

# DANE COUNTY LAKES & WATERSHED COMMISSION

## 2019 BUDGET RECOMMENDATIONS

### OVERVIEW

The Dane County Lakes and Watershed Commission's charge is to protect and improve water quality, as well as the scenic, economic, recreational, and environmental value of Dane County's water resources. Dane County's lakes, rivers, and streams provide quality of life for all residents and are a foundation for our economy. We enjoy boating, fishing and paddling on the 69 lakes and ponds and the 52 rivers and streams. In addition to recreational activities, our waters also support industry and agriculture. Our groundwater resources are critically important, for the 523,645 residents who depend on it for drinking water and for the surface waters who depend on it for replenishment. The Dane County Lakes and Watershed Commission (LWC) recommends the following investments part of the 2019 Dane County Budget. These investments build on current programs and leverage contributions of partners, including our cities, villages, and towns; the Madison Metropolitan Sewerage District; Clean Lakes Alliance; Yahara WINs; farmers, other private sector land and water managers, citizen volunteers, and others.

**I. Public Safety Initiatives.** Dane County takes pride in our rolling farmland and rich rural life, our thriving downtowns, and the lakes and streams so central to our communities. However, climate change and increased precipitation brings new health risks and potential damage to property and crops. We must address these risks by adopting stronger policies and investing in programs to respond and mitigate these risks.

**A. Expanded Beach Health Monitoring, Education and Public Notification.** Public Health Madison and Dane County (PHMDC) staff provides monitoring of lakes and shoreline waters for chemical and microbiological indicators, assures compliance with the State storm water regulation mandates (WI Admin Code NR 216) for illicit discharge detection and elimination, monitors point source discharges of chemicals from local industries and businesses and maintains permits for their facilities to assure adequate discharge water quality, assures water quality and regulatory testing compliance (SDWA) for municipal water customers and private well testing and consultation for home owners, and assures compliance with WI Admin Code Chapter NR 507 mandate of environmental monitoring for five closed landfills. The monitoring function of PHMDC is critical for informing county-wide decision-making.

Last year, beaches in Madison alone were closed 103 days because of either high levels of pathogenic bacteria or *Cyanobacteria* (blue green algae). These pathogens are naturally present in the water and soil (*Cyanobacteria*) or enter through runoff containing animal waste (*E. coli* and *Salmonella*). Heavy rainfall increases this risk as does high temperatures and high phosphate concentrations in the lakes. *Cyanobacteria* produce multiple toxins which are toxic to humans and pets. *E. coli* and various *Salmonella* species produce a variety of intestinal infections varying from very mild to life threatening. Children and elderly are especially vulnerable. To protect public health, Public Health Madison and Dane County (PHMDC) monitor area beaches for these water-borne pathogens and close those beaches where levels are high enough to pose a health risk. The increased heavy rains and high temperatures that we have been experiencing recently and the the high phosphorus levels in the lakes has raised this previously manageable situation to the level of a significant public health risk and reduces recreational activities for Dane County residents. *We recommend increased funding for PHMDC to provide additional staff and supplies for collecting and processing more frequent sampling at beaches. Also, in addition to closing beaches when contamination levels are high, we recommend PHMDC also communicate lake-wide health advisories about water quality risks (directed at the general public and lake users outside of beaches. i.e., anglers and boaters).* A risk notification system similar to the "Slow No Wake" response may be helpful.

**B. Lake Safety.** The Dane County Sheriff's office provides deputies to patrol the lakes, enforce safe boating regulations, and respond to emergencies. The marine patrol sheriff deputies are unable to effectively patrol all the lakes in Dane County because of inadequate staffing levels. *The LWC recommends hiring an additional deputy to increase patrol coverage during the summer, enforcing no-wake periods, and reducing response time during emergencies.*

**C. Urban Water Quality Grant Program.** Since 2005, Dane County has provided nearly \$10 million in cost-sharing funds to municipalities via the Urban Water Quality Grants (UWQG) for re-construction of stormwater outfalls and other projects. *To strengthen this program, LWC recommends that the Urban Quality Grant Program prepare a written annual water quality report to the LWC and the general public to document projects funded and progress toward water quality improvement goals.*

**D. “Next Generation” Stormwater Management for Dane County.** The National Climate Assessment indicates that flooding and associated damage to infrastructure will continue to increase in the Midwest. UW researchers have reported that without major changes in stormwater management policies damages from Yahara Lakes flooding will increase dramatically. These researchers developed a computer model and superimposed the historic 2008 Lake Delton storm over the county, showing Lake Mendota overtopping its banks and catastrophic damage to property and crops. In response to this research, the Dane County Lakes and Watershed Commission and Capital Area Regional Planning Commission convened a joint Stormwater Technical Advisory Committee to make policy recommendations for improving stormwater volume control practices and reduce flooding. It recommended strengthening stormwater volume control ordinances for new and redeveloped lands and developing a county-wide stormwater volume trading / fee in-lieu program. *LWC recommends that Dane County support these recommendations and provide \$100,000 for a county-wide analysis of a fee-in-lieu program for managing stormwater volume and \$200,000 to establish two next-generation stormwater volume pilot projects.* The pilot projects will help ground-truth estimated costs and benefits of a fee-in-lieu of credit program.

**E. Enhanced Aquatic Plant Cutting in the Yahara River Chain-of-Lakes.** Data from the Dane County Land and Water Resources Department shows increased cutting of aquatic plants in the Yahara River significantly increases water flow, which in turn allows better management of lake levels, especially during high water events. Additionally, aquatic plant management supports more outdoor recreation and helps to minimize losses of water-based economic activity. *The LWC requests the purchase of an additional weed harvester and additional staff hours to manage the expanded cutting.*

**F. Crystal Mud Lake Rehabilitation District.** The water levels of Crystal Lake have risen significantly since the 1950s causing damage to property and health risks from flooded septic systems. A 2003 engineering feasibility study estimated the area has invested more than \$1 million in costs for flood abatement. In 2013, the Lake District received a WPDES permit from DNR to discharge water from Crystal Lake to a tributary of the Roxbury Creek (in addition to its permit to discharge water from Fish Lake to the Wisconsin River to control high water levels and reduce flooding. Pumping at Crystal Lake is seen as critical, because should Crystal Lake overflow, flooding would overwhelm Fish Lake, which is 11 feet lower and would flood private farmland between Fish Lake and the Wisconsin River. *LWC recommends \$5000 to assist with pumping costs and \$2000 for water quality testing (biochemical oxygen demand, phosphorus, dissolved oxygen and suspended sediments.)*

**II. Initiatives to Reduce Phosphorus Pollution.** According to the DNR, in 2018, 40 bodies of water in Dane County did not meet water quality standards because of pollution. We can do better. Excess phosphorus, largely from farm runoff, is recognized as the primary pollutant. Wisconsin is one of the first states to have a numeric phosphorus water quality standard for lakes and streams and is the only state to include an innovative, regulatory compliance option, called Watershed Adaptive Management. This law allows the regulated wastewater point source (Madison Metropolitan Sewerage District, MMSD) to work with nonpoint sources (agricultural producers, municipal storm water utilities, etc.) on cost effective strategies that target phosphorus reduction while achieving water quality criteria. The first adaptive management project in the nation, called Yahara WINS is being led by MMSD, who has contracted with Dane County (Land and Water Resources Department) to assist farmers in implementing conservation practices that reduce agricultural phosphorus levels. In addition, the County’s taxpayers have invested in the construction of manure storage facilities, manure digesters, composting and other new technologies to remove phosphorus from manure and stream sediments. We support these ongoing investments, but we must enforce current agricultural performance standards and need conservation efforts to target critical parts of the landscape, where investments in conservation practices will result in verifiable, high levels of soil and nutrient retention. Every pound of phosphorus in our lakes has the capacity to create up to 500 pounds of algae, reducing water quality and the ability to use our lakes for fishing, swimming, and other water recreation.

**A. Green Lands Blue Waters: Perennial Agriculture Cost Share and Conservation Easement Program.** Cost sharing for conservation programs is typically the amount that is needed to encourage a farmer to install and maintain a conservation practice. This new conservation program is designed to complement the investments in reducing legacy sediments by implementing upstream perennial agriculture practices. One of the best performing practices for reducing run-off and improving water quality is maintaining perennial vegetative cover on the land. *LWC recommends \$20 million in capital funds (\$4 million/year) for this program with the goals of 1) establishing 100,000 acres of perennial vegetation practices in Dane County in five years (native prairies and non-native pastures), 2) providing education and technical assistance to land owners (including non-farmer landowners) on ways to integrate perennials (perennial cover crops, prairie strips, harvestable buffers, alley cropping etc.) into farm plans and leases targeting fields that contribute high levels of phosphorus and 3) expanding the use of conservation easements.* During this period, leases for all county-owned land (purchased via the taxpayer-funded Dane County Conservation fund) will be converted to 100% perennial vegetation. In the Yahara River Watershed, we recommend exploring a matching cost-share program with Yahara WINS for perennial

**B. Create a Dane County Office of Grazing and Sustainable Agriculture.** In partnership with the new Green Lands Blue Waters cost-share program, *LWC recommends the creation of an office co-located in the Dane County Extension and Land and Water Resources Office dedicated to the idea that grass-based livestock systems, in particular intensive rotational grazing of well-managed pastures are among the best land-use practices for water quality and provide important ecosystem services (crop pollination, climate stabilization, flood mitigation, clean water, and wildlife habitat). We recommend joint funding of this new office with Yahara WINS and integrating it into the adaptive management program.* Grazing farms typically have fewer capital investments and are an affordable way for beginning farmers to start farming. Grazing may also assist larger, confinement operations looking for ways to reduce manure volumes and reduce costs by grazing non-milking cows. Brown County reported a 35 to 51% cost savings from grazing dairy heifers compared to replacing confinement heifers. Grazing operations can rebuild soil health and healthy soils act as carbon and nutrient sinks. This office would provide free training and technical assistance and create farmer networks, conduct pasture walks, and provide small grants (for fencing etc.) to farmers interested in exploring grazing.

**C. Partner with the University of Wisconsin to predict and validate phosphorus reductions.** Researchers in the UW-Madison College of Agricultural and Life Sciences recently were awarded a UW2020 grant to establish the *UWLandLab*, whose mission is to “enable creative problem solving of land use issues through science-based ecological solutions.” The focus of the *UWLandLab* is on convening stakeholders in a “fair and safe place” to identify solutions and improve phosphorus reduction outcomes. *We recommend that Dane County Land and Water Resources Department collaborate with UWLandLab researchers to assist its contracted role in MMSD’s adaptive management implementation efforts and annually present to LWC, EANR, and LCC its strategy for implementing phosphorus reductions.*

**D. Improve Nutrient Management Planning, Compliance and Phosphorus Accounting.** Because clean lakes and streams and safe drinking water are important to all, the State of Wisconsin, with the support of farm organizations, adopted minimum agriculture performance standards, including mandatory nutrient management (NM) plans, for all Wisconsin farms. Counties are responsible for implementing state farm conservation and NM standards. Yet today, according to the Wisconsin Department of Agriculture, Trade and Consumer Protection, fewer than half of farms in Dane County have NM plans that meet state standards. Improved nutrient management and conservation compliance could significantly reduce phosphorus. For example, farmers in the Pleasant Valley watershed achieved a well-documented 55% reduction in P runoff. *LWC recommends the County work with Yahara Pride Farms and other farm organizations to implement a systematic compliance plan, targeting livestock operations in the Mendota watershed by providing cost share for nutrient management plans, developing a system for collecting and adopting a citation system for those that refuse to comply. The County should also support, in partnership with Yahara WINS, the development of a transparent phosphorus accounting system (starting in the Yahara River Watershed) that tracks soil phosphorus levels, inputs to the watershed, (fertilizer and manure) phosphorus balance (inputs minus crop uptake) and phosphorus loads to surface water.*

**E. Matching grants for watershed and farmer-led groups for local planning and implementation.** Successful land and water management includes understanding the ecology of a place and the needs and motivations of the people that use and impact the land and water. Leadership by farmers and other citizens in local watersheds is critical for short- and long-term success. Multiple literature reviews and the personal experience of many professionals and volunteers indicate that effective watershed coordinators are integral to successful collaboration within watershed initiatives. Therefore, Dane County should work with partners to provide sustained funding and support for watershed leadership and coordination throughout Dane County by providing matching grants for citizen organizations, including farmer-led organizations to coordinate and participate in watershed planning, implementation, and monitoring. Small grants would support the growth of local watershed leadership and outreach. They would complement existing funding for conservation practices. Coordinators would work with LWRD and partners to set prioritize watersheds and tasks. They would also work with Land Conservation staff and others to integrate farm and property scale technical assistance up to watershed scale performance and communication of results. Coordinators would work to build trust and shared direction in watersheds, as well as support science and data-based conversations about both well-understood and innovative conservation practices.

**III. Initiatives to Reduce Chloride Pollution.** Average annual chloride levels in groundwater have increased rapidly in the last 20 years. Although not a human health hazard, increased salt levels impair the taste of drinking water. Today, thanks in part to the work of the multi-agency Wisconsin Salt Wise partners (<https://www.wisaltwise.com>), there is expanded public awareness that salt use applied to roadways, parking lots, sidewalks and driveways and inefficient water softeners have markedly increased chloride levels in area lakes, creeks, marshes, and groundwater. Some estimates show that deicers applied to sidewalks, driveways, and parking lots comprise about one half of the total road salt applied in Dane County strengthen the message to the public on this issue.

**A. Voluntary certification and training.** *LWC recommends continued support for a Dane County certification program for winter maintenance of parking lots and sidewalks and maintaining the current OLW staff time focused on chloride reduction.* The county should also continue improvements in its own organizational practices, including the good work being done by Dane County Highway and Transportation and Dane County Facilities management to reduce salt and de-icers, including upgrading water softeners in county facilities.

**IV. Enhanced Community Outreach and Education Initiatives.** The decisions people make every day ultimately determine whether we have clean water. Helping people be effective water stewards in big and small ways is empowering and more cost effective in the long run. The Lakes and Watershed Commission supports the following investments to expand community engagement in water stewardship.

**A. Continued County Investment in Office of Lakes and Watershed.** *The LWC recommends continued county investment in the Watershed Management Coordinator and Strategic Engagement Coordinator positions in the Office of Lakes and Watersheds and the MAMSWAP position hosted by Water Resources Engineering.* Dane County's investment in watershed leaders through the Dane County Watershed Network and volunteer engagement has paid great dividends, increasing awareness and focus of the role of watershed organizations in addressing clean water goals.

**B. Lake Explorer Camp: Educating and Diversifying Youth.** The Lake Explorer Camp, is a free summer enrichment program for elementary and middle school age children. It is a partnership between Clean Lakes Alliance, Madison Boats, the Boys & Girls Club of Dane County, and Bayview Foundation, Inc. The program lasts for two weeks: one week for Boys & Girls and one week for Bayview. The Lake Explorers Camp connects kids to the Yahara Lakes and teaches them about macroinvertebrates, how to bait a hook and cast a line to fish, and safety skills around water and boats. The camp also teaches valuable science, technology, engineering and math (STEM) skills using Digital Observation Technology Skills (DOTS) kits (portable microscopes and weather stations, thermal imagers and more) that connect kids to science and the outdoors in innovative ways. Research has shown the increased well-being of kids being outside in nature. *The LWC recommends \$5000 in funding to enable more diverse and/or low-income youth to participate in Lake Explorer Camp.* This request would expand partnership to include the Catholic Multicultural Center, Centro Hispano and the Earth Partnership program, a UW-Madison program that promotes native habitat restoration as a process for community learning and land stewardship.

**C. Purchase of Water Quality Testing Equipment for the Dane County Natural Resource Education Center (NREC).** The NREC is an important resource, serving 2,000-3,000 volunteers annually. It makes hands-on learning available to citizen groups that engage in educational stewardship activities including local surface water and groundwater assessments. The NREC lends out educational and stewardship equipment to community groups free of charge so that they can engage in hands-on field based activities at low to no additional cost. The NREC also coordinates the storm drain marking for Dane County. *The LWC recommends providing \$500 to the NREC for the purchase of materials including stream/lake and drinking water monitoring equipment and chemical test kits (for dissolved oxygen, pH, nitrates, and other parameters), water transparency testing, and biological assessment testing.*

**V. INITIATIVES TO SUPPORT OTHER COUNTY INVESTMENTS IN WATER RESOURCE MANAGEMENT.** Water resource management is complex. It requires investment from county Departments and staff with diverse areas of expertise and authorities, as well as investment in Dane County citizens that are providing leadership throughout the county.

**A. Maintain Funding for Other Operating Costs, such as gasoline and parts for equipment maintenance.** Aquatic plant harvesting is one effort that suffers significantly when gasoline or replacement parts are not available. Like the need for appropriately trained dedicated staff, these supplies are critical to improving water quality as well as maintaining target lake levels. This year's high lake levels highlight this need.

**B. Fund the Capital Request of the Marine and Trail Enforcement Bureau of the Dane County Sheriff's Department for Dive Team Equipment.** With over 25,000 registered boats in Dane County, this Bureau is responsible for year-round patrolling of Dane County lakes, enforcement of all laws pertaining to the lakes, investigation of accidents, and rescue operations.