MINNESOTA POLLUTION CONTROL AGENCY

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November 2, 2021

Tracy Halstensgard, Administrator
Roseau River Watershed District
714 6th St SW
Roseau, MN 56751

Dear Tracy Halstensgard:

The Minnesota Pollution Control Agency (MPCA) is pleased to provide priority concerns for consideration in the development of the Roseau River Watershed (RRW) One Watershed One Plan (1W1P). We would invite you to consider the following reports, studies, concerns, and issues during 1W1P development.

Roseau River Watershed Monitoring and Assessment Report (2018) – Summary of 2015/2016 intensive watershed monitoring efforts. https://www.pca.state.mn.us/sites/default/files/wq-ws3-09020314b.pdf

Roseau River Watershed Stressor Identification (SID) Report (2018) – This report summarizes and evaluates factors, natural and human, which are likely responsible for impaired fish and macroinvertebrate communities in the RRW. https://www.pca.state.mn.us/sites/default/files/wq-ws5-09020314a.pdf

Roseau River Watershed Total Maximum Daily Load (TMDL) Report (2020) – This TMDL report addresses total suspended solids (TSS) and bacteria (in the form of *Escherichia coli* [*E. coli*]) impairments in the Hay Creek Subwatershed. https://www.pca.state.mn.us/sites/default/files/wq-iw5-18e.pdf

Roseau River Watershed Restoration and Protection Strategy (WRAPS) Report (2020) – High-level summary of past assessment and diagnostic work and outlines ways to prioritize actions and strategies for continued implementation efforts. https://www.pca.state.mn.us/sites/default/files/wq-ws4-76a.pdf

The Minnesota Nutrient Reduction Strategy (NRS) (2014) – The NRS is a guide for reducing excess nutrients in local waters so that both in-state and downstream water quality goals are ultimately met – in this case, for the Red River of the North and Lake Winnipeg. The original NRS called for a 10% reduction of phosphorus and a 13% reduction of nitrogen in the Lake Winnipeg or Red River of the North Basin by the year 2025, based on 2003 conditions. A five-year progress report was completed for the NRS in August, 2020, and future updates of the NRS may call for additional nutrient reductions, potentially 21% for phosphorus and 30% for nitrogen, by the year 2040. https://www.pca.state.mn.us/water/nutrient-reduction-strategy.

Minnesota Statewide Chloride Management Plan (2020) – The Statewide Chloride Management Plan provides guidance, resources, and information to individuals, organizations, and municipalities to assist in making the important decisions of the what, how and when for managing chloride (salt). The plan incorporates water quality conditions, sources of chloride, salt reduction strategies, protection strategies, and monitoring recommendations as well as measurement and tracking of results. Improved chloride practices not only reduce harmful impacts on water quality, but they can also lead to long-term cost-savings as a result of purchasing less salt and reduced impacts on vegetation and corrosion of infrastructure and vehicles. While there are no chloride-impaired or at-risk waters within the 1W1P planning area, protection from chloride-induced degradation may be key, especially near and within

urban areas, and especially since there are currently no known economically feasible treatment strategies to remove chloride once it enters the environment. https://www.pca.state.mn.us/water/statewide-chloride-management-plan and https://www.pca.state.mn.us/water/chloride-salts.

Financial Assistance for Water Partners – The MPCA provides financial assistance for water quality projects in the form of grants and loans, which could be considered in partnership within the 1W1P planning process and implementation efforts. Common or useful resources might include Clean Water Partnership Program loans and Section 319 Small Watershed Focus Program grants. https://www.pca.state.mn.us/water/financial-assistance-water-projects.

Restoration Considerations

Table 1 lists streams that are identified as impaired on the 2020 Impaired Waters 303(d) list.

Table 1. Roseau River Watershed 2020 Impaired Waters 303(d) list.

Name	AUID	Description	Affected Use: Pollutant/Stressor	TMDL Status
Hay Creek	09020314-505	Headwaters to Roseau R	*Aquatic Recreation: E. coli*	Approved 2021
			Aquatic Life: TSS	Approved 2021
			*Aquatic Life:*Fish Bioassessments	Nonpollutant based stressors
			Aquatic Life: Benthic macroinvertebrates bioassessments	Nonpollutant based stressors
Pine Creek	09020314-542	Unnamed creek to Roseau R	*Aquatic Life:* Fish Bioassessments	Nonpollutant based stressors
Severson Creek (County Ditch 23)	09020314-516	Unnamed creek to Roseau R	*Aquatic Life:* Benthic macroinvertebrates bioassessments	Nonpollutant based stressors
Severson Creek/County Ditch 23	09020314-541	Severson Cr to Unnamed Cr	*Aquatic Life:* Benthic macroinvertebrates Bioassessments	Nonpollutant based stressors
Roseau River	09020314-501	Hay Cr. to MN/Canada border	*Aquatic Consumption:* Mercury in fish tissue	N/A
Roseau River Creek	09020314-502	S. Fork Roseau R. to Hay Cr.	*Aquatic Consumption:* Mercury in fish tissue	N/A
Roseau River	09020314-504	Headwaters to S. Fork Roseau R.	*Aquatic Consumption:* Mercury in fish tissue	N/A
Hayes Lake	68-0004-00	Lake	*Aquatic Consumption:* Mercury in fish tissue	Approved 2007

The pollutant reductions needed to achieve water quality attainment for the only reach that received TMDLs (Hay Creek) will require a coordinated and sustained effort. The pollutant reduction needed for TSS is 27% in the very-high flow zone, and the reductions needed for bacteria (*E. coli*) are 18% and 21% in the low- and very low-flow zones, respectively. More specific information regarding the TMDLs can be found in the RRW TMDL Report (2020).

The biologically-impaired reaches that are characterized as resulting from flow regime instability and/or insufficient physical habitat did not receive TMDLs. While these reaches did not receive numerical pollutant reduction goals, they should be prioritized as primary candidates for restoration.

Table 2 lists the four reaches prioritized for restoration activities.

Table 2. AUIDs prioritized for restoration.

AUID (090203314-XXX)	Waterbody Name	Description	Pollutant/Stressor
-505	Hay Creek	Headwaters to Roseau River	TSS, *E. coli*, flow regime instability/insufficient physical habitat
-542	Pine Creek	Unnamed creek to Roseau River	flow regime instability/insufficient physical habitat
-516	Severson Creek (CD 23)	Unnamed creek to Roseau River	flow regime instability/insufficient physical habitat
-541	Severson Creek/CD 23	Severson Creek to unnamed creek	flow regime instability/insufficient physical habitat

Protection Considerations

Waterbodies that are currently designated as supporting aquatic life and aquatic recreation should be considered for protection. The RRW WRAPS Report divided the protection category waters into three subcategories: previously impaired, potential impairment risks, and high-quality waters.

The WRAPS report uses a 'Combined Score' approach to help categorize and prioritize waterbodies for varied levels of protection. The 'Combined Score' is calculated by averaging the water quality rankings for TSS, total phosphorus (TP), total nitrogen (TN), and feedlots for each stream reach. Higher numeric score values indicate higher water quality and lower numeric score values indicate lower water quality.

Protection Category 1 (Table 3) includes waterbodies which were previously listed as impaired on the 2014 303(d) impaired waters list, but have since been removed from the list. These waterbodies have been impaired in the past, and are prioritized to prevent future impairment. These waterbodies tend to be near or occasionally exceed numeric water quality standards.

Table 3. Protection Category 1 waterbodies.

AUID (09020314-XXX)	Name	Description	Combined Score
-501	Roseau River	Hay Cr. to MN/Canada Border	45
-508	Sprague Creek	MN/Canada Border to Roseau R.	67

Protection Category 2 (Table 4) includes waterbodies which have been assessed and not deemed high-quality or previously impaired. Non-assessed streams were included to highlight locations that can potentially contribute to poor water quality throughout the RRW. These streams are often major tributaries to the Roseau River with the capacity to delivery high pollutant loads.

Table 4. Protection Category 2 waterbodies.

AUID (09020314-XXX)	Name	Description	Combined Score
-519	Lost River	Unnamed ditch to unnamed ditch	22
-502	Roseau River	S. Fork Roseau R. to Hay Cr.	29
-518	Unnamed Cr.	Unnamed Cr. to S. Fork Roseau R.	28
-539	Unnamed Cr.	Headwaters to Unnamed Cr.	28
-540	Paulson Cr.	Unnamed Cr. to S. Fork Roseau R.	60
N-1[1]	State Ditch 69	Whitney Lake ditch to Roseau R.	8
N-2[1]	Bear Cr.	Headwaters to Roseau R.	9
N-3[1]	County Ditch 8	Headwaters to Roseau R.	37
N-4[1]	Unnamed Ditch	Headwaters to Sprague Cr.	43

[1]Unassessed reaches

Protection Category 3 (Table 5) includes waterbodies which have been described in the RRW Monitoring and Assessment Report (2018a) as high-quality waters, or have biota indicative of high-quality waters. These waterbodies provide habitat for a range of less tolerant biological species and improved recreation opportunities.

Table 5. Protection category 3 waterbodies.

AUID (09020314-XXX)	Name	Description	Combined Score
68-0004-00[1]	Hayes Lake	Hansen Cr. to S. Fork Roseau R.	91
-503	Roseau R., S. Fork	Headwaters to Roseau R.	28
-504	Roseau R.	Headwaters to S. Fork Roseau R.	54
-512	County Ditch 9	T161 R37W S29, south line to Hay Cr.	54
-517	Hansen Cr.	Unnamed lake (68-0083-00 to Roseau R.)	96
-521	Judicial Ditch 63	Unnamed ditch to Mickinock Cr.	45
-522	Mickinock Cr.	Unnamed ditch to Unnamed Cr.	45

[1]DNR lake ID number

Watershed-wide reduction goals

In accordance with the NRS, the MPCA is recommending that the RRW 1W1P set a **10% watershed-wide TP reduction** and a **13% watershed-wide TN reduction** as its 10-year nutrient reduction goals. As noted in the NRS discussion above, future updates of the NRS may call for additional nutrient reductions, potentially 21% for phosphorus and 30% for nitrogen, by the year 2040.

Altered Hydrology

Altered hydrology or flow regime instability is identified as a primary biological stressor for each biologically-impaired stream reach. Alterations to hydrology (e.g., channelization, ditching, and impoundments) coupled with historical changes in land cover have caused the RRW's streams to become prone to high- and quick-peak flows, along with prolonged periods of low flows. Restoration

and protection strategies can be used to address the changing hydrology of the RRW, addressing not only the water quality impairments, but also flow regimes.

Efforts to reduce peak flows and enhance base flows should be considered especially on reaches, which identify flow regime instability as stressors (Hay Cr. -505, Pine Cr. -542, Severson Cr [CD23] -516, and Severson Cr./CD23 - 541). This may include maintaining or improving existing flood storage or water storage capacity, increasing runoff retention or infiltration, and mitigating or preventing future altered hydrology. This may also include incorporating the principles of natural channel design into stream restoration and ditch maintenance activities, as well as increasing living cover along riparian areas.

Insufficient physical habitat

The MPCA assesses habitat quality at each station where fish and/or macroinvertebrates were sampled based on land use, riparian zone, instream zone substrate, instream zone cover, and channel morphology. Efforts to improve these five categories may include reducing peak flows and enhancing base flows, establishing or protecting natural riparian areas and buffers, increasing conservation cover, controlling invasive species, streambank protection/stabilization, reducing soil erosion, dam removal or improvements, and more. This may also include incorporating the principles of natural channel design into stream restoration and ditch maintenance activities. Stream reaches in the planning area with insufficient habitat identified as a stressor are Hay Cr. -505, Pine Cr. -542, Severson Cr [CD23] -516, and Severson Cr./CD23 – 541.

Animal Feedlots, Pastures, and Manure

Bacteria, nutrients, and solids in runoff from feedlot operations, pastures, and manure application can cause aquatic recreation use and aquatic life use impairments, respectively, and degradation of water quality. Direct access of cattle or livestock from pastures to lakes and streams may cause loss of habitat, increased nutrient and *E. coli* concentrations, and increased fine sediment transport, all of which may impact fish and macroinvertebrate communities and hamper aquatic recreation. Numerous state and federal programs are available to assist feedlot and pasture owners in updating or managing their operations to minimize their effects on surface water quality. Feedlot, pasture, and manure management compliance and assistance, education and outreach, and financial assistance should be considered for additional prioritization especially near impaired or threatened waterbodies in agricultural areas.

Subsurface Sewage Treatment Systems

Failing SSTS have the potential to contribute bacteria, solids, and nutrients to surface waters that can cause impairments and degrade water quality. Compliance with SSTS rules should be prioritized in all shoreland areas, and especially where failing or noncompliant SSTS are located near impaired or threatened waterbodies.

Pollutant Sources

Sources of pollutants (e.g., TP, bacteria, TSS, and TN) in the RRW include both point sources and nonpoint sources. The RRW TMDL Study did not result in reductions beyond the current permit limits/conditions for any of the three NPDES/SDS-permitted point sources that discharge in the RRW (i.e., Roseau WWTP, Warroad WWTP, and Polaris Industries). Prioritization of nonpoint anthropogenic

sources in the RRW would include livestock, cropland, channelization, and failing subsurface sewage treatment systems (SSTS).

The following list describes some of the major water quality concerns and implementation strategies identified in the WRAPS Plan:

- **Nutrients (TP and TN) –** Nutrient management, field edge buffers and filters, side water inlets, tillage and residue management, tile drainage water treatment/storage, forestry management, stream channel protection, and converting land to perennials;
- **Sediment (TSS) –** Field edge buffers and filters, side water inlets, tillage and residue management, tile drainage water treatment/storage, forestry management, stream channel protection, converting land to perennials, and drainage ditch modifications;
- **Altered Hydrology –** Restore/protect stream banks and ravines and manage habitat and stream connectivity;
- **Biological communities –** Restore/protect stream banks and ravines, manage habitat and stream connectivity, field edge buffers and filters, side water inlets, tillage and residue management, tile drainage water treatment/storage, forestry management, stream channel protection, converting land to perennials, and drainage ditch modifications; and
- **Bacteria –** Feedlot runoff controls, pasture management, and septic system improvements.

Additional information identifying restoration and protection strategies for individual lakes and streams can be found in the Strategies and Actions Tables located the WRAPS report. Additionally, the WRAPS report contains maps identifying subwatersheds with high TSS, TP, TN, and potential bacteria loading rates based upon Hydrologic Simulation Program – FORTRAN (HSPF) modeling and the Scenario Application Manager (SAM) application.

Thank you for the opportunity to provide input on the watershed's resource concerns. Please feel free to contact me with any questions at cary.hernandez@state.mn.us or at 218-846-8124.

Sincerely,

Cary Hernandez

This document has been electronically signed.

Cary Hernandez
State Program Administrator Principal
Watershed Division

cc: Matt Fisher, BWSR
Jim Courneya, MPCA