



# DANE COUNTY

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## **Recovery, Rebuild, Resilience: Dane County Budget Initiatives Focus on Flooding**

*Historic late summer flooding resulted in millions of dollars in damage across Dane County. Hundreds of homes and businesses were damaged by flash floods on August 20<sup>th</sup> with lake flooding in subsequent days resulting in further damage downstream. The 2019 Dane County budget recognizes that all units of government – the state, cities, villages, towns, and the county – have the obligation to invest in strategies that reduce risk and improve preparedness in the event of future flash floods and high water events. We also have continued work to restore our hardest hit communities. Flood risk in Dane County has been increasing and will likely continue to increase unless urgent and vital actions are taken.*

### **Maximizing Water Flow Management**

The tie that binds Lakes Mendota, Monona, Waubesa, and Kegonsa is the Yahara River. The faster water moves through this corridor, the quicker lake levels can decline in the wake of heavy rains. For example, following the August 20<sup>th</sup> rains, a team of Dane County aquatic plant harvesters worked the river corridor and successfully doubled the flow of water moving south out of the Yahara Chain. The 2019 county budget creates a new \$2 million initiative to analyze and restore potential locations in the river where water flow may be constricted. These dollars will fund sediment removal and other remedies where it's determined flow could be safely improved. Hydraulic dredging, comparable to the county's "Suck the Muck" initiative in the Yahara watershed, could both improve the rate at which water leaves the Yahara Lakes for the Rock River but also improve water quality. Nearly a month after August's rains, levels on Lake Monona were 8 inches higher than its downstream neighbor, Lake Waubesa. With no dam or barrier in between, this location is prime for analysis and work of why water is slow to move between the two lakes. It's estimated it takes two inches of rain, over two weeks to leave the Yahara Lakes system. Limited differences in elevation of the lakes make it more necessary to evaluate places where sediment loading and other restrictions undermine the efficient movement of water downstream.

The budget also includes \$440,000 for two new aquatic plant harvesters and \$50,000 for a hydraulic crane that will mount to an existing barge to improve the county's ability to remove aquatic plants, trees and other large items of debris that restrict flow in the Yahara River. New dollars are included (\$50,000 new, total of \$378,600) to staff this additional equipment, bringing a total of fourteen county harvesters and barges able to remove aquatic plants and debris that otherwise slow flow. During the peak of the August flooding, county aquatic plant harvesters removed 270 loads of aquatic plants from the Yahara River over 5 days.

To support the important community conversation into the New Year about how to best manage lake levels given the increased frequency of heavy rain events, the budget includes \$75,000 to conduct real time modeling of the benefits and considerations for various lake level scenarios. This team can also help identify points of restriction in the river channel where flow rates may be diminished due to built-up sediments. Retaining an outside, professional team of engineers to evaluate flow rates along with the cause and effect of altering various levels will give a more complete picture of how the ecology of the Yahara Chain could be impacted by water level changes both during flooding and drought conditions.

With a clear focus on improving flow, this budget centers on one critical component of lake management county government can most directly improve, in the shortest amount of time. The county secured an emergency permit earlier this summer to remove debris that accrued under a rail bridge just north of Stoughton. When the work was done, 31 dump truck loads of sediment and debris were removed, alleviating flooding in Pleasant Springs and Dunn. Moving forward, it's imperative we examine additional bridge crossings. This includes the Highway N bridge over the Yahara River. This budget includes \$150,000 to design replacing that bridge, with an estimated \$1 million in additional dollars for the county's share of construction in 2020.

## **Flood Recovery**

From Black Earth to Belleville, August's flash flooding decimated not only homes and roads, but also the places where neighborhoods and families recreate and rely upon for the quality of life we are so proud to offer in Dane County. Our trails, streams, and bridges experienced significant damage. Insurance may cover some losses. We hope to hear more in the weeks ahead about potential Federal Emergency Management Agency (FEMA) recovery funds but there will likely be a need beyond those resources to complete repairs and restore these special places back to what they were. The budget includes \$1 million for a park and trail flood repair matching grant fund and a \$500,000 streambank restoration fund. Black Earth Creek, Pheasant Branch Creek, the Sugar River and other gently flowing waterways were turned into raging rapids by the historic rains of August. Restoring damage to these streambanks will reduce future erosion and promote healthy habitat for fish and wildlife.

## **Natural Mitigation**

The 2019 county budget includes new ways to improve stormwater storage and keeping rains on the land instead of running off. Wetlands are Mother Nature's best remedy for reducing the devastation caused by flooding. The budget includes \$200,000 to begin analyzing a restoration of the Door Creek wetlands that were inundated with water through the summer. These wetlands prevented worsening flood conditions for homes in the Towns of Dunn and Pleasant Springs. One acre of wetland, that's typically three feet deep can hold 325,000 gallons of floodwater. Door Creek is identified as a potential "Suck the Muck" location, and the overall project goals are to restore a system that improves water quality, adds flood capacity, and improves fish habitat. Public access to the Door Creek Wetlands will also improve with the addition of the next phase of the Lower Yahara River Trail that will span Fish Camp County Park to Lake Kegonsa State Park and is currently under design.

The budget creates the brand new Dane County Conservation Reserve Program to help convert lands at greater risk of run-off to prairies and grasses that are more able to hold soil and reduce water run-off. Modeled after the once popular Conservation Reserve Program (CRP) administered by the federal government, this brand new, \$750,000 county program will pay farmers and property owners to convert lands to permanent cover to address resource concerns such as erosion. Furthermore, the budget includes \$8 million for potential conservation acquisitions with a similar goal – permanently securing properties that improve the county's ability to reduce stormwater run-off and improve water quality.

As the magnitude and frequency of extreme rainfall continue to increase due to climate change, it is important to recognize that rainfall increases explain only 50% of the observed increases in Yahara River stream flows. The remaining half is due to the increase in urban and suburban stormwater runoff into the lakes by covering formally water-absorbing soils with impervious surfaces, such as streets, parking lots and rooftops of homes and businesses. In the 20 years between 1990 and 2010, development in Dane County has increased by an average of 2,300 acres per year or about 45,000 acres. The average annual stormwater runoff from undeveloped agricultural

land is about 2 inches per acre, compared to stormwater runoff from a developed lot of 5 inches – about 120,000 gallons per acre per year or an increase since 1990 of 3.2 billion gallons of water run-off each year. The budget adds additional funding to the urban water quality grant program (\$1 million new money) and adds stormwater volume control as an eligible project type. Municipalities may apply for grants to support projects that improve the quality or reduce the volume of urban stormwater runoff.

### **Improved Resiliency/Preparedness**

The increased frequency of flash flooding events in this quickly growing, more urbanized area means county government needs to enhance its emergency response capabilities. County government issued over 400,000 sandbags and deployed two sand-bagging machines during the August rains and subsequent flooding. The budget includes dollars to acquire three more fast-fill sand bagging machines, another 250,000 sandbags, large pumps to move volumes of water off roads and other critical infrastructure, and portable generators that can keep services needed in an emergency situation going even if power is out. Purchasing larger flood barriers and a high capacity pump can help us re-open roads in a more timely fashion. We also need to look at county highways more prone to flooding and when the time comes to upgrade them, we consider raising their elevation. This budget includes \$200,000 to raise Highway W in the Town of Christiana which was underwater on separate occasions this summer. The budget has \$80,000 for the Sheriff to purchase a new airboat to help with high water rescues. This watercraft proved invaluable when Black Earth Creek inundated the Village of Mazomanie, requiring a number of residents to be evacuated in short order by boat. To ensure a seamless public safety response, the budget also includes funds for a new web-based phone communication system to assist the 911 Center. Used during Hurricane Harvey, this system ensures that when 911 lines are full of callers seeking help, those with an emergency can report it in real time through a website that will directly alert the Dane County 911 Center. The budget also includes \$25,000 for the county to help with emergency housing for those with special needs who need to be moved from harm's way in a short time frame.

### **Total of New Flooding Initiatives**

Conservation/Stormwater Management Acquisitions: \$9 million

“Suck the Muck” – Sediment Removal to Improve Water Quality, River flow \$2.5 million

Yahara River Flow Improvement Fund & Flow/Water Level Analysis: \$2 million

Highway/Bridge Improvements: \$1.35 million

Flood Restoration Fund Parks/Trails: \$1 million

Stormwater Controls: \$1 million

Dane County Conservation Reserve Program: \$750,000

Two new weed harvesters, lake debris barge crane, staff: \$500,000

Streambank Restoration: \$500,000

Wetland Restoration, Yahara Flow/Lake Level Analysis: \$275,000

Sandbagging Machines, Sandbags, Flood Barriers, Pumps, Generators: \$308,000

Sheriff's Airboat, 911 Web Reporting, Emergency Housing: \$110,000

Total: = **\$18,293,000**