides more examples of reasonable assurance, including activities of nonpoint source reduction programs and funding for implementation projects.

An opportunity for public comment on the draft TMDL report was provided via a public notice in the State Register from July 28, 2025, through August 27, 2025. There were xx comment letters received and responded to as a result of the public comment period.

Revised TMDLs

- Table 32. Root River (Lower) (07040008-501) The TSS TMDL allocations.
- Table 33. Root River (Lower) (07040008-502) The TSS TMDL allocations.
- Table 35. Root River (07040008-520) TSS TMDL allocations.
- Table 36. Root River (07040008-522) TSS TMDL allocations.
- Table 37. Root River (07040008-527) TSS TMDL allocations.

- Table 39. Middle Branch Root River (07040008-528) TSS TMDL allocations.
- Table 40. Middle Branch Root River (07040008-534) *E. coli* TMDL allocations.
- Table 45. Root River (07040008-535) *E. coli* TMDL allocations.
- Table 47. North Branch Root River (07040008-716) TSS TMDL allocations.
- Table 48. North Branch Root River (07040008-717) TSS TMDL allocations.
- Table 49. Rush Creek (07040008-523) *E. coli* TMDL allocations.
- Table 50 (partial). South Branch Root River (07040008-550) TSS TMDL allocations.
- Table 52. South Branch Root River (07040008-554) TSS TMDL allocations.
- Table 53 (partial). South Branch Root River (07040008-555) TSS TMDL allocations.
- Table 54. South Branch Root River (07040008-556) TSS TMDL allocations.

TMDLs that are not revised

- Table 34. Thompson Creek (07040008-507) *E. coli* TMDL allocations.
- Table 38. Trout Run Creek (07040008-G88) *E. coli* TMDL allocations.
- Table 41. Middle Branch Root River (07040008-506) *E. coli* TMDL allocations.
- Table 42. Bear Creek (07040008-542) *E. coli* TMDL allocations.
- Table 43. Deer Creek (07040008-546) *E. coli* TMDL allocations.
- Table 44. Spring Valley Creek (07040008-548) *E. coli* TMDL allocations.
- Table 46. Mill Creek (07040008-536) *E. coli* TMDL allocations.
- Table 50 (partial). South Branch Root River (07040008-550) *E. coli* TMDL allocations.
- Table 51. Watson Creek (07040008-552) TSS, nitrate, and *E. coli* TMDL allocations.
- Table 53 (partial). South Branch Root River (07040008-555) nitrate TMDL allocations.
- Table 55. Canfield Creek (07040008-557) nitrate TMDL allocations.
- Table 56. Willow Creek (07040008-558) nitrate and *E. coli* TMDL allocations.
- Table 57. Etna Creek (07040008-562) nitrate TMDL allocations.
- Table 58. Forestville Creek (07040008-563) nitrate and *E. coli* TMDL allocations.
- Table 59. South Fork Root River (07040008-508) TSS and *E. coli* TMDL allocations.
- Table 60. South Fork Root River (07040008-509) TSS TMDL allocations.
- Table 61. South Fork Root River (07040008-573) TSS TMDL allocations.

Table 1. Wastewater WLAs and TMDL AUIDs in Root River Watershed (HUC-8 07040008)

Facility Name	Permit Number	Station	WLA Flow (mgd)	TSS limit (mg/L)	TSS WLA (tons/day)	E. coli WLA (billion org./day)	Root River -501	Root River -502	Root River Middle Branch -506	Root River South Fork -508	Root River South Fork -509	Root River -520	Root River -522	Rush Creek -523	Root River -527	Root River Middle Branch -528	Root River Middle Branch -534	Root River -535	Bear Creek -542	Deer Creek -546	Spring Valley Creek -548	Root River South Branch -550	Watson Creek -552	Root River North Branch -716	Root River North Branch -717	Root River South Branch -554	Root River South Branch -555	Root River South Branch -556	Root River South Branch -557
Canton WWTP	MN0023001	SD 002	0.065	30	0.008	0.310	✓	✓		✓	✓																		
Chatfield WWTP	MN0021857	SD 001	0.487	30	0.061	2.323	✓	✓				✓	✓		✓	✓	✓	✓											
Dexter WWTP	MNG585228	SD 001	0.293	45	0.055	1.397	✓	✓				✓	✓		✓	✓	✓	✓						✓	✓				
Foremost Farms USA Cooperative	MN0001333	SD 001	0.225	—	0.028	—	✓	✓				✓	✓		✓							✓				✓			
Fountain WWTP	MN0050873	SD 001	0.062	30	0.008	0.296	✓	✓				✓	✓		✓							✓	✓						
Grand Meadow WWTP	MN0023558	SD 002	1.043	45	0.196	4.974	✓	✓	✓			✓	✓		✓	✓	✓			✓									
Haven Hutterian Brethren	MNG585071	SD 001	0.096	45	0.018	0.458	✓	✓				✓	✓		✓	✓	✓	✓						✓	✓				
Hokah WWTP	MN0021458	SD 001	0.102	30	0.013	0.486	✓	✓																					
Houston WWTP	MN0023736	SD 001	0.250	30	0.031	1.192	✓	✓				✓																	
Lanesboro WWTP	MN0020044	SD 001	0.110	30	0.014	0.525	✓	✓				✓	✓		✓							✓							
Lewiston WWTP	MN0023965	SD 001	0.350	30	0.044	1.669	✓	✓				✓	✓	✓															
Mabel WWTP	MN0020877	SD 002	0.189	30	0.024	0.901	✓	✓		✓	✓																		
MDNR Lanesboro State Fish Hatchery	MN0004430	SD 001	13.400	30	1.676	—	✓	✓							✓							✓							
MDNR Peterson State Fish Hatchery	MN0061221	SD 001	7.056	30	0.883	—	✓	✓				✓	✓																
Mathy Construction - Aggregate	MNG490081	SD 121	2.300	30	0.288	—	✓	✓				✓	✓		✓	✓	✓							✓	✓				
Mathy Construction - Aggregate	MNG490081	SD 120	4.320	30	0.540	—	✓	✓				✓	✓		✓	✓	✓							✓	✓				
Milestone Materials - Stewartville I-90 Quarry 496	MN0069531	SD 001	4.320	30	0.540	—	✓	✓				✓	✓		✓	✓	✓							✓	✓				
MNDOT Enterprise Rest Area	MN0048844	SD 001	0.024	45	0.005	0.114	✓	✓				✓	✓	✓										✓					
Ostrander WWTP	MN0024449	SD 002	0.039	30	0.005	0.188	✓	✓				✓	✓		✓							✓				✓	✓	✓	✓
Peterson WWTP	MN0024490	SD 001	0.051	30	0.006	0.242	✓	✓				✓	✓		✓														
Preston WWTP	MN0020745	SD 002	0.392	30	0.049	1.870	✓	✓				✓	✓		✓							✓				✓			
Racine WWTP	MN0024554	SD 001	0.163	45	0.031	0.777	✓	✓	✓			✓	✓		✓	✓	✓		✓										
Rushford WWTP	MN0024678	SD 001	0.330	30	0.041	1.574	✓	✓				✓	✓		✓														
Spring Valley WWTP	MN0051934	SD 002	0.936	30	0.117	4.464	✓	✓	✓			✓	✓		✓	✓	✓				✓								
Stewartville WWTP	MN0020681	SD 001	1.111	30	0.139	5.301	✓	✓				✓	✓		✓		✓	✓						✓					
Ulland Brothers - Aggregate	MNG490069	SD 083	2.016	30	0.252	—	✓	✓				✓	✓		✓	✓													
Ulland Brothers - Aggregate	MNG490070	SD 106	2.016	30	0.252	—	✓	✓				✓	✓		✓	✓													
Wykoff WWTP	MN0020826	SD 002	0.049	30	0.006	0.234	✓	✓	✓			✓	✓		✓	✓	✓												
					TSS WLA (tons/day)		5.33	5.33		0.03	0.03	3.61	3.58		4.32	2.36						1.78	0.01	1.59	1.44	0.08	0.005	0.005	0.005
					E. coli WLA (billion org./day)				10.45	1.21				1.78			19.93	9.48	0.78	4.97	4.46	2.88	0.30	7.27	1.86	2.06	0.19	0.19	

Original 2017 and revised TMDL report tables

Root River (Lower) (07040008-501) TSS TMDL

Original 2017 TMDL

Table 32. Root River (Lower) (07040008-501) The TSS TMDL allocations

Root River AUID 07040008-501 TMDL summary		VHigh	High	Mod	Low	VLow
		tons/day				
TSS Loading Capacity (TMDL)		521.44	256.59	191.57	155.44	120.98
Wasteload Allocation (WLA) Components	Permitted Municipal and Industrial Wastewater Facilities*	10.85	10.85	10.85	10.85	10.85
	Permitted Industrial Stormwater Facilities*	0.02	0.02	0.02	0.02	0.02
	Construction and Industrial Stormwater	0.47	0.23	0.17	0.14	0.11
	City of Stewartville MS4 (future)	1.63	0.78	0.58	0.46	0.35
	Total WLA	12.97	11.88	11.62	11.47	11.33
Load Allocation		456.33	219.05	160.79	128.42	97.55
Margin of Safety		52.14	25.66	19.16	15.54	12.10

Revised TMDL

Table 32. Root River (Lower) (07040008-501) TSS TMDL

Root River AUID 07040008-501 TMDL summary		VHigh	High	Mod	Low	VLow
		tons/day				
TSS Loading Capacity (TMDL)		521.44	256.59	191.57	155.44	120.98
Wasteload Allocation (WLA) Components	Permitted Municipal and Industrial Wastewater Facilities*	5.33	5.33	5.33	5.33	5.33
	Permitted Industrial Stormwater Facilities*	0.02	0.02	0.02	0.02	0.02
	Construction and Industrial Stormwater	0.47	0.23	0.17	0.14	0.11
	City of Stewartville MS4 (future)	1.63	0.78	0.58	0.46	0.35
	Total WLA	7.45	6.36	6.10	5.95	5.81
Load Allocation		461.85	224.57	166.31	133.95	103.07
Margin of Safety		52.14	25.66	19.16	15.54	12.10

Root River (Lower) (07040008-502) TSS TMDL

Original 2017 TMDL

Table 33. Root River (Lower) (07040008-502) The TSS TMDL allocations

Root River AUID 07040008-502 TMDL summary		VHigh	High	Mod	Low	VLow
		tons/day				
TSS Loading Capacity (TMDL)		474.53	240.93	167.66	126.28	77.52
Wasteload Allocation (WLA) Components	Permitted Municipal and Industrial Wastewater Facilities*	10.85	10.85	10.85	10.85	10.85
	Permitted Industrial Stormwater Facilities*	0.02	0.02	0.02	0.02	0.02
	Construction and Industrial Stormwater	0.43	0.22	0.15	0.11	0.07
	City of Stewartville MS4 (future)	1.53	0.76	0.51	0.38	0.22
	Total WLA	12.83	11.84	11.54	11.36	11.16
Load Allocation		414.25	204.99	139.36	102.29	58.61
Margin of Safety		47.45	24.09	16.77	12.63	7.75

Revised TMDL

Table 33. Root River (Lower) (07040008-502) TSS TMDL

Root River AUID 07040008-502 TMDL summary		VHigh	High	Mod	Low	VLow
		tons/day				
TSS Loading Capacity (TMDL)		474.53	240.93	167.66	126.28	77.52
Wasteload Allocation (WLA) Components	Permitted Municipal and Industrial Wastewater Facilities*	5.33	5.33	5.33	5.33	5.33
	Permitted Industrial Stormwater Facilities*	0.02	0.02	0.02	0.02	0.02
	Construction and Industrial Stormwater	0.43	0.22	0.15	0.11	0.07
	City of Stewartville MS4 (future)	1.53	0.76	0.51	0.38	0.22
	Total WLA	7.31	6.33	6.01	5.84	5.64
Load Allocation		419.77	210.51	144.88	107.81	64.13
Margin of Safety		47.45	24.09	16.77	12.63	7.75

Root River (07040008-520) TSS TMDL

Original 2017 TMDL

Table 35. Root River (07040008-520) TSS TMDL allocations

Root River AUID 07040008-520 TMDL summary		VHigh	High	Mod	Low	VLow
		tons/day				
TSS Loading Capacity (TMDL)		418.40	199.61	130.27	91.57	56.58
Wasteload Allocation (WLA) Components	Permitted Municipal and Industrial Wastewater Facilities*	9.68	9.68	9.68	9.68	9.68
	Permitted Industrial Stormwater Facilities*	0.02	0.02	0.02	0.02	0.02
	Construction and Industrial Stormwater	0.38	0.18	0.12	0.08	0.05
	City of Stewartville MS4 (future)	1.74	0.81	0.51	0.34	0.20
	Total WLA	11.82	10.69	10.33	10.13	9.95
Load Allocation		364.75	168.97	106.92	72.28	40.98
Margin of Safety		41.84	19.96	13.03	9.16	5.66

Revised TMDL

Table 35. Root River (07040008-520) TSS TMDL

Root River AUID 07040008-520 TMDL summary		VHigh	High	Mod	Low	VLow
		tons/day				
TSS Loading Capacity (TMDL)		418.40	199.61	130.27	91.57	56.58
Wasteload Allocation (WLA) Components	Permitted Municipal and Industrial Wastewater Facilities*	3.61	3.61	3.61	3.61	3.61
	Permitted Industrial Stormwater Facilities*	0.02	0.02	0.02	0.02	0.02
	Construction and Industrial Stormwater	0.38	0.18	0.12	0.08	0.05
	City of Stewartville MS4 (future)	1.74	0.81	0.51	0.34	0.20
	Total WLA	5.75	4.62	4.26	4.05	3.88
Load Allocation		370.81	175.03	112.98	78.36	47.04
Margin of Safety		41.84	19.96	13.03	9.16	5.66

Root River (07040008-522) TSS TMDL

Original 2017 TMDL

Table 36. Root River (07040008-522) TSS TMDL allocations

Root River AUID 07040008-522 TMDL summary		VHigh	High	Mod	Low	VLow
		tons/day				
TSS Loading Capacity (TMDL)		409.18	190.97	123.35	85.14	51.91
Wasteload Allocation (WLA) Components	Permitted Municipal and Industrial Wastewater Facilities*	9.65	9.65	9.65	9.65	9.65
	Permitted Industrial Stormwater Facilities*	0.02	0.02	0.02	0.02	0.02
	Construction and Industrial Stormwater	0.37	0.17	0.11	0.08	0.05
	City of Stewartville MS4 (future)	1.82	0.82	0.51	0.34	0.19
	Total WLA	11.86	10.66	10.30	10.09	9.90
Load Allocation		356.41	161.21	100.72	66.54	36.82
Margin of Safety		40.92	19.10	12.33	8.51	5.19

Revised TMDL

Table 36. Root River (07040008-522) TSS TMDL

Root River AUID 07040008-522 TMDL summary		VHigh	High	Mod	Low	VLow
		tons/day				
TSS Loading Capacity (TMDL)		409.18	190.97	123.35	85.14	51.91
Wasteload Allocation (WLA) Components	Permitted Municipal and Industrial Wastewater Facilities*	3.58	3.58	3.58	3.58	3.58
	Permitted Industrial Stormwater Facilities*	0.02	0.02	0.02	0.02	0.02
	Construction and Industrial Stormwater	0.37	0.17	0.11	0.08	0.05
	City of Stewartville MS4 (future)	1.82	0.82	0.51	0.34	0.19
	Total WLA	5.79	4.59	4.22	4.02	3.84
Load Allocation		362.47	167.28	106.80	72.61	42.88
Margin of Safety		40.92	19.10	12.33	8.51	5.19

Root River (07040008-527) TSS TMDL

Original 2017 TMDL

Table 37. Root River (07040008-527) TSS TMDL allocations

Root River AUID 07040008-527 TMDL summary		VHigh	High	Mod	Low	VLow
		tons/day				
TSS Loading Capacity (TMDL)		366.83	157.03	96.49	60.05	32.17
Wasteload Allocation (WLA) Components	Permitted Municipal and Industrial Wastewater Facilities*	9.62	9.62	9.62	9.62	9.62
	Permitted Industrial Stormwater Facilities*	0.02	0.02	0.02	0.02	0.02
	Construction and Industrial Stormwater	0.33	0.14	0.09	0.05	0.03
	City of Stewartville MS4 (future)	1.91	0.79	0.46	0.27	0.12
	Total WLA	11.89	10.57	10.19	9.96	9.78
Load Allocation		318.26	130.76	76.66	44.08	19.17
Margin of Safety		36.68	15.70	9.65	6.00	3.22

Revised TMDL

Table 37. Root River (07040008-527) TSS TMDL

Root River AUID 07040008-527 TMDL summary		VHigh	High	Mod	Low	VLow
		tons/day				
TSS Loading Capacity (TMDL)		366.83	157.03	96.49	60.05	32.17
Wasteload Allocation (WLA) Components	Permitted Municipal and Industrial Wastewater Facilities*	4.32	4.32	4.32	4.32	4.32
	Permitted Industrial Stormwater Facilities*	0.02	0.02	0.02	0.02	0.02
	Construction and Industrial Stormwater	0.33	0.14	0.09	0.05	0.03
	City of Stewartville MS4 (future)	1.91	0.79	0.46	0.27	0.12
	Total WLA	6.58	5.27	4.89	4.66	4.49
Load Allocation		323.57	136.06	81.95	49.39	24.46
Margin of Safety		36.68	15.70	9.65	6.00	3.22

Middle Branch Root River (07040008-528) TSS TMDL

Original 2017 TMDL

Table 39. Middle Branch Root River (07040008-528) TSS TMDL allocations

Root River Middle Branch AUID 07040008-528 TMDL summary		VHigh	High	Mod	Low	VLow
		tons/day				
TSS Loading Capacity (TMDL)		241.57	98.26	58.71	34.11	16.75
Wasteload Allocation (WLA) Components	Permitted Municipal and Industrial Wastewater Facilities*	8.36	8.36	8.36	8.36	8.36
	Permitted Industrial Stormwater Facilities*	NA	NA	NA	NA	NA
	Construction and Industrial Stormwater	0.22	0.09	0.05	0.03	0.02
	City of Stewartville MS4 (future)	2.01	0.77	0.43	0.21	0.06
	Total WLA	10.58	9.22	8.84	8.61	8.44
Load Allocation		206.83	79.21	44.00	22.10	6.64
Margin of Safety		24.16	9.83	5.87	3.41	1.68

Revised TMDL

Table 39. Middle Branch Root River (07040008-528) TSS TMDL

Root River Middle Branch AUID 07040008-528 TMDL summary		VHigh	High	Mod	Low	VLow
		tons/day				
TSS Loading Capacity (TMDL)		241.57	98.26	58.71	34.11	16.75
Wasteload Allocation (WLA) Components	Permitted Municipal and Industrial Wastewater Facilities*	2.36	2.36	2.36	2.36	2.36
	Permitted Industrial Stormwater Facilities*	NA	NA	NA	NA	NA
	Construction and Industrial Stormwater	0.22	0.09	0.05	0.03	0.02
	City of Stewartville MS4 (future)	2.01	0.77	0.43	0.21	0.06
	Total WLA	4.59	3.22	2.84	2.60	2.44
Load Allocation		212.82	85.21	50.00	28.10	12.63
Margin of Safety		24.16	9.83	5.87	3.41	1.68

North Branch Root River (07040008-716) TSS TMDL

Original 2017 TMDL

Table 47. North Branch Root River (07040008-716) TSS TMDL allocations

Root River North Branch AUID 07040008-716 TMDL summary		VHigh	High	Mod	Low	VLow
		tons/day				
TSS Loading Capacity (TMDL)		126.05	38.24	22.29	13.11	7.35
Wasteload Allocation (WLA) Components	Permitted Municipal and Industrial Wastewater Facilities*	1.29	1.29	1.29	1.29	1.29
	Permitted Industrial Stormwater Facilities*	NA	NA	NA	NA	NA
	Construction and Industrial Stormwater	0.11	0.03	0.02	0.01	0.01
	City of Stewartville MS4 (future)	3.04	0.90	0.51	0.28	0.14
	Total WLA	4.44	2.22	1.82	1.59	1.44
Load Allocation		109.00	32.19	18.24	10.21	5.17
Margin of Safety		12.60	3.82	2.23	1.31	0.74

Revised TMDL

Table 47. North Branch Root River (07040008-716) TSS TMDL

Root River North Branch AUID 07040008-716 TMDL summary		VHigh	High	Mod	Low	VLow
		tons/day				
TSS Loading Capacity (TMDL)		126.05	38.24	22.29	13.11	7.35
Wasteload Allocation (WLA) Components	Permitted Municipal and Industrial Wastewater Facilities*	1.59	1.59	1.59	1.59	1.59
	Permitted Industrial Stormwater Facilities*	NA	NA	NA	NA	NA
	Construction and Industrial Stormwater	0.11	0.03	0.02	0.01	0.01
	City of Stewartville MS4 (future)	3.04	0.90	0.51	0.28	0.14
	Total WLA	4.74	2.52	2.12	1.88	1.74
Load Allocation		108.71	31.90	17.94	9.92	4.87
Margin of Safety		12.60	3.82	2.23	1.31	0.74

North Branch Root River (07040008-717) TSS TMDL

Original 2017 TMDL

Table 48. North Branch Root River (07040008-717) TSS TMDL allocations

Root River North Branch AUID 07040008-717 TMDL summary		VHigh	High	Mod	Low	VLow
		tons/day				
TSS Loading Capacity (TMDL)		53.24	16.17	9.42	5.54	3.11
Wasteload Allocation (WLA) Components	Permitted Municipal and Industrial Wastewater Facilities*	1.16	1.16	1.16	1.16	1.16
	Permitted Industrial Stormwater Facilities*	NA	NA	NA	NA	NA
	Construction and Industrial Stormwater	0.048	0.015	0.008	0.005	0.003
	City of Stewartville MS4 (future)	0.068	0.020	0.011	0.006	0.002
	Total WLA	1.28	1.19	1.18	1.17	1.17
Load Allocation		46.64	13.36	7.30	3.82	1.63
Margin of Safety		5.32	1.62	0.94	0.55	0.31

Revised TMDL

Table 48. North Branch Root River (07040008-717) TSS TMDL

Root River North Branch AUID 07040008-717 TMDL summary		VHigh	High	Mod	Low	VLow
		tons/day				
TSS Loading Capacity (TMDL)		53.24	16.17	9.42	5.54	3.11
Wasteload Allocation (WLA) Components	Permitted Municipal and Industrial Wastewater Facilities*	1.44	1.44	1.44	1.44	1.44
	Permitted Industrial Stormwater Facilities*	NA	NA	NA	NA	NA
	Construction and Industrial Stormwater	0.048	0.015	0.008	0.005	0.003
	City of Stewartville MS4 (future)	0.068	0.020	0.011	0.006	0.002
	Total WLA	1.56	1.48	1.46	1.45	1.45
Load Allocation		46.36	13.07	7.02	3.54	1.35
Margin of Safety		5.32	1.62	0.94	0.55	0.31

South Branch Root River (07040008-550) TSS TMDL

Original 2017 TMDL

Table 50. South Branch Root River (07040008-550) TSS TMDL allocations

Root River South Branch AUID 07040008-550 TMDL summary		VHigh	High	Mod	Low	VLow
		tons/day				
TSS Loading Capacity (TMDL)		16.09	7.26	4.49	2.83	1.54
Wasteload Allocation (WLA) Components	Permitted Municipal and Industrial Wastewater Facilities*	0.93	0.93	0.93	0.93	0.93
	Permitted Industrial Stormwater Facilities*	0.02	0.02	0.02	0.02	0.02
	Construction and Industrial Stormwater	0.014	0.007	0.004	0.003	0.001
	Total WLA	0.96	0.96	0.95	0.95	0.95
Load Allocation		13.52	5.58	3.09	1.60	0.44
Margin of Safety		1.61	0.73	0.45	0.28	0.15

Revised TMDL

Table 50. South Branch Root River (07040008-550) TSS TMDL

Root River South Branch AUID 07040008-550 TMDL summary		VHigh	High	Mod	Low	VLow
		tons/day				
TSS Loading Capacity (TMDL)		16.09	7.26	4.49	2.83	1.54
Wasteload Allocation (WLA) Components	Permitted Municipal and Industrial Wastewater Facilities*	1.78	1.78	1.78	1.78	*
	Permitted Industrial Stormwater Facilities*	0.02	0.02	0.02	0.02	*
	Construction and Industrial Stormwater	0.014	0.007	0.004	0.003	*
	Total WLA	1.81	1.81	1.80	1.80	*
Load Allocation		12.67	4.72	2.24	0.75	*
Margin of Safety		1.61	0.73	0.45	0.28	0.15

* The permitted wastewater design flows exceed the stream flow in the indicated flow zone(s). The allocations are expressed as an equation rather than an absolute number: allocation = (flow contribution from a given source) x 65 mg/L (or NPDES/SDS permit concentration).

South Branch Root River (07040008-554) TSS TMDL

Original 2017 TMDL

Table 52. South Branch Root River (07040008-554) TSS TMDL allocations

Root River South Branch AUID 07040008-554 TMDL summary		VHigh	High	Mod	Low	VLow
		tons/day				
TSS Loading Capacity (TMDL)		15.88	5.99	3.79	2.57	1.42
Wasteload Allocation (WLA) Components	Permitted Municipal and Industrial Wastewater Facilities*	0.05	0.05	0.05	0.05	0.05
	Permitted Industrial Stormwater Facilities*	NA	NA	NA	NA	NA
	Construction and Industrial Stormwater	0.0014	0.0005	0.0003	0.0002	0.0001
	Total WLA	0.06	0.06	0.05	0.05	0.05
Load Allocation		14.23	5.33	3.36	2.23	1.23
Margin of Safety		1.59	0.60	0.38	0.26	0.14

Revised TMDL

Table 52. South Branch Root River (07040008-554) TSS TMDL

Root River South Branch AUID 07040008-554 TMDL summary		VHigh	High	Mod	Low	VLow
		tons/day				
TSS Loading Capacity (TMDL)		15.88	5.99	3.79	2.57	1.42
Wasteload Allocation (WLA) Components	Permitted Municipal and Industrial Wastewater Facilities*	0.082	0.082	0.082	0.082	0.082
	Permitted Industrial Stormwater Facilities*	NA	NA	NA	NA	NA
	Construction and Industrial Stormwater	0.0014	0.0005	0.0003	0.0002	0.0001
	Total WLA	0.083	0.083	0.082	0.082	0.082
Load Allocation		14.21	5.31	3.33	2.23	1.20
Margin of Safety		1.59	0.60	0.38	0.26	0.14

South Branch Root River (07040008-555) TSS TMDL

Original 2017 TMDL

Table 53. South Branch Root River (07040008-555) TSS TMDL allocations

Root River South Branch AUID 07040008-555 TMDL summary		VHigh	High	Mod	Low	VLow
		tons/day				
TSS Loading Capacity (TMDL)		7.41	3.23	1.90	1.14	0.60
Wasteload Allocation (WLA) Components	Ostrander WWTP (MN0024449)	0.004	0.004	0.004	0.004	0.004
	Construction and Industrial Stormwater	0.0067	0.0029	0.0017	0.0010	0.0005
	Total WLA	0.011	0.007	0.006	0.005	0.005
Load Allocation		6.66	2.90	1.70	1.02	0.53
Margin of Safety		0.74	0.32	0.19	0.11	0.06

Revised TMDL

Table 53. South Branch Root River (07040008-555) TSS TMDL

Root River South Branch AUID 07040008-555 TMDL summary		VHigh	High	Mod	Low	VLow
		tons/day				
TSS Loading Capacity (TMDL)		7.41	3.23	1.90	1.14	0.60
Wasteload Allocation (WLA) Components	Ostrander WWTP (MN0024449)	0.005	0.005	0.005	0.005	0.005
	Construction and Industrial Stormwater	0.0067	0.0029	0.0017	0.0010	0.0005
	Total WLA	0.012	0.008	0.007	0.006	0.006
Load Allocation		6.66	2.90	1.70	1.02	0.53
Margin of Safety		0.74	0.32	0.19	0.11	0.06

South Branch Root River (07040008-556) TSS TMDL

Original 2017 TMDL

Table 54. South Branch Root River (07040008-556) TSS TMDL allocations

Root River South Branch AUID 07040008-556 TMDL summary		VHigh	High	Mod	Low	VLow
		tons/day				
TSS Loading Capacity (TMDL)		3.84	1.7	0.97	0.59	0.3
Wasteload Allocation (WLA) Components	Ostrander WWTP (MN0024449)	0.004	0.004	0.004	0.004	0.004
	Construction and Industrial Stormwater	0.0035	0.0015	0.0009	0.0005	0.0003
	Total WLA	0.008	0.006	0.005	0.005	0.005
Load Allocation		3.45	1.52	0.87	0.53	0.27
Margin of Safety		0.38	0.17	0.10	0.06	0.03

Revised TMDL

Table 54. South Branch Root River (07040008-556) TSS TMDL

Root River South Branch AUID 07040008-556 TMDL summary		VHigh	High	Mod	Low	VLow
		tons/day				
TSS Loading Capacity (TMDL)		3.84	1.7	0.97	0.59	0.3
Wasteload Allocation (WLA) Components	Ostrander WWTP (MN0024449)	0.005	0.005	0.005	0.005	0.005
	Construction and Industrial Stormwater	0.0035	0.0015	0.0009	0.0005	0.0003
	Total WLA	0.009	0.007	0.006	0.006	0.005
Load Allocation		3.45	1.52	0.86	0.52	0.26
Margin of Safety		0.38	0.17	0.10	0.06	0.03

Middle Branch Root River (07040008-534) *E. coli* TMDL

Original 2017 TMDL

Table 40. Middle Branch Root River (07040008-534) *E. coli* TMDL allocations

Middle Branch Root River AUID 07040008-534 TMDL summary		VHigh	High	Mod	Low	VLow
		Billions of Organisms /day				
<i>E. coli</i> Loading Capacity (TMDL)		3405.76	1350.05	797.85	456.95	221.36
Wasteload Allocation (WLA) Components	Permitted Municipal and Industrial Wastewater Facilities*	19.87	19.87	19.87	19.87	19.87
	Permitted Industrial Stormwater Facilities*	NA	NA	NA	NA	NA
	City of Stewartville MS4 (future)	36.45	14.31	8.36	4.68	2.15
	Total WLA	56.32	34.17	28.22	24.55	22.01
Load Allocation		3008.86	1180.87	689.84	386.70	177.21
Margin of Safety		340.58	135.01	79.79	45.70	22.14

Revised TMDL

Table 40. Middle Branch Root River (07040008-534) *E. coli* TMDL allocations

Middle Branch Root River AUID 07040008-534 TMDL summary		VHigh	High	Mod	Low	VLow
		Billions of Organisms /day				
<i>E. coli</i> Loading Capacity (TMDL)		3405.76	1350.05	797.85	456.95	221.36
Wasteload Allocation (WLA) Components	Permitted Municipal and Industrial Wastewater Facilities*	19.93	19.93	19.93	19.93	19.93
	Permitted Industrial Stormwater Facilities*	NA	NA	NA	NA	NA
	City of Stewartville MS4 (future)	36.45	14.31	8.36	4.68	2.15
	Total WLA	56.38	34.24	28.29	24.61	22.08
Load Allocation		3008.80	1180.80	689.77	386.64	177.14
Margin of Safety		340.58	135.01	79.79	45.70	22.14

Root River (07040008-535) *E. coli* TMDL

Original 2017 TMDL

Table 45. Root River (07040008-535) *E. coli* TMDL allocations

Root River North Branch AUID 07040008-535 TMDL summary		VHigh	High	Mod	Low	VLow
		Billions of Organisms/day				
<i>E. coli</i> Loading Capacity (TMDL)		1873.55	676.00	346.35	177.14	75.49
Wasteload Allocation (WLA) Components	Permitted Municipal and Industrial Wastewater Facilities*	9.42	9.42	9.42	9.42	9.42
	Permitted Industrial Stormwater Facilities*	NA	NA	NA	NA	NA
	City of Stewartville MS4 (future)	43.11	15.55	7.97	4.08	1.74
	Total WLA	52.53	24.97	17.39	13.49	11.15
Load Allocation		1633.67	583.43	294.33	145.93	56.79
Margin of Safety		187.36	67.60	34.64	17.71	7.55

Revised TMDL

Table 45. Root River (07040008-535) *E. coli* TMDL allocations

Root River North Branch AUID 07040008-535 TMDL summary		VHigh	High	Mod	Low	VLow
		Billions of Organisms/day				
<i>E. coli</i> Loading Capacity (TMDL)		1873.55	676.00	346.35	177.14	75.49
Wasteload Allocation (WLA) Components	Permitted Municipal and Industrial Wastewater Facilities*	9.48	9.48	9.48	9.48	9.48
	Permitted Industrial Stormwater Facilities*	NA	NA	NA	NA	NA
	City of Stewartville MS4 (future)	43.11	15.55	7.97	4.08	1.74
	Total WLA	52.59	25.03	17.45	13.56	11.22
Load Allocation		1633.60	583.37	294.26	145.87	56.72
Margin of Safety		187.36	67.60	34.64	17.71	7.55

Rush Creek (07040008-523) *E. coli* TMDL

Original 2017 TMDL

Table 49. Rush Creek (07040008-523) *E. coli* TMDL allocations

Rush Creek AUID 07040008-523 TMDL summary		VHigh	High	Mod	Low	VLow
		Billions of Organisms/day				
<i>E. coli</i> Loading Capacity (TMDL)		398.97	287.83	237.81	200.64	155.14
Wasteload Allocation (WLA) Components	Permitted Municipal and Industrial Wastewater Facilities*	1.31	1.31	1.31	1.31	1.31
	Permitted Industrial Stormwater Facilities*	NA	NA	NA	NA	NA
	Total WLA	1.31	1.31	1.31	1.31	1.31
Load Allocation		357.77	257.74	212.72	179.27	138.32
Margin of Safety		39.90	28.78	23.78	20.06	15.51

Revised TMDL

Table 49. Rush Creek (07040008-523) *E. coli* TMDL allocations

Rush Creek AUID 07040008-523 TMDL summary		VHigh	High	Mod	Low	VLow
		Billions of Organisms/day				
<i>E. coli</i> Loading Capacity (TMDL)		398.97	287.83	237.81	200.64	155.14
Wasteload Allocation (WLA) Components	Permitted Municipal and Industrial Wastewater Facilities*	1.78	1.78	1.78	1.78	1.78
	Permitted Industrial Stormwater Facilities*	NA	NA	NA	NA	NA
	Total WLA	1.78	1.78	1.78	1.78	1.78
Load Allocation		357.29	257.27	212.25	178.80	137.85
Margin of Safety		39.90	28.78	23.78	20.06	15.51