

## DANE COUNTY LAKES & WATERSHED COMMISSION 2021 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 be part of the 2021 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 Lakes 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 adaptation 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 \$3 million in the 2019 budget and \$5 million in 2020 budget for dredging to improve water flow out of the Yahara River, improve flood storage capacity and mitigate flooding risk. *LWC recommends:*

1. *Ongoing communication with the HoChunk Nation to ensure transparency regarding impacts of dredging on the Yahara River fish weir and appropriate ways to mitigate it. Also, to engage in discussions on building resilience within the Yahara River to reduce and eliminate the need for future dredging.*
2. *Providing full funding needed to operate and maintain the county purchased dredging equipment for continued implementation of the developed five phase project plan.*
3. *Working with the Dane County lobbyist, the Dane County Towns Association and others to provide 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. The *2018 Healthy Farms Healthy Lakes Task Force* also supported advancing the Stormwater TAC recommendations and the *2020 Dane County Climate Action Plan* supports Green Infrastructure as a tool to improve climate resiliency. The LWC recommends:

1. *Allocating \$25,000 for a consultant to prepare an RFP for a fee-in-lieu program by the end of 2020.*

2. *Allocating \$100,000 for the development of a County Stormwater Bank Implementation Plan.*

**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 recommends:

1. *Purchasing two additional aquatic plant harvesters due to the continued need for increased flow and recreation in the Yahara Chain of Lakes.*
2. *Continued support and funding for twelve aquatic plant cutters, two barges, one transport cutter/barge, aquatic plant harvester support equipment and staff hours to effectively manage and remove aquatic plants.*

**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.

Beaches in Madison 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, high temperatures and high phosphate concentrations in the lakes increases the risk for pathogenic outbreaks. *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 beaches when levels are high enough to pose a health risk. The recent increased heavy rains and high temperatures combined with high phosphorus levels in the lakes has raised this previously manageable situation to the level of a significant public health risk reducing recreational activities for Dane County residents. The LWC recommends:

1. *Allocating \$40,000 to PHMDC to provide additional staff and supplies for collecting and processing more frequent sampling at beaches due to Cyanobacteria's rapid biological response to changing environmental factors. Funding will also be used in 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). 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) to provide additional safety. A risk notification system similar to the "Slow No Wake" response would 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:

1. *Providing sufficient funding to cover Lake Patrols from May 15<sup>th</sup> to September 15<sup>th</sup>, enforcing no-wake zones, no-wake periods and reducing response time to emergencies. Patrols should be on each of the four lakes during weekends and holidays.*
2. *Participating in the Law Enforcement Aids to Municipalities program under NR 50.13 where applicable.*

**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:

1. *That the Land and Water Resources Department prepare and present a written annual report on the UWQG to the LWC and the general public to document projects funded and progress toward water quality improvement goals.*
2. *Review and amend as needed the eligibility criteria used in awarding funds.*

**G. Fish, Crystal, & Mud Lakes District.** The water levels of the three lakes has fluctuated over the past 100 years, but recently have risen significantly. Crystal Lake has come up over 7 feet while Fish & Mud Lakes are up over 12 feet. Water levels have inundated 95 house trailers, and destroyed a dozen homes around the lakes, as well as three Town roads. At these high levels Crystal, which is a shallow muddy lake, can overflow into Fish Lake. Should Fish Lake rise another 6 feet, it will flow overland to the Wisconsin River destroying fields, homes, roads, and farm buildings. It will destroy the ability to farm thousands of acres as well as washing tons of manure into the river. DNR, MSA Engineering, The Towns of Roxbury and West Point & the Lake District have engineered a plan to install a free flow control structure and pipe to lower the water levels in a controlled manor. The local governments, with DNR oversight and funding will implement this plan. Local residents have already invested over a million dollars in flood abatement and local special assessments are over a thousand dollars per property. Pumping of Crystal Lake is critical in the short term for keeping Crystal from flowing into Fish Lake. The long term solution is a free flow control structure. While DNR and the Federal Government are expected to fund the majority of the cost, Dane County may need to supplement this funding.

1. *Allocating \$7,000 to assist in pumping costs for Crystal Lake.*
2. *Work with DNR and the local governments to implement and fund the water level control structure.*

**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 nonpoint 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 regulated wastewater point sources (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. One of the first adaptive management projects in the nation, called Yahara WINS is being led by MMSD, who has contracted with Dane County (Land and Water Resources Department) to assist rural landowners in implementing conservation practices that reduce phosphorus. 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. Along with reduced run-off, perennial vegetation also provides for increased infiltration and improved soil health. The program was very popular and applicants exceeded cost share dollars. This program was also listed as an agricultural recommendation within the *2020 Dane County Climate Action Plan*. The LWC recommends:

1. *Expanding this program to \$20 million in capital funds (\$4 million/year for 5 years) with the goals of;*
  - a. *Establishing 100,000 acres of perennial vegetation practices in Dane County in five years (native prairies and non-native pastures),*
  - b. *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*
  - c. *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 farming system for livestock. 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. In partnership with the Continuous Cover cost-share program, LWC strongly recommends:

1. *Expanding outreach 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).*
2. *Continued development and expansion of programs that; support free trainings and pasture walks, provide technical assistance, create farmer networks 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. The LWC recommends:

1. *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 LWC recommends:

1. *That the County continue its partnership with UW and Yahara WINS to develop a mass balance accounting system (starting in the Yahara River Watershed) that quantifies inputs and outputs from the watershed.*
2. *Continued support of Nutrient Management Plan farmer training and cost share assistance.*
3. *Continued tracking of nutrient management plan implementation.*

**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 allow for the purchase of conservation equipment and administrative support to grow local watershed leadership and outreach. They would also complement existing funding for conservation practices. Coordinators would work with LWRD and partners to set and 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.

**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 run off management law (NR 151) but does not have a transparent mechanism for the public to evaluate the investment of these taxpayer funds. The LWC recommends:

1. *The development of a compliance inventory to track where dollars are 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. Strengthening the message and continuing to educate salt applicators can have significant impacts on reducing chloride pollution. This past year, the City of Sun Prairie was able to reduce its salt use by 50%, saving 500 tons of salt and \$37,000, while maintaining the same results in deicing roads. The LWC recommends continued:

1. *Support for voluntary certification and training through the City of Madison’s certification program for winter maintenance of parking lots and sidewalks.*
2. *Monitoring of LWRD staff time focused on chloride reduction.*
3. *County improvement 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 deicers, 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 the Land and Water Resources Department.** 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. The LWC recommends continued:

1. *Continued county investment in the Watershed Management Coordinator, Strategic Engagement Coordinator and the MAMSWAP position.*

**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:

1. *Maintaining \$17,000 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:

1. *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. PFAS INITIATIVES.** Per- and polyfluoroalkyl substances (PFAS) are an emerging human-made contaminant, they are harmful “forever chemicals” that build up in the body and environment over time. PFAS can have serious health effects and are already contaminating Wisconsin’s water resources. There are no standards for PFAS contamination in Wisconsin. However, the state Department of Health Services has recommended a combined groundwater limit of 20 parts per trillion (ppt) for two of the oldest and most toxic PFAS variants, PFOS and PFOA.

In January, the state issued [advisories](#) to limit the consumption of fish caught in Starkweather Creek after testing revealed up to 110,000 ppt in fish tissue. The Midwest Environmental Justice Organization (MEJO) commissioned PFAS testing of sediments within Starkweather Creek during the fall of 2019. Results from five sampling locations ranged from 21,400 to 2,020 ppt for PFOS and 27,800 to 8,190 ppt for PFOA. Because of the high level of PFAS found most recently in Starkweather Creek, the lack of a statewide standard, and limited testing and knowledge of PFAS contamination around our waterways in Dane County the LWC recommends:

1. *Continued support for County related PFAS activities such as, but not limited to, funding for increased testing of sediment and fish in Starkweather Creek and other areas where PFAS may be found, continued monitoring of PFAS in areas including Starkweather Creek and development of a mitigation plan for contaminated areas.*
2. *Allocate \$3,000 for engaging and educating public communities affected in these areas about fish contamination and levels of PFAS in the waterways. Prioritization will be given to messaging and signage targeting areas that are heavily fished with all public outreach materials provided in multiple languages.*

## **VI. 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.

**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 Department is responsible for year-round patrolling of Dane County lakes, enforcement of all laws pertaining to the lakes, investigation of accidents, and rescue operations.

**C. Continue to Support the Yahara “CLEAN” Compact (Version 3.0).** The Yahara CLEAN Compact seeks to renew and strengthen a community partnership to clean up our lakes and meet their designated uses and benefits under the Clean Water Act.