

2019 Modification to Blue Earth Fecal Coliform Total Maximum Daily Load Report

Overview

TMDL Project Name	Fecal Coliform TMDL Assessment for 21 Impaired Streams in the Blue Earth River Basin
Date of EPA TMDL Approval	November 14, 2007
Public Notice Dates	May 6, 2019 through June 5, 2019
MPCA Approval Date for Modification	June 5, 2019
TMDL segment AUID and pollutant which require modification	07020009-501, Blue Earth River, Le Sueur R to MN R, <i>E. coli</i> modification 07020011-501, Le Sueur River; Maple River to Blue Earth River, <i>E. coli</i> modification 07020009-509, Blue Earth River; Rapidan Dam to Le Sueur River, <i>E. coli</i> modification
TMDL Tables in final TMDL document which are being modified	Table 4. 1.1 – MS4 Communities Table 6.2d – Monthly/Daily Fecal Coliform Loading Capacities and Allocations, Blue Earth River; Le Sueur River to Minnesota River Table 7.1d – Monthly Fecal Coliform Loading Capacities and Allocations, Blue Earth River; Rapidan Dam to Le Sueur River Table 7.2d – Monthly Fecal Coliform Loading Capacities and Allocations, Le Sueur River; Maple River to Blue Earth River

What is being changed from the final Total Maximum Daily Load (TMDL) to the modified TMDL?

The Minnesota Pollution Control Agency (MPCA) is making adjustments to stormwater wasteload allocations (WLAs) to account for new regulated-Municipal Separate Storm Sewer Systems (MS4s). There are five new regulated-MS4s within the TMDL project area, Blue Earth County (Permit #MS400276), Eagle Lake City (Permit #MS400284), Mankato Township (Permit #MS400297), Skyline City (Permit #MS400292), and South Bend Township (Permit #MS400299) (Table 1; Table 2; Figures 1-4). There is also a new 2010 Census Defined Urbanized Area in this TMDL project area that includes Minnesota Department of Transportation (MnDOT) Outstate District right-of-ways (ROWs) (Permit #MS400180). When the TMDLs were approved on November 14, 2007, Blue Earth County, Eagle Lake City, Mankato Township, Skyline City, South Bend Township, and MnDOT Outstate District ROWs were unregulated and the areas associated with these cities, counties, townships, and MnDOT were assigned to the load allocation (LA). Now that these areas are regulated-MS4s, the LA assigned to them is being transferred to the MS4 WLA. The adjustments will not change the approved overall total loading capacities of the TMDLs.

Table 1. Current and new regulated-MS4s within the TMDL subwatersheds.

AUID	Reach Name	Current MS4s included in the TMDL	New MS4s	Impairment
07020009-501	Blue Earth River, Le Sueur R to MN R	Mankato City Fairmont City Waseca City	Blue Earth County Eagle Lake City Mankato Township Skyline City South Bend Township MnDOT Outstate District	Fecal coliform
07020011-501	Le Sueur River; Maple R to Blue Earth R	Mankato City Waseca City	Blue Earth County Eagle Lake City Mankato Township South Bend Township MnDOT Outstate District	Fecal coliform
07020009-509	Blue Earth River; Rapidan Dam to Le Sueur R	Fairmont City	Blue Earth County South Bend Township MnDOT Outstate	Fecal coliform

Table 2. Regulated-MS4s and MS4 Permit Numbers

Regulated MS4	MS4 Permit #
Blue Earth County	MS400276
Eagle Lake City	MS400284
Fairmont City	MS400239
Mankato City	MS400226
Mankato Township	MS400297
MnDOT Outstate	MS400180
Skyline City	MS400292
South Bend Township	MS400299
Waseca City	MS400258

Explanation of modifications:

The MS4s above were not regulated under the MS4 permit when the TMDL was completed in 2007. The MS4s listed above are now regulated-MS4s and the permitted area needs to be accounted for in the TMDL WLAs for the TMDL segments listed above. The MPCA is proposing the following modifications:

Blue Earth River; Le Sueur River to Minnesota River, AUID 07020009-501

The MPCA is shifting between 0.17 and 3.88 trillions of organisms/day depending on flow zone of *Escherichia Coli* (*E. coli*) from the LA to the categorical MS4 WLA to include Blue Earth County MS4, Eagle Lake City MS4, Mankato Township MS4, Skyline City MS4, and South Bend Township MS4. We are shifting between 0.002 and 0.04 trillions of organisms/day depending on flow zone from the LA to the MS4 WLA for MnDOT Outstate District (Modified Table 6.2d).

Le Sueur River; Maple River to Blue Earth River, AUID 07020011-501

We are shifting between 0.09 and 2.91 trillions of organisms/day depending on flow zone of *E. coli* from the LA to the categorical MS4 WLA to include Blue Earth County MS4, Eagle Lake City MS4, Mankato Township MS4, South Bend Township MS4. We are shifting between .00004 and 0.0013 trillions of organisms/day depending on flow zone from the LA to the MS4 WLA for MnDOT Outstate District MS4 (Modified Table 7.2d).

Blue Earth River; Rapidan Dam to Le Sueur River, AUID 07020009-509

We are shifting between 0.01 and 1.04 trillions of organisms/day depending on flow zone of *E. coli* from the LA to the categorical MS4 WLA to include South Bend Township MS4 and Blue Earth County MS4. We are shifting between 0.000003 and 0.0037 trillions of organisms/day depending on flow zone from the LA to the MS4 WLA for MnDOT Outstate District MS4 (Modified Table 7.1d).

Maps

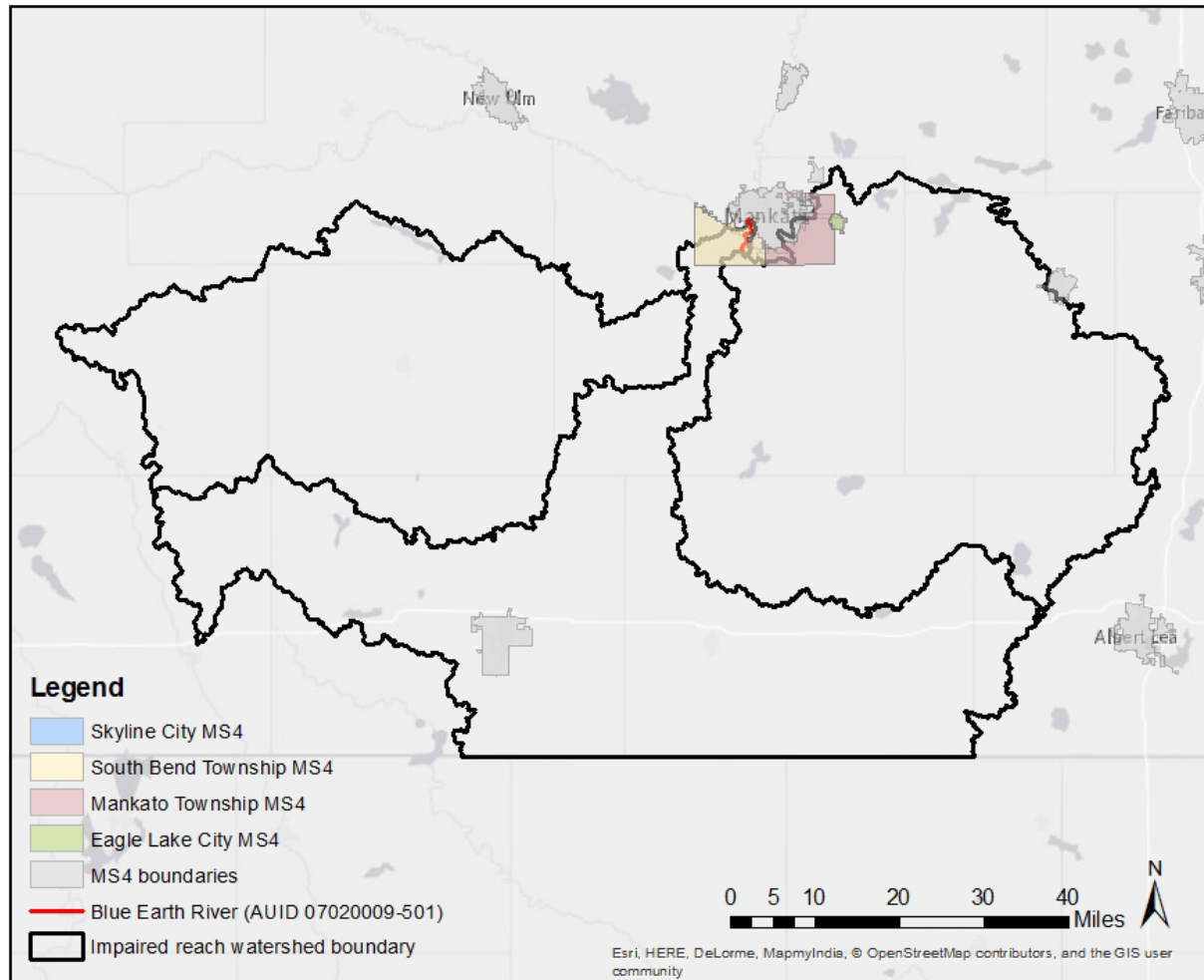


Figure 1. Impaired bacteria reach Blue Earth River (AUID 07020009-501) TMDL Subwatershed and regulated MS4 areas.

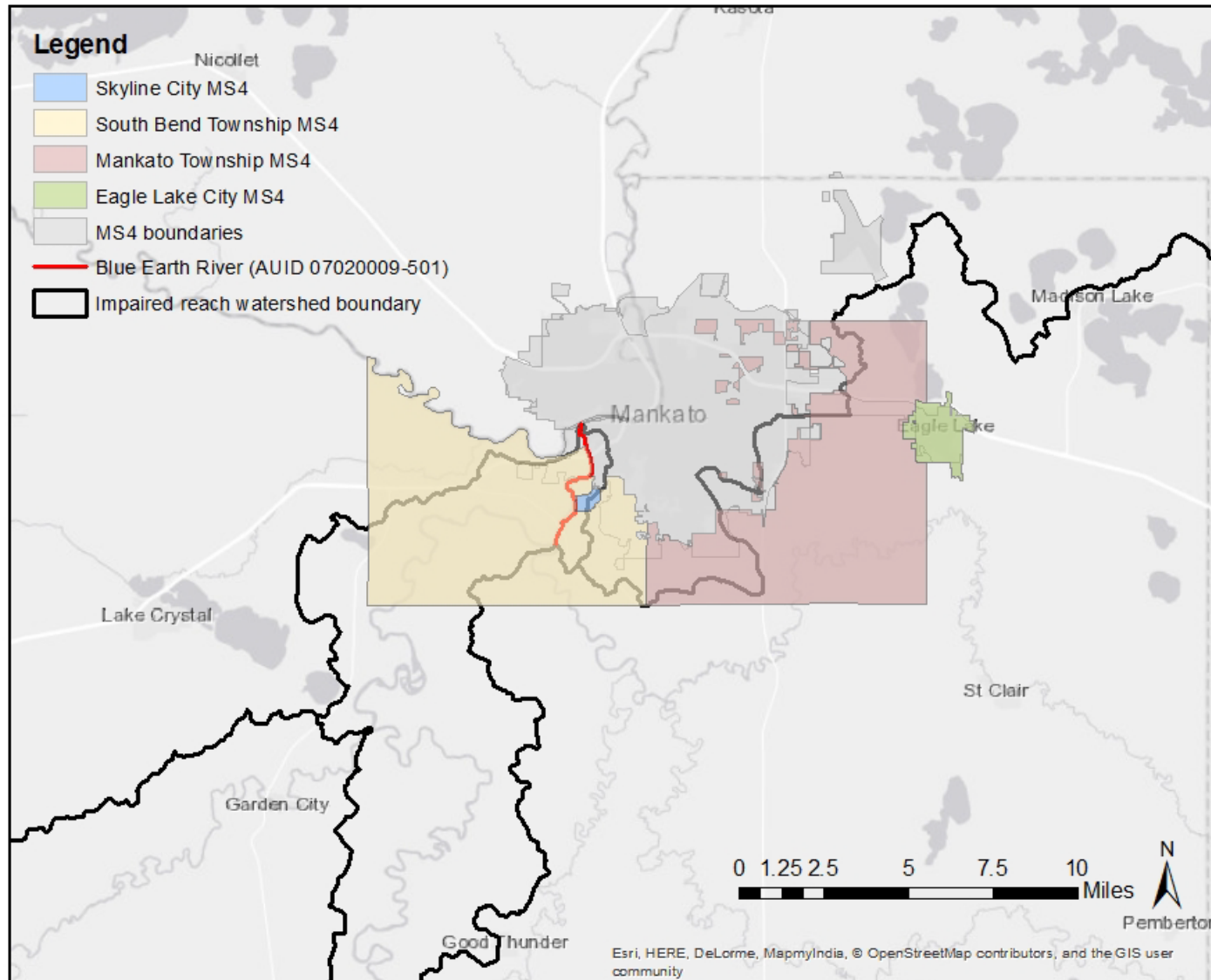


Figure 2. Impaired bacteria reach Blue Earth River (AUID 07020009-501) TMDL Subwatershed and regulated MS4 areas.

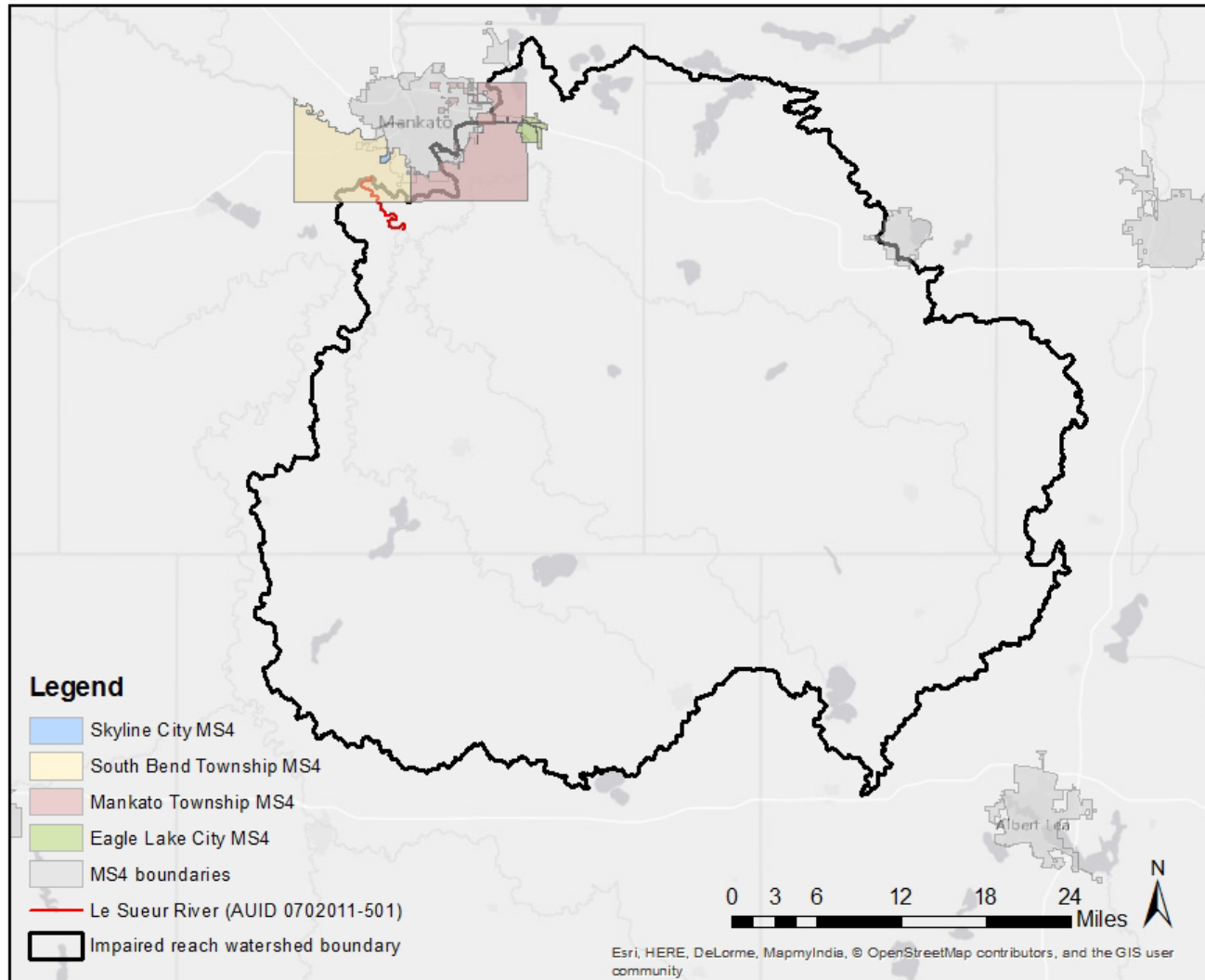


Figure 3. Impaired bacteria reach Le Sueur River (AUID 0702011-501) TMDL Subwatershed and regulated MS4 areas.

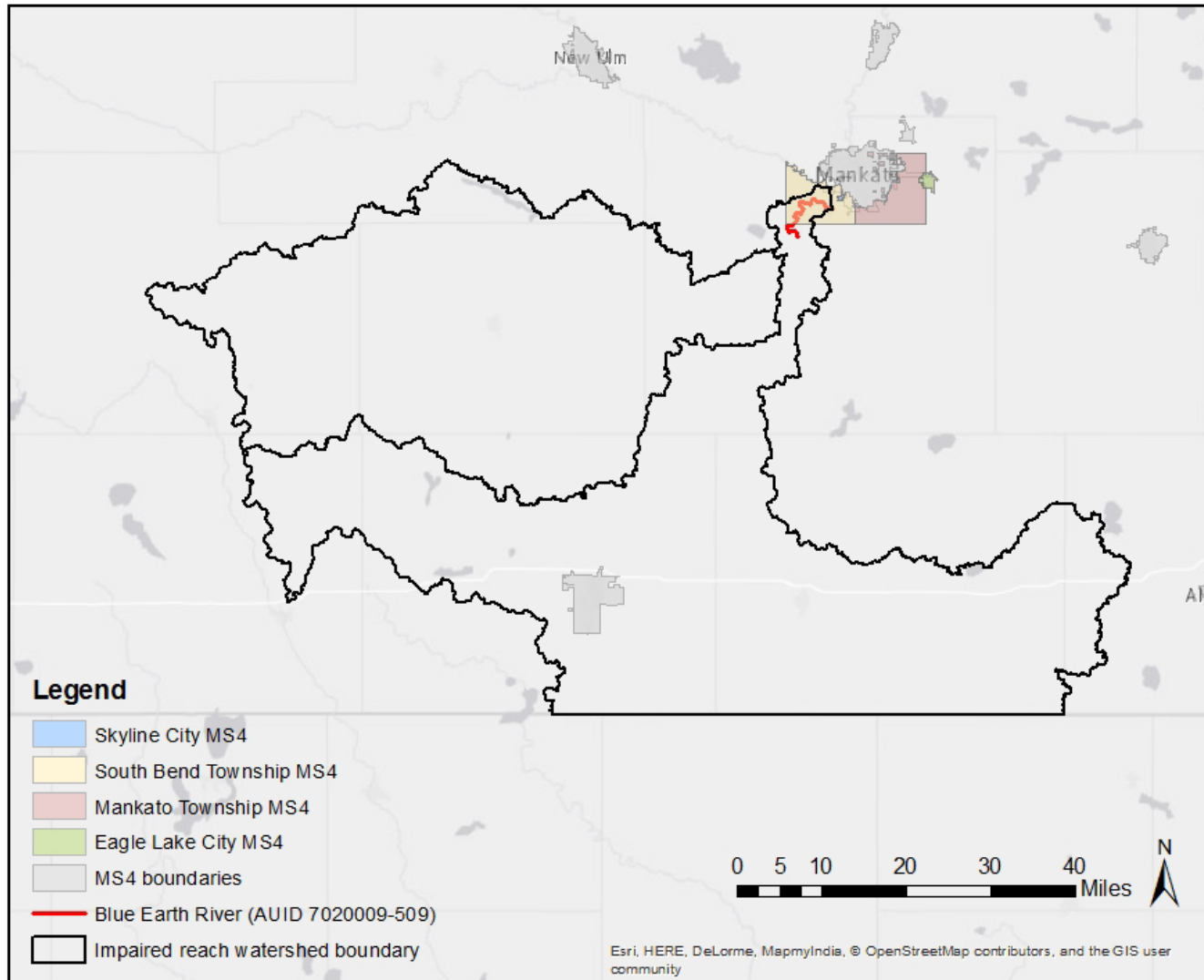


Figure 4. Impaired bacteria reach Blue Earth River (AUID 07020009-509) TMDL Subwatershed and regulated MS4 areas

Tables

Original TMDL Table 4.1.1 - MS4 Communities (pg. 25 of TMDL report)

MS4 Community	Acres in Basin	% of Basin	Estimated Population in Basin
Fairmont City	10,573	0.47%	10,889
Mankato City	921	0.04%	3,560
Waseca City	622	0.03%	2,274

Modified TMDL Table 4.1.1 - MS4 Communities

MS4 Community	Area in AUID, acres		
	AUID 07020009-501	AUID 07020009-509	AUID 07020011-501
Fairmont City *	10,783	10,783	--
Mankato City *	1,523	--	1,190
Waseca City *	603	--	603
Eagle Lake City	964	--	964
Mankato Township	10,966	--	10,966
Skyline City	79	--	--
South Bend Township	8,296	5,530	1,593
Blue Earth County	<i>see note **</i>		
MnDOT Outstate District	199	6.9	156

* For the three AUIDs treated in this update, the original TMDL included WLAs for one or more of the cities of Fairmont, Mankato, and Waseca. The relevant area in each AUID for these MS4s has been re-determined in this update for current conditions. Consequently, the areas above differ from those in Table 4.1.4 of the original TMDL. All other MS4s listed above became newly regulated after completion of the original TMDL.

** The MS4 areas for Blue Earth County (road or highway right-of-ways) are included in the municipal MS4 areas.

Original TMDL Table 6.2d – Monthly/Daily Fecal Coliform Loading Capacities and Allocations, Blue Earth River; Le Sueur R to Minnesota R, AUD: 07020009-501 (pg. 66 of TMDL report).

Drainage Area (square miles): 3,540											
USGS gage used to develop flow zones and loading capacities:											
Blue Earth River, near Rapidan and Le Sueur River, near Rapidan											
% MS4 Urban: 0.53% Total WWTF Design Flow (mgd): 47.57	Flow Zone										
	High		Moist		Mid		Dry		Low		
	Monthly	Daily	Monthly	Daily	Monthly	Daily	Monthly	Daily	Monthly	Daily	
	Values expressed as trillion organisms per month/day										
TOTAL MONTHLY/DAILY LOADING CAPACITY	1595.19	531.73	682.16	227.39	330.37	110.12	107.54	35.85	15.83	5.28	
Wasteload Allocation											
Permitted Wastewater Treatment Facilities	10.80	3.60	10.80	3.60	10.80	3.60	10.80	3.60	*	*	
Communities Subject to MS4 NPDES Requirements	6.69	2.23	2.77	0.92	1.25	0.42	0.28	0.09	*	*	
Livestock Facilities Requiring NPDES Permits	0	0	0	0	0	0	0	0	0	0	
"Straight Pipe" Septic Systems	0	0	0	0	0	0	0	0	0	0	
Load Allocation	1244.29	414.76	514.78	171.59	232.01	77.34	52.74	17.58	*	*	
Margin of Safety	333.40	111.13	153.81	51.27	86.31	28.77	43.71	14.57	na	na	
	Values expressed as trillion organisms per month/day										
TOTAL MONTHLY/DAILY LOADING CAPACITY	100%		100%		100%		100%		100%		
Wasteload Allocation											
Permitted Wastewater Treatment Facilities	0.7%		1.6%		3.3%		10.0%		*		
Communities Subject to MS4 NPDES Requirements	0.4%		0.4%		0.4%		0.3%		*		
Livestock Facilities Requiring NPDES Permits	0%		0%		0%		0%		0%		
"Straight Pipe" Septic Systems	0%		0%		0%		0%		0%		
Load Allocation	78.0%		75.5%		70.2%		49.0%		*		
Margin of Safety	20.9%		22.5%		26.1%		40.6%		na		

Note – WWTF design/discharge flow exceeded low flow allocation = (flow contribution from a given source) X (200 ofgs.100ml.), see section 5.0 for details.

Modified TMDL Table 6.2d – Monthly/Daily Fecal Coliform Loading Capacities and Allocations, Blue Earth River, AUID: 07020009-501, (modifications highlighted in yellow).

Drainage Area (square miles): 3,540										
USGS gage used to develop flow zones and loading capacities:										
Blue Earth River, near Rapidan and Le Sueur River, near Rapidan										
% MS4 Urban:	1.47%	Flow Zone								
Total WWTF Design Flow (mgd): 47.57	High		Moist		Mid		Dry		Low	
	Monthly	Daily	Monthly	Daily	Monthly	Daily	Monthly	Daily	Monthly	Daily
	Values expressed as trillion organisms per month/day									
TOTAL MONTHLY/DAILY LOADING CAPACITY	1595.19	531.73	682.16	227.39	330.37	110.12	107.54	35.85	15.83	5.28
Wasteload Allocation										
Permitted Wastewater Treatment Facilities	10.8	3.6	10.8	3.6	10.8	3.6	10.8	3.6	*	*
MNDOT Outstate District MS4	0.11	0.04	0.05	0.02	0.02	0.01	0.005	0.002	*	*
Communities Subject to MS4 NPDES Requirements	18.34	6.11	7.59	2.53	3.42	1.14	0.78	0.26	*	*
Livestock Facilities Requiring NPDES Permits	0	0	0	0	0	0	0	0	0	0
“Straight Pipe” Septic Systems	0	0	0	0	0	0	0	0	0	0
Load Allocation	1232.53	410.84	509.92	169.97	229.82	76.61	52.24	17.41	*	*
Margin of Safety	333.4	111.13	153.81	51.27	86.31	28.77	43.71	14.57	na	na
	Values expressed as percent of total monthly/daily loading capacity									
TOTAL MONTHLY/DAILY LOADING CAPACITY	100%		100%		100%		100%		100%	
Wasteload Allocation										
Permitted Wastewater Treatment Facilities	0.70%		1.60%		3.30%		10.00%		*	
MNDOT Outstate District MS4	0.007%		0.007%		0.006%		0.004%		*	
Communities Subject to MS4 NPDES Requirements	1.1%		1.1%		1.0%		0.7%		*	
Livestock Facilities Requiring NPDES Permits	0%		0%		0%		0%		0%	
“Straight Pipe” Septic Systems	0%		0%		0%		0%		0%	
Load Allocation	77.3%		74.8%		69.6%		48.6%		*	
Margin of Safety	20.90%		22.50%		26.10%		40.60%		na	

* Note – WWTF design/discharge flow exceeded low flow. Allocation = (flow contribution from a given source) X (200 orgs/100 mL), see section 5.0 for details.

Original TMDL Table 7.2d – Monthly/Daily Fecal Coliform Loading Capacities and Allocations, Le Sueur River; Maple River to Blue Earth River, AUID 0702011-501 (pg. 192 of TMDL report).

Drainage Area (square miles): 1,112											
USGS gage used to develop flow zones and loading capacities:											
Blue Earth River, near Rapidan											
% MS4 Urban: 0.17% Total WWTF Design Flow (mgd): 24.26	Flow Zone										
	High		Moist		Mid		Dry		Low		
	Monthly	Daily	Monthly	Daily	Monthly	Daily	Monthly	Daily	Monthly	Daily	
	Values expressed as trillion organisms per month/day										
TOTAL MONTHLY/DAILY LOADING CAPACITY	521.08	173.69	241.35	80.45	118.10	39.37	29.93	9.98	4.44	1.48	
Wasteload Allocation											
Permitted Wastewater Treatment Facilities	5.51	1.84	5.51	1.84	5.51	1.84	5.51	1.84	*	*	
Communities Subject to MS4 NPDES Requirements	0.71	0.24	0.31	0.10	0.13	0.04	0.02	0.01	*	*	
Livestock Facilities Requiring NPDES Permits	0	0	0	0	0	0	0	0	0	0	
"Straight Pipe" Septic Systems	0	0	0	0	0	0	0	0	0	0	
Load Allocation	411.33	137.11	181.55	60.52	77.01	25.67	12.41	4.14	*	*	
Margin of Safety	103.54	34.51	53.98	17.99	35.44	11.81	11.99	4.00	na	na	
	Values expressed as trillion organisms per month/day										
TOTAL MONTHLY/DAILY LOADING CAPACITY	100%		100%		100%		100%		100%		
Wasteload Allocation											
Permitted Wastewater Treatment Facilities	1.1%		2.3%		4.7%		18.4%		*		
Communities Subject to MS4 NPDES Requirements	0.1%		0.1%		0.1%		0.1%		*		
Livestock Facilities Requiring NPDES Permits	0%		0%		0%		0%		0%		
"Straight Pipe" Septic Systems	0%		0%		0%		0%		0%		
Load Allocation	78.9%		75.2%		65.2%		41.5%		*		
Margin of Safety	19.9%		22.4%		30.0%		40.0%		na		

Note – WWTF design/discharge flow exceeded low flow allocation = (flow contribution from a given source) X (200 ofgs.100ml.), see section 5.0 for details.

Modified TMDL Table 7.2d – Monthly/Daily Fecal Coliform Loading Capacities and Allocations, Le Sueur River (AUID 0702011-501)
(modifications highlighted in yellow).

Drainage Area (square miles):		1,112									
USGS gage used to develop flow zones and loading capacities:											
Blue Earth River, near Rapidan											
% MS4 Urban:	2.17%	Flow Zone									
Total WWTF Design Flow (mgd):	24.26	High		Moist		Mid		Dry		Low	
		Monthly	Daily	Monthly	Daily	Monthly	Daily	Monthly	Daily	Monthly	Daily
		Values expressed as trillion organisms per month/day									
TOTAL MONTHLY/DAILY LOADING CAPACITY		521.08	173.69	241.35	80.45	118.1	39.37	29.93	9.98	4.44	1.48
Wasteload Allocation											
Permitted Wastewater Treatment Facilities		5.51	1.84	5.51	1.84	5.51	1.84	5.51	1.84	*	*
MNDOT Outstate District MS4		0.0040	0.0013	0.0018	0.00058	0.00074	0.00025	0.00012	0.00004	*	*
Communities Subject to MS4 NPDES Requirements		9.44	3.15	4.17	1.39	1.77	0.59	0.28	0.10	*	*
Livestock Facilities Requiring NPDES Permits		0	0	0	0	0	0	0	0	0	0
“Straight Pipe” Septic Systems		0	0	0	0	0	0	0	0	0	0
Load Allocation		402.59	134.20	177.69	59.23	75.37	25.12	12.14	4.05	*	*
Margin of Safety		103.54	34.51	53.98	17.99	35.44	11.81	11.99	4	na	na
		Values expressed as percent of total monthly/daily loading capacity									
TOTAL MONTHLY/DAILY LOADING CAPACITY		100%		100%		100%		100%		100%	
Wasteload Allocation											
Permitted Wastewater Treatment Facilities		1.1%		2.3%		4.7%		18.4%		*	
MNDOT Outstate District MS4		0.0%		0.0%		0.0%		0.0%		*	
Communities Subject to MS4 NPDES Requirements		1.8%		1.7%		1.5%		1.0%		*	
Livestock Facilities Requiring NPDES Permits		0.0%		0.0%		0.0%		0.0%		0%	
“Straight Pipe” Septic Systems		0.0%		0.0%		0.0%		0.0%		0%	
Load Allocation		77.3%		73.6%		63.8%		40.6%		*	
Margin of Safety		19.9%		22.4%		30.0%		40.0%		na	

* Note – WWTF design/discharge flow exceeded low flow. Allocation = (flow contribution from a given source) X (200 orgs/100 mL), see section 5.0 for details.

Original TMDL Table 7.1d – Monthly/Daily Fecal Coliform Loading Capacities and Allocations, Blue Earth River; Rapidan Dam to Le Sueur R, AUD: 07020009-509 (pg. 184 of TMDL report).

Drainage Area (square miles): 2.427											
USGS gage used to develop flow zones and loading capacities:											
Blue Earth River, near Rapidan											
% MS4 Urban: 0.68% Total WWTF Design Flow (mgd): 23.31	Flow Zone										
	High		Moist		Mid		Dry		Low		
	Monthly	Daily	Monthly	Daily	Monthly	Daily	Monthly	Daily	Monthly	Daily	
	Values expressed as trillion organisms per month/day										
TOTAL MONTHLY/DAILY LOADING CAPACITY	1074.11	358.04	440.81	146.94	212.27	70.76	77.61	25.87	11.39	3.80	
Wasteload Allocation											
Permitted Wastewater Treatment Facilities	5.29	1.76	5.29	1.76	5.29	1.76	5.29	1.76	5.29	1.76	
Communities Subject to MS4 NPDES Requirements	5.71	1.90	2.28	0.76	1.06	0.35	0.28	0.09	0.01	0.00	
Livestock Facilities Requiring NPDES Permits	0	0	0	0	0	0	0	0	0	0	
"Straight Pipe" Septic Systems	0	0	0	0	0	0	0	0	0	0	
Load Allocation	833.24	277.75	333.40	111.13	155.04	51.68	40.31	13.44	2.01	0.67	
Margin of Safety	229.86	76.62	99.83	33.28	50.87	16.96	31.72	10.57	4.08	1.36	
	Values expressed as trillion organisms per month/day										
TOTAL MONTHLY/DAILY LOADING CAPACITY	100%		100%		100%		100%		100%		
Wasteload Allocation											
Permitted Wastewater Treatment Facilities	0.5%		1.2%		2.5%		6.8%		46.5%		
Communities Subject to MS4 NPDES Requirements	0.5%		0.5%		0.5%		0.4%		0.1%		
Livestock Facilities Requiring NPDES Permits	0%		0%		0%		0%		0%		
"Straight Pipe" Septic Systems	0%		0%		0%		0%		0%		
Load Allocation	77.6%		75.6%		73.0%		51.9%		17.6%		
Margin of Safety	21.4%		22.6%		24.0%		40.9%		35.8%		

Modified TMDL Table 7.1d – Monthly/Daily Fecal Coliform Loading Capacities and Allocations, Blue Earth River; Rapidan Dam to Le Sueur R, AUID: 07020009-509, (modifications highlighted in yellow).

Drainage Area (square miles): 2,427										
USGS gage used to develop flow zones and loading capacities:										
Blue Earth River, near Rapidan										
% MS4 Urban:	1.05%	Flow Zone								
Total WWTF Design Flow (mgd): 23.31	High		Moist		Mid		Dry		Low	
	Monthly	Daily	Monthly	Daily	Monthly	Daily	Monthly	Daily	Monthly	Daily
	Values expressed as trillion organisms per month/day									
TOTAL MONTHLY/DAILY LOADING CAPACITY	1074.11	358.04	440.81	146.94	212.27	70.76	77.61	25.87	11.39	3.8
Wasteload Allocation										
Permitted Wastewater Treatment Facilities	5.29	1.76	5.29	1.76	5.29	1.76	5.29	1.76	5.29	1.76
MNDOT Outstate District MS4	0.0037	0.0012	0.0015	0.0005	0.0007	0.0002	0.0002	0.0001	0.000009	0.000003
Communities Subject to MS4 NPDES Requirements	8.81	2.94	3.53	1.18	1.64	0.55	0.43	0.14	0.02	0.01
Livestock Facilities Requiring NPDES Permits	0	0	0	0	0	0	0	0	0	0
“Straight Pipe” Septic Systems	0	0	0	0	0	0	0	0	0	0
Load Allocation	830.14	276.71	332.15	110.71	154.46	51.48	40.16	13.39	2.00	0.66
Margin of Safety	229.86	76.62	99.83	33.28	50.87	16.96	31.72	10.57	4.08	1.36
	Values expressed as percent of total monthly/daily loading capacity									
TOTAL MONTHLY/DAILY LOADING CAPACITY	100%		100%		100%		100%		100%	
Wasteload Allocation										
Permitted Wastewater Treatment Facilities	0.5%		1.2%		2.5%		6.8%		46.5%	
MNDOT Outstate District MS4	0.0003%		0.0003%		0.0003%		0.0002%		0.0001%	
Communities Subject to MS4 NPDES Requirements	0.8%		0.8%		0.8%		0.5%		0.2%	
Livestock Facilities Requiring NPDES Permits	0%		0%		0%		0%		0%	
“Straight Pipe” Septic Systems	0%		0%		0%		0%		0%	
Load Allocation	77.3%		75.4%		72.8%		51.8%		17.5%	
Margin of Safety	21.4%		22.6%		24.0%		40.9%		35.8%	

Implementation

Given the modification described, are there any changes to Stormwater Pollution Prevention Plan (SWPPP) to account for the modified WLAs?

The MS4s listed above will be required to submit an updated SWPPP when the new MS4 permit becomes effective in late 2019. At that time, the MS4s listed above will be required to account for the *E. coli* impaired reaches above.

Will the SWPPPs be updated to include the new information included in the modification? If yes, when will the SWPPPs be updated?

The SWPPPs will be updated to include the new information in the modification when the new MS4 permit becomes effective in late 2019.