North Fork Crow
ONE WATERSHED,
ONE PLAN

Comprehensive Watershed Management Plan

2018 – 2028

Plan Amendment

Approved June 2023

PREPARED FOR:

The North Fork Crow River Water Planning Partnership

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Contents

EXECUTIVE SUMMARY

The North Fork Crow River Comprehensive Watershed Management Plan (CWMP) was developed as a pilot plan under the One Watershed One Plan (1W1P) planning process through the MN State Board of Water & Soil Resources (BWSR). This Plan was one of five pilots across the state of Minnesota, selected to be part of the building process for the 1W1P program. Since the pilot process, BWSR has refined the program and successive plans have made many improvements to methodology for selecting priorities, improved language and examples for measurable goals and streamlined subject matter to meet plan content requirements.

Purpose for Plan Amendment

In order to be useful and relevant over their life span, comprehensive watershed management plans may need to be amended from time to time (MN Board of Water and Soil Resources, 2020). The North Fork Crow River Planning Partnership ("the Partners") determined that a plan amendment is necessary to provide clarity on implementation actions and goals, make clerical revisions regarding roles and to improve plan usability for future funding requirements. The timing for the plan amendment is consistent with the state's normal schedule for reevaluation of plan goals, usually occurring at the half-way point of the plan schedule. The original plan was developed beginning in 2014, approved in 2018, and will be updated in 2028.

Goals for Plan Amendment

In 2021, a subcommittee of the Technical Advisory Committee (TAC) provided a list of goals for the plan amendment and objectives to complete those goals.

Goal 1. Provide clerical update to include only current planning Partners and their roles.

- **Objective 1**: Remove references to the CROW joint powers board and reassign any previous roles given to the CROW. This JPB no longer exists.

Goal 2. Revise the implementation table to focus on the local roles and priority actions.

- **Objective 1:** Revise implementation table (Table 4-1, page 4-4) to include only actions to be undertaken by "Local Leads".
- **Objective 2**: Split implementation table actions by planning regions and include only those actions relevant to those regional priorities defined in Table 4-4 (page 4-26).
- **Objective 3**: Link the planning region implementation tables to the goals of Section 3 from the plan where possible and provide measurable outcomes for actions lacking outcomes in the original implementation table.
- **Objective 4**: Remove any actions where the "state" or "others" are shown to be the lead. These actions remain in the original implementation table but are not references in the revised tables.

Goal 3. Provide maps on the planning region scale that target areas for implementation based on local priorities.

- **Objective 1**: Identify areas to target implementation actions. Use local knowledge, complementary projects, opportunities with landowners, overlapping funding, etc. to further target subwatersheds in each planning region.
- **Objective 2**: Ensure that target areas align with planning region priority resources and goals developed during the planning process.

Goal 4. Update relevant tables with most current data from PTMApp

- **Objective 1:** Update implementation tables corresponding to 'Top 250" practices to complete.
- **Objective 2:** Provide PTMApp data tables to inform future Watershed-based Implementation Funding (WBIF) budget requests, work plans and reporting.

Information Reviewed

The subcommittee used the original plan data, tables, narrative and maps to guide the information included in this amendment. Other CWMPs from around the state were also reviewed in order to determine format, additional information to include, examples of measurable outcomes and overall inspiration for the amendment.

Wright County Soil and Water Conservation District (SWCD) worked with the Minnesota Board of Water and Soil Resources (BWSR), the International Water Institute (IWI) and Houston Engineering, Inc (HEI) to update the PTMApp model (Version 3.0.0271) and provide current watershed-wide data to update plan implementation. This PTMApp update provided an updated list of best management practices (BMP) based on individual practice codes, potential costs, and estimated pollutant load reductions. This was a change from the previous model data, which had lumped these practices into treatment categories that the Partners did not feel adequately represented the practices that should be targeted across the landscape.

Process for Approval

The subcommittee met five times to revise information to be included in the plan amendment. The TAC provided guidance to the subcommittee on items to address or include in the amendment. The Policy Committee, made up of elected officials of the respective partner entities, reviewed the recommendations of the TAC and provided final approval of the plan amendment.

SECTION 1: CLERICAL REVISIONS

The North Fork Crow River Watershed Planning Partners (NFCRWPP) developed the original plan through a Memorandum of Agreement (MOA) between Partners. This MOA outlined the various roles and responsibilities that each partner would assume during the planning process, as well as during implementation of the Plan after adoption. Under these original agreements the Crow River Organization of Waters (CROW), was a listed entity with multiple duties and roles defined in the implementation plan. The CROW was a joint powers board (JPB) of nine counties covering the North Fork Crow River Watershed and the South Fork Crow River Watershed, initially established to coordinate activities across the basin. In 2019, the CROW board was dissolved. Any references to implementation or coordination actions to be performed by the CROW have been assumed by the NFCRWPP. This plan amendment serves to notify the public of these clerical revisions within the Plan.

SECTION 2: PLANNING REGION IMPLEMENTATION

The North Fork Crow River Watershed (NFCRW) planning area is divided into seven broad planning regions based on the USGS 10-digit HUC scale (Page 6). These planning boundaries are consistent with the organizational boundaries of the North Fork Crow River and Middle Fork Crow River Watershed Districts, as well as the watershed boundaries used by the Minnesota Pollution Control Agency (MPCA) when developing the statewide Watershed Restoration and Protection Strategy (WRAPS) process.

The original planning process evaluated the watershed to determine a list of resource concerns and priorities issues to be addressed through various implementation actions described in Tables 2-1 (page 2-2) and Table 2-2 (page 2-9). Each planning region was then further prioritized to include only those concerns and issues that are applicable to that region's landscape and stakeholders as shown in Table 4-4 (page 4-26).

This plan amendment uses this original assessment to further define which actions from the original implementation table (Table 4-1, page 4-4) address each planning region concerns and identify the priority resources and targeted areas for these actions within each planning region's priority concerns. This level of detail was not included in the original plan, to the degree the Partners require for funding processes and general annual planning.

In addition, this plan amendment attempts to refine the measurable outcomes which can be used for evaluating plan progress under BWSRs guidelines. These actions will help bridge the gap between the action completed and reporting progress towards the measurable goals of the plan (see Appendix C), which will be revised in a later plan amendment.

LOCAL PRIORITIES AND TARGETING PROJECTS

Section four of the original plan describes the implementation actions that the Partners will do to address resource issues identified during the planning process. Information in Section Four met the plan content requirements of the pilot program. However, BWSR has since developed additional guidance. Subsequent plans across the state have provided a better model for targeting activities within the planning regions and identification of specific priority resources, leading to a better process for implementation. This plan amendment clarifies Section Four by providing target areas based on local priorities.

This amendment does not replace the original plan but provides additional clarification and updates to Section Four. Associated PTMApp data derived tables in the original plan will be updated at a later date.

USING THE "TOP 250" PRACTICES

In 2015, the original plan used the PTMApp model to identify the best practices in each planning region based on maximizing pollutant load reductions at specific resource points with the most cost-effective practices. These practices were then filtered into the "Top 250" practices in each planning region with the most cost-effective reductions.

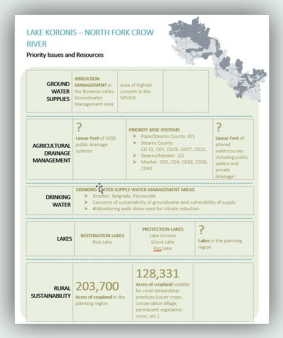
The original model version output placed specific BMPs into grouped categories such as filtration or protection, and averaged costs and pollutant load reduction estimates across the groups. In the most updated version of the model, these practices have been split into their respective Natural Resource Conservation Service (NRCS) practice codes, which resulted in more accurate cost estimates and pollutant reduction estimates per practice. In 2021, the Partners updated the PTMApp model output to take advantage of these more accurate estimates, which resulted in a new list of "Top 250" practices.

There are seven planning regions in the watershed, each having 250 practices identified per region for implementation, resulting in 1,750 total practices to target in the watershed between the Partners. These practices must be evaluated for feasibility, considering the following: practicality of construction, opportunity to align with other funding sources, eligibility for funding, general technical capacity to implement and landowner willingness. The intent of this plan amendment is to identify the target areas in each planning region, as shown in the next section, and to target any of the "Top 250" practices that fall within these locations as the first step in project development. It is reasonable to assume that a Top 250 practice, having been verified as a viable project, would benefit from implementation of complementary practices identified by PTMApp.

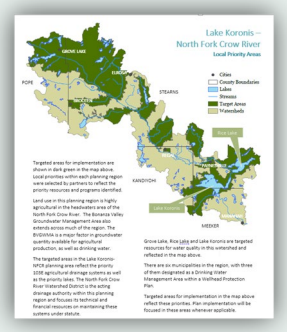
Section Four Revisions

The original plan breaks implementation into the individual planning regions. This Plan amendment further clarifies work to be completed in each planning region.

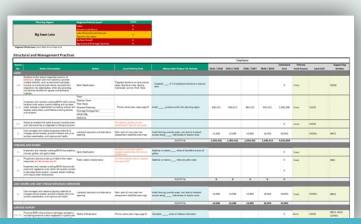
Priority issues and resources are summarized in each planning region table.



A map identifies the target area for implementing the plan actions.

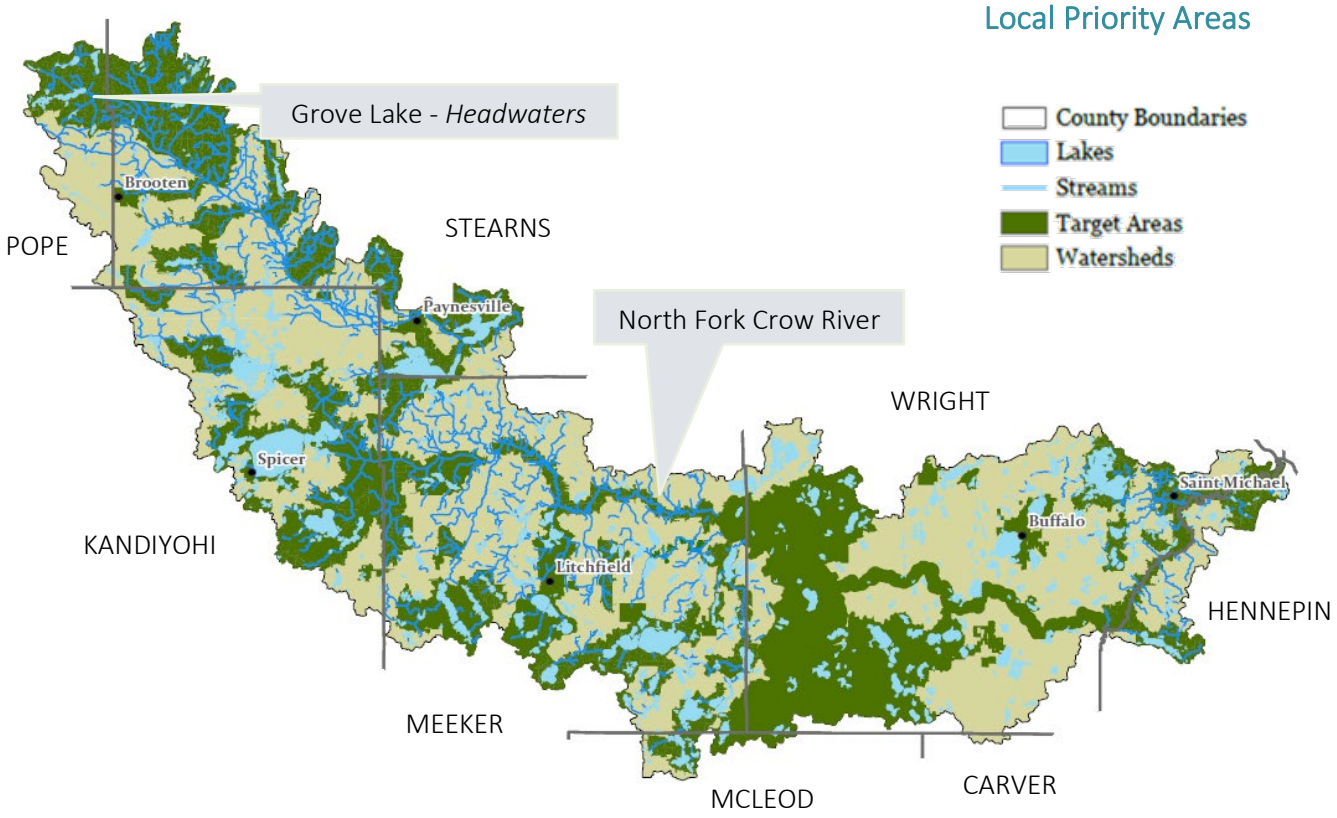


The implementation tables outline the actions Partners will carry out.



North Fork Crow River Watershed

Local Priority Areas



The North Fork Crow River Watershed extends across eight counties from its headwaters at Grove Lake in Pope County, to the confluence with the Mississippi River in Hennepin County. The watershed is approximately 1,485 square miles, or 950,000 acres. There are 31 municipalities located completely or partially within the boundaries of the NFC Watershed (MN Pollution Control Agency, 2014).

The green target areas represent the local priorities in each planning region. Planning region priorities are based on overall plan goals, modeled pollutant reduction estimates, cost-effectiveness, available programs, regulatory authorities and other factors identified in the Plan. The local priorities identified in this plan amendment target the actions needed to accomplish these regional goals. The local priority maps identify these targeted areas based on factors unique to the Partners, such as modeled practices, opportunities for financial partnerships, landowner concerns and willingness, regulatory authorities, recreational opportunities, technical and financial capacity, as well as program expertise and local policies in those offices.

Defining these target areas in each planning region is an addition to the original plan. The original plan relied on the PTMApp model to identify the most cost-effective practices in each planning region that would provide measurable outcomes and progress towards goals. These practices still rely on field verification, landowner contacts and willingness to implement projects. Targeting the time spent on field verification, project development and outreach allows each partner to effectively implement the Plan.

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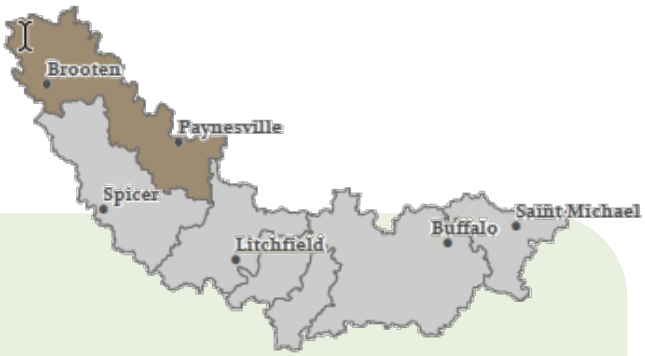
LAKE KORONIS – NORTH FORK CROW RIVER

Priority Issues and Resources



Area of highest concern in the NFCRW

GROUND WATER SUPPLIES

IRRIGATION MANAGEMENT in the Bonanza Valley Groundwater Management Area

AGRICULTURAL DRAINAGE MANAGEMENT

172

Linear Feet of M.S. 103E public drainage systems

PRIORITY 103E SYSTEMS

- Pope/Stearns County: JD1
- Stearns County: CD 32, CD7, CD29, CD37, CD21,
- Stearns/Meeker: JD2
- Meeker: CD5, CD4, CD36, CD38, CD43

468

Miles of altered watercourses including public waters and private drainage*.

DRINKING WATER

DRINKING WATER SUPPLY WATER MANAGEMENT AREAS

- Brooten, Paynesville
- Concerns of sustainability of groundwater and vulnerability of supply
- **4** Monitoring wells show need for nitrate reduction

LAKES

RESTORATION LAKES

Rice Lake

PROTECTION LAKES

Lake Koronis
Grove Lake
Pirz Lake

50

Lakes in the planning region greater than 10 acres in size.

RURAL SUSTAINABILITY

203,700

Acres of cropland in the planning region

128,331

Acres of cropland suitable for rural stewardship practices (cover crops, conservation tillage, permanent vegetative cover, etc.)

1,283

Equals **1%† of the suitable acres** that could be targeted for rural stewardship practices.

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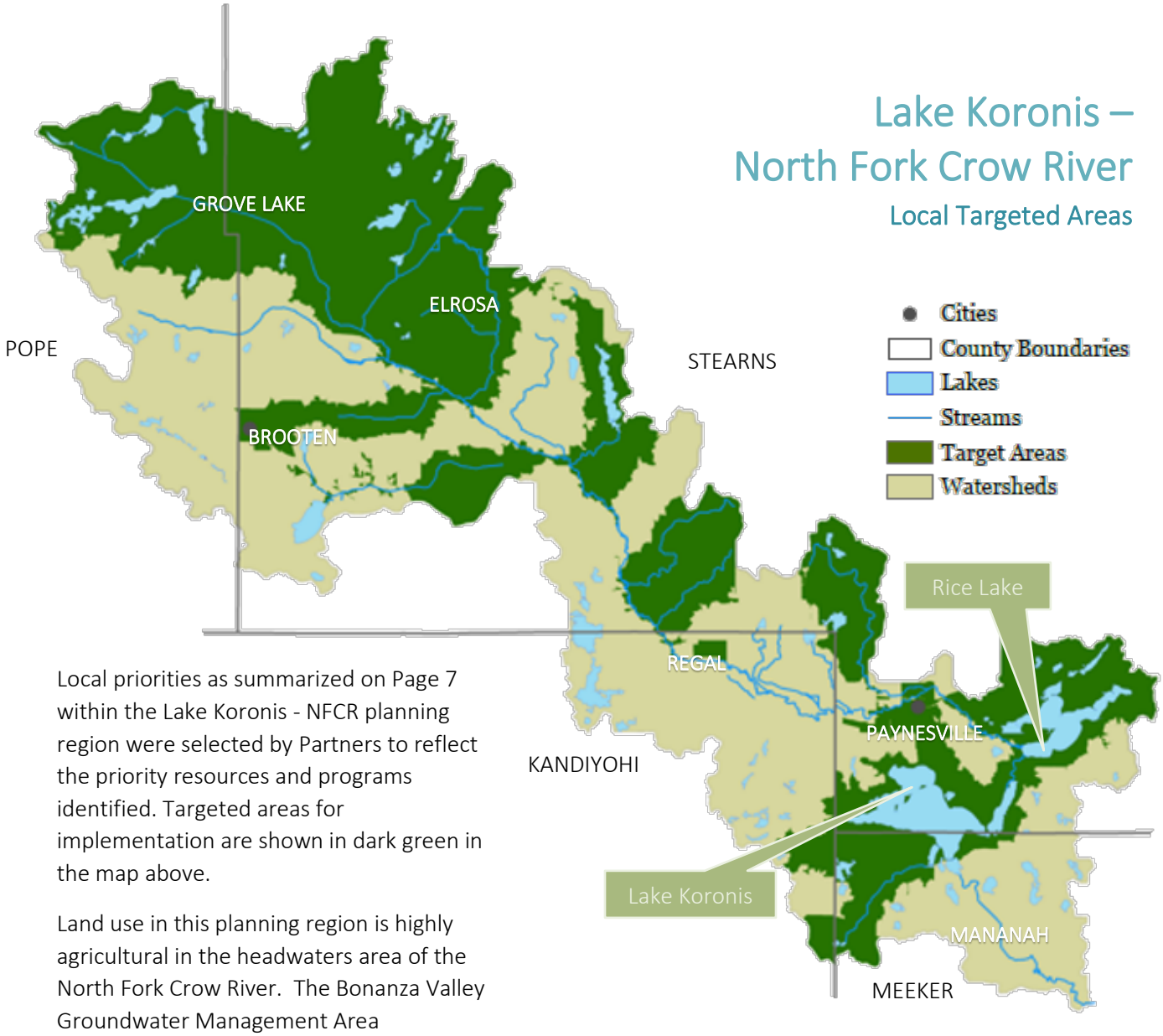
* As listed in the MN DNR altered watercourse layer. Does not include all private drainage systems.

† 1% defined as a reasonable short-term goal to achieve per planning region.

Lake Koronis – North Fork Crow River

Local Targeted Areas



Local priorities as summarized on Page 7 within the Lake Koronis - NFCR planning region were selected by Partners to reflect the priority resources and programs identified. Targeted areas for implementation are shown in dark green in the map above.

Land use in this planning region is highly agricultural in the headwaters area of the North Fork Crow River. The Bonanza Valley Groundwater Management Area (BVGWMA) also extends across much of the region. The BVGWMA is a major factor in groundwater quantity available for agricultural production and drinking water.

The targeted areas in the Lake Koronis-NFCR planning area reflect the priority M.S. 103E agricultural drainage systems and as the priority lakes. The North Fork Crow River Watershed District is the acting drainage authority within this planning region and focuses its technical and financial resources on maintaining these systems under statute.

Grove Lake, Rice Lake and Lake Koronis are targeted resources for water quality in this watershed shown in the map above. The NFCR between CD32 and Rice Lake (07010204-764) is high priority for stream protection (Minnesota Pollution Control Agency, 2020).

There are six municipalities in the region, with two designated as a Drinking Water Management Area within a Wellhead Protection Plan: Brooten and Paynesville.

Planning Region	Regional Priority Issue[1]	Level
Lake Koronis - North Fork	Groundwater Supplies	B
	Agricultural Drainage Systems	A
	Drinking Water	A
	Lakes	A
	Rural Sustainability	B

* ***Regional Priority Issue*** *from Table 4-4 on Page 4-26*

Structural and Management Practices

Original Action No.	Action Description	Action	Local Priority Area	Measurable Output for Activity	Timeframe 2022 / 2023	2024 / 2025	2026 / 2027	2028 / 2029	Estimated Cost[2]	Primary Fund Source	Lead LGU	Supporting Entities
DRINKING WATER - GROUNDWATER QUALITY												
1, 29	Implement and maintain existing BMPs that reduce leaching within Drinking Water Supply Management Areas (DWSMAs) and recharge areas that are highly vulnerable to contamination. Implement and maintain existing BMPs within priority locations that reduce vertical movement of nitrates and other contaminants into groundwater.	Well Sealing	DWSMAs in Brooten, Paynesville, high / moderately high nitrogen infiltration risk areas[3]	Seal 10 wells per biennium	5,000	5,000	5,000	5,000	20,000	State	Stearns SWCD	County, Cities
				SUBTOTAL	**5,000**	**5,000**	**5,000**	**5,000**	**20,000**			
AGRICULTURAL DRAINAGE SYSTEMS												
9, 14, 26, 131, 13	Identify where maintenance is needed on county ditch systems, and complete repairs in accordance with multi-purpose drainage goals as stated in MS 103E.015, including improved drainage and ditch bank stability and sediment transport, increased habitat (e.g., riffle and pool habitat in low flows, 2-stage or natural channel design) and pollutant removal of nitrogen.	Culvert and Storage Improvements for Flood and Stormwater Management	JD1, CD32, CD7, CD37, CD29, CD21, JD2, CD5, CD4	Implement 1 culvert study to provide additional storage		50,000			50,000	Local	NFCRWD	Pope, Stearns SWCD
		Water quality practices for multi-purpose drainage water management benefits	Petitioned drainage proceedings (Ie. Repairs, improvements, etc.)	Implement 2 drainage proceedings with MDM practices			150,000		150,000	Local	NFCRWD	Pope, Stearns SWCD
Added	Implement actions outlined in subwatershed assessment reports to mitigate effects of altered hydrology, improve water quality and provide adequate drainage under MS 103E.	Subwatershed Assessments Practice Completion	CD 37	Implement 1 high priority project		100,000			100,000	State	NFCRWD	Stearns SWCD
		Subwatershed Assessments Practice Completion	CD 29 benefited drainage area	Implement 1 high priority project			100,000		100,000	State	NFCRWD	Stearns SWCD
		Subwatershed Assessments Practice Completion	CD 5	Implement 1 high priority project				100,000	100,000	State	NFCRWD	Stearns SWCD
				SUBTOTAL	**0**	**150,000**	**250,000**	**100,000**	**500,000**			
GROUNDWATER SUPPLY												
8	Provide education, financial incentives, and technical support to increase the percentage of irrigated acres that employ conservation irrigation practices, such as variable rate application and low flow drip nozzles.	Implement irrigation water management on irrigated cropland including installation of moisture sensors and system retrofits	Bonanza Valley Groundwater Management Areas	Management practices on 400 acres per biennium	20,000	20,000	20,000	20,000	80,000	State	SWCD	NFCRWD, MDH
				SUBTOTAL	**20,000**	**20,000**	**20,000**	**20,000**	**80,000**			
LAKES												
11	Implement and maintain existing BMPs that stabilize ravines, gullies, and gully heads.	Gully Stabilization	Lake Koronis, Rice Lake, Grove Lake, Pirz Lake	Stabilize or restore 1 miles of identified ravines or gullies	670,000	670,000	670,000	670,000	2,680,000	State	NFCRWD	SWCD, DNR
12	Proactively cleanout build-up of debris from water resources and stormwater ponds.	Public waters maintenance	Inspect every 2 years	Cleanouts as needed from inspections		500,000	500,000	500,000	1,500,000	State	NFCRWD	DNR
126	Stabilize and/or restore degraded sections of lakeshore, stream and river reaches to provide multiple benefits, such as enhanced hydrologic function and reduced bank failure and sediment deposition into waterbodies, while also providing connectivity benefits for aquatic and terrestrial habitats.	Bank Stabilization	Targeted locations on local priority lakes: Lake Koronis, Rice Lake, Grove Lake (see Planning region profile page #)	1 project every biennium	5,000	5,000	5,000	5,000	20,000	State	NFCRWD	SWCD
9, 14	Implement and maintain existing BMPs within priority locations that reduce nutrient loading and increase water storage to waterbodies by treating surface and shallow sub-surface runoff before entering ditches	Pond Drainage Management Wetlands	Priority areas (see maps), PTMapp, and professional judegment	# of practices implemented within the planning region[4]	553,340	553,340	553,340	553,340	2,213,360	Federal, State	SWCD	

Original Action No.	Action Description	Action	Local Priority Area	Measurable Output for Activity	Timeframe 2022 / 2023	2024 / 2025	2026 / 2027	2028 / 2029	Estimated Cost[2]	Primary Fund Source	Lead LGU	Supporting Entities
	and streams.	Riparian Cover										
17	Explore and promote protection of natural and pervious lands through such programs as acquisition, property tax credits and easements.	CREP / CRP / RIM / private easements / deed restrictions on riparian areas	Priority areas (see maps)	Enroll 150 acres into land protection programs		100,000		100,000	200,000	State	SWCD	NRCS, BWSR
127	Assist as needed with outlet structure reconstruction and improvements on degraded or failing structures.	Help facilitate planning needs between the LKAs, State, or County	Region wide	As needed					0	Local	NFCRWD	SWCD
15	Use managed and rotational grazing methods to manage animal wastes, prevent livestock entry into surface waterbodies, and improve soil health.	Livestock exclusion and alternative watering	JD1, Subwatershed Asessment areas, Main stem of river (see river assessment identified area map)	Complete 10 cattle exclusion projects	20,000	20,000	20,000	20,000	80,000	State	SWCDs	NRCS
				SUBTOTAL	**1,248,340**	**1,848,340**	**1,748,340**	**1,848,340**	**6,693,360**			
RURAL SUSTAINABILITY												
2, 3, 4, 23, 24	Implement and maintain existing BMPs that are focused on improving or maintaining soil health and soil organic content, including but not limited to conservation tillage and residue management, nutrient and manure management, crop rotation methods, and the use of cover crops.	Cover crops in area with high vulnerability	DWSMAs, local priority area map, areas, high nitrogen infiltration risk areas (Section 4)	Enroll 900 acres per biennium	45,000	45,000	45,000	45,000	180,000	State	Stearns SWCD	Pope SWCD
		MAWQCP	Priority areas (see maps)								SWCDs	
		No Tillage / Reduced Tillage	Priority areas (see maps)								SWCDs	
		Nutrient Management Plans (Manure Management Plans)	Local priority area (see maps), CD29 subwatersheds								SWCDs	
130	Protect the natural meandering of streams and promote the restoration of straightened streams to decrease stream velocity for reducing flood (storage)impacts and enhance recreational and fish and wildlife habitat value.	Stream Restoration	NFCR (07010204-764 reach from CD32 to Rice lake), JD1, CD32, CD7, CD37, CD29, CD21, JD2, CD5, CD4	1 project every biennium	75,000	75,000	75,000	75,000	300,000	State		
7	Provide technical and financial assistance to landowners to implement animal waste management systems. Manage water using runoff control measures in accordance with accepted design standards and practice.	Animal Waste Management Systems and Improvements	Local priority area (see map) CD29 subwatersheds, County noncompliant systems list	Improve feedlots and manure storage for 2 facilities		400,000		400,000	800,000	Federal	SWCDs	NRCS
				SUBTOTAL	**120,000**	**520,000**	**120,000**	**520,000**	**1,280,000**			
CAPITAL IMPROVEMENT PROJECTS												
Design, plan and implement practices within target stormwater retrofit / improvement plans for priority municipalities.		Improvement of 4 major outfalls to the NFCR by installation of catch basins. Installation of wet retention basins (2) for storage and stormwater treatment.	City of Paynesville	Implement 2 high priority practices			300000		300,000	Federal, State	NFCRWD	City
		Complete Stormwater Mangement Plan	City of Brooten	Complete 1 plan			40,000		40,000	Federal, State	City	NFCRWD
				SUBTOTAL	**0**	**0**	**340,000**	**0**	**340,000**			
				TOTAL FUNDING NEED	**1,393,340**	**2,543,340**	**2,483,340**	**2,493,340**	**8,913,360**			

15 Local Actionable Activities

[1] Regional Priority Issues defined in Table 4-4 of the original plan document

[2] Estimated costs are generalized and based on past projects or empirical data. Cost estimates are to be used for planning purposed only; detailed estimates are recommended for further project development.

[3] Estimated costs based on PTMApp Outputs in Table ES-2

[4] Infiltration risk areas map provided on 4-31 and Appendix M of the original plan document

MIDDLE FORK CROW RIVER

Priority Issues and Resources

GROUND WATER SUPPLIES

IRRIGATION MANAGEMENT in the Bonanza Valley Groundwater Management Area

AGRICULTURAL DRAINAGE MANAGEMENT

135

Linear Feet of M.S. 103E public drainage systems

PRIORITY 103E SYSTEMS

- Stearns-Kandiyohi: JD3
- Kandiyohi: CD37, CD28, CD26, CD9, CD20
- Meeker: CD47
- Meeker-Kandiyohi: JD17

266

Miles of altered watercourses including public waters and private drainage[‡].

DRINKING WATER

DRINKING WATER SUPPLY WATER MANAGEMENT AREAS

- Belgrade, Spicer, New London, Atwater
- **3** Monitoring wells show need for nitrate reduction

LAKES

RESTORATION LAKES

Diamond Lake
Nest Lake

PROTECTION LAKES

Green Lake
Lake Calhoun
Long Lake
Lake Monongalia
Lake George
Elkhorn Lake

65

Lakes in the planning region over 10 acres in size

RURAL SUSTAINABILITY

143,300

Acres of cropland in the planning region

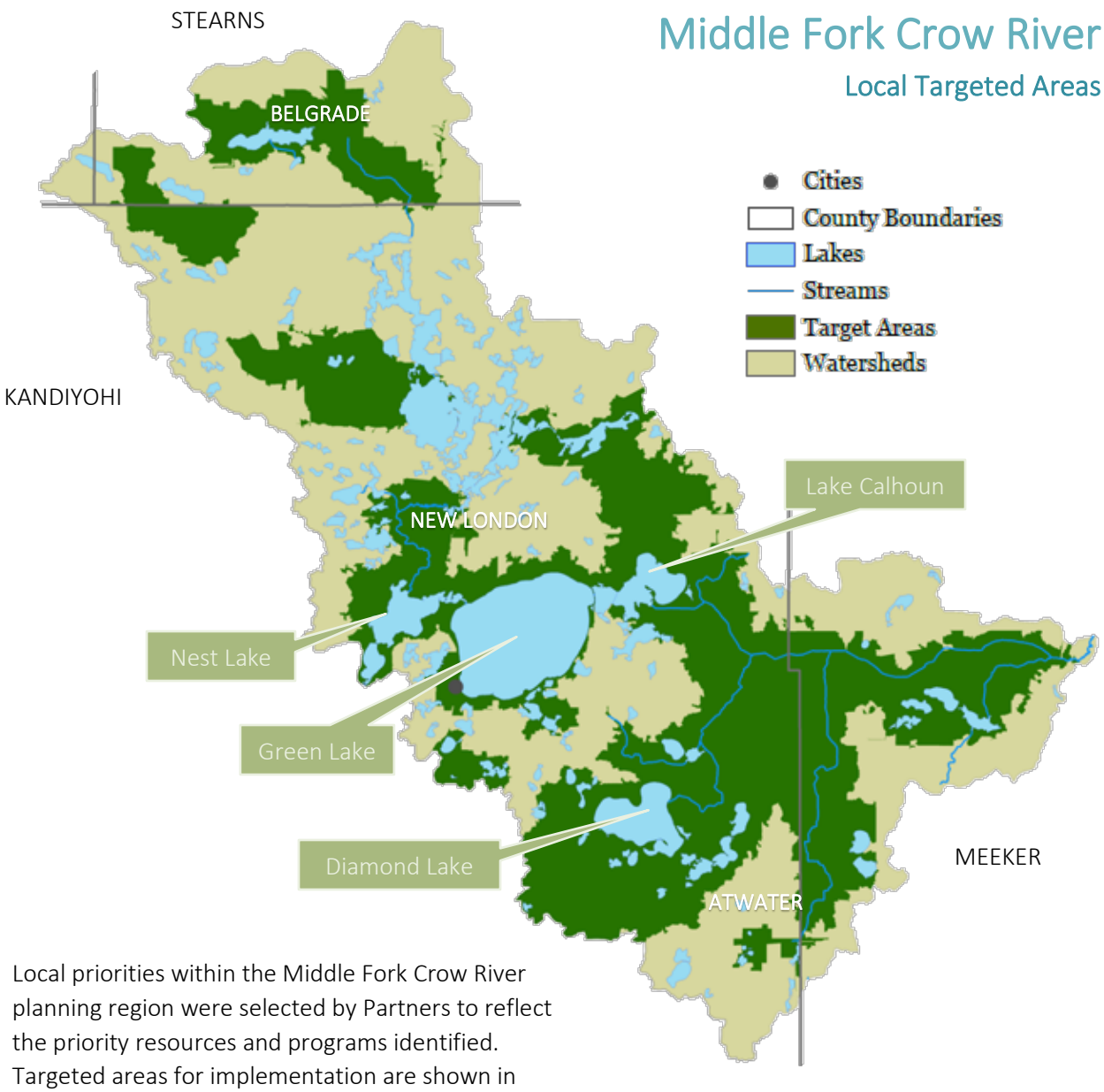
84,547

Acres of cropland suitable for rural stewardship practices (cover crops, conservation tillage, permanent vegetative cover, etc.)

845

Equals **1% of the suitable acres**[§] that could be targeted for rural stewardship practices

[‡] As listed in the MN DNR altered watercourse layer. Does not include all private drainage systems.
[§] 1% defined as a reasonable short-term goal to achieve per planning region.



Local priorities within the Middle Fork Crow River planning region were selected by Partners to reflect the priority resources and programs identified. Targeted areas for implementation are shown in dark green in the map above.

The planning region boundary is also the organizational boundary for the Middle Fork Crow River Watershed District (MFCRWD). There are three county drainage authorities acting within this boundary.

Target areas are selected based on the local priorities for addressing resource concerns to the valuable recreational lakes and the contributing streams to the main stem of the North Fork Crow River.

As a Watershed District acting under authorities of M.S. 103D, the MFCRWD has established several water management districts to fund large capital projects for water quality.

Planning Region	Regional Priority Issue[1]	Level
Middle Fork Crow River	Lakes	A
	Drinking Water	A
	Agricultural Drainage Systems	A
	Rural Sustainability	B
	Groundwater Supplies	B

* ***Regional Priority Issue*** *from Table 4-4 on Page 4-26*

Structural and Management Practices

Original Action No.	Action Description	Action	Local Priority Area	Measurable Output for Activity	Timeframe 2022 / 2023	2024 / 2025	2026 / 2027	2028 / 2029	Estimated Cost[2]	Primary Fund Source	Lead LGU	Supporting Entities
LAKES												
11	Implement and maintain existing BMPs that stabilize ravines, gullies, and gully heads.	Gully Stabilization and riparian inspection	Region wide	Conduct one subwatershed assessment per biennium	15,000	15,000	15,000	15,000	60,000	State	MFCRWD	
12	Proactively cleanout build-up of debris from water resources and stormwater ponds.	Public waters maintenance	Inspect every 2 years	Cleanouts as needed from inspections	20,000	20,000	20,000	20,000	80,000	State	MFCRWD	DNR
126	Stabilize and/or restore degraded sections of lakeshore, stream and river reaches to provide multiple benefits, such as enhanced hydrologic function and reduced bank failure and sediment deposition into waterbodies, while also providing connectivity benefits for aquatic and terrestrial habitats.	Bank Stabilization	Priority areas (see maps)	Establish 2 miles of stabilized shoreline or riparian area. *Metric based off of stream assessment data collected.*	200,000	200,000	200,000	200,000	800,000	State	MFCRWD	SWCD
9, 14	Implement and maintain existing BMPs within priority locations that stabilize ravines, gullies and gully heads ,reduce nutrient loading and increase water storage to waterbodies by treating surface and shallow sub-surface runoff before entering ditches and streams.	Pond Drainage Management Wetlands Filter Strips WASCOBs Herbaceous Cover	Priority areas (see maps)	# of practices implemented within the planning region[3]	868,096	868,096	868,096	868,096	3,472,384	State	SWCD	MFCRWD
17	Explore and promote protection of natural and pervious lands through such programs as acquisition, property tax credits and easements.	CREP / CRP / RIM / private easements / deed restrictions on riparian areas	Priority areas (see maps)	Enroll 100 acres into land protection programs	175,000	175,000	175,000	175,000	700,000	State	SWCD	NRCS, BWSR
127	Assist as needed with outlet structure reconstruction and improvements on degraded or failing structures.	Help facilitate planning needs between the LAs, State, or County	Lake Calhoun, Elkhorn Lake watersheds	Complete feasibility plan for 2 structures with identified needs for improvement		30,000		30,000	60,000	Local	MFCRWD	SWCD
15	Use managed and rotational grazing methods to manage animal wastes, prevent livestock entry into surface waterbodies, and improve soil health.	Livestock exclusion and alternative watering	CD 47 and main stem of river (see river assessment identified area map)	Install fencing, provide water, and restrict livestock access along 1500 ln ft of riparian area.	10,000	10,000	10,000	10,000	40,000	Federal, State	SWCDs	NRCS
				SUBTOTAL	**1,288,096**	**1,318,096**	**1,288,096**	**1,318,096**	**5,212,384**			
DRINKING WATER - GROUNDWATER QUALITY												
1, 29	Implement and maintain existing BMPs that reduce leaching within Drinking Water Supply Management Areas (DWSMAs) and recharge areas that are highly vulnerable to contamination. Implement and maintain existing BMPs within priority locations that reduce vertical movement of nitrates and other contaminants into groundwater.	Well Sealing	DWSMAs in Belgrade, New London, Spicer, Atwater and high / moderately high nitrogen infiltration risk areas	Seal 10 wells per biennium	5,000	5,000	5,000	5,000	20,000	State	Stearns	County
				SUBTOTAL	**5,000**	**5,000**	**5,000**	**5,000**	**20,000**			
AGRICULTURAL DRAINAGE SYSTEMS												
9, 14, 26, 131, 14	Identify where maintenance is needed on county ditch systems, and complete repairs in accordance with multi-purpose drainage goals as stated in MS 103E.015, including improved drainage and ditch bank stability and sediment transport, increased habitat (e.g., riffle and pool habitat in low flows, 2-stage or natural channel design) and pollutant removal of nitrogen	Water quality practices for multi-purpose drainage water management benefits	Petitioned drainage proceedings (Ie. Repairs, improvements, etc.)	Complete 1 drainage proceeding incorporating MDM practices.			50,000		50,000	Local	County	MFCRWD
		Complete subwatershed assessments for priority drainage systems	Kandiyohi-Stearns JD3, Kandiyohi CD37, CD28, CD26, CD9, CD20; Meeker CD47 ,CD7, CD41, CD31; Meeker-Kandiyohi JD17	Complete 1 subwatershed assessment report per biennium	85,000	85,000	85,000	85,000	340,000	State	MFCRWD	County

Original Action No.	Action Description	Action	Local Priority Area	Measurable Output for Activity	2022 / 2023	2024 / 2025	2026 / 2027	2028 / 2029	Estimated Cost[2]	Primary Fund Source	Lead LGU	Supporting Entities
LAKES												
93	Explore a pilot area and inventory of known field tile locations for BMP implimentaion	Data gap and research	Priority areas (see maps)	Complete 2 drainage sysytems per biennium	2,000	2,000	2,000	2,000	8,000			
				SUBTOTAL	**87,000**	**87,000**	**137,000**	**87,000**	**398,000**			
RURAL SUSTAINABILITY												
2, 3, 4	Implement and maintain existing BMPs that are focused on improving or maintaining soil health and soil organic content, including but not limited to conservation tillage and residue management, nutrient and manure management, crop rotation methods, and the use of cover crops.	Cover crops in area with high vulnerability	DWSMAs, local priority area map, areas, high nitrogen infiltration risk areas (Section 4)	Enroll 400 acres within the planning region	20,000	20,000	20,000	2,000	62,000	State	SWCD	
		MAWQCP	Priority areas (see maps)									
		No Tillage / Reduced Tillage	Priority areas (see maps)									
		Nutrient Management Plans (Manure Management Plans)	Local priority area (see maps)									
130	Protect the natural meandering of streams and promote the restoration of straightened streams to decrease stream velocity for reducing flood impacts and enhance recreational and fish and wildlife habitat value.	Stream Restoration	Priority areas (see maps) and stream assessment interactive map for identified areas.	Enroll 50 acres of riparian area into permanent protection.	75,000	75,000	75,000	75,000	300,000	State, Federal		
7	Provide technical and financial assistance to landowners to implement animal waste management systems. Manage water using runoff control measures in accordance with accepted design standards and practice.	Animal Waste Management Systems and Improvements	Local priority area (see maps)	Improve feedlots and manure storage for 2 facilities		400,000		400,000	800,000	Federal	SWCDs	NRCS
				SUBTOTAL	**95,000**	**495,000**	**95,000**	**477,000**	**1,162,000**			
GROUNDWATER SUPPLY												
8	Provide education, financial incentives, and technical support to increase the percentage of irrigated acres that employ conservation irrigation practices, such as variable rate application and low flow drip nozzles.	Irrigation Water Management	Bonanza Valley Groundwater Management Areas	Implement irrigation water management on 40 acres of irrigated cropland	2,500	2,500	2,500	2,500	10,000	State	SWCD	MFCRWD, MDH
				SUBTOTAL	**2,500**	**2,500**	**2,500**	**2,500**	**10,000**			
CAPITAL IMPROVEMENT PROJECTS												
Nest Lake TMDL Projects		Construct a wetland restoration project east of Nest Lake on land owned by the MN DNR; Upstream lake as nonpoint contributing source	Nest Lake	Construct 1 Wetland		66,667	66,667	66,667	200,000	State	MFCRWD	DNR
Green Belt and Stream Bank Stabilization		Develop and create a greenbelt for a portion of the MFCRW, upstream of Nest Lake. Conceptual designs for the erosion locations with moderatly-high to severe erosion features.	Nest Lake	Construct 2 high priority practices		337,100	337,100		674,200	State	MFCRWD	DNR
New London and Spicer Priority Stormwater BMPs		Stormwater quality analysis was completed to identify areas where runoff pollution is the worst within the city limits	New London and Spicer	Construct practices identified	285,523	285,523	285,523	285,523	1,142,090	State	MFCRWD	MFCRWD, New London, Spicer
				SUBTOTAL	**0**	**66,667**	**66,667**	**66,667**	**200,000**			
				TOTAL FUNDING NEED	**1,477,596**	**1,971,763**	**1,591,763**	**1,953,763**	**6,994,884**			

17 Local Actionable Activities

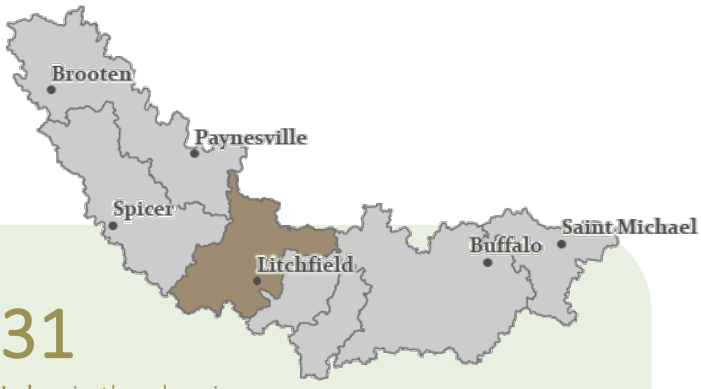
[1] *Regional Priority Issues defined in Table 4-4 of the original plan document*

[2] *Estimated costs are generalized and based on past projects or empirical data. Cost estimates are to be used for planning purposed only; detailed estimates are recommended for further project development.*

[3] *Estimated costs based on PTMApp Outputs in Table ES-2*

JEWITTS CREEK – NORTH FORK CROW RIVER

Priority Issues and Resources



LAKES

RESTORATION LAKES
Long Lake
Hope Lake
Lake Ripley
Round Lake

31
Lakes in the planning region over 10 acres

DRINKING WATER

DRINKING WATER SUPPLY WATER MANAGEMENT AREAS

- Litchfield
- Infiltration practices in aeras of low nitrogen risk for groundwater recharge
- Storage and filtration practices in areas of high nitrogen risk
- Well sealing in DWSMAs and high nitrogen infiltration risk
- Private well testing for nitrates / other contaminants of public health concern

RURAL SUSTAINABILITY

120,300
Acres of cropland in the planning region

79,398
Acres of cropland suitable for rural stewardship practices (cover crops, conservation tillage, permanent vegetative cover, etc.)

794
Equals **1% of the suitable acres**** that could be targeted for rural stewardship practices

URBAN STORMWATER

STORMWATER MANAGEMENT

- The City of Litchfield is a designated MS4
- Stormwater BMPs and public education
- Develop Stormwater Retrofit Analysis report for Litchfield, Grove City to implement future practices

AGRICULTURAL DRAINAGE MANAGEMENT

32
Miles of M.S. 103E public drainage systems

PRIORITY 103E SYSTEMS

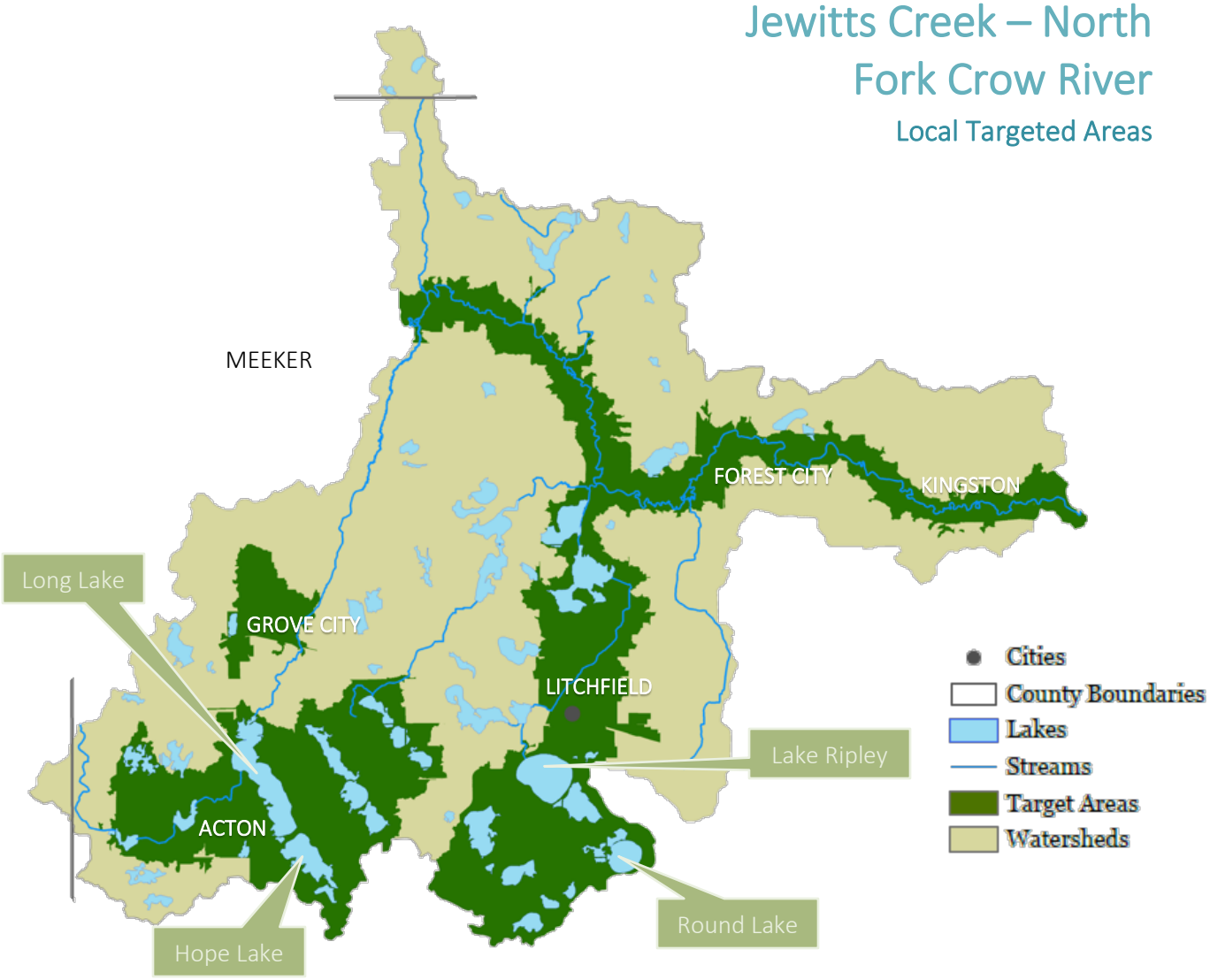
- Meeker: CD 17, CD18, CD19, CD26, CD12
- Grove Creek, Battle Creek, Stag Brook

270
miles of altered watercourses including public waters and private drainage††.

** 1% defined as a reasonable short-term goal to achieve per planning region.
†† As listed in the MN DNR altered watercourse layer. Does not include all private drainage systems.

Jewitts Creek – North Fork Crow River

Local Targeted Areas



Local priorities within the Jewitts Creek-NFCR planning region were selected by Partners to reflect the priority resources and programs identified. Targeted areas for implementation are shown in dark green in the map above.

Meeker County is the acting drainage authority in the planning region. There are no watershed districts acting within this boundary. Jewitts Creek – NFCR lies almost entirely within Meeker County. Meeker County and SWCD have identified targeted areas based on a number of lakes important to the region. These lakes are the headwaters to the ditches and streams that ultimately discharge to the North Fork Crow River.

Targeted areas in this planning region reflect the priority lakes, willingness of landowners and engaged citizen groups such as Lake Associations, which can help drive implementation.

Rural sustainability practices are identified by PTMApp throughout the planning region. The Partners have targeted areas that will provide water quality benefits to lakes but also include rural sustainability practices.

Planning Region	Regional Priority Issue[1]	Level
Jewetts Creek - North Fork Crow River	Lakes	A
	Drinking Water	A
	Rural Sustainability	B
	Urban Stormwater	C
	Agricultural Drainage Systems	A

* ***Regional Priority Issue*** *from Table 4-4 on Page 4-26*

Structural and Management Practices

Original Action No.	Action Description	Action	Local Priority Area	Measurable Output for Activity	Timeframe 2022 / 2023	2024 / 2025	2026 / 2027	2028 / 2029	Estimated Cost[2]	Primary Fund Source	Lead LGU	Supporting Entities
LAKES												
11	Implement and maintain existing BMPs that stabilize ravines, gullies, and gully heads.	Gully Stabilization	Target gully stablilizations to Long, Hope Thoen, and Hanson Lakes	Stabilize or restore 2000 feet of identified ravines of gullies	50,000	50,000	50,000	50,000	200,000	State	SWCD	
12	Proactively cleanout build-up of debris from water resources and stormwater ponds.	Public waters maintenance	Priority areas (see maps page #)	Stabilize or restore 2000 ft of public water	50,000	50,000	50,000	50,000	200,000	State	SWCD	DNR
126	Stabilize and/or restore degraded sections of lakeshore, stream and river reaches to provide multiple benefits, such as enhanced hydrologic function and reduced bank failure and sediment deposition into waterbodies, while also providing connectivity benefits for aquatic and terrestrial habitats.	Bank Stabilization	Targeted locations on local priority lakes: Long, Hope, Ripley, Round and unnamed creeks feeding lakes	Establish 250 ln ft of stabilized shoreline or riparian area	6,250	6,250	6,250	6,250	25,000	State	SWCD	
9, 14	Implement and maintain existing BMPs within priority locations that reduce nutrient loading and increase water storage to waterbodies by treating surface and shallow sub-surface runoff before entering ditches and streams.	Pond Riparian Cover Filter Strips Grass Waterway Drainage Management WASCOBs Wetlands	Priority areas (see maps page #)	# of practices implemented within the planning region[3]	868,096	868,096	868,096	868,096	3,472,384	State	SWCD	
17	Explore and promote protection of natural and pervious lands through such programs as acquisition, property tax credits and easements.	CREP / CRP / RIM / private easements / deed restrictions on riparian areas	Priority areas (see maps page #)	Enroll 80 acres per biennium into land protection programs	480,000	480,000	480,000	480,000	1,920,000	State	SWCD	NRCS, BWSR
127	Assist as needed with outlet structure reconstruction and improvements on degraded or failing structures.	Hanson Lake storage and restoration	East Hanson Lake	Complete feasibility study for further project development			50,000		50,000	Local	SWCD	
15	Use managed and rotational grazing methods to manage animal wastes, prevent livestock entry into surface waterbodies, and improve soil health.	Install livestock exclusion fencing, alternative watering, and restrict livestock access along riparian area	CD 47 and main stem of river (see river assessment identified area map)	Complete 4 cattle exclusion projects	10,000	10,000	10,000	10,000	40,000		SWCDs	NRCS
				SUBTOTAL	**1,464,346**	**1,464,346**	**1,514,346**	**1,464,346**	**5,907,384**			
DRINKING WATER - GROUNDWATER QUALITY												
1, 29	Implement and maintain existing BMPs that reduce leaching within Drinking Water Supply Management Areas (DWSMAs) and recharge areas that are highly vulnerable to contamination. Implement and maintain existing BMPs within priority locations that reduce vertical movement of nitrates and other contaminants into groundwater.	Well Sealing	DWSMAs in Litchfield and high / moderately high nitrogen infiltration risk areas	Seal 10 wells per biennium	5,000	5,000	5,000	5,000	20,000	State	SWCD	County
				SUBTOTAL	**5,000**	**5,000**	**5,000**	**5,000**	**20,000**			
RURAL SUSTAINABILITY												
2, 3, 4	Implement and maintain existing BMPs that are focused on improving or maintaining soil health and soil organic content, including but not limited to conservation tillage and residue management, nutrient and manure management, crop rotation	Cover crops in area with high nitrogen vulnerability MAWQCP No Tillage / Reduced Tillage	DWSMAs, local priority area map, areas, high nitrogen infiltration risk areas (Section 4) Priority areas (see maps) Priority areas (see maps)	Enroll 2 landowner in the MAWQCP per year within the planning region 100 new acres of Cover Crop every biennium	8,700	8,700	8,700	8,700	34,800	State	SWCD	Federal

Original Action No.	Action Description	Action	Local Priority Area	Measurable Output for Activity	Timeframe 2022 / 2023	2024 / 2025	2026 / 2027	2028 / 2029	Estimated Cost[2]	Primary Fund Source	Lead LGU	Supporting Entities
	methods, and the use of cover crops.	Nutrient Management Plans (Manure Management Plans)	Local priority area (see maps),									
130	Protect the natural meandering of streams and promote the restoration of straightened streams to decrease stream velocity for reducing flood impacts and enhance recreational and fish and wildlife habitat value.	Stream Restoration	Jeweitts Creek JD17,18,19	Implement 2 recommended practices in the TMDL	10,000	10,000	10,000	10,000	40,000	State	SWCD	Federal
7	Provide technical and financial assistance to landowners to implement animal waste management systems. Manage water using runoff control measures in accordance with accepted design standards and practice.	Animal Waste Management Systems and Improvements	Region wide, County noncompliant systems list	Improve feedlots and manure storage for 2 facilities	100,000	100,000	100,000	100,000	400,000	Federal	SWCDs	
				SUBTOTAL	**118,700**	**118,700**	**118,700**	**118,700**	**474,800**			
URBAN STORMWATER												
24	Inspect, maintain and improve the integrity of existing urban structures that route and treat stormwater runoff to prevent downstream stream erosion and flooding and improve water quality.	Stormwater Management	City of Litchfied	Help develop a stormwater analysis plan	75,000				75,000	Local	SWCDs	City
				SUBTOTAL	**75,000**	**0**	**0**	**0**	**75,000**			
AGRICULTURAL DRAINAGE SYSTEMS												
9, 14, 26, 131, 14	Identify where maintenance is needed on county ditch systems, and complete repairs in accordance with multi-purpose drainage goals as stated in MS 103E.015, including improved drainage and ditch bank stability and sediment transport, increased habitat (e.g., riffle and pool habitat in low flows, 2-stage or natural channel design) and pollutant removal of nitrogen	Water quality practices for multi-purpose drainage water management benefits	Petitioned drainage proceedings (Ie. Repairs, improvements, etc.)	Develop a ditch project schedule			50,000		50,000	Local	County	
		Develop subwatershed assessments for priority drainage systems	CD17, CD18, CD19, CD26, CD12, Grove Creek, Battle Creek, Stag Brook	Develop 1 subwatershed assessment report per biennium	50,000	50,000	50,000	50,000	200,000	State	County	
				SUBTOTAL	**50,000**	**50,000**	**100,000**	**50,000**	**250,000**			
CAPITAL IMPROVEMENT PROJECTS												
									0			
				SUBTOTAL	**0**	**0**	**0**	**0**	**0**			
				TOTAL FUNDING NEED	**1,713,046**	**1,638,046**	**1,738,046**	**1,638,046**	**6,727,184**			

13 ***Local Actionable Activities***

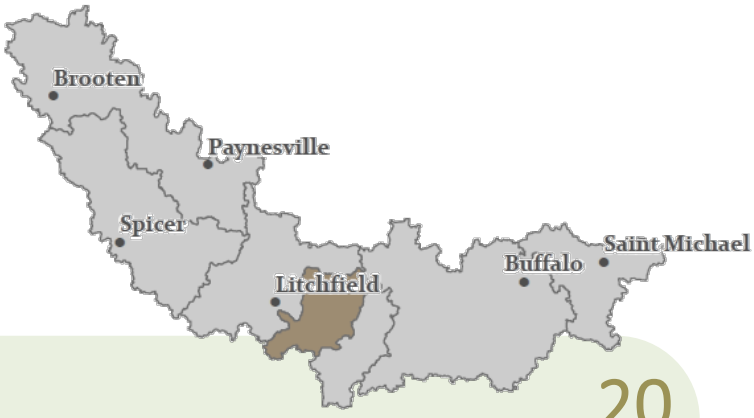
[1] *Regional Priority Issues defined in Table 4-4 of the original plan document*

[2] *Estimated costs are generalized and based on past projects or empirical data. Cost estimates are to be used for planning purposed only; detailed estimates are recommended for further project development.*

[3] *Estimated costs based on PTMApp Outputs in Table ES-2*

WASHINGTON CREEK

Priority Issues and Resources



LAKES

RESTORATION LAKES
Arvilla
Richardson and Dunns
Minnie-Belle

PROTECTION LAKES
Lake Washington
Stella Lake
Manuella

20
Lakes in the planning region over 10 acres

DRINKING WATER

- Infiltration practices in aeras of low nitrogen risk for groundwater recharge
- Storage and filtration practices in areas of high nitrogen risk
- Well sealing in DWSMAs and high nitrogen infiltration risk
- Private well testing for nitrates / other contaminants of public health concern

AGRICULTURAL DRAINAGE MANAGEMENT

25
Miles of M.S. 103E public drainage systems

PRIORITY 103E SYSTEMS
- Meeker: CD36, CD35, CD32, CD9

79
Miles of altered watercourses including public waters and private drainage[‡‡].

SURFACE RUNOFF

120,300
Acres of cropland in the planning region

79,398
Acres of cropland suitable for rural stewardship practices (cover crops, conservation tillage, permanent vegetative cover, etc.)

794
Equals **1% of the suitable acres**[§§] that could be targeted for rural stewardship practices

LAKE SHORELAND AND STREAM RIPARIAN CORRIDORS

970
acres of lake shore and riparian corridor[***]

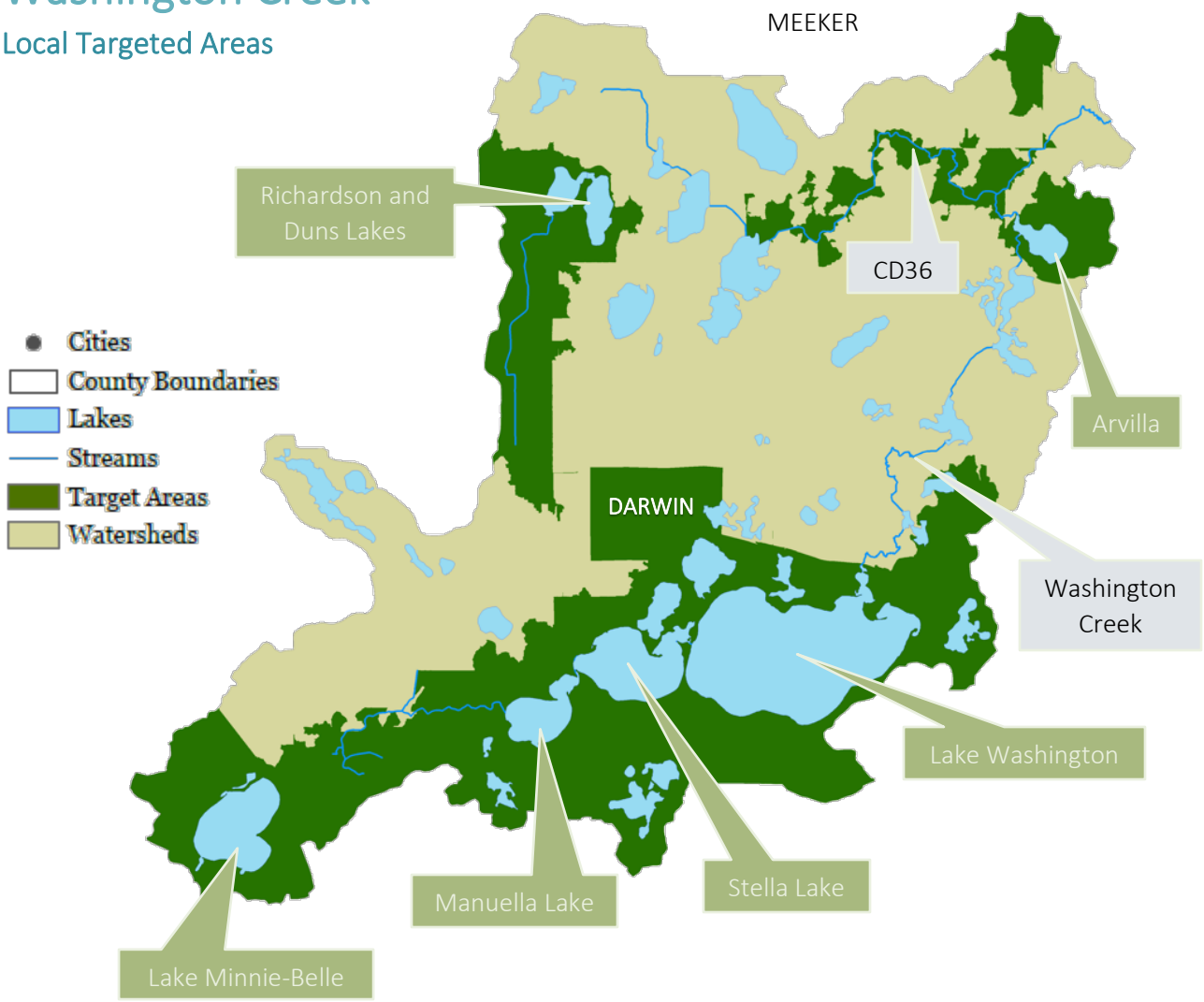
PRIORITY STREAMS
Washington Creek
Sucker Creek

CITIZEN INVOLVEMENT
- Active lake associations
- Promotion of citizen monitoring program
- Lawns-to-Legumes

[‡‡] As listed in the MN DNR altered watercourse layer. Does not include all private drainage systems.
[§§] 1% defined as a reasonable short-term goal to achieve per planning region.
[***] 50' buffer of PWI listed lakes and streams in the planning region.

Washington Creek

Local Targeted Areas



Local priorities within the Washington Creek planning region were selected by Partners to reflect the priority resources and programs identified. Targeted areas for implementation are shown in dark green in the map above.

The targeted areas are selected based on waterbodies of significant importance, economic value and drinking water sources. Lake Washington and Lake Minnie-Belle are important resources for protection and restoration as they are on the threshold for impairment / delisting. Lake Washington is targeted as a TMDL waterbody.

The target areas are also identified as critical are for management and structural BMPs for sediment and source reduction.

Planning Region	Regional Priority Issue[1]	Level
Washington Creek	Lakes	A
	Drinking Water	A
	Agricultural Drainage Systems	A
	Surface Runoff	A
	Lake Shoreland and Stream Riparian Corridors	C

* ***Regional Priority Issue*** *from Table 4-4 on Page 4-26*

Structural and Management Practices

Original Action No.	Action Description	Action	Local Priority Area	Measurable Output for Activity	Timeframe 2022 / 2023	2024 / 2025	2026 / 2027	2028 / 2029	Estimated Cost[2]	Primary Fund Source	Lead LGU	Supporting Entities
LAKES												
11	Implement and maintain existing BMPs that stabilize ravines, gullies, and gully heads.	Gully Stabilization	Priority areas (see maps)	Stabilize or restore 1000 ft of identified ravines of gullies	50,000	50,000	50,000	50,000	200,000	State	SWCD	
12	Proactively cleanout build-up of debris from water resources and stormwater ponds.	Public waters maintenance	Priority areas (see maps)	Assess 2 miles of public waters per biennium	10,000	10,000	10,000	10,000	40,000	State	SWCD	DNR
126	Stabilize and/or restore degraded sections of lakeshore, stream and river reaches to provide multiple benefits, such as enhanced hydrologic function and reduced bank failure and sediment deposition into waterbodies, while also providing connectivity benefits for aquatic and terrestrial habitats.	Bank Stabilization	Targeted locations on local priority lakes: Arvilla, Richardson, Duns, Minnie-Belle, Washington, Stella, Manuella	Establish 2 practices or 100 ln ft of stabilized shoreline or riparian area biennium		20,000			20,000	State	SWCD	SWCD
9, 14	Implement and maintain existing BMPs within priority locations that reduce nutrient loading and increase water storage to waterbodies by treating surface and shallow sub-surface runoff before entering ditches and streams.	Pond Riparian Cover Filter Strips Drainage Management WASCOBs Wetlands	Priority areas (see maps page #)	# of practices implemented within the planning region[3]	939,504	939,504	939,504	939,504	3,758,016	State	SWCD	
127	Assist as needed with outlet structure reconstruction and improvements on degraded or failing structures.	Conduct partner assessment with the DNR with the degrading lake outlet structures	Lake Minnie-Belle, Lake Washington watersheds	Complete 2 assessments		20,000	20,000		40,000	State	SWCD	
15	Use managed and rotational grazing methods to manage animal wastes, prevent livestock entry into surface waterbodies, and improve soil health.	Livestock exclusion and alternative watering	Main stem of river (see river assessment identified area map)	Implement 4 cattle exclusion practices	10,000	10,000	10,000	10,000	40,000	Federal, State	SWCDs	NRCS
				SUBTOTAL	**1,009,504**	**1,049,504**	**1,029,504**	**1,009,504**	**4,098,016**			
DRINKING WATER - GROUNDWATER QUALITY												
1, 29	Implement and maintain existing BMPs that reduce leaching within Drinking Water Supply Management Areas (DWSMAs) and recharge areas that are highly vulnerable to contamination. Implement and maintain existing BMPs within priority locations that reduce vertical movement of nitrates and other contaminants into groundwater.	Well Sealing	DWSMAs in Darwin and high / moderately high nitrogen infiltration risk areas	Seal 3 wells per biennium	5,000	5,000	5,000	5,000	20,000	State	SWCD	County
				SUBTOTAL	**5,000**	**5,000**	**5,000**	**5,000**	**20,000**			
AGRICULTURAL DRAINAGE SYSTEMS												
9, 14, 26, 131, 14, 19	Identify where maintenance is needed on county ditch systems, and complete repairs in accordance with multi-purpose drainage goals as stated in MS 103E.015, including improved drainage and ditch bank stability and sediment transport, increased habitat (e.g., riffle and pool habitat in low flows, 2-stage or natural channel design) and pollutant removal of nitrogen.	Water quality practices for multi-purpose drainage water management benefits	Petitioned drainage proceedings (Ie. Repairs, improvements, etc.)	Install 1 practice per biennium			50,000		50,000	Local	County	
		MAWQCP	Region wide	Enroll 2 landowner in the MAWQCP per year within the planning region	85,000	85,000	85,000	85,000	340,000	State	County	SWCD
Added	Implement actions outlined in subwatershed assessment reports to mitigate effects of altered hydrology, improve water quality and provide adequate drainage under MS 103E.	Complete subwatershed assessments for priority drainage systems	CD36, CD35, CD32, CD9	Complete 1 subwatershed assessment report per biennium	240,000	240,000	240,000	240,000	960,000	Local, State	County	SWCD
				SUBTOTAL	**5,000**	**5,000**	**5,000**	**5,000**	**20,000**			
SURFACE RUNOFF												

Original Action No.	Action Description	Action	Local Priority Area	Measurable Output for Activity	Timeframe 2022 / 2023	2024 / 2025	2026 / 2027	2028 / 2029	Estimated Cost[2]	Primary Fund Source	Lead LGU	Supporting Entities
10, 20, 17	Promote BMPs that enhance hydrologic storage by increasing perennial native vegetation in upland and riparian areas that provide connections to expand riparian access.	Wetland Restoration	Priority areas (see maps)	Complete 3 wetland restoration practices		195,681			195,681	Federal	SWCD	State
		Conservation Easements	Priority areas (see maps page #)	Enroll 100 acres into land protection programs	3,500	3,500	3,500	3,500	14,000	State	SWCD	Federal
2	Implement and maintain existing BMPs that are focused on improving or maintaining soil health and soil organic content, including but not limited to conservation tillage and residue management, crop rotation methods, and the use of cover crops.	Cover Crops	Priority areas (see maps)	Enroll 50 acres every biennium	4,350	4,350	4,350	4,350	17,400	State	SWCD	Federal
18, 19, 20	Implement and maintain existing BMPs within riparian areas that improve connectivity within riparian corridors and floodplains.	Complete subwatershed assessments for priority drainage systems	Sucker Creek and Lake Washington Subwatersheds	Complete 2 subwatershed assessments	50,000	50,000			100,000	State	SWCD	
				SUBTOTAL	**57,850**	**253,531**	**7,850**	**7,850**	**327,081**			
LAKE SHORELAND AND STREAM RIPARIAN CORRIDORS												
15	Use managed and rotational grazing methods to manage animal wastes, prevent livestock entry into surface waterbodies, and improve soil health.	Livestock exclusion and alternative watering	County Ditch systems and main stem of river	Install BMP with 1 landowner every biennium	10,000	10,000	10,000	10,000	40,000		SWCDs	NRCS
				SUBTOTAL	**10,000**	**10,000**	**10,000**	**10,000**	**40,000**			
CAPITAL IMPROVEMENT PROJECTS												
Lake Washington Source Water Assessment		Develop subwatershed assessment and implement practices to improve stormwater runoff and address overland runoff issues contributing nutrients	Washington Lake	Develop 1 subwatershed assessment report per biennium	20,000	20,000	20,000	20,000	80,000	State, Local	City, SWCD	Township
				SUBTOTAL	**20,000**	**20,000**	**20,000**	**20,000**	**80,000**			
				TOTAL FUNDING NEED	**1,107,354**	**1,343,035**	**1,077,354**	**1,057,354**	**4,585,097**			

[1] Regional Priority Issues defined in Table 4-4 of the original plan document

[2] Estimated costs are generalized and based on past projects or empirical data. Cost estimates are to be used for planning purposed only; detailed estimates are recommended for further project development.

[3] Estimated costs based on PTMApp Outputs in Table ES-2

BIG SWAN LAKE

Priority Issues and Resources

LAKES

RESTORATION LAKES
Big Swan Lake
Spring Lake
Collinwood
Lake Jennie
Wolf Lake
Hook Lake

PROTECTION LAKES
Lake Erie

20
Lakes in the planning region over 10 acres

STREAMS AND RIVERS

PRIORITY STREAMS & RIVERS
- CD15 / Silver Creek
- JD3 / Collinwood Creek

Stream assessment reports will provide a targeted list of potential practices, landowner contact, preliminary design details and costs to pursue for implementation, based on PTMApp data.

LAKE SHORELAND AND STREAM RIPARIAN CORRIDORS

1064
acres of lake shore and riparian corridor

CITIZEN INVOLVEMENT
- Active lake associations
- Promotion of citizen monitoring program
- Lawns-to-Legumes

SURFACE RUNOFF

45,900
Acres of cropland in the planning region

33,048
Acres of cropland suitable for rural stewardship practices (cover crops, conservation tillage, permanent vegetative cover, etc.)

330
Equals **1% of the suitable acres**[†††] that could be targeted for rural stewardship practices

AGRICULTURAL DRAINAGE MANAGEMENT

20.5
Miles of M.S. 103E public drainage systems

PRIORITY 103E SYSTEMS
- Meeker-Wright: JD13, JD3
- Meeker: CD15, CD8

58
Miles of altered watercourses including public waters and private drainage[‡‡‡].

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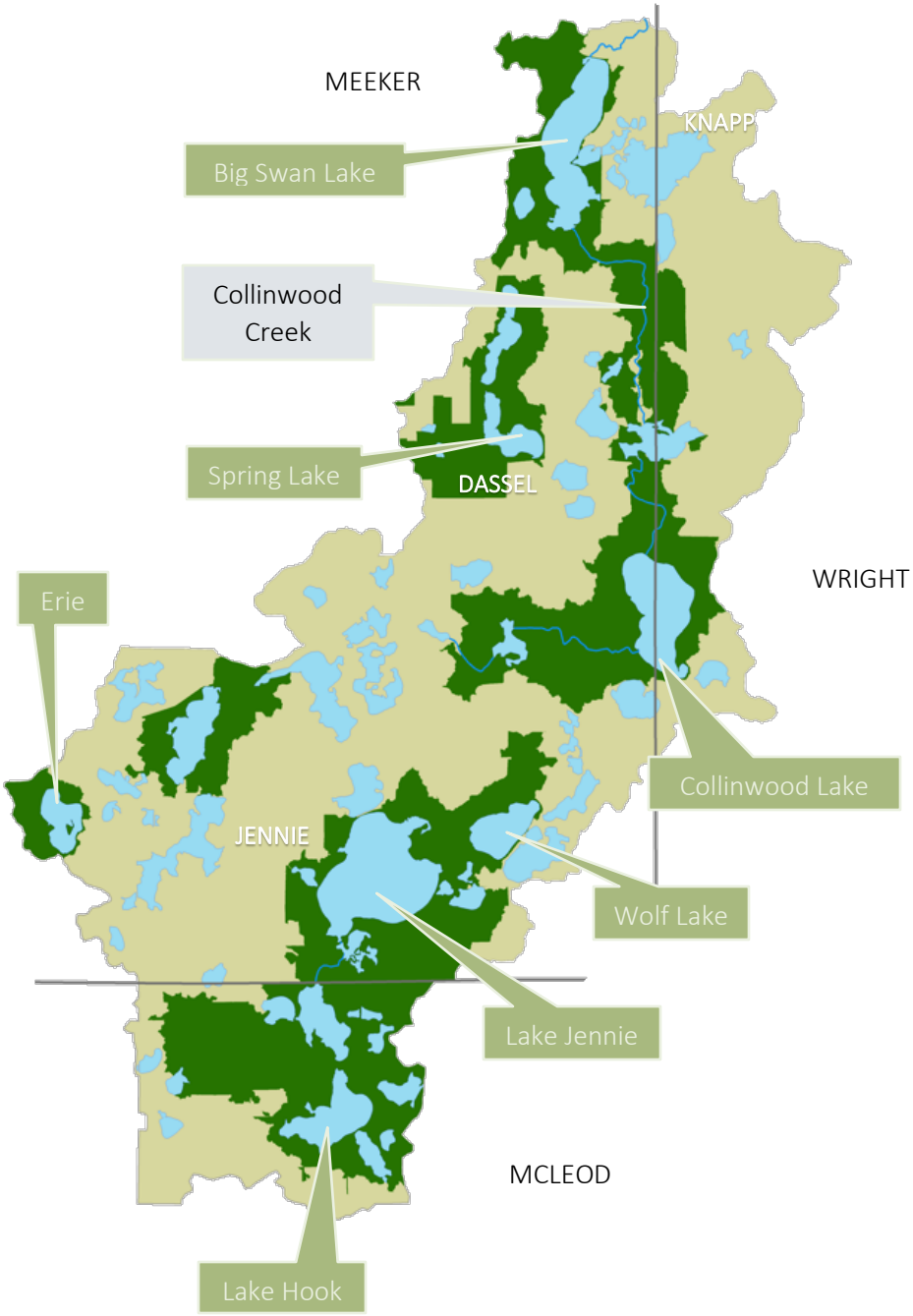
††† 1% defined as a reasonable short-term goal to achieve per planning region.
‡‡‡ As listed in the MN DNR altered watercourse layer. Does not include all private drainage systems.

Big Swan Lake

Local Targeted Areas



Local priorities in the Big Swan Lake planning region were selected by Partners to reflect the priority resources and programs identified. Targeted areas for implementation are shown in dark green in the map above.

The target areas selected in this planning region reflect the impaired waters, the riparian areas along those waters and the streams / public drainage systems that contribute to these impairments.

Practices to address surface runoff are also targeted in these same areas to maximize landowner outreach. Prioritizing the issues into targeted areas focuses outreach efforts with landowners where multiple practices can be implemented.

Planning Region	Regional Priority Issue[1]	Level
Big Swan Lake	Lakes	A
	Streams and Rivers	A
	Lake Shoreland and Stream Riparian Corridors	C
	Surface Runoff	A
	Agricultural Drainage Systems	A

* ***Regional Priority Issue*** *from Table 4-4 on Page 4-26*

Structural and Management Practices

Action No.	Action Description	Action	Local Priority Area	Measurable Output for Activity	Timeframe 2022 / 2023	2024 / 2025	2026 / 2027	2028 / 2029	Estimated Cost[2]	Primary Fund Source	Lead LGU	Supporting Entities
LAKES												
126	Stabilize and/or restore degraded sections of lakeshore, stream and river reaches to provide multiple benefits, such as enhanced hydrologic function and reduced bank failure and sediment deposition into waterbodies, while also providing connectivity benefits for aquatic and terrestrial habitats.	Bank Stabilization	Targeted locations on local priority lakes: Big Swan, Long, Spring, Colinwood, Jennie, Wolf, Hook, Todd, Beaver Dam	Establish 500 ft of stabilized shoreline or riparian area		25,000			25,000	State	SWCD	
9, 14	Implement and maintain existing BMPs within priority locations that reduce nutrient loading and increase water storage to waterbodies by treating surface and shallow sub-surface runoff before entering ditches and streams.	Pond Riparian Cover Filter Strips Grassed Waterway Drainage Management WASCOBs Wetlands	Priority areas (see maps)	# of practices implemented within the planning region[3]	996,452	996,452	996,452	996,452	3,985,808	State	SWCD	
127	Assist as needed with outlet structure reconstruction and improvements on degraded or failing structures.	Help facilitate planning needs between the LKAs and State or County as needed	Region wide	As needed	TBD	TBD	TBD	TBD	0	Local	SWCD	
15	Use managed and rotational grazing methods to manage animal wastes, prevent livestock entry into surface waterbodies, and improve soil health.	Livestock exclusion and alternative watering, and restrict livestock access along riparian area.	Region wide	Install BMP with 1 landowner every biennium	10,000	10,000	10,000	10,000	40,000		SWCDs	NRCS
				SUBTOTAL	**1,006,452**	**1,031,452**	**1,006,452**	**1,006,452**	**4,050,808**			
STREAMS AND RIVERS												
11	Implement and maintain existing BMPs that stabilize ravines, gullies, and gully heads.	Gully Stabilization	Priority areas (see maps)	Inspect 1,500 ft of identified ravines of gullies per biennium	10,000	10,000	10,000	10,000	40,000	State	SWCD	
12	Proactively cleanout build-up of debris from water resources and stormwater ponds.	Public waters maintenance	Priority areas (see maps)	As needed from inspections	TBD	TBD	TBD	TBD	0	State	SWCD	DNR
16	Implement and maintain existing BMPs that provide perennial vegetative cover within the riparian corridor to decrease bank erosion, increase stream shading, and reduce water temperature.	Site specific BMPs as designed	Region wide	Inspect 1,500 ft of riparian area every biennium	10,000	10,000	10,000	10,000	40,000	State	SWCD	
				SUBTOTAL	**20,000**	**20,000**	**20,000**	**20,000**	**80,000**			
LAKE SHORELAND AND STREAM RIPARIAN CORRIDORS												
15	Use managed and rotational grazing methods to manage animal wastes, prevent livestock entry into surface waterbodies, and improve soil health.	Livestock exclusion and alternative watering	County Ditch systems and main stem of river	Install practices with 1 landowner every biennium	10,000	10,000	10,000	10,000	40,000	State	SWCDs	NRCS
				SUBTOTAL	**10,000**	**10,000**	**10,000**	**10,000**	**40,000**			
SURFACE RUNOFF												
10, 20, 17, 9, 10	Promote BMPs that enhance hydrologic storage by increasing perennial native vegetation in upland and riparian areas that provide connections to expand riparian access.	Wetland Restoration	Priority areas (see maps)	Complete 1 wetland restoration		75,000			75,000	State	SWCD	NRCS, NGO, USFWS
		Conservation Easements	Priority areas (see maps)	Enroll 100 acres into land protection programs	3,500	3,500	3,500	3,500	14,000	State	SWCD	NRCS, NGO, USFWS

Action No.	Action Description	Action	Local Priority Area	Measurable Output for Activity	Timeframe 2022 / 2023	2024 / 2025	2026 / 2027	2028 / 2029	Estimated Cost[2]	Primary Fund Source	Lead LGU	Supporting Entities
2	Implement and maintain existing BMPs that are focused on improving or maintaining soil health and soil organic content, including but not limited to conservation tillage and residue management, crop rotation methods, and the use of cover crops.	Cover Crops	Priority areas (see maps)	Enroll 100 acres per biennium	8,700	8,700	8,700	8,700	34,800	State	SWCD	NRCS
3, 4, 7	Develop and implement nutrient and manure management plans for agricultural producers that follow operational best management practice recommendations, summarized within the MDA Nitrogen Fertilizer Management Plan and consistent with University of Minnesota recommendations.	MAWQCP	Priority areas (see maps)	Enroll 2 operations					0	State	SWCD	NRCS
		Animal Waste Management Systems and Improvements	Local priority area (see map) , County noncompliant systems list	Improve feedlots and manure storage for 2 facilities		100,000		100,000	200,000	State	SWCD	NRCS
18, 19, 21	Implement and maintain existing BMPs within riparian areas that improve connectivity within riparian corridors and floodplains.	Complete subwatershed assessments for priority drainage systems	JD13, JD3-Collinwood Creek-Meeker/Wright, CD15-Silver Creek	Implement 1 high priority project and complete 1 subwatershed assessment report per biennium	10,000	10,000	10,000	10,000	40,000	State	SWCD	Drainage Authority
				SUBTOTAL	**22,200**	**197,200**	**22,200**	**122,200**	**363,800**			
AGRICULTURAL DRAINAGE SYSTEMS												
9, 13, 14, 26, 131, 14, 19	Identify where maintenance is needed on county ditch systems, and complete repairs in accordance with multi-purpose drainage goals as stated in MS 103E.015, including improved drainage and ditch bank stability and sediment transport, increased habitat (e.g., riffle and pool habitat in low flows, 2-stage or natural channel design) and pollutant removal of nitrogen.	Water quality practices for multi-purpose drainage water management benefits	Petitioned drainage proceedings (Ie. Repairs, improvements, etc.)	Install 1 practice per biennium			50,000		50,000	Local	County	
		Complete subwatershed assessments for priority drainage systems	JD13 Meeker/McLeod; CD 15 Meeker; JD3 Meeker/Wright	Complete 1 subwatershed assessment report per biennium	85,000	85,000	85,000	85,000	340,000	State	County	SWCD
Added	Implement actions outlined in subwatershed assessment reports to mitigate effects of altered hydrology, improve water quality and provide adequate drainage under MS 103E.	BMP Completion for Storage and Impoundment	JD 3 and Collinwood Creek	Implement 1 high priority project	240,000	240,000	240,000	240,000	960,000	Local, State	County	SWCD
				SUBTOTAL	**325,000**	**325,000**	**375,000**	**325,000**	**1,350,000**			
CAPITAL IMPROVEMENT PROJECTS												
Spring - Long Lake Lake Management Plan		Complete subwatershed assessment and implement practices to improve stormwater runoff in the City of Dassel and address overland runoff issues contributing nutrients to Long-Spring Lakes	Long-Spring Lake	Complete plan and implement 2 high priority projects.	20,000	20,000	40,000	40,000	120,000	State, Local	City, SWCD	Township
				SUBTOTAL	**20,000**	**20,000**	**40,000**	**40,000**	**120,000**			
				TOTAL FUNDING NEED	**1,403,652**	**1,603,652**	**1,473,652**	**1,523,652**	**6,004,608**			

15 ***Local Actionable Activities***

[1] *Regional Priority Issues defined in Table 4-4 of the original plan document*

[2] *Estimated costs are generalized and based on past projects or empirical data. Cost estimates are to be used for planning purposed only; detailed estimates are recommended for further project development.*

[3] *Estimated costs based on PTMApp Outputs in Table ES-2*

NORTH FORK CROW RIVER

Priority Issues and Resources

SURFACE RUNOFF

194,000 Acres of cropland in the planning region

126,175 Acres of cropland suitable for rural stewardship practices (cover crops, conservation tillage, permanent vegetative cover, etc.)

1,261 Equals 1% of the suitable acres[§§§] that could be targeted for rural stewardship practices

LAKES

RESTORATION LAKES

Brooks
Crawford
Dog Lake
French
Granite
Howard
Long
Rock
Shakopee
Sullivan
Waverly

PROTECTION LAKES

East Lake Sylvia
Francis
Mary
Moose
Pulaski
Upper Maple
West Lake Sylvia

204 Lakes in the planning region over 10 acres

URBAN STORMWATER

STORMWATER MANAGEMENT

- The City of Buffalo is a designated MS4
- Stormwater BMPs and public education
- Develop Stormwater Retrofit Analysis reports for those cities that do not currently have one: Maple Lake, Howard Lake, Cokato, Waverly, Montrose

DRINKING WATER

DRINKING WATER SUPPLY WATER MANAGEMENT AREAS

- Moderate Vulnerability: Buffalo
- Low Vulnerability: Maple Lake, Cokato, Howard Lake, Waverly, Montrose
- Wellhead protection plans exist for DWSMAs with a list of potential projects to protect drinking water supplies
- Contaminant of concern: arsenic, manganese, pesticides

STREAMS AND RIVERS

PRIORITY STREAMS & RIVERS

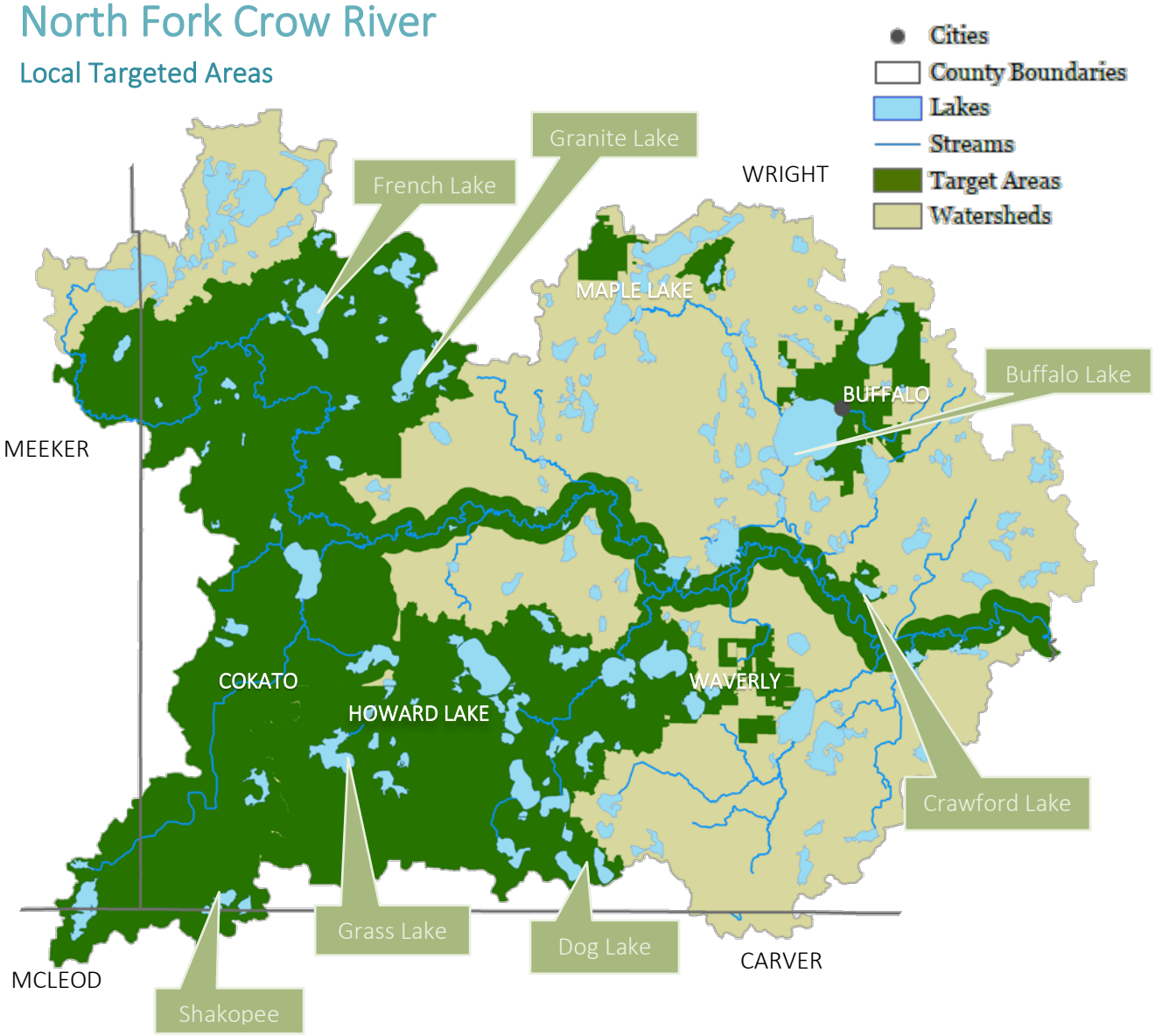
- North Fork Crow River (07010204-556, 503)
- Twelve-Mile Creek
- Unnamed Creek (07010204-667, 668, 543)
- Mill Creek
- Sucker Creek

Subwatershed assessment reports will provide a targeted list of potential practices, landowner contact, preliminary design details and costs to pursue for implementation, based on PTMApp data.

[§§§] 1% defined as a reasonable short-term goal to achieve per planning region.

North Fork Crow River

Local Targeted Areas



High priority areas for this subwatershed are based on Table 4-4 and local partner priorities. High priority areas are identified in this subwatershed based on the local priority for lake restoration efforts and drinking water. These local priorities have been developed through an analysis of lakes with the greatest likelihood of delisting, as well as urban areas dictating wellhead protection areas. For more information on groundwater information, reference Figure 2-4.

The Twelve Mile Creek subwatershed is included in the targeted areas. This subwatershed is the focus of an MPCA 319 Small Watersheds study designed to target practices that address impairments of Twelve Mile Creek.

Planning Region	Regional Priority Issue[1]	Level
North Fork Crow River	Surface Runoff	A
	Lakes	A
	Urban Stormwater	C
	Drinking Water	A
	Streams and Rivers	B

* ***Regional Priority Issue*** *from Table 4-4 on Page 4-26*

Structural and Management Practices

Original Action No.	Action Description	Action	Local Priority Area	Measurable Output for Activity	Timeframe 2022 / 2023	2024 / 2025	2026 / 2027	2028 / 2029	Estimated Cost[2]	Primary Fund Source	Lead LGU	Supporting Entities
DRINKING WATER - GROUNDWATER QUALITY												
10, 20, 17, 9, 10	Promote BMPs that enhance hydrologic storage by increasing perennial native vegetation in upland and riparian areas that provide connections to expand riparian access.	Wetland Restoration	Priority areas (see maps)	Complete 1 wetland restoration project		75,000			75,000	State	SWCD	NRCS
		Conservation Easements	Priority areas (see maps)	Enroll 100 acres into land protection programs	175,000	175,000	175,000	175,000	700,000	State	SWCD	NRCS
2	Implement and maintain existing BMPs that are focused on improving or maintaining soil health and soil organic content, including but not limited to conservation tillage and residue management, crop rotation methods, and the use of cover crops.	Cover Crops	Priority areas (see maps page #)	Enroll 100 acres per biennium	8,700	8,700	8,700	8,700	34,800	State	SWCD	NRCS
3, 4, 7	Develop and implement nutrient and manure management plans for agricultural producers that follow operational best management practice recommendations, summarized within the MDA Nitrogen Fertilizer Management Plan and consistent with University of Minnesota recommendations.	MAWQCP	Priority areas (see maps)	Enroll 2 operations					0	State	SWCD	NRCS
		Animal Waste Management Systems and Improvements	Local priority area (see map) , County noncompliant systems list	Improve feedlots and manure storage for 2 facilities		100,000		100,000	200,000	Federal	SWCD	NRCS
18, 19, 20	Implement and maintain existing BMPs within riparian areas that improve connectivity within riparian corridors and floodplains.	Complete subwatershed assessments for priority river, stream reaches	Priority areas (see maps) and as identified in the WRAPS	Complete 1 subwatershed assessment on priority river, stream reach		50,000			50,000	State	SWCD	NRCS
				SUBTOTAL	**183,700**	**408,700**	**183,700**	**283,700**	**1,059,800**			
LAKES												
126	Stabilize and/or restore degraded sections of lakeshore, stream and river reaches to provide multiple benefits, such as enhanced hydrologic function and reduced bank failure and sediment deposition into waterbodies, while also providing connectivity benefits for aquatic and terrestrial habitats.	Bank Stabilization	Targeted locations on local priority lakes (see map)	Establish 500 ln ft of stabilized shoreline or riparian area		100,000			100,000	State		SWCD
9, 14	Implement and maintain existing BMPs within priority locations that reduce nutrient loading and increase water storage to waterbodies by treating surface and shallow sub-surface runoff before entering ditches and streams.	Pond Riparian Cover Grassed Waterway Drainage Management WASCOBs Wetlands	Priority areas (see maps)	# of practices implemented within the planning region[3]	455,598	455,598	455,598	455,598	1,822,392	State	SWCD	
127	Assist as needed with outlet structure reconstruction and improvements on degraded or failing structures.	Help facilitate planning needs between the LKAs and State or County as needed	Region wide	As needed					0	Local	SWCD	
15	Use managed and rotational grazing methods to manage animal wastes, prevent livestock entry into surface waterbodies, and improve soil health.	Livestock exclusion and alternative watering	Main stem of river (see river assessment identified area map)	Install fencing, provide water, and restrict livestock access along 1000 linear feet of riparian area.	10,000	10,000	10,000	10,000	40,000	State	SWCDs	NRCS
				SUBTOTAL	**465,598**	**565,598**	**465,598**	**465,598**	**1,962,392**			
URBAN STORMWATER												

Original Action No.	Action Description	Action	Local Priority Area	Measurable Output for Activity	Timeframe 2022 / 2023	2024 / 2025	2026 / 2027	2028 / 2029	Estimated Cost[2]	Primary Fund Source	Lead LGU	Supporting Entities
9,17, 24, 25	Inspect, maintain and improve the integrity of existing urban structures that route and treat stormwater runoff to prevent downstream stream erosion and flooding and improve water quality to priority locations.	Complete a Stormwater Retrofit Analysis to inform future projects	MS4 designated cities, and communities within Priority areas (see map)	Complete 4 Stormwater Retrofit Anslyis reports	20,000	20,000	20,000	20,000	80,000	State	SWCD	City
				SUBTOTAL	**20,000**	**20,000**	**20,000**	**20,000**	**80,000**			
DRINKING WATER - GROUNDWATER QUALITY												
1	Implement and maintain existing BMPs that reduce leaching within Drinking Water Supply Management Areas (DWSMAs) and recharge areas that are highly vulnerable to contamination. Implement and maintain existing BMPs within priority locations that reduce vertical movement of nitrates and other contaminants into groundwater.	Well Sealing	DWSMAs in Buffalo, maple lake, Cokato, Howard Lake, Waverly Montrose, and in high / moderately high nitrogen infiltration risk areas	Seal 10 wells per biennium	5,000	5,000	5,000	5,000	20,000	State	SWCD	County
				SUBTOTAL	**5,000**	**5,000**	**5,000**	**5,000**	**20,000**			
STREAMS AND RIVERS												
11	Implement and maintain existing BMPs that stabilize ravines, gullies, and gully heads.	Gully Stabilization	Priority areas (see maps)	Inspect 1,500 ft of identified ravines of gullies per biennium	10,000	10,000	10,000	10,000	40,000	State	SWCD	
12	Proactively cleanout build-up of debris from water resources and stormwater ponds.	Public waters maintenance	Priority areas (see maps)	As needed from inspections	15,000	15,000	15,000	15,000	60,000	State	SWCD	DNR
		MDM Practices on public drainage systems	Specific drainage systems that will be targeted for water quality practices	As needed from inspections	30,000	30,000	30,000	30,000	120,000	State	County	SWCD
16	Implement and maintain existing BMPs that provide perennial vegetative cover within the riparian corridor to decrease bank erosion, increase stream shading, and reduce water temperature.	Implement practices within the Twelvemile Creek SWA.	Catchments contributing to Twelvemile Creek as identified.	Implement 2 high priority projects	50,000	50,000	50,000	50,000	200,000	State, Federal	SWCD	NRCS, DNR, BWSR
				SUBTOTAL	**105,000**	**105,000**	**105,000**	**105,000**	**420,000**			
CAPITAL IMPROVEMENT PROJECTS												
Ann Lake Water Quality & Flood Control		A limestone filter near grass lake to help improve water quality and water quantity management to prevent flooding of homeowner property on Ann Lake	Twelvemile Creek Subwatershed	Complete one project	500,000				500,000	State, Federal	SWCD	
				SUBTOTAL	**500,000**	**0**	**0**	**0**	**500,000**			
				TOTAL FUNDING NEED	**1,279,298**	**1,104,298**	**779,298**	**879,298**	**4,042,192**			

14 Local Actionable Activities

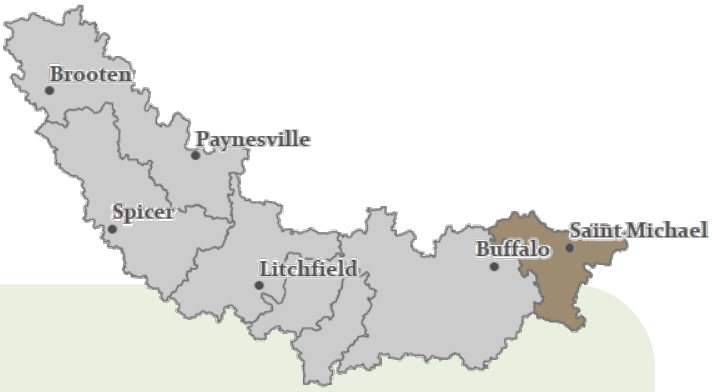
[1] Regional Priority Issues defined in Table 4-4 of the original plan document

[2] Estimated costs are generalized and based on past projects or empirical data. Cost estimates are to be used for planning purposed only; detailed estimates are recommended for further project development.

[3] Estimated costs based on PTMApp Outputs in Table ES-2

CROW RIVER

Priority Issues and Resources



URBAN STORMWATER

STORMWATER MANAGEMENT

- The cities of St. Michael, Hanover, Rogers, Otsego are designated MS4
- Develop Stormwater Retrofit Analysis report for those cities that do not currently have one: Rockford, Hanover, St. Michael, Rogers
- Adopt-A-Drain Program

LAKES

RESTORATION LAKES

Sarah
Pelican
Martha
Beebe
Wilhelm

PROTECTION LAKES

Charlotte
Foster
Crawford
Dean

44

Lakes in the planning region over 10 acres

DRINKING WATER

DRINKING WATER SUPPLY WATER MANAGEMENT AREAS

- St. Michael
- Hannover
- Rogers
- Otsego SE

- Wellhead protection plans exist for DWSMAs with a list of potential projects to protect drinking water supplies

STREAMS AND RIVERS

PRIORITY STREAMS & RIVERS

- Crow River (07010204-502)
- Regal Creek
- Sarah Creek (07010204-628)
- Unnamed to West Sarah Lake (07010204-627)
- Unnamed to East Sarah Lake (07010204-625)

Subwatershed assessment reports provide a targeted list of potential practices, landowner contact, preliminary design details and costs to pursue for implementation, based on PTMApp data.

SURFACE RUNOFF

29,340

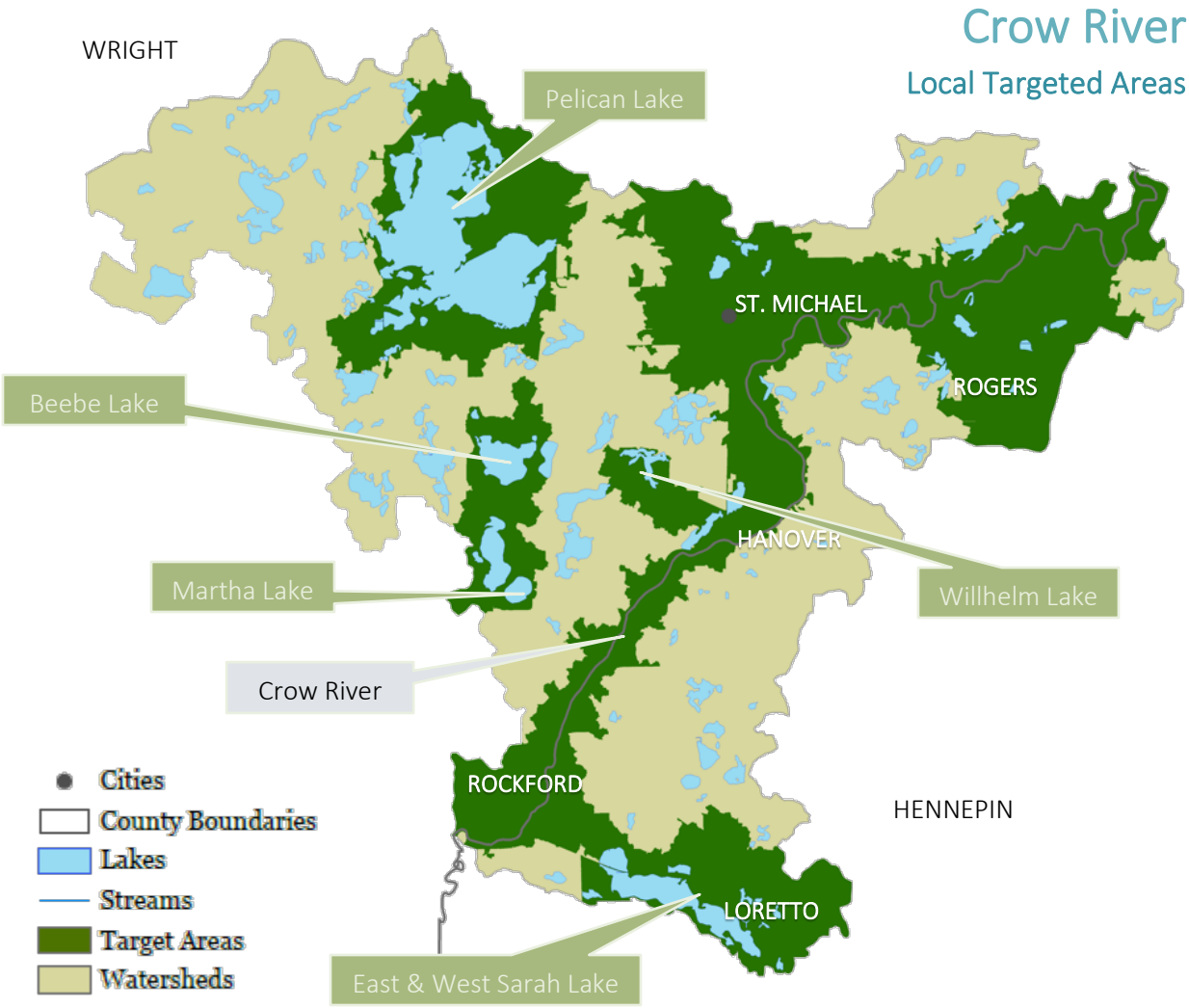
Acres of cropland suitable for rural stewardship practices

293

Equals **1% of the suitable acres**[****] that could be targeted for rural stewardship practices

This planning region is rapidly converting farmland to urban development.

[****] 1% defined as a reasonable short-term goal to achieve per planning region.



Local priorities the Crow River planning region were selected by Partners to reflect the priority resources and programs identified. Targeted areas for implementation are shown in dark green in the map above.

The target areas are based on the influence of urban stormwater in these large cities with MS4 regulatory designations, including St. Michael, Rogers, Hanover and portions of the urbanized area of Otsego.

The major lakesheds contributing to impairments in Pelican, East & West Sarah Lakes and others were selected because of citizen engagement opportunities as valuable economic resources. Pelican Lake is also a target due to its habitat protection areas.

Rockford is the confluence of the North Fork and South Fork Crow rivers and an important drinking source for the downstream cities of Minneapolis and Rochester. The targeted area reflects protecting this important resource.

Planning Region	Regional Priority Issue[1]	Level
Crow River	Urban Stormwater	C
	Lakes	A
	Drinking Water	A
	Streams and Rivers	B
	Surface Runoff	A

* ***Regional Priority Issue*** *from Table 4-4 on Page 4-26*

Structural and Management Practices

Action No.	Action Description	Action	Local Priority Area	Measurable Output for Activity	Timeframe 2022 / 2023	2024 / 2025	2026 / 2027	2028 / 2029	Estimated Cost[2]	Primary Fund Source	Lead LGU	Supporting Entities
URBAN STORMWATER												
9,17, 24, 26	Inspect, maintain and improve the integrity of existing urban structures that route and treat stormwater runoff to prevent downstream stream erosion and flooding and improve water quality to priority locations.	Develop and implement Stormwater Retrofit Plan	Cities of Rockford, Hanover, St. Michael, Rogers, Otsego	Maintain compliance with MS4 general permit requirements; Complete 5 stormwater retrofit plans	20,000	20,000	20,000	20,000	80,000	State	SWCD	City
				SUBTOTAL	**20,000**	**20,000**	**20,000**	**20,000**	**80,000**			
LAKES												
126	Stabilize and/or restore degraded sections of lakeshore, stream and river reaches to provide multiple benefits, such as enhanced hydrologic function and reduced bank failure and sediment deposition into waterbodies, while also providing connectivity benefits for aquatic and terrestrial habitats.	Bank Stabilization	Targeted locations on local priority lakes (see map)	Establish 2 practices or 100 ln ft of stabilized shoreline or riparian area biennium	2,000	2,000	2,000	2,000	8,000	State	SWCD	SWCD
9, 14	Implement and maintain existing BMPs within priority locations that reduce nutrient loading and increase water storage to waterbodies by treating surface and shallow sub-surface runoff before entering ditches and streams.	Pond Riparian Cover Grassed Waterway Drainage Management WASCOBs Wetlands	Priority areas (see maps)	# of practices implemented within the planning region[3]	317,413	317,413	317,413	317,413	1,269,652	State	SWCD	
127	Assist as needed with outlet structure reconstruction and improvements on degraded or failing structures.	Conduct partner assessment with the DNR with the degrading lake outlet structures	Priority areas (see maps)	Complete 1 assessment		20,000			20,000	Local	SWCD	
15	Use managed and rotational grazing methods to manage animal wastes, prevent livestock entry into surface waterbodies, and improve soil health.	Livestock exclusion and alternative watering	Main stem of river (see river assessment identified area map)	Install fencing, provide water, and restrict livestock access along 1000 linear feet of riparian area.	10,000	10,000	10,000	10,000	40,000	State	SWCDs	NRCS
				SUBTOTAL	**329,413**	**349,413**	**329,413**	**329,413**	**1,337,652**			
DRINKING WATER - GROUNDWATER QUALITY												
1	Implement and maintain existing BMPs that reduce leaching within Drinking Water Supply Management Areas (DWSMAs) and recharge areas that are highly vulnerable to contamination. Implement and maintain existing BMPs within priority locations that reduce vertical movement of nitrates and other contaminants into groundwater.	Well Sealing	DWSMAs in Rockford, Hanover, St. Michael and Rogers, high / moderately high nitrogen infiltration risk areas	Seal 10 wells per biennium	5,000	5,000	5,000	5,000	20,000	State	SWCD	County
				SUBTOTAL	**5,000**	**5,000**	**5,000**	**5,000**	**20,000**			
STREAMS AND RIVERS												
11	Implement and maintain existing BMPs that stabilize ravines, gullies, and gully heads.	Gully Stabilization	Priority areas (see maps)	Inspect 1,500 ft of identified ravines of gullies per biennium	10,000	10,000	10,000	10,000	40,000	State	SWCD	
12	Proactively cleanout build-up of debris from water resources and stormwater ponds.	Public waters maintenance	Priority areas (see maps)	As needed from inspections	TBD	TBD	TBD	TBD	0	State	SWCD	DNR
		MDM Practices on public drainage systems	Specific drainage systems that will be targeted for water quality practices?	As needed from inspections	TBD	TBD	TBD	TBD	0	State	County	SWCD
				SUBTOTAL	**10,000**	**10,000**	**10,000**	**10,000**	**40,000**			
SURFACE RUNOFF												

Action No.	Action Description	Action	Local Priority Area	Measurable Output for Activity	Timeframe 2022 / 2023	2024 / 2025	2026 / 2027	2028 / 2029	Estimated Cost[2]	Primary Fund Source	Lead LGU	Supporting Entities
10, 20, 17, 9, 10	Promote BMPs that enhance hydrologic storage by increasing perennial native vegetation in upland and riparian areas that provide connections to expand riparian access.	Wetland Restoration	Priority areas (see maps)	Complete 1 wetland restoration		75,000			75,000	State	SWCD	NRCS
		Conservation Easements	Priority areas (see maps)	Enroll 100 acres into land protection programs	175,000	175,000	175,000	175,000	700,000	State	SWCD	NRCS
2	Implement and maintain existing BMPs that are focused on improving or maintaining soil health and soil organic content, including but not limited to conservation tillage and residue management, crop rotation methods, and the use of cover crops.	Cover Crops	Priority areas (see maps)	Enroll 100 acres per biennium	8,700	8,700	8,700	8,700	34,800	State, Federal	SWCD	NRCS
3, 4, 7	Develop and implement nutrient and manure management plans for agricultural producers that follow operational best management practice recommendations, summarized within the MDA Nitrogen Fertilizer Management Plan and consistent with University of Minnesota recommendations.	MAWQCP	Priority areas (see maps)	Enroll 2 operations					0	State	SWCD	
		Animal Waste Management Systems and Improvements	Local priority area (see map) , County noncompliant systems list	Improve feedlots and manure storage for 2 facilities		100,000		100,000	200,000	Federal	SWCD	NRCS
18, 19, 20,	Implement and maintain existing BMPs within riparian areas that improve connectivity within riparian corridors and floodplains.	Complete subwatershed assessments for priority areas	Priority areas (see maps)	Complete 1 subwatershed assessment			10,000		10,000	State	SWCD	
				SUBTOTAL	**183,700**	**358,700**	**193,700**	**283,700**	**1,019,800**			
CAPITAL IMPROVEMENT PROJECTS												
129	Evaluate the need for, develop, and implement capital improvement projects to address areas currently subject to damage.	Develop list of potential Capital Improvements in the planning region	Regionwide	List of capital improvements for future implementation	10,000				10,000	State	SWCD, County	Cities
				SUBTOTAL	**10,000**	**0**	**0**	**0**	**10,000**			
				TOTAL FUNDING NEED	**558,113**	**743,113**	**558,113**	**648,113**	**2,507,452**			

13 Local Actionable Activities

[1] Regional Priority Issues defined in Table 4-4 of the original plan document

[2] Estimated costs are generalized and based on past projects or empirical data. Cost estimates are to be used for planning purposed only; detailed estimates are recommended for further project development.

[3] Estimated costs based on PTMApp Outputs in Table ES-2

SECTION 3: WATERSHED-WIDE IMPLEMENTATION

This section provides the plan actions that will be undertaken watershed-wide in all planning regions. The tables have been modified from Table 4-1 (page 4-4 in the CWMP) to include only the actions that have a local lead.

REGULATORY PROGRAMS

Original Action No.	Action Description	Location / Priority Area	Status / Timing	Lead Entity	Partners	Resource Category	Priority Concerns
5	Promote the development of pesticide management plans that follow operational best management practice recommendations, including Licensed Applicators Statute.	Watershed-wide	Existing Program	SWCD	NRCS, Crop advisors	Groundwater	Drinking Water
30	Administer adopted land use and zoning ordinances to manage possible sources of nitrate contamination (e.g., subsurface sewage treatment systems; manure management; land development), and pathogenic bacterial contamination (e.g., subsurface sewage treatment systems; manure management; concentrated livestock access to streams) and consider potential adverse effects within DWSMAs.	Watershed-wide	Existing Program	County	City, MDA	Groundwater	Drinking Water
						Surface Water	Streams and Rivers; Lakes; Wetlands
31	Plan land use patterns and evaluate zoning changes and project proposals with the goal of reducing the amount of potential contaminants in sensitive groundwater recharge areas/vulnerable DWSMAs.	Watershed-wide; specific wellhead protection areas where high groundwater infiltration identified	Existing Program	County / City	City, MDA	Groundwater	Drinking Water
32	Bring Subsurface Sewage Treatment Systems (SSTSs) into compliance to reduce nutrient and bacterial loading from small, unsewered communities and homes with inadequate wastewater treatment.	Watershed-wide	Existing Program	County	SWCD, CROW, MPCA, MDA	Groundwater	Drinking Water
						Surface Water	Streams and Rivers; Lakes; Wetlands
33	Provide educational and financial assistance to promote maintenance of compliant SSTSs.	Watershed-wide	Existing Program	County	WD, SWCD, MPCA, MDA	Groundwater	Drinking Water
						Surface Water	Streams and Rivers; Lakes; Wetlands
35	Meet all statutory requirements of the State of Minnesota (MN Rules 6120.250- 3900) that regulate the subdivision, use, and development of shorelands of public waters, in addition to the Buffer and Soil Erosion Legislation.	Watershed-wide	Existing Program	SWCD, County, City	DNR, BWSR	Surface Water	Streams and Rivers; Lakes; Surface Runoff; Wetlands
			Existing Program			Fish and Wildlife and Unique Habitat Features	Lake Shoreland and Stream Riparian Corridors
			Existing Program			Local Development and Sustainability	Rural Development and Sustainability
36	Encourage stormwater sediment reduction in existing and developing rural subdivisions and urban areas, including implementing existing construction stormwater permit programs and installing MIDS requirements. Promote incorporation of MIDs requirements (or similar) into local zoning ordinances.	Watershed-wide	Existing Rule, Conceptual	City	SWCD, County, WD	Surface Water	Streams and Rivers; Lakes; Wetlands
						Water Resources Infrastructure	Urban Stormwater
37	Explore possibility of an ordinance restricting open intakes on drainage tiles that outlet directly into lakes.	Watershed-wide; prioritize for drainage authorities	Conceptual	Drainage Authorities	SWCD, City, County	Surface Water	Lakes
38	Develop and apply resources to assess and estimate wetland loss.	Watershed-wide	Developing	County / SWCD	BWSR	Surface Water	Streams and Rivers; Lakes; Wetlands
39	Administer zoning regulations that encourage development practices that preserve and enhance natural and pervious areas, such as native prairies and old growth forests.	Watershed-wide	Existing Program	County	SWCD, City	Surface Water	Lakes
						Fish and Wildlife and Unique Habitat Features	Terrestrial Habitat; Lake Shoreland and Stream Riparian Corridors
						Water Resources Infrastructure	Urban Stormwater
40	Inventory shoreland violations and map shoreland stewardship on lakes in each county.	Watershed-wide	Existing Program, Developing	County / SWCD	WD	Fish and Wildlife and Unique Habitat Features	Lake Shoreland and Stream Riparian Corridors
41	Use the floodplain management ordinance and land use and zoning approvals to minimize the likelihood of future flood damages.	Watershed-wide	Existing Program	County	City, DNR	Surface Water	Surface Runoff
42	Implement and enforce applicable county ordinances and the Wetland Conservation Act (WCA) to retain wetland quantity, function, and value.	Watershed-wide	Existing Program	County	SWCD, City, DNR, BWSR	Surface Water	Wetlands
						Local Development and Sustainability	Rural Development and Sustainability
43	Adhere to Minnesota Statutes and Rules pertaining to invasive species (Minnesota Statute 84D and Minnesota Rules 6216) and the Noxious Weed Law (Minnesota Statutes Sections 18.76 to 18.91).	Watershed-wide	Existing Program	County	DNR, MDA	Fish and Wildlife and Unique Habitat Features	Terrestrial Habitat
44	Administer Minnesota Rules Chapter 7080 through 7083 managing SSTS and Minnesota Rules Chapter 7020 managing feedlots to protect surface and groundwater quality.	Watershed-wide	Existing Program	City / County	SWCD, MPCA	Local Development and Sustainability	Rural Development and Sustainability
45	Encourage the use of BMPs on active construction sites to reduce amount of erosion. Refer to MN Rule Chapter 7090 Storm water regulatory program for guidance for activities that do not fall under permitting requirements or are in non-MS4 communities.	Watershed-wide	Existing Program	County / City	SWCD, MPCA	Water Resources Infrastructure	Urban Stormwater
46	Administer Minnesota Rules Chapter 103D	Watershed-wide	Existing Program	WD / County	SWCD, City, DNR	Surface Water	Streams and Rivers; Lakes; Surface Runoff; Wetlands
						Water Resources Infrastructure	Agricultural Drainage Systems
47	Review and update local regulations that address storm water erosion and runoff control, grading plan approval, and grading drainage standards.	Watershed-wide	Existing Program	City / County	SWCD, MPCA	Water Resources Infrastructure	Urban Stormwater
48	Collaborate with cities in watershed to encourage use of Low Impact Design criteria (or similar) during development planning. Cities that request help will be prioritized for funding to upgrade procedures.	Watershed-wide	Developing	Cities	SWCD, WD, CROW, County	Water Resources Infrastructure	Urban Stormwater
49	Regulate the reconstruction and repair of dams and other water control structures.	Watershed-wide	Existing Program	WD	County, DNR, USACE	Water Resources Infrastructure	Urban Stormwater
							Agricultural Drainage Systems

DATA GAPS AND RESEARCH

Original Action No.	Action Description	Location / Priority Area	Status / Timing	Lead Entity	Partners	Resource Category	Priority Concerns
55	Consider Minneapolis and St. Paul Source Water Protection Areas as part of an evaluation of how existing or new land use activities or redevelopment may impact the quality of the Mississippi River as a drinking water source.	Watershed- Wide	Ongoing	City / County	MDH, Met Council, Upper Mississippi Source Water Protection Project (UMRSWPP)	Surface Water	Drinking Water
56	Promote the development of a spill response plan that addresses high volume railroad corridors, pipelines, and other large contaminant threats in relation to the locations of community wells, DWSMA vulnerability and potential impacts to the Mississippi River as a drinking water source.	Watershed- Wide	Ongoing	City / County	MDH, Met Council	Groundwater	Drinking Water
59	Develop and implement a program to assess the number of failing and non- conforming SSTSs within the plan area, and the estimate impact to area water resources.	Watershed- Wide	Ongoing or as determined in Annual Work Plan	County	SWCD, WD, CROW, BWSR	Surface Water	Streams and Rivers; Lakes; Surface Runoff; Wetlands
62	Develop criteria and baseline conditions for shoreland stewardship within the watershed.	Watershed- Wide	As determined in Annual Work Plan	SWCD	WD, DNR	Surface Water	Streams and Rivers
						Fish and Habitat and Unique Natural Features	Lake Shoreland and Stream Riparian Corridors
63	Develop technical team to devise reasonable action plan or possible changes to shoreland rules to reflect what the public will accept and still protect the resource.	Watershed- Wide	As determined in Annual Work Plan	County / SWCD	WD, CROW	Fish and Wildlife and Unique Habitat Features	Lake Shoreland and Stream Riparian Corridors
64	Identify non-conforming feedlots and target to bring into compliance. Number of feedlots targeted for compliance for each county is based on area of the county in the watershed and the number of non-conforming feedlots identified.	Watershed- Wide	Ongoing	County	SWCD, WD, CROW, BWSR	Groundwater	Drinking Water
						Surface Water	Streams and Rivers; Lakes; Surface Runoff; Wetlands
65	Monitor precipitation and increase the number of volunteer rain gauge readers to evaluate short and long-term trends and their relationship to groundwater supplies and lake levels.	Watershed- Wide	Ongoing or as determined in Annual Work Plan	State Climatology	County, SWCD	Groundwater	Groundwater Supplies
						Surface Water	Lakes
69	Inventory the locations and cause of unstable stream and river reaches and prioritize them for implementation by addressing the root cause of instability, as well as on-site implementation.	Watershed- Wide	Ongoing or as determined in Annual Work Plan	WD, SWCD	DNR	Surface Water	Streams and Rivers
73	Form committee to explore collaborative efforts in dealing with AIS including education, control, rapid response, and inspections.	Watershed- Wide	As determined in Annual Work Plan	SWCD / WD / County	DNR	Surface Water	Streams and Rivers
74	Pursue funding to provide technical and financial assistance to control, manage, and prevent invasive species.	Watershed- Wide	Ongoing or as determined in Annual Work Plan	SWCD / WD	DNR	Surface Water	Streams and Rivers; Lakes; Wetlands
						Fish and Habitat and Unique Natural Features	Terrestrial Wildlife
75	Maintain current and historical GIS records of invasive species using the MnDNR database.	Watershed- Wide	Ongoing or as determined in Annual Work Plan	DNR	SWCD / CROW	Surface Water	Streams and Rivers; Lakes; Wetlands
						Fish and Habitat and Unique Natural Features	Terrestrial Wildlife
80	Prepare and maintain formal maps to define the boundary of the riparian area adjacent to perennial streams and rivers, as a way to focus the implementation of incentive-based initiatives.	Watershed- Wide	As determined in Annual Work Plan	SWCD	County, DNR, TNC, MDA	Surface Water	Surface Runoff
						Fish and Habitat and Unique Natural Features	Lake Shoreland and Stream Riparian Corridors
81	Define impact of altered hydrology on surface runoff and water resources within the watershed and use results to generate quantitative storage goals for each planning region to mitigate impacts of altered hydrology.	Watershed- Wide	As determined in Annual Work Plan	SWCD / WD	County, DNR	Surface Water	Surface Runoff
84	Develop and maintain an inventory of urban and agricultural locations on the landscape that are prone to flood damages.	Watershed- Wide	As determined in Annual Work Plan	County / City	SWCD, WD	Surface Water	Surface Runoff
86	Review and investigate WCA consistency and review possibility of shared services.	Watershed- Wide	As determined in Annual Work Plan	NFCRWPP	BWSR, DNR	Surface Water	Wetlands
89	Identify information sources to better classify rural stewardship within the plan area, including where existing nutrient management plans, soil health and tillage practices, and irrigation best management practices are currently being implemented.	Watershed- Wide	As determined in Annual Work Plan	SWCD	NRCS, County, MPCA, MDA	Local Development and Sustainability	Rural Development and Sustainability
90	Identify information sources to better classify urban stewardship within the plan area.	Watershed- Wide	As determined in Annual Work Plan	SWCD	Cities, MPCA	Surface Water	Streams and Rivers; Lakes; Surface Runoff
						Water Resources Infrastructure	Urban Stormwater
91	Inventory urban infrastructure to assess downstream flooding and water quality degradation from storm events.	Watershed- Wide	Ongoing	Cities	County, SWCD, MPCA, WD	Water Resources Infrastructure	Urban Stormwater
92	Assess capacity to productively reuse stormwater runoff through either rainwater harvesting (collection of roof runoff) or stormwater capture and reuse.	Watershed- Wide	As determined in Annual Work Plan	MPCA, Cities	MDH, MPCA, SWCD, WD	Water Resources Infrastructure	Urban Stormwater
93	Explore a pilot area and inventory of known field tile locations for BMP implementation.	Watershed- Wide	As determined in Annual Work Plan	SWCD / WD	SWCD	Water Resources Infrastructure	Agricultural Drainage Systems
99	Conduct assessments of the condition and functionality of existing dams.	Watershed- Wide	Ongoing or as determined in Annual Work Plan	WD	County, DNR, USACE	Water Resources Infrastructure	Agricultural Drainage Systems
							Urban Stormwater
100	Assist public water suppliers in implementing their wellhead protection plans.	Watershed- Wide	Ongoing	Public Water Suppliers	MDH, WD, Counties, Cities, SWCD	Groundwater	Drinking Water
22	***Local Actionble Activities***						

EDUCATION AND OUTREACH

Original Action No.	Action Description	Location / Priority Area	Status / Timing	Lead Entity	Partners	Resource Category	Priority Concerns
6	Encourage the use of precision agriculture through education, technical, and financial assistance.	Watershed-wide	Ongoing or as determined in Annual Work Plan	SWCD	WD, NRCS, Extension Service, Crop advisors, SWCD, MDA	Groundwater	Drinking Water
101	Develop Education and Outreach Initiative with two campaigns: (1) the General Public Knowledge and Behavior Campaign, and (2) the Landowner, Producer and Lake Shore Owner Engagement Campaign	Watershed- Wide	Ongoing or as determined in Annual Work Plan	NFCRWPP	N/A	Local Knowledge Base and Technical Capacity	Public Knowledge; Landowner, Producer, and Lake Shore Owner Engagement
102	Implement an education/outreach campaign for the responsible use, storage, and disposal of pesticides.	Watershed- Wide	Ongoing or as determined in Annual Work Plan	City / County	MDA, SWCD	Groundwater	Drinking Water
103	Encourage municipalities to use practices that promote water conservation and efficiency. Some examples include tiered billing rates that reward conservation, improved meters and leak detection, rebates for water-saving appliances and irrigation best practices including turf irrigation technologies (e.g. golf course, schools).	Watershed- Wide	Ongoing or as determined in Annual Work Plan	Cities	MDH, SWCD, County, DNR, WD	Groundwater	Groundwater Supplies
104	Encourage watershed residents and businesses through educational and outreach efforts to adopt conservation and water reuse practices, such as capturing stormwater for irrigation and planting native vegetation / lawns that do not require as much water.	Watershed- Wide	Ongoing or as determined in Annual Work Plan	City, County	MDH, SWCD, DNR, Township	Groundwater	Groundwater Supplies
105	Promote education about source control within rural subdivisions and urban areas to promote a reduction of chloride loading to waterbodies. Encourage stormwater chloride source reduction in rural subdivisions and urban areas.	Watershed- Wide	Ongoing or as determined in Annual Work Plan	City / County	MDH, SWCD, DNR, Met Council	Surface Water	Streams and Rivers
106	Perform education and outreach initiatives targeted to general public / lakeshore owners about threats of invasive species, and ways to identify, prevent, and control them.	Watershed- Wide	Ongoing or as determined in Annual Work Plan	County, SWCD	DNR, WD	Surface Water	Streams and Rivers; Lakes
						Fish and Wildlife and Unique Habitat Features	Terrestrial Habitat; Lake Shoreland and Stream Riparian Corridors
107	Facilitate conversations with local stakeholders and local government units (LGUs) in regards to increased watercraft inspections/monitoring at lake access sites to promote prevention.	Watershed- Wide	Ongoing or as determined in Annual Work Plan	SWCD, County	DNR, WD	Surface Water	Streams and Rivers
108	Promote natural shorelands and shoreland revegetation by providing education, technical, and financial assistance to landowners for shoreland restoration	Watershed- Wide	Ongoing or as determined in Annual Work Plan	SWCD, County	DNR, NRCS	Surface Water	Lakes
109	Provide technical and financial assistance to lake associations and other stakeholders for the implementation of in-lake management efforts to improve the quality of water resources, when appropriate.	Watershed- Wide	Ongoing or as determined in Annual Work Plan	CROW, WD	DNR / SWCD	Surface Water	Lakes
110	Perform education and outreach initiatives targeted to general public / lake shore owners about impacts of recreational boating motors on the resuspension of lake sediment.	Watershed- Wide	Ongoing or as determined in Annual Work Plan	DNR, County	N/A	Surface Water	Lakes
111	Use various programs to provide land owners with economically viable alternatives for use of land in flood prone areas.	Watershed- Wide	Ongoing or as determined in Annual Work Plan	SWCD	NRCS	Surface Water	Surface Runoff
112	Provide educational and technical assistance to landowners regarding State and Federal programs to preserve and restore wetlands, including the State wetland-banking program.	Watershed- Wide	Ongoing or as determined in Annual Work Plan	SWCD	DNR, County, U of MN, NRCS, USFWS	Surface Water	Wetlands
113	Provide educational materials, consultations, demonstration projects, and workshops to landowners, agricultural producers, and lake shore owners about compensation and incentive programs to promote riparian BMPs and shoreland BMPs (including shoreland restoration and shoreland revegetation).	Watershed- Wide	Ongoing or as determined in Annual Work Plan	SWCD / WD	NRCS, U of M, BWSR	Fish and Wildlife and Unique Habitat Features	Lake Shoreland and Stream Riparian Corridors
						Local Knowledge Base and Technical Capacity	Landowner, Producer, and Lake Shore Owner Engagement
114	Provide school presentations and other educational efforts tailored to youth.	Watershed- Wide	Ongoing or as determined in Annual Work Plan	SWCD / WD	Extension, County, School Districts	Local Knowledge Base and Technical Capacity	Public Knowledge
115	Provide and distribute educational materials through various multi-media methods about local water management, the impacts of decisions, and actions the public can take to make a difference.	Watershed- Wide	Ongoing or as determined in Annual Work Plan	SWCD / WD	Extension, County, City	Local Knowledge Base and Technical Capacity	Public Knowledge
116	Host meetings for the public regarding monitoring results and assessments from North Fork Crow River Watershed 1W1P monitoring activities.	Watershed- Wide	Ongoing or as determined in Annual Work Plan	SWCD / WD	Watershed Districts, County, MPCA	Local Knowledge Base and Technical Capacity	Public Knowledge
117	Host annual meetings for local government officials about the condition of water resources, progress made, and results and assessments from North Fork Crow River Watershed 1W1P monitoring activities.	Watershed- Wide	Ongoing or as determined in Annual Work Plan	NFCRWPP	MPCA, DNR, Cities	Local Knowledge Base and Technical Capacity	Public Knowledge
118	Provide cooperative education efforts and demonstration projects to promote agricultural BMP's including, but not limited to: nutrient management, conservation tillage, buffers, soil testing, pesticide application, etc.	Watershed- Wide	Ongoing or as determined in Annual Work Plan	NFCRWPP	NRCS, MDA, MPCA, Extension	Local Knowledge Base and Technical Capacity	Landowner, Producer, and Lake Shore Owner Engagement
119	Develop new techniques to promote conservation efforts, such as administering a local certification training program or partnering with agribusiness retailers to recommend appropriate BMPs.	Watershed- Wide	Ongoing or as determined in Annual Work Plan	NFCRWPP	Cities, DNR, MDA	Local Knowledge Base and Technical Capacity	Landowner, Producer, and Lake Shore Owner Engagement
120	Support and encourage citizen-led initiatives, such as Farmer Led Councils, lake associations, farmer mentor lists, and local advisory committees, that promote conservation through peer-based outreach and performance-based incentives.	Watershed- Wide	Ongoing or as determined in Annual Work Plan	NFCRWPP	NRCS, MDA, MPCA, Extension	Local Knowledge Base and Technical Capacity	Landowner, Producer, and Lake Shore Owner Engagement
121	Develop a comprehensive civic engagement plan.	Watershed- Wide	Ongoing or as determined in Annual Work Plan	NFCRWPP	SWCD, County, WD, MPCA	Local Knowledge Base and Technical Capacity	Landowner, Producer, and Lake Shore Owner Engagement
122	Promote education for solid and hazardous waste disposal and awareness of existing regulations, rules, and ordinances pertaining to proper waste disposal to reduce chemical and nutrient contamination of water.	Watershed- Wide	Ongoing or as determined in Annual Work Plan	County	SWCD, CROW	Local Development and Sustainability	Rural Development and Sustainability
124	Provide educational materials, consultations, and workshops to landowners and agricultural producers about public drainage and public water statutes, including MS 103E.015 subd 1a.	Watershed- Wide	Ongoing or as determined in Annual Work Plan	WD, County	SWCD, County, BWSR	Water Resources Infrastructure	Agricultural Drainage Systems
125	Provide educational materials regarding the detection and treatment of contaminants in drinking water where applicable throughout the watershed.	Watershed-Wide	Ongoing or as determined in Annual Work Plan	MDH	SWCD, County, WD, Cities	Local Knowledge Base and Technical Capacity	Public Knowledge
24	***Local Actionble Activities***						

CAPITAL IMPROVEMENTS

Original Action	Action Description	Location / Priority Area	Status / Timing	Lead Entity	Partners	Resource Category	Priority Concerns
126	Stabilize and/or restore degraded sections of stream and river reaches to provide multiple benefits, such as enhanced hydrologic function and reduced bank failure and sediment deposition into waterbodies, while also providing connectivity benefits for aquatic and terrestrial habitats.	Watershed- Wide	As determined in Annual Work Plan	SWCD / County / WD	DNR	Surface Water	Streams and Rivers; Lakes; Surface Runoff; Wetlands
127	Assist as needed with outlet structure reconstruction and improvements on degraded or failing structures.	Watershed- Wide	As determined in Annual Work Plan	SWCD / County / WD	DNR, MPCA	Surface Water	Lakes
128	Maintain public infrastructure to provide drainage at the anticipated level of service to minimize flood damage to land both upland and downstream of the managed systems.	Watershed- Wide	As determined in Annual Work Plan	SWCD / County / WD	DNR, MPCA	Surface Water	Surface Runoff
129	Evaluate the need for, develop, and implement capital improvement projects to address areas currently subject to damage.	Watershed- Wide	As determined in Annual Work Plan	SWCD / County / WD	DNR	Surface Water	Surface Runoff
130	Protect the natural meandering of streams and promote the restoration of straightened streams to decrease stream velocity for reducing flood impacts and enhance recreational and fish and wildlife habitat value.	Watershed- Wide	As determined in Annual Work Plan	SWCD / County / WD	DNR	Local Development and Sustainability	Rural Development and Sustainability
131	Identify where maintenance is needed on County ditch systems, and complete repairs in accordance with multi-purpose drainage goals as stated in MS 103E.015.	Watershed- Wide	As determined in Annual Work Plan	SWCD / County / WD	BWSR, SWCD	Water Resources Infrastructure	Agricultural Drainage Systems
6	***Local Actionble Activities***						

SECTION 4: SUMMARY

This Plan amendment the actions that will be undertaken by the Partners, where those actions will be focused, how those actions will be measured, when they can be undertaken, and what progress will be made. The overall plan measurable goals, the resource issues identified and the overall method of practice selection may be addressed in a future plan amendment if Partners find that valuable.

Implementing the “Top 250” practices is a priority for the Partners. This plan identifies the areas that can provide further targeting of those top practices, in order to maximize the technical and financial resources of each Partner.

Providing a specific list of priority resources such as lakes, streams, drainage ditches, etc., enhances the connection to the plan when applying for the additional funding sources critical to implementing actions in the plan. Without these additional funding sources, the majority of these actions will not be completed.

References

Minnesota Pollution Control Agency. (2020). *North Fork Crow River Watershed Stressor Identification Report.* Saint Paul, MN 55155-4194: MPCA. Retrieved from https://www.pca.state.mn.us/sites/default/files/wqws5-07010204d.pdf

MN Board of Water and Soil Resources. (2020, December). *http://bwsr.state.mn.us/one-watershed-one-plan-resources.* Retrieved from http://bwsr.state.mn.us/: http://bwsr.state.mn.us/sites/default/files/2021-11/WP_1W1P_guidebook.pdf

MN Pollution Control Agency. (2014). *North Fork Crow Watershed (07010204) Watershed Restoration and Protection Strategy Report.* St. Paul: MPCA.

Appendix A: Revision of Table ES-2

Planning Region	Treatment Group Type & Number of Structural BMPs	Estimated Annualized Cost	Parameter	Unit	Existing Condition at Planning Region Outlet	Load Reduction Goal		Load Reduction Expected from Implementation	Load Reduction Expected from Implementation (%)	Progress towards 10 yr. Goal (%)
						Annual Load Reduction (%)	Target Load Reduction			
Lake Koronis-North Fork Crow River	Pond (34) Drain Mgt(183) Wetlands (11) Riparian Cover (22)	$276,670	Sediment	tons/yr.	16,903	25%	4,226	2,754	16%	65%
			Total Nitrogen	lbs./yr.	410,914	45%	184,911	44,711	11%	24%
			Total Phosphorus	lbs./yr.	18,655	12%	2,239	2,347	13%	105%
Middle Fork Crow River	Pond (49) Herb Cover (40) Filter Strip (14) Drain Mgt (121) WaSCoB (1) Wetlands (26)	$434,048	Sediment	tons/yr.	22,822	25%	5,706	2,205	10%	39%
			Total Nitrogen	lbs./yr.	357,462	45%	160,858	41,887	12%	26%
			Total Phosphorus	lbs./yr.	16,302	12%	1,956	2,009	12%	103%
Jewetts Creek-North Fork Crow River	Pond (47) Riparian Cover (12) Filter Strip (7) Grass Wtrway (6) Drain Mgt (82) WaSCoB (91) Wetlands (5)	$425,116	Sediment	tons/yr.	31,254	25%	7,814	4,947	16%	63%
			Total Nitrogen	lbs./yr.	851,960	45%	383,382	34,721	4%	9%
			Total Phosphorus	lbs./yr.	41,185	12%	4,942	1,899	5%	38%
Washington Creek	Pond (61) Riparian Cover (12) Filter Strip (7) Drain Mgt (73) WaSCoBs (94) Wetlands (3)	$469,752	Sediment	tons/yr.	16,571	25%	4,143	6,923	42%	167%
			Total Nitrogen	lbs./yr.	134,195	45%	60,388	37,343	28%	62%
			Total Phosphorus	lbs./yr.	6,132	12%	736	2,086	34%	283%
Big Swan Lake	Pond (48) Riparian Cover (8) Filter Strip (1) Grass Wtrway (5) Drain Mgt (57) WaSCoBs (125) Wetlands (6)	$498,226	Sediment	tons/yr.	14,460	25%	3,615	7,823	54%	216%
			Total Nitrogen	lbs./yr.	129,967	45%	58,485	39,518	30%	68%
			Total Phosphorus	lbs./yr.	5,610	12%	673	2,269	40%	337%

Planning Region	Treatment Group Type & Number of Structural BMPs	Estimated Annualized Cost	Parameter	Unit	Existing Condition at Planning Region Outlet	Load Reduction Goal		Load Reduction Expected from Implementation	Load Reduction Expected from Implementation (%)	Progress towards 10 yr. Goal (%)
						Annual Load Reduction (%)	Target Load Reduction			
North Fork Crow River	Ponds (83) Riparian Cover (16) Grass Wtrway (1) Drain Mgt (108) WaSCoBs (17) Wetlands (25)	$455,598	Sediment	tons/yr.	37,247	25%	9,312	3,860	10%	41%
			Total Nitrogen	lbs./yr.	994,687	45%	447,609	47,545	5%	11%
			Total Phosphorus	lbs./yr.	48,921	12%	5,871	2,476	5%	42%
Crow River	Ponds (27) Riparian cover (14) Grassed Wtrway (4) Drain Mgt (147) WaSCoBs (43) Wetlands (15)	$317,413	Sediment	tons/yr.	25,349	25%	6,337	4,677	18%	74%
			Total Nitrogen	lbs./yr.	916,665	45%	412,499	38,078	4%	9%
			Total Phosphorus	lbs./yr.	50,208	12%	6,025	2,166	4%	36%

Green cells indicate achievement of load reduction goal through implementation of all 250 best structural practices

Estimated number of practices, annualized cost, and progress toward achieving load reduction by planning region, based on implementing the “best”, most cost-effective structural practices with the greatest reductions in the annual nutrient (nitrogen and phosphorus) load delivered to the planning region outlet (regional scale) and the greatest sediment load reduction reaching the catchment outlet (i.e., local scale). Estimates developed using the Prioritize, Target and Measure Application (PTMApp). Load reduction benefits from practice implementation are cumulative and do not consider implementation of upstream practices, and therefore are likely high. Benefits arising from implementation of management practices are not evaluated in this table.

Table Interpretation (top row): In the Lake Koronis-North Fork Crow River planning region, 99 storage practices and 151 filtration practices will cost an estimated $157,377 annually to implement and maintain. Upon implementation of those 250 structural practices, PTMApp estimates that the sediment load at the outlet of the Lake Koronis-North Fork Crow River planning region will be reduced by 4,461 tons/yr., or 22% from existing conditions. This sediment load reduction corresponds to 88% of the target load reduction goal of 5,061 tons/yr. or a 25% load reduction goal, based on the Sediment Reduction Strategy.

Appendix B: PTMApp Average Practice Costs

STRUCTURAL PRACTICES AVERAGE COST

Practice Name	NRCS Code	Average TSS Reduction (tons/yr)	Average TP Reduction (lbs/yr)	Average TN Reduction (lbs/yr)	Average Lifetime Cost
Critical Area Planting	342	4.42	0.88	16.54	$ 8,237
Sediment Basin	350	7.44	2.39	41.09	$ 26,530
Farm Pond	378	14.88	3.79	68.65	$ 44,543
Riparian Herbaceous Cover	390	4.43	2.20	32.84	$ 4,952
Filter Strip	393	1.34	0.44	7.76	$ 2,487
Grade Stabilization	410	4.20	0.29	5.20	$ 22,137
Grassed Waterway	412	3.01	0.53	9.00	$ 4,967
Drainage Water Management	554	10.78	2.30	38.15	$ 14,016
Open Channel	582	2.87	0.21	8.40	$ 3,753
Saturated Buffer	604	5.07	7.48	n/a	$ 119,435
Denitrifying Bioreactor	605	16.10	3.42	74.27	$ 19,384
WaSCoB	638	13.37	2.67	34.29	$ 11,734
Regional Wetland	656_1	63.63	10.14	217.15	$ 65,227
Constructed Wetland	656_2	32.10	3.27	89.26	$ 58,021

Average reductions of all structural practices identified in PTMApp based on a 10-year, 24-hour storm and the average lifetime cost.

NON-STRUCTURAL MANAGEMENT PRACTICES AVERAGE COST

Practice Name	NRCS Code	Average TSS Reduction (tons/acre/year)	Average TP Reduction (lbs/acre/year)	Average TN Reduction (lbs/acre/year)	Average Cost Per Acre Per Year
Conservation Cover	327	0.79	0.28	2.28	$ 257
No Tillage	329	1.25	0.25	4.78	$ 37
Cover Crop	340	1.10	0.23	4.57	$ 87
Reduced Till	345	0.96	0.19	3.74	$ 28
Forage	512	10.30	0.28	2.29	$ 174
Prescribed Grazing	528	0.35	0.03	0.70	$ 76
Nutrient Management (GW)	590_1	0.64	0.08	1.04	$ 238
Nutrient Management (P)	590_2	0.62	0.08	0.00	$ 206
Nutrient Management (N)	590_3	0.62	0.00	1.04	$ 206

Average reductions from source reduction practices per acre based on a 10 year, 24-hour storm of practices identified in PTMApp

Appendix C: Plan Goals Table

WATERSHED-WIDE IMPLEMENTATION GOALS

Priority Concern	Measurable Goal	Metric	Reference Source
Rural Stewardship	Implement management practices (e.g. cover crops, conservation tillage to increase residue, permanent cover, etc.) in 40% of all cropland areas in the watershed to increase SOM content by 1%. Areas to be managed are cropland areas categorized as rural stewardship "Probability Low" and "Probability Depends on Practice Effectiveness" which have SOM content > 1% and =< 4 %.	Percentage of plan area classified as "Probability Low" and "Probability Depends on Practice effectiveness" rural stewardship categories	Regional Implementation Tables - Purple Maps Page 3-9 (pdf pg. 73)
Urban Stewardship	TBD	TBD	Page 3-9 (pdf pg. 73)
Shoreland Stewardship	TBD	TBD	Page 3-10 (pdf pg. 74)
Drinking Water (Groundwater): PROTECTION	Apply structural BMPs or management practices to 80% of the high nitrogen infiltration risk areas (see Section 4) to minimize the likelihood of nitrate-nitrogen leaching to tile systems and groundwater. Priority for the implementation of practices is given to high nitrogen infiltration risk areas within DWSMAs.	Area subject to structural BMPs or management practices.	Figure 3-2 Page 3-14 (pdf pg. 78) Figure 2-1a Page 2-11 (pdf pg. 34) Figure 2-6 Page 2-18 (pdf pg. 41)
	Maintain a less-than-10% exceedance rate of public and private drinking water supply wells exceeding a nitrate-nitrogen concentration of 10 mg/l per the MDA Nitrogen Fertilizer Management Plan.	Percentages of wells exceeding 10 mg/l nitrate-nitrogen concentrations.	Figure 3-2 Page 3-14 (pdf pg. 78) Figure 2-6 Page 2-18 (pdf pg. 41)
	Maintain unaffected private and public drinking water supply wells with nitrate-nitrogen concentrations at or near a concentration representative of background and transitional levels (>3 mg/l)	Number of private and public water supplies with nitrate-nitrogen concentrations maintained below 3 mg/l.	Figure 3-2 Page 3-14 (pdf pg. 78) Figure 2-1b Page 2-12 (pdf pg. 35) Figure 2-6 Page 2-18 (pdf pg. 41)
	Seal 150 unused and abandoned wells per year, with 20 being targeted to areas of high and moderately high nitrogen infiltration risk (see Section 4) and Drinking Water Supply Management Areas.	Number of wells sealed.	Figure 3-2 Page 3-14 (pfd pg. 78) Figure 2-1a Page 2-11 (pdf pg. 34)
Drinking Water (Groundwater): RESTORATION	Reduce the number of public and private drinking water supplies that have nitrate-nitrogen concentrations considered moderately elevated above background concentrations.	Number of public and private drinking water supplies with nitrate-nitrogen concentrations > 3 mg/l but ≤ 7 mg/l.	Figure 3-2 Page 3-14 (78)
	Reduce the number of private and public drinking water supplies that have nitrate-nitrogen concentrations representing a possible future health concern.	Number of private and public water supplies with nitrate-nitrogen concentrations ranging from > 7 mg/l to < 10 mg/l.	Figure 3-2 Page 3-14 (78) Figure 2-6 Page 2-18 (pdf pg. 41)
	Restore private and public drinking water supplies that have nitrate-nitrogen concentrations that currently represent a health concern.	Number of private and public water supplies with nitrate-nitrogen concentrations which equal or exceed the nitrate-nitrogen maximum contaminant level (10 mg/l) under the Safe Drinking Water Act.	Figure 3-2 Page 3-14 (78)
Lakes: PROTECTION	IF LPSS: Meet TP target load reduction goals established by State agencies.	Number of unimpaired lakes.	Figure 2-8 Page 2-20 (pdf pg. 43) Figure 2-16 Page 2-31 (pdf pg. 54)
	IF NOT LPSS: Maintain or decrease existing loads entering the lake, as estimated by PTMApp (Nondegradation).	Pollutant load (as estimated by PTMApp) delivered to lake.	Figure 2-8 Page 2-20 (pdf pg. 43)
	Limit the spread of infested lakes, with containment of existing infested lakes.	Number of inspections and decontaminations completed per year.	Figure 2-2 Page 2-13 (pdf pg. 36) Figure 2-12 Page 2-26 (pdf pg. 49)
Lakes: RESTORATION	IF TMDL COMPLETED: Decrease the number of impaired lakes. Use TMDL load allocation as whether a lake achieves the goal.	Number of lakes unimpaired.	Figure 2-2 Page 2-13 (pdf pg. 36) Figure 2-8 Page 2-20 (pdf pg. 43)
	NO TMDL COMPLETED: Decrease annual total phosphorus loads entering the lake by 10% (as estimated by PTMApp).	Phosphorus load (as estimated by PTMApp) delivered to lake.	Figure 2-8 Page 2-20 (pdf pg. 43)
	Manage current infested lakes within the NFCR Watershed.	Number of acres/lbs. treated in infested lakes.	Figure 2-2 Page 2-13 (pdf pg. 36) Figure 2-8 Page 2-20 (pdf pg. 43) Figure 2-12 Page 2-26 (pdf pg. 49)

Priority Concern	Measurable Goal	Metric	Reference Source
Surface Water Runoff	Achieve the altered hydrology goals established using the historic period (1940- 1975) for the USGS gage at Crow River at Rockford, MN, as the desired benchmark condition by reducing and managing runoff volume. Interim volume reduction goal for the watershed is a 0.5 inch reduction in runoff depth on average across the watershed. Long-term goal for the watershed is to meet altered hydrology mitigation goal of reducing runoff depth 0.75 inches across the watershed.	Acre-feet of volume reduced through rural (primarily by increasing soil organic matter), urban, and shoreland stewardship management and floodwater storage within structural BMPs, or proportion of the plan area with a reduction in runoff depth of 0.5 inches across the watershed.	Figure 2-4 Page 2-15 (pdf pg. 38) Figure 2-7 Page 2-19 (pdf pg. 42) Figure 2-8 Page 2-20 (pdf pg. 43)
Agricultural Drainage Systems	Treat 40% of all cropland areas in in watershed with management practices (cover crops, conservation tillage to increase residue, permanent cover, etc.) to increase Soil Organic Matter (SOM) content 1%, thereby making progress toward surface runoff (altered hydrology) measurable goals. Areas to be treated are cropland areas categorized as rural stewardship “Probability Low” and “Probability Depends on Practice Effectiveness” which have SOM content > 1% and =< 4 %.	Acre-feet of volume reduced through management practices or structural BMPs, or proportion of the plan area with a reduction in runoff depth of 0.5 inches across the watershed	Regional Implementation Tables - Purple Maps Figure 2-3 Page 2-14 (pdf pg. 37) Figure 2-4 Page 2-15 (pdf pg. 38) Figure 2-9 Page 2-22 (pdf pg. 45)
Groudwater Supplies: PROTECTION	Treat 10% of land in "high" recharge areas with low nitrogen infiltration risk (see Section 4) with recharge management practices, defined as practices, which increase soil organic matter content or increase infiltration to the aquifer. Priority given to the Bonanza Valley Groundwater Management Area or areas covered by DWSMAs	Number of acres in "high" recharge areas treated with recharge management practices.	Figure 2-6 Page 2-18 (pdf pg. 41)
	Sustain the groundwater basin, aquifer, or aquifer system without rendering groundwater supplies unreliable and causing a long-term progressive lowering of groundwater level.	Number of groundwater basins, aquifer or aquifer systems not showing a statistically significant decrease in level, exceeding natural level changes caused by variations in recharge rates and climate.	Figure 2-6 Page 2-18 (pdf pg. 41)
Streams and Rivers: PROTECTION	Increase stream and river length categorized as Above-Average Quality, Potential Impairment Risk, and Threatened Impairment Risk for a water quality parameter.	Stream and river length in Above-Average Quality, Potential Impairment Risk, and Threatened Impairment Risk protection categories with the estimated annual sediment and phosphorus load (as estimated by PTMApp) equal to or less than the existing load.	Figure 2-5 Page 2-17 (pdf pg. 40) Figure 3-3 Page 3-18 (pdf pg. 82) Figure 2-14 Page 2-28 (pdf pg. 51) Figure 3-4 Page 3-19 (pdf pg. 83)
Streams and Rivers: RESTORATION	TMDL COMPLETED: Decrease stream and river length categorized as Low Restoration Effort (converted to Threatened Impairment Risk or better) and High Restoration Effort (converted to Low Restoration Effort or better) for a given water quality parameter. Use load allocation as whether a stream or river length achieves the goal.	Stream and river length classified as Low Restoration Effort and High Restoration Effort, with the estimated load (as estimated by PTMApp) equal to or less than the load allocation established by the TMDL study.	Figure 2-5 Page 2-17 (pdf pg. 40) Figure 3-3 Page 3-18 (pdf pg. 82) Figure 2-14 Page 2-28 (pdf pg. 51) Figure 2-15 Page 2-29 (pdf pg. 52) Figure 3-5 Page 3-20 (pdf pg. 84) Figure 3-6 Page 3-21 (pdf pg. 85) Figure 3-7 Page 3-22 (pdf pg. 86)
	NO TMDL COMPLETED: Decrease stream and river length categorized as Low Restoration Effort (converted to Threatened Impairment Risk or better) and High Restoration Effort (converted to Low Restoration Effort or better) for a given water quality parameter.	Stream and river length classified as Low Restoration Effort and High Restoration Effort.	Figure 2-5 Page 2-17 (pdf pg. 40) Figure 2-15 Page 2-29 (pdf pg. 52) Figure 3-5 Page 3-20 (pdf pg. 84) Figure 3-6 Page 3-21 (pdf pg. 85) Figure 3-7 Page 3-22 (pdf pg. 86)
Wetlands: PROTECTION	No net loss in acreage and functions of wetlands.	Acres of wetlands.	Figure 2-7 Page 2-19 (pdf pg. 42) Figure 2-15 Page 2-29 (pdf pg. 52)
	Maintain and increase the number of large wetland blocks with a Minimum size (i.e., block size) and mixture of features (i.e., proportion of cropland, grassland, wetland, open space) necessary to sustain ecosystem services representative of a terrestrial landscape within the plan area. Block sizes of 4 square miles with approximately 60% cropland, 10% woodland and forest, 15% wetland, and 15% grassland are desired.	Number of large wetland blocks.	Figure 2-7 Page 2-19 (pdf pg. 42) Figure 2-15 Page 2-29 (pdf pg. 52)

Priority Concern	Measurable Goal	Metric	Reference Source
Rural Development and Sustainability	Implement management practices (e.g. cover crops, conservation tillage to increase residue, permanent cover, etc.) in 40% of all cropland areas in the watershed to increase Soil Organic Matter (SOM) content by 1%. Areas to be managed are cropland areas categorized as rural stewardship "Probability Low" and "Probability Depends on Practice Effectiveness", which have SOM content > 1% and =< 4 %.	Percentage of plan area classified as "Probability Low" and "Probability Depends on Practice effectiveness" rural stewardship categories	Regional Implementation Tables - Purple Maps Figure 2-8 Page 2-20 (pdf pg. 43)
Terrestrial Habitat: PROTECTION	Maintain or increase acreage of protected land for public use and good habitat quality for recreational use.	Acres of habitat.	Figure 2-10 Page 2-23 (pdf pg. 46) Figure 2-18 Page 2-33 (pdf pg. 56)
	Maintain or increase large areas of contiguous grassland (preferably native vegetation) with minimum block size of 300 acres; or adjacent to other existing terrestrial habitat blocks. Priority given to remnant prairie and oak savannah communities.	Number of grassland blocks implemented greater than 300 acres or grassland area implemented adjacent to existing terrestrial habitat blocks.	Figure 2-10 Page 2-23 (pdf pg. 46) Figure 2-18 Page 2-33 (pdf pg. 56)
	Maintain and increase the number of large terrestrial habitat blocks with a minimum size (i.e., block size) and mixture of features (i.e., proportion of cropland, grassland, wetland, open space) necessary to sustain ecosystem services representative of a terrestrial landscape within the plan area. Block sizes of 4 square miles with approximately 60% cropland, 10% woodland and forest, 15% wetland, and 15% grassland are desired.	Number of large terrestrial habitat blocks.	Figure 2-10 Page 2-23 (pdf pg. 46) Figure 2-18 Page 2-33 (pdf pg. 56)
	Maintain or increase the quality of existing terrestrial habitat, as measured through diversity index of terrestrial species and presence of rare species and native communities.	Number and type of terrestrial species documented.	Figure 2-10 Page 2-23 (pdf pg. 46)
Lake Shoreland and Stream Riparian Corridors	Maintain or increase the amount of area within the riparian corridor providing multiple ecosystem benefits (reduced erosion; increased wildlife habitat; presence of migration corridor; water quality improvement). The area includes land subject to Minnesota Buffer Law, adjusted to meet landowner business needs. Priority given to habitat block sizes with a minimum of 300 feet in width and 1,500 feet in length with connections to other habitat blocks.	Feet of waterway meeting conditions for ecological habitat corridors.	Figure 2-8 Page 2-20 (pdf pg. 43) Figure 2-9 Page 2-22 (pdf pg. 45) Figure 2-18 Page 2-33 (pdf pg. 56)
	Increase the proportion of land adjacent to lakes, streams, rivers, and waterways to achieve shoreland stewardship by 80% above current condition.	Acreage of waterway meeting shoreland stewardship. TBD	Figure 2-9 Page 2-22 (pdf pg. 45)
Public Knowledge and Behavior to Water Issues	Increase the number citizens reached during outreach events as part of the Public Knowledge Campaign within the Education and Outreach Initiative to increase annual public participation levels. Baseline participation levels across counties to be determined during creation of the Public Knowledge and Behavior Campaign.	Number of events and outreach materials developed that increase annual public participation levels.	
Landowner, Producer, and Lakeshore Owner Engagement in Water Management	Use field walkovers in rural areas, landowner visits along shoreland areas, and consultations within urban areas for community outreach. Outreach is expected to increase use of cost-share programs by delivering conservation and expanding knowledge about the proportion of the plan area achieving stewardship. Complete 125 field walkovers, city consultations, or shoreland owner visits over the duration of the plan.	Number of walkovers, consultations, and visits completed, and proportion that lead to implementation.	
Urban Stormwater	Increase the number of cities meeting urban stewardship criteria.	Number of cities meeting urban stewardship.	Figure 2-11 Page 2-24 (pdf pg. 47) Figure 2-17 Page 2-32 (pdf pg. 55)