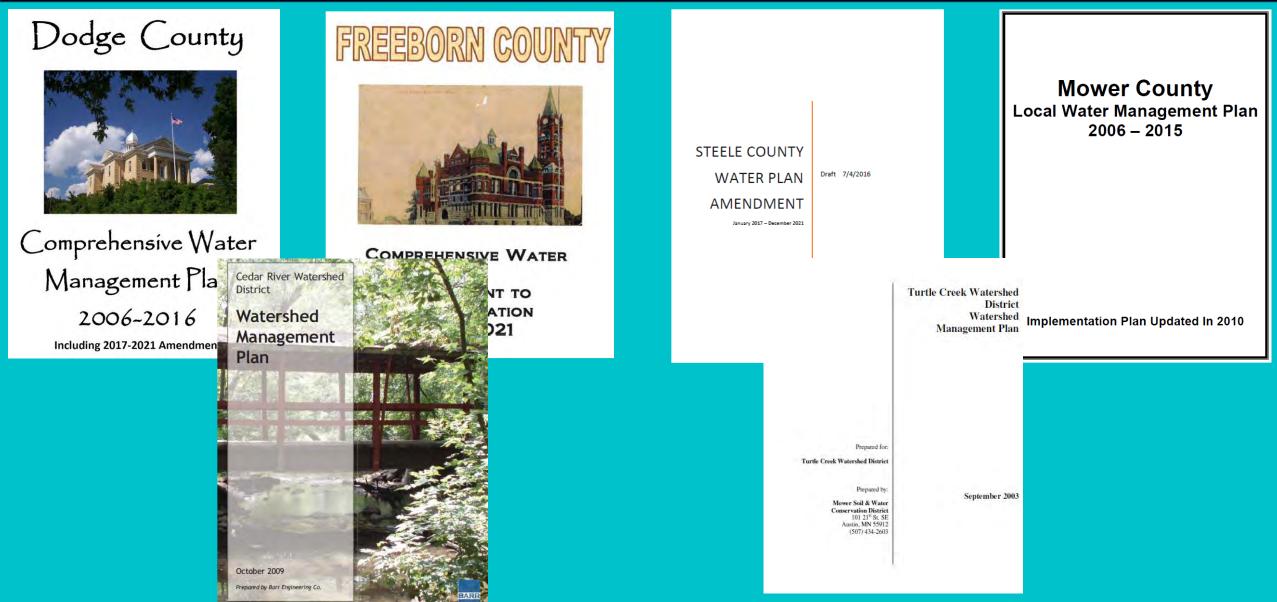


Leadership for Midwestern Watersheds Watershed Partnerships - Minnesota Watersheds



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





Leadership for Midwestern Watersheds

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





Cedar-Wapsipinicon Comprehensive Watershed Management Plan

Prepared for Cedar-Wapsipinicon Watershed Partnership

December 2019

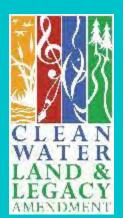


4300 MarketPointe Drive, Suite 200 Minneapolis, MN 55435 952.832.2600 www.barr.com

One Watershed – One Plan History

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





Prioritization

Relationships

D T DGF 2 W C D

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

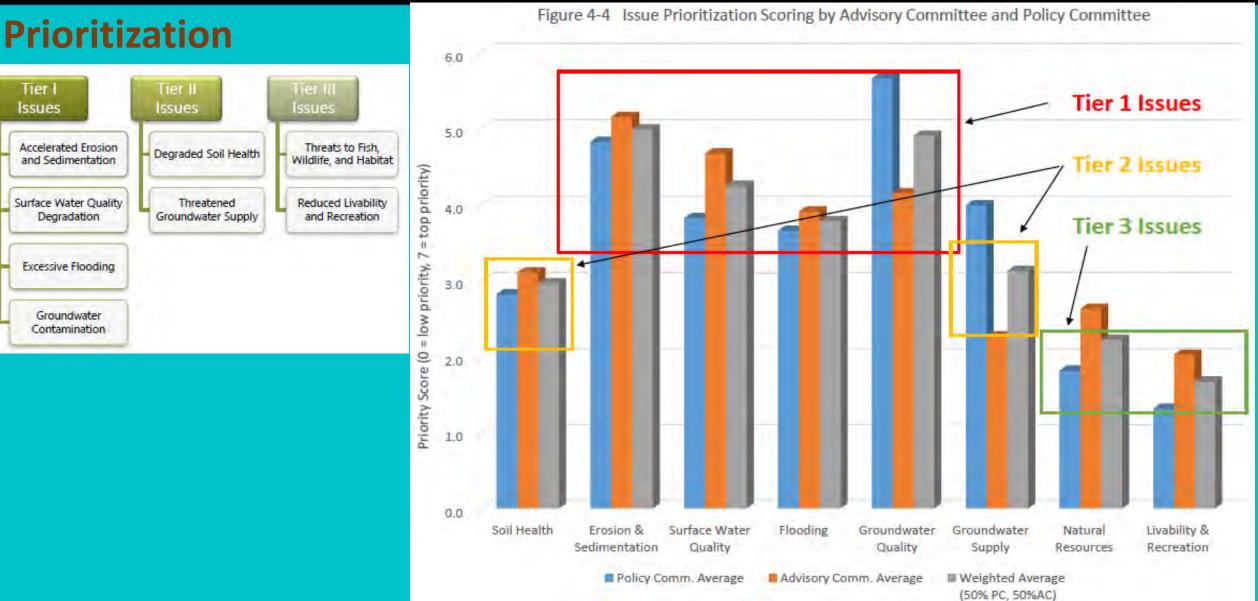
DTDGE 8 W C D

Table 4-1 Geospatial Zonation inputs categorized by Zonation priorities

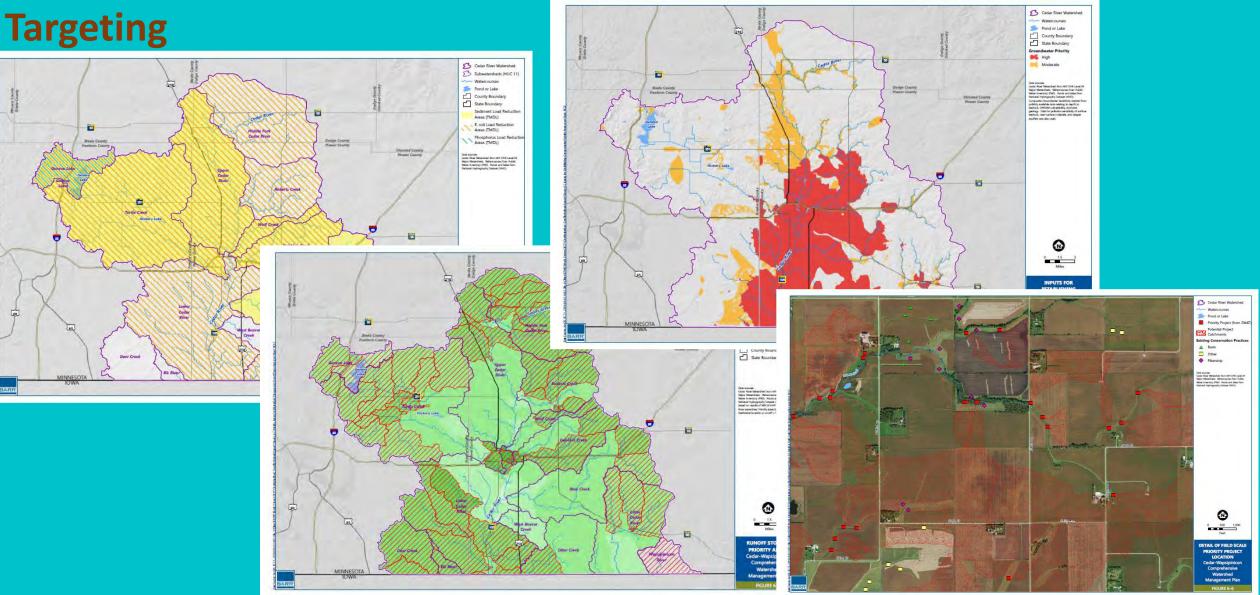
	Zonation Priority Reduce Erosion & Runoff	Geospatial Data Inpu Stream power index Stream floodplains Soil erosion risk National wetlands inventory (NWI) Topographic position index Water yield (HSPF model results)	ıts	2. For each open signary 2. A Consider only the TWO iss Row and Column. 2. B. Decide which of the two is column) is a higher priority, in you 2. C. Indicate the higher priority abbreviation (e.g., "Es" for the iss sedimentation). 3. In the "Total Occurrences" colu times your selected that issue in 28).			
	Protect or Improve Waters of Concern	 Drinking water supply management Groundwater contamination suscept Groundwater recharge Total phosphorus loading (HSPF model Total nitrogen loading (HSPF model Sediment loading (SWAT model rest 	tibility del results) results)	Degrade sol health diminishes agricult ecological functions of soil. Excessive erosion and sedimentation dim riparian areas, and degrades surface wat Surface water quality is threatened or im hydrology. Excessive flooding threatens public safet			
	Protect or Improve Lands of Concern	Cultivated crops Crop productivity index Urban lands Public lands Stream buffers	Table 4-2 Priority Issue St	Groundwater quality is threatened by po tatements Issue Statement			
	Protect or Improve Fish & Wildlife	 Sites of biodiversity significance Rare plants/animals 	Accelerated Erosion & Sedimentation	Excessive erosion and sedimentation diminishes agricultural productivity, damages riparian areas, and degrades surface water quality and stream habitats.			
16-	Habitat	Lakes of biological significance	Surface Water Quality Degradation	Surface water quality is threatened or impaired by pollutant loading and altered hydrology.			
1			Excessive Flooding	Excessive flooding threatens public safety, property, and riparian ecology.			
. 1		A	Groundwater Contamination	Groundwater quality is threatened by pollutant loading.			
E.	1. 1921		Degraded Soil Health	Degraded soil health diminishes agricultural productivity and limits the beneficial ecological functions of soil.			
	1		Threatened Groundwater Supply	Groundwater sustainability is at risk from consumptive use and loss of recharge.			
	1- MA		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.			

time. 2. For each open square: 2A. Consider only the TWO issue stat Row and Column. 28. Decide which of the two issues st column) is a higher priority, in your opin 2C. Indicate the higher priority issue abbreviation (e.g., "ES" for the issue of e sedimentation). 3. In the "Total Occurrences" column, re times your selected that issue in a blank	ork your way through each open square in the matrix one at a , r each open square: A. Consider only the TWO issue statement corresponding to its and Column. B. Decide which of the two issues statements (the row, and the m) is a higher priority, in your opinion, to address in this 1W1P. C. Indicate the higher priority issue in the square using the eviation (e.g., "ES" for the issue of excessive erosion and		Degraded soil health diminishes agricultural productivity and limits the beneficial ecological functions of soil.	Excessive erosion and sedimentation diminishes agricultural productivity, damages riparian arces, and degrades surface water quality and stream habitats.	Surface water quality is threatened or impaired by pollutant bading and altered hydrology.	Excessive flooding threatens public safety, property, and ripartan ecology.	Groundwater quality is threatened by pollutant loading.	Groundwater sustainability is at risk from consumptive use and loss of recharge.	Natural areas providing habitat and other ecological functions are threatened by land use conversion and other anthropogenic stressors.	Connection to nature, outdoor recreation, and overall quality bit life are reduced by the loss and degradation of natural resoluces.	(iss the to The hei	r example: I think k sue in this row) is a watershed to add natural areas (issue arefore, I indicate ' alth' as the higher ues statement abb	higher priority lress than the t e in this colum degraded soil priority using t
28).	apo Issue Statement	SH	ES	swa	FL	GWQ	ତ ଲ GWS	NR	LV		Total		
Degraded soil health diminishes agricultural proc ecological functions of soil.	fuctivity and limits the beneficial	SH		ES	SH	SH	GWQ	SH	SH	SH		SH =	5
Excessive erosion and sedimentation diminishes riparian areas, and degrades surface water quali		ES			ES	ES	GWQ	ĘS	ES	ES		ES =	б
Surface water quality is threatened or impaired I hydrology.	by pollutant loading and altered	swq				SWQ	GWQ	SWQ	SWQ	SWQ		SWQ =	4
Excessive flooding threatens public safety, prope	erty, and riparian ecology.	FL.					GWQ	GWS	NR	FL		FL =	1
Excessive noouling timeatens public sarety, property, and oparian ecology. Groundwater quality is threatened by pollutant loading.		GWQ						GWQ	GWQ	GWQ		GWQ =	7
hsur	nptive use and loss of recharge.	GWS							NR	LV		GWS =	1
	ical functions are threatened by essors.	NR								LV		NR =	2
ity and stream	verall quality of life are reduced by	LV										LV =	2



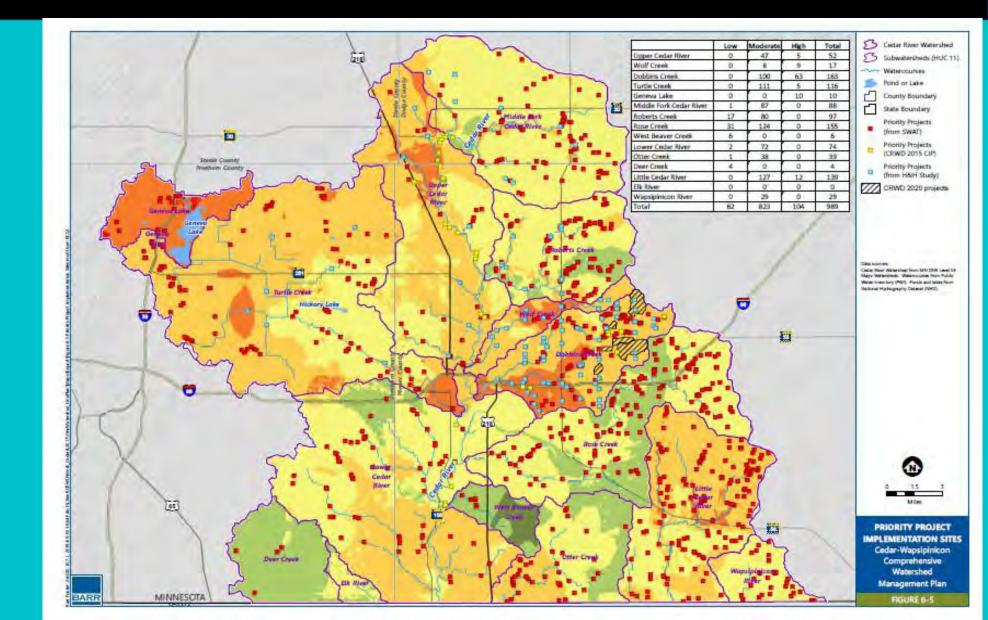








Targeting





yr. gress ards urable al (%)

Measurable Goals

Table 5-3 Me	asurable Goals A	ddressing Degra	ded Surface Water Quality																
Issue Area	Subwatershed	Specific Issue, Pollutant, or Stresso	r Long-term Goal	Long-term Goal Rationale			10-year Goal	10-year Goal ID 10-y	ear Goal Rationale or Source		10-year Goal Measures		elementation Items nentation Schedule)						
		Phosphorus	Reduce phosphorus loading by 45% (from average 1980-1996 conditions) by 2040	MN Nutrient Reduction Strategy (MPCA, 2014)	Implement structural and non-structural project and practices to reduce watershed TP loading by up to 166 los/yr (as estimated at field scale) and 267 lbs/year in the Upper Ceder River		luce watershed TP loading by estimated at field scale) and	resource/wat SWQ-1.1 based on HSI	cluded in WRAPS tables specific to thi tershed; field scale load reductions an PF model results and DTM analysis; in als are based on HSIPF SAM and DTM Section 6.4	e Up to 10 implei reduction up to	o 166 lbs/yr (as estimated	at field scale) 14, FLD-8, SW(2, SWQ-3, ESC-1, SWQ Q-6, SWQ-7, SWQ-8,						
		Total Suspended Solids	Reduce TSS concentrations to <10% of samples exceeding 65 mg/L (April 1 – September 30) by reducing TSS leading in the watershed by 15% (see TMDL)	MN Water Quality Standard (MN Rules 7050.0222 Subp. 3, Subp. 4)	and pract loading b	rices to red ly up to 54	al and non-structural projects luce watershed sediment 0 tons/yr (as estimated at field rear in the Upper Ceder River	resource/wat SWQ 1.1 based on SW	cluded in WRAPS tables specific to thi tershed; field scale load reductions an IAT model results and DTM analysis; I is are based on HSPF SAM and DTM Section 6.4	e Up to 10 implei n-load reduction	up to 540 tons/year (as e	stimated at 14, FLD-8, ESC	2, SWQ-3, ESC-1, SWQ 4, SWQ-6, SWQ-7, 3, SUH-2						
Degraded Surface		Nitrate	Reduce total nitrogen loading by 45% (from average 1980-1996 conditions) by 2040	MN Nutrient Reduction Strategy (MPCA, 2014)	and pract to 12,400	lices to red Ibs/year (al and non-structural projects suce watershed N loading by u as estimated at field scale) and he Upper Cledar River	resource/wat SWQ 1.1 based on HS	duded in WRAPS tables specific to thi tershed; field scale load inductions an PF model results and DTM analysis; in its are based on HSPF SAM and DTM Section 64	e Up to 10 implei		ed at field scale) GWQ-15, SWQ							
Water Quality	Upper Cedar River		Reduce E. coll. concentrations to monthly geometric means <12	6 MN Water Quality Standard (MN Rules 7050.0220 Subp. 3a.D, Subp.	mpieme					Implanation		Quan	titative Meas	urable Goal	1				
		E coli Pish Index of Biological Integrity	(ERU/T00 mt. (April 1 - October 31) by reducing £ coil loading in the watershed by 72% (see TMOL) Achieve applicable Fish indices of Biological Integrity for stream Southern Steams 50 Southern Headwaters 55	4a.D, and Subp. Sa.D]; Cedar River Watershed TMDL Biological Criteria for Tiered Aquatic		Drainage	Treatment Group Type & Number of BMPs	Cost	Issue	Unit	Existing Con- ditions	Metric	Amount (%)*	Target Load Reduction	Year	PTMApp Scenario Reduction	5 year Load Reduction Goal	10 year Load Reduction Goal	10 yr. Progress towards Measurable Goal (%)
		Macroinvertebrate Index of Biological Integrity	Achieve applicable Macroinvertebrate indices of Biological integrity for streams: Southern Forest Streams (low gradient): 43	Biological Criteria for Tiered Aquatic Life Uses (MPCA, 2016); Cedar River Watershed Assessment and Monitoring - Appendix 4.3 (MPCA, 2012)		River	Storage (244) Filtration (78)		Sediment	tons/ yr	116,416	Annual Load (mass/yr.)	45	52,387	2025	14,488	7,244	14,488	28
			Reduce phosphorus loading by 45% (from average 1980-1996	MN Nutrient Reduction Strategy	Impleme and prac	iddissis			Nutrients: Total Nitrogen	lbs/yr	10,848	Annual Load (mass/yr.)	45	4,882	2040	112	56	112	2
		Phosphorus	conditions) by 2040	(MPCA, 2014)	up to 4.5 Ibs/year	to Miss	Infiltration (3)	\$6,437,605	Nutrients: Total Phosphorus	lbs/yr	134	Annual Load (mass/yr.)	45	60	2025	12	6	12	20
						age t	Source Reduction		Excess Runoff: 2 Year	acre feet	71,177	2-Yr. Runoff Volume	25	17,794	2030	N/A	N/A	N/A	N/A
						Drair	(812)		Excess Runoff: 10 Year	acre feet	167,868	2-Yr. Runoff Volume	N/A	N/A	N/A	N/A	N/A	N/A	N/A
						River			Sediment	tons/ yr	112,249	Annual Load (mass/yr.)	45	50,512	2025	27,776	13,888	27,776	55
					r lowa	Storage (44) Filtration		Nutrients: Total Nitrogen	lbs/yr	32,828	Annual Load (mass/yr.)	45	14,773	2040	3,285	1,642	3,285	22	
						o Upper	(15) Source Reduction	\$1,410,038	Nutrients: Total Phosphorus	lbs/yr	2,024	Annual Load (mass/yr.)	45	911	2025	360	180	360	40
						lage to	(268)		Excess Runoff: 2 Year	acre feet	7,781	2-Yr. Runoff Volume	25	1,945	2030	N/A	N/A	N/A	N/A
						Drain			Excess Runoff: 10 Year	acre feet	17,036	2-Yr. Runoff Volume	N/A	N/A	N/A	N/A	N/A	N/A	N/A



Now we have a

Leadership for Midwestern Watersheds

Prioritized, Targeted, State Approved,



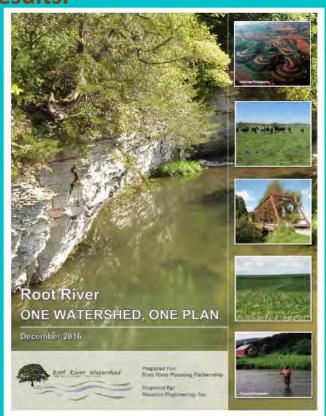
Cedar-Wapsipinicon Comprehensive Watershed Management Plan

Prepared for Cedar-Wapsipinicon Watershed Partnership December 2019

CEDAR RIVER 1 Watershed, 1 Plan

4300 MarketPointe Drive, Suite 200 Minneapolis, MN 55435 952.832.2600 www.barr.com Comprehensive Watershed Management Plan in order to achieve the best Measurable Results.

NOW WHAT?





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 <u>Dodge</u>, <u>Freeborn</u>, <u>Mower</u>, and <u>Steele</u> by and through their respective County Board of Commissioners, and
- The <u>Dodge</u>, <u>Freeborn</u>, <u>Mower</u>, and <u>Steele</u> Soil and Water Conservation Districts, by and through their respective Soil and Water Conservation District Board of Supervisors, and
- The <u>Cedar River</u>, and <u>Turtle Creek</u> Watershed Districts, by and through their respective Board of Managers, and
- The <u>City of Austin</u>, 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

(develops recommendation)

(provides input and review)

Local Implementation Work Group

Policy Committe

(provides reviews, input, and/or decision, makes recommendation to Partner boards)

Boards of Partners

(approves annual work plans, grant applications, Plan amendments)

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



Action

GW-1.1

GW-1.2

GW-1.3

GW-1.4

GW-1.5

GW-1.6

GW-1.7

Leadership for Midwestern Watersheds

N/A

N/A

SWCD

MGS, MDH, SWCD

Existing Budget

Existing Budget

Existing Budget

See Table 4-8

IMPLEN	IENT	FAT	ION
Activities			

Broken down into:

Action Description

as sinkholes.

found within DWSMAs.

Practice recommendations

nitrate levels in private wells.

boundaries of Well Head Protection Areas.

systems; manure management; land development). Provide financial and technical assistance for the monitoring of

Projects and Practices;

Monitoring Activities and Studies;

inderground within the pores of rocks and soils and which reaches the ground surface.

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

Seal abandoned and unused wells, particularly those wells which

Develop nitrogen fertilizer management plans for agricultural producers for locations that are vulnerable to groundwater

contamination from nitrates, which follow Best Management

Complete the delineation and mapping of DWSMAs and the

Use existing land use and zoning ordinances to manage possible

sources of nitrate contamination (i.e., subsurface sewage treatment

Continue research to define sinkhole locations, map springsheds in

plan area, model and monitor groundwater, and monitor basic flow.

may impact public or private drinking water supplies, such as those

Education and Public Involvement Activities; Regulatory and Administrative Activities

ain or improve the quality and quantity of drinking water supplies and the linkage between surface and subsurface hydrologic

Management

Category

Field Practice

Field Practice

Field Practice

Statutory/Ordinance

Research

Research

Research

Lead

Local

Local

Local

State

Local

State / Local

State

MDH

County/City

MDA / County

DNR

	e 7-2 Cedar-Wapsipinicon					-	iority law	-															1		
						Terl		TH	er ti	Tier II					(Values a		Timeframe mental for e	ech 2-year p	period)						
taan 10		Action Description	Applicable Gook (ann Table 4-1)		Depend large Water Only Manuf Lands	and Schwemblin Countries	Indexteelool	Charled Sol Hailth	5 8 . 5 .	t or focus Area	Measurable Output		2020-21	2022-23	2024-25	2026-27	2028-29	Extension Total Cont	Entimated Local Contribution	Entimated External Contribution	Lead LOU	Supporting Entities	Notas		
Project	ts and Project Support									-							_	_	-						1/
	Implement DMPs at very high priorit through SWAT modeling and GS ten reduce ension and Fiber polutants; based on site-specific feasibility, with subwatenched as follows:	errain analyses (see Figure 6-5) to a; specific IMPs to be determined	SWQ-1, SWQ-2, RSC-1, GWQ-5, FLD-1, SUI-3, G PWII-5, REC-1	CWS-1,			-	à	•	0		ty Project Areas e Figure 5-4)	Number of p implements corresponding a poliutant k	ed and eduction in	Number		ate planned r skum, by wate	sumber of pr embed	rojeda per	See below	San babu	Sector	SWCD CRWD TOWD County	MDNR NRCS BWSR MDA	
		Upper Cedar River					0 0	0				mm12, 3, 4	10 projects ove		2	2	2	2	2	S 340,000					1/
		Wolf Creek		-				0	0	0		nuni 2, 3, 4 Level 3, 4	3 projects over 20 projects over		1	1	1	4		\$ 11,340 \$ 225,766				-	<u> </u>
		Tutle Creek	k 5W0-14				0 0	0	0	0	0 in	mel2, 3, 4	20 projects ove	r 10 years	4	4	4	4	4	\$ 425,000	5 212,500	\$ 212,500			1
		Geneva Lake Midde Fork Cedar River					1 1	0	0	0		Level 4, 5	5 projects cue		3	1	1	5		5 97,200 5 371,717					
SWD-1		Middle Fork Cedar River Roberts Creek		-			1 1	0	0			real 1, 2, 1	20 projects over 20 projects over		-	5	5	5		\$ 373,737 \$ 382,295				-	1
		Rose Creek	SWOLD				1 0	0	0	0	0 Lee	red 1, 2, 3	30 projects ove	r 10 years	10	5	5	5	5	\$ 515,265	\$ 257,632	\$ 257,632	1		1
		West Beaver Creek					1 1	0	0			Level 0, 1	3 projects over				1	1		5 56,700				1	1
		Lower Cedar River Otter Creek		-				0	0			ment 1, 2, 3	15 projects over 8 projects over		1	1	7	1	3	5 290,864 5 89,169					
		Deet Creek	And and a second se	-			1 0	0	0	0		Level 1, 2	A projects own	_		1	1	1	1	\$ 75,600				-	
		Little Cedar River					0 0	0	0	0	O Lev	rvel2, 3, 4	30 projects ove	r 10 years	10	5	5	5	5	\$ 234,676	\$ 157,338	\$ 157,338	1		/
		Elk Siver					0 0	0	0	0		Level 1, 2 Level 2, 3	0 projects com 10 projects com			-	2	-		\$		\$ -			
	Total	Waterbergen street	SW0115	-			-	0	0	0	0 10	invel2, 3	10 projects over	r 10 years	- 2	2	41	2	37	5 lingur	5 34,000	\$ 54,000			ł'
3WQ-2	Implement and/or expand cost share 2 the use of IMPs focused on soil heal tillage - defined as no-till and strp-t	with (e.g., cover crops, conservation				•			(emp) Cedar Other		cultural Areas hastring Upper r, Lower Cedar, r Creek, West r Creek, and Dk River)	Percent Increase in coverage			S4D actes added	630 scree added		w 2,630 scrws added	\$ 200,000	5 100,000	\$ 200,000	SWCD ERWD TDWD	NIICS MDA		
SMO-1	Implement projects to reduce phosp 3 urban stormwater runoff (above and requisements)		SWO-1, ESC-3, FLD-1, G	GW5-1	•		•		•		(dentil)	n priority areas filed by Chy of In (and others)	Number of urt Implemented (2	2	2	2	2	\$ \$5,000	5 40,000	5 40,000	Chiwa ERWD SWICD	MPCA MEIA	Projects may include stormwater resule, inflimation practices , disconnected impervious, etc.
									Γ					1 feedicts	1	2	2	2	2	5 3,500,000	5 875,000	\$ 2,625,000	SWCD	MRCA MEA	· · · · · ·
Le	ead Entity	Partners Cost p		st pe	r Ye	ar		Start Da		Date	End	nd Date		5	5	5	5	5	5 25,000	5 25,000	s -	SWCD ERWD County Down TOWD	MDNR NRCS BWSR MDA MPCA		
														gement wrj: year)	4 plans 20 visits	4 plans 20 visits	4 plana 20 vinits	4 plans 20 yints	4 plans 20 visits	\$ 200,000	5 200,000	8 -	SWCD CRWD TDWD	MICS MDA Private Sector	S10,000 per plan; separated from tem SWD-12
ic sys	stems.			-										gamant sart	4 plans 20 visits	& plans 20 years	4 pians 20 visits	4 plans 30 viets	4 piana 20 visita	\$ 300,000	5 100,000	s -	SWCD CRWD TOWO	NRCS MDA Private Sector	\$10,000 per plan; separated from tem SWQ-11; leverage MPCA MMP r planter where appropriate
		MDA, County	e Cities									1		chequie						\$ 5,000	5 5,000	s -	CRWD		
	SWCD	NRCS		See	Fiel	d Pr	actic	es T	Tabl	e (Ta	able 4-7	7)		chedule.	×					\$ 5,000	5 5,000	s -	awat		
				(d similar D	20	20	20	20	25	\$ 300,000	s sax,xxx	3 -	County SWCD	MDH	
2140		MDA, MDH,	unne.	~	Tiel	10	- it.						-	d yearth arrij		2 high cap	acity wells or	ver 10 years		5 20,000	s 10,000	\$ 10,000	Chies County	MDH	
SWI	CD / County	NRGS	See	: Hen	dm	actic	195	abi	e (1a	able 4-7	± 4-7)		SWO-2, jects rogen	See SWC		SWQ-1, SWQ-2, SWQ-4			See SWQ-1, SWQ 2, SWQ-4		See 5WO-1, SWO-2, SWO-4	SWCD CRWD TOWD	County MRCS MDA	Practices, incorporated into item SWD	
SWCD NRCS, Crop advisors				See	e Fiel	d Pr	ractic	es T	Tabl	e (Ta	able 4-7	7)													

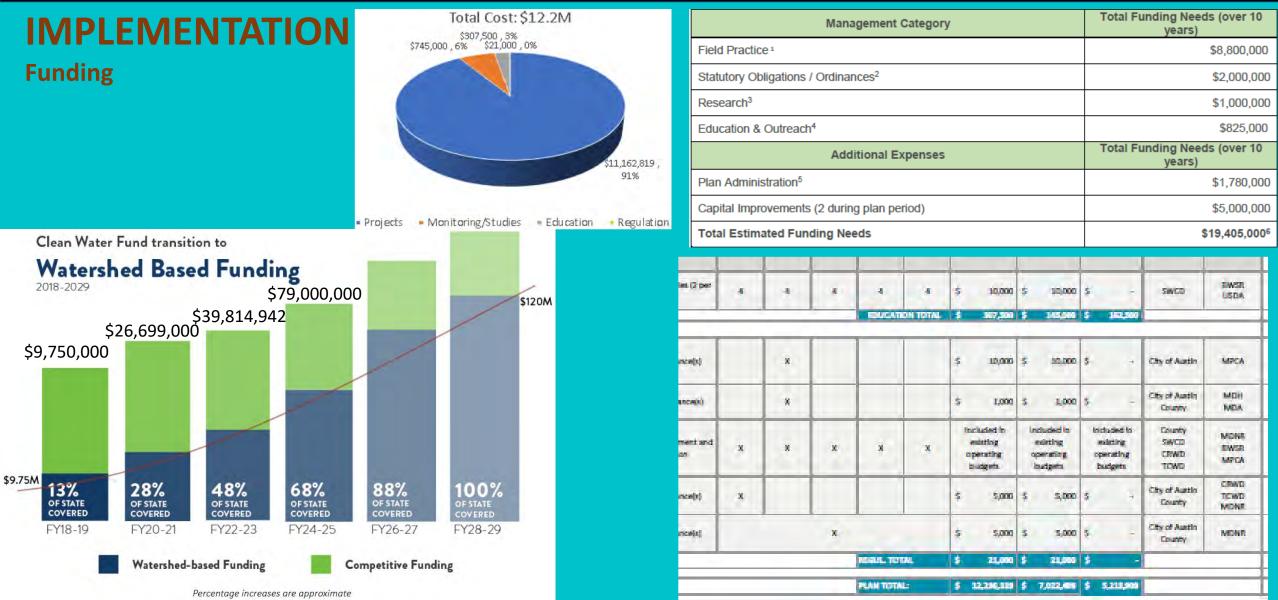
Ongoing or Current Program

Ongoing or Current Program

Ongoing or Current Program

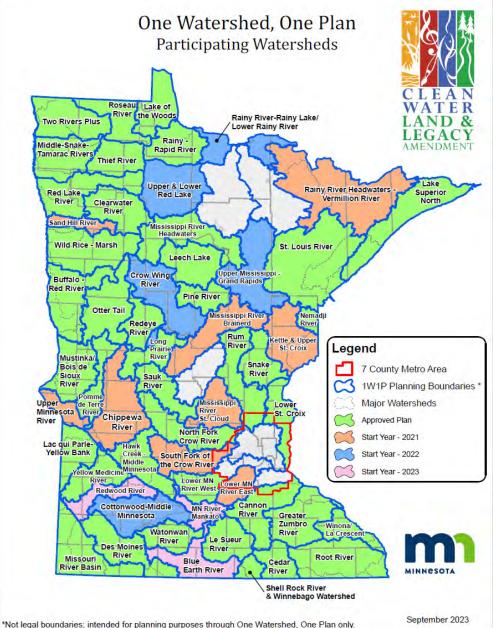
Ongoing or Current Program



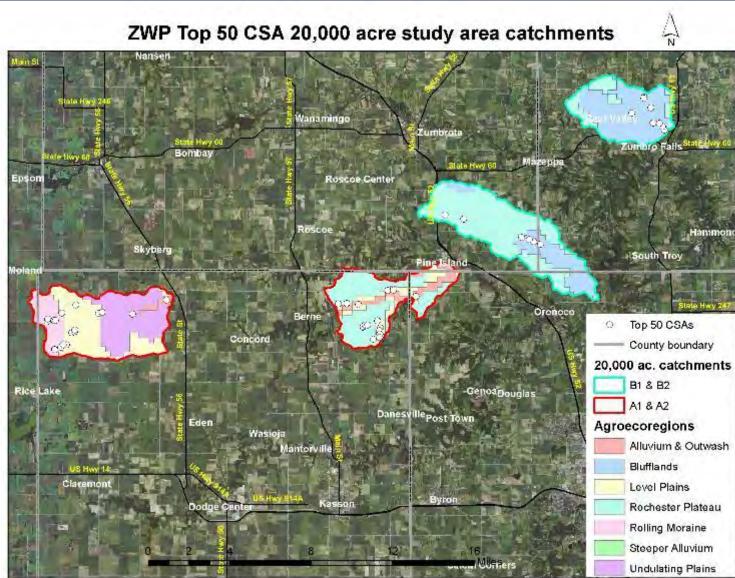


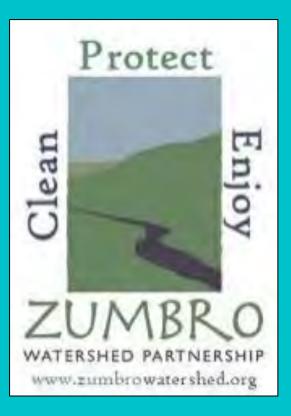


But, what did we do before One Watershed One Plans?





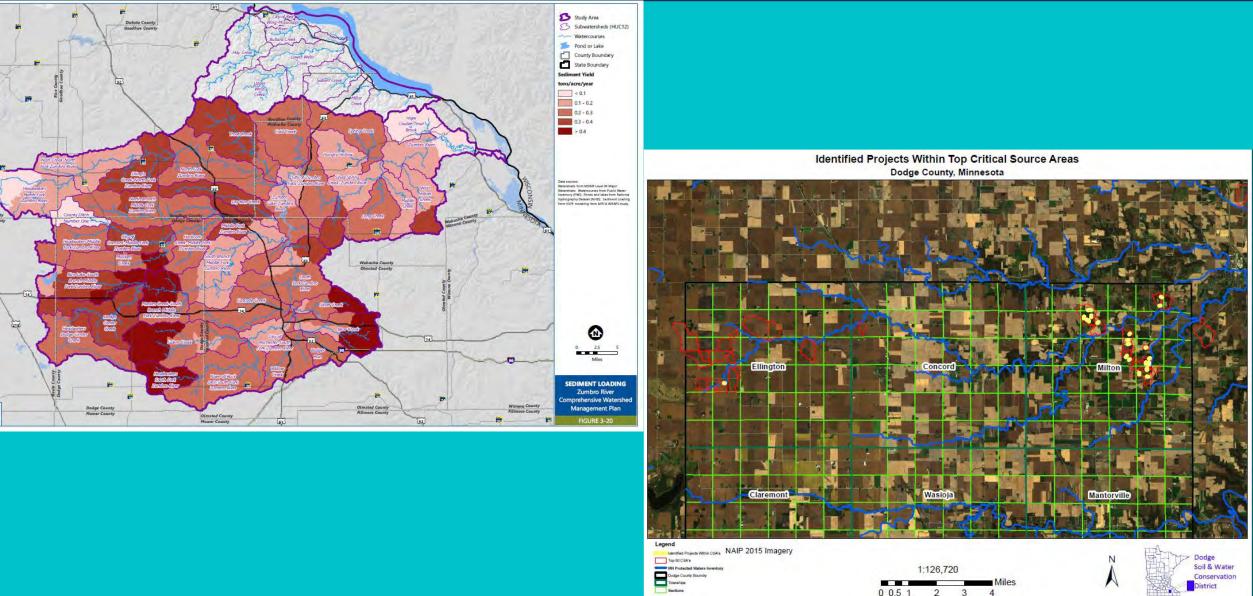
















Questions?