

Donovan Lake TMDL Revision 2024 (revised 2015 TMDL)

Abbreviations

DNR	Minnesota Department of Natural Resources
EPA	U.S. Environmental Protection Agency
lb/day	pounds per day
µg/L	micrograms per liter
LA	load allocation
MnDOT	Minnesota Department of Transportation
MOS	margin of safety
MPCA	Minnesota Pollution Control Agency
MS4	municipal separate storm sewer system
TMDL	total maximum daily load
TP	total phosphorus
USGS	U.S. Geological Survey
WLA	wasteload allocation

Overview

TMDL report name (original)	Mississippi River (St. Cloud) Watershed Total Maximum Daily Load
Date of original EPA TMDL Approval	May 14, 2015
Public notice date for original TMDL	October 13, 2014 – November 12, 2014
Public notice date for TMDL revision	May 13, 2024 – June 12, 2024
EPA approval date for revision	August 14, 2024
TMDL water body ID, impairment, and pollutant that require revision	Donovan Lake (05-0004-02), aquatic recreation nutrient/eutrophication biological indicators impairment, phosphorus TMDL
Summary of TMDL revisions	The TMDL revisions are allocation transfers; the loading capacity did not change. Donovan Lake drainage area was corrected based on information provided from City of St. Cloud and Benton County to be 1,017.81 acres. Original lake response model and TMDL calculations updated with corrected areas,

	MPCA’s preferred approach to MS4 WLAs, and 2020 U.S. Census information: • WLAs for Benton County and MnDOT removed based on new watershed boundary and the 2020 Census urban areas with populations over 50,000. • WLAs calculated based on the entire MS4 jurisdictional area within the revised TMDL subwatershed, not just developed areas.
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Issue statements

The following issues are addressed with this TMDL revision:

1. Incorrect subwatershed

a. Approximately 17 acres of St. Cloud City MS4 area were incorrectly excluded from the TMDL subwatershed for Donovan Lake.

The TMDL baseline year for Donovan Lake is 2006. A development was added within these 17 acres in 2005. Stormwater runoff from the 2005 development is treated by detention stormwater ponds before ultimately draining to Donovan Lake. The TMDL incorrectly states that the ponds are infiltration ponds, and the ponds were excluded from the TMDL subwatershed.

b. Approximately 81 acres of Benton County, MnDOT, and Minden Township area were incorrectly included in the TMDL subwatershed for Donovan Lake.

Based on drainage information provided by Benton County, it was determined that the right of ways to CSAH 80 and the area to the west of CSAH 80 in the original TMDL subwatershed do not drain to Donovan Lake. In addition, more recent 2020 Census defined urbanized areas have been released.

2. Changes to regulated areas and MPCA’s WLA process in the development of the original TMDL.

In addition to the above issues, there have been several changes to MPCA’s preferred approach to calculating MS4 WLAs since the development of the original TMDL. There have also been legislative changes that affected MS4 regulated areas.

MPCA resolutions

The following actions were taken by MPCA to resolve the issues with the original TMDL.

1. Analyze and revise the TMDL subwatershed

A comparison of drainage area delineations to Donovan Lake is provided in Figure 1. The pink shaded areas on Figure 1 represent the 17 acres that were incorrectly omitted from the original TMDL. The light

green shaded area represents the 81 acres of Benton County and Minden Township that were incorrectly included in the original TMDL. The revised TMDL subwatershed for Donovan Lake is provided in Figure 2.

The revised TMDL subwatershed area was updated in the lake response model used to develop the original Donovan Lake TMDL. This update did not result in a meaningful change to the modeled existing loading to Donovan Lake because small load changes did not change the lake model inputs. Therefore, the loading capacity did not change.

Figure 1. Analysis of drainage area to Donovan Lake. Original TMDL report used DNR catchments and USGS Stream Stats to determine the TMDL subwatershed for Donovan Lake.

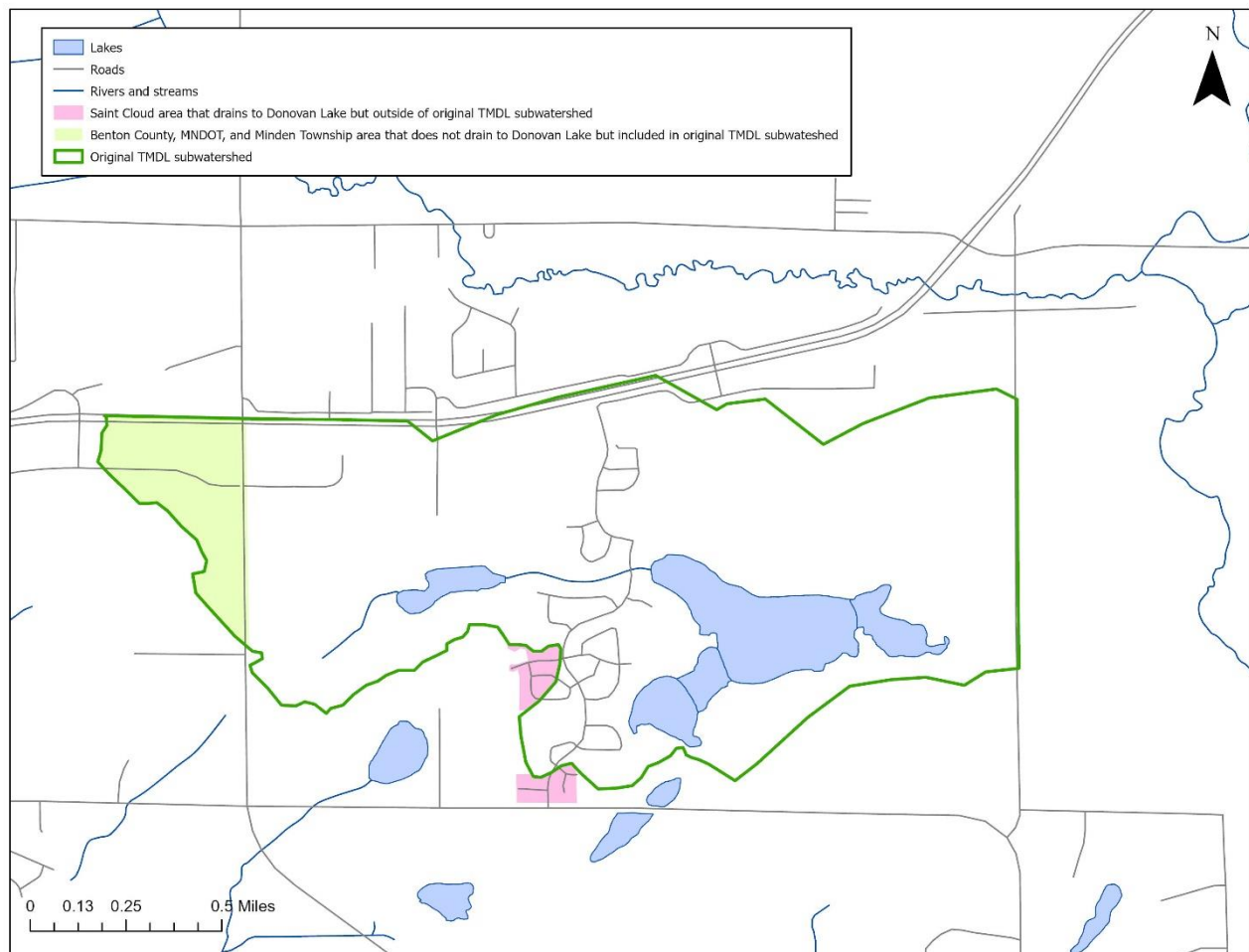
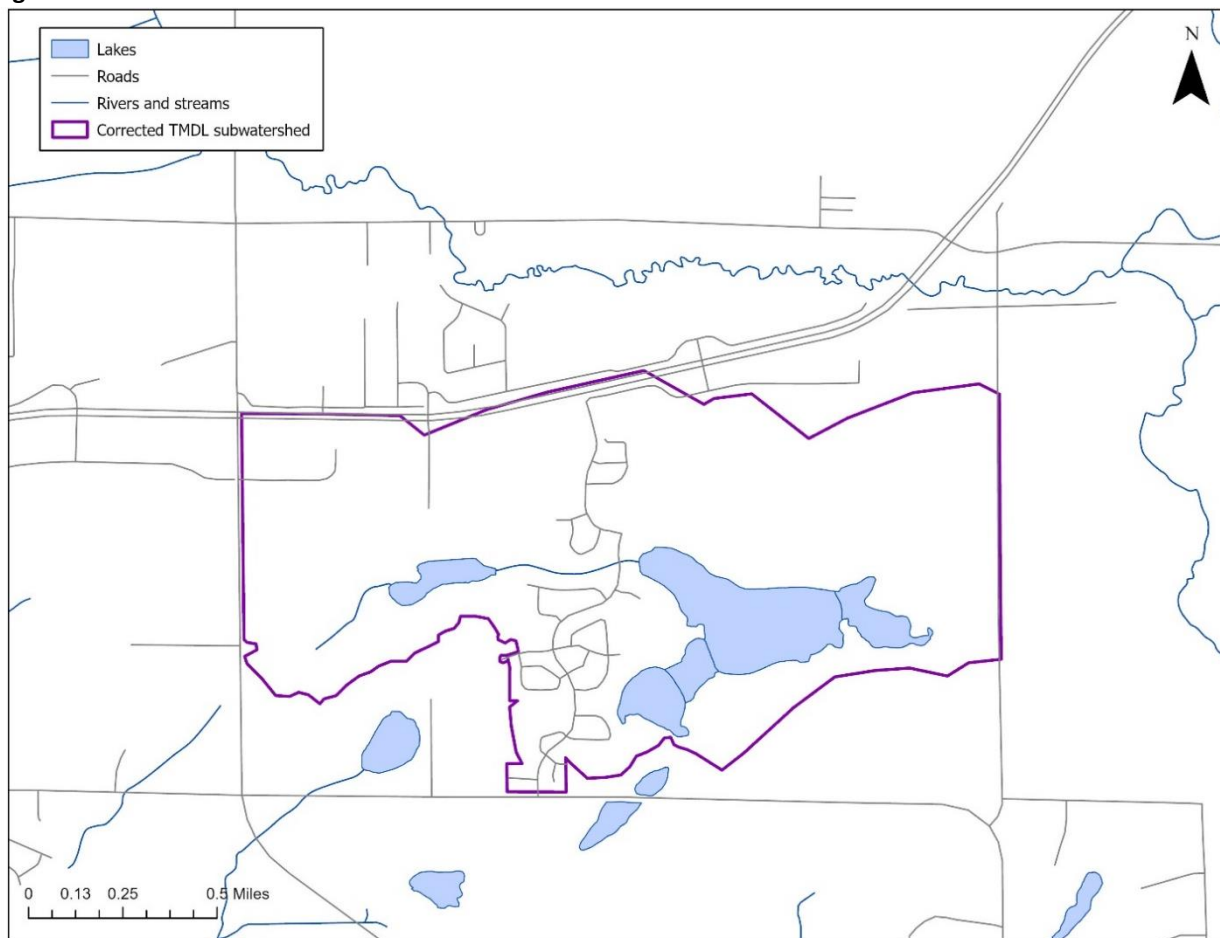


Figure 2. Corrected TMDL subwatershed for Donovan Lake.



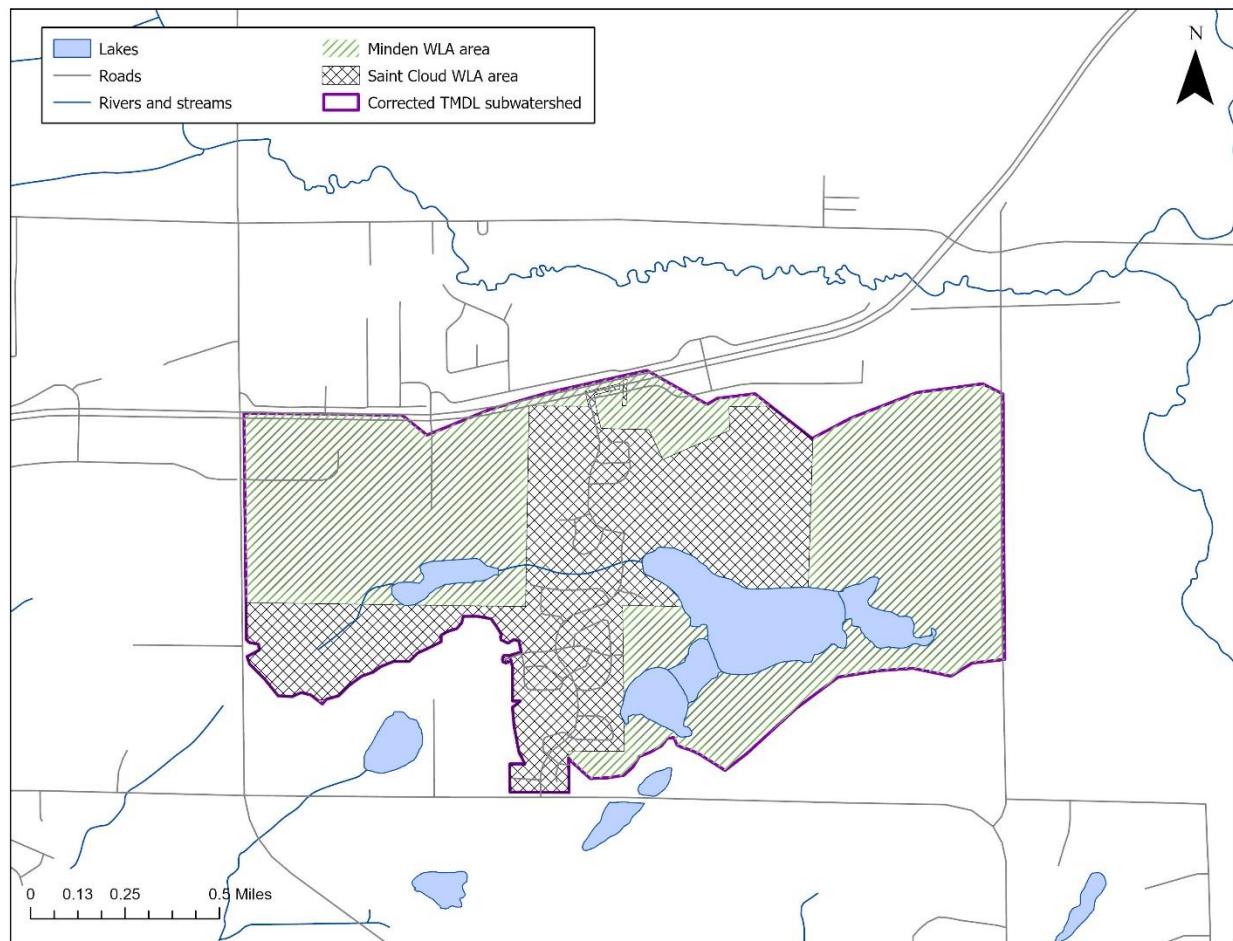
2. Update TMDL to account for changes in regulated area and MPCA's preferred approach to calculating MS4 WLAs

Several updates to the MPCA's preferred approach to calculating MS4 WLAs were included in the Donovan Lake TMDL revision. Areas used for WLA calculations for Minden Township and City of St. Cloud MS4s are mapped in Figure 3.

- WLAs assigned to city and township MS4s in the revised TMDL are calculated based on their jurisdictional area located within the drainage area to Donovan Lake. The original TMDL approximated the regulated MS4 based on areas with developed land covers. It is now common practice for the MPCA to assign a WLA to the entire jurisdictional area of a city or township MS4 permittee located within the drainage area to an impaired water. Using the entire city or township boundary acknowledges that future stormwater conveyance within the boundary will be MS4-regulated. This practice reduces the need for WLA transfers and other updates when land cover changes and provides more flexibility on where an MS4 permittee can implement best management practices for compliance with their permit.
- The 2019 Legislation changed the regulated area for Minden Township MS4. Previously, the township's stormwater conveyance was regulated throughout the entire jurisdiction. Based on

the legislative change, Minden Township MS4 regulated area now consists of stormwater conveyance within the census defined urban area with a population of at least 50,000, and “other platted areas.” However, to minimize the need for future MS4 WLA revisions, the entire jurisdictional area was used to calculate Minden Township’s WLA. This approach acknowledges that stormwater conveyance within the boundary could become MS4-regulated based on changes to the urban area and platted areas. For compliance purposes, best management practices and associated reductions should be reported within the areas defined by the 2019 Legislation.

Figure 3. Areas used for Minden Township and City of St. Cloud WLAs.



Revised Donovan Lake TMDL summary

Acres used to calculate WLAs are provided in Table 1. The entire Donovan Lake Watershed is accounted for in the WLAs; the LAs are assigned to sources other than watershed runoff. The revised TMDL summary for Donovan Lake is provided in Table 2; the original TMDL summary table for Donovan Lake TMDL is provided in Table 3.

Table 1. Areas used for WLA calculation in TMDL revision.

Name	Area (acres)
Corrected TMDL subwatershed	1,017.81
Minden Township	594.33 (excluding surface area of Donovan Lake)
St. Cloud City	369.48

Table 2. Revised Donovan Lake (05-0004-02) phosphorus TMDL summary.

- Listing year: 2010
- Numeric standard used to calculate TMDL: 60 µg/L TP
- Baseline year: 2006
- TMDL and allocations apply Jun–Sep

TMDL Parameter		TMDL TP Load ^a	
		lb/day	lb/yr
WLA ^b	Construction stormwater (MNR100001)	0.0021	0.76
	St. Cloud City MS4 (MS400052)	0.079	29
	Minden Township MS4 (MS400147)	0.13	46
Load allocation (atmospheric, internal, and groundwater)		0.15	53
MOS		0.039	14
Loading Capacity		0.39	143
Existing Load		0.96	352
Percent Reduction		63%	

- TMDL TP loads are rounded to two significant digits.
- This WLA is based on the entire jurisdictional area for Minden Township that lies within the Donovan Lake drainage area. MS4 regulated area at the time of this TMDL revision 98.09 acres in Minden Township (based on 2019 Legislative changes) and 369.48 acres in Saint Cloud

Table 3. Original Donovan Lake (05-0004-02) phosphorus TMDL summary.

Total Phosphorus	TMDL lb/day	TMDL lb/year
Loading Capacity	0.392	143.28
Margin of Safety	0.039	14.33
Wasteload Allocation*		
Construction Stormwater	0.002	0.76
“Straight Pipe” Septic Systems	0.000	0.00
MS4 Communities Benton County St. Cloud Minden Twp. MN DOT, non-traditional	0.033	12.16
Load Allocation		
Watershed	0.173	63.08
Internal	0.079	28.91
Atmospheric + Groundwater	0.066	24.04

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