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# Asylum Lake Stormwater Treatment System awarded $550,000 to effectively address phosphorus, road salt pollution from stormwater runoff

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KALAMAZOO, Mich.—A recent $550,000 state grant is helping make possible an innovative new system engineered to improve the water quality of Asylum Lake, which is located in Western Michigan University's 274-acre Asylum Lake Preserve. The project will include a never-before-tried design developed to remove chlorides associated with salting the roads in winter.

The $550,000 grant for the Asylum Lake Stormwater Treatment System was included in the fiscal year 2023 budget for the state of Michigan and was allocated to the Asylum Lake Policy and Management Council, a body that in partnership with Western helps manage the preserve.

**State Rep. Julie M. Rogers**, who represents the Kalamazoo area, was instrumental in securing this critical allocation, which will fund the work to lower phosphorous discharges into the lake as well as support research into remediating runoff from road salt.

"Protecting our natural resources from pollution is essential," Rogers said. "I proudly fought to include funding to protect Asylum Lake from pollution-laden stormwater and repair some of the damage that's already been done. The council will work with Western Michigan University to monitor outcomes, which will help provide solutions for mitigating impacts to water systems throughout Michigan."

The state funding will cover most of the project's overall $775,000 cost, with the management council financing the remaining balance.

"We are grateful to Rep. Rogers for making this remediation work a priority for our community," said **Pete Strazdas,** chair of the Asylum Lake Policy and Management Council and, until his recent retirement, associate vice president for facilities management at Western.

"Asylum Lake is a great asset for our region, and this generous support will help protect this important natural feature and advance research that ultimately may be a game changer for bodies of water anywhere in the country adversely impacted by road salt runoff."

Asylum Lake, located on the northeast corner of Parkview Avenue and Drake Road, is part of the Arcadia Creek-Portage Creek Watershed and the broader Kalamazoo River Watershed. Stormwater monitoring over time has demonstrated the presence of phosphorus in the 47-acre lake as well as the presence of salt from adjacent roadways.

The council and the University are committed to pursuing an innovative stormwater treatment system to protect the lake. The Asylum Lake Stormwater Treatment System is designed to remove sediments and nutrients before runoff is released into the water. It will cleanse stormwater diverted from existing storm sewer infrastructure along Drake Road, starting with a mechanical treatment device connected to the city stormwater piping to capture coarse sediment. This device will require twice-per-year clean-out—a commitment offered by the city of Kalamazoo.

From the treatment device, stormwater will be directed to a collection pond and infiltration trench where it will be filtered through soils along 800 feet of Asylum Lake's northwest shoreline before entering the lake as shallow groundwater.

Under most rainfall events, runoff will be fully treated through this system, removing almost all phosphorus and sediment from stormwater and providing the most cost-effective and immediately beneficial solutions to addressing nutrient impacts. But what this—or any other stormwater treatment system in the nation—cannot do is remove chlorides associated with road salting.

Western, the council and water-quality experts are tapping into the innovative design of the Asylum Lake Stormwater Treatment System to include never-before-attempted innovations to capture chlorides during winter months in the same soils of the infiltration trench capturing the phosphorus. WMU researchers will be carefully monitoring how well this system works for salt catchment. If successful, it has the potential to be widely applied to other bodies of water affected by road salt.

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