"Our mission is to protect and enhance Benton County's soil, water & other natural resources; to nurture a conservation ethic by educating county residents on conservation & environmental issues."

Benton Soil & Water Conservation District
Natural Resources Conservation Service
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Foley, MN 56329
(320) 968-5300 Ext. 3
www.soilandwater.org

BENTON SOIL & WATER CONSERVATION DISTRICT

NRCS Natural Resources Conservation Service

Serving Benton County since 1948

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2019

Benton SWCD/NRCS Tour of Practices

BENTON SOIL & WATER CONSERVATION DISTRICT

NRCS Natural Resources Conservation Service

Welcome!

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Notes

Thank you for attending the 2019 Tour of Practices!

Benton SWCD/NRCS Staff

Front Row: Renee Thell-Admin. Assistant, Casey Gwost-District Tech., Nathan Sanoski-FarmBill/District Tech., Mike McMillin-District Tech., Travis Janson-Watershed Tech.

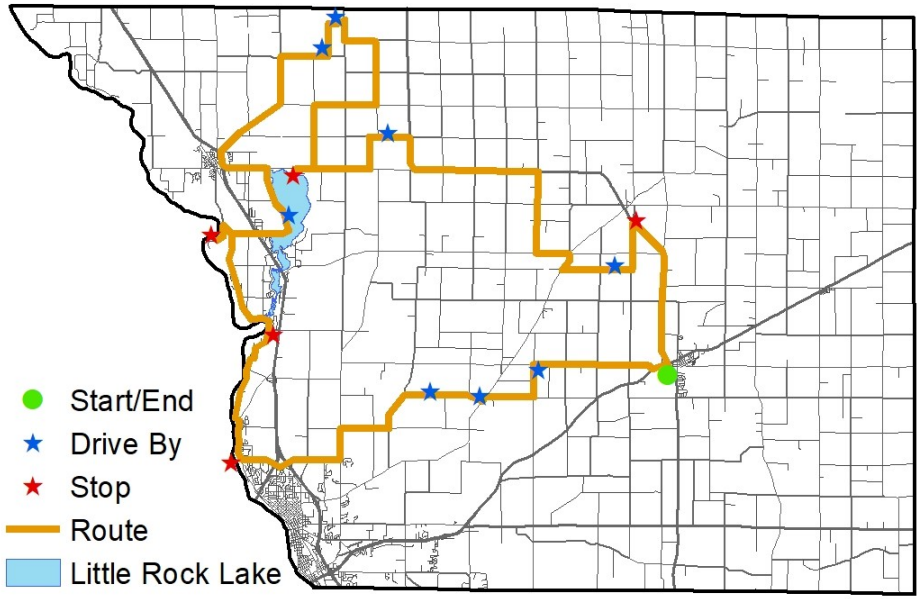
Back Row: Amanda Guertin-Water Plan Tech., Gerry Maciej-District Manager, Pat Gehling,-District Conservationist, Joey LeBlanc-Civil Engineering Tech., Kelly Molitor-Watershed Tech., Bonnie Haubenchild-NRCS Contractor General Clerk II, Barb Zeroth-Soil Conservationist Tech.

Benton SWCD Board Supervisors

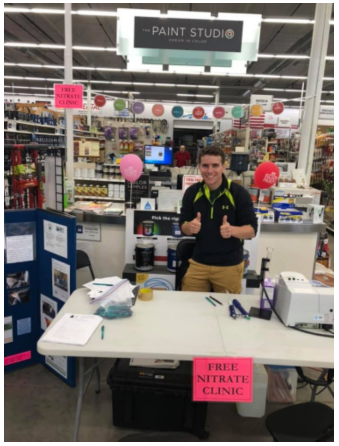
Left to Right: Wade Bastian –Chair, Joe Jordan—Vice Chair, Bernie Thole—Member, Jake Scherer—Treasurer, Chuck Rau—Secretary

USDA Office

Benton County Tour Map



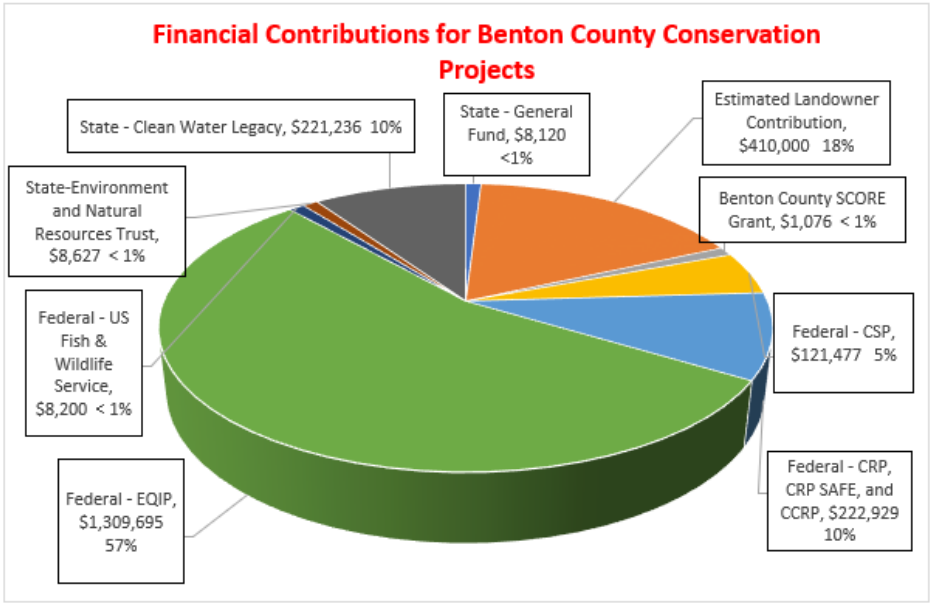
Joe Bastian-Benton SWCD Summer Intern



Joe Bastian is a Benton Soil and Water Conservation District (SWCD) employee, who started working for the District at the beginning of May and worked until the middle of August. His primary role was to assist with public outreach. This included events such as Envirothon and posting information about ongoing projects on Facebook. He also administered a free 4-day nitrate testing clinic, created a report of the economic impacts of the Benton SWCD, and assisting with any other fieldwork as needed such as surveying, spot checks, and water monitoring. His internship was funded through a Jackson Fellowship Summer Internship scholarship from St. John's University. When asked about the implications this internship had on his future Joe stated "As an Environmental Studies major interested in making environmental policy, this internship exposed me to a lot of the challenges that face local government agencies. It also showed me all the great ways that taxpayer dollars are being used in order to improve soil and water resources in the area. Benton County was an incredible county to do this internship because the county has a board that is supportive of doing a lot of projects, as well as, landowners and farmers that are interested in improving their soil and water resources."

BENTON SOIL & WATER CONSERVATION DISTRICT

Financial Summary



Direct Financial Assistance for Benton County Conservation Projects

Total Direct Financial Assistance in 2018 was $2,311,360

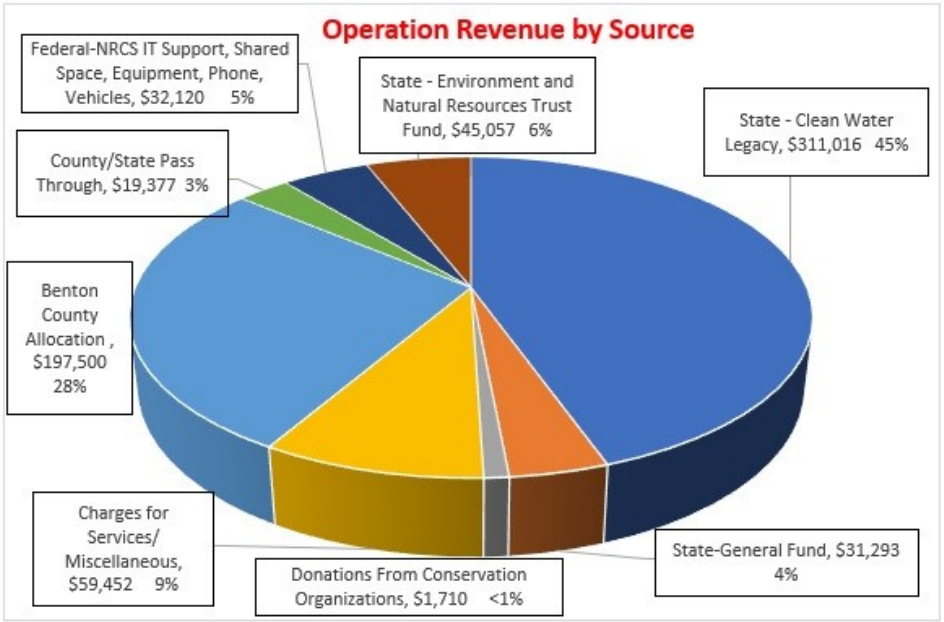
Installing Best Management Practices, or making land use changes, results in cleaner water, fewer floods, better wildlife habitat and many other public benefits. The cost of adopting these practices, in some cases, exceeds the benefit to the individual, and financial assistance becomes necessary. This pie chart shows grant dollars used for conservation projects in Benton County, including cost-share, incentives, program development and annual rental payments. The chart includes funds administered through the SWCD, NRCS, & FSA, and Benton County programs. Landowner contributions for federal funded projects are not available so we are displaying only an estimate.

Financial Summary

The Benton Soil and Water Conservation District (SWCD) finances its day-to-day operations through a variety of revenue sources. These sources include state, county, self-generated (tree and product sales, equipment rental, etc.) and other miscellaneous sources. A summary of Benton SWCD's 2018 operating revenue sources is presented below:

Operating Revenue in 2018 was $697,525

This revenue is used for personnel salary and benefits, supervisor and Water Resources Advisory Committee member expenses, rent, supplies, travel, tree program, environmental education programs and other related expenses.



Bryan Carstensen—Grazing Project

Bryan came into our office a couple years ago with an interest in improving his pasture and converting some cropland to pasture. In 2017 he was selected to receive EQIP funding.

In 2018 a stream crossing was installed to provide a stable cattle lane to the pasture south of his meadow. Organic materials were removed, geotextile installed to support the rock, then a field rock base layer with crushed rock and gravel on top was installed. Temporary fence will be installed on each side to limit cattle access to the wetland.

Note that the final grade of the crossing matches what the existing wetland was - the road was not "built up" but rather the base was improved. This was done to minimize the impact to the wetland.

The field to the north of the meadow will be seeded annually to cover crops that can be grazed, the field south of the meadow has been seeded to a pasture mix. New exterior fence has been installed around the cropland and interior fence will be installed to allow better management of the pasture. We will also work with Bryan for three years to properly manage the pasture.

Left: Geotextile in place

Below: Rock base layer being placed

Right : Crushed rock and gravel installed

County Road 3/Elk River—Streambank Erosion

The Benton SWCD, West Central Technical Service Area, Benton County Highway Department, Benton County, and the MN Department of Natural Resources are partnering on a streambank erosion project where the County Road 3 bridge crosses over the Elk River. The length of the effected shoreline is about 190 feet, and the bank has been laterally eroding nearly 20 feet near the abutment of the bridge since 2014. The rate of erosion seems to be increasing at an alarming rate with 1-2 feet eroding in April and May of this year alone. It is the 3rd most traveled bridge that is maintained in the County with an Annual Daily Traffic Volume of 2,150 veh/day. Benton SWCD has written a BWSR grant application to assist with funding for this project. Currently, there is a preliminary plan designed for the project area with pollution reductions estimated to be at 292.60 T/yr of Total Suspended Solids (TSS), 292.60 T/yr of Soil Loss, and 248.71 lbs/yr of Phosphorus.

A. View of bank erosion looking south on CR 3 bridge. B. View of CR 3 bridge from bank erosion. C. Close up of bank erosion with recently washed away chunks of sod in the Elk River. D. Close up of erosion/sediment deposition occurring underneath CR 3 bridge.

County Water Management Plan

In 1977, Minnesota experienced serious drought conditions across the entire state. These conditions prompted the enactment of the Comprehensive Local Water Management Act in 1985. The act encourages counties to voluntarily develop and implement a water management plan which addresses the entire county. In 1988, the Benton County Board of Commissioners felt the County needed to assess and protect it's water resources. As a result, Benton SWCD was designated the local government unit responsible, and the first Benton County Water Management Plan was approved in 1991.

The purpose of the County Comprehensive Local Water Management Plan is to identify priority water resource concerns in the County and list goals, objectives, and measurable outcomes in improving the County's water quality and quantity.

Benton SWCD and the Water Resources Advisory Committee have been working diligently for the past year to update the plan in 2018. Priorities identified remain the same as the previous plan, with one additional concern, erosion and sedimentation. The priority concerns that will be addressed in the plan are as follows:

- **Feedlot and Nutrient Management**
- **Development**
- **Groundwater Quantity and Quality**
- **Erosion and Sedimentation**

The Minnesota Agricultural Water Quality Certification Program

The MN Agricultural Water Quality Certification Program (MAWQCP) is a statewide voluntary certification program that helps farmers and landowners continue protecting Minnesota streams, rivers and lakes. Through the program, farmers work with local SWCD personnel to complete a whole-farm assessment which helps identify and mitigate risks to water quality on a field by field basis. Below are Benton SWCD's numbers for the program:

- **# of Applicants = 20**
- **# of Farms Certified = 13**
- **Acres of Certified Farms = 9,022 acres**

Certified Producers receive:

- **Regulatory certainty**: certified producers are deemed to be in compliance with any new water quality rules or laws during the period of certification
- **Recognition:** certified producers may use their status to promote their business as protective of water quality
- **Priority for technical assistance**: producers seeking certification can obtain specially designated technical and financial assistance to implement practices that promote water quality.

Through this program, the public receives:

- **Assurance** that certifies producers are using conservation practices to protect Minnesota's lakes, rivers and streams.

Pictured left to right: Brad & Mark Chmielewski accepting their MN Ag Water Quality Certification Program sign from Benton SWCD.

Brian & Glen Kaschmitter—Cover Crops

Brian & Glen planted cover crops into their corn. They broadcasted and cultivated in oats and radish. The cover crop was planted June 28th. Glen & Brian plan to graze the cover crop after the corn has been harvested.

Left: Picture was taken on July 18th

Right: Picture taken August 28th

Little Rock Drawdown

Water quality problems in Little Rock Lake have been ensuing for over 100 years. The construction of the Sartell Dam caused water levels in the lake to increase not allowing natural drought cycles of rising and falling water levels to occur, resulting in the loss valuable plant growth expansion, loss of shoreline and erosion thereby increasing nutrient concentrations in the lake. Additionally, significant land use changes took place in the watershed to accommodate use by cities, businesses, homesteads and agriculture which further increased the lake's nutrient concentration through watershed runoff. Excess nutrients in the lake have caused low water clarity and major algal bloom issues. Benton and Morrison SWCD's have been working with landowners to implement best management practices in the watershed for over 10 years in an effort to reduce runoff, however a combination of watershed and in-lake practices , such as a drawdown, are necessary to improve water quality. In 2018, Benton SWCD partnered with the Department of Natural Resources, Little Rock Lake Association, Eagle Creek Renewable Energy and the Board of Water and Soil Resources to complete a six week three foot drawdown on Little Rock Lake in order to improve water quality through improved shoreline stability, decreased erosion and improved fish and wildlife habitat.

Above: Decreased water levels on the first day of the drawdown at Gordons Bridge
Left: Water flowing out from Little Rock Lake

Project Partners

BWSR · Eagle Creek Renewable Energy – Excellence in Hydro – · Department of Natural Resources · Little Rock Lake Association

Clean Water Fund (CWF) Environmental Site Assessments

In 2017, Benton SWCD received CWF Accelerated Implementation Grants (AIG) from BWSR to hire staff to provide outreach, technical assistance, and perform environmental assessments with landowners within the Elk River Watershed. This was to serve as a continuation of work that had begun in 2013 when Benton received its first AIG. The main focus area for these assessments was on landowners within the Tier 1 & 2 priority areas as identified in the Elk River Watershed Total Maximum Daily Load study in 2012. Recently, Benton SWCD closed out its 2017 AIG. With the help of this grant, over 30 environmental site visits were completed within Benton & Sherburne Counties. These assessments covered over 19,425 acres with 12,700 acres of cropland and 506 acres of pasture. Nineteen farms also had a total of 1,865 animal units, most ranging from beef, dairy, and/or poultry. Since the start of these environmental site assessments in 2013, 215 parcels within the Tier 1 & 2 areas have been assessed in Benton and Sherburne Counties, that's 19% of the total priority parcels. Additionally, over 665 (1.8%) parcels within the Elk River Watershed outside of the Tier 1 & 2 areas and 99 parcels outside of the Elk River Watershed were assessed. Over 50 projects including but not limited to feedlot improvements, manure storage, cropland erosion control, test plots, prescribed grazing, and cover crops were installed over the years as a result of these assessments, with numerous additional projects at various stages planned for future implementation in 2020 and 2021.

2016 & 2017 CWF Grants

In 2016 and 2017, we received CWF grants to help install projects that had been identified during site assessments within the Mayhew Lake and Big Elk Lake Watersheds. In 2018, Benton SWCD closed out its 2016 grant. Total spent project funds include: $223,767 of Clean Water Fund cost-share, $25,000 of other State cost-share, $216,078 of landowner contributions and $641,688 in federal cost-share for a grand total project spending of $1,106,533. Also spent was $76,233 in staff time for the administration of the grant, and finding, designing and constructing the projects. The following are annual pollution reductions that have been calculated for 14 projects: 871 tons of TSS, 1,514 tons of soil, 864 lbs. of phosphorus, and 478 lbs. of nitrogen. This past year we also closed out the 2017 CWF grant. Please reference the 2017 Elk River/Mayhew Grant article on page #23 for details.

Pictured above: A water & sediment control basin as part of a cropland erosion control project.
Pictured right: A beef feedlot project in the process of pouring and shaping a diversion.

Clean Water Fund (CWF) Feedlots

In 2018, 7 feedlots projects were completed and 2 others were started with plans on finishing in 2019. The projects completed include 2 dairy farms, 3 beef farms and 2 poultry barns in the Elk River/Mayhew Lake Watersheds. The on going projects include a dairy farm in the Little Rock Lake Watershed and another dairy farm in the Elk River Watershed. Some of the improvements installed included 2 manure pits for the dairy farms and stacking slabs for the beef and poultry operations as well as clean and dirty water diversions, scrape lanes, vegetated treatment areas, fence and pumps.

Total funds spent on these projects include $40,234.86 in state funds, $584,468.97 in owner funds and $1,1018,573.69 in federal funds. Pollution reductions include 54 lbs. per year phosphorus and 144 lbs. per year nitrogen.

Staff also spent time working on 16 additional feedlot projects that hope to move forward in 2020. This time includes initial site visits, surveys & cost-estimates and reviewing plans and cost-estimates.

Work was completed by Benton SWCD, West Central TSA and Natural Resources Conservation Service staff.


A.


B.


C.


D.

A. Stacking slab/ compost facility completed for a chicken barn B. Installing and covering the GCL liner a t dairy farm C. Pouring the settling basin and stacking slab for a beef farm D. Covered stacking slab and feedlot for a beef farm

Eagle Creek Renewable Energy

Eagle Creek Renewable Energy runs the Sartell Hydro Project, a 9,500-kilowatt hydroelectric generating station on the Mississippi River in Sartell. The facility is equipped with 11 quad-runner horizontal Francis turbines. Sartell Hydro was originally built between 1905 and 1907 to supply mechanical power to grind wood pulp for the adjacent paper mill. The facility was converted to exclusively producing electric power in 1985. In 2012, an explosion and fire damaged the paper mill, and the hydroelectric facility was subsequently separated from the mill and connected directly to the regional power grid. Sartell Hydro returned to service as an independent hydro project in December 2014, and produces approximately 44 million kilowatt-hours of clean energy in a typical year.

Eagle Creek takes great pride in its facility operations, providing for public and plant safety, environmental and regulatory compliance, and playing a key role as a responsible environmental steward on the rivers where it is permitted to operate. Since late 2015, Eagle Creek Sartell Hydro, LLC, a subsidiary of Eagle Creek Renewable Energy, has worked with the Department of Natural Resources, Little Rock Lake Association, and the SWCD plan the drawdown of Little Rock Lake.

There is an economic impact for Eagle Creek to shut down the dam for six weeks in terms of lost production capacity. The estimated cost for lost energy production is around $235,000. The SWCD received a Clean Water Fund grant to cover $166,250 towards this expense and to cover the remaining costs Eagle Creek is contributing $30,000 and the Little Rock Lake Association is contributing $38,750.

Above: Sartell Dam and powerhouse

NE St. Cloud Sediment Reduction Project

The Northeast St. Cloud Drainage Area is a significant source of sediment discharge to the Mississippi River and needs immediate pollution reduction efforts. The watershed discharges where the City's drinking water intake station is located, posing a water quality threat to the City's drinking water.

Sediment discharge to the Mississippi River from NE St. Cloud

Benton SWCD partnered with the City of St. Cloud, the Board of Water and Soil Resources and Short Elliot Hendrickson Inc. (SEH) to install two underground regional stormwater treatment systems utilizing a $456,500 Clean Water Legacy grant through the Board of Water and Soil Resources. In conjunction with the City's neighborhood improvement project, one system is installed under 1st Street SE and the other is installed under 4th Avenue SE. The stormwater treatment system will act like underground wet detention ponds. They maintain a ponding depth in the pipe and have strategically placed baffles and weirs to settle solid materials and trap floatable materials. The system is able to treat 35 acres of stormwater runoff from the neighborhood and Wilson Avenue that previously drained directly into the Mississippi River untreated. This project adds 218,000 gallons of stormwater quality treatment and storage. Estimated annual pollution reductions of this project include an annual reduction of 14 pounds of phosphorus, 9,220 pounds of sediment and water quality treatment of 13.4 million gallons of water.

Project Partners

BWSR SEH CITY OF ST.CLOUD MINNESOTA CLEAN WATER LAND & LEGACY AMENDMENT

Clean Water Fund (CWF) - SWCD Local Capacity Services

CLEAN WATER LAND & LEGACY AMENDMENT

The non-competitive Clean Water Fund grant invests in building the local capacity of local Soil and Water Conservation Districts (SWCDs). This Clean Water Funds grant targets four resource concern areas—Soil Erosion, Riparian Zone Management, Water Storage and Treatment, and Excess Nutrients—and supports increased capacity by funding expenses for staffing, cost-share for best management practices, technology/capital equipment, and operations. Each SWCD in the state received up to $100,000. The state legislation also provided an optional supplemental allocation based on their county's commitment to match additional state funds that were available. Since 2017, Benton County's Board of Commissioners recognized the opportunity and need to build the local capacity for the Soil and Water Conservation District and allocated matching funds that leveraged the state's additional supplemental funds.

To meet the demand for providing technical assistance on water quality best management practices (BMPs), Benton SWCD allocated a portion of these funds for staff time to further assist and provide technical assistance to Benton County landowners on new water quality projects. Funds were also used for staff time for project development for updating the water plan as well as supplementing buffer law implementation. Along with staff, a portion of this grant was allocated to purchase a truck to accommodate for the expanded staff to better serve the residents of Benton County.

This Clean Water funding also provided cost-share assistance for water quality projects. Some examples of BMPs that were eligible for cost-share were: animal feedlot improvements, cover crops, erosion control practices, filter strips, native lakeshore buffers, pasture management, wetland restorations, and upgrading failing septic systems that are an imminent threat to public health or safety. Cost-share dollars from this grant were used for a wetland restoration, three imminent health threat to public health and safety SSTS upgrades, and staff time was used on a feedlot improvement project that leveraged $178,746 federal cost-share dollars.

Below: A wetland restoration that was completed as a result from SWCD Local Capacity Clean Water Funding. The restored wetland will provide water quality benefits by filtering and reducing excess nutrients from surface waters.

The capacity funding has provided opportunities for Benton SWCD to work with nonprofit organizations, schools, and the public to build conservation programs including education and outreach collectively. The organizations are now prepared to start new conservation activities. These long lasting relationships will result in a stronger conservation ethic for area youth and additional stewardship activities along their lakes and streams.

Environmental Quality Incentives Program (EQIP)

Summary of practices implemented through EQIP in 2019

3 Beef Manure Stacking Slabs
1 Dairy Liquid Manure Storage
1746 ac Nutrient Management
4 Water and Sediment Control Basins
1 Grassed Waterways
1 Prescribed Grazing System
1 Energy Audits
1 Comprehensive Nutrient Mgmt Plan
639 ac No-Till
529 ac Irrigation Water Mgmt
4 Variable Frequency Drives for Irrigation
1 Diesel to Electric Conversion (Irrigation)
201.2 ac Cover Crops
1 Variable Rate Pivot
3 Seasonal High Tunnels

2019—22 contracts for 1.421 Million Dollars

Pictured below: Roofed mortality bins and manure storage installed at a poultry barn

The Environmental Quality Incentives Program (EQIP) is a USDA program administered by the Natural Resources Conservation Service (NRCS) with assistance from the Benton SWCD. EQIP provides financial assistance to crop, livestock, and other agricultural producers to make conservation improvements to their operations.

In the last 15 years the EQIP program has brought in nearly 7.5 million dollars for conservation projects into Benton County. We have exceeded 1 million dollars each of the last three years.

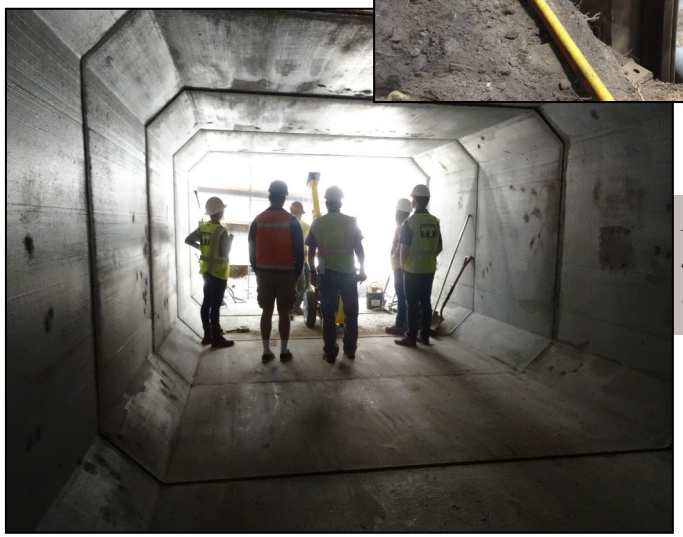
The most recent data (2013—2017) puts Benton in 2nd place in the state for EQIP dollars obligated, and the highest in dollars/square mile.

Financial assistance is available to producers that want to adopt land management practices. There are over 60 eligible practices that EQIP can provide assistance for, including manure storage, prescribed grazing, residue management, terraces, nutrient management, grassed waterways, cover crops, etc.

NE St. Cloud Sediment Reduction Project

Left: Series of box culverts with weir structure used to settle out solid materials

Right: Metal sides used during installation to prevent soil from falling into the structure



Left: View from inside the installed box culverts

Schmitz/Mckeever—River projects

Benton SWCD, West Central Technical Service Area, and the MN Department of Natural Resources partnered on a highly erodible streambank erosion project along the Mississippi River. This project began back in 2013 when the landowners approached the district about their eroding banks. Due to the 25-30' steep bank equipment access was going to be a problem. This project could not have been completed without the drawdown due to not being able to access the site. Root wads and a toe wood bench were installed along 400 feet of shoreline. Four rock vanes with 3-4 foot boulders were also installed to help re-direct the flow of water back to the main channel and away from the shoreline.

Pictured below

A. Before picture of Schmitz's eroding bank.

B. A tree root wad that is being installing at the toe of the bank slope. The trunk diameter is 30" and the root wad is 5 feet wide.

C. One of four rock vanes that where installed.

D. The completed tree rood wad and toe wood bench installed. .

A

B

C

D

Irrigation Management

The Benton and Morrison SWCDs have combined efforts to address irrigation water management in the Little Rock Creek groundwater recharge area. Changes in groundwater flow linked to irrigation during the summer months are changing groundwater inputs to Little Rock Creek, which is having a negative effect on the fish communities. The Legislative-Citizen Commission on Minnesota Resources (LCCMR) and Minnesota Department of Agriculture (MDA) grant funds to provide technical assistance for landowners to implement irrigation scheduling, and to check uniformity through a catch can test that provides the efficiency of their irrigation systems.

In 2011, Benton SWCD constructed an "Irrigation Scheduler Program" designed to provide the farmer with a second opinion on in-field soil moisture status to assist the farmer in determining if and when to irrigate. This program is currently free of charge to landowners within the Little Rock Creek recharge area. Accurate water application can prevent yield loss due to insufficient moisture, prevent ground-water contamination due to over application of water and leaching of nutrients, and reduce the amount of water used during some parts of the growing season. In 2019, the district assisted with the irrigation scheduling program. Unlike past years were we did weekly site visits, this year we did more of a on need basis as the landowners/farmers are starting to adopt the Irrigation Scheduling Program for themselves.

Clean Water Fund (CWF) - Buffer Law Implementation

50' buffer seeded in 2017 by landowner along Public Watercourse.

Benton County by the numbers:

≈ 451 miles of Public Waters shoreline*

≈ 116 miles of Public Ditches shoreline*

2,065 parcels subject to MN Buffer Law

2,047 parcels deemed "Compliant" **(99%)**

18 parcels "Are subject to Validation of Compliance " **(1%)**

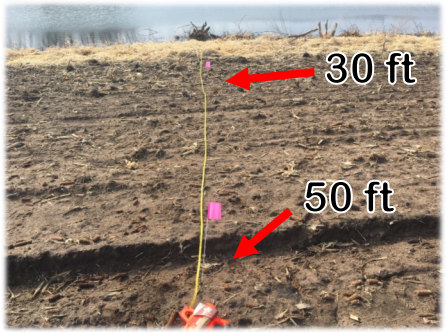
*Public Waters and Ditches as identified on MN DNR Buffer Protection Map

Local Soil and Water Conservation Districts are tasked with validating and tracking compliance with the MN Buffer Law. SWCDs will continue to track compliance with mandated reviews of all parcels adjacent to Public Waters and Public Ditches as identified on MN DNR's Buffer Protection Map.

The MN Buffer Law went into effect Nov. 1st, of 2018 for all parcels adjacent to Public Waters and Public Ditches. Public Waters require a 50' average, 30' minimum, perennial vegetated buffer, and Public Ditches require 16.5' perennial vegetated buffer. Benton SWCD worked with numerous landowners during since 2017 providing compliance determinations, developing compliance and seeding plans, and staking out required buffers. Roughly 51 parcels needed to plant additional buffers to meet the requirements that resulted in approximately 29 acres of buffers being planted.

2019 was the first year of the Benton SWCD Monitoring Plan for Buffer Compliance Tracking. Technicians have been working on contacting landowners and completing compliance reviews for the 89 agricultural parcels subject to spot checks for 2019. All parcels subject to MN Buffer Law in Benton County will be reviewed every 3 years

Above shows a Public Ditch that is lacking the required 16.5' buffer.

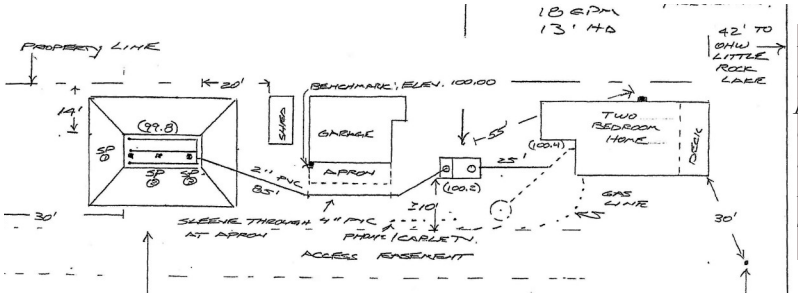


Above shows a Public Water that requires a 50' Average, 30' minimum buffer.

Jeff Behrens– Septic

Jeff has a lakeshore home located on west side of Little Rock Lake. The existing septic system was a holding tank, and was backing up into the dwelling during the winter months. Jeff had a MPCA licensed SSTS inspector do an inspection of the existing septic and found massive tree roots in the tank. The existing septic system was deemed non-compliant as
1) imminent health threat to public health and safety; and
2) failing to protect groundwater.
Benton SWCD was able to help offset the installation cost of the newly designed mound system through the Clean Water Fund - Little Rock Lake Watershed Grant. This project was completed during the drawdown of Little Rock Lake in 2019. The project will project groundwater and is estimated to reduce 6 pounds of phosphorous and 9 pounds of nitrogen per year from entering Little Rock Lake.

CLEAN WATER LAND & LEGACY AMENDMENT



Picture to Left is the design for replacing the non-compliant holding tank with a Type III Mound Septic System.

Before

New Tank Installation

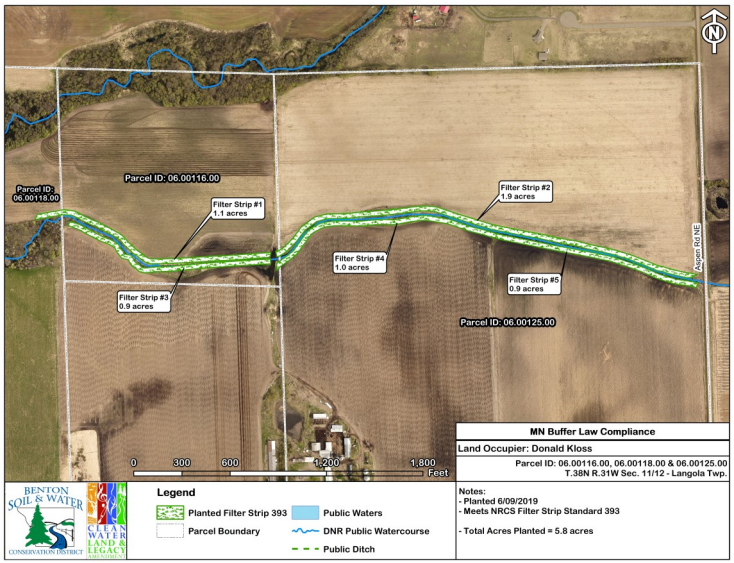
After

Mound Drain Field Installation

After

Renee Popp—Buffer Compliance

Benton SWCD started working with Renee back in 2017 on buffer compliance along a DNR Public Watercourse in Langola Township. In 2018, Renee's renter obtained permits to remove sediment and cleanout the watercourse channel. The renter worked with our office on a compliance plan along the watercourse after the cleanout. A filter strip practice was designed along the 4,250 feet of the watercourse to treat the sheet flow coming into the watercourse.



Picture to Left is a map of Renee Popp's parcels that was planted to a 33' filter strip. Renee's renter worked with our office on the design and seeding plan and the project was done through Clean Water Fund Buffer Cost-Share Grant. 5.8 acres of filter strips were installed in 6/09/19. Estimated soil savings for this project is 5.6 tons/yr with reducing sediment by up to 35 tons/yr and 47 lbs of phosphorous/yr

Pictures above are the filter strips after seeding. They were seeded to a cool season grass mix of smooth brome and timothy on 6/09/2019

Conservation Stewardship Program (CSP)

Above: Polymer coated urea, a commonly used CSP enhancement, which reduces nitrogen loss.

The Conservation Stewardship Program (CSP) is a voluntary program that encourages agricultural producers to address resource concerns by undertaking additional conservation activities and improving/maintaining existing conservation systems. In simpler terms, CSP looks at the farming practices and conservation practices you are currently doing on your farm or woodlot and offers incentive payments to enhance these practices, or to do more. For example, if you are currently planting cover crops, then CSP will provide financial assistance and incentives to increase the number of species and diversity that you are planting, perhaps going from one species to four. Since 2010, 17,676 acres have been enrolled and over $1,957,542 has been brought into Benton County for conservation through the CSP program. A total of 31 different enhancements have been implemented.

Highlights of practices implemented through CSP since 2010

9,015.3 acres of Pesticide Drift Reduction
5,236.0 acres of Nitrification Stabilizer
2,288 acres of Nitrification Inhibitors
124.3 acres Incorporating Legumes into Pasture
819.6 acres of Hay Cutting
(Wildlife Friendly Manner)
0.4 acres of Extending existing filter strips
2.2 acres of Establishing Pollinator Habitat
23.5 acres Conversion of Cropland to Grass
1,833.7 acres Soil Health Nutrient Tool
437.9 acres of Split Nitrogen Applications
214.3 acres Rotation of Feeding Areas
8,430.1 acres of Plant Tissue Testing
3,645.9 acres Apply Enhanced Efficiency Fertilizer

Stay Tuned—with the passage of the new Farm Bill, the CSP program may have a new look in the coming years.

Conservation Reserve Program (CRP)

The Conservation Reserve Program (CRP) is a land conservation program where, in exchange for a yearly rental payment, farmers/landowners who voluntarily enrolled in the CRP program agree to remove environmentally sensitive land from agricultural production and instead plant species that will improve environmental health and quality. Contracts for land enrolled in CRP are 10-15 years in length. The long-term goal of the program is to re-establish valuable land cover to help improve water quality, prevent soil erosion, and reduce loss of wildlife habitat. Signed into law by President Ronald Reagan in 1985, CRP is one of the largest private-lands conservation programs in the United States. Thanks to voluntary participation by farmers and landowners, CRP has improved water quality, reduced soil erosion, and increased habitat for endangered and threatened species.

In 2018, 2 contracts were approved, with 7.7 acres of conservation practices implemented with the "Continuous" Conservation Reserve Program (CCRP), and 6 contracts were approved for a one year extension with 78.1 acres of conservation practices implemented with the Conservation Reserve Program "State Acres for Wildlife Enhancement" (CRP SAFE), for a grand total of 85.8 acres. We discontinued the application process in May 2017 due to the National CRP acres cap of 24 million enrolled acres being reached.

The CRP and CCRP are voluntary programs for agricultural landowners. Through CRP/CCRP, landowners can receive annual rental payments based on the Farm Service Agency (FSA) Soil Rental Rates, and cost-share assistance to establish long-term, resource conserving covers on eligible farmland. In 2018, $222,929 was provided to landowners for annual rental payments, signing bonuses, financial assistance to establish the conservation cover, and funds for mid contract management activities to enhance existing cover.

Pictured above is a CRP SAFE field that had a prescribed burn in the spring to help enhance the prairie to grow thicker and taller.

Mel Hackett Irrigation Project

Mel Hackett has a 2019 EQIP contract to replace an existing center pivot with a new center pivot that has the ability to apply varying rates of water thru each nozzle as it passes over the field. As shown on the map below, there is significant variability in the field. The variable rate technology will allow the pivot to turn off the water to the nozzles that pass over non-cropped wetlands, and reduce water application on heavier soils that need less water, while still meeting the crop needs on the sandier soils on the farm.

Our office will also work with the Mel and Spencer Hackett to properly manage the irrigation water by doing 3 years of Irrigation Water Management, including the installation of soil moisture sensors to better gauge the water needs of the growing crop.

In addition, Mel and Spencer are doing an erosion control project in Morrison County, converting another pivot from high pressure to low pressure, and switching from a diesel pump to a Variable Frequency Drive electric pump (to conserve energy), all thru the EQIP program.

Left: Soils map showing the variation in drainage class on the field where a Variable Rate pivot is being installed.

Benton Beach—Drawdown Planting

One of the benefits of the Little Rock Lake drawdown is increased plant growth in the lake. The drawdown exposed over 400 acres of sand and mudflats allowing native aquatic plants to establish along the newly exposed soil. As plants grow they take up and filter many nutrients in the soil, including the lake's most serious pollutant, phosphorus. In addition to natural plant growth, the Department of Natural Resources and Little Rock Lake Association also purchased 46,000 plants from Minnesota Native Landscapes for planting during the drawdown. 12 different species of plants were planted during the first week of the drawdown including species of sedges, rushes, cordgrass, blue flag irises, pickerel weed, giant bur-reed and sweet flags. A majority of the plants were planted at public areas such as Benton Beach, St. Regis Park, and the Rock Pile in Little Rock Lake however, many landowners of the lake purchased plants from the Lake Association to plant on their own shoreline as well.

Above: Minnesota Native Landscape truck delivering plants to Benton Beach on August 3rd.
Below: Volunteers unloading plants at Benton Beach

Clean Water Fund—Well Sealing Program

In 2017, the district received a three year grant for $6,000 to seal old abandoned/ unused wells in the county and in 2019 the district received an additional $4,000. With both grants combined 98% of the funds have been encumbered. A total of ten contracts have sealed their wells.

The grant is able to provide up to 50% financial assistance to cover the cost of sealing the well. It is very important to properly seal these unused wells, as unused wells can become a source of groundwater contamination and a health risk to children, adults, and animals. This is especially true when the exact location of the well is lost through ownership changes or other ways. Large diameter wells can be a big safety hazard and there have been numerous cases in Minnesota of children and adults trapped in old abandoned wells and even drowning.

Pictured right is an old abandoned well and hand pump. The well was sealed in 2018.

Pictured below is an old dug well that is partially covered. The well was sealed in 2018.

CLEAN WATER LAND & LEGACY AMENDMENT

2017 Elk River/Mayhew Grant

The Benton SWCD just recently closed out a Board of Water and Soil Resources Clean Water Fund grant for work in the Elk River and Mayhew Lake Watersheds. With the grant, 22 cost-share contracts were signed and completed with landowners in the watersheds to install a variety of projects including 4 feedlot/ manure storage projects, 10 cover crops plantings, 6 erosion control, 1 stream crossing, 1 wetland restoration and 2 nutrient management test plots. Total annual pollution reductions for the grant include 371 tons of TSS (Total Suspended Solids), 626 tons of soil, 620 lbs. of phosphorus and 2,973 lbs. of nitrogen. For the 22 projects, $96,394.22 in state CWF cost-share funds, $121,714 in landowner match and $851,217 in federal cost-share funds were spent for a total of $1,069,325. There was also an additional $103,605 spent on staff time to find, design, install and certify these projects. Time was also spent on an additional 26 projects that are in the planning process for 2020 and 2021.

Top: Water and sediment basin completed in 2018 Middle: Stream Crossing installed in 2018 across the Elk River Bottom: Cover crops seeded into standing soybeans in 2017

Benton Beach—Drawdown Planting pictures

O&S Dairy—Feedlot

O&S partnership (Bruce and Linda Olson and their son-in-law and daughter, Troy and Missy Schreindl) operate a dairy facility in Graham township. At the farm there were two pits that were built in the 1970's with assistant from NRCS but these would not meet current requirements and the integrity of the liners was poor. There is also a small pit near the free stall barn that needs to be emptied every 21 days. Several items are being installed at the farm to address the lack of winter storage and old manure pits.

Left: manure pit

Below: geosynthetic Clay lined pit

Ryan & Jennifer Burggraff—OCC Winners

Above: Cultivating kidney beans.

The following are some of the BMPs the Burggraffs have implemented over the years:
For 25 years, no herbicides or pesticides have been used on the farm.
2006 – Planted 2- Continuous Conservation Reserve Program field windbreaks totaling 355 trees on 2.3 acres.
2014 – Installed an animal mortality facility for their broiler barns.
2016 – Planted 35 pine and tamarack trees along curved banks of their property that line the Mississippi River to prevent streambank erosion.
2016 – Added feedlot improvements including a stacking slab, scrape lanes, rain gutters, diversions, and a vegetated treatment area for their beef cow operation.
2017 – Installed a roofed-manure stacking slab with scrape lanes to both broiler barns.
2017 – Their farm became Minnesota Ag Water Quality Certified.
Currently in the process of becoming a completely certified organic farm.

Some other practices the Burggraffs actively implement are rotational grazing, nutrient management, diversified crop rotation, cover crops, tillage for weed control, and more!

Left: Manure stacking slab and scrape lanes for beef operations.

Ryan & Jennifer Burggraff—OCC Winners

Ryan and Jennifer have been selected by the Benton Soil and Water Conservation District (SWCD) as the 2019 Outstanding Conservation Cooperators. They operate a beef herd of 27 cow/calf pairs, two broiler barns, 18 acres of meadow grass hay, and close to 85 acres of row crops on owned and rented land. Their typical crop rotation is: corn-rye-kidney beans-corn-hay.

Left: Back Row from Left: Jennifer (& Baby Burggraff), Bridget, Hannah, Ryan, & Vanessa
Front Row from Left: Kathryn & Isaac

Right: Cattle grazing cover crops.

Left: Roofed-manure stacking slab for both broiler barns.

O&S Dairy—Feedlot

The project includes a 140'x170'x11' deep (2,380,570 gallons) geosynthetic clay lined pit to store 12 months of manure from the free-stall barn, a 50'x55' with 4' wall (11,00 cu ft) concrete stacking slab, and a 108'x158'5.5' deep (536,383 gallons) geosynthetic clay lined pit to collect runoff from the stacking slab and feedlot. These will each provide 6 months of storage. Construction on the project started in the fall of 2017 with the tile being installed around the upper pond. Construction started up again in the summer of 2018 and being completed on the storage ponds and stacking slab in the fall of 2018. Work still needs to completed on the feedlot with installing concrete scrape lanes and concrete diversions.

Top: stacking slab
Middle: fencing around pit area
Bottom: manure pit

Mike Hess—Feedlot

Mike currently operates a 90 cow dairy and also feed outs 100 – 150 steers on a 2.5 acre dirt lot at a 2nd farm. The are no resource concerns with the dairy operation while the steer feedlot has groundwater and surface water pollution concerns that are being addressed at this time. Over the years of use the feedlot has become a "hole" so anytime it rains the feedlot ponds water. Combined with the high water table soils there is a high likelihood of ground water contamination. The surface water concerns happens when the feedlot fills up with water and overflows to a small drainage ditch that empties into the Elk River.

To eliminate the pollution concerns Mike is going to abandon and crop the dirt lot while installing a 340' x 74' roof structure with a 300' x 57' x 12' manure pit under the floor with 12 months storage (1.9 million gallons) to hold up to 500 steers. Once the project is completed all the steers will be under the roof and all manure/runoff will be contained in the pit. Pollution reductions include 28 lbs. of phosphorus per year and 83 lbs. of nitrogen per year. The project is being funded through the Federal EQIP program, Mn Dept. of Ag. Livestock Investment Grant and landowner contributions.

Top: picture of Mike Hess farm
Right: feedlot

Mark Czech—Feedlot

Mark is in the process of installing an ag-waste storage system to reduce feedlot runoff and provide storage so he can avoid winter spreading. The project consists of a waste storage pond north of the feedlot and a settling basin in the feedlot. The pond is concrete lined on the bottom with a 60 mil HDPE plastic liner on the side slopes. Concrete is planned on the pond bottom to allow for removal of sand bedding. The pond is 14' deep x 234' wide x 398' long and holds 6.1 million gallons, providing 14 months of storage. In the feedlot a concrete settling basin will collect the runoff so it can be pumped to the storage pond. Construction started last fall with the completion of the settling basin. Construction on the storage pond began in June and is expected to be finished before winter.

Construction site overview