



Leadership for Midwestern Watersheds

Leadership for Midwestern Watersheds Watershed Partnerships - Minnesota Watersheds



Adam King
Dodge Soil and Water Conservation District
District Manager
11/09/2023



Leadership for Midwestern Watersheds

Dodge County



Comprehensive Water Management Plan
2006-2016
Including 2017-2021 Amendments

Cedar River Watershed District
Watershed Management Plan



October 2009
Prepared by Barr Engineering Co.

FREEBORN COUNTY



COMPREHENSIVE WATER

MENT TO
ATION
2021

STEELE COUNTY
WATER PLAN
AMENDMENT

Draft 7/4/2016

January 2017 - December 2021

Mower County
Local Water Management Plan
2006 - 2015

Turtle Creek Watershed District
Watershed Management Plan

Implementation Plan Updated In 2010

Prepared for:
Turtle Creek Watershed District

Prepared by:
Mower Soil & Water Conservation District
101 21st St. SE
Austin, MN 55912
(507) 434-2603

September 2003



Leadership for Midwestern Watersheds

One Watershed – One Plan History

- Conduct Comprehensive Local Water Management on a Watershed basis, instead of a county boundary
- Streamlining the planning process to create a focus on project implementation
- Financial Incentives from the State of Minnesota, with a cost-effective method to distribution



November 25, 2013

Local Government Water Roundtable
Comprehensive Water Planning and Management
Policy Paper



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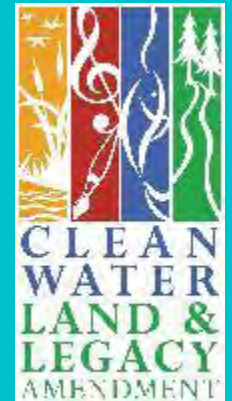


Cedar-Wapsipinicon Comprehensive Watershed Management Plan

Prepared for
Cedar-Wapsipinicon Watershed Partnership
December 2019



Develop a **PRIORITIZED, TARGETED, and MEASURABLE** local implementation plan.





Leadership for Midwestern Watersheds

Prioritization

Relationships

Changing Times in Conservation Work

1W1P is part of a paradigm shift in how conservation work is done

In ag Country, SWCD's served individual farmers first

Watershed benefits were secondary



Progress always moves at the speed of trust

We invested heavily in trust building early on, as it is our foundation that everything else is built off of

We managed to set aside turf and worked hard to create an inclusive group of staff, policy makers and partners

Still had a rocky start

The Elected/Appointed group made a collaborative decision to go forward TOGETHER



Prioritization

Table 4-1 Geospatial Zonation inputs categorized by Zonation priorities

Zonation Priority	Geospatial Data Inputs
Reduce Erosion & Runoff	<ul style="list-style-type: none"> Stream power index Stream floodplains Soil erosion risk National wetlands inventory (NWI) Topographic position index Water yield (HSPF model results)
Protect or Improve Waters of Concern	<ul style="list-style-type: none"> Drinking water supply management areas (DWSMAs) Groundwater contamination susceptibility Groundwater recharge Total phosphorus loading (HSPF model results) Total nitrogen loading (HSPF model results) Sediment loading (SWAT model results)
Protect or Improve Lands of Concern	<ul style="list-style-type: none"> Cultivated crops Crop productivity index Urban lands Public lands Stream buffers
Protect or Improve Fish & Wildlife Habitat	<ul style="list-style-type: none"> Sites of biodiversity significance Rare plants/animals Lakes of biological significance

Table 4-2 Priority Issue Statements

Issue Group	Issue Statement
Accelerated Erosion & Sedimentation	Excessive erosion and sedimentation diminishes agricultural productivity, damages riparian areas, and degrades surface water quality and stream habitats.
Surface Water Quality Degradation	Surface water quality is threatened or impaired by pollutant loading and altered hydrology.
Excessive Flooding	Excessive flooding threatens public safety, property, and riparian ecology.
Groundwater Contamination	Groundwater quality is threatened by pollutant loading.
Degraded Soil Health	Degraded soil health diminishes agricultural productivity and limits the beneficial ecological functions of soil.
Threatened Groundwater Supply	Groundwater sustainability is at risk from consumptive use and loss of recharge.
Threats to Fish, Wildlife, and Habitat	Natural areas providing habitat and other ecological functions are threatened by land use conversion and other human activities.
Reduced Livability & Recreation	Connection to nature, outdoor recreation, and overall quality of life are reduced by the loss and degradation of natural resources.

Figure 4-3 Issue Group Paired Comparison Exercise - EXAMPLE

Instructions:

- Work your way through each open square in the matrix one at a time.
 - Consider only the TWO issue statement corresponding to its Row and Column.
 - Decide which of the two issues statements (the row, and the column) is a higher priority, in your opinion, to address in this 1W1P.
 - Indicate the higher priority issue in the square using the abbreviation (e.g., "ES" for the issue of excessive erosion and sedimentation).
- In the "Total Occurrences" column, record the total number of times you selected that issue in a blank square (they should sum to 28).

Issue Statement	Code	SH	ES	SWQ	FL	GWQ	GWS	NR	LV
Degraded soil health diminishes agricultural productivity and limits the beneficial ecological functions of soil.	SH		ES	SH	SH	GWQ	SH	SH	SH
Excessive erosion and sedimentation diminishes agricultural productivity, damages riparian areas, and degrades surface water quality and stream habitats.	ES			ES	ES	GWQ	ES	ES	ES
Surface water quality is threatened or impaired by pollutant loading and altered hydrology.	SWQ				SWQ	GWQ	SWQ	SWQ	SWQ
Excessive flooding threatens public safety, property, and riparian ecology.	FL					GWQ	GWS	NR	FL
Groundwater quality is threatened by pollutant loading.	GWQ						GWQ	GWQ	GWQ
Groundwater sustainability is at risk from consumptive use and loss of recharge.	GWS							NR	LV
Natural areas providing habitat and other ecological functions are threatened by land use conversion and other anthropogenic stressors.	NR								LV
Connection to nature, outdoor recreation, and overall quality of life are reduced by the loss and degradation of natural resources.	LV								

For example: I think degraded soil health (issue in this row) is a higher priority for the watershed to address than the three to natural areas (issue in this column). Therefore, I indicate "degraded soil health" as the higher priority using the issues statement abbreviation of "SH."

Total Occurrences	
SH =	5
ES =	6
SWQ =	4
FL =	1
GWQ =	7
GWS =	1
NR =	2
LV =	2



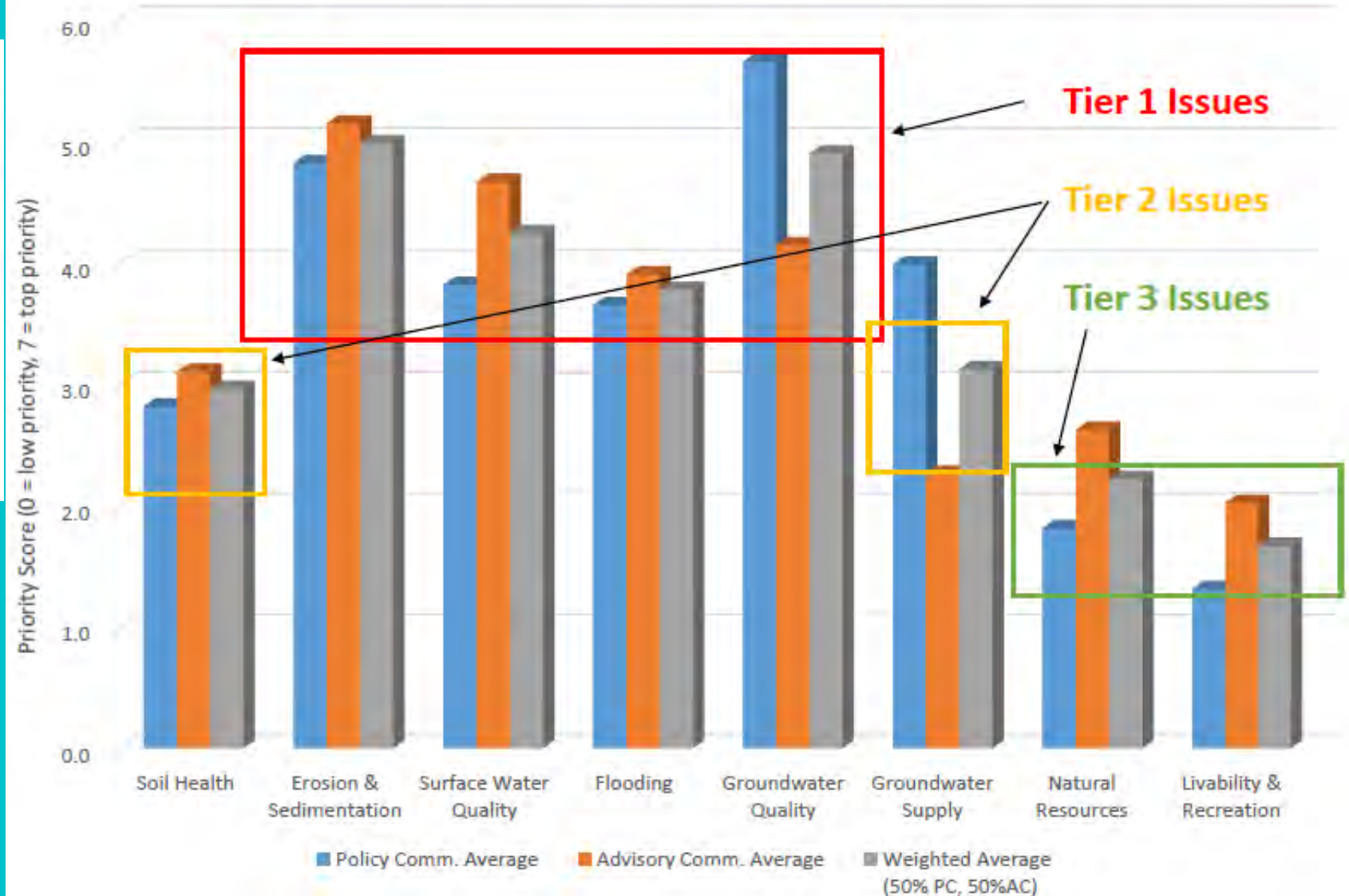


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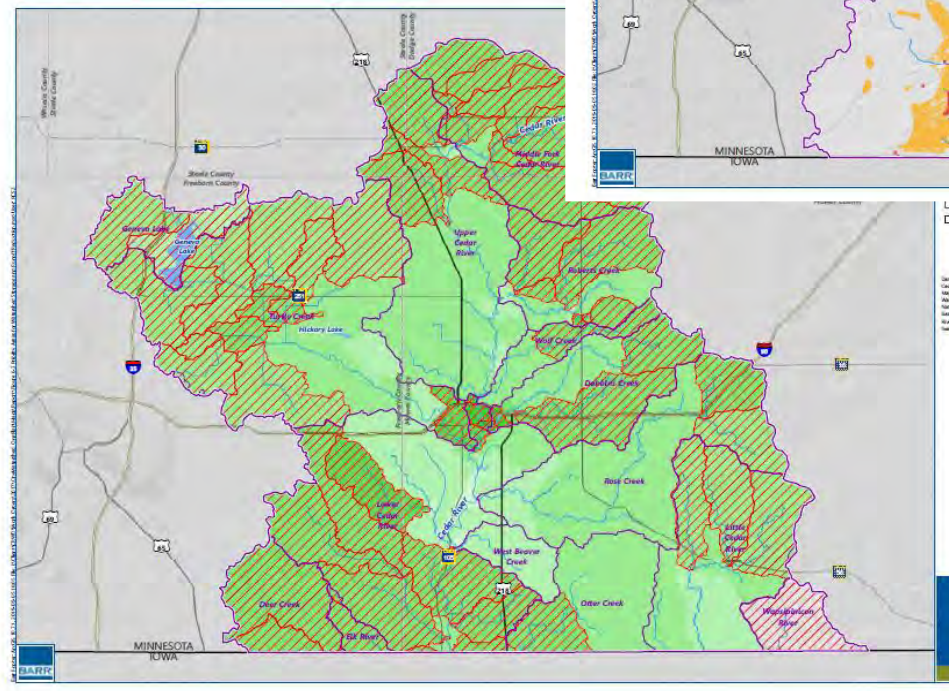
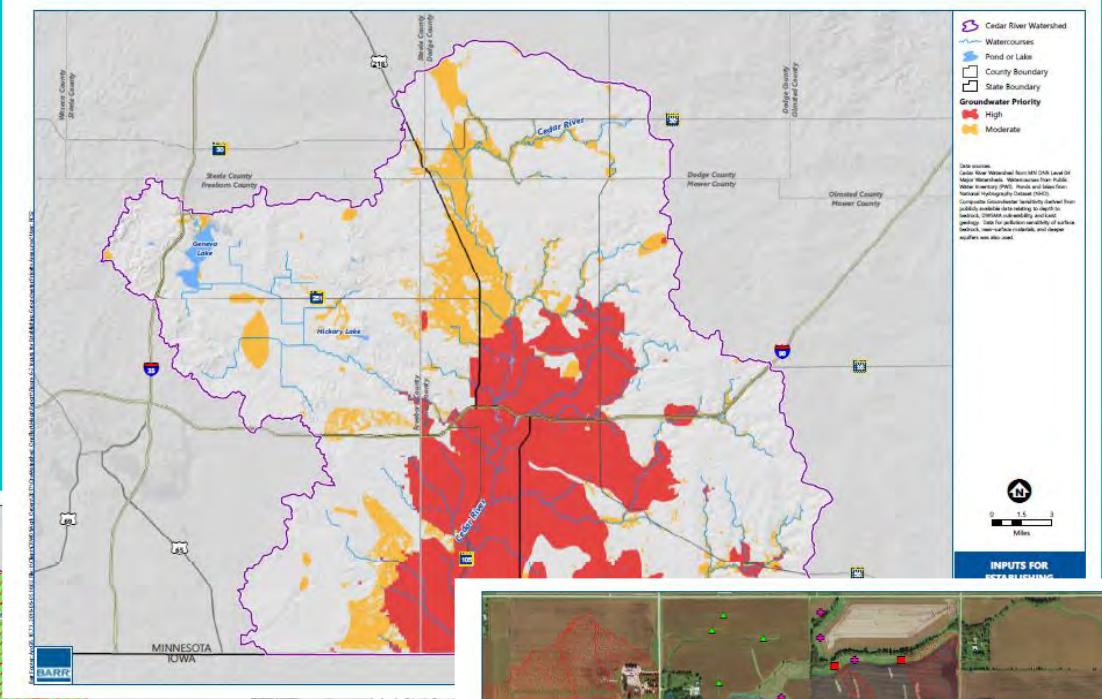
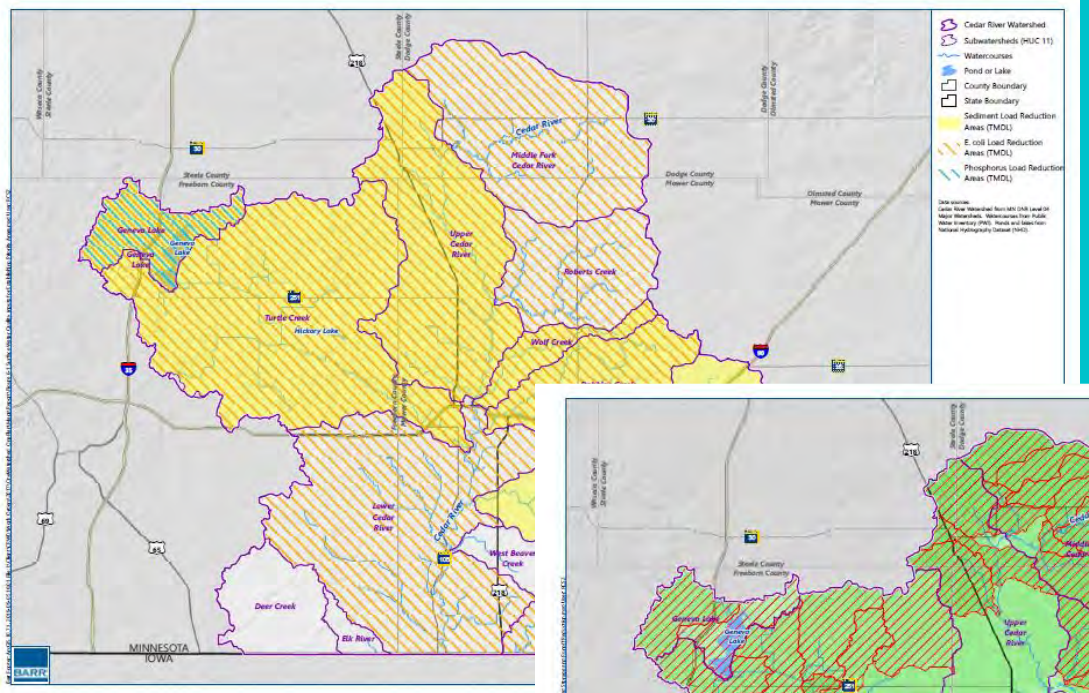
Prioritization



Figure 4-4 Issue Prioritization Scoring by Advisory Committee and Policy Committee



Targeting

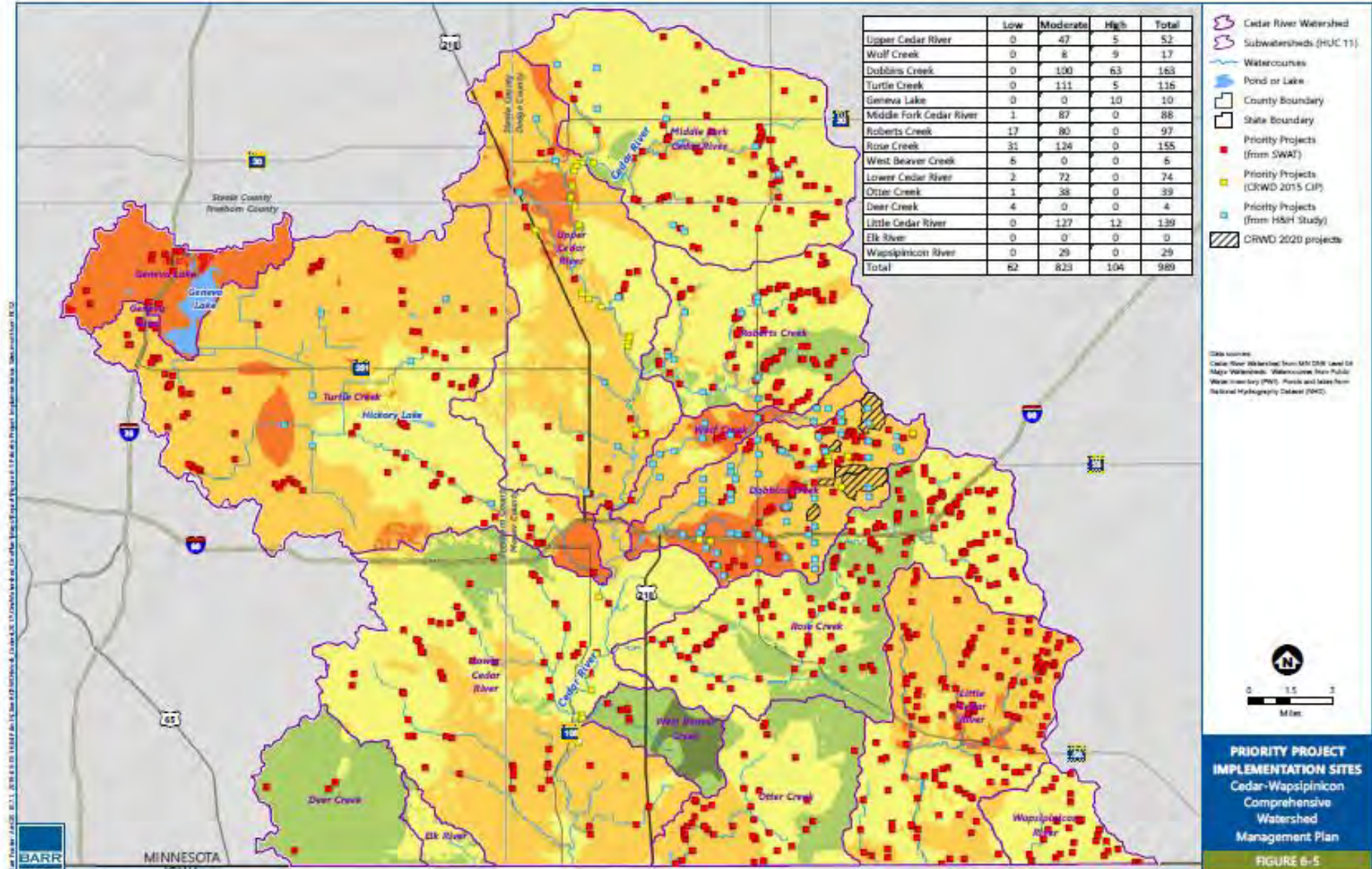




DODGE
SWCD

Targeting

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Now we have a

Prioritized,

Targeted,

State Approved,

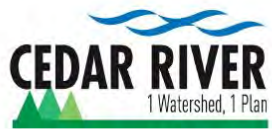
Comprehensive Watershed Management Plan

in order to achieve the best Measurable Results.



Cedar-Wapsipinicon Comprehensive Watershed Management Plan

Prepared for
Cedar-Wapsipinicon Watershed Partnership
December 2019



4300 MarketPointe Drive, Suite 200
Minneapolis, MN 55435
952.332.2100
www.barr.com

NOW WHAT?





Leadership for Midwestern Watersheds

IMPLEMENTATION

Administration and Coordination

**CEDAR – WAPSIPINICON COMPREHENSIVE WATERSHED MANAGEMENT PLAN
MEMORANDUM OF AGREEMENT**

RESOLUTION 20-140

This Agreement is made and entered into by and between:

The Counties of Dodge, Freeborn, Mower, and Steele by and through their respective County Board of Commissioners, and

The Dodge, Freeborn, Mower, and Steele Soil and Water Conservation Districts, by and through their respective Soil and Water Conservation District Board of Supervisors, and

The Cedar River, and Turtle Creek Watershed Districts, by and through their respective Board of Managers, and

The City of Austin, by and through their City Council;

Collectively referred to as the "Parties."

WHEREAS, the Counties of this Agreement are political subdivisions of the State of Minnesota, with authority to administer environmental programs and land use controls pursuant to Minnesota Statutes Chapter 375 and as



Local Implementation Work Group (LIWG) – made up of local staff – handle logistics

Technical Advisory Committee (TAC) – made up of state and local staff and stakeholders

Policy Advisory Committee (PAC) – made up of elected/appointed officials

Day to Day Contact – appointed annually

Fiscal Agent – appointed for each source of funding



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IMPLEMENTATION

Activities

Broken down into:
 Projects and Practices;
 Monitoring Activities and Studies;
 Education and Public Involvement Activities;
 Regulatory and Administrative Activities

Table 7-2. Cedar-Wapispinicon Comprehensive Watershed Management Plan Implementation Schedule

Item ID	Implementation Action Description	Applicable Goals (see Table 4-1)	Priority Issues Addressed					Target or Focus Area	Measurable Output	Timeframe (Values are incremental for each 2-year period)					Estimated Total Cost	Estimated Local Contribution	Estimated External Contribution	Lead LGU	Supporting Entities	Notes	
			Degraded Surface Water Quality	Excess Nutrient Loading	Excess Sediment Loading	Degraded Riparian Habitat	Degraded to High			Threat to Fish and Wildlife	2020-21	2021-23	2024-25	2026-27							2028-29
			SWQ-1, SWQ-2, ESC-1, ESC-2, GWO-5, FLD-1, SUI-1, GWS-1, FWI-4, REC-1	SWQ-1, SWQ-2, ESC-1, ESC-2, GWO-5, FLD-1, SUI-1, GWS-1, FWI-4, REC-1	SWQ-1, SWQ-2, ESC-1, ESC-2, GWO-5, FLD-1, SUI-1, GWS-1, FWI-4, REC-1	SWQ-1, SWQ-2, ESC-1, ESC-2, GWO-5, FLD-1, SUI-1, GWS-1, FWI-4, REC-1	SWQ-1, SWQ-2, ESC-1, ESC-2, GWO-5, FLD-1, SUI-1, GWS-1, FWI-4, REC-1			SWQ-1, SWQ-2, ESC-1, ESC-2, GWO-5, FLD-1, SUI-1, GWS-1, FWI-4, REC-1											
Projects and Project Support																					
Implement BMPs at very high priority and high priority sites identified through SWAT modeling and GIS terrain analysis (see Figure 6-2) to reduce erosion and filter pollutants; specific BMPs to be determined based on site-specific feasibility, with target implementation by subwatershed as follows:																					
SWQ-1	Upper Cedar River	SWQ-1.1	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		
	Wolf Creek	SWQ-1.2	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		
	Dobbin Creek	SWQ-1.3	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		
	Turtle Creek	SWQ-1.4	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		
	Genewa Lake	SWQ-1.5	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		
	Middle Fork Cedar River	SWQ-1.6	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
	Roberts Creek	SWQ-1.7	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
	Rear Creek	SWQ-1.8	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
	West Beaver Creek	SWQ-1.9	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
	Lower Cedar River	SWQ-1.10	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
	Otter Creek	SWQ-1.11	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
	Deer Creek	SWQ-1.12	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
	Little Cedar River	SWQ-1.13	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
	Elk River	SWQ-1.14	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
	Wapispinicon River	SWQ-1.15	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
Total																					
SWQ-2	Implement and/or expand cost share assistance programs to promote the use of BMPs based on soil health (e.g., cover crops, conservation tillage - defined as no-till and strip-till)	SWQ-1, ESC-1, ESC-2, FLD-1, SUI-1, SUI-2, SUI-3, GWS-1	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		
SWQ-3	Implement projects to reduce phosphorus and sediment loading in urban stormwater runoff (above and beyond current minimum requirements)	SWQ-1, ESC-1, FLD-1, GWS-1	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		

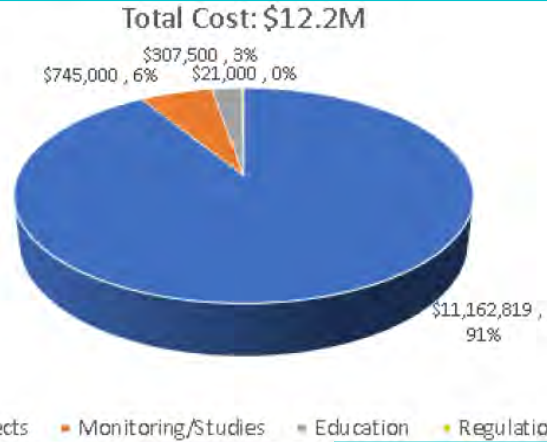
Action	Action Description	Management Category	Lead	Lead Entity	Partners	Cost per Year	Start Date	End Date
GW-1.1	Implement BMPs that manage surface runoff within Drinking Water Supply Management Areas (DWSMAs), Source Water Protection Areas, and areas of high vulnerability to groundwater recharge such as sinkholes.	Field Practice	Local	SWCD	MDA, County, Cities, NRCS	See Field Practices Table (Table 4-7)		
GW-1.2	Seal abandoned and unused wells, particularly those wells which may impact public or private drinking water supplies, such as those found within DWSMAs.	Field Practice	Local	SWCD / County	MDA, MDH, NRCS	See Field Practices Table (Table 4-7)		
GW-1.3	Develop nitrogen fertilizer management plans for agricultural producers for locations that are vulnerable to groundwater contamination from nitrates, which follow Best Management Practice recommendations.	Field Practice	Local	SWCD	NRCS, Crop advisors	See Field Practices Table (Table 4-7)		
GW-1.4	Complete the delineation and mapping of DWSMAs and the boundaries of Well Head Protection Areas.	Research	State	MDH	N/A	Existing Budget	Ongoing or Current Program	
GW-1.5	Use existing land use and zoning ordinances to manage possible sources of nitrate contamination (i.e., subsurface sewage treatment systems; manure management; land development).	Statutory/Ordinance	Local	County/City	N/A	Existing Budget	Ongoing or Current Program	
GW-1.6	Provide financial and technical assistance for the monitoring of nitrate levels in private wells.	Research	State / Local	MDA / County	SWCD	Existing Budget	Ongoing or Current Program	
GW-1.7	Continue research to define sinkhole locations, map springsheds in plan area, model and monitor groundwater, and monitor basic flow.	Research	State	DNR	MGs, MDH, SWCD	See Table 4-8	Ongoing or Current Program	

Item ID	Implementation Action Description	Applicable Goals	Priority Issues Addressed	Target or Focus Area	Measurable Output	Timeframe	Estimated Total Cost	Estimated Local Contribution	Estimated External Contribution	Lead LGU	Supporting Entities	Notes
SWQ-1	Implement BMPs at very high priority and high priority sites identified through SWAT modeling and GIS terrain analysis (see Figure 6-2) to reduce erosion and filter pollutants; specific BMPs to be determined based on site-specific feasibility, with target implementation by subwatershed as follows:	SWQ-1, SWQ-2, ESC-1, ESC-2, GWO-5, FLD-1, SUI-1, GWS-1, FWI-4, REC-1	SWQ-1, SWQ-2, ESC-1, ESC-2, GWO-5, FLD-1, SUI-1, GWS-1, FWI-4, REC-1	Priority Project Areas (see Figure 6-4)	Number of projects implemented and corresponding reduction in pollutant loading	Numbers below indicate planned number of projects per subwatershed, by watershed	See below	See below	See below	SWCD, CNRW, TOWG, County	MDNR, NRCS, SWCD, MDA	
SWQ-2	Implement and/or expand cost share assistance programs to promote the use of BMPs based on soil health (e.g., cover crops, conservation tillage - defined as no-till and strip-till)	SWQ-1, ESC-1, ESC-2, FLD-1, SUI-1, SUI-2, SUI-3, GWS-1	SWQ-1, ESC-1, ESC-2, FLD-1, SUI-1, SUI-2, SUI-3, GWS-1	Agricultural Areas (encompassing Upper Cedar, Lower Cedar, Otter Creek, West Beaver Creek, and Elk River)	Number of acres; Percent increase in coverage	370 acres added, 540 acres added, 830 acres added, 1,170 acres added, 2,630 acres added	\$ 200,000	\$ 100,000	\$ 100,000	SWCD, CNRW, TOWG	NRCS, MDA	
SWQ-3	Implement projects to reduce phosphorus and sediment loading in urban stormwater runoff (above and beyond current minimum requirements)	SWQ-1, ESC-1, FLD-1, GWS-1	SWQ-1, ESC-1, FLD-1, GWS-1	Urban priority areas identified by City of Austin (see map)	Number of urban BMPs implemented (1 per year)	2, 2, 2, 2, 2	\$ 80,000	\$ 80,000	\$ 80,000	City of Austin, SWCD	MPCA, MDA	Projects may include stormwater reuse, infiltration practice, disconnected impervious, etc.
GW-1.1	Implement BMPs that manage surface runoff within Drinking Water Supply Management Areas (DWSMAs), Source Water Protection Areas, and areas of high vulnerability to groundwater recharge such as sinkholes.	Field Practice	Local	SWCD	MDA, County, Cities, NRCS	See Field Practices Table (Table 4-7)				SWCD, CNRW, County, City, TOWG	MDNR, NRCS, SWCD, MDA, MPCA	
GW-1.2	Seal abandoned and unused wells, particularly those wells which may impact public or private drinking water supplies, such as those found within DWSMAs.	Field Practice	Local	SWCD / County	MDA, MDH, NRCS	See Field Practices Table (Table 4-7)				City of Austin, SWCD	MDH	
GW-1.3	Develop nitrogen fertilizer management plans for agricultural producers for locations that are vulnerable to groundwater contamination from nitrates, which follow Best Management Practice recommendations.	Field Practice	Local	SWCD	NRCS, Crop advisors	See Field Practices Table (Table 4-7)				SWCD, CNRW, County, City, TOWG	MDNR, NRCS, SWCD, MDA, MPCA	\$10,000 per plan; separated from Item SWQ-12
GW-1.4	Complete the delineation and mapping of DWSMAs and the boundaries of Well Head Protection Areas.	Research	State	MDH	N/A	Existing Budget	Ongoing or Current Program			City of Austin, SWCD	MDH	
GW-1.5	Use existing land use and zoning ordinances to manage possible sources of nitrate contamination (i.e., subsurface sewage treatment systems; manure management; land development).	Statutory/Ordinance	Local	County/City	N/A	Existing Budget	Ongoing or Current Program			SWCD, CNRW, TOWG	NRCS, MDA, MPCA	\$10,000 per plan; separated from Item SWQ-12; leverage MPCA BMP plan or where appropriate
GW-1.6	Provide financial and technical assistance for the monitoring of nitrate levels in private wells.	Research	State / Local	MDA / County	SWCD	Existing Budget	Ongoing or Current Program			SWCD, CNRW, TOWG	NRCS, MDA, MPCA	
GW-1.7	Continue research to define sinkhole locations, map springsheds in plan area, model and monitor groundwater, and monitor basic flow.	Research	State	DNR	MGs, MDH, SWCD	See Table 4-8	Ongoing or Current Program			SWCD, CNRW, TOWG	MDNR, NRCS, SWCD, MDA	Practice incorporated into Item SWQ-1



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IMPLEMENTATION Funding



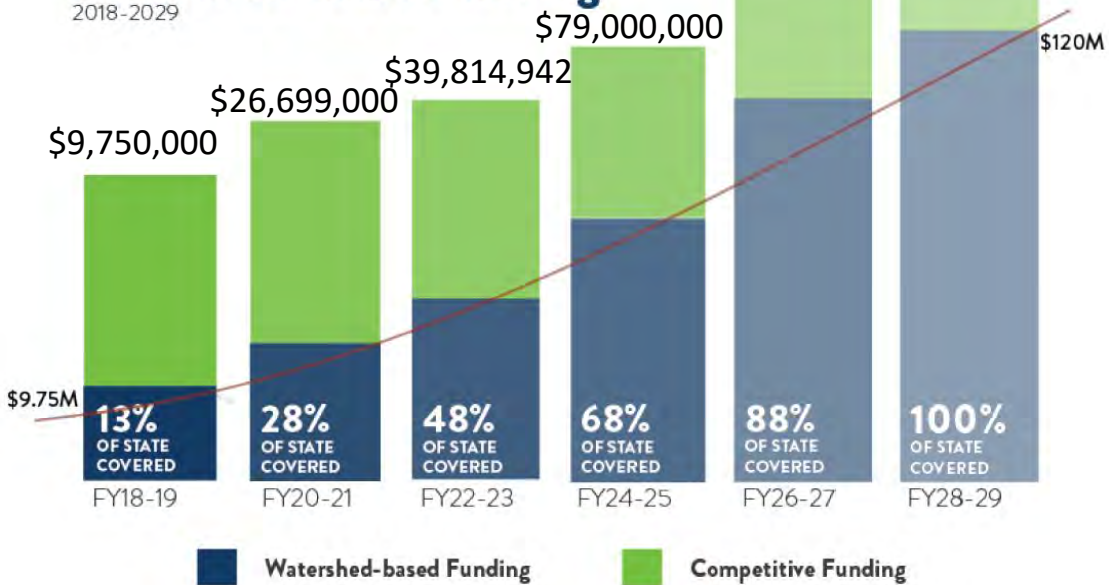
■ Projects ■ Monitoring/Studies ■ Education ■ Regulation

Management Category	Total Funding Needs (over 10 years)
Field Practice ¹	\$8,800,000
Statutory Obligations / Ordinances ²	\$2,000,000
Research ³	\$1,000,000
Education & Outreach ⁴	\$825,000
Additional Expenses	
Plan Administration ⁵	\$1,780,000
Capital Improvements (2 during plan period)	\$5,000,000
Total Estimated Funding Needs	\$19,405,000⁶

Clean Water Fund transition to

Watershed Based Funding

2018-2029



Percentage increases are approximate

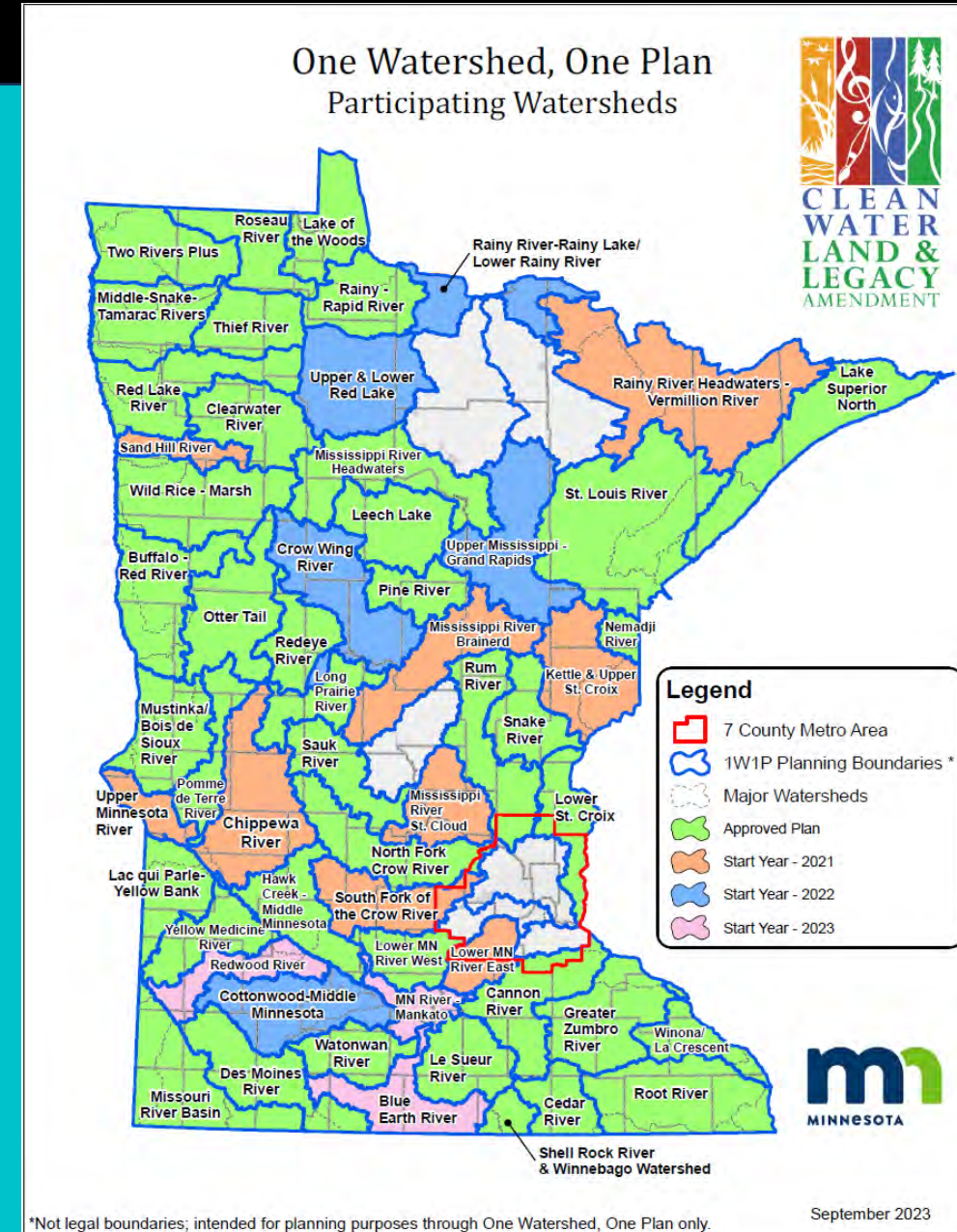
Line Item	FY18-19	FY20-21	FY22-23	FY24-25	FY26-27	FY28-29	FY18-19	FY20-21	FY22-23	FY24-25	FY26-27	FY28-29	Agency	Program
Education							\$ 10,000	\$ 10,000	\$ -	\$ -	\$ -	\$ -	SWCD	BWSR USDA
EDUCATION TOTAL							\$ 10,000	\$ 10,000	\$ -	\$ -	\$ -	\$ -		
Regulation							\$ 10,000	\$ 10,000	\$ -	\$ -	\$ -	\$ -	City of Austin	MPCA
Monitoring/Studies							\$ 1,000	\$ 1,000	\$ -	\$ -	\$ -	\$ -	City of Austin County	MDH MDA
Education & Outreach	X	X	X	X	X		Included in existing operating budgets	Included in existing operating budgets	Included in existing operating budgets	Included in existing operating budgets	Included in existing operating budgets	Included in existing operating budgets	County SWCD CRWD TOWN	MONR BWSR MPCA
Research	X						\$ 5,000	\$ 5,000	\$ -	\$ -	\$ -	\$ -	City of Austin County	CRWD TOWN MONR
Field Practice			X				\$ 5,000	\$ 5,000	\$ -	\$ -	\$ -	\$ -	City of Austin County	MONR
REGUL. TOTAL							\$ 21,000	\$ 21,000	\$ -	\$ -	\$ -	\$ -		
PLAN TOTAL							\$ 12,216,000	\$ 7,022,000	\$ 5,218,000	\$ 5,218,000	\$ 5,218,000	\$ 5,218,000		



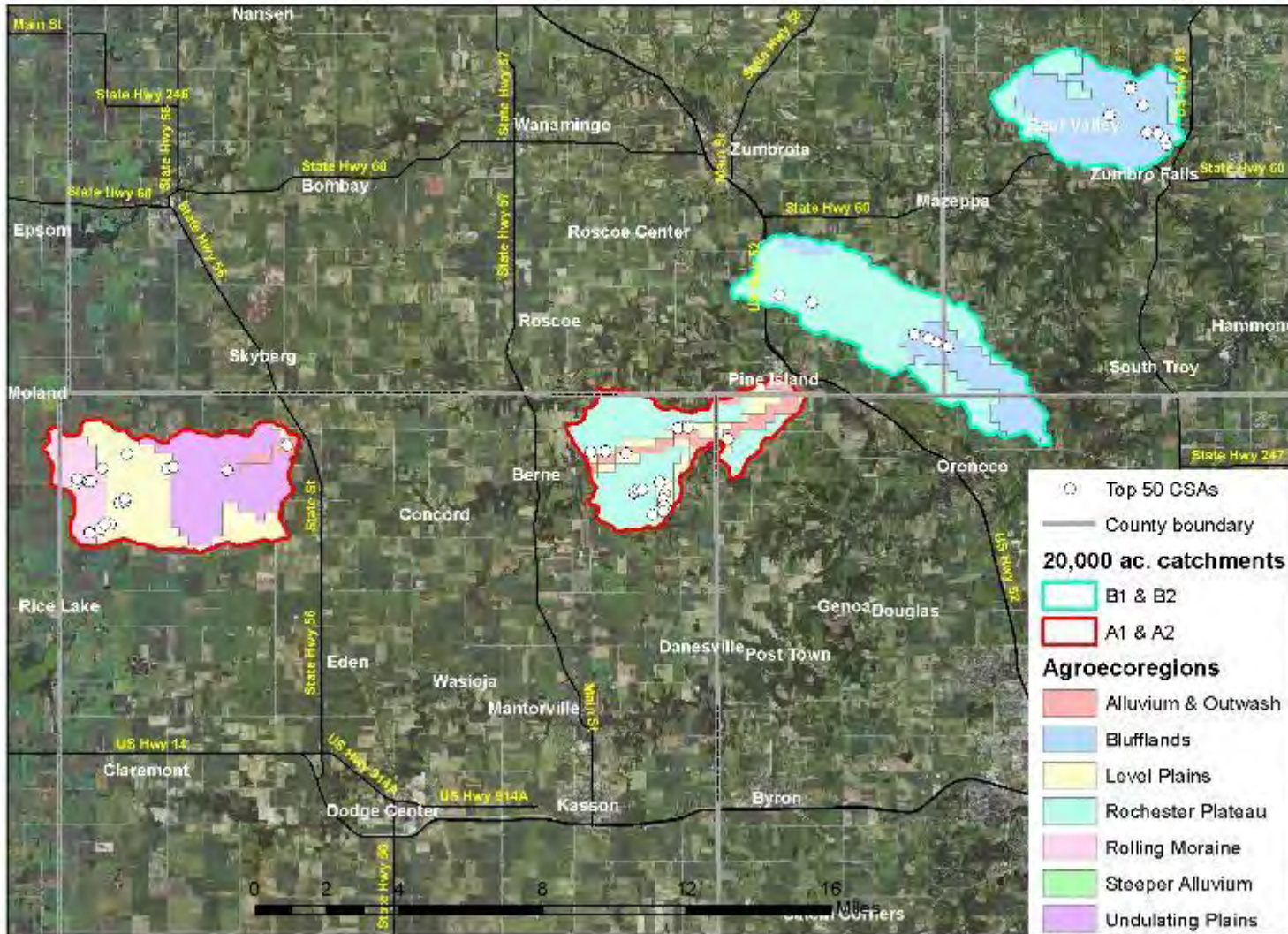
DODGE
SWGD

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But, what did we do before One Watershed One Plans?



ZWP Top 50 CSA 20,000 acre study area catchments

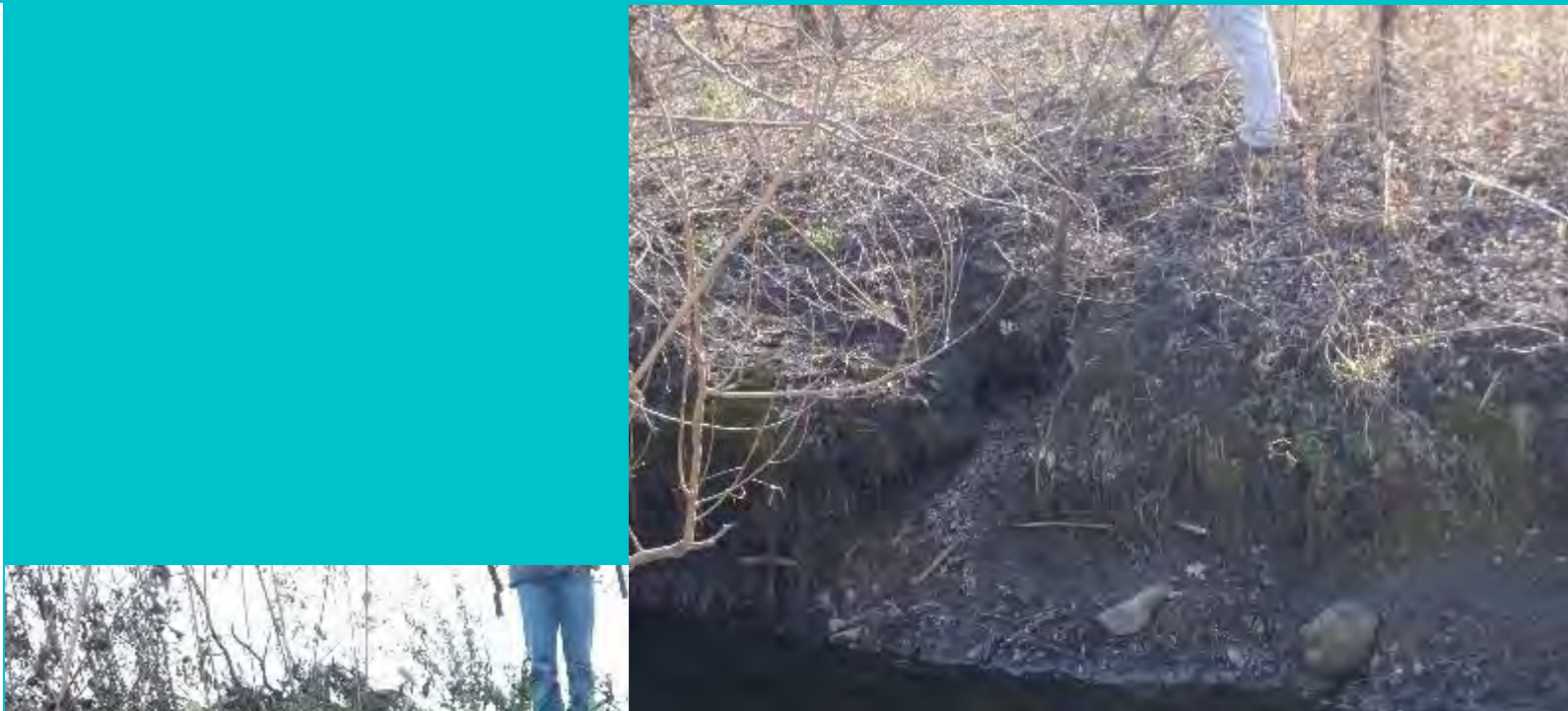




DODGE
& SWCD

Leadership for Midwestern Watersheds

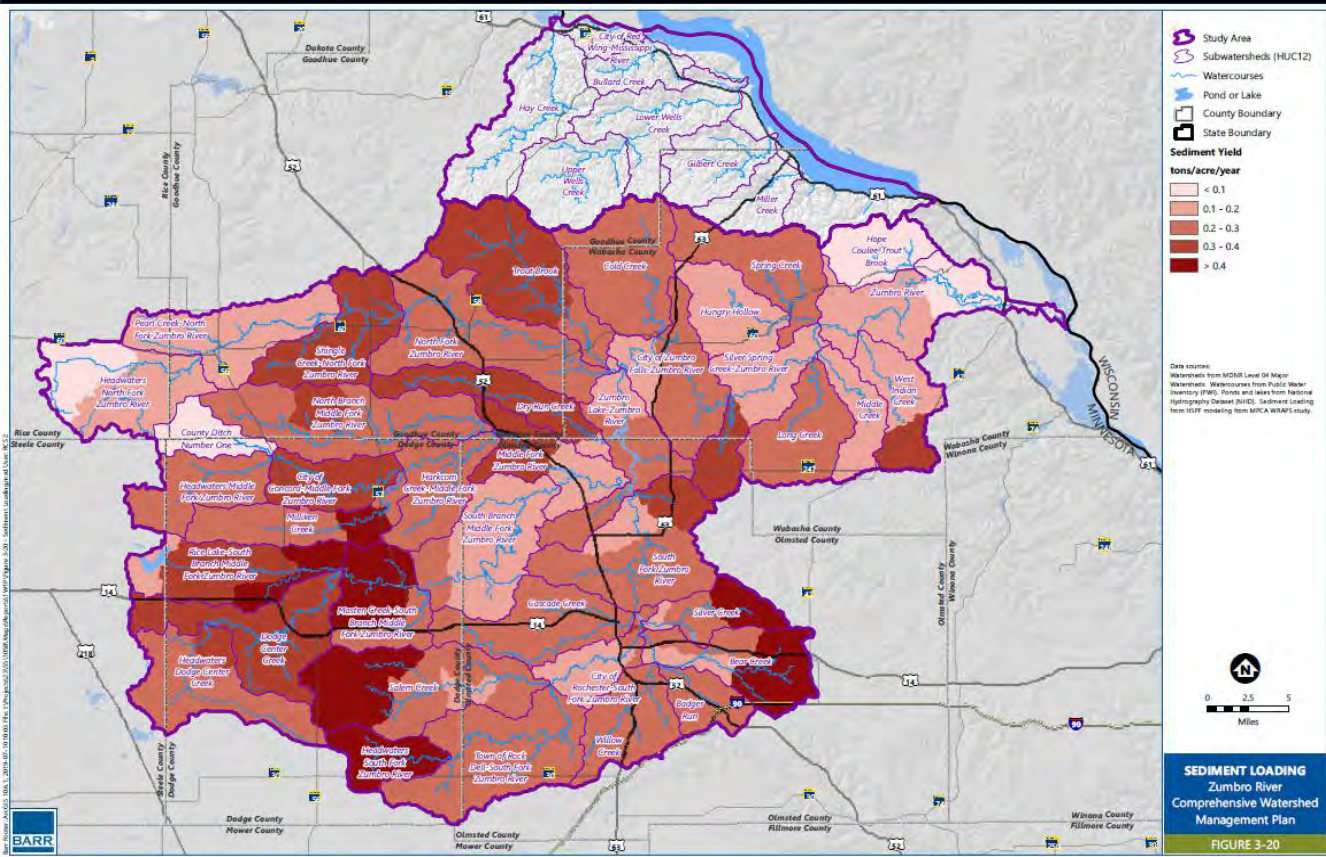
Dodge Co. Milton Township - T108 R17 S12 E1/2; R16 S7 SW1/4





DODGE
SWCD

Leadership for Midwestern Watersheds



Identified Projects Within Top Critical Source Areas Dodge County, Minnesota



1:126,720
0 0.5 1 2 3 4 Miles



Dodge
Soil & Water
Conservation
District



Leadership for Midwestern Watersheds

Questions?