



REGION 5

CHICAGO, IL 60604

September 15, 2026

Mr. Glenn Skuta
Watershed Division Director
Minnesota Pollution Control Agency
520 Lafayette Road North
St. Paul, MN 55155-4194

Dear Mr. Skuta:

The U.S. Environmental Protection Agency completed its review of the final Total Maximum Daily Load (TMDL) for the Cedar River Watershed (2026) TMDL, including supporting documentation. The Cedar River Watershed (2026) TMDL encompasses waterbodies in Mower County in south-central Minnesota. The Cedar River Watershed (2026) TMDL addresses impaired aquatic recreation use and aquatic life use due to excessive bacteria and total suspended solids.

The Cedar River Watershed (2026) TMDL meets the requirements of Section 303(d) of the Clean Water Act and the EPA's implementing regulations set forth at 40 C.F.R. Part 130. Therefore, the EPA approves Minnesota's 12 TMDLs for bacteria and total suspended solids. The EPA describes Minnesota's compliance with the statutory and regulatory requirements in the enclosed decision document.

The EPA acknowledges Minnesota's efforts in submitting this TMDL and look forward to future TMDL submissions by the State of Minnesota. If you have any questions, please contact Mr. David Werbach, at 312-886-4242 or Werbach.david@epa.gov.

Sincerely,

9/15/2026

X 

Tera L. Fong
Division Director, Water Division
Signed by: TERA FONG

cc: Andrea Plevan, MPCA
Brianna Loeks, MPCA

TMDL: Cedar River Watershed (2026) bacteria and TSS TMDLs in Mower County in south-central Minnesota

Date: September 15, 2026

DECISION DOCUMENT FOR THE CEDAR RIVER WATERSHED (2026) TMDLS IN MOWER COUNTY, MINNESOTA

Section 303(d) of the Clean Water Act (CWA) and EPA’s implementing regulations at 40 C.F.R. Part 130 describe the statutory and regulatory requirements for approvable Total Maximum Daily Loads (TMDLs). Additional information is generally necessary for EPA to determine if a submitted TMDL fulfills the legal requirements for approval under Section 303(d) and EPA regulations and should be included in the submittal package. Use of the verb “must” below denotes information that is required to be submitted because it relates to elements of the TMDL required by the CWA and by regulation. Use of the term “should” below denotes information that is generally necessary for EPA to determine if a submitted TMDL is approvable. The guidelines provided under each heading in this decision document are an attempt to summarize and provide information regarding currently effective statutory and regulatory requirements relating to TMDLs, but are not a substitute for statutory requirements or EPA’s regulations.

1. Identification of Water body, Pollutant of Concern, Pollutant Sources, and Priority Ranking

The TMDL submittal should identify the water body as it appears on the State’s/Tribe’s 303(d) list. The water body should be identified/georeferenced using the National Hydrography Dataset (NHD), and the TMDL should clearly identify the pollutant for which the TMDL is being established. In addition, the TMDL should identify the priority ranking of the water body and specify the link between the pollutant of concern and the water quality standard (see Section 2 below).

The TMDL submittal should include an identification of the point and nonpoint sources of the pollutant of concern, including location of the source(s) and the quantity of the loading, e.g., lbs/per day. The TMDL should provide the identification numbers of the NPDES permits within the water body. Where it is possible to separate natural background from nonpoint sources, the TMDL should include a description of the natural background. This information is necessary for EPA’s review of the load and wasteload allocations, which are required by regulation.

The TMDL submittal should also contain a description of any important assumptions made in developing the TMDL, such as:

- (1) the spatial extent of the watershed in which the impaired water body is located;
- (2) the assumed distribution of land use in the watershed (e.g., urban, forested, agriculture);
- (3) population characteristics, wildlife resources, and other relevant information affecting the characterization of the pollutant of concern and its allocation to sources;
- (4) present and future growth trends, if taken into consideration in preparing the TMDL (e.g., the TMDL could include the design capacity of a wastewater treatment facility); and

(5) an explanation and analytical basis for expressing the TMDL through *surrogate measures*, if applicable. *Surrogate measures* are parameters such as percent fines and turbidity for sediment impairments; chlorophyll *a* and phosphorus loadings for excess algae; length of riparian buffer; or number of acres of best management practices.

EPA Review of the Cedar River Watershed (2026) TMDLs:

Location Description/Spatial Extent:

The Cedar River Watershed (CRW) (HUC 07080201) flows south from southern Minnesota into Iowa and ultimately into the Mississippi River. Overall, the CRW in Minnesota drains approximately 957 square miles. The water bodies addressed in this 2026 TMDL report are in three smaller subwatersheds in the CRW (Dobbins Creek, Roberts Creek, and Unnamed Creek) as noted in Table 1 of this Decision Document and Figure 1 of the final TMDL document. The 2026 TMDL subwatersheds range in size from 3.0 square miles to 19.4 square miles (Table 3 of the final TMDL document).

The CRW 2026 TMDLs address nine impaired segments due to excessive bacteria and three impaired segments due to excessive total suspended solids (TSS) as noted in Table 1 of this Decision Document. The CRW is located in the Western Corn Belt Plain (WCBP) ecoregion.

A previous TMDL was developed by the Minnesota Pollution Control Agency (MPCA) in 2019 (*Cedar River Watershed Total Suspended Solids, Lake Eutrophication, and Bacteria Total Maximum Daily Load*) (MPCA, 2019). The 2019 TMDL report addressed numerous water bodies throughout the Cedar River Watershed. None of the water bodies in the 2026 TMDL were addressed in the 2019 TMDL (Section 1.0 of the final TMDL document).

Table 1. Impaired water bodies in the Cedar River Watershed addressed in this 2026 TMDL report.

WID	Water body name	Water body description	Use class	Affected designated use ^a	TMDL Pollutant	Applicable TMDL WID
07080201-524	Dobbins Creek	Headwaters to T103 R17W S31, west line	2Bg	AQR	<i>E. coli</i>	-524
				AQL	TSS	-524
07080201-563	Unnamed Creek	Unnamed cr to Dobbins cr	2Bg	AQR	<i>E. coli</i>	-563
07080201-504	Roberts Creek	Unnamed cr to Cedar R	2Bg	AQL	TSS	-504
07080201-562	Unnamed Creek	Unnamed cr to Unnamed cr	2Bg	AQR	<i>E. coli</i>	-563
07080201-605	Unnamed Creek	Headwaters to Dobbins Cr	2Bg	AQR	<i>E. coli</i>	-524
07080201-606	Unnamed Creek	Unnamed cr to Unnamed cr	2Bg	AQR	<i>E. coli</i>	-563
07080201-607	Unnamed Creek	Unnamed cr to Unnamed cr	2Bg	AQR	<i>E. coli</i>	-563
07080201-608	Unnamed Creek	Unnamed cr to Unnamed cr	2Bg	AQR	<i>E. coli</i>	-563
07080201-609	Unnamed Creek	Unnamed cr to Unnamed cr	2Bg	AQR	<i>E. coli</i>	-563
07080201-610	Unnamed Creek	Unnamed cr to Unnamed cr	2Bg	AQR	<i>E. coli</i>	-563
07080201-624	Unnamed Creek	Headwaters to Dobbins Cr	2Bg	AQL	TSS	-524

a. AQR: aquatic recreation; AQL: aquatic life

Land Use:

Land use in the TMDL subwatersheds is mainly cultivated cropland (85%), with some other land uses including hay and pastureland (5%), and developed land (5-8%) (Section 3.3 of the final TMDL document and Table 2 of this Decision Document).

Table 2. Land use/cover within impaired subwatersheds for the CRW 2026 TMDLs

WID	Stream Name	Land Use/Land Cover Percentage of Drainage Area [%]					
		Water/ Wetland	Forest/ Shrub	Pasture/ Hay	Cropland	Barren/ Mining	Developed
07080201-504	Roberts Creek	1.5%	2.0%	4.7%	85.8%	<0.1%	6.1%
07080201-524	Dobbins Creek	0.3%	1.7%	5.5%	87.3%	<0.1%	5.0%
07080201-563	Unnamed Creek	1.1%	0.9%	6.0%	83.5%	<0.1%	8.4%

Problem Identification:

Bacteria TMDLs: Bacteria impaired segments identified in Table 1 of this Decision Document were included on the 2024 Minnesota 303(d) list due to excessive bacteria. Water quality monitoring within the CRW indicated that these segments were not attaining their designated aquatic recreation uses due to exceedances of bacteria criteria. Bacteria exceedances can negatively impact recreational uses (i.e., swimming, wading, boating, fishing) and public health. At elevated levels, bacteria may cause illness within humans who have contact with or ingest bacteria laden water. Recreation-based contact can lead to ear, nose, and throat infections, and stomach illness.

Total Suspended Solids (TSS) TMDLs: TSS impaired segments identified in Table 1 of this Decision Document were included on the 2024 Minnesota 303(d) list due to excessive sediment within the water column. Water quality monitoring within the CRW indicated that these segments were not attaining their designated aquatic life uses due to high turbidity measurements and the negative impact of those conditions on aquatic life (i.e., fish and macroinvertebrate communities).

TSS is a measurement of the sediment and organic material that inhibits natural light from penetrating the surface water column. Excessive sediment and organic material within the water column can negatively impact fish and macroinvertebrates within the ecosystem. Excess sediment and organic material may create turbid conditions within the water column and may increase the costs of treating surface waters used for drinking water or other industrial purposes (e.g., food processing).

Excessive amounts of fine sediment in stream environments can degrade aquatic communities. Sediment can reduce spawning and rearing areas for certain fish species. Excess suspended sediment can clog the gills of fish, stress certain sensitive species by abrading their tissue, and thus, reduce fish health. When in suspension, sediment can limit visibility and light penetration which may impair foraging and predation activities by certain species.

Excessive fine sediment also may degrade aquatic habitats, alter natural flow conditions in stream environments and add organic materials to the water column. The potential addition of fine organic

materials may lead to nuisance algal blooms which can negatively impact aquatic life and recreation (i.e., swimming, boating, fishing, etc.) Algal decomposition depletes oxygen levels which stresses benthic macroinvertebrates and fish. Excess algae can shade the water column and limit the distribution of aquatic vegetation. Established aquatic vegetation stabilizes bottom sediments and provides important habitat areas for healthy macroinvertebrates and fish communities.

Degradations in aquatic habitats or water quality (e.g., low dissolved oxygen) can negatively impact aquatic life use. Increased turbidity, brought on by elevated levels of nutrients within the water column, can reduce dissolved oxygen in the water column, and cause large shifts in dissolved oxygen and pH throughout the day. Shifting chemical conditions within the water column may stress aquatic biota (i.e., fish and macroinvertebrate species). In some instances, degradations in aquatic habitats or water quality have reduced fish populations or altered fish communities from those communities supporting sport fish species to communities which support more tolerant rough fish species.

Excess siltation and flow alteration in streams impacts aquatic life by altering habitats. Excess sediment can fill pools, embed substrates, and reduce connectivity between different stream habitats. The result is a decline in habitat types that, in healthy streams, support diverse macroinvertebrate communities. Excess sediment can reduce spawning and rearing habitats for certain fish species. Flow alterations in the CRW have resulted from drainage improvements on or near agricultural lands. Specifically, tile drains and land smoothing have increased surface and subsurface flow to streams. This results in higher peak flows during storm events and flashier flows which carry sediment loads to streams and erode streambanks.

Priority Ranking:

MPCA's schedule for TMDL completions, as indicated on the 303(d) impaired waters list, reflects Minnesota's priority ranking of this TMDL. MPCA has aligned TMDL priorities with the watershed approach and Watershed Restoration and Protection Strategy (WRAPS) cycle. The schedule for TMDL completion corresponds to the WRAPS report completion on the 10-year cycle. Mainstem river TMDLs, which are not contained in major watersheds and thus not addressed in WRAPS, must also be completed. The MPCA developed a state plan, Minnesota's TMDL Priority Framework Report under EPA's Long-Term Vision for Assessment, Restoration and Protection under the CWA section 303(d) program. As part of these efforts, the MPCA identified water quality-impaired segments that will be addressed by TMDLs by 2032. The waters of the CRW addressed by this TMDL are part of the MPCA prioritization plan to meet EPA's national goals.

Pollutants of Concern:

The pollutants of concern are bacteria and TSS.

Source Identification (point and nonpoint sources):

Point Source Identification: The potential point sources to the CRW 2026 TMDLs are:

CRW bacteria TMDLs:

National Pollutant Discharge Elimination Systems (NPDES) permitted facilities: MPCA determined there are no NPDES permitted wastewater facilities in the CRW 2026 bacteria subwatershed TMDLs (Section 3.5.1 of the final TMDL document).

Municipal Separate Storm Sewer System (MS4) communities: Stormwater from MS4s can transport bacteria to surface water bodies during or shortly after storm events. MPCA explained that the bacteria-impaired waters are within the jurisdiction area of the City of Austin and thus potentially subject to MS4 controls. However, there are no stormwater conveyances within the TMDL subwatersheds. As further discussed in Section 5 of this Decision Document, a bacteria wasteload allocation (WLA) was calculated for the MS4 area (Section 4.2.3.2 of the final TMDL document).

Concentrated Animal Feedlot Operations (CAFOs): MPCA recognized the presence of CAFOs in the CRW (Section 3.5.1 and Figure 14 of the final TMDL document). As explained by MPCA, CAFO production areas must be designed to contain all manure, direct precipitation and manure-contaminated runoff from precipitation events up to the 25-year, 24-hour storm event. In the event of a discharge, the discharge cannot cause or contribute to a violation of a water quality standard. MPCA noted that any precipitation-caused runoff from the land application of manure at agronomic rates is not considered a point source discharge and is accounted for in the load allocation (LA) of the TMDL. MPCA explained that these facilities do not discharge effluent and therefore, were not assigned a portion of the WLA (WLA = 0).

Stormwater runoff from permitted construction and industrial areas: MPCA determined that stormwater runoff from permitted construction and industrial areas are unlikely to contribute bacteria and therefore did not develop a WLA for bacteria for this source (Section 4.1.3.3 of the final TMDL document).

CRW TSS TMDLs:

NPDES permitted facilities: NPDES permitted facilities may contribute sediment loads to surface waters through discharges of treated wastewater. Permitted facilities must discharge wastewater according to their NPDES permit. MPCA determined that there are two wastewater treatment plants (WWTP) in the CRW 2026 TMDL subwatersheds which contribute TSS from treated wastewater releases (Table 3 of this Decision Document). MPCA assigned each of these facilities a portion of the TSS wasteload allocation (WLA).

Table 3: NPDES facilities with TSS WLAs in the CRW (2026)

Facility Name	Permit #	Impaired Reach
Brownsdale WWTP	MN0022934	-504
Sargent WWTP	MNG585214	-504

MS4 communities: Stormwater from MS4s can transport sediment to surface water bodies during or shortly after storm events. MPCA explained that the TSS-impaired waters are within the jurisdiction area of the City of Austin and thus potentially subject to MS4 controls. However, there are no stormwater conveyances within the TMDL subwatersheds. As further discussed in Section 5 of this

Decision Document, a TSS WLA was calculated for the MS4 area (Section 4.2.3.2 of the final TMDL document).

CAFOs: MPCA recognized the presence of CAFOs in the CRW (Section 3.5.1 and Figure 14 of the final TMDL document). As explained by MPCA, CAFO production areas must be designed to contain all manure, and direct precipitation and contaminated runoff from precipitation events up to the 25-year, 24-hour storm event. In the event of a discharge, the discharge cannot cause or contribute to a violation of a water quality standard. MPCA noted that any precipitation-caused runoff from the land application of pollutants at agronomic rates is not considered a point source discharge and is accounted for in the load allocation (LA) of the TMDL. MPCA explained that these facilities do not discharge effluent and therefore were not assigned a portion of the WLA (WLA = 0).

Stormwater runoff from permitted construction and industrial areas: Construction and industrial sites may contribute sediment via stormwater runoff during precipitation events. These areas within the CRW must comply with the requirements of the MPCA's NPDES Stormwater Program and create a Stormwater Pollution Protection Plan (SWPPP) that summarizes how stormwater will be minimized from the site.

Combined Sewer Overflows (CSOs) and Sanitary Sewer Overflows (SSOs): MPCA determined that the CRW does not have CSOs nor SSOs which contribute bacteria or sediment to waters of the CRW 2026 TMDLs.

Nonpoint Source Identification: The potential nonpoint sources to the CRW TMDLs (2026) are:

CRW bacteria TMDLs:

Non-regulated urban runoff: Runoff from urban areas (i.e., urban, residential, commercial or industrial land uses) can contribute bacteria to local water bodies. Stormwater from urban areas, which drain impervious surfaces, may introduce bacteria (e.g., derived from wildlife or pet droppings) to surface waters.

Stormwater from agricultural land use practices and feedlots near surface waters: Animal Feeding Operations (AFOs) in close proximity to surface waters can be a source of bacteria to water bodies in the CRW. These areas may contribute bacteria via the mobilization and transportation of pollutant laden waters from feeding, holding and manure storage sites. Runoff from agricultural lands may contain significant amounts of bacteria which may lead to impairments in the CRW. Feedlots generate manure which may be spread onto fields. Runoff from fields with spread manure can be exacerbated by tile drainage lines, which channelize the stormwater flows and reduce the time available for bacteria to die-off.

Unrestricted livestock access to streams: Livestock with access to stream environments may add bacteria directly to the surface waters or resuspend particles that had settled on the stream bottom. Direct deposition of animal wastes can result in very high localized bacteria counts and may contribute to downstream impairments. Smaller animal facilities may add bacteria to surface waters via wastewater from these facilities or stormwater runoff from near-stream pastures.

Discharges from Subsurface Sewage Treatment Systems (SSTS) or unsewered communities: Failing septic systems are a potential source of bacteria within the CRW. Septic systems generally do not discharge directly into a water body, but effluents from SSTS may leach into groundwater or pond at the surface where they can be washed into surface waters via stormwater runoff events. Age, construction and use of SSTS can vary throughout a watershed and influence the bacteria contribution from these systems.

Failing SSTS are specifically defined as systems that are failing to protect groundwater from contamination, while those systems which discharge partially treated sewage to the ground surface, road ditches, tile lines, and directly into streams, rivers and lakes are considered an imminent threat to public health and safety (ITPHS). ITPHS systems also include illicit discharges from unsewered communities.

Wildlife: Wildlife is a known source of bacteria in water bodies as many animals spend time in or around water bodies. Deer, geese, ducks, raccoons, and other animals all create potential sources of bacteria via contaminated runoff from animal habitats, such as urban park areas, forest, and rural areas.

CRW TSS TMDLs:

Stream channelization and streambank erosion: Eroding streambanks and channelization efforts may add sediment to local surface waters. Eroding riparian areas may be linked to soil inputs within the water column and potentially to changes in flow patterns. Changes in flow patterns may also encourage down-cutting of the streambed and streambanks. Stream channelization efforts can increase the velocity of flow (via the removal of the sinuosity of a natural channel) and disturb the natural sedimentation processes of the streambed. Unrestricted livestock access to streams and streambank areas may lead to streambank degradation and sediment additions to stream environments.

Stormwater runoff from agricultural land use practices: Runoff from agricultural lands may contain significant amounts of sediment which may lead to impairments in the CRW. Sediment inputs to surface waters can be exacerbated by tile drainage lines, which channelize the stormwater flows. Tile lined fields and channelized ditches enable particles to move more efficiently into surface waters.

Wetland and Forest Sources: Sediment may be added to surface waters by stormwater flows through wetland or forested areas in the CRW. Storm events may mobilize decomposing vegetation, organic soil particles through the transport of suspended solids and other organic debris.

Future Growth:

In Section 5 of the final TMDL document, MPCA summarizes population trends in the CRW (Figure 23 of the final TMDL document). MPCA noted that the population in the overall CRW is not expected to grow significantly, and that population on Mower County is expected to remain relatively stable. The WLA and LA for the CRW TMDLs were calculated for all current and future sources. Any expansion of

point or nonpoint sources will need to comply with the respective WLA and LA values calculated in the CRW 2026 TMDLs.

The EPA finds that the TMDL document submitted by MPCA satisfies the requirements of this first element.

2. Description of the Applicable Water Quality Standards and Numeric Water Quality Target

The TMDL submittal must include a description of the applicable State/Tribal water quality standard, including the designated use(s) of the water body, the applicable numeric or narrative water quality criterion, and the antidegradation policy (40 C.F.R. §130.7(c)(1)). EPA needs this information to review the loading capacity determination, and load and wasteload allocations, which are required by regulation.

The TMDL submittal must identify a numeric water quality target(s) – a quantitative value used to measure whether or not the applicable water quality standard is attained. Generally, the pollutant of concern and the numeric water quality target are, respectively, the chemical causing the impairment and the numeric criteria for that chemical (e.g., chromium) contained in the water quality standard. The TMDL expresses the relationship between any necessary reduction of the pollutant of concern and the attainment of the numeric water quality target. Occasionally, the pollutant of concern is different from the pollutant that is the subject of the numeric water quality target (e.g., when the pollutant of concern is phosphorus and the numeric water quality target is expressed as Dissolved Oxygen (DO) criteria). In such cases, the TMDL submittal should explain the linkage between the pollutant of concern and the chosen numeric water quality target.

EPA Review of the Cedar River Watershed (2026) TMDLs:

Designated Uses:

Water Quality Standards (WQS) are the fundamental benchmarks by which the quality of surface waters is measured. Within the State of Minnesota, WQS are developed pursuant to the Minnesota Statutes Chapter 115, Sections 03 and 44. Authority to adopt rules, regulations, and standards as are necessary and feasible to protect the environment and health of the citizens of the State is vested with the MPCA. Through adoption of WQS into Minnesota's administrative rules (principally Chapters 7050 and 7052), MPCA has identified designated uses to be protected in each of its drainage basins and the criteria necessary to protect these uses.

Minnesota Rule Chapter 7050 designates uses for waters of the state. The segments addressed by the CRW 2026 TMDLs are designated as Class 2 waters for aquatic recreation use (i.e., fishing, swimming, boating, etc.) and aquatic life use (TSS). The Class 2 designated use is described in Minnesota Rule 7050.0140 (3):

"Aquatic life and recreation includes all waters of the state that support or may support fish, other aquatic life, bathing, boating, or other recreational purposes and for which quality control is or may be necessary to protect aquatic or terrestrial life or their habitats or the public health, safety, or welfare."

Water use classifications for individual water bodies are provided in Minnesota Rules 7050.0470, 7050.0425, and 7050.0430. This TMDL report addresses the water bodies that do not meet the standards for Class 2 waters. The impaired streams in this report are classified as Class 2Bg waters (Table 1 of this Decision Document). Class 2B waters are protected for aquatic life and recreation, and the streams in this project are Class 2Bg waters, which are characterized as general warm water habitat waters.

Standards:

Narrative Criteria:

Minnesota Rule 7050.0150 (3) set forth narrative criteria for Class 2 waters of the State:

“For all Class 2 waters, the aquatic habitat, which includes the waters of the state and stream bed, shall not be degraded in any material manner, there shall be no material increase in undesirable slime growths or aquatic plants, including algae, nor shall there be any significant increase in harmful pesticide or other residues in the waters, sediments, and aquatic flora and fauna; the normal fishery and lower aquatic biota upon which it is dependent and the use thereof shall not be seriously impaired or endangered, the species composition shall not be altered materially, and the propagation or migration of the fish and other biota normally present shall not be prevented or hindered by the discharge of any sewage, industrial waste, or other wastes to the waters.”

Numeric Criteria:

CRW Bacteria TMDLs: The bacteria water quality standards that apply to the CRW TMDL are provided in Table 4 of this Decision Document:

Table 4: Bacteria Water Quality Standards (Class 7 waters) Applicable in the CRW (2026) TMDLs

Parameter	Units	Water Quality Standard
<i>E. coli</i> ¹	# / 100 mL	1,260 in < 10% of samples ²
		Monthly Geometric Mean < 126 ³

¹ = *E. coli* standards for Class 2 designated waters apply only between April 1 and October 31

² = Standard shall not be exceeded by more than 10% of individual samples taken within any calendar month

³ = Geometric mean based on minimum of 5 samples taken within any calendar month

Bacteria TMDL Targets: The bacteria TMDL targets employed for the CRW bacteria TMDLs are the *E. coli* standards as stated in Table 4 of this Decision Document and Table 2 of the final TMDL document. MPCA determined that the focus of this TMDL is on the **126 organisms (orgs) per 100 mL** portion of the standard. MPCA believes that using the 126 orgs/100 mL portion of the standard for TMDL calculations will result in the greatest bacteria reductions within the CRW and will result in the attainment of the 1,260 orgs/100 mL portion of the standard. While the bacteria TMDLs will focus on the geometric mean portion of the water quality standard, attainment of both parts of the water quality standard is required.

CRW TSS TMDLs: MPCA employed the regional TSS criterion for the Southern River Nutrient Region (SRNR), **65 mg/L**, from April 1 to September 30, for the CRW TSS TMDLs as noted in Table 5 of this Decision Document.

Table 5: Total Suspended Solids Water Quality Standards Applicable in the CRW (2026) TMDLs

Parameter	Units	Water Quality Standard
TSS - Class 2B Waters (Southern River Nutrient Region)	mg/L	TSS ≤ 65 mg/L

TSS TMDL Target: MPCA used a TSS target of **65 mg/L** for the TSS-impaired waters in the CRW 2026 TMDLs.

The EPA finds that the TMDL document submitted by MPCA satisfies the requirements of this second element.

3. Loading Capacity - Linking Water Quality and Pollutant Sources

A TMDL must identify the loading capacity of a water body for the applicable pollutant. EPA regulations define loading capacity as the greatest amount of a pollutant that a water can receive without violating water quality standards (40 C.F.R. § 130.2(f)).

The pollutant loadings may be expressed as either mass-per-time, toxicity or other appropriate measure (40 C.F.R. § 130.2(i)). The TMDL submittal should describe the method used to establish the cause-and-effect relationship between the numeric target and the identified pollutant sources. In many instances, this method will be a water quality model.

The TMDL submittal should contain documentation supporting the TMDL analysis, including the basis for any assumptions; a discussion of strengths and weaknesses in the analytical process; and results from any water quality modeling. EPA needs this information to review the loading capacity determination, and load and wasteload allocations, which are required by regulation.

TMDLs must take into account *critical conditions* for stream flow, loading, and water quality parameters as part of the analysis of loading capacity (40 C.F.R. § 130.7(c)(1)). TMDLs should define applicable *critical conditions* and describe their approach to estimating both point and nonpoint source loadings under such *critical conditions*. In particular, the TMDL should discuss the approach used to compute and allocate nonpoint source loadings, e.g., meteorological conditions and land use distribution.

EPA Review of the Cedar River Watershed (2026) TMDLs:

CRW Bacteria TMDL: MPCA used the geometric mean (**126 orgs/100 mL**) of the *E. coli* water quality standard to calculate loading capacity values for the bacteria TMDLs. The MPCA believes the geometric mean of the WQS provides the best overall characterization of the status of the watershed. EPA agrees with this assertion, as stated in the preamble of, “*The Water Quality Standards for Coastal and Great Lakes Recreation Waters Final Rule*” (69 FR 67218-67243, November 16, 2004) on page 67224, “...the geometric mean is the more relevant value for ensuring that appropriate actions are taken to protect and improve water quality because it is a more reliable measure, being less subject to random variation, and more directly linked to the underlying studies on which the 1986 bacteria criteria were based.” MPCA stated that the bacteria TMDLs will focus on the geometric mean portion of the water

quality standard (126 orgs/100 mL) and that it expects that by attaining the 126 orgs/100 mL portion of the *E. coli* WQS then the 1,260 orgs/100 mL portion of the *E. coli* WQS will also be attained. EPA finds these assumptions to be reasonable.

Typically loading capacities are expressed as a mass per time (e.g., pounds per day). However, for *E. coli* loading capacity calculations, mass is not always an appropriate measure because *E. coli* is expressed in terms of organism counts. This approach is consistent with EPA's regulations which define "load" as "an amount of matter that is introduced into a receiving water" (40 C.F.R. §130.2). To establish the loading capacities for the CRW 2026 bacteria TMDLs, the MPCA used Minnesota's WQS for *E. coli* (126 orgs/100 mL). A loading capacity is, "the greatest amount of loading that a water can receive without violating water quality standards." (40 C.F.R. §130.2). Therefore, a loading capacity set at the WQS will ensure that the water does not violate WQS. MPCA's *E. coli* TMDL approach is based upon the premise that all discharges (point and nonpoint) must meet the WQS when entering the water body. If all sources meet the WQS at discharge, then the water body should meet the WQS and the designated use.

A separate flow duration curve (FDC) was created for the bacteria TMDLs in the CRW. The CRW FDC was developed using flow data generated from Hydrologic Simulation Program-Fortran (HSPF) modeling efforts (Sections 3.4.1 of the final TMDL document). MPCA focused on daily recorded flow measurements and HSPF modeled flows from approximately 1995 to 2022 and bacteria (*E. coli*) water quality data from 2014-2024. HSPF hydrologic models were developed to simulate flow characteristics within the CRW, and flow data focused on dates within the recreation season (April 1 to October 31). Daily stream flows were necessary to implement the load duration curve (LDC) approach.

HSPF is a comprehensive modeling package used to simulate watershed hydrology and water quality on a basin scale. The package includes both an Agricultural Runoff Model and a more general nonpoint source model. HSPF parametrizes numerous hydrologic and hydrodynamic processes to determine flow rate, sediment, and nutrient loads. HSPF uses continuous meteorological records to create hydrographs and to estimate time series pollution concentrations.¹ The output of the HSPF process is a model of multiple hydrologic response units (HRUs), or subwatersheds of the overall CRW.

FDCs graphs have flow duration interval (percentage of time flow exceeded) on the X-axis and discharge (flow per unit time) on the Y-axis. The FDC was transformed into a LDC by multiplying individual flow values by the WQS (126 orgs/100 mL) and then multiplying that value by a conversion factor. The resulting points are plotted onto a load duration curve graph. A LDC graph for the CRW bacteria TMDLs, have flow duration interval (percentage of time flow exceeded) on the X-axis and *E. coli* loads (number of bacteria per unit time) on the Y-axis. The CRW LDCs used *E. coli* measurements in billions of bacteria per day. The curved line on a LDC graph represents the TMDL of the respective flow conditions observed at that location.

Water quality monitoring was completed in the CRW and measured *E. coli* concentrations were converted to individual sampling loads by multiplying the sample concentration by the instantaneous flow measurement observed/estimated at the time of sample collection and then by a conversion

¹ HSPF User's Manual (<https://water.usgs.gov/software/HSPF/>)

factor which allows the individual samples to be plotted on the same figure as the LDC (Section 4.1.9 of the final TMDL document).

The LDC plot was subdivided into five flow regimes; very high flow conditions (exceeded 0–10% of the time), high flow conditions (exceeded 10–40% of the time), mid-range flow conditions (exceeded 40–60% of the time), low flow conditions (exceeded 60–90% of the time), and very low flow conditions (exceeded 90–100% of the time). LDC plots can be organized to display individual sampling loads with the calculated LDC. Watershed managers can interpret LDC graphs with individual sampling points plotted alongside the LDC to understand the relationship between flow conditions and water quality exceedances within the watershed. Individual sampling loads which plot above the LDC represent violations of the WQS and the allowable load under those flow conditions at those locations. The difference between individual sampling loads plotting above the LDC and the LDC, measured at the same flow, is the amount of reduction necessary to meet WQS.

The strengths of using the LDC method are that critical conditions and seasonal variation are considered in the creation of the FDC by plotting hydrologic conditions over the flows measured during the recreation season. Additionally, the LDC methodology is relatively easy to use and cost-effective. The weaknesses of the LDC method are that nonpoint source allocations cannot be assigned to specific sources, and specific source reductions are not quantified. Overall, MPCA believes and EPA concurs that the strengths outweigh the weaknesses for the LDC method.

Implementing the results shown by the LDC requires watershed managers to understand the sources contributing to the water quality impairment and which Best Management Practices (BMPs) may be the most effective for reducing bacteria loads based on flow magnitudes. Different sources will contribute bacteria loads under varying flow conditions. For example, if exceedances are significant during high flow events this would suggest storm events are the cause and implementation efforts can target BMPs that will reduce stormwater runoff and consequently bacteria loading into surface waters. This allows for a more efficient implementation effort.

The bacteria TMDLs for the CRW 2026 TMDLs were calculated and those results are found in Tables 6-7 of this Decision Document. The load allocations were calculated after the determination of the WLA, and the Margin of Safety (MOS) (10% of the loading capacity) and load allocations (e.g., stormwater runoff from agricultural land use practices and feedlots, SSTs, wildlife inputs etc.)). The load allocations were not split among individual nonpoint contributors. Instead, load allocations were combined together into a categorical LA (“Watershed Load”) to cover all nonpoint source contributions.

Tables 6-7: Bacteria TMDLs for the Cedar River Watershed (2026) are located at the end of this Decision Document

MPCA noted that individual pollutant loads were not calculated for each segment. As discussed in Section 1.2 of the final TMDL document, MPCA calculated a pollutant load for each subwatershed due to the similar land use, small subwatershed sizes, same use/criteria, and same pollutant sources. The EPA agrees it is appropriate to consolidate the loading calculations as performed by MPCA. The LDC process calculates TMDL loading based in part upon the areal extent of the chosen watershed. Figure 1

of the final TMDL document provides a map of each water body and locations in each subwatershed. Table 1 of this Decision Document correlates each impaired segment to the downstream most (“primary”) segment under the “Applicable TMDL WID” column.

Tables 6-7 of this Decision Document reports five points (the midpoints of the designated flow regime) on the loading capacity curve. However, it should be understood that the components of the TMDL equation could be illustrated for any point on the entire loading capacity curve. The LDC method can be used to display collected bacteria monitoring data and allows for the estimation of load reductions necessary for attainment of the bacteria water quality standard. Using this method, daily loads were developed based upon the flow in the water body. Loading capacities were determined for the segment for multiple flow regimes. This allows the TMDL to be represented by an allowable daily load across all flow conditions. Tables 6-7 of this Decision Document identifies the loading capacity for the water bodies at each flow regime. Although there are numeric loads for each flow regime, the LDC is what is being approved for these TMDLs (Section 4.1.9 of the final TMDL document).

Tables 6-7 of this Decision Document communicates MPCA’s estimate of reductions required for streams impaired due to excessive bacteria. Attaining these reduction percentage estimates under the flow conditions which the reductions are prescribed to will allow the impaired segment to meet their water quality targets. This loading reduction (i.e., the percentage column) was estimated from existing and TMDL load calculations. MPCA expects that this reduction will result in the attainment of the water quality targets and the stream segment’s water quality will return to a level where the designated uses are no longer considered impaired.

EPA supports the data analysis and modeling approach utilized by MPCA in its calculation of WLAs, LAs and the MOS for the bacteria TMDLs. Additionally, the EPA concurs with the loading capacity calculated by the MPCA in the bacteria TMDLs. The EPA finds the MPCA’s approach for calculating the loading capacity for the bacteria TMDLs to be reasonable and consistent with the EPA’s guidance.

CRW TSS TMDLs: MPCA used the same LDC development strategies as the CRW bacteria TMDLs to calculate the loading capacities for the TSS TMDLs. These strategies included incorporating HSPF model simulated flows to develop FDCs and water quality monitoring information collected within the CRW informing the LDC. The FDC were transformed into LDC by multiplying individual flow values by the TSS target (65 mg/L) and then multiplying that value by a conversion factor.

Separate flow duration curves (FDCs) were created for the each of the TSS TMDLs in the CRW. The CRW FDCs were developed using flow data generated from HSPF modeling efforts at the outlet/pour point of each impaired reach (Section 4 of the final TMDL document). HSPF hydrologic models were developed to simulate flow characteristics within the CRW, and flow data focused on April to September. Daily stream flows were necessary to implement the load duration curve approach.

TSS TMDLs were calculated (Tables 8-9 of this Decision Document). The load allocation was calculated after the determination of the WLA, and the MOS. Load allocations (e.g., stormwater runoff from agricultural land use practices) were not split among individual nonpoint contributors. Instead, load allocations were combined into one value to cover all nonpoint source contributions. Tables 8-9 of this

Decision Document report five points (i.e., the midpoints of the designated flow regime) on the loading capacity curve. However, it should be understood that the components of the TMDL equation could be illustrated for any point on the entire loading capacity curve.

Tables 8-9: TSS TMDLs for the Cedar River Watershed (2026) are located at the end of this Decision Document

MPCA noted that individual pollutant loads were not calculated for each segment. As discussed in Section 1.2 of the final TMDL document, MPCA calculated a pollutant load for each subwatershed due to the similar land use, small subwatershed sizes, same use/criteria, and same pollutant sources. The EPA agrees it is appropriate to consolidate the loading calculations as performed by MPCA. The LDC process calculates TMDL loading based in part upon the areal extent of the chosen watershed. Figure 1 of the final TMDL document provides a map of each water body and locations in each subwatershed. Table 1 of this Decision Document correlates each impaired segment to the downstream most (“primary”) segment under the “Applicable TMDL WID” column.

The LDC method can be used to display collected TSS monitoring data and allows for the estimation of load reductions necessary for attainment of the TSS water quality standard. Using this method, daily loads were developed based upon the flow in the water body. Loading capacities were determined for each segment for multiple flow regimes. This allows the TMDL to be represented by an allowable daily load across all flow conditions. Tables 8-9 of this Decision Document identify the loading capacity for each segment at each flow regime. Although there are numeric loads for each flow regime, the LDC is what is being approved for this TMDL.

MPCA estimated load reductions needed for the TSS TMDLs to attain the TSS water quality target of 65 mg/L. These loading reductions (i.e., the percentage column) were estimated from existing and TMDL load calculations. MPCA expects that these reductions will result in the attainment of the water quality targets and that water quality will return to a level where the designated uses are no longer considered impaired.

EPA supports the data analysis and modeling approach utilized by MPCA in its calculation of WLAs, LAs and the MOS for the TSS TMDL. Additionally, the EPA concurs with the loading capacity calculated by the MPCA in the TSS TMDL. The EPA finds the MPCA’s approach for calculating the loading capacity for the TSS TMDL to be reasonable and consistent with the EPA’s guidance.

The EPA finds that the TMDL document submitted by MPCA satisfies the requirements of this third element.

4. Load Allocations (LA)

EPA regulations require that a TMDL include LAs, which identify the portion of the loading capacity attributed to existing and future nonpoint sources and to natural background. Load allocations may range from reasonably accurate estimates to gross allotments (40 C.F.R. § 130.2(g)). Where possible, load allocations should be described separately for natural background and nonpoint sources.

EPA Review of the Cedar River Watershed (2026) TMDLs:

MPCA determined the LA calculations for each of the TMDLs based on the applicable WQS. MPCA recognized that LAs for each of the individual TMDLs addressed by the CRW TMDLs can be attributed to different nonpoint sources.

CRW Bacteria TMDLs: MPCA calculated a LA value for the bacteria TMDLs that are applicable across all flow conditions in the CRW 2026 TMDLs (Tables 6-7 of this Decision Document). MPCA identified several nonpoint sources which contribute bacteria loads to the surface waters of the CRW, including stormwater from agricultural and feedlot areas, failing septic systems, and wildlife. MPCA did not determine load allocation values for each of these potential nonpoint source considerations but aggregated the nonpoint sources into one “watershed load” LA calculation.

CRW TSS TMDLs: MPCA calculated LA values for the TSS TMDLs that are applicable across all flow conditions. MPCA identified several nonpoint sources which contribute TSS loads to the impaired segments in the CRW (Tables 8-9 of this Decision Document). Load allocations were recognized as originating from many diverse nonpoint sources including stormwater contributions from agricultural lands, stream channelization and streambank erosion. MPCA did not determine load allocation values for each of these potential nonpoint source considerations but aggregated the nonpoint sources into one “watershed load” LA calculation.

The EPA finds the MPCA’s approach for calculating the LAs for bacteria and TSS to be reasonable. The EPA finds that the TMDL document submitted by MPCA satisfies the requirements of this fourth element.

5. Wasteload Allocations (WLAs)

EPA regulations require that a TMDL include WLAs, which identify the portion of the loading capacity allocated to individual existing and future point source(s) (40 C.F.R. § 130.2(h), 40 C.F.R. § 130.2(i)). In some cases, WLAs may cover more than one discharger, e.g., if the source is contained within a general permit.

The individual WLAs may take the form of uniform percentage reductions or individual mass based limitations for dischargers where it can be shown that this solution meets WQSSs.

EPA Review of the Cedar River Watershed (2026) TMDLs:**CRW Bacteria TMDLs:**

MPCA determined that no NPDES-permitted wastewater facilities are in the bacteria-impaired TMDL subwatersheds (Section 4.1.3.1 of the final TMDL document).

The MPCA identified two MS4 permittees that have lands subject to MS4 jurisdiction in two of the impaired segments (Table 10 of this Decision Document). The MPCA assigned a portion of the WLA based upon the areal extent of the MS4 permitted portion of the watershed in the impacted watersheds. MPCA noted that the area under the MS4 jurisdiction does not have any active

stormwater conveyances (Section 4.1.3.2 of the final TMDL document). MPCA stated that the WLAs are provided in case the city extends the stormwater infrastructure in the future.

Table 10. Permitted MS4s and estimated regulated area for *E. coli* TMDLs

MS4 name and permit number	Estimated WLA area (ac)	Impaired water body	Impaired water body WID	Pollutant
City of Austin, MS400251	383	Dobbins Creek	-524	<i>E. coli</i>
City of Austin, MS400251	230	Unnamed Creek	-563	<i>E. coli</i>

The MPCA acknowledged the presence of CAFOs in the CRW in Section 4.1.3.4 of the final TMDL document. CAFOs and other feedlots are generally not allowed to discharge to waters of the State (Minnesota Rule 7020.2003). CAFOs were assigned a WLA of zero (WLA = 0) by the MPCA for the CRW bacteria TMDLs. As explained by the MPCA, CAFO production areas must be designed to contain all manure, and direct precipitation and manure-contaminated runoff from discharging to surface waters during precipitation events up to the 25-year, 24-hour storm event, and even in the event of a discharge, the discharge cannot cause or contribute to a violation of a WQS. The MPCA noted that any precipitation-caused runoff from the land application of manure where the manure has been land applied at agronomic rates is not considered a point source discharge and is accounted for in the LA section of the TMDL.

CRW TSS TMDLs: MPCA identified two facilities discharging municipal wastewater within the TMDL subwatersheds (Section 4.2.3 of the final TMDL document). These facilities, identified in Table 3 of this Decision Document, are two pond systems located in the Roberts Creek subwatershed. These two facilities have existing NPDES permits with effluent limits (45 mg/L) below the TSS criteria for these TMDLs (65 mg/L). A portion of the WLA was assigned to each facility as noted in Table 3 and Tables 8-9 of this Decision Document.

Similar to the bacteria TMDLs above, MPCA identified one MS4 permittee that has lands subject to MS4 jurisdiction in one of the impaired segments (Table 11 of this Decision Document). The MPCA assigned a portion of the WLA based upon the areal extent of the MS4 permitted portion of the watershed in the impacted watershed. MPCA noted that the area under the MS4 jurisdiction does not have any active stormwater conveyances (Section 4.2.3.2 of the final TMDL document). MPCA stated that the WLAs are provided in case the city extends the stormwater infrastructure in the future.

Table 11. Permitted MS4 and estimated regulated area for TSS TMDLs

MS4 name and permit number	Estimated WLA area (ac)	Impaired water body	Impaired water body WID	Pollutant
City of Austin, MS400251	383	Dobbins Creek	524	<i>E. coli</i>

The MPCA acknowledged the presence of CAFOs in the CRW in Section 4.2.3.4 of the final TMDL document. CAFOs and other feedlots are generally not allowed to discharge to waters of the State (Minnesota Rule 7020.2003). CAFOs were assigned a WLA of zero (WLA = 0) by the MPCA for the CRW

TSS TMDLs. As explained by the MPCA, CAFO production areas must be designed to contain all manure, and direct precipitation and manure-contaminated runoff from discharging to surface waters during precipitation events up to the 25-year, 24-hour storm event, and even in the event of a discharge, the discharge cannot cause or contribute to a violation of a WQS. The MPCA noted that any precipitation-caused runoff from the land application of manure where the manure has been land applied at agronomic rates is not considered a point source discharge and is accounted for in the LA section of the TMDL.

The MPCA calculated a WLA for construction and industrial stormwater for the TSS TMDLs (Tables 8-9 of this Decision Document). This WLA was represented as a categorical WLA for construction and industrial stormwater. The WLA for construction stormwater was calculated based on the average percent area (0.03%) of the CRW which was covered under a NPDES/SDS Construction Stormwater General Permit during the previous five years (Section 4.2.3.3 of the final TMDL document). The construction and industrial stormwater WLAs were calculated as the percent area (0.03%) multiplied by the loading capacity.

Construction and industrial sites are expected to create SWPPPs which summarize how stormwater pollutant discharges will be minimized from construction and industrial sites. Under the MPCA's Stormwater General Permit (MNR100001) and applicable local construction stormwater ordinances, managers of sites under construction or industrial stormwater permits must review the adequacy of local SWPPPs to ensure that each plan complies with the applicable requirements in the State permits and local ordinances. As noted above, the MPCA has explained that meeting the terms of the applicable permits will be consistent with the WLAs set in the TSS TMDLs for the CRW. In the event that the SWPPP does not meet the WLA, the SWPPP will need to be modified within 18-months of the approval of the TMDL by the EPA.

The EPA finds the MPCA's approach for calculating the WLAs for the CRW TSS and bacteria TMDLs to be reasonable and consistent with EPA guidance. The EPA finds that the TMDL document submitted by MPCA satisfies the requirements of this fifth element.

6. Margin of Safety (MOS)

The Clean Water Act, § 303(d)(1)(c), and 40 C.F.R. 130.7 (c)(1) require that a TMDL include a margin of safety (MOS) "which takes into account any lack of knowledge concerning the relationship between effluent limitations and water quality." EPA's 1991 TMDL Guidance explains that the MOS may be implicit, i.e., incorporated into the TMDL through conservative assumptions in the analysis, or explicit, i.e., expressed in the TMDL as loadings set aside for the MOS. If the MOS is implicit, the conservative assumptions in the analysis that account for the MOS must be described. If the MOS is explicit, the loading set aside for the MOS must be identified. The MOS may include both explicit and implicit components.

EPA Review of the Cedar River Watershed (2026) TMDLs:

CRW Bacteria TMDLs: The CRW 2026 bacteria TMDLs incorporated a 10% explicit MOS applied to the total loading capacity calculation for all flow regimes of the LDCs. Ten percent of the total loading

capacity was reserved for the MOS with the remaining load allocated to point and nonpoint sources (Tables 6-7 of this Decision Document). MPCA explained in Section 4.1.4 of the final TMDL document that the explicit MOS was set at 10% due to the following factors discovered during TMDL development for these pollutants:

- Uncertainty in simulated flow data from the HSPF model;
- Environmental variability in pollutant loading and water quality data (i.e., collected water quality monitoring data, field sampling error, etc.); and
- Calibration and validation processes of the LDC modeling efforts, uncertainty in modeling outputs, and conservative assumptions made during the modeling efforts.

Challenges associated with quantifying *E. coli* loads include the dynamics and complexity of bacteria in stream environments. Factors such as die-off and re-growth contribute to general uncertainty that make quantifying stormwater bacteria loads particularly difficult. The MOS for the CRW bacteria TMDLs also incorporated certain conservative assumptions in the calculation of the TMDLs. No rate of decay, or die-off rate of pathogen species, was used in the TMDL calculations or in the creation of load duration curves for *E. coli*. Bacteria have a limited capability of surviving outside their hosts, and normally a rate of decay would be incorporated. MPCA determined that it was more conservative to use the WQS (126 orgs/100 mL) and not to apply a rate of decay, which could result in a discharge limit greater than the WQS.

As stated in EPA's Protocol for Developing Pathogen TMDLs (EPA 841-R-00-002), many different factors affect the survival of pathogens, including the physical condition of the water. These factors include, but are not limited to sunlight, temperature, salinity, and nutrient deficiencies. These factors vary depending on the environmental condition/circumstances of the water, and therefore it would be difficult to assert that the rate of decay caused by any given combination of these environmental variables was sufficient to meet the WQS of 126 orgs/100 mL. Thus, it is more conservative to apply the State's WQS as the bacteria target value because this standard must be met at all times under all environmental conditions.

CRW TSS TMDLs: The CRW 2026 sediment TMDLs incorporated a 10% explicit MOS applied to the total loading capacity calculation for all flow regimes of the LDCs. Ten percent of the total loading capacity was reserved for the MOS with the remaining load allocated to point and nonpoint sources (Tables 8-9 of this Decision Document). MPCA explained in Section 4.2.4 of the final TMDL document that the explicit MOS was set at 10% due to the following factors:

- Uncertainty in simulated flow data from the HSPF model;
- Environmental variability in pollutant loading and water quality data (i.e., collected water quality monitoring data, field sampling error, etc.); and
- Calibration and validation processes of the LDC modeling efforts, uncertainty in modeling outputs, and conservative assumptions made during the modeling efforts.

The EPA finds that the TMDL document submitted by MPCA satisfies the requirements of this sixth element.

7. Seasonal Variation

The statute and regulations require that a TMDL be established with consideration of seasonal variations. The TMDL must describe the method chosen for including seasonal variations. (CWA § 303(d)(1)(C), 40 C.F.R. § 130.7(c)(1)).

EPA Review of the Cedar River Watershed (2026) TMDLs:

CRW Bacteria TMDLs: In Section 4.1.5 of the final TMDL document, MPCA explained that bacterial loads vary by season, typically reaching higher numbers in the dry summer months when low flows and bacterial growth rates contribute to their abundance and reaching relatively lower values in colder months when bacterial growth rates attenuate and loading events, driven by stormwater runoff events aren't as frequent. Bacterial WQS need to be met between April to October, regardless of the flow condition. The development of the LDCs utilized simulated flow data which were validated and calibrated with local flow gage data. Modeled flow measurements represented a variety of flow conditions from the recreation season. LDCs developed from these modeled flow conditions represented a range of flow conditions within the CRW and thereby accounted for seasonal variability over the recreation season.

Critical conditions for *E. coli* loading occur in the dry summer months. This is typically when stream flows are lowest, and bacterial growth rates can be high. By meeting the water quality targets during the summer months, it can reasonably be assumed that the loading capacity values will be protective of water quality during the remainder of the calendar year (November through March).

CRW TSS TMDLs: In Section 4.2.5 of the final TMDL document, MPCA explained that the TSS WQS applies from April to September, which is also the time period when high concentrations of sediment are expected in the surface waters of the CRW. Sediment loading in the CRW varies depending on surface water flow, land cover and climate/season. Spring is typically associated with large flows from snowmelt, the summer is associated with the growing season as well as periodic storm events and receding streamflows, and the fall brings increasing precipitation and rapidly changing agricultural landscapes. In all seasons, sediment inputs to surface waters typically occur primarily through wet weather events.

Critical conditions that impact the response of CRW water bodies to sediment inputs may typically occur during periods of low flow. During low flow periods, sediment can accumulate within the impacted water bodies, there is less assimilative capacity within the water body, and generally sediment is not transported through the water body at the same rate it is under normal flow conditions.

Critical conditions that impact loading, or the rate that sediment is delivered to the water body, were identified as those periods where large precipitation events coincide with periods of minimal vegetative cover on fields. Large precipitation events and minimally covered land surfaces can lead to large runoff volumes, especially to those areas which drain agricultural fields. The conditions generally occur in the spring and early summer seasons.

The EPA finds that the TMDL document submitted by MPCA satisfies the requirements of this seventh element.

8. Reasonable Assurance

When a TMDL is developed for waters impaired by point sources only, the issuance of a NPDES permit(s) provides the reasonable assurance that the wasteload allocations contained in the TMDL will be achieved. This is because 40 C.F.R. § 122.44(d)(1)(vii)(B) requires that effluent limits in permits be consistent with, “the assumptions and requirements of any available wasteload allocation” in an approved TMDL.

When a TMDL is developed for waters impaired by both point and nonpoint sources, and the WLA is based on an assumption that nonpoint source load reductions will occur, EPA’s 1991 TMDL Guidance states that the TMDL should provide reasonable assurances that nonpoint source control measures will achieve expected load reductions in order for the TMDL to be approvable. This information is necessary for EPA to determine that the TMDL, including the load and wasteload allocations, has been established at a level necessary to implement water quality standards.

EPA Review of the Cedar River Watershed (2026) TMDLs:

The CRW 2026 bacteria and TSS TMDLs provide reasonable assurance that actions identified in the implementation section of the final TMDL will be applied to attain the loading capacities and allocations calculated for the impaired reaches within the CRW (Sections 6 and 8 of the final TMDL document). The recommendations made by MPCA will be successful at improving water quality if the appropriate local groups work to implement these recommendations. Those mitigation suggestions will require commitment from state agencies and local stakeholders to carry out the suggested actions.

MPCA has identified several local partners which have expressed interest in working to improve water quality within the CRW. Implementation practices will be implemented over the next several years. It is anticipated that staff from Soil and Water Conservation District (SWCDs) (e.g., the Mower County SWCD) staff, local Minnesota Board of Soil and Water Resources (BWSR) offices, lake associations and watershed districts, and other local watershed groups will work together to reduce pollutant inputs to the CRW.

MPCA has authored an update to the Cedar and Upper Wapsipinicon Rivers WRAPS document (May 2019 and updated in August 2026) which provides information on the development of scientifically supported restoration and protection strategies for implementation planning and action. MPCA sees the WRAPS document as a starting point for which MPCA and local partners can develop tools that will help local governments, landowners, and special interest groups determine (1) the best strategies for making improvements and protecting resources that are already in good condition, and (2) focus those strategies within the best places to do work.

County SWCDs, such as the Mower County SWCD, have a history of implementation efforts in the CRW. Sections 6.3 and 6.4 of the final TMDL document discusses numerous efforts in the CRW where local groups have implemented efforts to reduce pollutants. The SWCDs employ various programming, such

as shoreline planting programming, native plant, tree and seed planting programming, cost-share opportunities, equipment rentals and other technical services to ensure that efforts are made to improve water quality and conserve water resources in the CRW. Section 6.3 of the final TMDL document also contains information on the various county-scale watershed plans developed and implemented by the counties in the watershed that are designed to control and reduce pollutants in the watersheds. This includes the Cedar-Wapsipinicon Comprehensive Watershed Management Plan (2019) which was amended in August 2026 (https://mowerswcd.org/wp-content/uploads/2026/08/Cedar-Wapsipinicon-CWMP_Amended-August-2026.pdf).

Section 6.5 of the final TMDL document describes the previous and ongoing funding made available to landowners in the CRW. Examples of some of the major funding sources include Watershed-based Implementation Funding (WBIF), Clean Water Fund Competitive Grants (e.g., Projects and Practices), and conservation funds from Natural Resources Conservation Service (NRCS) (e.g., Environmental Quality Incentives Program (EQIP) and Conservation Stewardship Program (CSP)). Figure 26 of the final TMDL document shows the funding amounts and sources per year within the CRW. MPCA estimates that from 2004 to 2024 over \$136 million has been spent on implementation efforts in the CRW.

Continued water quality monitoring within the basin is supported by MPCA. Additional water quality monitoring results could provide insight into the success or failure of BMP systems designed to reduce bacteria, nutrient and sediment loading into the surface waters of the watershed. Local watershed managers would be able to reflect on the progress of the various pollutant removal strategies and would have the opportunity to change course if observed progress is unsatisfactory.

The MPCA regulates the collection, transportation, storage, processing and disposal of animal manure and other livestock operation wastes at State registered animal feeding operation (AFO) facilities. The MPCA Feedlot Program implements rules governing these activities and provides assistance to counties and the livestock industry. The feedlot rules apply to most aspects of livestock waste management including the location, design, construction, operation and management of feedlots and manure handling facilities.

Reasonable assurance that the WLA set forth will be implemented is provided by regulatory actions. According to 40 C.F.R. § 122.44(d)(1)(vii)(B), NPDES permit effluent limits must be consistent with assumptions and requirements of all WLAs in an approved TMDL. MPCA's stormwater program and the NPDES permit program are the implementing programs for ensuring WLA are consistent with the TMDL. The NPDES program requires construction and industrial sites to create SWPPPs which summarize how stormwater will be minimized from construction and industrial sites. Under the MPCA's Stormwater General Permit, managers of sites under construction or industrial stormwater permits must review the adequacy of local SWPPPs to ensure that each plan meets WLA set in the CRW TMDLs. In the event that the SWPPP does not meet the WLA, the SWPPP will need to be modified. This applies to sites under the MPCA's General Stormwater Permit for Construction Activity (MNR100001) and its NPDES/SDS Industrial Stormwater Multi-Sector General Permit (MNR050000) or NPDES/SDS General Permit for Construction Sand & Gravel, Rock Quarrying and Hot Mix Asphalt Production facilities (MNG490000).

The Clean Water Legacy Act (CWLA) was passed in Minnesota in 2006 for the purposes of protecting, restoring, and preserving Minnesota water. The CWLA provides the protocols and practices to be followed in order to protect, enhance, and restore water quality in Minnesota. The CWLA outlines how MPCA, public agencies and private entities should coordinate in their efforts toward improving land use management practices and water management. The CWLA anticipates that all agencies (i.e., MPCA, public agencies, local authorities, and private entities, etc.) will cooperate regarding planning and restoration efforts. Cooperative efforts would likely include informal and formal agreements to jointly use technical, educational, and financial resources.

The CWLA also provides details on public and stakeholder participation, and how the funding will be used. In part to attain these goals, the CWLA requires MPCA to develop WRAPS. The WRAPS are required to contain such elements as the identification of impaired waters, watershed modeling outputs, point and nonpoint sources, load reductions, etc. ([Chapter 114D.26](#); CWLA). The WRAPS also contain an implementation table of strategies and actions that are capable of achieving the needed load reductions, for both point and nonpoint sources ([Chapter 114D.26](#), Subd. 1(8); CWLA). Implementation plans developed for the TMDLs are included in the table, and are considered “priority areas” under the WRAPS process Cedar and Upper Wapsipinicon Rivers Watershed Restoration and Protection Strategy Report Update 2026 document (May 2019 and updated in August 2026), <https://www.pca.state.mn.us/sites/default/files/wq-ws4-110a.pdf>. This table includes not only needed actions but a timeline for achieving water quality targets, the reductions needed from both point and nonpoint sources, the governmental units responsible, and interim milestones for achieving the actions.

The Minnesota Board of Soil and Water Resources administers the Clean Water Fund as well and has developed a detailed grants policy explaining what is required to be eligible to receive Clean Water Fund money (http://bwsr.state.mn.us/cwf_programs).

The EPA finds that the TMDL document submitted by MPCA satisfies the requirements of this eighth element.

9. Monitoring Plan to Track TMDL Effectiveness

EPA’s 1991 document, *Guidance for Water Quality-Based Decisions: The TMDL Process* (EPA 440/4-91-001), recommends a monitoring plan to track the effectiveness of a TMDL, particularly when a TMDL involves both point and nonpoint sources, and the WLA is based on an assumption that nonpoint source load reductions will occur. Such a TMDL should provide assurances that nonpoint source controls will achieve expected load reductions and, such TMDL should include a monitoring plan that describes the additional data to be collected to determine if the load reductions provided for in the TMDL are occurring and leading to attainment of water quality standards.

EPA Review of the Cedar River Watershed (2026) TMDLs:

The final TMDL document outlines the water monitoring efforts in the CRW (Section 7 of the final TMDL document). Progress of TMDL implementation will be measured through regular monitoring efforts of water quality and total BMPs completed. The MPCA anticipates that monitoring will be

completed by local groups (e.g., the Mower County SWCD) and volunteers, as long as there is sufficient funding to support the efforts of these local entities. At a minimum, the CRW will be monitored once every 10 years as part of the MPCA's Intensive Watershed Monitoring cycle.

Water quality monitoring is a critical component of the adaptive management strategy employed as part of the implementation efforts utilized in the CRW. Water quality information will aid watershed managers in understanding how BMP pollutant removal efforts are impacting water quality. Water quality monitoring combined with an annual review of BMP efficiency will provide information on the success or failure of BMP systems designed to reduce pollutant loading into water bodies of the CRW. Watershed managers will have the opportunity to reflect on the progress or lack of progress and will have the opportunity to change course if progress is unsatisfactory. Review of BMP efficiency is expected to be completed by the local and county partners.

River and stream monitoring in the CRW has been completed by a variety of organizations (i.e., SWCDs) and funded through a combination of federal, state, and local funds. MPCA anticipates that stream monitoring in the CRW should continue in order to build on the current water quality dataset and track changes based on implementation progress. Continuing to monitor water quality and biota scores in the listed segments will determine whether or not stream habitat restoration measures are required to bring the watershed into attainment with water quality standards. Through the Intensive Watershed Monitoring program, MPCA will collect water quality and biological data at stream and lake monitoring stations for one to two years, every ten years. At a minimum, fish and macroinvertebrate sampling should be conducted by the MPCA, Minnesota Department of Natural Resources (MN-DNR), or other agencies every five to ten years during the summer season.

MPCA also noted that the Dobbins Creek subwatershed was identified in the 2019 WRAPS report as a "long-standing priority area" and developed a targeted implementation strategy to track the progress and results of implementation activities (Section 7 of the final TMDL document). This effort not only tracks BMP implementation but also pollutant loads and more frequent biological monitoring.

The EPA finds that the TMDL document submitted by MPCA satisfies the requirements of this ninth element.

10. Implementation

EPA policy encourages Regions to work in partnership with States/Tribes to achieve nonpoint source load allocations established for 303(d)-listed waters impaired by nonpoint sources. Regions may assist States/Tribes in developing implementation plans that include reasonable assurances that nonpoint source LAs established in TMDLs for waters impaired solely or primarily by nonpoint sources will in fact be achieved. In addition, EPA policy recognizes that other relevant watershed management processes may be used in the TMDL process. EPA is not required to and does not approve TMDL implementation plans.

EPA Review of the Cedar River Watershed (2026) TMDLs:

The findings from the CRW TMDLs will be used to inform the selection of implementation activities as part of the Cedar River WRAPS process. The purpose of the WRAPS report is to support local working groups and jointly develop scientifically supported restoration and protection strategies to be used for subsequent implementation planning.

The TMDL outlined some implementation strategies in Section 8 of the final TMDL document. MPCA outlined the importance of prioritizing areas within the CRW, education and outreach efforts with local partners, and partnering with local stakeholders to improve water quality within the watershed. The updated CRW WRAPS document (August 2026) includes additional detail regarding specific recommendations from MPCA to aid in the reduction of bacteria, TSS, and additional pollutants to surface waters of the CRW. The reduction goals for the bacteria and TSS TMDLs may be met via components of the following strategies:

CRW bacteria TMDLs:

Pasture management/livestock exclusion plans: Reducing livestock access to stream environments will lower the opportunity for direct transport of bacteria to surface waters. The installation of exclusion fencing near stream and river environments to prevent direct access for livestock, installing alternative water supplies, and installing stream crossings between pastures, would work to reduce the influxes of bacteria and improve water quality within the watershed. Additionally, introducing rotational grazing to increase grass coverage in pastures, and maintaining appropriate numbers of livestock per acre for grazing, can also aid in the reduction of bacteria inputs.

Manure management, Collection and Storage Practices: Manure has been identified as a source of bacteria. Bacteria can be transported to surface water bodies via stormwater runoff. Bacteria laden water can also leach into groundwater resources. Improved strategies for the collection, storage and management of manure can minimize impacts of bacteria entering the surface and groundwater system. Repairing manure storage facilities or building roofs over manure storage areas may decrease the amount of bacteria in stormwater runoff.

Feedlot runoff controls: Treatment of feedlot runoff via diversion structures, holding/storage areas, and stream buffering areas can all reduce the transmission of bacteria to surface water environments. Additionally, cleaner stormwater runoff can be diverted away from feedlots so as not to liberate bacteria.

Subsurface septic treatment systems: Improvements to septic management programs and educational opportunities can reduce the occurrence of septic pollution. Educating the public on proper septic maintenance, finding and eliminating illicit discharges and repairing failing systems could lessen the impacts of septic derived bacteria inputs into the CRW.

Stormwater wetland treatment systems: Constructed wetlands with the purpose of treating wastewater or stormwater inputs could be explored in selected areas of the CRW. Constructed wetland systems may be vegetated, open water, or a combination of vegetated and open water. MPCA explained that recent studies have found that the more effective constructed wetland designs employ

large treatment volumes in proportion to the contributing drainage area, have open water areas between vegetated areas, have long flow paths and a resulting longer detention time, and are designed to allow few overflow events.

Riparian Area Management Practices: Protection of streambanks within the watershed through planting of vegetated/buffer areas with grasses, legumes, shrubs or trees will mitigate bacteria inputs into surface waters. These areas will filter stormwater runoff before the runoff enters the main stem or tributaries of the CRW.

CRW TSS TMDLs:

Improved Agricultural Drainage Practices: A review of local agricultural drainage networks should be completed to examine how improving drainage ditches and drainage channels could be reorganized to reduce the influx of sediment to the surface waters in the CRW. The reorganization of the drainage network could include the installation of drainage ditches or sediment traps to encourage particle settling during high flow events. Additionally, cover cropping, and residue management is recommended to reduce erosion and thus siltation and runoff into streams.

Reducing Livestock Access to Stream Environments: Livestock managers should be encouraged to implement measures to protect riparian areas. Managers should install exclusion fencing near stream environments to prevent direct access to these areas by livestock. Additionally, installing alternative watering locations and stream crossings between pastures may aid in reducing sediments to surface waters.

Identification of Stream and River Erosional Areas: An assessment of stream and river channel erosional areas should be completed to evaluate areas where erosion control strategies could be implemented in the CRW. Implementation actions (e.g., planting deep-rooted vegetation near water bodies to stabilize streambanks) could be prioritized to target areas which are actively eroding. This strategy could prevent additional sediment inputs into surface waters of the CRW and minimize or eliminate degradation of habitat.

The EPA finds that this criterion has been adequately addressed. The EPA reviews but does not approve implementation plans.

11. Public Participation

EPA policy is that there should be full and meaningful public participation in the TMDL development process. The TMDL regulations require that each State/Tribe must subject calculations to establish TMDLs to public review consistent with its own continuing planning process (40 C.F.R. §130.7(c)(1)(ii)). In guidance, EPA has explained that final TMDLs submitted to EPA for review and approval should describe the State's/Tribe's public participation process, including a summary of significant comments and the State's/Tribe's responses to those comments.

Provision of inadequate public participation may be a basis for disapproving a TMDL. If EPA determines that a State/Tribe has not provided adequate public participation, EPA may defer its approval action until adequate public participation has been provided for, either by the State/Tribe or by EPA.

EPA Review of the Cedar River Watershed (2026) TMDLs:

The public participation section of the TMDL submittal is found in Section 9 of the final TMDL document. Throughout the development of the CRW TMDLs the public was given various opportunities to participate. As part of the strategy to communicate the goals of the TMDL project and to engage with members of the public, the MPCA worked with county and SWCD staff in the CRW to promote water quality, to gain input from landowners via surveys and interviews and to better understand the social dynamics of stakeholders in the CRW. The MPCA's goal was to create civic engagement and discussion which would enhance the content of the TMDL, WRAPS and BWSR's One Watershed, One Plan (1W1P) and WRAPS documents.

The MPCA posted the draft TMDL online at (<http://www.pca.state.mn.us/water/tmdl>) during its public comment period of June 22, 2026, to July 22, 2026. No comments were received.

The EPA finds that the TMDL document submitted by MPCA satisfies the requirements of this eleventh element.

12. Submittal Letter

A submittal letter should be included with the TMDL submittal, and should specify whether the TMDL is being submitted for a *technical review* or *final review and approval*. Each final TMDL submitted to EPA should be accompanied by a submittal letter that explicitly states that the submittal is a final TMDL submitted under Section 303(d) of the Clean Water Act for EPA review and approval. This clearly establishes the State's/Tribe's intent to submit, and EPA's duty to review, the TMDL under the statute. The submittal letter, whether for technical review or final review and approval, should contain such identifying information as the name and location of the water body, and the pollutant(s) of concern.

EPA Review of the Cedar River Watershed (2026) TMDLs:

The EPA received the final Cedar River Watershed TMDL (2026) document, submittal letter and accompanying documentation from the MPCA on August 31, 2026. The transmittal letter explicitly stated that the final TMDLs referenced in Table 1 of this Decision Document were being submitted to the EPA pursuant to Section 303(d) of the Clean Water Act for the EPA review and approval. The letter clearly stated that this was a final TMDL submittal under Section 303(d) of CWA. The letter also contained the name of the watershed as it appears on Minnesota's 303(d) list, and the causes/pollutants of concern. This TMDL was submitted per the requirements under Section 303(d) of the Clean Water Act and 40 C.F.R. 130.

The EPA finds that the TMDL document submitted by MPCA satisfies the requirements of this twelfth element.

13. Conclusion

After a full and complete review, the EPA finds that the nine bacteria TMDLs and the three TSS TMDLs satisfy all elements for approvable TMDLs. This TMDL approval is for **twelve (12) TMDLs**, addressing segments for aquatic recreational and aquatic life use impairments (Table 1 of this Decision Document).

The EPA's approval of these TMDLs extends to the water bodies which are identified above with the exception of any portions of the water bodies that are within Indian Country, as defined in 18 U.S.C. Section 1151, and as further discussed in our Decision Document. The EPA is taking no action to approve or disapprove TMDLs for those waters at this time. The EPA, or eligible Indian Tribes, as appropriate, will retain responsibilities under the CWA Section 303(d) for those waters.

TMDL Summary Tables

E. coli

Table 6. Dobbins Creek (07080201-524) *E. coli* TMDL summary.

- Impairments addressed by this TMDL: -524, -605
- Baseline year: 2019
- Numeric standard used to calculate TMDL: 126 org/100 mL *E. coli*
- TMDL and allocations apply Apr–Oct

TMDL parameter	TMDL <i>E. coli</i> load (billion org/day) by flow zone				
	Very high	High	Mid	Low	Very low
Total LA	382.1	115.0	47.4	19.1	6.16
City of Austin MS4 (MS400251)* WLA	11.8	3.54	1.47	0.59	0.19
MOS	43.8	13.2	5.43	2.19	0.71
TMDL	437.7	131.7	54.29	21.9	7.10
Important statistics					
Maximum monthly geometric mean (org/100 mL)	882				
Estimated percent reduction	86%				

*no reductions required

Table 7. Unnamed Creek (07080201-563) *E. coli* TMDL summary.

- Impairments addressed by this TMDL: -563, -562, -606, -607, -608, -609, and -610
- Baseline year: 2019
- Numeric standard used to calculate TMDL: 126 org/100 mL *E. coli*
- TMDL and allocations apply Apr–Oct

TMDL parameter	TMDL <i>E. coli</i> load (billion org/day) by flow zone				
	Very high	High	Mid	Low	Very low
Total LA	358.0	108.0	45.0	17.9	6.0
City of Austin MS4 (MS400251)* WLA	7.30	2.21	0.92	0.37	0.12
MOS	40.5	12.3	5.1	2.03	0.68
TMDL	405.8	122.5	51.0	20.3	6.8
Important statistics					
Maximum monthly geometric mean (org/100 mL)	492				
Estimated percent reduction	74%				

*no reductions required

TSS

Table 8. Roberts Creek (07080201-504) TSS TMDL summary.

- Impairments addressed by this TMDL: -504
- Baseline year: 2019
- Numeric standard used to calculate TMDL: 65 mg/L TSS
- TMDL and allocations apply Apr–Sep

TMDL parameter	TMDL TSS load (tons/day) by flow zone				
	Very high	High	Mid	Low	Very low
Total LA	6.56	1.88	0.625	0.087	*
Total WLA	0.278	0.275	0.275	0.274	*
Brownsdale WWTP (MN0022934) WLA	0.259	0.259	0.259	0.259	*
Sargeant WWTP (MNG585214) WLA	0.0153	0.0153	0.0153	0.0153	*
Industrial Stormwater (MNR500000, and MNG490000) WLA	0.00197	0.00057	0.00019	0.000026	*
Construction Stormwater (MNR100001) WLA	0.00197	0.00057	0.00019	0.000026	*
MOS	0.76	0.24	0.1	0.04	0.01
TMDL	7.6	2.4	1	0.4	0.1
Important statistics					
Existing 90 th percentile concentration (mg/L)	174				
Estimated percent reduction	63%				

* 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). See Section 4.2.1 of the final TMDL document for more details.

Table 9. Dobbins Creek (07080201-524) TSS TMDL summary.

- Impairments addressed in this TMDL: -524, -624
- Baseline year: 2019
- Numeric standard used to calculate TMDL: 65 mg/L TSS
- TMDL and allocations apply Apr–Sep

TMDL parameter	TMDL TSS load (tons/day) by flow zone				
	Very high	High	Mid	Low	Very low
Total LA	3.33	1.03	0.43	0.17	0.09
City of Austin (MS400251)** MS4 WLA	0.10	0.032	0.013	0.0053	0.0027
Industrial Stormwater WLA	0.00103	0.00032	0.00013	0.00005	0.00003
Construction Stormwater(WLA	0.0010	0.00032	0.00013	0.00005	0.00003
MOS	0.38	0.12	0.05	0.02	0.01
TMDL	3.81	1.18	0.49	0.20	0.10
Important statistics					
Existing 90 th percentile concentration (mg/L)	398				
Estimated percent reduction	84%				

**no MS4 reduction required