



MESERB

Minnesota Environmental Science
and Economic Review Board

Using science and economics to improve environmental regulations

September 10, 2025

Corrie Layfield
Minnesota Pollution Control Agency
520 Lafayette Rd.
Saint Paul, MN 55155

VIA Public Comment Form

Re: MESERB Comments on the Minnesota Nutrient Reduction Strategy 2025 update

Dear Ms. Layfield:

Thank you for the opportunity to offer the following comments on the draft Minnesota Nutrient Reduction Strategy (“MNRS” or “Strategy”). As a representative of the Minnesota Environmental Science and Economic Review Board (MESERB), I am writing to share MESERB’s comments on the Minnesota Pollution Control Agency’s (MPCA) 2025 update to the Strategy. Established in 1997, MESERB is a municipal joint powers organization dedicated to researching, studying, and analyzing water quality issues that are important to Greater Minnesota communities. MESERB has over 60 members who together represent more than 630,000 Minnesotans and over 140 million gallons of wastewater treatment capacity.

In general, MESERB commends the MPCA and its partner agencies for developing a coordinated, statewide approach to nutrient reduction. However, the burden of nutrient reductions falls disproportionately on municipal point sources. Municipal wastewater treatment facilities are being required to spend millions of dollars to address impairments overwhelmingly driven by nonpoint sources, with their individual contributions often amounting to a single percentage point (or less) of the overall nutrient load.

These concerns are particularly acute with respect to nitrogen. Last year, MESERB submitted a detailed letter and technical comments on the draft nitrogen criteria, raising concerns about the significant costs such standards would impose on both municipalities and the state, the reliance on limited scientific data, and the importance of expressing any new limits as nitrate rather than Total Nitrogen (TN). The proposed 10 mg/L state discharge restriction modeled after Gulf of Mexico TN reduction goals would require extremely costly treatment upgrades across Minnesota while achieving only a modest percentage reduction in nitrogen loading.

As indicated by the MPCA’s most recent WINS Survey, the costs associated with operating and maintaining wastewater infrastructure are increasing, and there is a tremendous unmet need for ongoing infrastructure funding at the state and federal levels. Our concern is that the 2025 Strategy could lead to exponentially increased costs for municipalities to remove nutrients, and that there simply are not enough local, state, and federal resources available to cover the costs. As a result, the MPCA must consider how to best prioritize its clean water efforts to ensure that limited local, state, and federal resources are put to maximum effect.

I. General Comments

The 2025 update to the MNRS emphasizes broad TN reductions across all watersheds. MESERB supports nitrogen reductions where they are scientifically demonstrated to protect human health and aquatic life, but the updated Strategy does not provide adequate support for imposing a categorical statewide requirement for TN reduction.

MESERB has consistently emphasized (including the 2013 MNRS and our 2023 and 2024 comments on the MPCA's draft nitrate criteria and the Wastewater Nitrogen Reduction and Implementation Strategy) that nitrogen controls must be targeted, cost-effective, and grounded in adopted water quality standards. Our concerns remain:

1. **Focus on Nitrate Where Risks Are Demonstrated** – Nitrogen reduction efforts should be prioritized where nitrate poses clear human health or aquatic life risks, such as Class 1 drinking water impairments, IBI impairments, or toxicity-based aquatic life standards. This focus aligns with scientific evidence and with the MPCA's Wastewater Strategy.
2. **Phosphorus-First and Cost-Effective Measures** – TN reductions should not be imposed where phosphorus or other cost-effective measures (e.g., riparian buffers, canopy restoration, nonpoint source practices) are sufficient to control algal growth.
3. **Rulemaking and Transparency** – Any new nitrogen-based water quality standard, including the proposed 10 mg/L State Discharge Restriction (SDR), must undergo a formal rulemaking process. This ensures public access to supporting science, a transparent evaluation of costs and benefits, and a meaningful opportunity for comment.
4. **Economic Impacts and Local Priorities** – The proposed 10 mg/L SDR, modeled on national nutrient reduction goals for the Gulf of Mexico and international nutrient reduction goals for Lake Winnipeg, will impose significant costs on municipal facilities for limited local benefit. The MPCA should prioritize standards that directly protect Minnesota waters and conduct a thorough cost-benefit analysis of implementing the SDR and Lake Winnipeg-based targets before imposing any requirements associated with these efforts. Further, any nutrient reduction efforts tied to the Gulf of Mexico or Lake Winnipeg should be voluntary for municipalities, and the MPCA should prioritize cost-effective and flexible implementation strategies like nutrient trading.
5. **Nitrate vs. Total Nitrogen Limits** – Limits should be expressed as nitrate, not total nitrogen. As we have previously noted, soluble unbiodegradable organic nitrogen (SON/DON) cannot be feasibly removed through current treatment processes. Expressing limits as total nitrogen risks forcing unnecessary and costly facility upgrades for reductions that may be technologically infeasible and environmentally insignificant.

Without these adjustments, Minnesota communities risk expending substantial resources on TN control measures that will have limited impact on local water quality while increasing energy use and greenhouse gas emissions. MESERB strongly urges the MPCA to refine the Strategy to

focus on standards that are scientifically supported, locally relevant, and cost-effective for both municipalities and the state.

II. The proposed 10 mg/L SDR to protect the Gulf of Mexico

The Gulf of Mexico (“Gulf”) has long been identified as an area adversely impacted by nutrient loadings from the Mississippi River Basin. The 2013 Strategy emphasized Minnesota’s role in protecting the quality of downstream waters, and the 2025 Update reiterates this connection in the context of Gulf hypoxia reduction goals. MESERB supports voluntary reduction efforts and nutrient trading to address these goals. However, while some studies and modeling (such as the 2008 Action Plan) have been completed under the MNRS, they have not been subject to formal public scrutiny, nor has a Total Maximum Daily Load (TMDL) been developed that clearly identifies the nutrient reductions required to protect the Gulf. As a result, the public has never been provided with a meaningful opportunity to evaluate the science or the fairness of the responsibility assigned to Minnesota sources beyond any voluntary reduction efforts.

This lack of due process is especially significant for municipal facilities given the concerns we have raised in past comments on nitrogen criteria. As we noted in 2024, the proposed 10 mg/L state discharge restriction (modeled in part on Gulf reduction goals) would impose substantial costs for only a modest percentage reduction in statewide nitrogen loading. The reliance on limited scientific data, and the decision to express limits as Total Nitrogen (TN) rather than Nitrate ($\text{NO}_3\text{-N}$), compounds these concerns. Agricultural sources remain the primary contributors to Gulf hypoxia, while the degree to which municipal discharges from Minnesota affect Gulf conditions is negligible. Without a clear, science-based demonstration of the need and benefit of reducing municipal TN contributions beyond what is required to protect human health and aquatic life in Minnesota, applying a uniform 10 mg/L TN limit across the state risks imposing extraordinary costs with little measurable benefit.

The attenuation of nitrogen through natural denitrification further reduces the likelihood that most municipal discharges in Minnesota reach the Gulf. Research shows that TN is lost at rates of roughly 0.1 per day in smaller rivers and streams, such that discharges north of the Twin Cities metro area are highly unlikely to exit the state. Given this physical reality, there is no reasonable basis to assume that all municipal wastewater loadings of TN must be reduced to protect Gulf waters. We encourage the MPCA, before advancing large-scale TN reductions, to first conduct targeted monitoring and load analyses to better understand attenuation in the Minnesota River, other major tributaries, and between the Metro area and Lake Pepin. This step is essential to determining whether there is any actual need for Minnesota-wide TN controls tied to Gulf protection.

The 2025 Strategy Update itself acknowledges that agriculture is by far the largest contributor of nutrients to Minnesota’s waters and to downstream impairments in the Gulf, with over 70% of statewide nitrogen and phosphorus loadings originating from agricultural nonpoint sources. Unlike municipal point sources, agricultural sources are not subject to NPDES permitting requirements under the Clean Water Act. This disparity means that while municipalities face increasingly stringent and costly permit obligations, the dominant sector contributing to nutrient loading remains largely outside regulatory control. Without addressing agricultural contributions

in a meaningful way, the Strategy risks imposing disproportionate burdens on municipal wastewater treatment facilities without producing significant improvements in Gulf water quality.

Finally, if the MPCA determines that a 40% reduction in TN leaving the state remains a priority, the most effective and equitable approach would be to focus advanced treatment requirements on the three largest municipal facilities located directly on the Mississippi River. Enhanced nitrogen removal at these facilities alone is projected to reduce TN loadings by 60–70%, which would exceed the 40% target identified in the Strategy. This focused approach would achieve meaningful reductions where they are most effective, while avoiding the unnecessary financial and operational burdens that broad, statewide TN requirements would place on smaller communities.

III. Lake Winnipeg

Minnesota has already made meaningful progress in reducing phosphorus discharges from municipal wastewater facilities. Looking ahead, the state should direct its resources toward areas where further reductions are necessary to improve aquatic health and water quality within Minnesota. While we recognize the importance of regional and interstate cooperation on nutrient reduction, Minnesota's immediate focus must remain on addressing in-state needs before asking municipal facilities to bear additional costs to solve problems that originate outside of Minnesota's borders.

MESERB believes that phosphorus reduction efforts aimed at Lake Winnipeg should be voluntary for wastewater facilities and that the multiple City effort administered by the Red River Basin Commission should continue to receive MPCA and state support. Importantly, municipal wastewater facilities in Minnesota, including the Red River Basin, have already achieved substantial phosphorus reductions since the inception of the Nutrient Reduction Strategy more than a decade ago. These reductions have largely come from facility upgrades and optimization efforts, and they demonstrate that meaningful progress has been achieved without mandating additional phosphorus controls in this basin.

We are concerned that further phosphorus mandates on municipal facilities would impose disproportionate costs without providing measurable improvements toward the Lake Winnipeg goal, particularly given Minnesota's limited overall contribution to the basin relative to upstream and Canadian sources. Wastewater recommendations in the update should therefore remain focused on voluntary, collaborative approaches to phosphorus control and be encouraged where cost-effective and supported by local partners.

Thank you for your consideration of our letter. MESERB looks forward to working with the MPCA on these critical issues. If you have questions about this letter, please contact me at jgad@mankatomn.gov and copy our consultant Daniel Marx at dmmarx@flaherty-hood.com.

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Sincerely,

MINNESOTA ENVIRONMENTAL SCIENCE AND ECONOMIC REVIEW BOARD

A handwritten signature in blue ink, appearing to read "Joshua Gad", written in a cursive style.

Joshua Gad
MESERB president
WRRF Superintendent, City of Mankato