

# DANE COUNTY LAKES & WATERSHED COMMISSION

## 2020 BUDGET RECOMMENDATIONS

### OVERVIEW

The Dane County Lakes and Watershed Commission's charge is to protect and improve water quality, and 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 2020 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; 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 Efforts to Address Yahara Lake Level Flooding.** Per County Board Resolution 227, a technical work group was established in 2018 by the Dane County Land and Water Resources Department to evaluate the Yahara Chain of lake level conditions, model various scenarios that include predicted climate changes and identify short and long term approaches to improve resiliency to the flooding that occurred in August 2018. The work group modeled six adaption and mitigation alternatives and published their report, [2018 Yahara Chain of Lakes Flooding](#) on February 1, 2019. Also per County Board Resolution 227, a 13-member task force, was convened by the Dane County Lakes and Watershed Commission in cooperation with the Environment, Agriculture and Natural Resources Committee to review the findings from a technical work group and make [policy recommendations](#). The County has developed a five phase project, beginning with \$2 million in dredging to improve water flow out of the Yahara river, improve flood storage capacity and mitigate flooding risk. *LWC recommends a. Meeting with the HoChunk Nation by September 2019 to ensure transparency regarding impacts of dredging on the fish weir and appropriate ways to mitigate it; b. Investing \$2 million to maintain this effort in 2020 adopting the recommendations from the 2017 Stormwater Technical Advisory Committee and c. working with the Dane County lobbyist, the Dane County Towns Association and others to providing flooding at risk communities an exemption that restricts implementation of stormwater retention practices in excess of State Standards.*

**B. Expand Green Infrastructure Stormwater Management in 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 (TAC) 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 adopt the TAC's recommendation to develop a fee-in-lieu program and begin with \$200,000 for a green infrastructure pilot program (green roofs, rain gardens, porous pavement, swales etc.). We recommend the program be established in non-municipal governments located outside of the Yahara River Watershed. county-wide analysis of a fee-in-lieu program for managing stormwater volume starting with pilot projects located in non-municipal governments outside of the Yahara River Watershed.* The pilot projects will help ground-truth estimated costs and benefits of a fee-in-lieu of credit program.

**C. Enhanced Aquatic Plant Cutting in the Yahara River Chain-of-Lakes.** Data from the Yahara Chain of Lakes Lake Level Task Force 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 \$5k in additional staff hours to manage the expanded cutting.*

**D. 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.

Each beaches in Madison alone are frequently closed because of either high levels of pathogenic bacteria or *Cyanobacteria* (blue green algae). (In 2017 Madison beaches were closed 103 days). 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 and for development of a unified monitoring plan for Dane County surface waters done in coordination with other ongoing monitoring efforts (i.e. USGS, Clean Lakes Alliance). 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.*

**E. 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 patrol coverage during the summer, enforcing no-wake periods, and reducing response time during emergencies.*

**F. 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.*

**G. Fish, Crystal, & Mud Lake District.** The water levels of the 3 lakes has fluctuated over the past 100 years, but recently have risen significantly. Crystal Lake is fairly shallow and water quality has deteriorated with a huge population of carp and other invasive species. Water levels have inundated 95 campsites surrounding the lake. Fish & Mud Lakes are connected through seepage through the roadbed, but are in danger of connecting by overflowing the road. Mud Lake is a former marsh and is a heavy spawning area with high levels of suspended solids. Fish Lake is a deep lake with much less suspended solids and few carp spawning areas. As of 2015 the indicator species, Cisco were caught by ice fishermen. Should Fish and Mud Lakes get high enough for surface connection, it would be disastrous for the water quality of Fish Lake. Should the lakes rise unchecked, homes will be destroyed and eventually the lakes would flow to the Wisconsin River destroying homes, farms, and farmland. In the fall of 2018 the Lake District received a new DNR permit to pump lowering the lakes. Local residents have already invested over a million dollars in flood abatement and local special assessments are over a thousand dollars per property. Pumping is critical to keeping the lakes separated and lessen flooding damage. *LWC recommends \$ 7,000 to assist in pumping costs for Fish Lake.*

**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. Continuous Cover Program - 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 \$750k conservation program launched in 2019 was designed to complement the "suck the muck" investments to reduce legacy sediments by implementing upstream perennial agriculture practices. Research shows the best performing practice for reducing run-off and improving water quality is maintaining perennial vegetative cover on the land. The program was very popular and applicants exceeded cost share dollars. *LWC recommends expanding this program to \$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) which are steep sloped or high in phosphorus will be converted to perennial vegetation. Over time, wherever practical, other county owned lands will be converted to prairie or perennial vegetation. In the Yahara River Watershed, we recommend exploring a matching cost-share program with Yahara WINS for perennial establishment and integrating it into their adaptive management program.

**B. Expand Grazing and Sustainable Agriculture Programs.** A grazing specialist was hired in Dane County in 2017 and has greatly expanded outreach and enthusiasm for grazing as an environmentally superior and economically viable (lower labor, less capital etc) farming system for livestock. Given the farm crisis we have today, grazing may be the only means for young livestock farmers to start farming. In partnership with the Continuous Cover cost-share program, *LWC strongly recommends expansion of these efforts, in partnership with the Dane County Extension, with a goal of promoting managed rotational grazing of well-managed pastures. These grazing systems are among the best livestock practices for water quality and provide important ecosystem services (crop pollination, climate stabilization, flood mitigation, clean water, and wildlife habitat).* 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. The programs should continue to 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. Continue to partner with the University of Wisconsin to predict and validate phosphorus reductions.** Dane County is partnering with researchers in the UW-Madison College of Agricultural and Life Sciences who were awarded a grant in 2018 to establish the *UWLandLab*, whose mission is to identify science based solutions and improve phosphorus reduction outcomes. This work will be expanded in 2019 with \$10 million in support from USDA for Grassland 2.0 whose goal is to engage in the local watersheds to develop greater supply and demand for grass-fed livestock and technical and financial tools for grass-based farming enterprises. *We recommend that Dane County Land and Water Resources Department continue to collaborate with UW researchers, and look for ways to expand grass based ideas in MMSD's adaptive*

*management implementation efforts and to 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 (DATCP), fewer than half of farms in Dane County have NM plans registered with DATCP 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. The County has initiated a partnership with UW and Yahara WINS to develop 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. *LWC recommends the County continue this effort.*

**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 priorities for 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.

**F. NR 151 Conservation Compliance Inventory** – Over time, the County has invested hundreds of millions of dollars in urban and agricultural conservation practices to meet the state’s runoff management law (NR 151) but does not have a transparent mechanism for the public to evaluate the investment of these taxpayer funds. *We recommend development of a compliance inventory to track where dollars invested and whether water quality goals are being achieved.*

**III. Initiatives to Reduce Chloride Pollution** Average annual chloride levels in groundwater have increased rapidly in the last 20 years. 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 \$15000 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.