

TWO RIVERS WATERSHED DISTRICT

IN ROSEAU, KITTSON, & MARSHALL COUNTIES



2020 ANNUAL REPORT

**410 South 5th Street, Suite 112, Kittson County Courthouse
Hallock, MN 56728**

www.tworiverswd.com

INTRODUCTION

The Board of Managers of the Two Rivers Watershed District would like to present this 2020 Annual Report. It contains information about the District's projects, programs, and initiatives through the year.

As a local unit of government, the Two Rivers Watershed District operates under Minnesota Statutes 103E – the drainage law – and 103D – the Watershed law. These statutes govern water management relative to lakes, rivers, streams, groundwater and other water related parameters. The District's water management focus is on flood control, drainage, water quantity, and water quality.

The District, organized in 1957, was the second watershed district in the State of Minnesota to be established, and is governed by a 7 member Board of Managers, two appointed by the Roseau County Commission and 5 appointed by the Kittson County Commission, each to serve a 3 year term. The District employs 2 full time staff to perform the duties of carrying out water management activities set forth in MN Statute 103D. It manages over 100 miles of legal ditch systems, operates and maintains 4 impoundments which store over 9,000 acre feet of flood water, and operates and maintains 7 other projects for drainage and flood control purposes. The District is also involved with water quality studies, flow monitoring, surveying, snow surveys, enforcement of the buffer law, and has adopted rules which require permits for construction of certain water related activities.

Work is continuing on the planning, design, funding and permitting for the latest impoundment project, the "Klondike Clean Water Retention Project #11". This project will focus on flood control and providing an adequate drainage outlet for Lateral 1 of State Ditch #95. A secondary flood control aspect will be to accept some of the floodwater that overflows from State Ditch 72 and the Roseau River. In addition, water quality benefits and natural resource enhancements will be accomplished. Plans are in the works which will give the project the ability to store up to 37,500 acre feet of water.

For 2021 the District will continue with maintenance of existing projects and infrastructure, monitoring of stream flows and water quality, and planning for future projects. We strive to work with landowners to solve water related problems to ensure that drainage, flood control, and water quality concerns are addressed.

2020 LIST OF MANAGERS

Paul Olsonawski, **President**
3762 285th Ave
Lancaster, MN 56735
(218) 762-1911
Member since 2011
Term Expires: October, 2019

Joel Muir, **Treasurer**
2339 250th Ave
Hallock, MN 56728
(218) 843-2080
Member since 2020
Term Expires: October 2021

Rick Sikorski
30825 110th Ave
Lancaster, MN 56735
(218) 782-2783
Member since 2018
Term Expires: October 2021

Scott Klein
1946 200th Street
Hallock, MN 56728
(218) 843-2752
Term Expires: October, 2020

Daryl Klegstad, **Secretary**
4151 210th St,
Halma, MN 56729
(218) 265-2073
Member since 2013
Term Expires: October 2019

Roger Anderson, **Vice President**
1561 110th Steet
Drayton, ND 58225
(218) 455-6269
Term Expires: October 2021

Bruce Anderson
18960 170th Ave.
Greenbush, MN 56726
(218) 782-3147
Member since 2017
Term Expires: October, 2020



Office Staff

Matt Thompson
Head Technician
Matt.thompson@tworiverswd.com

Dan Money
District Administrator
dan.money@tworiverswd.com

Office Information:

Two Rivers Watershed District
410 South 5th Street, Suite 112
Hallock, MN 56728
Phone (218) 843-3333

Location: Lower Level, Kittson County Courthouse
Winter Office Hours: 7:00 am – 5:00 pm, M-Th
8:00 am – 4:30 pm
Summer Office Hours: 8:00 am – 4:30 pm M-F

World Wide Web: www.tworiverswd.com

Office Administration

OFFICE STAFF

The District employs 2 full time staff persons. Their titles and duties are listed below.

- *District Administrator:* The Administrator carries out all administrative and technical duties as determined by the Board of Managers. Specific duties include staff supervision / human resources, long range plans, coordinating meetings, financial management, project management, ditch inspections, data practices compliance, water quality monitoring, data analysis, and performing investigations relating to District projects.
- *Head Technician:* The Technician is responsible for field work relative to District programs, ditches, projects, and inventories. This includes ditch survey work, stream flow monitoring, culvert inventory, reporting, processing permit applications & permit review, geographic information systems, data analysis, and other technical duties.

CONSULTANTS

Engineering services for 2018 were performed on a project specific basis by Widseth, Smith, & Nolting – Crookston, MN, and HDR Engineering, - Thief River Falls, MN. Consulting engineers are used on an as needed basis at the discretion of the Board of Managers.

Legal services are provided by the law firm of Brink, Sobolik, Severson, Malm, & Albrecht, P.A. of Hallock.

Payroll services are provided by the accounting firm of Dahl, Hatton, Muir, & Reese, Ltd. of Hallock.

Auditing services are provided by the firm of Brady Martz & Associates, P.C., of Crookston.

MEETINGS

From January 1 through July 1, 2020, the Board of Managers met the first Wednesday of each month in the District office in Hallock, MN beginning at 8:00 a.m. The meeting date was thereafter changed to the first Thursday of each month for the remainder of the year. Special meetings were held from time to time at

the discretion of the Board. Citizen's Advisory Committee meetings are held at least once per year as required by law and otherwise as determined by the Board. All meetings are properly posted as required by law.

GOVERNANCE

The TRWD was established in October of 1957 and is made up of 7 board members including 2 from Roseau County and 5 from Kittson County. Board members are appointed to a 3 year term by their respective County Commission. The Board of Managers meets once per month to conduct the regular business of the District, and special meetings are occasionally held.

The TRWD established By-Laws and follows them accordingly for meetings and day to day activities. In addition, the Board prescribed their first 'Overall Plan' in 1958, which was the first overall plan of any watershed district in the state of Minnesota. This plan has been updated several times over the years, and was last extensively updated in 2004. The TRWD will be updating this plan over the next 1 year through the new "One Watershed, One Plan" process dictated by the State of Minnesota. This is a joint cooperative planning process between the Roseau SWCD, Kittson SWCD, Roseau County, Kittson County, and the TRWD. When completed, this plan will guide and direct the daily, monthly, and yearly operations of the District.

The District operates under Minnesota Statute, 103D, also known as the 'Watershed Law'. This statute gives watershed districts authority to work on flood control, drainage, water quality, water supply, and other issues that affect water natural resources within rivers, lakes, streams and groundwater. Eleven projects have been constructed and another is in the works to help with drainage and alleviate flooding. In addition, the District utilizes Minnesota Statute 103E (the Drainage Code) to maintain over 68 miles of legal drainage ditches.

The District is a member district of the Red River Watershed Management Board, which was established in 1976 by the MN Legislature. The RRWMB is made up of 7 watershed districts within the Minnesota side of the Red River basin. Its mission is to "institute, coordinate, and finance projects and programs to alleviate flooding and assure the beneficial use of water in the watershed of the Red River of the North and its tributaries". Through the RRWMB, the TRWD is affiliated with the Red River Retention Authority and the Red River Basin Commission. The District is also a member of the Minnesota Association of Watershed Districts.

Since its inception, the Board of Managers have established numerous policies regarding various management issues. Many of these relate to permits issued under the *Rules of the Two Rivers Watershed District*, and others relate to general activities of the District. The District follows its stated policies whenever possible and uses discretion when applying these policies.

ADVISORY COMMITTEE

The District Technical and Citizen’s Advisory Committees are made up of concerned citizens, appointed officials, and representatives of governmental agencies that in some way work with or affect the water resources of the District. These committees meet at least once per year to provide input and guidance to the Board of Managers regarding District programs and activities. The Advisory Committee members for the year 201are listed below.

Citizen’s Advisory Committee

Name	Location	Representing		Name	Location	Representing
Keith Cummins	Karlstad	Rural		Luke Novacek	Greenbush	Rural
Don Craigmile	Hallock	Rural		Bob Boychuck	Hallock	Rural
Virgil Gryskiewicz	Greenbush	Rural		Vern Langaas	Karlstad	Rural
Daryl Wicklund	Greenbush	Roseau Co		Leon Olson	Lancaster	Kittson County
Earl Mattson	Kennedy	City		Dave Treumer	Hallock	City
Heather Peterson	Hallock	Rural/SWCD		Justin Osowski	Hallock	Rural
Harold Moose	Donaldson	Township		Brach Svoboda	Greenbush	Rural
Ed Walsh	Badger	Rural		John Gaukerud	Badger	Rural
Shayne Isane	Greenbush	Rural		Murray Jacobson	Greenbush	Rural
Brenda Sather	Greenbush	City		Jim Rinde	Badger	City
Roger Green	Greenbush	Friends of LBSP		Justin Dagen	Karlstad	Springbrook Twp
Kurt Aakre	Karlstad	Rural		Jon Vold	Hallock	Rural

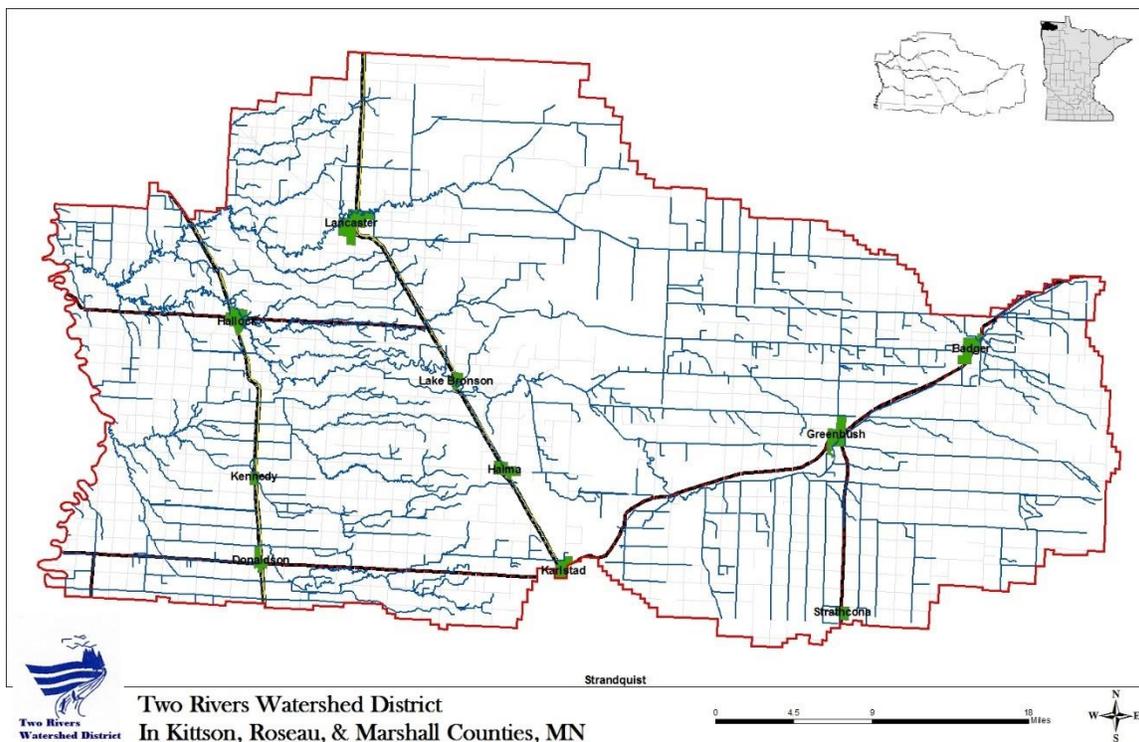
Technical Advisory Committee

Name	Location	Representing		Name	Location	Representing
Kelly Bengtson	Hallock	Kittson Hwy Dept		Brian Kettring	Roseau	Roseau Hwy Dept
Jamie Osowski	Hallock	Kittson SWCD		Jonathon Eerkes	Karlstad	TNC
				Jim Schwab	Hallock	NRCS
Danielle Kvasager	Detroit Lakes	MN Pollution Control Agency		Matt Fischer	Bemidji	BWSR
Matthew Skoog	Baudette	DNR Fisheries		Kyle Arola	Middle River	DNR Wildlife
Stephanie Klamm	Thief River Falls	DNR Waters		Lane Nordin	Hallock	Kittson Co. Zoning
Janine Lovold	Roseau	Roseau SWCD		Danni Halvorson	Viking	International Water Institute
Scot Olson	Hallock	Kittson DEM		Nate Dalager	Thief River Falls	HDR Engineering
				Blake Carlson	Crookston	WSN Engineering

BACKGROUND INFORMATION

The Two River Watershed District was established by order of the Minnesota Water Resources Board on October 30, 1957. It was the second watershed district to be organized within the State of Minnesota, and the first to write and approve an overall plan. The District is located in much of Kittson County, the western 1/3 of Roseau County, and extreme northwestern Marshall County, all in northwest Minnesota.

The land area of the District encompasses 1,454 square miles. The boundary does not follow political boundaries, rather it follows drainage boundaries. The District stretches 65 miles from the Red River on the western boundary to the eastern boundary located between the cities of Badger & Roseau. At its widest north-south point, the District stretches 33 miles. It is bordered to the north-west by the Joe River Watershed District; the north by the Province of Manitoba, Canada; the east by the Roseau River Watershed District; the south by the Middle-Snake-Tamarac Rivers Watershed District; and to the west by the Red River of the North, which is also the boundary with North Dakota.

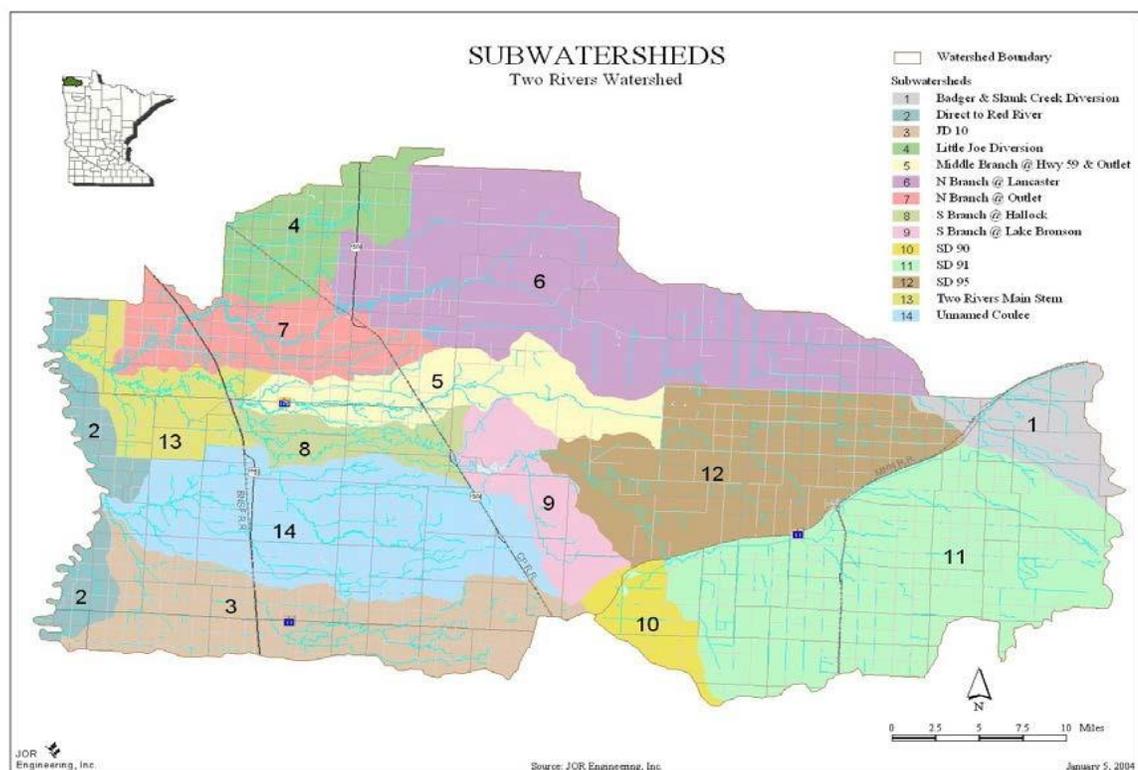


The Two Rivers actually consists of three branches – the North, Middle and South Branch. The South Branch arises southeast of Badger, Minnesota and flows in a westerly direction along the south side of Badger and through the cities of Greenbush, Lake Bronson, and Hallock. The Middle Branch drainage area begins east of the Kittson & Roseau County line, travels through the central portion of Kittson County, and outlets into the South Branch just east of the city of Hallock. The North Branch drainage area begins in northwestern Roseau County, travels through Lancaster and Northcote, and joins the South Branch to form the main stem three miles east of its outlet into the Red River.

The southwest portion of the District is a 360 square mile stand alone drainage system that was added to the District in the mid 1980's. This drainage system is comprised of a series of coulees which outlet into legal drainage systems. These legal drainage systems in turn outlet into a series of coulee systems, and in turn they outlet into the Red River. This drainage system flows into the Red River at a point 10 miles south of the outlet of the Two Rivers.

The economy of the District is largely driven by agriculture. Of the approximately 931,150 acres of land in the District, 67% is pasture and crop land, 14% forested, 13% grassland, 5% wetland, and 1% roads, ditches, and urban. The primary crops grown are small grains, soy beans, sugar beets, and other crops such as seed potatoes, corn, canola and sunflowers.

Cities within the District include Badger, Greenbush, Strathcona, Karlstad, Halma, Lake Bronson, Lancaster, Donaldson, Kennedy, and Hallock. In addition, the unincorporated villages of Fox, Haug, Leo, Orleans, Pelan, Northcote, and Robbin are within the area of the District. Industry in the area is limited. The mining of gravel is prevalent in the beach ridge areas of glacial Lake Agassiz. A few manufacturing and assembly companies exist in the area, including a wood stove company, metal works, canola processing plant, powder coating, and a vehicle track company. Also, a motor coach / bus assembly plant is located in Pembina, North Dakota, and a snowmobile / all terrain vehicle manufacturing company is located just east of the District boundary in Roseau, MN. Other major employers are healthcare centers in Greenbush, Karlstad & Hallock, several school districts, and a county courthouse. Area population trends show a steady decline over the past 3 decades.



PROJECT STATUS

EXISTING AND COMPLETED PROJECTS

The following are established and proposed projects of the Two Rivers Watershed District. They were built under Minnesota Statute 103D for various purposes including flood control, erosion control, water quality benefits, wildlife enhancement, and drainage for cropland. Each is inspected annually and operated and maintained by the District.

Detailed information regarding each project is on file at the TRWD office. Interested individuals can obtain copies of all project information upon request.

<i>Project Name</i>	<i>Description</i>	<i>Location</i>	<i>Established</i>	<i>Status</i>
Middle Branch Project #1	9.0 mile channel improvement	Thompson & Hazelton Townships, Kittson Co	1968; PL 566	Yearly Inspection & Maintenance
North Branch Project #2	11.8 mile channel improvement	Richardville, St. Joseph, Granville, & Poppleton Townships, Kittson Co.	1969; PL 566	Yearly Inspection & Maintenance
Soler Project #4	5 mile extension of State Ditch #72	Soler & Moose Townships, Roseau Co.	1979; Petition Project	Yearly Inspection & Maintenance
Dewey Project #5	1.8 mile lateral to State Ditch #91	Sections 26 & 35 Dewey Township, Roseau Co.	1980; Petition Project	Yearly Inspection & Maintenance
Nereson Impound Project	Flood Control Impoundment	Sections 27-28 Nereson Township, Roseau Co	1981; Board Initiated	Yearly Inspection & Maintenance
Nereson Modification Project	Flood Control Impoundment	Sections 33-34 Nereson Township, Roseau Co	2005; Board Initiated	Yearly Inspection & Maintenance
Dewey 5 Improvement Project	Improvement of Dewey #5 Ditch System	Sections 26 & 35 Dewey Township, Roseau Co	2002; Petition Project	Yearly Inspection & Maintenance
Horseshoe Lake Project	Drawdown Structure	Section 14, St. Joseph Township, Kittson Co	2006; Jointly by Kittson Co – DNR- TRWD	Yearly Inspection & Maintenance; Gate Operation
Kennedy Project #6	2.6 mile ditch to connect Kittson CD4 & CD27	City of Kennedy, MN	November 2009; Petition Project	Yearly Inspection & Maintenance
Ross Project #7	Flood Control Impoundment	Sections 26, 27, 28, 32, 33,34, Ross Township, Roseau Co	November 2007; Board Initiated	Yearly Inspection & Maintenance; Gate Operation
Springbrook Project #10	PL566 Set back dikes and Side water inlets along 8.65 miles of waterway	Springbrook Township sections 22,23,28,29,30; Davis Township sections 25,36	December 2013; Petition Project	Yearly Inspection & Maintenance

Polonia Clean Water Retention Project #12 (Quick) – The ‘Quick’ project was completed jointly with the Natural Resources Conservation Service. This is a wetland restoration and flood control project on over 1,500 acres located in Polonia Township, Roseau County that was planned, engineered, and constructed by the NRCS through their ‘Wetland Reserve Program’. The purpose of the project is to restore wetlands, habitat, and provide flood control. Construction was completed in 2018, and the project restored a wetland – upland habitat complex on District owned land. In addition to habitat, the project will store approximately 1,100 acre feet of floodwaters in the state ditch #95 subwatershed.



North Branch drop structure – SD 84



North Branch Drop Structure – JD 31



Outlet Structure – Horseshoe Lake



North Branch Drop Structure



Soler 4 Ditch



Grade Stabilization – Springbrook #10



Ross #7 Impoundment



Wildlife Weier at Nereson Impoundment



Outlet Structure at Ross #7 Impoundment



Main Outlet Structure at Nereson Impoundment

OTHER PROJECTS

The project listed below was a project that utilized federal, state, and local funding. It was coordinated by the District but is not an official project of the District and therefore future maintenance is the responsibility of the landowners along its course.

Springbrook / CR 61	3.75 mile meandering channel & set back dikes – flood control	Sections 3,5,6 Springbrook & Sect. 1 Davis Twp, Kittson Co	August, 2008	Maintenance responsibility of landowners
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Meandering Channel w/ set back levy – County Road #61, Springbrook Twp, Kittson County



FARMSTEAD RING DIKES

After the historic flood of 1997, the District participated in a cost share program with the State of Minnesota and the Red River Watershed Management Board to design and install farmstead ring dikes. The dikes were designed and engineered by the TRWD and installed by local contractors. The landowner generally paid 12.5% of the cost, the state paid 75%, and 12.5% was paid by the RRWMB/TRWD. Using this program, 25 farmstead ring dikes were built.



PROJECTS NOT CONSTRUCTED

The following table shows several projects that were initiated but were dropped for various reasons.

Stokes #3	Offtake drainage ditch	Stokes Twp – 4 miles long	Dropped 1970's	Local opposition
Karlstad Project	Impoundment	Deerwood Twp sect. 8,9,16,17	Dropped 1988	Local opposition
Juneberry Ridge	Impoundment	Klondike & Polonia Townships	Dropped 1990	Permitting/MCBS/Mediation
Nereson #8	Impoundment	Nereson Twp, sect.2,3,11	Dropped 2007	Local opposition
Svea #9	Drainage Ditch	Svea Twp, sect. 1 - 12	Dropped 2006	High cost, inadequate outlet
Polonia – Barto	Drainage Ditch	12 miles sections 1-12 in 2 townships	Dropped in favor of Ross Impoundment	Inadequate outlet

POTENTIAL PROJECTS / PROJECTS UNDER INVESTIGATION

Klondike Clean Water Retention Project #11:

Description/Location: The 7,600 acre multi-purpose resource project is located 10 miles east of the City of Lake Bronson, MN and 4 miles north, covering nearly 12 square miles on the Kittson and Roseau County line. It is planned to have gated storage of up to **37,250 acre feet** from a 191.5 square mile upstream drainage area, include 8 miles of diked inlet channel, up to 6 miles of diversion channels, a 17 mile long dike, and an average dike height of 6 feet.

Problem: Large scale overland flooding is a common occurrence from the City of Badger and west to the Kittson & Roseau County line along 18 linear miles of Lateral 1 of State Ditch 95. Undersized channel capacity and the slope of the landscape contributes to out of bank flows and overland flooding on a large scale. In large flood events, water overflows out of the Roseau River and enters the Two Rivers Watershed District via State Ditch #72, exacerbating the problems. Impacts occur to public roads and infrastructure, loss of agricultural crops, and farmsteads. Roads can be closed for several weeks at a time.

Project Benefits: A Project Work Team consisting of representatives of local (County, Watershed District, City, Township), state (DNR, BWSR, MPCA) and federal (NRCS, USFWS, USCOE) agencies as well as local landowners and

non-government groups (Nature Conservancy, International Water Institute) was convened. This project team met monthly over the course of several years to discuss the project, set goals and investigate alternatives. These meetings followed the process recommended by the Red River Flood Damage Reduction Work Group, which has endorsed the project. This ensures that the project will achieve both flood damage reduction and natural resources enhancement goals and follow proper environmental review procedures.

FLOOD DAMAGE REDUCTION

- *Store 37,250 acre feet of floodwaters on the land*
- *Reduce downstream peak flows and flood duration*
- *Provide adequate outlet for Lat 1 State Ditch #95*
- *Store a portion of Roseau River overflows*
- *Prevent flooding on over 25 square miles*
- *Reduce damages to roads, bridges, culverts, & farmsteads*
- *Reduce Two Rivers contribution to Red River by*

Status & Timeline – Pending Funding & Permitting

- Final Plans and Specifications are 90% complete
- Permitting potentially complete between December 31, 2021 and June 30, 2022 (EAW, USCOE, WCA, SHPO, 103E ditches)
- Phase 1 – 16,500 acre ft; fish habitat & water quality – 2022-2023
- Phase 2 – raise to 27,500 acre ft; fen protection – target 2024-2025
- Phase 3 - raise to 37,250 acre ft; – target 2026-2027

Funding Needs:

- Phase 1 cost estimate is \$13M: \$5.38M is secured; \$7.62M is needed to be able to construct Phase 1

Natural Resources Enhancements

- *Fish Habitat*
 - Provide 10-20 cfs flow in Two Rivers during dry periods
- *Prairie Rich Fen*
 - Protect and enhance a large Fen
 - Implement a fen protection plan
- *Water Quality Improvements*
 - Reduce sediment loads to Two Rivers
 - Reduce Phosphorous & Nitrogen loads to Two Rivers
 - Reduce duration and peaks of annual algae blooms at Lake

DITCH SYSTEMS

In addition to the above projects, the District is the ‘Ditch Authority’ for several legal ditch systems (See map & table below). Minnesota Statute 103E, the Drainage Law, governs how the TRWD must inspect, operate, and maintain these ditches.

A number of other watercourse projects have been established under Minnesota Statute 103D, the Watershed Law, which also governs how the TRWD inspects, operates, and maintains each project.

The table below lists both the ditch systems and the drainage projects that the District administers.

Legal Ditches Statute 103E	Length (Miles)	Township(s); County	2020 Levy
State Ditch #49	5.25	Norway; Kittson Co	\$ 2,500
State Ditch #85 Improvement	0.75	Poppleton; Kittson Co	\$ 0
Judicial Ditch #3	5.5	Teien; Kittson Co	\$ 6,600
Judicial Ditch #10	31	Davis, Svea, Teien, Kittson Co	\$ 3,200
Kittson CD #7	6.5	Svea; Kittson Co	\$ 5,000
Kittson CD #10	7.0	Deerwood; Kittson Co	\$ 7,500
Roseau CD #4	7.5	Lind, Dewey; Roseau Co	\$ 7,500
Kittson CD #21		Hallock, Kittson Co	\$ 32,500
KCD Div 1 Impr.	2	Hallock, Kittson Co	\$ 25,000
Watercourse Projects Statute 103D			
Middle Branch 1	9.6	Hazelton, Thompson; Kittson Co.	\$ 5,000
North Branch 2	11.1	Granville, Hampden; Kittson Co.	\$ 5,000
Nereson	Impoundment	Nereson; Roseau Co	N/A
Soler 4	5.0	Soler; Roseau Co	\$ 5,000
Dewey 5	1.8	Dewey; Roseau Co	\$ 10,000
Kennedy 6	1.5	Tegner, Skane; Kittson Co.	drainage lien + \$ 5,000
Ross 7	impoundment	Ross; Roseau Co	N/A
Springbrook 10 / PL566	9.0	Springbrook & Davis Townships, Kittson Co	Drainage lien + \$10,000

These systems are inspected annually and each system is surveyed a minimum of once every 5 years to assess any changes from erosion or sedimentation. In 2020 the systems surveyed were JD 3 and JD 10 main.

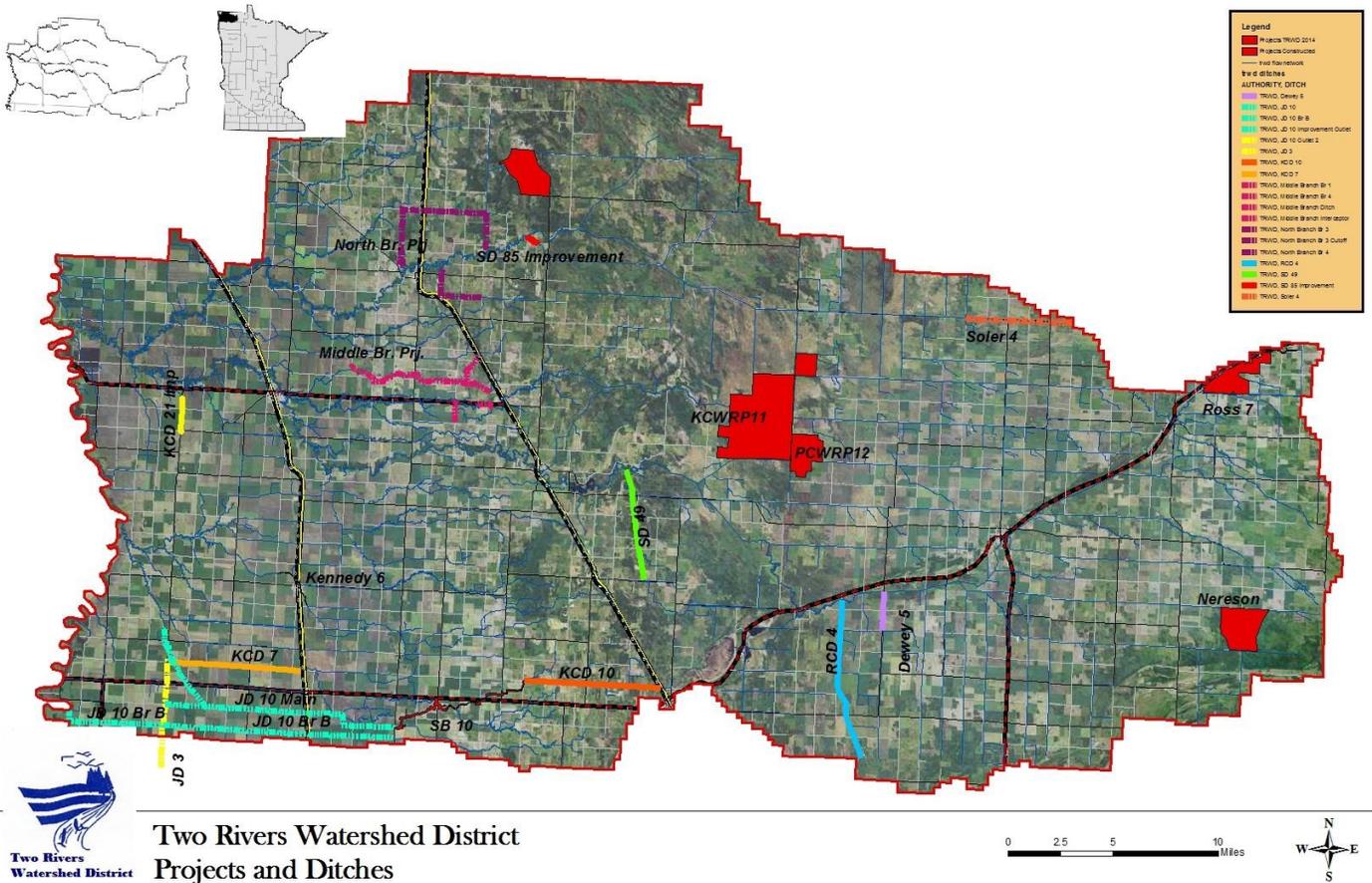
Maintenance activities are undertaken if deemed necessary. These activities include beaver dam removal and beaver trapping, spraying of cattail and other nuisance vegetation, removal of silt and sediment, repair of sloughed side slopes or eroded culverts, and other items as needed. Detailed maintenance reports are kept and filed each year in the ditch file.

Extensive cattail and brush spraying was done on numerous systems. Kittson County Ditch #21 was cleaned of accumulated sediment for a 2 mile stretch.

The District, as the ditch authority for these ditches, is also responsible for maintaining a ditch fund to pay for maintenance expenses. Each year the District assesses the needs of each ditch

and a tax is levied against the “benefited area” of each ditch, if necessary and if the funding is needed. Each year the District certifies this levy to the County Auditor of the County where the ditch is located.

A map showing the locations of each ditch system and each project of the Two Rivers Watershed District is shown below.

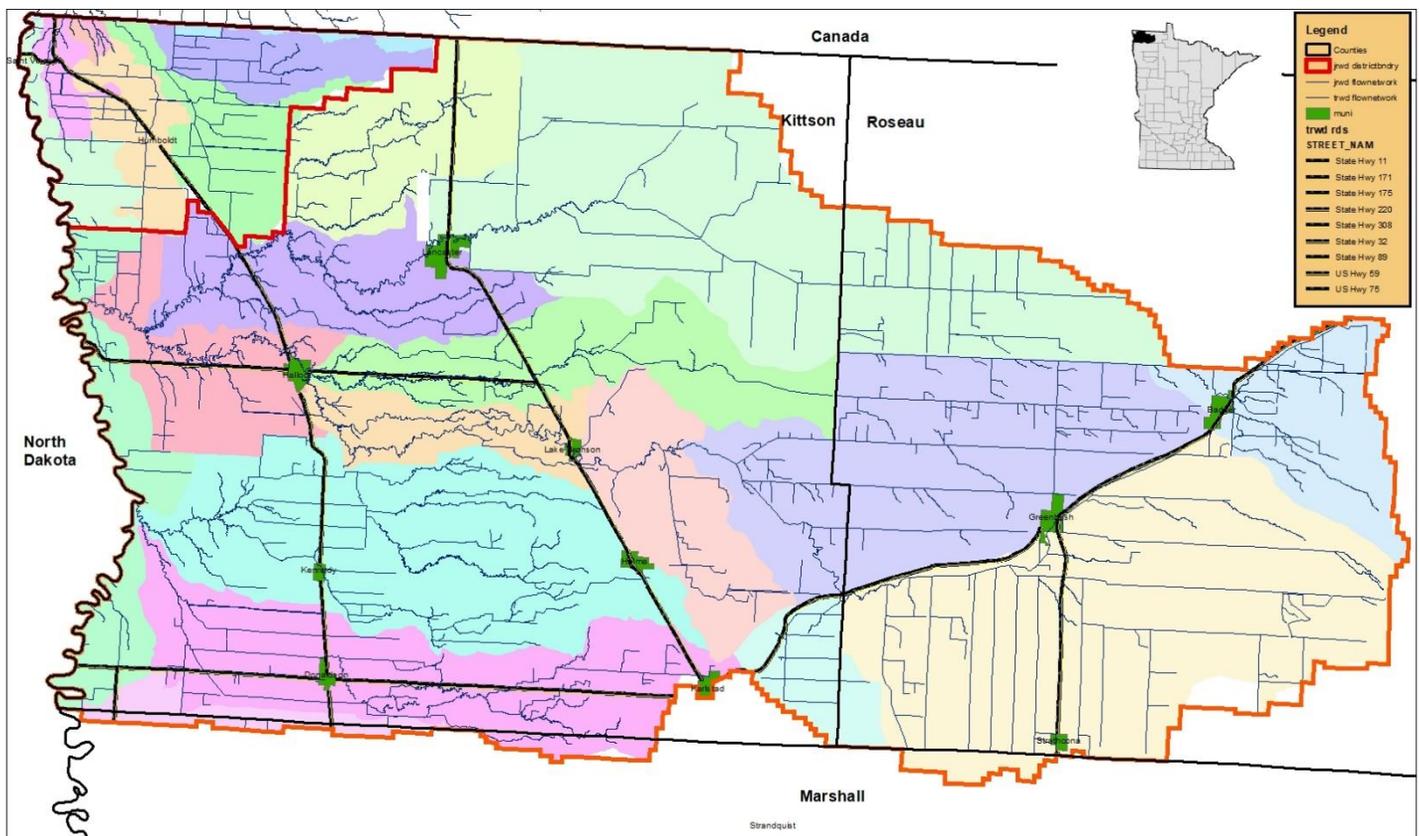


PROGRAM STATUS

ONE WATERSHED, ONE PLAN

Watershed Districts are required to complete and update an “Overall Plan” once every 10 years. Counties and Soil & Water Conservation Districts are also required to regularly write and update local plans. Recently the State of Minnesota enacted legislation allowing the transition from Overall Plans to a new plan known as “One Watershed, One Plan” (1W1P). This new version of planning combines watershed district plans, County Soil & Water Conservation District plans, and County Comprehensive Local Water Plans into one plan that is based on drainage boundaries rather than political boundaries.

In 2018 the Two Rivers Watershed District, Roseau Soil & Water Conservation District, Kittson Soil & Water Conservation District, Roseau County, and Kittson County entered into an agreement to complete a 1W1P known as the “Two Rivers Plus 1W1P”. Meetings and plan writing began in 2019 and continued in 2020. This plan is nearing completion and is expected to be approved in 2021.



Two Rivers 1W1P Planning Boundary
Kittson & Roseau Counties; Kittson & Roseau SWCD's; Two Rivers Watershed District

PERMITS

The Rules of the Two Rivers Watershed District were enacted in 1981, and under these Rules, a permit from the District is required for the following activities:

- Any sanitary sewer system which discharges to surface water, storm sewer, or other major utility project which affects surface water within the district.
- Any street, road, or highway construction project which by means of its construction has any effect on the quality or quantity of water runoff.
- Any construction or alteration of any drain tile or drainage ditch that drains an area in excess of 20 acres.
- Any works which include draining, filling, excavating, or dredging of any type 3, 4, 5, or 8 wetland as defined by the U.S. Fish & Wildlife Service Circular 39.
- Any construction or alteration of any bridge, dike, culvert, or drain across any drainageway, lake, wetland, or other water body.
- Any artificial or mechanical transfer of water from a water source including but not limited to gravel pits, ponds, rivers, wetlands, and other reservoirs consistent with the general purposes of the District.
- Any artificial drainageway cut across a subwatershed to thereby deliver water into another subwatershed.
- Any drainage of water by any artificial means into any legal drainage system from any land not assessed to that drainage system.
- Construction, alteration, or removal of any dike or reservoir.

Eighty-Five permit applications were processed during 2020.

2020 DISTRICT ACTIVITIES

BOARD MEETINGS

Eleven regular monthly board meetings were held during the course of 2020. As a result of the Covid-19 pandemic, some were held in person, some were held electronically, and some were held as a 'hybrid'. The Annual Meeting was held on January 8, 2020. One budget hearing of the Board was held during the year. Meetings were held in accordance with Minnesota's open meeting law and meeting minutes are available on the District's website at www.tworiverswd.com.

NON-DISTRICT MEETINGS

The District Managers and District staff attended several non-District meetings during the course of 2020 that were related to affiliations, information and ongoing education. Twelve meetings of the Red River Watershed Management Board were attended regularly, various committees of the RRWMB, the Minnesota Association of Watershed District's Annual Meeting, NRCS – MN State Technical Committee meetings, and other meetings as needed.

TRAINING

Managers and staff attended, as necessary, various training sessions and meetings that were pertinent to the operation of the District.

ADMINISTRATIVE ACTIONS

The District employed a full time District Administrator and a full time Technician during 2020.

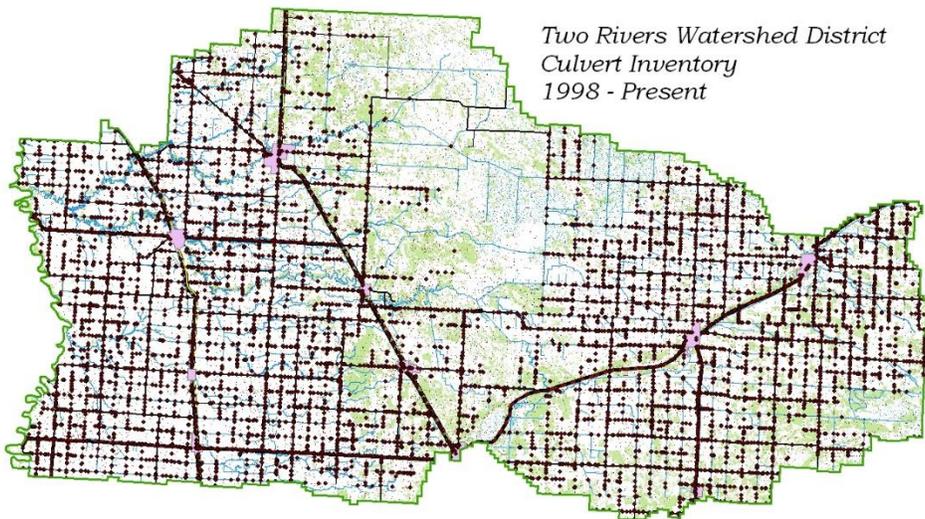
Excerpts From 2020 District Newsletter

TRWD Culvert Sizing Policy Provides Both Drainage & Flood Control Benefits

Flooding in the Red River Valley is a well-known and well documented phenomenon from the south end of the valley to the north. Spring floods as well as summer floods, like the summer rains experienced each of the last two years, can cause serious damages to roads, ag land, culverts, farmsteads, cities, and other properties. Annual damages to public infrastructure and private lands can be large. The economic impacts of these floods can include reduced income from crop losses, increased taxes to pay for public damages, relocation of homes due to repeated and excessive flooding, and continual maintenance costs for debris cleanup, repairs, and structure replacement.

The Two Rivers Watershed District and the Red River Watershed Management Board are continually looking for ways help reduce flood damages. Technical papers have been developed in which scientists, engineers, economists and others analyze the various ways to best reduce flooding. Some of the tools used include construction of projects that

- 1) reduce flood volumes (projects to slow or hold runoff),
- 2) increase conveyance (ditching or diversions to get water away ahead of Red River flooding),
- 3) increase temporary flood storage (impoundments), and
- 4) provide protection or avoidance (ring dikes, floodproofing, buyouts, etc.).



Locations of culverts within the Two Rivers Watershed District. Culvert sizing can be an important tool in reducing flooding and erosion.

Locally the Two Rivers Watershed District has applied these tools in various ways. The 'Nereson' and 'Ross' projects are large scale impoundments that have been constructed totaling over 9,000 acre feet of storage, and the 'Klondike Clean Water Retention Project' is being planned to provide another 37,000 acre feet. The 'Springbrook' project constructed set back levees along an existing waterway to prevent water from breaking out. Others like our 'Soler 4', 'Dewey 5', 'Kennedy 6', 'Middle Branch', and 'North Branch' projects provide drainage and

ditch capacities designed to remove the water from the landscape in order to prevent crop damages. Over the years, the District has been involved with the design, funding, and construction of 22 farmstead ring dikes.

In many cases management of the floodwaters becomes a balancing act to try and provide protection for cropland and infrastructure, but at the same time to regulate flows so that downstream areas do not become overly inundated. Extreme care must be taken in doing a project that a flooding problem is reduced but does not just move it from one spot and put it on other lands. During times of flooding and excessive runoff, tempers can flare and projects can be hastily implemented that may benefit some but at the same time increase flooding for others. One philosophy that has been used is the "adequate and equitable" idea. **Adequate** refers to providing enough drainage to prevent a majority of crop losses, and **equitable** refers to equal distribution of positive and negative effects of drainage in all areas of a watershed from the upstream end of a drainage system to the downstream end.

One of the methods of providing adequate and equitable benefits is culvert sizing. This flood reduction tool uses the idea of better utilizing distributed temporary storage and metering runoff without causing a significant increase in the risk of flood damage where runoff is temporarily stored. It not only can reduce downstream flood peaks, it also can provide a more uniform level of flood protection within a drainage system. It may not work in every situation, but if implemented systematically it can have significant positive impacts in most areas.

The guiding principles for culvert sizing are as follows:

- Risk to highways should not exceed current standards for safety and maintenance
- Risk to developed properties upstream of road crossings should not exceed accepted standards
- Benefits of drainage should be equitable throughout the drainage system
- The drainage system should detain water in excess of downstream channel capacity, to the extent practical
- Temporary storage of water on cropland should be uniformly distributed throughout the drainage system, to the extent practical
- Detention of water on cropland for most rainfall events should be no longer than 24 to 48 hours to avoid crop damages
- The recommended design methodology should be easy to apply, yet comprehensive enough to provide safe roads and an adequate and equitable drainage system

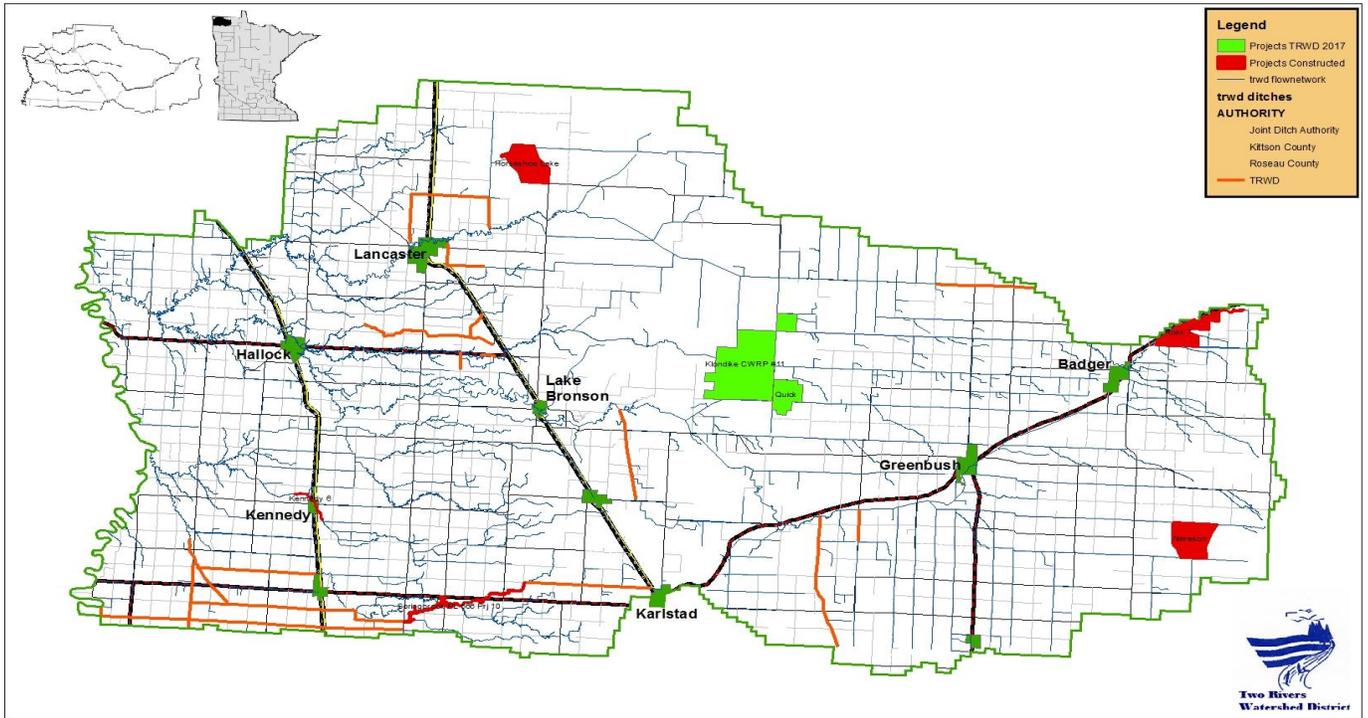
- Culvert sizing can be implemented either one site at a time, or over an entire sub-watershed area all at once. Benefits will be realized quicker by doing an entire sub-watershed.

The Two Rivers Watershed District has been using culvert sizing when issuing permits for culverts since 1996. When considering culvert sizing, permitting agencies and drainage authorities need to consider the effects on crops, erosion and sedimentation concerns, damage to roads, and damage to buildings. These considerations relate to duration of flooding, high flows (out of bank), peak flows (road overtopping), and peak stages. Culverts are sized according to the number of acres that drain through them. For small drainage areas smaller culverts are used, and as drainage areas increase the recommended culvert size incrementally increases. In an ideal situation of adequate and equitable drainage, all of the culverts in a watershed area would be sized accordingly, and they all would then be working together to meter flows, reduce flood damages, provide 24-48 hour drainage for crops, and spread out both the benefits and damages throughout the entire watershed.

The District has found that this strategy tends to work the best when implemented in smaller watersheds. It is important to note that in order to maximize the benefits of culvert sizing, the culverts located the furthest upstream are the most important ones to get the right size. Culvert sizing by itself most likely will not eliminate flooding, but it is a way to drastically reduce flooding. The TRWD will continue to utilize this tool in order to help with flooding issues. Further information regarding culvert sizing can be obtained by contacting the District office in the Kittson County Courthouse, Hallock, MN.

Two Rivers Watershed District Impoundments Utilized in 2019 Fall Flood Ready to Go For Spring 2020

Flooding and flood control once again came to the forefront in the fall of 2019 and it is looking like the 2020 spring runoff will be significant. Over the years, the Two Rivers Watershed District has constructed 3 impoundment projects, 24 farmstead ring dikes, and 6 channel projects. The District also manages 8 legal ditch systems which help to convey floodwaters. Other projects have been undertaken to help slow runoff, prevent erosion, and provide natural resources benefits. Each of these projects is designed to reduce the damages from flooding to public and private infrastructure and cropland. The map below shows the impoundments in red, a proposed impoundment in green, and channel projects in either orange or red.



Two Rivers Watershed District
Impoundments & Ditch Projects

Two impoundment projects located in Roseau County are extremely helpful in alleviating flooding, and these are listed below. These were both utilized in 2019 both during the spring runoff, the mid summer large rains, and the historic fall flooding.

Nererson and Nererson Sub-Impoundment:

- Main Impoundment Constructed in 1980's
- Sub-Impoundment Constructed in 1990's
- Combined storage of 3,500 acre feet (gated & ungated)
- On 10/16/19 was storing 3328 acre feet
- Drained after the flood to operating pool elevation and fully available for spring 2020



Ross Impoundment

- Construction completed in 2008
- Operated during both the July 2019 summer rainfall and the fall 2019 record flooding
- Total storage of up to 3,600 acre feet
- Stored 3,120 acre feet during fall 2019
- Drained dry and is fully available for spring 2020
- Interior cells are rented out for farmland



Reminder to Close Tile Outlets During Times of Flooding

The Two Rivers Watershed District would like to remind anyone that has received a permit from the District to install tile drainage must comply with the terms and conditions of the permit. During recent flooding events it was noted that some tile systems were discharging water which typically made the flooding worse directly downstream from the tile. All tile permits issued by the Two Rivers Watershed District have the condition that no water can be discharged during times of downstream flooding. “Downstream Flooding” is defined as when the immediate outlet channel of the tile is full of water to the point that it is spilling out of the channel onto adjacent lands.

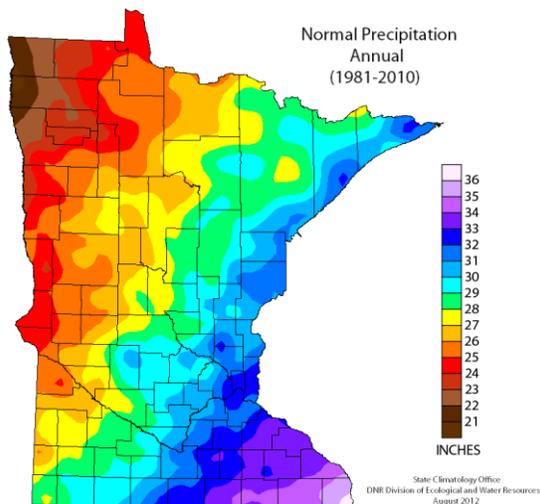
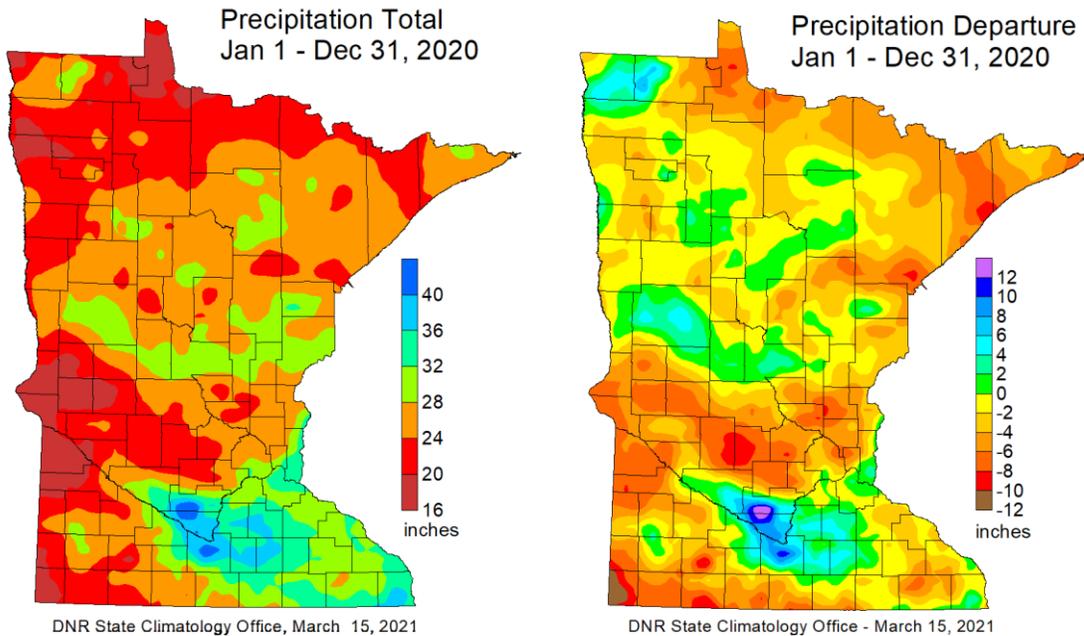
The reason for this condition is to ensure the tile system does not add to flooding that is happening downstream from the tile. If you own a tile system please take the necessary measures to prevent outflows from the tile during this spring’s imminent flooding. If you see a tile system discharging during flooding, please contact the District office.

2020 Water Year Summary

2020 PRECIPITATION

The following maps, tables, and associated graphics show the rainfall, stream flows, and departures from normal.

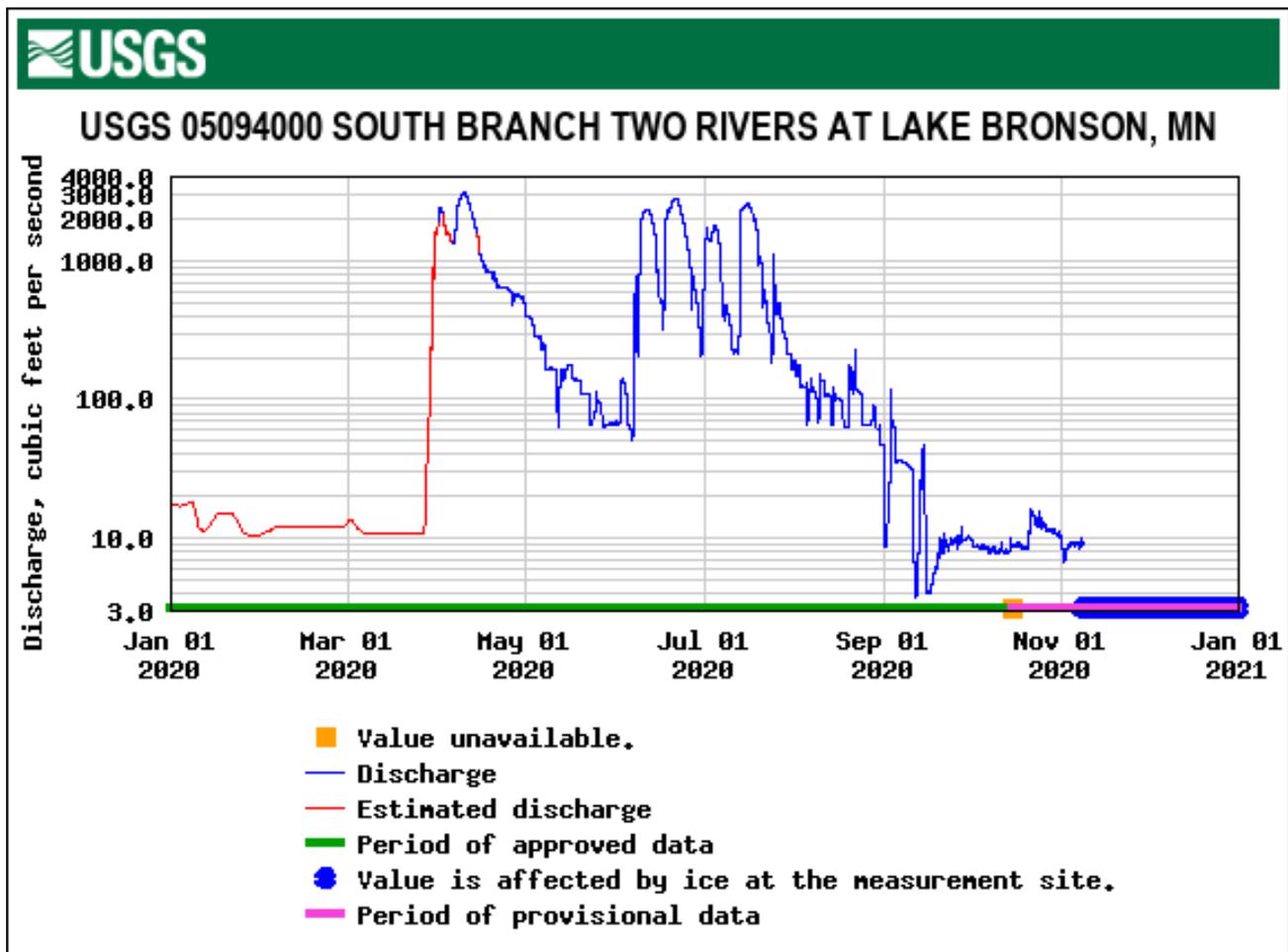
- Total precipitation maps present annual precipitation totals in inches.
- Departure from normal maps depict the difference between annual precipitation totals and the historical "normal". 2011 to 2019 annual precipitation is compared with the [1981-2010 normal](#). 2003 through 2010 annual precipitation is compared with the 1971-2000 normal. Years prior to 2003 were compared with the 1961-1990 normal period.



2020 STREAM FLOW

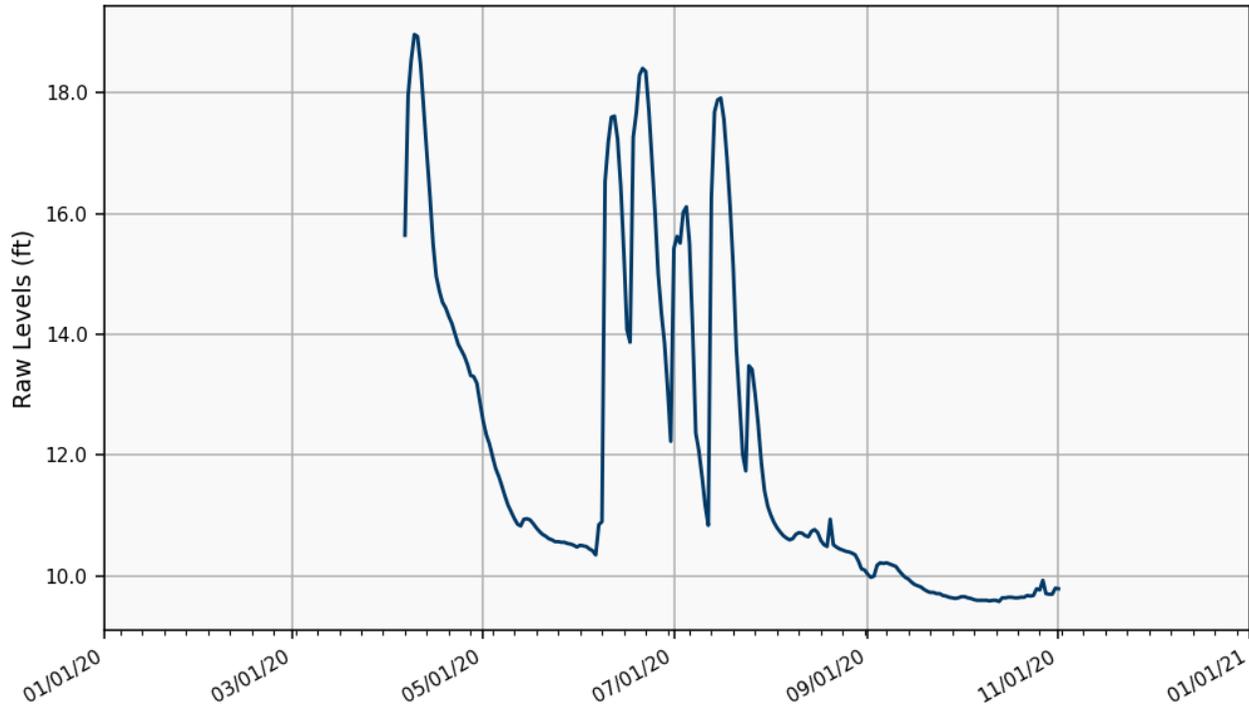
Stream flow and water levels throughout the year were varied by location. The following hydrographs depict streamflows within the Watershed District during 2020. Spring snowmelt and runoff resulted in relatively high flows, followed by high water levels during June-July-August resulting in major large scale summer flooding. Low rain/runoff in September and October rounded out the year.

The District operated the Ross, Horseshoe Lake, and Nereson Impoundments several times during the course of the year and worked closely with NOAA, DNR, Counties and others during these times of flooding.



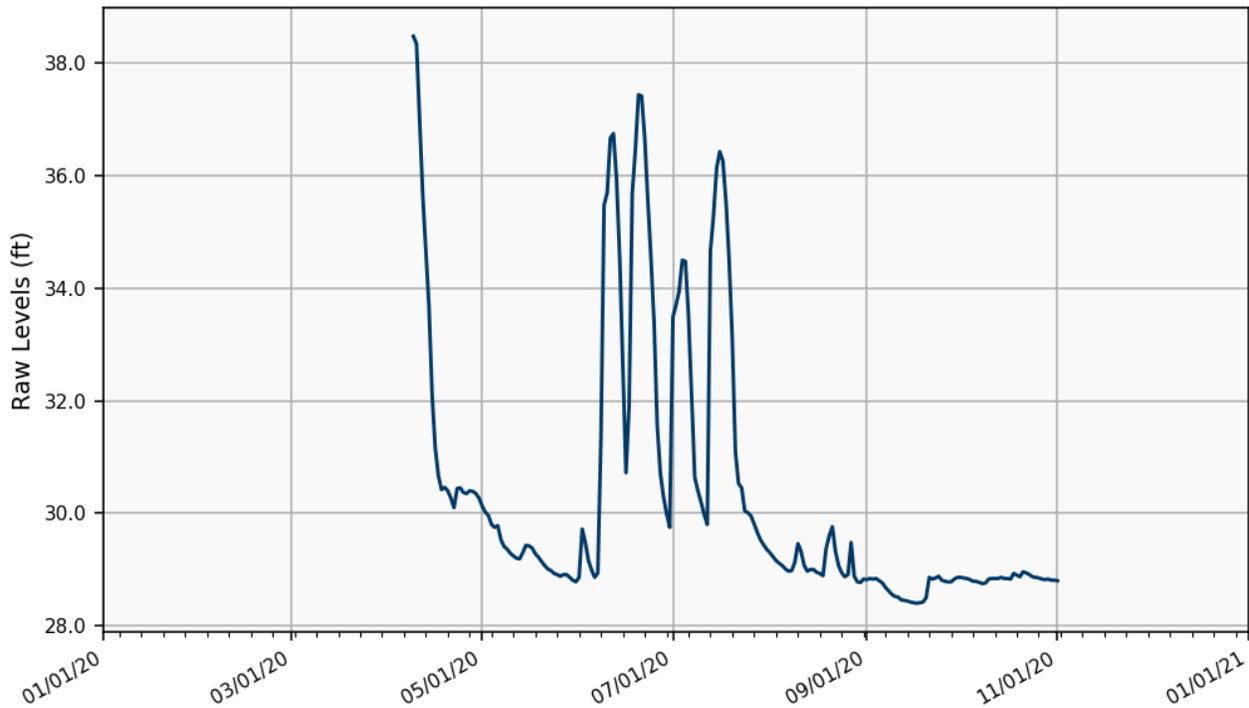
2020 Stream Flows in Cubic Feet Per Second for South Branch Two Rivers at the City of Lake Bronson
Source: US Geological Survey

Kittson Roseau LD1 of SD95 nr Pelan, 440th Ave (70046001)
2020-1-1 to 2020-12-31



2020 Stream flow discharge for the Lateral 1 State Ditch 95, Kittson County, MN Source: MN DNR - <https://www.dnr.state.mn.us/waters/csg/index.html>

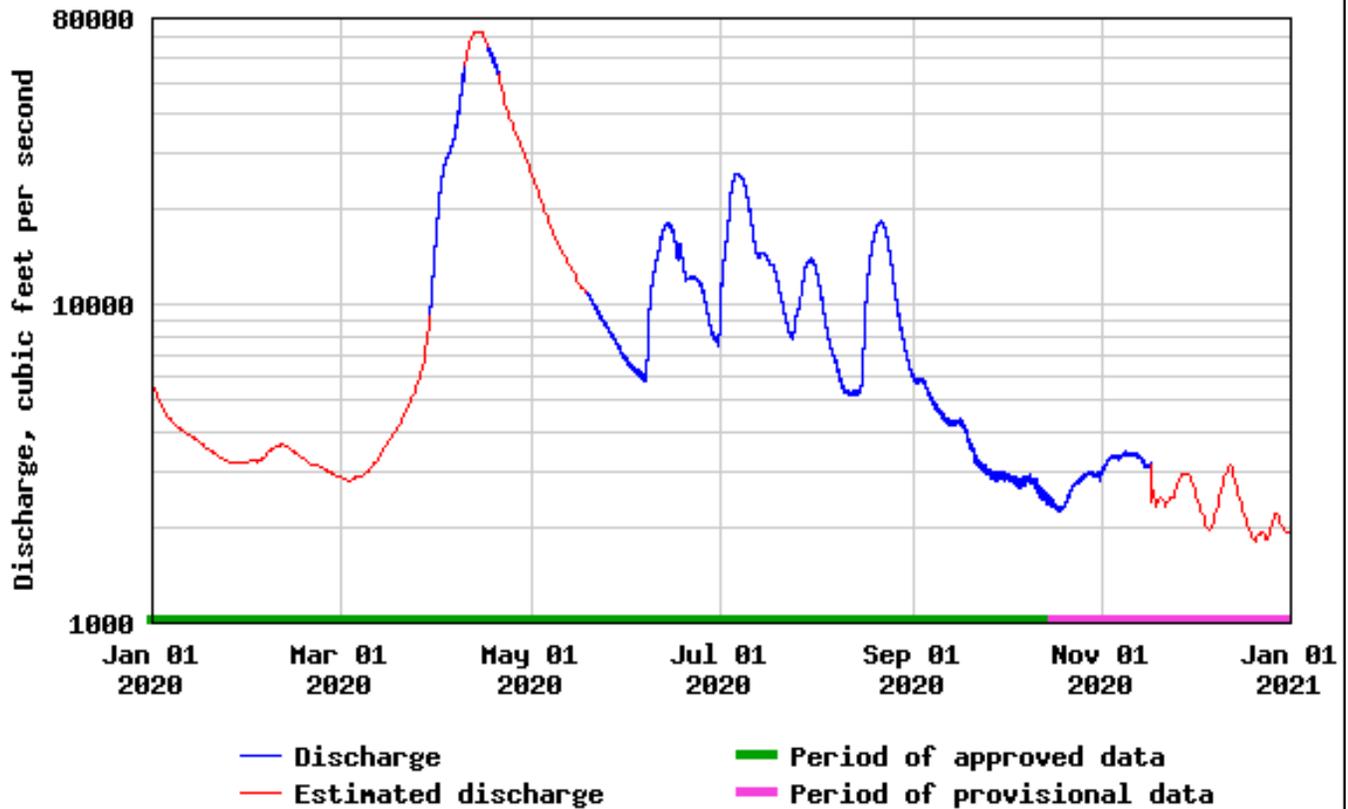
South Branch Two Rivers at Pelan, MN11 (70040002)
2020-1-1 to 2020-12-31



2020 Stream flow discharge for the South Branch Two Rivers at Pelan, MN on the Roseau & Kittson line at MN Hwy 11. Source: MN DNR - <https://www.dnr.state.mn.us/waters/csg/index.html>



USGS 05092000 RED RIVER OF THE NORTH AT DRAYTON, ND



2020 Stream flow discharge for the Red River at Drayton ND. Source: US Geological Survey

OBJECTIVES FOR 2021

PROJECT ACTIVITY

Inspection and maintenance will be done on all existing projects. Normal maintenance activities include mowing of right of way, removal of brush, spraying vegetation, beaver removal and other obstructions, and repair of any sloughing or erosion and damage to any structures.

Kittson County Ditch #21 sediment removal - Survey data indicates the downstream end and the outlet of KCD 21 has excessive sediment and therefore the flow of water in the ditch has been affected. The District will hire a contractor to restore the grade and cross section to this ditch for approximately 3 miles.

IMPOUNDMENTS

Klondike Clean Water Retention Project #11 – The District in 2021 will continue working on this project by drawing detailed engineering plans, securing federal, state and local permits, obtaining right of way, and obtaining funding.

PROGRAM ACTIVITY

Stream Flow Monitoring: Stream flow and velocities will continue to be monitored and recorded for selected sites on the rivers, coulees, and ditches. The District will continue to recruit volunteers to read and record staff gage information for each site. Stream flows and velocities will be measured by District staff at each site during runoff events and data will be reported to interested agencies and persons, including the National Weather Service, DNR, and various other state and local agencies. The long range goal is to record data not only for the high flow events but for summer low flows as well.

Water Quality Monitoring:

The District will continue water quality monitoring at 10 selected locations in 2021. These sites have been monitored by the District off and on since 1991. The MPCA and others will not be monitoring because they are between 10 year cycles in their watershed assessments, and therefore the District will monitor to keep a yearly record of baseline information.

Geographic Information Systems: Data will continue to be collected and input into the District's Geographic Information System. Data sets will continue to be developed, including culvert inventory, LiDar, drainage areas, water quality, stream flow, and information regarding the ditch systems administered by the District. This is an ongoing project that will be continued from year to year.

Permits: The District will continue to review permit applications for projects that affect the water resources of the District and permits will be approved accordingly.

Newsletters: The District newsletter will continue to be published quarterly in cooperation with the Kittson Soil & Water Conservation District. This is an excellent way to communicate to the public the various programs, projects, and water management initiatives being contemplated by the District.

Education: The District will continue to support and participate in activities for students, specifically the Envirothon and River Watch. These are outdoor, hands on, real world water quality and environmental experiences for high school students.

ADMINISTRATIVE ACTIVITIES

The District will continue to employ a full time District Administrator, who will be responsible to keep the meeting minutes, financial reports, ditch inspection reports, and all other paperwork of the District. In addition, the administrator will be required to organize and file all information regarding any programs, projects, or activities of the District. The Administrator will also supervise employees, perform field investigations, data collection, and other technical & administrative duties as determined by the Board of Managers. The Administrator will represent the District at local, regional and state meetings with government agencies, legislators, and the public.

The District will also continue employing a permanent, full time Technician. The position performs surveying, monitoring and inventory, operation of impoundments, data management, reporting, permit review, and other duties as dictated by the Administrator and the Board of Managers.

DITCHES

All District ditches will be inspected in 2021. RCD 4, KCD 10, Soler 4, JD 10, and SB 10 will be surveyed. A maintenance schedule will be followed for each ditch, which will include cattail and brush spraying, beaver and beaver dam eradication, sediment removal, repair of any damages, and other activities as necessary.

BUDGET

The District held a budget hearing in September 2019 to review, adopt, and approve an administrative budget for 2020. The approved budget is listed below. The TRWD levied taxes in the amount \$250,000 for payable 2020. In addition, the TRWD is a member of the Red River Watershed Management Board. The RRWMB also sets an annual levy, and for 2020 their tax levy for the area within the Two Rivers Watershed District is \$548,689, of which ½ goes to the RRWMB for regional flood control projects, and ½ is kept by the TRWD for local flood control projects.

Administrative Budget	2020 Adopted
Administrative	97,213
Auto Expense	3,000
Capital Outlay	10,000
Conferences & Meetings	9,000
Dues & Subscriptions	4,000
Engineering	15,000
Information & Education	3,000
Insurance	4,700
Manager's Per Diem & Expense	18,000
Office Supplies & Miscellaneous	2,000
Payroll Expense	33,000
Postage & Delivery	750
Printing & Advertising	1,000
Professional & Legal	21,500
Rent	12,000
Stream Gage	3,000
Telephone	2,000
Water Quality	8,500
Totals	247,663

The following diagram shows how the tax levies are collected for 2020 and where they are distributed.

