LOWER MINNESOTA RIVER
WATERSHED DISTRICT

Executive Summary for Action

Lower Minnesota River Watershed District Board of Managers Meeting
Wednesday, May 16, 2018

Agenda Item
Item 6. B. - Metro-area Watershed Base Funding Pilot Program

Prepared By
Linda Loomis, Administrator

Summary
The plans from each county are beginning to be finalized. Managers had asked to see each County's plan before submittal to BWSR. The plans for Carver and Dakota are set and spreadsheets have been developed for project to be implemented with the funds. Scott County has not yet developed its spreadsheet, but all parties have agreed to the projects. The next meeting for Hennepin County is scheduled for May 16th. All projects will require a local match of at least 10%. Details for each county follow:

Carver: Carver is ready to go. LMRWD's allocation in Carver County will be $25,472. I met with the City of Chaska on April 26 and if the East Chaska Creek project is not viable, then back-up projects that are in the City of Chaska's CIP for Assumption Creek and Seminary Fen would be substituted. That will be added to the spread sheet Carver is submitting to BWSR, which is attached. All the parties agreed that each WD would apply for its own grants through BWSR and track the project through BWSR's e-link.

Managers had asked about the cost of the East Chaska Creek project at the last board meeting. The estimated cost in the feasibility report is $168,500. A table and map from the city about the back-up projects is attached.

Dakota: Dakota County is finalizing the spreadsheet. the most recent version is attached. LMRWD's allocation in Dakota County is $65,450. The LMRWD will continue the Dakota County groundwater/fen stewardship assessment.

Hennepin: Nothing definite has been decided in Hennepin County, other than the Watershed Management Organizations in the Minnesota River Basin have agreed to pool all funds allocated to them an dedicate it to Chloride management. A cost share program would be developed that could be used to update equipment. This would be in addition to whatever is decided to do county-wise with respect to Chloride.

Scott: Scott County has not yet developed a spreadsheet, but the projects have been agreed to. Scott County had decided to spend $150,000 of its allocation on a larger, perhaps county-wide project. That project will be a Chloride project in two parts. Part one would spend $50,000 to $60,000 to assess Chloride use county-wide and assist municipal public works with implementing BMPs. Part two would expand education and outreach efforts for Chlorides and bacteria.

LMRWD's allocation in Scott County is $146,550. The LMRWD is proposing to assist the city of Savage with a feasibility study of Schroeder Park in the Eagle Creek watershed. Stormwater ponds in Schroeder Park drain to Eagle Creek and may be contributing to the temperature increase in the Creek. The feasibility report would look at alternative treatment

methods or improvements to the stormwater ponds that will improve the quality of stormwater that reaches the Creek. The estimate cost of the feasibility report is between $50,000 and $60,000.

A second project would be with the City of Shakopee that has several projects they asked to be considered. The project with a timeline that would fit the parameters of the pilot program is on the Prior Lake Outlet Channel (PLOC) upstream of Dean's Lake. This project would create new and restore existing wetlands, increase storage, create habitat and establish meanders on the outlet channel to reduce TSS and flow. The estimated total cost of this project is $800,000. Prior Lake/Spring Lake WD might be a possible partner since it is a project on the PLOC

A back-up project would be a targeted BMP study of downtown Shakopee. The estimated cost of this project is $25,000. In addition Shakopee has identified three regional stormwater facilities that could be funded if funds are available. The Scott WMO may partner on regional stormwater facilities.

Attachments
Carver County project spreadsheet
Chaska project table and map
Dakota County project spreadsheet
Schroeder park proposal
Shakopee proposal

Recommended Action
Motion to approve submittal of recommended projects to BWSR

Carver County Collaborative Project List

Responsible Party/Agency	Name of Activity/Project/Program	Description of Activity/Project/Program	Plan reference	Water Resource(s)	Timeframe for implementation	Grant funds requested	Local match (min. 10%)	Total project cost	Measurable Outcomes	Other Notes (if needed)
CCWMO	Lake Waconia Stormwater Main Retrofits	The proposed project will include a series of stormwater main retrofits that ultimately outlet directly to Lake Waconia. Specifically, four outlet pipes will be retrofitted and equipped with SAFL Baffles. Currently, these outlets discharge untreated stormwater runoff from nearly ten acres from downtown Waconia directly to the lake.	CCWMO Plan: Table 4.3 CCWMO Projects, p. 4.22.	Lake Waconia is considered to be a high priority protection lake by the CCWMO. Carver Creek flows through Lake Waconia, which has downstream AUID segments that are impaired for river eutrophication	2019	$90,000.00	$22,500.00	$112,500.00	Project will provide TP load removal of 24.97 lbs/yr that is currently entering the lake. In addition, the retrofits will decrease the annual Total Suspended Solid (TSS) load entering the lake by 7,134 lbs/yr.	Ten-year TP average analysis suggests Lake Waconia is on the fringe of impairment, averaging just below the 40ug/L threshold over that period. CCWMO considers Waconia to be a high priority protection lake.
CCWMO	Grace Chain of Lakes Subwatershed Aanalysis Implementation	This project will help improve the water quality of these lakes through a series of BMPs that have been identified in the "Grace Lake Chain Sub-watershed: Stormwater Retrofit Analysis" (2014). Water quality improvements will be achieved by the reduction in total phosphorus, total suspended solids, and total surface volume discharging to the Chain of Lakes. This proposal will fund a total of 11 specific BMPs, including 8 SAFL Baffles, 3 pond modifications - 2 with iron enhanced sand filters.	CCWMO Plan: Table 4.3 CCWMO Projects, p. 4.28; City of Chaska Water Plan: Section 4.8.1 (pgs 66-67) and 6.8 (pg 109)	Lake Grace (AUID 10-0218), Jonathan (AUID 10-0217), and Hazeltine (AUID 10-0014) are 303d listed for 'Nutrient Eutrophication Biological Indicators' Pollutant and Stressor. They discharge into East Chaska Creek, which is listed as impaired for 'Turbidity', 'Fish Bioassessments', and 'Fecal coliform'.	2019-2020	$150,000.00	$37,500.00	$187,500.00	Because the sub-watershed analysis has been completed, these projects are Prioritized, Targeted, and Measureable. The SAFL Baffles will reduce phosphorus loading by 12 pounds annually and additional modeling and/or field samples will be needed to quantify the reductions of the pond modifications and sand iron filters.	
CCWMO	West Chaska Creek Restoration Re-Meander	The project will re-meander approximately 1,100 linear feet of a ditched segment of West Chaska Creek. Lengthening the channel will reduce water speeds, lower sheer stress on the banks, reconnect the stream to its floodplain, and reduce the amount of sediment transported downstream. Based on upstream reference reaches and changes observed since the stream was straightened, the re-meander project will reduce total suspended solids by an estimated 4,400 pounds per year.	CCWMO Plan: Table 4.3 CCWMO Projects, p. 4.26; City of Chaska Water Plan: Section 4.7 (pgs 62 - 63) and 6.8 (pg 109, 114-115)	West Chaska Creek (AUID 07020012-802) is near the threshold for turbidity impairment. This section of stream is also a contributor of excess sediments to the Lower Minnesota River (AUID 07020012-505) which is on the 303d Impairment list for turbidity.	2019-2020	$150,000.00	$37,500.00	$187,500.00	Based on upstream reference reaches and changes observed since the stream was straightened, the re-meander project will reduce total suspended solids by an estimated 4,400 pounds per year.	Re-meandering the stream will increase its length, reduce shear stress on stream banks, reduce sedimentation and decrease the number of bank failures. The stream will be reconnected to its floodplain, allowing more sediment to drop out of the water column as flow rates are decreased in the floodplain.
CCWMO	Lake Bavaria South Shore BMP Retrofits	The proposed project will include projects in two locations along Rhoy Ave with a total of 5 BMPs, ultimately protecting Lake Bavaria (MN DNR ID# 10001900) from further eutrophication, and to enhance shoreline/upland habitat. Untreated stormwater runoff entering Lake Bavaria has been identified as the primary threat to its continued eutrophication. The Carver County Water Management Organization (CCWMO) has identified five potential BMP retrofits that include new sumps with SAFL Baffles and biofiltration basins.	CCWMO Plan: Table 4.3 CCWMO Projects, p. 4.28; City of Chaska Surface Water Management Plan: ection 6.8 (pg 105).	Lake Bavaria (MN DNR ID #10001900) is classified as a deep lake located in the eastern portion of Carver County. Ten-year TP average analysis suggests Lake Bavaria is on the fringe of impairment. CCWMO considers Bavaria to be a high priority protection lake.	2018-2020	$47,979.00	$12,500.00	$60,479.00	Estimates of exisitng conditions show that roughly 8000 pounds of sediment and 32 pounds of phosphorus discharge untreated to Lake Bavaria. This project will reduce this by roughly 1000 pounds of sediment and 3 pounds of phosphorus a year.	
CCWMO	Lake Bavaria Stormwater Pond Retrofits	The proposed project will include retrofits of a series of two stormwater ponds (on City of Victoria property) that outlet directly to Lake Bavaria. The ponds were designed to NURP standards, and the proposed project will add sand/iron filtration trenches. The ponds together receive stormwater runoff from a drainage area of 100 acres. Monitoring data collected at the pond series outlet entering Lake Bavaria has shown Total Phosphorus (TP) concentrations nearing 200ug/L.	CCWMO Plan: Table 4.3 CCWMO Projects, p. 4.29; City of Chaska Water Plan: Section 6.8 (pg 105)	Lake Bavaria (MN DNR ID #10001900) is classified as a deep lake located in the eastern portion of Carver County. Ten-year TP average analysis suggests Lake Bavaria is on the fringe of impairment. CCWMO considers Bavaria to be a high priority protection lake.	2019-2020	$80,000.00	$20,000.00	$100,000.00	Retrofitting two of these stormwater ponds with 600 linear feet of sand-iron filtration trenches will provide an annual TP load removal of 19.42 pounds currently entering Lake Bavaria. In addition, the retrofits will decrease the annual Total Suspended Solid (TSS) load entering the lake by 100 lbs	A pollutant (TP) reduction goal has not been established for Lake Bavaria, as it has not necessitated a restoration plan due to it currently meeting state water quality standards. The ten-year TP average however is just under the 40ug/L threshold.
MCWD	Wassermann West Restoration	Lake Wassermann is an impaired waterbody requiring substantial internal and watershed load control. This project will address a hot spot of phosphorus export, a 6 acre pond adjacent to the Lake on a property owned by the District, through alum treatment, as well as ravine stabilization south of property in a degraded channel.	"Wassermann West External Load Reduction and Landscape Restoration" MCWD 2017 WMP, pg. 560	Lake Wassermann; Wassermann West Wetland	first treatment 2018; Monitoring 2019; second treatment 2020	$93,879.00	$11,821.00	$105,700.00	35 lbs P/year	streambank stabilization design to determine phosphorus reduction from erosion mgmt
LMRWD	East Chaska Creek Restoration Project	Channel Stabilizations/Constructed wetland along Chaska Blvd.	Part of Implementation plan contained in the Strategic Resource Inventory	East Chaska Creek/Minnesota River	2018/2019	$25,472.00	$143,028.00	$168,500.00	Address various impairments on the Creek/Mitigate sediment transport to MN River	A Feasibility Study for East Chaska Creek was performed as part of the District's SRE in 2012 (Appendix B). Reaches of the stream were actively eroding or had outside bend erosion during a field visit conducted on August 28, 2012. Recommended that localized problems at outfalls and crossings be addressed with grade control structures and bank stabilization measures.
RPBCWD	Wetland restoration and Flood Mitigation Project	Restore 7 acres of wetlands and enhance remainder of wetland.	Section 6.2 (2018), Section 9.2 (2018)	Bluff Creek Watershed	2018-2021	$111,870.00	$350,000.00	$461,870.00	Remove 3 properties from flood zone, restore 7 acres of wetlands, connect public with resource, reduce volume, rate, pollution loads to Bluff Creek	City of Chanhassen is a partner for this project. CCSWCD is a partner on this project.
					Totals:	$749,200.00	$634,849.00	$1,384,049.00		

(BACK-UP) Carver County Collaborative Project List

Responsible Party/Agency	Name of Activity/Project/Program	Description of Activity/Project/Program	Plan reference	Water Resource(s)	Timeframe for implementation	Grant funds requested	Local match (min. 10%)	Total project cost	Measurable Outcomes	Other Notes (if needed)
CCWMO (Back-up)	Implementation of Lake Waconia Subwatershed Assessment	Identify and implement strategies identified in the Lake Waconia Sub-Watershed Analysis Feasibility Study to preserve and protect the quality of Lake Waconia. These strategies will help the CCWMO meet the goal of maintaining or improving the condition of surface water resources in the lakeshed.	CCWMO Project #7 (Table 4-3)	Lake Waconia	2019-2020	$100,000.00	$25,000.00	$125,000.00	Total project costs will allow for the installation of 36 practices as outlined in the Lake Waconia SWA, resulting in a total reduction of 705 pounds of phosphorous	
CCWMO (Back-up)	Carver Creek Dahlgren Township Gully Stabilization	Carver Creek Gully Blowout. Stabilize a large gully on Carver Creek in Section 26, Dahlgren Township.	CCWMO Project #22 (Table 4-3)	Carver Creek	2019-2020	$30,000.00	$10,000.00	$40,000.00	Repairing a gully forming along a bluff next to Carver Creek will reduce the amount of total suspended solids by 566 tons.	
CCWMO (Back-up)	Feasibility and Implementation of Internal Load Reductions on Hazeltine Lake	Implement methods to reduce internal loads and improve water quality in Hazeltine Lake as identified in the Feasibility Study.	CCWMO Project #16 (Table 4-3)	Hazeltine Lake	2019-2020	$100,000.00	$25,000.00	$125,000.00	Hazeltine Lake has a high internal load impacting water quality, this project will try to help the lake reach the TMDL Goal of a 100% reduction of internal loading. Exact reductions will be outlined in the feasibility study done for this project.	
CCWMO (Back-up)	Silver Creek Streambank Stabilization	Collobrate with willing Landowners and Carver County SWCD to address bank failure along Silver Creek.	To be included in updated Carver County Water Plan	Silver Creek	2019-2020	$100,000.00	$25,000.00	$125,000.00	Exact reductions have not been modeled and will be estimated when project locations have been identified.	
LMRWD (Back-up)	Seminary Fen Restoration and Ravine stabilization	Colloborate with the city of Chaska to acquire 3.61 acres of wetland for protection and restoration, disable wetland drainage system and restoring vegetation. Stabilize ravines that are discharging sediment into fen complex	Seminary Fen Restoration and Ravine Stabilization at Seminary Fen are in the LMRWD CIP	Seminary Fen	2019-2020	$25,472.00	$384,528.00	$410,000.00	Property acquistion would enable removal of invasive species that threaten previously restored areas of Seminary fen. Removal of drainage system would restore hydrology and may have secondary benefit of rducing the flashy flows to Assumption Creek, a designated trout water. Ravine stabilization would address active erosion and reduce sediment load to the Seminary fen wetland complex.	1) Purchase of property at Engler and Audubon, design and construction = $75,000; 2) Restore a 17 acre swath of wetland from Falls Curve Road to Old Highway 12 = $75,000; 3) Area C-2 Ravine study = $30,000; Design/Construction = $75,000 - $100,000; 4) Area C-3 Ravine study = $30,000; Design/Construction = $75,000 - $100,000
MCWD (Back-up)	East Auburn Wetland Restoration	East Aburn is an impaired waterbody requiring a total reduction of 626 lbs phosphorus, 410 of which are from watershed sources. This project will include feasibility, restoration design, and implementation of one (1) wetland restoration targeting nutrient reduction.	"East Auburn Wetland Restoration" MCWD 2017 WMP, pg. 563	East Auburn Lake and tributary wetland complexes	Feasibility 2019; Design construction 2020-2021	$93,879	$456,121.00	$550,000.00	TBD via feasibility. Total load reduction target across three wetlands is approx. 410 lbs/year	Costs are approximate pending feasibility in 2019. Total cost includes: Feasibility: $50,000; Design: $100,000; Construction: $400,000
RPBCWD (Back-up)	Upper Riley Creek Stabilization	Stabilize upper Riley Creek	Section 8.2 (2018), Section 9.2 (2018)	Riley Creek Watershed	2018-2021	$111,870.00	$1,625,000.00	$1,736,870.00	Stabilize streambank which would reduce in sediment and nutriend load reductions into Lake Susan and the lower half of the Riley Creek Watershed, restore habitat, educate the public.	City of Chanhassen is a partner for this project. CCSWCD is a partner on this project.
					Totals:	$561,221.00	$2,550,649.00	$3,111,870.00		

CITY OF CHASKA COMPREHENSIVE PROJECT LIST FOR FINANCIAL ASSISTANCE FROM THE LOWER MN WATERSHED DISTRICT

Map ID*	Project Name	Description	Ranking, Comments	Requested Amount from Lower MN (Schedule)
A	Seminary Fen Restoration Site A Property Purchase and Wetland Restoration (Alternative Options - Easement or Agreement with property owner to restore wetland)	It is recommended that the 3.61 acres of wetland that exist at the intersection of Engler and Audubon are purchased and restored. As an option to purchase easements could be obtained from property owner (First Minnetonka Bank) to allow it to be restored. This is the only privately owned portion of the Seminary Fen Wetland Complex that remains. The site is next to a 6 acre wetland restoration that was completed by the City of Chaska in partnership with the MNDNR. The area that requires restoration is dominated by reed canary grass and thus offers the greatest threat to the rare plants of the Seminary Fen Wetland Community.	High – This ranks as a high priority action because without invasive species control at this location, other efforts to restore vegetation in the wetland will continue to be threatened in the future by the source of reed canary grass at this site. It provides an immediate threat to the wetland restored by the City in 2013 (see location on attached map).	$75,000 Purchase, Design and Construction (2017 – 2020 dependent on other funding)
B	Seminary Fen Restoration Site B	From Falls Curve Road to Old Highway 12 there is a 17-acre swath of wetland that is predominantly reed canary grass. This appears to be the only area north of the trail that still has a functioning drainage	High – This ranks as a high priority project because the reed canary grass of this area provides the greatest threat to the adjacent unique plant community of the Seminary Fen	$75,000 Design and Construction (2017 – 2027 date dependent on other funding)

		system within the wetland that is partially draining the wetland complex. Wetland restoration would involve disabling the drainage system and restoring vegetation.	Wetland complex. Ditch blocking will help to restore the hydrology of the wetland and may also have a secondary benefit of reducing the flashy flows to Assumption Creek.	
C-2 and C-3	Seminary Fen Ravines Site C-2 and C-3 Studies	Seminary Fen Ravine Sites C-2 and C-3 on the attached exhibit are actively discharging sediment into the Seminary Fen Wetland Complex. It is recommended that a ravine study be conducted to estimate sediment contribution to the Seminary Fen, provide approaches and cost estimates for correcting the erosion problems, and identify potential funding sources. This information will be utilized to help secure future grants. Priorities of ravine stabilization efforts along the bluff could also result from the study.	C-2, High – This ranks as high because this ravine is actively eroding and contributing sediment loads to the seminary fen wetland complex. C-3, Moderate/High – A review of this ravine and stabilization options should be after C-2 is completed. This site is contributing less sediment to the seminary fen wetland complex than C-2, but still is a contributor.	C-2 Ravine Study: $30,000 (2017 – 2027 dependent on funding) C-3 Ravine Study: $30,000 (2017 – 2027 dependent on funding)
C-2 and C-3	Seminary Fen Ravines Site C-2 and C-3 Design and Construction	Ravine Sites C-2 and C-3 on the attached exhibit are actively discharging sediment into the Seminary Fen Wetland Complex. This project will involve completing the final design and construction of these projects.	C-2, High – This ranks as high because this ravine is actively eroding and contributing sediment loads to the wetland. C-3, Moderate/High – Secondary to C-2 due to reduced sediment loads.	C-2 Design/Construction: $75,000 - $100,000 (2019 – 2027 dependent on funding) C-3 Design/Construction: $75,000 - $100,000 (2019 – 2027 dependent on funding)

D	Assumption Creek Hydrology Restoration Study	It is believed that Assumption Creek at one time had more flow than it currently has today. Assumption Creek is a trout stream, and groundwater discharge is important to maintain temperatures for the trout. It has been reported that portions of the creek dry out periodically. It is unknown exactly what may have reduced the hydrology. It may have been the U.S. Army Corps of Engineers Channel, historic creek rerouting for the brick factory, road construction, or other development impacts. It is recommended that a study be conducted to look at opportunities to resupply groundwater hydrology to the creek.	Moderate – This is moderate priority because the hydrology alteration has already occurred, and there is no immediate threat to additional loss of hydrology to the creek.	Assumption Creek Hydrology Restoration Study: $30,000 (2019 – 2027 depending on funding)

* Map ID numbers refer to Attached Figure

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454000 455000 456000

4963000

4962000

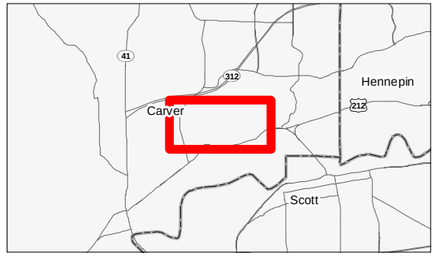
C-1
C-3
C-2
E-1
E-3
E-2
746.7
742.32
742.08
744.76
745.14
742.81
741.79
17 acres
B
F
D
A
3.61 acres
bing

Legend

- Project Site
- Seminary Fen Wetland Complex (B)
- Calcareous Fen (Southeastern)
- Sedimentation Plumes (E-1, E-2, E-3)

Barr Restoration and Management Data

- Natural Drainageway
- Potential Tile (No tile observed)
- Surface Ditch
  - **745.14** Ditch Top Elevations
  - **742.32** Ditch Bottom Elevations
- 2013 Wetland Restored (F)
- Seminary Fen Restoration Site A - Wetland Purchase and Restoration
- Seminary Fen Restoration Site B - Wetland Restoration
- Hazeltine Bluff Wetland
- Seminary Fen Ravines (C-1(completed), C-2, C-3)



N

0 600 1,200 Feet

1:7,500 (At original document size of 11x17)

Notes
1. Coordinate System: NAD 1983 UTM Zone 15N
2. Data Sources include: Stantec, USGS, and ESRI
3. Orthophotography: Microsoft Corporation, with permission

Figure No.
1

Title
City of Chaska Project Map for Lower Minnesota Watershed District

Client/Project
City of Chaska

Project Location
T116, R23, S34
C. of Chaska
Carver Co., MN

193702489
Prepared by CS on 2015-03-05
Technical Review by JS on 2015-09-18

Stantec

Dakota Collaborative Implementation Plan - Project List

Major Watershed	Entity	Name of Activity (List in order of Priority)	Description of Activity	Plan Reference(s)	Targeted Water Resource(s)	Timeframe For Implementation	Grant Funds Requested	Local Match Amount (Minimum 10%)	Total Project Cost	Preferred Fiscal Agent (Grantee)	Preferred Grant Reporting (Admin)	Measurable Outcomes	Comments
Cannon R (54)	**North Cannon WMO**	Structural Erosion Control Practices	Funds will be prioritized for projects in areas where a Subwatershed Analysis(SWA) is complete. Projects will be marketed to landowners and ranked according to their cost to benefit ratio. Projects will be implemented through Dakota SWCD Incentives Payment Practices Program.	North Cannon River Watershed Management Organization - Watershed Management Plan (November 2013) *Surface Water Quality Goal 5.1, Strategy 5*	Subwatersheds of Pine Creek, Trout Brook and North Byllesby Drainage areas.	2018 - 2020	$46,000	$4,600	$50,600	**North Cannon WMO**	**North Cannon WMO**	Cost-pollutant reduction ratio is established in each SWA. Final pollutant reductions calculated per project implemented.	
Cannon R (54)	**North Cannon WMO**	Non-Structural Erosion Control Practices	Funds will be implemented and prioritized through the SWCD non-structural practices program application process. Ranking includes priority based on location (i.e. groundwater susceptability) and project details (i.e. other pollutant concerns addressed).	North Cannon River Watershed Management Organization - Watershed Management Plan (November 2013) *Surface Water Quality Goal 5.1, Strategy 6*	Watershed wide	2018 - 2021	$40,000	$4,000	$44,000	**North Cannon WMO**	**North Cannon WMO**	Number of acres implemented as well as pollutant reductions calculated per project.	
Cannon R (54)	**North Cannon WMO**	Subwatershed Analysis	Complete a subwatershed analysis. Activities include preliminary desktop mapping, landowner outreach, field reconnaissance, pollutant calculations, priority practice ranking and a final report.	North Cannon River Watershed Management Organization - Watershed Management Plan (November 2013) *Surface Water Quality Goal 5.1, Strategy 4*	North Chub Creek	2018 - 2021	$35,000	$3,500	$38,500	**North Cannon WMO**	**North Cannon WMO**	Final report that provides a prioritized list of projects with measureable pollutant reductions.	
Cannon R (54)	**North Cannon WMO**	Drainage Water Management Outreach	Provide education and outreach on suitable drainage water management(DWM) practices in the NCRWMO area. Activities may include but are not limited to partnering with other agencies or non-profits, hosting field days, installing demonstration sites and creating outreach materials.	North Cannon River Watershed Management Organization - Watershed Management Plan (November 2013) *Surface Water Quality Goal 5.2, Strategy 4*	Watershed wide with priority on the subwatershed of Chub Creek.	2018 -2021	$15,520	$1,552	$17,072	**North Cannon WMO**	**North Cannon WMO**	Number of landowners and operators reached and number of DWM projects initiated as a result of outreach.	
Minn R - East Lower (56)	**Black Dog WMO**	Apple Valley KL-10 (Redwood Pond)	Expand existing pond and modify outlet to provide additional water quality treatment	Item #25 in Table 5-1 (implementation plan): implement recommended watershed projects to reduce runoff-borne phosphorus loads, as identified in the TMDL	Keller Lake	2020	$114,890	$165,110	$280,000	**Black Dog WMO**	**Black Dog WMO**	Reduce total phosphorus loading to Keller Lake by 10.8 lbs/year	
Minn R - East Lower (56)	**Lower MN WD**	Dakota County Fen Study/Management Plan	The purpose of the groundwater and fen evaluation is to develop a comprehensive groundwater model from existing data sets to evaluate long-term trends that can be used as a tool for planning development in the District.	LMRWD Plan Section 1.6.4-Fens; Section2.4.6 - Issue 6-Groundwater; Strategy 2.2.1-Watershed Management Standards-Water Appropriation Standard: Section 3.4, Goal 3-Groundwater Management to Protect and Promote Groundwater Quality and Quantity; Section 4.3.5-Monitoring;	Dakota County Fens - Fort Snelling, Nichols, Quarry Island & Black Dog	2018/2019	$65,450	$54,550	$120,000	**Lower MN WD**	**Lower MN WD**	The measurable outcome would be a model that could be used to determine impacts of proposed groundwater appropriation within fens subwatershed	Since 2007, District has monitored fen wells in cooperation with Dakota County SWCD. Monitoring has indicated declining water levels in at least one fen, Quarry Island Fen. This project was the LMRWD first looked at in 2015. When the District conducted a Groundwater and Fen Evaluation. Since receipt of the final report dated December 2015, the District has engaged the MN DNR to develop a strategy to define the approximate horizontal extent of the recharge zones for each of the four fens and provide a method of identifying proposed groundwater withdrawls that coule induce a one foot or greater decline in the hydrologic head at one or more of the four fens.
Minn R - East Lower (56)	**Eagan IGH WMO**	LeMay Lake TMDL Improvement Project	Iron enhanced filtration system at City Pond DP-3 to reduce external TP to LeMay Lake.	Eagan Neighborhood Lakes TMDL and Management Plans Report (Wenck 2015), E-IGHWMO Watershed Management Plan (June 2016) Goal B.1 and Section 5.1.4 Capital Improvement Projects-Lake TMDLs Load Reduction Projects	LeMay Lake (DNR#19-005500)	Apr.-Oct. 2019	$31,040	$558,960	$590,000	**Eagan IGH WMO**	**Eagan IGH WMO**	Modeled reduction: 28.0 lbs external TP/yr. (est.)	
Minn R - East Lower (56)	**Eagan IGH WMO**	Holland Lake Channel Stabilization	Repair an approximately 75ft length, 5ft wide and 4ft deep gully that drains to Holland Lake.	Lebanon Hills Regional Park Subwatershed Assessment Report (Wenck 2017) and E-IGHWMO Watershed Management Plan (June 2016) Goal B.1	Holland Lake (DNR#19-006500)	Aug.-Oct. 2019	$31,040	$4,120	$35,160	**Eagan IGH WMO**	**Eagan IGH WMO**	Modeled reduction: 1.0 lbs external TP/yr (est.)	Other external projects identified in Subwatershed Assessment (2017) to be prioritized based on stormwater monitoring in 2018. Could potentially be constructed as early as 2020

Minn R - East Lower (56)	**Eagan IGH WMO**	Carlson Lake TMDL Alum Application	Alum application to reduce internal TP in Carlson Lake.	Eagan Neighborhood Lakes TMDL and Management Plans Report (Wenck 2015), E-IGHWMO Watershed Management Plan (June 2016) Goal B.1 and Section 5.1.4 Capital Improvement Projects-Lake TMDLs Load Reduction Projects	Carlson Lake (DNR#19-006600)	Aug.-Oct. 2020	$31,040	$41,960	$73,000	**Eagan IGH WMO**	**Eagan IGH WMO**	Modeled reduction: 5.7 lbs internal TP/yr. (est.)	
Minn R - East Lower (56)	**Eagan IGH WMO**	Schulze Lake Alum Treatment	Alum application to reduce internal TP in Schulze Lake.	Lebanon Hills Regional Park Subwatershed Assessment Report (Wenck 2017) and E-IGHWMO Watershed Management Plan (June 2016) Goal B.1	Schultz Lake (DNR#19-007500)	Aug.-Oct. 2019	$31,040	$28,960	$60,000	**Eagan IGH WMO**	**Eagan IGH WMO**	Modeled reduction: 10.9 lbs internal TP/yr (est.)	
Miss R - Twin Cites (14)	**Dakota SWCD**	Stormwater BMPs	Retrofit stormwater Best Management Practices (BMPs) on public land to assist partnering Local Government Units (LGUs) to achieve water quality goals identified in their local stormwater plans, TMDLs and WRAPS reports.	LMRWMO Plan Table 6.2 Item #15 and #22 (Implementation Pan). Assist cities in pursing grants and addressing South Metro Mississipi River TMDL	Watershed Wide	2019-2021	$50,000	$5,000	$55,000	**Dakota SWCD**	**Dakota SWCD**	Reduce TSS loading by 5 tons/year and volume by 3.0 ac-ft/year	Activity is within Dakota SWCD Comprehensive Plan under Objective 1, Strategy A (b) (g) and Objective 1 Strategy C (a) (b)
Miss R - Twin Cites (14)	**Lower Miss WMO**	Develop a Storm Drain Stenciling Program	Create a stenciling program to engage community organizations and increase awareness of their impact on water resources	Implementation Table 6-2, Item 12.a, 12.d,	Mississippi River and other area water bodies.	2018-2020	$11,430	$1,200	$12,630	**Lower Miss WMO**	**Lower Miss WMO**	Number groups participating in program.	
Miss R - Twin Cites (14)	**Lower Miss WMO**	Pesticide, Herbicide and Fertilizer Education Program for Public and Private entities.	Develop multi-lingual educational material regarding Pesticides, Herbicides, and Fertilizer application for dispersal by Member Cities.	Implementation Table 6-2, Items 12.b, 12.e, 18	Mississippi River and other area water bodies.	2018-2020	$11,000	$1,100	$12,100	**Lower Miss WMO**	**Lower Miss WMO**	Number of educational materials generated and distributed by Member Cities.	Potentially run advertisements in local papers, City/neighborhood newsletters, etc.
Miss R - Twin Cites (14)	**Lower Miss WMO**	Impaired Waters/TMDL Education	Develop public educational materials regarding impaired waters and the TMDL programs developed to address the impairments. Mississippi River, Augusta, etc.	Implementation Table 6-2, Items 15, 18	Mississippi River and other area water bodies.	2018-2020	$11,000	$1,100	$12,100	**Lower Miss WMO**	**Lower Miss WMO**	Number of educational materials generated and distributed by Member Cities.	Potentially run advertisements in local papers, City/neighborhood newsletters, etc.
Miss R - Twin Cites (14)	**Lower Miss WMO**	Lake Augusta Shoreline Protection	Feasibility Study for Shoreland/Streambank Protection, Construction of two outlet control structures	Implementation Table 6-1, item 12	Lake Augusta	2018-2020	$25,000	$15,000	$40,000	**Lower Miss WMO**	**Lower Miss WMO**	Creation of report to determine feasibility of project implementation and potential pollutant reductions.	
Miss R - Twin Cites (14)	**Lower Miss WMO**	Interstate Valley Creek Streambank Stabilization	Feasibility study for Streambank protection, weir replacement and volume reduction in watershed	Implementation Table 6-1, Item 3. Implementation Table 6-3, Item 5	Interstate Valley Creek, Mississippi River	2018-2020	$50,000	$25,000	$75,000	**Lower Miss WMO**	**Lower Miss WMO**	Creation of report to determine feasibility of project implementation and potential pollutant reductions.	
Miss R - Twin Cites (14)	**Lower Miss WMO**	Lake Augusta Lift Station	Feasibility Study for construction of a lake outlet	Implementation table 6-1, item 12. Implementation Table 6-3, Item 7	Lake Augusta	2018-2020	$25,000	$15,000	$40,000	**Lower Miss WMO**	**Lower Miss WMO**	Creation of report to determine feasibility of project implementation and potential pollutant reductions.	
Miss R - Upper Lake Pepin (62)	**Dakota SWCD**	Stormwater BMPs	Retrofit stormwater Best Management Practices (BMPs) on public land to assist partnering Local Government Units (LGUs) to achieve water quality goals identified in their local stormwater plans, TMDLs and WRAPS reports.	VRWJPO Plan Figure 7.10.1 under Land and Water Treatement, Goal A and D; Research and Planning Goal A; 7.15 Incentive Programs	Watershed Wide	2019-2021	$10,000	$1,000	$11,000	**Dakota SWCD**	**Dakota SWCD**	Reduce total phosphorus loading by 0.7 lbs/year and volume by 0.7 ac-ft/year	Activity is within Dakota SWCD Comprehensive Plan under Objective 1, Strategy A (b) (g) and Objective 1 Strategy C (a) (b)
Miss R - Upper Lake Pepin (62)	**Dakota SWCD**	Irrigation/Ag Weather Network	Establish an Ag. Weather Network that mesures rainfall and parameters used to determine evapotranspiration which are necessary for irrigation water management (IWM). IWM manages water at the crop root zone, which leads to fewer nitrate leaching events during the growing season	VRWJPO Plan Figure 7.10.1 under Public Communication and Outreach, Goal B	Watershed Wide with focus on high nitrate areas	2019-2021	$15,000	$1,500	$16,500	**Dakota SWCD**	**Dakota SWCD**	Establish one monitoring station with data access	Activity is within Dakota SWCD Comprehensive Plan under Objective 2, Strategy B (a) (b) (c) (d).
Miss R - Upper Lake Pepin (62)	**Dakota SWCD**	South Branch Subwatershed Analysis	Complete a subwatershed analysis within South Branch drainage area of Vermillion River. Activities include preliminary desktop mapping, landowner outreach, field reconnaissance, pollutant calculations, priority practice ranking and a final report.	VRWJPO Plan Figure 7.10.1 under Land and Water Treatement, Goal A; and under Research and Planning Goal A	South Branch - Vermillion River Watershed	2019-2021	$25,000	$10,000	$35,000	**Dakota SWCD**	**Dakota SWCD**	A final report with prioritization of projects based on estimated cost benefit ratio.	Activity is within Dakota SWCD Comprehensive Plan under Objective 1, Strategy A (c)

Miss R - Upper Lake Pepin (62)	**Vermillion JPO**	Erickson Park Stormwater Improvements	EVR-P27 in Erickson Park is serving as a flood relief basin in the City's stormwater system. Stormwater was first directed to this area in the late 1970's and largely soaks away. As an improved basin was not constructed at the time that stormwater was first directed to the area, it currently does not meet its full potential for stormwater treatment and volume reduction. The project will excavate an improved basin and modify stormwater infrastructure, including the outlet, to promote stormwater infiltration. The City will also incorporate native plants into the final stabilization. The project is anticipated to be able to retain 100% of the runoff from an average year.	6.2, Goal A, 2.a. Identify and prioritize projects using the Watershed Restoration and Protection Strategy (WRAPS), geomorphic assessments, restorable wetlands inventory, and the Vermillion River Monitoring Network. 6.2, Goal A, 2.c. Fund high-priority projects using CIP dollars, cost-sharing with partners, grant funding or a combination of strategies. 6.2, Goal A, 4.a. Apply (solely or in partnership) for grants to conduct special projects, studies, and demonstrations, as well as fund best management practices. 6.2, Goal A, 14.a. Integrate WRAPS recommendations for high-priority restoration and protection projects into the VRWJPO's CIP. 6.2, Goal C, 3.a. Promote and cost-share bio-infiltration BMPs for new development, redevelopment, and stormwater retrofits. 6.2 Goal C, 4.a. Promote and cost-share BMPs that infiltrate stormwater and replenish groundwater, where feasible and not a threat to groundwater quality.	Farquar Lake (19-002300)	2019 or 2020	$100,000	$160,000	$260,000	**Vermillon JPO**	**Vermillon JPO**	>6.1 lbs TP reuction, reduced stormwater volume	Project is in Apple Valley. TMDL Impelemntation Plan, page 27 https: //www.pca.state.mn. us/sites/default/files/wq-iw9-06c.pdf
Miss R - Upper Lake Pepin (62)	**Vermillion JPO**	Records Trail/Morris Jones grade control structure(s)/sediment basin cleanouts	Install grade control structure(s) to eliminate erosion along Records Trail. Clean out two or three existing sediment basins on the Morris Jones property to reduce sedimentation downstream and reduce flow rate at grade control structures	6.2, Goal A, 2.a. Identify and prioritize projects using the Watershed Restoration and Protection Strategy (WRAPS), geomorphic assessments, restorable wetlands inventory, and the Vermillion River Monitoring Network. 6.2, Goal A, 2.c. Fund high-priority projects using CIP dollars, cost-sharing with partners, grant funding or a combination of strategies. 6.2, Goal A, 4.a. Apply (solely or in partnership) for grants to conduct special projects, studies, and demonstrations, as well as fund best management practices. 6.2, Goal A, 14.a. Integrate WRAPS recommendations for high-priority restoration and protection projects into the VRWJPO's CIP. 6.2, Goal A, 20. b. Target projects to water resources that have problems that are urgent, pose potential health risks, threaten public infrastructure, or adversely affect people, property, or natural resources.	Etter Creek	2020	$40,000	$10,000	$50,000	**Vermillon JPO**	**Vermillon JPO**	160 tons/year of soil loss, maybe more. Phosphorus is predicted to be between 70-80 lbs/year, but seems very high compared to other practices we've implemented	It's possible Mr Jones will provide sediment basin cleanout as part of the match. That amount is not included in the local match portion of this request.

Miss R - Upper Lake Pepin (62)	**Vermillion JPO**	Farmington Street Reconstruction Feasibility Study	Feasibility study to determine practice opportunties, types of practices, pollutant reduction, and costs for inclusion in City's street reconstruction project	6.2, Goal A, 2.a. Identify and prioritize projects using the Watershed Restoration and Protection Strategy (WRAPS), geomorphic assessments, restorable wetlands inventory, and the Vermillion River Monitoring Network. 6.2, Goal A, 2.c. Fund high-priority projects using CIP dollars, cost-sharing with partners, grant funding or a combination of strategies. 6.2, Goal A, 4.a. Apply (solely or in partnership) for grants to conduct special projects, studies, and demonstrations, as well as fund best management practices. 6.2, Goal A, 14.a. Integrate WRAPS recommendations for high-priority restoration and protection projects into the VRWJPO's CIP. 6.2, Goal A, 20. a. Prioritize projects that provide multiple benefits, multiple pollutant reductions, system-wide improvement, or synergy with other projects. 6.2, Goal A, 20.b. Target projects to water resources that have problems that are urgent, pose potential health risks, threaten public infrastructure, or adversely affect people, property, or natural resources. 6.3 Goal G, 4.b. Target locations where implementing BMPs would effectively reduce sediment loading. 6.3 Goal G, 4.c. Incorporate potential BMPs for sediment-load reduction in the CIP.	Vermillion river	2019	$20,000	$0	$20,000	**Vermillon JPO**	**Vermillon JPO**	NA	This study will lead to projects that have pollutant reduction benefits.

Miss R - Upper Lake Pepin (62)	**Vermillion JPO**	Farmington Street Reconstruction Stormwater Improvement Project	Stormwater improvement project as a result of the feasibility study	6.2, Goal A, 2.a. Identify and prioritize projects using the Watershed Restoration and Protection Strategy (WRAPS), geomorphic assessments, restorable wetlands inventory, and the Vermillion River Monitoring Network. 6.2, Goal A, 2.c. Fund high-priority projects using CIP dollars, cost-sharing with partners, grant funding or a combination of strategies. 6.2, Goal A, 4.a. Apply (solely or in partnership) for grants to conduct special projects, studies, and demonstrations, as well as fund best management practices. 6.2, Goal A, 14.a. Integrate WRAPS recommendations for high-priority restoration and protection projects into the VRWJPO's CIP. 6.2, Goal A, 20. a. Prioritize projects that provide multiple benefits, multiple pollutant reductions, system-wide improvement, or synergy with other projects. 6.2, Goal A, 20.b. Target projects to water resources that have problems that are urgent, pose potential health risks, threaten public infrastructure, or adversely affect people, property, or natural resources. 6.3 Goal G, 4.b. Target locations where implementing BMPs would effectively reduce sediment loading. 6.3 Goal G, 4.c. Incorporate potential BMPs for sediment-load reduction in the CIP.	Vermillion river	2019	$24,250	$75,000	$99,250	**Vermillon JPO**	**Vermillon JPO**	This will be determined when a project is designed. However, in running a couple MIDS calculator scenarios to treat the first 0.5" and 1" of runoff volume from the drainage area, a pollutant reduciton estimate of 1.4-1.7 tons of TSS and 10-14 lbs of phosphorus reduction could be expected.	This will be determined upon design of the project found in the feasibility study.

Miss R - Upper Lake Pepin (62)	**Vermillion JPO**	21st Street Ravine	Construct new outlet from ravine. Remove accumulated sediment and debris from upstream of existing outlet.	6.2, Goal A, 2.a. Identify and prioritize projects using the Watershed Restoration and Protection Strategy (WRAPS), geomorphic assessments, restorable wetlands inventory, and the Vermillion River Monitoring Network. 6.2, Goal A, 2.c. Fund high-priority projects using CIP dollars, cost-sharing with partners, grant funding or a combination of strategies. 6.2, Goal A, 4.a. Apply (solely or in partnership) for grants to conduct special projects, studies, and demonstrations, as well as fund best management practices. 6.2, Goal A, 14.a. Integrate WRAPS recommendations for high-priority restoration and protection projects into the VRWJPO's CIP. 6.2, Goal A, 20. a. Prioritize projects that provide multiple benefits, multiple pollutant reductions, system-wide improvement, or synergy with other projects. 6.2, Goal A, 20.b. Target projects to water resources that have problems that are urgent, pose potential health risks, threaten public infrastructure, or adversely affect people, property, or natural resources. 6.2, Goal C, 3.a. Promote and cost-share bio-infiltration BMPs for new development, redevelopment, and stormwater retrofits. 6.2 Goal C, 4.a. Promote and cost-share BMPs that infiltrate stormwater and replenish groundwater, where feasible and not a threat to groundwater quality. 6.3 Goal G, 4.b. Target locations where implementing BMPs would effectively reduce sediment loading. 6.3 Goal G, 4.c. Incorporate potential BMPs for sediment-load reduction in the CIP.	Vermillion River	2020	$73,800	$90,200	$164,000	**Vermillon JPO**	**Vermillon JPO**	Infiltration Volume: 19,600 CF Net Reduction for Average Water Year TSS Reduction leaving pond: 19,736 lbs TP Reduction Leaving Pond: 43.1 lbs Outflow Volume: 43.5 acre-feet	Net reductions for average water year are estimated using the City of Hasting's P8 model. For model documentation see Section 4.4 of the City's Watershed Management Plan (2009). The net reduction is estimated individually for each activity, the net reduction at the Vermillion River will vary from the reported values if multiple Activities are completed. Total Project Cost is estimated based on conceptual design for outlet modifications at each location. Infiltration Volume is estimated as the volume stored below the modified outlet of the basin. The modified outlet for each basin was assumed to be raised 18-inches, which will drawdown within 48-hours assuming type B soils. Infiltration volume provided as well as annual average TP, TSS, and infiltration volume will vary depending on the infiltration capacity.

Miss R - Upper Lake Pepin (62)	**Vermillion JPO**	Vermillion Falls Park rainwater gardens	Construct two rainwater gardens in Vermillion Falls Park.	6.2, Goal A, 2.a. Identify and prioritize projects using the Watershed Restoration and Protection Strategy (WRAPS), geomorphic assessments, restorable wetlands inventory, and the Vermillion River Monitoring Network. 6.2, Goal A, 2.c. Fund high-priority projects using CIP dollars, cost-sharing with partners, grant funding or a combination of strategies. 6.2, Goal A, 4.a. Apply (solely or in partnership) for grants to conduct special projects, studies, and demonstrations, as well as fund best management practices. 6.2, Goal A, 14.a. Integrate WRAPS recommendations for high-priority restoration and protection projects into the VRWJPO's CIP. 6.2, Goal A, 20. a. Prioritize projects that provide multiple benefits, multiple pollutant reductions, system-wide improvement, or synergy with other projects. 6.2, Goal A, 20.b. Target projects to water resources that have problems that are urgent, pose potential health risks, threaten public infrastructure, or adversely affect people, property, or natural resources. 6.2, Goal C, 3.a. Promote and cost-share bio-infiltration BMPs for new development, redevelopment, and stormwater retrofits. 6.2 Goal C, 4.a. Promote and cost-share BMPs that infiltrate stormwater and replenish groundwater, where feasible and not a threat to groundwater quality. 6.3 Goal G, 4.b. Target locations where implementing BMPs would effectively reduce sediment loading. 6.3 Goal G, 4.c. Incorporate potential BMPs for sediment-load reduction in the CIP.	Vermillion River	2020	$14,950	$59,050	$74,000	**Vermillon JPO**	**Vermillon JPO**	Infiltration Volume: 16,000 CF Net Reduction for Average Water Year TSS Reduction leaving pond: 2,515 lbs TP Reduction Leaving Pond: 11.9 lbs Outflow Volume: 13 acre-feet	Net reductions for average water year are estimated using the City of Hasting's P8 model. For model documentation see Section 4.4 of the City's Watershed Management Plan (2009). The net reduction is estimated individually for each activity, the net reduction at the Vermillion River will vary from the reported values if multiple Activities are completed. Total Project Cost is estimated based on conceptual design for outlet modifications at each location. Infiltration Volume is estimated as the volume stored below the modified outlet of the basin. The modified outlet for each basin was assumed to be raised 18-inches, which will drawdown within 48-hours assuming type B soils. Infiltration volume provided as well as annual average TP, TSS, and infiltration volume will vary depending on the infiltration capacity.

Miss R - Upper Lake Pepin (62)	**Vermillion JPO**	Aronson Park Stormwater Reuse System	The City of Lakeville is proposing to utilize Clean Water Fund Watershed-based Funding to enhance volume control and pollutant reductions through a water reuse project located at Aronson Park. The proposed project is a collaborative effort between the Vermillion River Watershed JPO, Dakota County Transportation, the City of Lakeville, and an adjacent Land Developer. With the improvements to County Road 50 and Aronson Park scheduled for 2019, the opportunity arose to improve water quality above design requirements, as well as reduce groundwater demand through installation of a reuse system. Improvements will be achieved through the transformation of two smaller stormwater treatment basins into a single wet sedimentation basin coupled with a wet well and pump house. The basin will provide irrigation to 5.30 acres of soccer field and 6.59 acres of ballfield at Aronson Park. The proposed project will provide water quality benefit to downstream South Creek (impaired for aquatic life and bacteria).	6.2, Goal A, 2.c. Fund high-priority projects using CIP dollars, cost-sharing with partners, grant funding or a combination of strategies. 6.2, Goal A, 4.a. Apply (solely or in partnership) for grants to conduct special projects, studies, and demonstrations, as well as fund best management practices. 6.2, Goal A, 19.c. Cost-share or stack incentives for demonstrations of new or innovative BMPs that are potentially more effective at reducing impacts to surface waters, less expensive, or easier to maintain. 6.2, Goal A, 20.a. Prioritize projects that provide multiple benefits, multiple pollutant reductions, system-wide improvement, or synergy with other projects. 6.2, Goal B, 1.c. Seek partnerships to develop and implement collaborative groundwater projects and programs	South Creek	2019	$70,550	$304,450	$375,000	**Vermillon JPO**	**Vermillon JPO**	Reduced stormwater volume: 3.81 million gallons Total phosphorus: 7.82 lbs Dissolved phosphorus: 4.30 lbs	
						Totals:	**$1,018,000**	**$1,641,912**	**$2,659,912**				

Black Dog WMO
Dakota SWCD
Eagan IGH WMO
Lower Miss WMO
Lower MN WD
North Cannon WMO
Vermillion JPO

Cannon R (54)
Miss R - Twin Cities (14)
Miss R - Upper Lake Pepin (62)
Minn R - East Lower (56)

Black Dog WMO
Dakota SWCD
Eagan IGH WMO
Lower Miss WMO
Lower MN WD
North Cannon WMO
Other
Vermillon JPO

Linda:

I would like to submit a grant to convert Schroeder's Acres Park to a stormwater wetland design and irrigation reuse system. For the grant I would say look to the following funding sources:

1. 1W/1P Grant (Study)
2. BBR/BWSR Clean Water Funds (Design and Construction)
3. LMRWD (Study/Design)
4. Trout Unlimited (temperature issue)
5. City (storm funds and City BMP in lieu of streets BMP credits, etc.)

Here are the steps:

1. Subwatershed assessment (2018)
2. Develop concept designs (2019)
3. Complete design (2019)
4. Construction (2020)

Pollutants:

1. Phosphorus
2. Temperature
3. Metals
4. Volume (Eagle Creek)
5. E. Coli

Resource:

1. Eagle Creek

Cost:

1. Study: $25,000
2. Design: $40,000
3. Irrigation Reuse: $70,000
4. Pond Modifications: $300,000
5. Total: $435,000

The Purpose:

1. Improve the overall health of Eagle Creek a designated Trout Stream.

Goals:

1. Reduce bacteria from discharging to Eagle Creek (Huge Goose and Duck population)
2. Reduce nutrients
3. Manage temperatures

4. Reduce volumes
5. Chlorides??? Monitor, implement changes in-deicing practices, monitor, implement additional changes, adapt, etc.

The first phase would be to do the study we previously discussed so we can better understand the key issues. This should help us better to define the parameters we should focus on. We know temperatures are an issue.

Schroeders's Acres Park

1 in = 200 ft

Contours 2ft
- 2-Foot Intermediate
- 10-Foot Index

Storm Points
- B_AP
- CB
- CBMH
- CEPT
- Drain
- E_AP
- LS
- MH
- OCS
- SKIM
- SUMP
- WEIR
- Other
- Storm Lines
- Private Storm Lines
- Commercial & Industrial Storm Sewer

Notes:
1.Shallow Marsh Fringes - 6 to 8 inch depth.
2. Integrate Iron-Enhanced System - Underground Vault with Replaceable Media

N

March 15, 2018

Map Powered by DataLink from WSB & Associates

SHAKOPEE

MEMORANDUM

TO: Watershed Based Funding Group

FROM: Kirby Templin, City of Shakopee

SUBJECT: Shakopee Projects Identified for Watershed Based Funding

DATE: April 20, 2018

This memo summarizes project opportunities within the City of Shakopee to consider for funding with the Watershed Based Funds. The total funding available for these project opportunities includes:

- LMRWD Funds – $146,550
- PLSLWD Funds - $150,361
- Scott WMO Funds - $210,459
- General Funds - $149,000

A. Project Opportunities Identified for PLSLWD Funds

1. PLSL Channel Improvements – CIP#19-004. CIP Summary attached. This could be considered for PLSLWD, or LMRWD, or both. Attached is also additional information including a previous concept and draft answers to BWSR projects and practices questions. The intent of the project is similar, however there may be some adjustments to the project through the next concept and design phase.
   a. Eligibility
      i. CIP Project.
      ii. One of the primary goals of the project is to implement features to improve water quality.
   b. Description
      i. Additional capacity and control structures in the Prior Lake/Spring Lake channel to handle increased run-off due to development.
   c. Estimated Project Cost
      i. $800,000 identified in CIP. The project scope has expanded recently, and cost is expected to be substantially more due to expanded scope.
      ii. Seeking project support and consideration for funds. Water quality project components will may exceed total funding available.

2. Targeted BMP study for regional BMPs identified in Shakopee CIP. The project locations are identified as CIP projects CIP#18-003, 19-003, 22-002. The CIP project descriptions area attached.
   a. Estimated Project Cost
      i. ~$25,000 for feasibility study. These projects are located within multiple watershed boundaries. Possibility for shared funding between the different watershed funds.

(1) Proposed LMRWD Funds Share. Half of a project (CIP#18-003) falls within the LMRWD boundary. Funding share of study of 1/6 cost for approximately 17%.
(2) Proposed Scott WMO Funds Share – One and a half projects (CIP#18-003 and CIP#22-002) fall within the Scott WMO boundary. Funding share of study of 1/2 cost for approximately 50%.
(3) Proposed PLSLWD Funds Share – One project (CIP#19-003) falls within PLSLWD boundary. Funding share of study of 1/3 cost for approximately 33%.

B. Project Opportunities Identified for LMRWD Funds

3. Targeted BMP study for downtown Shakopee area. This is a high priority study for Shakopee.
   a. Estimated Project Cost
      i. ~$25,000 for feasibility study.

4. PLSL Channel Improvements – CIP#19-004.
   a. Additional details are summarized for this project in Project 1.

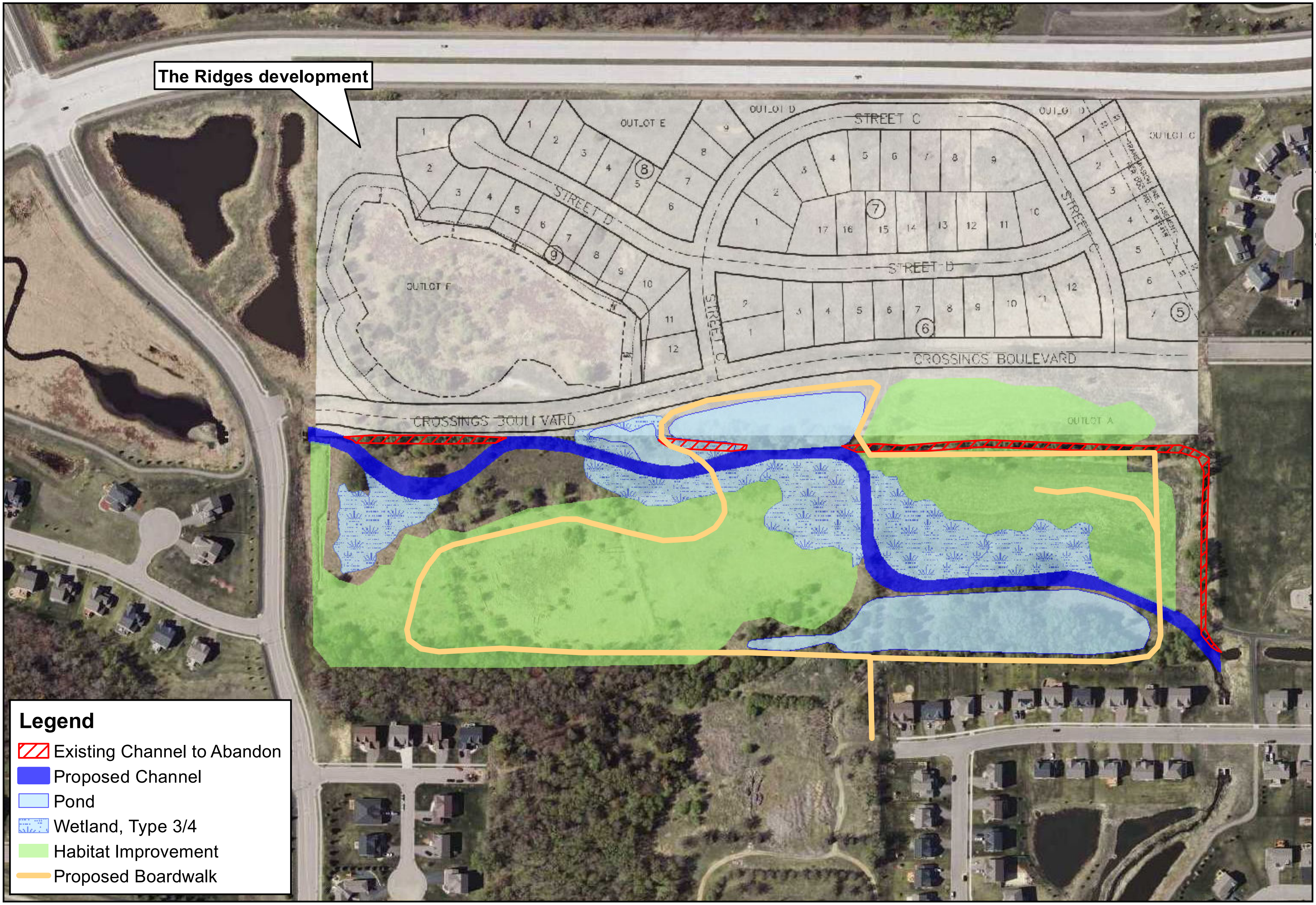
5. Targeted BMP study for regional BMPs identified in Shakopee CIP.
   a. Additional details and funding share are summarized for this project in Project 2.

C. Project Opportunities Identified for Scott WMO Funds

6. Targeted BMP study for regional BMPs identified in Shakopee CIP.
   a. Additional details and funding share are summarized for this project in Project 2.

D. Project Opportunities Identified for General Funds

7. Chloride Assessment/Evaluation/Study
   a. An assessment to review current plan, identify opportunities to reduce and improve chloride application, and create an implementation plan. This assessment would identify goals, reduction potentials, benefits (environmental and cost savings), and the needs to execute a plan to reduce chloride application.



Proposed Improvements

PLOC Realignment

City of Shakopee

N

0 300 Feet

1 inch = 300 feet

2017 BWSR Projects and Practices Questions

Project Abstract: Project Abstract: Succinctly describe what you are trying to achieve and how you intend to achieve those results, including the type and quantity of projects and/or practices included in the application budget and anticipated outcomes.

Increase storage to reduce TSS load to LMR. Improve habitat (pollinators) and MNRAM score. Increase wetland diversity and complexity. Reduce TP.

Does your organization have any active CWF grants? If so, specify FY and percentage spent. Also, explain your organization's capacity (including available FTEs or contracted resources) to effectively implement additional Clean Water Fund grant dollars.

Water Resource: Identify the water resource the application is targeting for water quality protection or restoration.

Deans Lake/Lower MN

Proposed Measurable Outcomes: Succinctly describe the proposed measurable outcomes of this grant application.

- ***Flow Reduction***
- ***Reduction in TSS***
- ***Improve MNRAM Score***
- ***Increased storage***
- ***Increase wetland Acreage***

Overall Project Description 1. (5 points) A) What nonpoint pollution concerns will be the focus of this application and how do you intend to address those concerns? B) Describe how the resource of concern aligns with at least one of the statewide priorities referenced in the "Projects and Practices" section of the RFP. C) Describe the public benefits resulting from this proposal from both a local and state perspective.

Local- City of Prior Lake, SMSC and Shakopee use channel for drainage.

State- Reduce YTSS to LMR to improve IBI and clarity. This will also eventually impact Mississippi.

Relationship to Plan: 2a. (15 points) Describe why the water resource was identified in the plan as a priority resource. For the proposed project, identify the specific water management plan reference by plan organization plan title, section, and page number. In addition to the plan citation, provide a brief narrative description that explains whether this application fully or partially accomplishes the referenced activity.

- *Shakopee SWMP*
- *Shakopee CIP*
- *LMRWD Third Generation Plan*

Relationship to Plan: 2b. Provide web links to all referenced plans.

Targeting Procedure: 3. (15 points) Describe the methods used to identify, inventory, and target the most critical pollution sources or threats (root cause) and describe any additional efforts that will be completed prior to installing the projects or practices identified in this proposal.

- *USGS Report on Lower MN*
- *HDR Model in Dean Lake WQ Report*
- *City Inventory?*
- *Met Council Report*
- *LMR TMDL*
- *Mention previous channel work in the portion of the channel to the west of the proposed project.*

Targeting: 4. (10 points) A) How does this proposal make progress toward an overall groundwater, watershed protection, and/or restoration strategy being implemented by your organization and your partners? Listing an activity in a plan does not necessarily constitute an overall strategy. B) Describe activities other than those in this proposal that you and other partners have or will implement that affect the same water resource including but not limited to: other financial assistance or incentive programs, easements, regulatory enforcement, or community engagement activities that are indirectly related to this proposal.

LMRWD is prioritizing flow volume reduction within the watershed to reduce TSS to LMR. The PLOC brings in a lot of TSS.

Measureable Outcomes: 5. (10 points) A) What pollutant(s) (For groundwater: bacteria, untreated sewage, nitrate, pesticides, etc.; For surface water: dissolved phosphorus, nitrogen, sediment, etc.) does this application specifically address? B) Has there been a pollutant reduction goal set (via TMDL or other study) in relation to that pollutant or the water resource that is the subject of this application? If so, please state that goal (as both an annual pollution reduction AND overall percentage reduction, not as an in-stream or in-lake concentration number). If no pollutant reduction goal has been set, describe the water quality trends associated with the water resource or other management goals that have been established. D) For protection projects, indicate measurable outputs such as acres of protected land, number of potential contaminant sources removed or managed, etc.

Measureable Outcomes: 6. (10 points) A) Describe the effects this proposed project will have on the root cause of the most critical pollution problems or threats. B) Please quantify the water quality

benefits that would result from this proposal. Where applicable, identify the annual reduction in pollutant(s) that will be achieved or avoided for the water resource after this project is completed.

Measureable Outcomes: 7. (10 points) Will the overall project have additional specific secondary benefits, including but not limited to measured or estimated hydrologic benefits, enhancement of aquatic and terrestrial wildlife species, drinking water protection, enhancement of pollinator populations, or protection of rare and/or native species? If so, specifically describe, (quantify if possible), what those benefits will be.

MNRAM score, pollinator, T & E habitat, increased wetland acreage. Potential to create rare wetland habitat.

Cost Effectiveness: 8. (15 points) Describe why the proposed project(s) in this application are considered to be the most cost effective and reasonable means to attain water quality improvement or protection benefits within the proposed project area. Has any analysis been conducted to help substantiate this determination? Factors to consider include, but are not limited to: BMP effectiveness, timing, site feasibility, practicality, and public acceptance. If your application is proposing to use incentives, please include incentive rates and the rationale why this approach is seen to have a high cost-benefit.

Look at other projects in the plan or alternative designs.

Project Readiness: 9. (8 points) Describe steps and actions already taken to ensure that project implementation can begin soon after grant award. This may include: preliminary discussions with permitting authorities (if applicable) and the status of any state, federal or local permits that may be required for the project (Conditional use, NPDES, WCA, EAW, USACE, Public Waters, archeological surveys, etc.). Also, describe any preliminary discussions with landowners/occupiers, status of agreements/contracts, contingency plans, and other project development activities to date that will ensure a smooth start to the project and minimize administrative or other critical delays.

- ***Easements?***
- ***Permitting***
- ***Partner Meetings***

Project Readiness: 10. (2 points) Newsletters, signs and press releases are standard communication tools. In addition to these basics, describe additional project activities that would be added to the grant work plan aimed at engaging your local community on the need, benefits, and long term impacts of this project.

Boardwalk and interpretive signs.

The Constitutional Amendment requires that Amendment funding must not substitute traditional state funding. Briefly describe how this project will provide water quality benefits to the State of Minnesota without substituting existing funding.

Capital Improvement Plan

City of Shakopee, Minnesota

2018 *thru* 2022

Department Storm Drainage Fund
Contact Public Works Director
Type Improvement
Useful Life
Category Storm Sewer/Drainage
Priority 2 Important-Provide Efficeinc

Project # STORM-18-003
Project Name West End Regional Pond & Trunk Oversizing

Accounting Code
Fund Surface Water Fund

Total Project Cost: **$300,000**

Description

Additional capacity of ponding and better rate control of drainage entering into the Upper Valley Drainage system.

Justification

Control of water rates are improtant to manage the system and reducing the potential of flooding downstream.

Expenditures	2018	2019	2020	2021	2022	Total
Construction/Maintenance	240,000					240,000
Engineering/Administration	60,000					60,000
Total	300,000					300,000

Funding Sources	2018	2019	2020	2021	2022	Total
Storm Drainage Fund	300,000					300,000
Total	300,000					300,000

PROJECT LOCATION

Capital Improvement Plan

2018 *thru* 2022

City of Shakopee, Minnesota

Department Storm Drainage Fund
Contact Public Works Director
Type Improvement
Useful Life
Category Storm Sewer/Drainage
Priority 2 Important-Provide Efficeinc

Project # **Storm-19-003**
Project Name **Blue Lake Channel Cooperative Regional Storm Pond**

Accounting Code
Fund Surface Water Fund

Total Project Cost: **$100,000**

Description

To construct a Joint Regional Pond with the SMSC on the Blue Lake Channel prior to outletting to the Prior Lake Channel.

Justification

Control of storm water by ponding and infiltration prior to the Prior Lake Channel is good management of storm water and can reduce cost of channel construction and cost share in PLSLWD Agreement.

Expenditures	2018	2019	2020	2021	2022	Total
Improvements		100,000				100,000
Total		100,000				100,000

Funding Sources	2018	2019	2020	2021	2022	Total
Storm Drainage Fund		100,000				100,000
Total		100,000				100,000

PROJECT LOCATION

Capital Improvement Plan

City of Shakopee, Minnesota

2018 *thru* 2022

Department Storm Drainage Fund
Contact Public Works Director
Type Improvement
Useful Life
Category Storm Sewer/Drainage
Priority 1 Critical for Safety/Preservat

Project # **Storm-19-004**
Project Name **PLSL Channel Improvements**

Accounting Code
Fund Surface Water Fund

Total Project Cost: **$800,000**

Description

Additional capacity and control structures in the Prior Lake/Spring Lake Channel to handle increased run-off due to development.

Justification

Existing agreement with Prior Lake/Spring Lake Watershed District (PLSLWD) requires the City to maintain the channel upon the City utilizing the channel for urban development. Increased runoff from development will require a larger channel.

Expenditures	2018	2019	2020	2021	2022	Total
Construction/Maintenance		700,000				700,000
Engineering/Administration		100,000				100,000
Total		800,000				800,000

Funding Sources	2018	2019	2020	2021	2022	Total
Park Reserve Fund		500,000				500,000
Storm Drainage Fund		300,000				300,000
Total		800,000				800,000

PROJECT LOCATION

Capital Improvement Plan

2018 *thru* 2022

City of Shakopee, Minnesota

Department Storm Drainage Fund
Contact Public Works Director
Type Improvement
Useful Life
Category Storm Sewer/Drainage
Priority 1 Critical for Safety/Preservat

Project # **Storm-22-002**
Project Name **Blue Lake Channel Regional Storm Pond**

Accounting Code
Fund Surface Water Fund

Total Project Cost: **$100,000**

Description

Regional ponding of storm water, west of CSAH 83 to control storm water rate and quality.

Justification

Management of storm water in this area is necessary to prevent flooding and management of water from areas south of the pond.

Expenditures	2018	2019	2020	2021	2022	Total
Improvements					100,000	100,000
Total					100,000	100,000

Funding Sources	2018	2019	2020	2021	2022	Total
Storm Drainage Fund					100,000	100,000
Total					100,000	100,000

PROJECT LOCATION