Environment and Natural Resources Trust Fund (ENRTF)
M.L. 2016 Work Plan

Date of Report: May 29, 2016

Date of Next Status Update Report: January 1, 2017

Date of Work Plan Approval: June 7, 2016

Project Completion Date: June 30, 2019

Does this submission include an amendment request? No

PROJECT TITLE: Morrison County Performance Drainage and Hydrology Management

Project Manager: Helen McLennan

Organization: Morrison Soil and Water Conservation District

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Location: **Morison County, MN**

Total ENRTF Project Budget:		
	ENRTF Appropriation:	**$209,000**
	Amount Spent:	**$0**
	Balance:	**$209,000**

Legal Citation: M.L. 2016, Chp. 186, Sec. 2, Subd. 04r

Appropriation Language:
$209,000 the second year is from the trust fund to the commissioner of natural resources for an agreement with the Morrison Soil and Water Conservation District to conduct an assessment of drainage infrastructure, in order to develop hydrology restoration priorities and a countywide performance drainage ordinance to address land use-change impacts to the hydrogeology. This appropriation is available until June 30, 2019, by which time the project must be completed and final products delivered.

I. PROJECT TITLE: Morrison County Performance Drainage and Hydrology Management

II. PROJECT STATEMENT: Morrison County like other agricultural counties has experienced a vast increase in drainage. Thousands of acres are being tiled with no approval or oversight, and the water moving across the landscape has altered drainage capacity of county and township roads, as well as creating major conflict between neighbors, road authorities, with the impacts of standing water on agricultural fields and topping public roads. The land conversion from perennial cover and proliferation of pattern tile drainage systems have impacted the local hydrology in Morrison Co. faster and often more negatively than local units of government can address.

The county board has expressed a willingness to approve an ordinance making land use conversions and tiling a permitted activity. Township boards have expressed their support for such an ordinance.

This issue is compounded with producers farming into road right of ways. There are no records for private drainage elevations and townships make road decisions on culverts without having the expertise to deal with the hydrology necessary to move water efficiently. An end result is chaos. The SWCD does not have adequate staff and or information to assist in these conflicts. We want to take the lead in managing drainage, county wide. First we would inventory every ditch that can be found, find the elevations of every culvert and build a data base. A drainage technician with hydrology background would be hired to collect all of the information and then we would analyze with the road authorities where the problems exist and prioritize the workload. From that analysis, the hydrology technician would help design control structures on drainage systems, (both tiling and ditches), assist road authorities with drainage designs, and also oversee tiling designs to assure tile systems are more efficient and do not negatively impact roads, neighboring properties, or impact surface waters with nutrient loads.

To meet this capacity, involves the hiring of qualified staff and provide the person with transportation and the essential equipment needed. While stationed with the SWCD, the staff would work with County and Township road authorities.

III. OVERALL PROJECT STATUS UPDATES:

Project Status as of January 1, 2017

Project Status as of July 1, 2017

Project Status as of January 1, 2018

Project Status as of July 1, 2018

Project Status as of January 1, 2019

Final Report Summary

Overall Project Outcomes and Results: The Morrison SWCD will hire a staff engineering technician with a hydrology background capable of working independently to inventory all culvert elevations, assess the culvert condition, model hydrology scenarios, and prioritize sensitive watersheds, county wide.

The staff person will work closely with the County Highway Department, Township Road Authorities, and the DNR to utilize all expertise in the area, and to avoid duplication of areas where information already exists.

Public drainage will be surveyed to update the inventory from the early 1900s and all culvert elevations will also be surveyed. From that, LIDAR will be used to determine the watershed size and capacity. Problem areas will be addressed first using the survey data, and determining restoration or corrective action.

Throughout the process, the SWCD will work closely with the County Board and Township Boards to conduct civic engagement opportunities for the public to understand the process and potential outcome. Private land drainage into public road drainage may have to be addressed if creating a problem.

IV. PROJECT ACTIVITIES AND OUTCOMES:

ACTIVITY 1:
Description: Inventory, assess, and create a plan for performance drainage management

Summary Budget Information for Activity 1: **ENRTF Budget: $ 209,000**

Amount Spent: $ 0
Balance: $ 209,000

Outcome	Completion Date
1. Conduct culvert inventory (systematically township by township, collect existing information and completing for 35 townships, approx. 3,000 miles of roads for townships and county and 88 miles of public drainage ditching.	Mar. 01, 2017
2. Create a data base of all culvert elevations throughout the county.	June 30, 2017
3. Conduct LIDAR assessment of minor watersheds to determine drainage capacity and identify insufficient patterns.	June 30, 2018
4. Develop drainage management plan to be shared with all road authorities to correct or improve drainage patterns.	October 30, 2018
5. Enter all information on County GIS web site.	December 30, 2018
6. Provide a final report and recommendation to Morrison County Board to assist in the development of a drainage management ordinance for Morrison County.	June 30, 2019

Activity Status as of January 1, 2017
Activity Status as of July 1, 2017
Activity Status as of January 1, 2018
Activity Status as of July 1, 2018
Activity Status as of January 1, 2019

Final Report Summary:

V. DISSEMINATION:
Description: The final plan will first be presented to the partners involved, Morrison County Board, Planning and Zoning, Morrison County Public Works, DNR Division of Waters, for approval and or modifications.

Once approved by the Morrison County Board, the mapping, elevations, and profiles of ditches will be entered into the Morrison County GIS web pages and be available to all users, contractors, road authorities, landowners, etc. A presentation will be made to the Morrison County Annual Township Board meeting to train them how to use the plan and information effectively. Road authorities will be trained on how to maintain the files for the townships. Radio and newspaper releases will be conducted and training classes offered.

The county will then utilize the plan to develop a land use permitting process for drainage maintenance that will ensure that records are kept up to date and maintained. The hope is also to generate enough revenue to keep the engineering technical position to assist users in effectively managing drainage issues.

Status as of January 1, 2017
Status as of July 1, 2017
Status as of January 1, 2018
Status as of July 1, 2018
Status as of January 1, 2019

Final Report Summary:

VI. PROJECT BUDGET SUMMARY:
A. ENRTF Budget Overview:

Budget Category	$ Amount	Overview Explanation
Personnel:	$ 165,000	3 years FTE salary and benefits @$55,000 year
Equipment/Tools/Supplies:	$ 1,500	ArcView map $1,500
Capital Expenditures over $5,000:	$ 31,500	Arrow 200 L1/L2 GNSS receiver bundle $24,700 /data base Auto-cad Civil 3D software $6,800
Travel Expenses in MN:	$ 11,000	Reimbursed mileage 20,371 miles @.54
TOTAL ENRTF BUDGET:	**$ 209,000**	

Explanation of Use of Classified Staff: n/a

Explanation of Capital Expenditures Greater Than $5,000: The Arrow 200 L 1/L2GNSS was determined to have a greater degree of accuracy and user compatible with DNR and County Public Works Dept. equipment which will enable us to share data easily. The auto cad is the appropriate software for data and mapping used by all partners which will lend to compatibility. The equipment will continue to be used by the agency and county for the same purpose for the life of the equipment. It is not envisioned that the equipment would ever be sold, but in the event it is, the funds would be returned to the ENRTF. If a neighboring entity or agency has need, the equipment will be shared accordingly.

Number of Full-time Equivalents (FTE) Directly Funded with this ENRTF Appropriation: 3 FTE

Number of Full-time Equivalents (FTE) Estimated to Be Funded through Contracts with this ENRTF Appropriation: 0

B. Other Funds:

Source of Funds	$ Amount Proposed	$ Amount Spent	Use of Other Funds
Non-state			
Township government	$50,000	$ 0	*$50,000 In kind cooperation and maintenance implementation*
County Board and Public Works	$10,000	$ 0	*Ordinance development, public hearings, (in kind match)*
State			
SWCD CWF accelerated capacity funds through BWSR and buffer kick start funds	$40,000	$ 0	*The district will subsidize the grant wherever needed (travel, training, overhead expenses)*
TOTAL OTHER FUNDS:	**$100,000**	**$ 0**	

VII. PROJECT STRATEGY:

A. Project Partners: Partners in this project are all contributing in-kind or with cash matches and will not be receiving ENRTF funding but buy into the project for the resulting benefits. The following is a list of team members:

- Steve Backowski, Morrison County Engineer: Training in soft ware coordination, planning, and oversight on county road ditches and public ditches also co-supervisor of engineering technician.
- Ken Zeik, DNR Area Hydrologist: Coordinating public water culvert elevations and team planning and training of software
- Kevin Maurer, County Board Commissioner: Planning and county ordinance lead facilitator
- Helen McLennan, Morrison SWCD Manager: Project lead and overall coordinator
- Alan Ringwelski, Morrison SWCD Technician: Team member, trainer, and supervisory capacity over technician
- Township Road Authorities: Assisting technician with culvert locations if known and determining priority areas.
- LeaAnn Nouis, Morrison SWCD Adm. Assist.: Financial management assistance
- Lance Chisholm, Morrison SWCD Water Plan Coordinator and GIS person: Assistance in mapping and reporting
- Todd Holman, The Nature Conservancy: Co-author of grant request and overall team chairman.

B. Project Impact and Long-term Strategy: The intended impact and utility of this project is to better understand how landuse changes and increased storm events have affected our infrastructure and where change is needed to better manage water but to also assure that the water is moving across the landscape in an environmentally safe manner. The final plan may indicate more than drainage needs, such as flood storage needs such as restored wetlands, retention ponds, etc.

The data on hand in any township and even at a county level, needs to be brought up to modern expectations and has not been done for many generations. A drainage perfomance management plan will serve into the future allowing land use decision makers the ability to make qualified and quantified decisions based on science and fact, and not conjecture or controversy.
If the BWSR accelerated capacity funding continues, we should be able to maintain this position and keep the plan updated regularly. The need by the road authorities is on going so it's not a short term need, but a long term need served with much needed information and strategies.

By publishing the information and plan on a public domain, the data will be available for every private and public user at no cost. This will assist in future development and driveway needs, maintaining existing roads, and also upgrading existing roads.

C. Funding History: *N/A*

VIII. FEE TITLE ACQUISITION/CONSERVATION EASEMENT/RESTORATION REQUIREMENTS: *N/A*

IX. VISUAL COMPONENT or MAP(S): *See attached*

X. RESEARCH ADDENDUM: *N/A*

XI. REPORTING REQUIREMENTS:

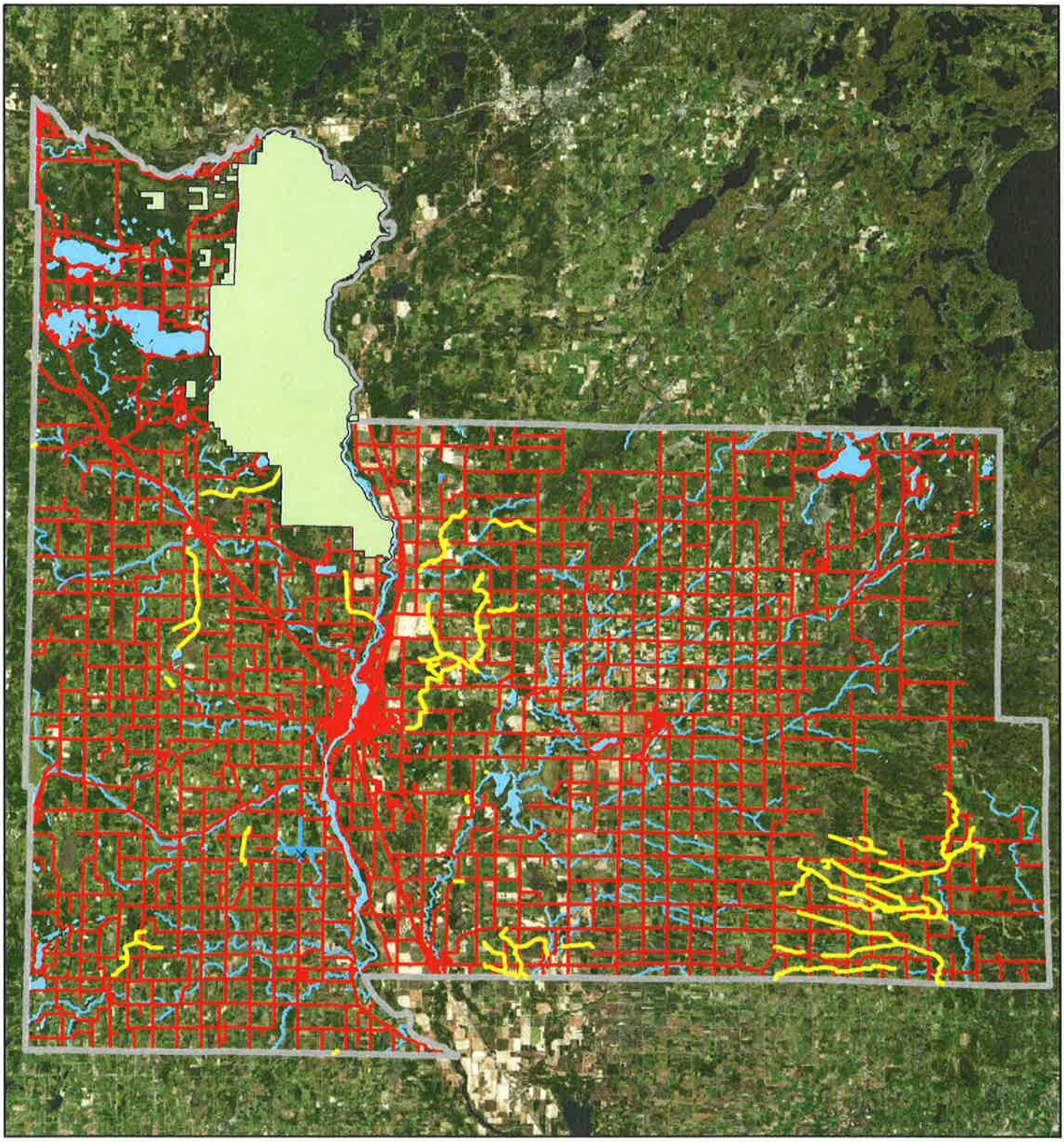
Periodic *work plan status update reports will be submitted no later than January 1, 2017, July 1, 2017, January 1, 2018, July 1, 2018, and January 1, 2019*. A final report and associated products will be submitted between June 30 and August 15, 2019.

Environment and Natural Resources Trust Fund
M.L. 2016 Project Budget

Project Title: Morrison County Performance Drainage and Hydrology Management
Legal Citation: M.L. 2016, Chp. 186, Sec. 2, Subd.04r
Project Manager: Helen McLennan
Organization: Morrison Soil and Water Conservation District
M.L. 2016 ENRTF Appropriation: $ 209,000
Project Length and Completion Date: June 30, 2019
Date of Report: May 29, 2016

ENVIRONMENT AND NATURAL RESOURCES TRUST FUND BUDGET	Activity 1 Budget	Amount Spent	Activity 1 Balance	TOTAL BUDGET	TOTAL BALANCE
BUDGET ITEM	***Inventory, assess, and create a plan for performance drainage management***				
Personnel (Wages and Benefits)	$165,000	$0	$165,000	$165,000	$165,000
Engineering Technician, $55,000 (70% salary, 30% benefits,1 full FTE each year for three years total 165k					
Equipment/Tools/Supplies	$33,000	$0	$33,000	$33,000	$33,000
Arrow 200 L1/L2 GNSS receiver bundle $24,700, Autocad Civil 3D software $6,800, Arc ViewMap $1,500					
Travel expenses in Minnesota	$11,000	$0	$11,000	$11,000	$11,000
Travel to and from data gathering points 20,370 miles at IRS eligible rate (currently .54)					
COLUMN TOTAL	**$209,000**	**$0**	**$209,000**	**$209,000**	**$209,000**

Morrison County
Performance Drainage and Hydrology Management



Prepared by: Morrison SWCD

Public Drainage Systems Inventory

Sub. Code	Subwatershed Management Unit	Ditch Name	Twp. Range	Total Miles
1	Northwest Lakes	Ditch #6	133-30	5.0
	Northwest Lakes Total			**5.0**
2	Little Elk	Henry Ditch	130-29	0.4
2	Little Elk	Ditch No. 1	130-29	3.9
2	Little Elk	Ditch No. 12	131-30	5.9
	Little Elk Total			**10.2**
3	Fletcher Creek	Ditch No. 5	42-31	4.8
3	Fletcher Creek	Ditch No. 14	41-31	1.7
3	Fletcher Creek	Ditch No. 15	42-31	2.7
	Fletcher Creek Total			**9.2**
5	Platte River	Ditch No. 2	41-31	2.3
5	Platte River	Ditch No. 9	41-31	4.6
5	Platte River	Ditch No. 16	41-31	4.9
5	Platte River	Branch Ditch No. 1 to Ditch 16	41-31	1.7
5	Platte River	Branch Ditch No. 2 to Ditch 16	41-31	2.5
	Platte River Total			**16.0**
6	Skunk River	Ditch No. 7	39-31	2.7
	Skunk River Total			**2.7**
8	Swan River	Ditch No. 8	128-31	5.1
	Swan River Total			**5.1**
11	Rum River	Ditch No. 3	40-28	4.4
11	Rum River	Ditch No. 11	39-29	4.0
11	Rum River	Ditch No 16	39-29	6.2
11	Rum River	Branch Ditch No. 1 to Ditch 16	39-29	4.4
11	Rum River	Main Ditch No. 18	39-29	6.5
11	Rum River	Branch Ditch No 1 to Ditch 18	39-29	1.9
11	Rum River	Branch Ditch No. 2 to Ditch 18	39-29	3.5
11	Rum River	Ditch No. 21	39-29	3.6
11	Rum River	Ditch No 22	39-29	4.9
11	Rum River	Branch Ditch No. 1 to Ditch 22	39-29	1.2
	Rum River Total			**40.6**
	Grand Total			**88.8**