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Submission to the Standing Policy Committee on Water, Waste and Environment

**Re: Item No. 1** – Request for Budget Revision for the NEWPCC Upgrade: Nutrient Removal Facilities Project  
**and Item No. 2** – 2025 to 2027 Revised Sewer Volume Rates

*Presented by Dr. Alexis Kanu, Executive Director, Lake Winnipeg Foundation*

Mr. Chair, Councilors Chambers, Mayes & Rollins,

As expected, the new cost estimate to complete biological nutrient removal facilities at NEWPCC is astronomical: \$1.491 billion – up 80% from the 2018 estimate.

Once upon a time, the cost of all three phases of the NEWPCC Upgrade project was just a fraction of the budget you are now being asked to approve for Phase 3 alone.

It is fair to say that this project has got away on us.

I agree with Mayor Gillingham’s comments last week: ratepayers in Winnipeg cannot be held financially accountable for the cost overruns of a project that was supposed to be completed in 2014. Different funding sources must be explored.

At the same time, improved sewage treatment is an urgent priority in Winnipeg, and I appreciate that both the current Council and city staff recognize this urgency and are committed to finding solutions.

In the City of Winnipeg 2020 Infrastructure Plan,<sup>1</sup> NEWPCC upgrades are listed as top priorities. The Biosolids Facilities are priority #1, in fact, and we all know why. Biosolids capacity is projected to run out in four to six years, and we are in a race against time to ensure the new facilities are completed by 2030. The main driver for this project, as identified in the Infrastructure Plan, is Growth.

The Biological Nutrient Removal Facilities are priority #4 in the Infrastructure Plan. The main driver for this project is Regulatory. As today’s report states, this project is required to “meet the City’s Environmental Act Licence.” Provincial requirements in this licence include, among others:

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<sup>1</sup> [City of Winnipeg 2020 Infrastructure Plan](#)

- The requirement to meet a total phosphorus limit of 1 mg/L;
- The requirement to meet a total nitrogen limit of 15 mg/L;
- The requirement to use biological methods to reduce nutrients; and
- The requirement to maximize the reuse of biosolids.

Sixty years ago, jurisdictions around the eastern Great Lakes were faced with the same dilemma you face now. Increasing algal blooms in those lakes were raising public concern, causing ecological changes, and economic challenges. Municipal, provincial and federal leaders wanted to know what was causing these algal blooms, so that they could direct their investments to the right solutions and avoid wasting their money on conjecture.

In response to these questions, the Experimental Lakes Area (ELA) was formed, with the direct mandate to understand the causes, consequences, and controls of freshwater eutrophication.

Five decades of peer-reviewed research at ELA (now called the IISD-Experimental Lakes Area) has demonstrated conclusively that [phosphorus is the cause of blue-green algal blooms in freshwater lakes](#). Research from IISD-ELA has been applied all over the world to successfully reduce algal blooms by reducing phosphorus loads – in Lake Erie (Canada); Lake Geneva (Switzerland, France); Lake Balaton (Hungary); Lake Maggiore (Italy); Lake Washington (US); and Lake Constance (Switzerland, Austria, Germany).<sup>2</sup>

And in Lake Winnipeg. Because you, Councilors, must be recognized for implementing the interim chemical phosphorus reduction system at the north end treatment plant. I commend you for adopting an evidence-based approach that is fully aligned with ELA research. And I note that the City of Winnipeg funded NEWPCC's new chemical phosphorus reduction system *in full*. In fact, the last time I spoke before this committee, it was in support of a budget revision for the chemical phosphorus reduction system, which was approved by Council at a total cost of \$17 million.

City Council has already invested, very strategically, in sewage treatment infrastructure that can be leveraged to achieve phosphorus compliance by the provincial deadline of 2030. If efforts to seek other funding partners cause delays in completing the full Phase 3 project, it is still possible – and imperative – to achieve phosphorus compliance using existing infrastructure. This will demonstrate the city's commitment to improving sewage treatment, and will ensure critical environmental protection for Lake Winnipeg.

The chemical phosphorus reduction system has been up and running at NEWPCC since June of last year. New infrastructure, including a rail spur, chemical storage building, and a network of pipes and pumps, delivers ferric chloride to 13 dosing points throughout the plant. Wastewater treatment plant operators are able to customize dose timing, amount and location to maximize phosphorus removal while minimizing sludge production.

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<sup>2</sup> Schindler, D.W., Carpenter, S.R., Chapra, S.C., Hecky, R.E., and Orihel, D.M. 2016. Reducing Phosphorus to Curb Lake Eutrophication is a success. *Environmental Science and Technology*, **50**: 8923-8929.

This system has incredible potential – but we are not yet using its full potential. As of the most recent published report, in September 2024, ferric chloride was being dosed at only three of the 13 dosing points, and at only 11% of the consultants’ recommended rate.<sup>3</sup> As city staff get increasingly familiar with this new system, this dosage must be increased and new dosing points must be added to realize the full potential of chemical phosphorus reduction.

It's important to note that Winnipeg’s South End Water Pollution Control Centre first achieved phosphorus compliance in August 2022 using ferric chloride. Phosphorus compliance was maintained via the chemical system at that plant through to September 2024, while the biological system was not yet complete.

Just as at the south end plant, chemical phosphorus reduction can be made to work at NEWPCC to achieve phosphorus compliance *at or before* the provincial deadline of 2030.

Now that the City has rightfully invested in this chemical phosphorus reduction system, you must closely monitor its operations in the coming months and years, to ensure that ferric chloride doses are increased beyond 11% of the recommended rate and that more of the 13 dosing points are added in order to achieve the phosphorus limit of 1 mg/L.

I am certain you will be warned by department staff that chemical phosphorus reduction increases the production of sludge. As ferric chloride is mixed with the sewage, it binds to phosphorus, pulling it out of the liquid waste and into the solid waste. This prevents phosphorus from being released into the river with the liquid effluent, and it also results in bulkier sludge, which now contains all the ferric-bound phosphorus.

In part to accommodate this sludge – and also in response to project delays – Water and Waste department staff adjusted the design of the new Biosolids Facility back in 2022 to increase its capacity and its expected lifespan. The new digesters will be sized to accommodate population growth to 2050 – rather than 2037 as originally planned.

The cost for this increased digester capacity – 13 more years of sewage treatment capacity – was just \$130 million.<sup>4</sup>

That’s a steal of a deal – \$130 million compared to \$1.491 billion.

I am certainly not saying these two projects are interchangeable. But I am pointing out that there are workable options – feasible solutions to meet phosphorus limits and to extend the life of the plant – that can be implemented now as we prudently consider alternative approaches and funding models for the high-cost Phase 3 project described in today’s reports.

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<sup>3</sup> November 15, 2024. [Quarterly Progress Report for NEWPCC Upgrades: July 1 – September 30, 2024](#). Manitoba Public Registry 1071.10.

<sup>4</sup> July 21, 2022. Council Minutes. [4. Procurement Model Recommendation and Revised Cost Estimate for the North End Sewage Treatment Plans \(NEWPCC\) Upgrade – Biosolids Facilities Project](#).

I urge you not to shoulder the full financial burden of the Phase 3 project alone. This will be the largest infrastructure project in Winnipeg's history – a high-risk project that even the market is nervous to engage with. Other levels of government must step up to the plate – and in particular, the province of Manitoba must come to the table with a significant funding contribution. From my perspective, given that their regulatory requirements exceed evidence-based best practices for managing algal blooms, the province's financial contribution to Phase 3 of NEWPCC upgrades must be higher than the usual 1/3 split requested from other levels of government.

In the meantime, even if you can't achieve *all* the provincial regulatory requirements by 2030, you can certainly achieve the most important one. The city can demonstrate its commitment to protecting Lake Winnipeg by meeting its phosphorus limit. Use the system you've already built to its maximum potential. If you commit to this approach, you will be on the right side of science, you will be demonstrating tangible progress to provincial regulators, and you will be making a sound decision to leverage your existing investment instead of placing new financial burdens on your constituents.

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*The Lake Winnipeg Foundation (LWF) advocates for change and co-ordinates action to improve the health of Lake Winnipeg. Our long-term goal is to ensure policy and practices informed by evidence are implemented and enforced.*

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