



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION 5  
77 WEST JACKSON BOULEVARD  
CHICAGO, IL 60604-3590

REPLY TO THE ATTENTION OF:  
W-15J

March 23, 2022

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


Dear Mr. Skuta:

The U.S. Environmental Protection Agency completed its review of the final Total Maximum Daily Loads (TMDL) for a segment within the Rapid River Watershed (RRW), including supporting documentation. The RRW encompasses parts of Beltrami, Koochiching, and Lake of the Woods counties in northern Minnesota. The RRW TMDL addresses impaired aquatic life and recreation use due to excessive sediment.

The RRW TMDL meets the requirements of Section 303(d) of the Clean Water Act and EPA's implementing regulations set forth at 40 C.F.R. Part 130. Therefore, EPA approves Minnesota's one sediment TMDL. EPA describes Minnesota's compliance with the statutory and regulatory requirements in the enclosed decision document.

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. Stephen Feely, at 312-886-5867 or [feely.stephen@epa.gov](mailto:feely.stephen@epa.gov).

Sincerely,

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Tera L. Fong  
Division Director, Water Division

cc: Cary Hernandez, MPCA

wq-iw10-19g

**TMDL:** Rapid River Watershed sediment TMDL in portions of Beltrami, Koochiching, and Lake of the Woods County in northern Minnesota

**Date:** March 23, 2022

**DECISION DOCUMENT  
FOR THE RAPID RIVER WATERSHED TMDL, IN PORTIONS OF BELTRAMI,  
KOOCHICHING, AND LAKE OF THE WOODS COUNTY IN NORTHERN, 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 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. These TMDL review guidelines are not themselves regulations. They are an attempt to summarize and provide guidance regarding currently effective statutory and regulatory requirements relating to TMDLs. Any differences between these guidelines and EPA’s TMDL regulations should be resolved in favor of the regulations themselves.

**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.

**Comment:**

**Location Description/Spatial Extent:**

The Rapid River Watershed (RRW) in northern Minnesota is part of the Rainy River basin and covers parts of Beltrami, Koochiching, and Lake of the Woods counties. The RRW is approximately 573,060 acres in size and occupies part of the Laurentian Mixed Forest Ecological Province. Surface water in the RRW generally flow in a northeasterly direction from the headwaters’ areas, in the southwestern portion of the watershed (Figure 4 of the final TMDL document) toward the northeastern areas of the RRW.

The RRW TMDL addresses one (1) segment impaired due to excessive sediment inputs (Table 1 of this Decision Document).

**Table 1: Rapid River Watershed impaired waters addressed by this TMDL**

Water body name	Assessment Unit ID	Affected Use	Pollutant or stressor	TMDL
Lower Rapid River	09030007-501	Aquatic Life	Sediment/TSS	TSS TMDL
<b>TOTAL TSS TMDLs</b>				<b>1</b>

The RRW includes tribal lands for the Red Lake Band of Chippewa (Figure 2 of the final TMDL document). Approximately 9%, or 52,887 acres, of the watershed is owned by the Red Lake Band of Chippewa. In January 2020, MPCA sent letters to Bois Forte Band of Chippewa, the Fond du Lac Band of Lake Superior Chippewa, the Leach Lake Band of Ojibwe, the Minnesota Chippewa Tribe, and the Red Lake Band of Chippewa Ojibwe explaining the TMDL and invited the tribal contacts to participate in the TMDL process.

**Land Use:**

Land use in the RRW is wetlands (97%), agriculture (2%) and open water, developed land, and shrubland/grassland shrubland (all <1%). Land use in the direct drainage area to the impaired stream reach is wetlands (76%), agriculture (14%), open water (5%), forest (<1%), developed land (4%), and shrubland/grassland (1%). (Section 3.2 of the final TMDL document and Table 2 of this Decision Document).

**Table 2: Land cover in the Rapid River Watershed**

Drainage Area	Drainage Area (Sq. Miles)	Land Cover (% of drainage area)					
		Wetlands (%)	Open Water (%)	Forest (%)	Developed Land (%)	Shrubland/Grassland (%)	Agriculture (%)
Direct Drainage Area to Impaired Stream	441	76%	5%	4%	4%	1%	14%
Rapid River Watershed	603,843	97%	<1%	<1%	1%	<1%	2%

**Problem Identification:**

Total Suspended Solids (TSS) TMDL: The Lower Rapid River (09030007-501) was included on the final 2020 Minnesota 303(d) list due to excessive TSS within the water column. Water quality monitoring within the RRW indicated that this segment was not attaining its designated aquatic life use due to high sediment 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. 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.

**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, to meet the needs of EPA's national measure (WQ-27) 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 2022. The waters of the RRW addressed by this TMDL are part of the MPCA prioritization plan to meet EPA's national measure.

**Pollutant of Concern:**

The pollutant of concern is TSS.

**Source Identification (point and nonpoint sources):**

***Point Source Identification:*** The potential point sources to the RRW are:

*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 RRW must comply with the requirements of the MPCA's NPDES Stormwater Program and create a SWPPP that summarizes how stormwater will be minimized from the site.

*Stormwater runoff from Nonmetallic Mining:* MPCA noted that there are two sites in the RRW covered by the MPCA nonmetallic mining general permit (Section 3.4.1.1 and Figure 14 of the final TMDL document).

***Nonpoint Source Identification:*** The potential nonpoint sources to the RRW are:

*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 RRW. 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 RRW. Storm events may mobilize decomposing vegetation, organic soil particles through the transport of suspended solids and other organic debris.

*Atmospheric deposition:* Sediment may be added via particulate deposition. Particles from the atmosphere may fall onto surface waters within the RRW.

**Future Growth:**

MPCA referenced population trend from the 2018 U.S. Census Bureau and shared that population in the RRW decreased in all counties of the RRW except for Beltrami County from 2010-2018 (Section 5 of the final TMDL document). During that same time period, the population for RRW overall decreased by 4.09%. MPCA acknowledged that no large increases in population or significant changes in land use are expected in the RRW. As a result, MPCA elected not to calculate a reserve capacity for this TMDL (Section 5 of the final TMDL document).

The WLA and load allocations (LA) for the RRW TMDL were calculated for all current and future sources. MPCA explained that any expansion of point or nonpoint sources will need to comply with the respective WLA and LA values calculated in the RRW TMDL.

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

**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.

**Comment:**

**Designated Uses:**

Water quality standards (WQS) are the fundamental benchmarks by which the quality of surface waters are 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 segment addressed by the RRW TMDL is designated as a Class 2 water for aquatic life use. The Class 2 designated use is described in Minnesota Rule 7050.0140 (3):

*“Aquatic life...includes all waters of the state that support or may support fish, other aquatic life ...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 stream in this report is classified as a Class 2Bg water (Table 1 of the final TMDL document).

Class 2B waters are protected for aquatic life, and the stream in this project is a Class 2Bg water, which is 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:**

**TSS TMDL:** In January 2015, EPA approved MPCA’s regionally based TSS criteria for rivers and streams. The TSS criteria replaced Minnesota’s statewide turbidity criterion (measured in Nephelometric Turbidity Units (NTU)). The TSS criteria provide water clarity targets for measuring suspended particles in rivers and streams.

**TSS TMDL Targets:** MPCA employed the regional TSS criterion for the Northern River Nutrient Region (NRNR), **15 mg/L**, for the RRW TSS TMDL.

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

### 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)). If the TMDL is expressed in terms other than a daily load, e.g., an annual load, the submittal should explain why it is appropriate to express the TMDL in the unit of measurement chosen. 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.

#### **Comment:**

MPCA created a flow duration curve (FDC) for the TSS TMDL in the RRW. HSPF hydrologic models were developed to simulate flow characteristics within the RRW and flow data focused on dates within April 1 to October 31. Daily stream flows were necessary to implement the load duration curve approach.

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 were transformed into LDC by multiplying individual flow values by the TSS target (15 mg/L) and then multiplying that value by a conversion factor (Figure 20 of the final TMDL document). The resulting points are plotted onto a load duration curve graph. The LDC graph, for the RRW TSS TMDL, has flow duration interval (percentage of time flow exceeded) on the X-axis and TSS load (mg/L) on the Y-axis. The curved line on a LDC graph represents the TMDL of the respective flow conditions observed at that location.

The LDC plots were 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 a set period. 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 TSS loads based on flow magnitudes. Different sources will contribute TSS 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 TSS loading into surface waters. This allows for a more efficient implementation effort.

A TSS TMDL was calculated by MPCA (Table 3 of this Decision Document). The load allocation was calculated after the determination of the WLA, and the MOS. Load allocation was not split among individual nonpoint contributors. Instead, the load allocation was calculated as one value to cover all nonpoint source contributions. Table 3 of this Decision Document reports 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.

The LDC method can be used to display collected sediment 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. Table 3 of this Decision Document identifies the loading capacity for the segment at each flow regime. Although there are numeric loads for each flow regime, the LDC is what is being approved for this TMDL (Figure 20 of the final TMDL document).

**Table 3. Lower Rapid River (09030007-501) TSS TMDL**

Lower Rapid River (09030007-501)		Flow Regime				
		Very High (cfs)	High (cfs)	Mid- Range (cfs)	Low (cfs)	Very Low (cfs)
		2090	592	183	27	5.9
Load Component		Total Suspended Solids (TSS) (lbs per day)				
Existing Load		415,972.20	117,726.00	36,422.50	5,373.90	1,174.20
Wasteload Allocations	Construction Stormwater (MNR1000001)	12.0	3.4	1.0	0.2	0.03
	Industrial stormwater (MNR050000)	58.8	16.6	5.1	0.8	0.2
	Nonmetallic Mining (MNG490000)	11.5	3.3	1.0	0.15	0.03
	<b>Total WLA</b>	<b>82.3</b>	<b>23.3</b>	<b>7.1</b>	<b>1.15</b>	<b>0.26</b>
Load Allocations	Nonregulated Sources	152102.7	43047.2	13318.2	1964.95	429.34
	<b>Total LA</b>	<b>152102.7</b>	<b>43047.2</b>	<b>13318.2</b>	<b>1964.95</b>	<b>429.34</b>
10% Margin of Safety		16909.4	4785.6	1480.6	218.40	47.70
<b>Total Loading Capacity</b>		<b>169094.4</b>	<b>47856.1</b>	<b>14805.9</b>	<b>2184.5</b>	<b>477.3</b>

MPCA estimated load reductions needed for the TSS TMDL to attain the TSS water quality criteria of 15 mg/L. These loading reductions were estimated from existing and TMDL load calculations. MPCA calculated that approximately a 59% reduction in overall TSS loads are needed to attain WQS (Section 4.1.7 and Table 11 of the final TMDL document). MPCA expects that the reduction will result in the attainment of the water quality criteria 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 wasteload allocations, load allocations and the margin of safety for the TSS TMDL. Additionally, EPA concurs with the loading capacities calculated by the MPCA in the TSS TMDL. EPA finds MPCA’s approach for calculating the loading capacity for the TSS TMDL to be reasonable and consistent with EPA guidance.

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

#### 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.

**Comment:**

MPCA determined the LA calculations for the TMDL based on the applicable WQS.

The calculated LA values for the TSS TMDL are applicable across all flow conditions. MPCA identified several nonpoint sources which contribute sediment loads to the Lower Rapid River (09030007-501) (Table 3 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, wetland and forest sources, and atmospheric deposition. MPCA did not determine individual load allocation values for each of these potential nonpoint source considerations but aggregated the nonpoint sources into one “watershed load” LA calculation (Table 3 of this Decision Document).

EPA finds MPCA’s approach for calculating the LA for (TSS) to be reasonable.

The EPA finds that the TMDL document submitted by MPCA satisfies the requirements of the fourth criterion.

**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 WQSs and does not result in localized impairments. These individual WLAs may be adjusted during the NPDES permitting process. If the WLAs are adjusted, the individual effluent limits for each permit issued to a discharger on the impaired water must be consistent with the assumptions and requirements of the adjusted WLAs in the TMDL. If the WLAs are not adjusted, effluent limits contained in the permit must be consistent with the individual WLAs specified in the TMDL. If a draft permit provides for a higher load for a discharger than the corresponding individual WLA in the TMDL, the State/Tribe must demonstrate that the total WLA in the TMDL will be achieved through reductions in the remaining individual WLAs and that localized impairments will not result. All permittees should be notified of any deviations from the initial individual WLAs contained in the TMDL. EPA does not require the establishment of a new TMDL to reflect these revised allocations as long as the total WLA, as expressed in the TMDL, remains the same or decreases, and there is no reallocation between the total WLA and the total LA.

**Comment:**

MPCA identified construction stormwater, industrial stormwater, and nonmetallic mining contributions as necessitating a WLA (Table 3 of this Decision Document). The WLA for construction stormwater was calculated based on the average percent area (0.0071%) of the RRW which was covered under a

NPDES/SDS Construction Stormwater General Permit during the previous five years (Section 4.1.3.2 of the final TMDL document). The WLA for industrial stormwater was calculated based on the average percent area (0.035% of the RRW which was covered under an industrial stormwater permit as of February 8<sup>th</sup>, 2020 (Section 4.1.3.3 of the final TMDL document). The categorical WLA for nonmetallic mining was allocated based on the fraction of the RRW with mining activity, using the 2017 Farm Service Agency aerial imagery of the mine area. The construction stormwater, industrial stormwater, and nonmetallic mining WLA was calculated as the corresponding percent area 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, MPCA has explained that meeting the terms of the applicable permits will be consistent with the WLAs set in the TSS TMDL for RRW. 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. This applies to sites under permits for MNR100001, MNR050000 and MNG490000.

EPA finds the MPCA's approach for calculating the WLA for the RRW TSS TMDL to be reasonable and consistent with EPA guidance.

The EPA finds that the TMDL document submitted by MPCA satisfies the requirements of the fifth criterion.

## **6. Margin of Safety (MOS)**

The statute and regulations require that a TMDL include a margin of safety (MOS) to account for any lack of knowledge concerning the relationship between load and wasteload allocations and water quality (CWA §303(d)(1)(C), 40 C.F.R. §130.7(c)(1)). 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.

### **Comment:**

The final TMDL submittal outlines the determination of the Margin of Safety for the RRW TSS TMDL.

The RRW TMDL incorporated a 10% explicit MOS applied to the total loading capacity calculation for each flow regime of the LDC (Section 4.1.5 of the final TMDL document). Ten percent of the total loading capacity was reserved for MOS with the remaining load allocated to point and nonpoint sources (Table 3 of this Decision Document). MPCA explained that the explicit MOS was set at 10% due to the following factors discovered during TMDL development for this pollutant:

- Allocations are a function of flow, which varies from high- to low-flows. This variability is accounted for through the development of a TMDL for each of five flow regimes;
- There are sufficient monitoring data available for the impaired reach and the HSPF model has adequate calibration and verification;
- Best professional judgement of the overall TMDL development; and
- A reasonable and achievable LA and WLA.

The EPA finds that the TMDL document submitted by MPCA contains an appropriate MOS satisfying the requirements of the sixth criterion.

## **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)).

### **Comment:**

The TSS WQS applies from April to September which is also the time period MPCA noted when high concentrations of sediment are expected in the surface waters of the RRW. As discussed in Section 4.1.4 of the final TMDL document, MPCA explained that sediment loading in the RRW 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 RRW 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 by MPCA 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 the seventh criterion.

## **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’s August 1997 TMDL Guidance also directs Regions to work with States to achieve TMDL load allocations in waters impaired only by nonpoint sources. However, EPA cannot disapprove a TMDL for nonpoint source-only impaired waters, which do not have a demonstration of reasonable assurance that LAs will be achieved, because such a showing is not required by current regulations.

**Comment:**

The RRW TSS TMDL provides reasonable assurance that actions identified in the implementation section of the final TMDL (i.e., Sections 6 and 8 of the final TMDL document), will be applied to attain the loading capacities and allocations calculated for the impaired reaches within the RRW. 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, which fall outside of regulatory authority, 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 RRW. Implementation practices will be implemented over the next several years. It is anticipated that staff from Soil and Water Conservation Districts (SWCDs) (e.g., the Beltrami SWCD) staff, local Minnesota Board of Soil and Water Resources (BWSR) offices, and other local watershed groups will work together to reduce pollutant inputs to the RRW. MPCA has authored a Rapid River WRAPS document (public notice period for this document ended January 2022) 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 in the best locations to do work.

County SWCDs, such as the Beltrami SWCD and Lake of the Woods SWCD, have a history of implementation efforts in the RRW. The Beltrami SWCD has been applying conservation practices in areas in the RRW and providing educational opportunities to local landowners in order to achieve sound management of natural resources since the 1950s (<https://www.co.beltrami.mn.us>). The SWCD employs various programming, such as well monitoring programming, native tree planting programming, cost-share opportunities, wood ash application and other technical services to ensure that efforts are made to improve water quality and conserve water resources in the RRW. Other county SWCDs in the RRW have similar programming efforts which locals can utilize. Sections 6.3 and 6.4 of the final TMDL document contain several examples of ongoing actions and activities in the counties that target the

pollutant issues in the RRW. All three counties have approved Water Management Plans that identify and target water quality improvements in the county.

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 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 RRW TMDL. 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).

Various funding mechanisms will be utilized to execute the recommendations made in the implementation section of this TMDL. 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 TMDL are included in the table, and are considered “priority areas” under the WRAPS process ([Watershed Restoration and Protection Strategy Report Template](#), MPCA). 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. MPCA has developed guidance on what is required in the WRAPS ([Watershed Restoration and Protection Strategy Report Template](#), MPCA).

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](http://bwsr.state.mn.us/cwf_programs)).

The EPA finds that this criterion has been adequately addressed.

## **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.

### **Comment:**

The final TMDL document outlines the water monitoring efforts in the RRW (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. MPCA anticipates that monitoring will be completed by various groups (e.g., Minnesota Board of Water and Soil Resources, United States Department of Agriculture, International Rainy – Lake of the Woods Watershed Board, local SWCDs, etc.) and volunteers, as long as there is sufficient funding to support the efforts of these local entities. At a minimum, the RRW 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 RRW. 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 RRW. 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.

### **Stream Monitoring:**

River and stream monitoring in the RRW, has been completed by a variety of organizations (i.e., SWCDs) and funded by Clean Water Partnership Grants, and other available local funds. MPCA



anticipates that stream monitoring in the RRW 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. At a minimum, fish and macroinvertebrate sampling should be conducted by the MPCA, Minnesota Department of Natural Resources (MDNR), or other agencies every five to ten years during the summer season.

The EPA finds that this criterion has been adequately addressed.

## **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.

### **Comment:**

The findings from the RRW TMDL will be used to inform the selection of implementation activities as part of the Rapid 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 RRW, education and outreach efforts with local partners, and partnering with local stakeholders to improve water quality within the watershed. The RRW WRAPS document includes additional detail regarding specific recommendations from MPCA to aid in the reduction of sediment (TSS) to surface waters of the RRW. The reduction goals for the TSS TMDL may be met via components of the following strategy:

*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 RRW. 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, River, and Lakeshore Erosional Areas:* An assessment of stream channel, river channel, and lakeshore erosional areas should be completed to evaluate areas where erosion control strategies could be implemented in the RRW. 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 RRW 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. When EPA establishes a TMDL, EPA regulations require EPA to publish a notice seeking public comment (40 C.F.R. §130.7(d)(2)).

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.

### **Comment:**

The public participation section of the TMDL submittal is found in Section 9 of the final TMDL document. Throughout the development of the RRW TMDL 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, MPCA worked with county and SWCD staff from the three counties in the RRW to promote water quality, to gain input from landowners via surveys and interviews and to better understand the social dynamics of stakeholders in the RRW. MPCA's goal was to create civic engagement and discussion which would enhance the content of the TMDL and WRAPS documents. A full description of civic engagement activities associated with the TMDL process is available within Section 3.2 of the RRW WRAPS report (February 2022).

MPCA posted the draft TMDL online at (<http://www.pca.state.mn.us/water/tmdl>) for a public comment period. The public comment period was started on December 13, 2021 and ended on January 12, 2022. MPCA received no comments from the general public.

Rapid River Watershed includes tribal lands for the Red Lake Band of Chippewa Indians (Section 3 of the final TMDL document). EPA invited representatives of the Red Lake Band of Chippewa Indians to

consult with EPA regarding EPA's review and decision on the RRW TMDL.<sup>1</sup> Representatives from the Red Lake Band of Chippewa did not respond to EPA's invitation to consult on EPA's review and decision of the RRW TMDL. EPA understood this as the Red Lake Band of Chippewa Indians declined EPA's invitation to consult.

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.

### **Comment:**

The EPA received the final Rapid River Watershed TMDL document, submittal letter and accompanying documentation from MPCA on February 24, 2022. The transmittal letter explicitly stated that the final TMDL referenced in Table 1 of this Decision Document were being submitted to EPA pursuant to Section 303(d) of the Clean Water Act for 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 transmittal letter submitted for the Rapid River Watershed TMDL by MPCA satisfies the requirements of this twelfth element.

## 13. Conclusion

After a full and complete review, the EPA finds that the 1 sediment (TSS) TMDL satisfies all elements for approvable TMDLs. This TMDL approval is for **one TMDL**, addressing segments for aquatic life use impairments (Table 1 of this Decision Document).

The EPA's approval of this TMDL 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.

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<sup>1</sup> EPA Letter from Tera L. Fong, Water Division Director, Region 5, EPA to Darrel G Seki, Chairman of Red Lake Band of Chippewa Indians, *Invitation for Consultation on EPA's Final Review of the Rapid River River Watershed Total Maximum Daily Load Study*, March 3, 2022.

Section 1151. 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.