

**Year Three Update to “A River Runs Through
Us: A Water Quality Strategy for the Land and
Waters of the Red Cedar River Basin”**

**Produced by the Red Cedar River Water Quality Partnership
April 2019**

Introduction

At the beginning of 2016 “A River Runs Through Us: A Water Quality Strategy for the Land and Waters of the Red Cedar River Basin” was approved by the Wisconsin Department of Natural Resources (DNR) and by the US Environmental Protection Agency (EPA). Approval of this Strategy and the fact that it meets EPA’s standards for a “Nine Key Element Watershed Plan”, make the watershed eligible for certain grant funds.

Within the Strategy is a schedule for review and modification of the Strategy. It’s a ten-year plan, and a review has been built in at three years and seven years, with a new plan due after ten years of implementation. This document is the three-year update for the Strategy. This document also contains summaries of much of the implementation activities, looking at major accomplishments in the watershed overseen by members of the Red Cedar River Water Quality Partnership; the team that wrote the original Strategy. The Partnership is also responsible for this update. Since this is not a plan “rewrite”, we will only focus on major changes and lessons learned in the three years since original Strategy approval.

This document will address updates to the Strategy by chapter. Chapters 1 and 2 will not be updated, as these chapters focus on watershed information and overview as well as the original monitoring and modeling data that was used to write the Strategy. Until new watershed models become available, this portion of the Strategy will remain unchanged.

Chapter 3: Phosphorus Reduction Strategies (Update)

Chapter 3 of the Strategy looks at the estimated loads of phosphorus entering Tainter and Menomin Lakes, discusses the sources (point and non-point), and estimates how certain land management practices can achieve desired reductions of phosphorus loads entering the river system and lakes.

Point Sources

Generally, it can be said that phosphorus entering the Red Cedar River system from point sources (in this case, waste water treatment plants) has been well-controlled and regulated under state and federal rules. Point sources were estimated to be contributing over 42,000 lbs. of phosphorus per year to the river system when baseline data was collected in the 1990s. Through regulation and permits, that had been reduced to an average of 12,900 lbs. per year over the period of 2010-2014. The most recent data available shows that in 2018, the amount of phosphorus that entered the Red Cedar River system from point sources was approximately 8,570 lbs. This represents a further drop in the point source phosphorus load in the watershed.

The goal set under the Total Maximum Daily Load (TMDL) for point source phosphorus is 20,100 lbs. per year. Therefore, the 2018 load of 8,570 lbs. is less than half of what is allowed under the TMDL.

In addition to these point sources, there are two urban storm water permitted areas in the watershed (MS4 permits). These are the Cities of Menomonie and Rice Lake. The City of Menomonie has reduced the phosphorus load to the Red Cedar TMDL area by 323 lbs. by creating public and private BMPs in the TMDL watershed. The City has also removed phosphorus directly from the lake by aggressively dredging bays in Lake Menomin over the last three years. In 2018 over 9,000 yards of sediment were removed from the Jarrett Creek entrance on Lake Menomin. Analysis of the sediment revealed a phosphorus concentration of 620 parts per million (ppm). Further analysis shows that at this concentration, approximately 1,966 lbs. of phosphorus was removed from the lake bottom. Since it's not clear how much of this phosphorus was reactive (able to be used by algae), it's difficult to say that this removal will help decrease algal blooms in the lake. In 2019 and 2020 the City anticipates removing 12,000 yards of sediment from Wolske Bay area of Lake Menomin. Continued efforts with creating new regional storm water ponds and ongoing dredging will only increase the amount of phosphorus removed from the TMDL by the City of Menomonie.

For the City of Rice Lake, current modeling (though not yet verified) shows that the City's contribution in urban runoff phosphorus loads to the Red Cedar River system is 1,932 lbs/yr. This exceeds the TMDL goal of 1,700 lbs/yr. The City estimates it can further reduce phosphorus loads to meet and perhaps surpass the TMDL goal through the construction of four new detention ponds, and the improvement/enhancement of two other existing ponds.

Further text in Chapter 3 of the original Strategy describes DNR guidelines, rules and regulations regarding point source pollution control. These have not changed substantially since plan approval.

Non-point Sources

Chapter 3 also discusses the phosphorus entering the Red Cedar River system through non-point sources; mainly surface runoff. The conclusion for the ten-year plan was that a 40% reduction could be achieved in ten years, equaling a little over 200,000 lbs. of phosphorus reduced over that time period. The chapter uses the 1990s modeling data (the most recent available, which was also used for calculations in the TMDL) and estimates how much load reduction can be achieved through which best management practices (BMPs). These estimates were done by using average conditions in the watershed, reducing phosphorus loads to meet a phosphorus index value of 6 (the statewide standard), and other factors. For each BMP recommended, a goal was set for phosphorus reductions using that BMP. In the Strategy this is table 3.2 (below).

Best Management Practice Examples (example evaluation from area draining to Tainter Lake only)	Lbs/yr P Reduced
No-till method on 86,000 cropland acres without targeting or 60,000 acres if high delivery areas are targeted	63,000
Eliminate winter manure spreading on 6,000 acres by adding 50 manure storage structures	34,000
Draw phosphorus levels down to 25 PPM on 1/3 of cropland with the highest delivery rates (86,000 acres)	31,500
Plant cover crops on 107,000 acres (40%) of cropland	18,000
Traditional conservation practices on 10% of cropland acres	11,000
Add treatment of milk houses waste at 50 farms	6,600
Control of urban stormwater P delivery outside MS4 areas	5,700
Install stream buffers on 15% of stream miles	4,600
Add runoff control to 62 barnyards	4,200
Replace all failing, critically located septic systems (440)	420
Control stormwater on all rural, residential properties near waterbodies (2200 lots ¼ acre in size)	220
200 acres of wetland restoration	210
Past barnyard load reductions	27,000
Total of example reductions	206,450
Interim, ten-year goal of 40% reduction in nonpoint source load	186,000
TMDL final reduction goal for nonpoint source load	306,000

Tracking some of these practices with much precision can be difficult, and the Partnership has not yet come up with a comprehensive way to track all practices. The idea of being comprehensive in tracking all changes is unrealistic. Some changes on the land take place with no cost-share program participation or record of any sort, be it positive change to prevent runoff or changes that in fact cause more runoff pollution, such as converting land from forest to cropland. However, we do have some means of tracking changes. The Natural Resources Conservation Service (NRCS) and Farm Service Agency (FSA) do keep track of cost-share contracts and the acres and practices in those contracts. As an example, the following table shows cover crop acreage in Dunn County over the last several years.

Year	Cost Share acres of Cover Crops in Dunn County (through NRCS)	Estimated Resulting Phosphorus Load Reductions (lbs)
2015	Approximately 500	85
2016	25,000	4,198
2017	21,500	3,610
2018	Data not available	Data not available

As can be seen from the table, a substantial increase in cover crop acreage occurred in 2016. We believe this to be the result of the combined efforts of many members of the Partnership including NRCS. More workshops were held in the watershed to introduce and educate about cover crops, peer-to-peer learning was taking place, and cost share programs were marketed

more aggressively. Small decreases since 2016 are mostly believed to be the result of weather conditions not conducive to getting cover crops planted. The calculated values of phosphorus reductions were derived using the formula on page 23 of the original Strategy. These data show substantial progress toward reaching the goal of 18,000 lbs. of phosphorus reduction per year from cover crops that's listed in the original Strategy.

Cost estimates for proposed implementation and installation of BMPs are listed in chapter 3 of the plan. It's important to note that for this update, some costs have changed. For example, the rate for nutrient management plans funded through state SEG money that goes to counties, has changed from \$28 to \$40/acre for 4-year nutrient management plans (\$10/acre for four years). Most counties receive \$28,000/year in SEG funding, meaning they can fund approximately 700 acres of NMP per year. Up to 25 percent of SEG can be used to fund cover crops. Since the Strategy specifically states that we believe changes on the ground can be made without always costing money, we're not greatly concerned with fluctuations in these costs.

Many other educational events, activities and BMP installations take place outside official government or cost-share programs or through government entities. Members of the Partnership are often involved in such activities and do keep track of the kinds of work they do. At the end of this update are appendices showing activities related to the Strategy, including all reported BMP installations in the watershed for 2018 done through government programs. Also included are several reports from various partners on the activities in which they have been involved that may lead, directly or indirectly, to reductions in the amount of phosphorus entering the waters of the Red Cedar River watershed.

Influence of Government Rules and Regulations on Implementation

In this section of Chapter 3, aspects of water quality regulations and how they influence our planning, were discussed. There are a few developments in this area worth mentioning.

When our original plan was written, the City of Menomonie was in the process of adopting Minimum Impact Design Standards (MIDS) and Low-Impact Development (LID), and this was included in the plan as being a regulatory move that would help manage urban storm water in the City. However, circumstances changed, and the adoption of these particular regulations did not move forward. However, the City continues to make excellent progress in addressing urban runoff/storm water issues. The City of Menomonie updated their storm water management plan in 2014. A large part of the update was introducing the creation of regional storm water ponds to treat storm water from some of the older parts of the City and thus reduce the amount of sediment and phosphorus entering Lake Menomin. Eight regional ponds were identified in the plan update. In 2016 the first regional pond was completed. This pond is referred to as Regional Pond #7. Regional Pond #7 treats a 170-acre watershed and removes 10,050-lbs of TSS and 24-lbs of phosphorus annually. In 2019 the City plans on constructing a second regional storm water pond at Wakanda Park. The Wakanda Park pond is referred to as

Regional Pond #3. Regional Pond #3 will treat a 150-acre watershed and will remove 12,720-lbs of TSS and 28-lbs of phosphorus annually. Continued efforts on regional pond plans and the creation of new Best Management Practices with new construction projects will help allow The City of Menomonie to meet their TMDL phosphorus reduction goals.

Also in the original plan was the fact that Dunn County had passed a shoreland ordinance to address issues of development and/or land management in riparian areas (areas close to streambanks and lakeshores). The approved shoreland ordinance required shoreland buffers and tillage setbacks from the ordinary high-water mark throughout the county. This ordinance was repealed and amended on July 15, 2015 following WI Act 55, which stated that a county “may not regulate a matter more restrictively than the matter is regulated by a shoreland zoning standard.” The Dunn County shoreland zoning ordinance now reflects the statute and administrative code, NR 115. Shoreland zoning is enforced by the Planning and Land Use Control Division of Dunn County.

Chapter 4: Education, Outreach, Civic Engagement/Governance, and Implementation Strategies (Update)

In chapter 4 of the Strategy, the actual methods to be used to accomplish land management changes and subsequent phosphorus load reductions to the waters of the Red Cedar River watershed are discussed. Many developments and accomplishments over the last three years have helped the Partnership understand and plan for ways to move forward.

Civic Engagement and Civic Governance

Several members of the Partnership were participating in a monthly civic governance training series that included others from Wisconsin and Minnesota. While this training is continuing, not all the members of the Partnership who had been participating are still involved. However, the lessons learned and knowledge gained from this training are put to use in many aspects of implementing the Strategy. Partners will continue to seek information and other professional development opportunities to enrich the understanding of civic engagement/governance. The Foundational Document on page 55 of the original Strategy describes in more detail the approach of civic engagement practiced by the Partnership, and this Document remains as the principal guidance for the Partnership. Also the Multilevel Community Capacity Model (Davenport and Seekamp, 2013) displayed in the Strategy as Figure 4.1 will remain the Partnership’s model for building community capacity.

Process and Necessary Resources for Implementation

Farmer-led councils and opportunities for peer-to-peer learning in the farming community continue to be a top priority for the Partnership. More and diverse methods of creating such

peer-to-peer learning opportunities are being and will be pursued. A summary of activities focused on such opportunities follows.

Since the original Strategy was written, a farmer led watershed group known as “Farmers of Barron County Watersheds” was started after the Barron County Farm Bureau provided seed money and additional money was secured from the surplus funds from the Barron County - Wisconsin Farm Technology Days Committee. The group has focused on surface water quality initially and has had several well-attended and highly praised educational meetings each year. In-field cover crop demonstrations and tours have been held. Working closely with the area vegetable canning companies has resulted in canning company’s promotion of BMPs that encourage the use of cover crops. A financial incentive to establish cover crops following small grain, vegetables, and corn silage has been well received with strong increases in the adoption of this practice. Also, there has been a significant increase in low disturbance manure application by the larger dairies as a result of demonstration and encouragement by group members. The group has secured grants from the State on several occasions for ongoing efforts and projects. The latest plan is to utilize in-field sensors that will be remotely monitored year-around to uncover and document the changes in soil microbial activity and soil characteristics between management practices.

Also, another farmer-led watershed group was started in Dunn County in 2018. The group, “Red Cedar Conservation Farmers” (RCCF), is located north of Colfax and includes the Trout, Popple, Hay, and Broken Creek HUC-12 watersheds. RCCF was awarded \$40,000 by DATCP in 2019 to be used towards incentivizing the use of cover crops, soil testing for precision agriculture applications, and manure injection test plots. The group also included funds in their budget for groundwater testing of 50 wells in the project area.

When the Strategy was written, there was a position within University of Wisconsin – Extension to help coordinate several farmer-led councils in the region, but that position has since been eliminated. Currently, there is no paid position to coordinate area councils, but there has still been significant communication and cooperation among the councils and their members, and the Partnership will do all it can to facilitate more of this when appropriate.

In addition to the three farmer-led councils that are now present in the watershed, Dunn County manages a network of demonstration (demo) farms including the publicly-owned Red Cedar Demo Farm located in the City of Menomonie, and a privately-owned demo farm in the Town of Hay River. The goal of the demo farm network is to promote peer-to-peer engagement and increase adoption of conservation farming practices throughout the watershed, leading to reduced phosphorus runoff and improved water quality downstream.

There are a few other items in chapter 4 of the original Strategy that need updating. One is the issue of stream bank erosion. Erosions sites along the Red Cedar River were evaluated in 2013-2014 and summarized in the report “Red Cedar River Erosion and Habitat Assessment Report.” The report indicates that erosion along the Red Cedar River contributes approximately 1.1

percent of the total P-load. Due to the expense of streambank stabilization, the return on investment is not high enough to make streambank erosion control a primary focus area for phosphorus control. Sections of stream that pose a threat to public safety are being examined by US Army Corps of Engineers (USACE). Outside of Colfax, USACE Section 14 funding has been approved to repair a bank along the Red Cedar River that threatens Hwy. M. Another site near the Colfax wastewater treatment plant has also been approved for Section 14 funding, however match needed to receive the funding has not been secured for this one site.

Additionally, the original Strategy discussed the need for more people working in the field to create more opportunities for one-on-one interactions with land owners. With funds awarded from a Lake Protection Grant by WDNR, Dunn County now employs a full-time soil health specialist dedicated to working with farmers to improve soil health and water quality within the Red Cedar River watershed. Dunn County also recently hired a nutrient management planner to specialize in working with farmers enrolled in farmland preservation and others who maintain a nutrient management plan.

Chapter 5: Tracking, Monitoring, and Strategy Modification (Update)

This chapter discusses the ways in which the Partnership will track changes on the ground, changes in the attitudes or outlook of residents of the watershed, monitoring of actual water quality changes, and how the Strategy is updated.

Tracking Attitudes, Knowledge and Social Networks

Surveying of residents in the watershed has been ongoing, and will continue. However the goal of surveying residents of the watershed every other year may be a bit too optimistic, as it is becoming difficult to count on funding for such work. Students participating in the LAKES REU project at UW-Stout over the summer of 2019 may be doing some survey work, but beyond that, survey work in future years may not happen on a regular schedule.

Tracking Engagement and Participation

Most tracking of these activities will continue as described in the original Strategy. However, the goals of 2-5 new civic organizing entities in the watershed, as well as 5-10 new farmer-led councils, will no longer be applied so specifically. The Partnership is indeed establishing new farmer-led councils in the watershed, but now sees the idea of the specific numbers specified in the Strategy as somewhat obsolete. Instead, the Partnership is choosing to focus on establishing as many sites, collaborations, and opportunities for peer-to-peer learning as can be accomplished. In addition to farmer-led councils, also included are demonstration farms, ag enterprise areas, and more field workshops and demonstrations. The focus of the Partnership is to create community within the agricultural sector, or to nurture opportunities where community already exists. With new farmer-led councils already organized and new demo

farms established in the last three years, the Partnership is moving this element of the Strategy forward.

Tracking Land Management Changes that Affect Phosphorus Loading

This section of chapter 5 discusses the methods by which the Partnership tracks changes on the ground that lead directly to reductions in phosphorus inputs to the watershed. Most of the methods listed in the original Strategy still apply. As can be seen in the appendices at the end of this update, a spreadsheet has been designed for government entities to report the BMPs installed under official programs. However, there is also work being done that is harder to quantify in terms of phosphorus load reduction. But the Partnership is dedicated to tracking such activities, and they are reported in the appendices in various formats.

Water Quality Monitoring

A few changes to the monitoring strategy have taken place since the approval of the original plan. The two years of monitoring (2015-2016) mentioned in the Strategy was completed, and this data is currently being used by the US Army Corps of Engineers (under funding from the Corps' "Planning Assistance to States and Tribes" program) to create a new watershed model for the Red Cedar River watershed. Once completed, this model should provide more up to date information and estimates of phosphorus loads in the watershed. This model should be completed sometime in the next two years.

Other monitoring continues to be done by WDNR, by the Red Cedar Basin Monitoring Group, by UW-Stout students and Research Education for Undergrads (REU) students, the Tainter Menomin Lake Improvement Association, and by other entities and volunteers. There is enough baseline and continuous data being collected to allow the Partnership to track changes in pollutant levels in the waters of the Basin.

Strategy Modification

With this update, the Partnership is maintaining its planning for any modifications to the Strategy. Another update will be issued at the end of year 7 (2022) and then at the end of the ten-year life span of the Strategy, a completely new plan will be developed at the end of 2025 into 2026.

Appendices

Appendix A: 2018 summary of Dunn County BMPs put in place or tracked by LWCD within the TMDL area:

Traditional BMPs: The following BMPs benefiting surface water were cost-shared by Dunn County staff in 2018:

- 1 streambank protection (240 ft) on Tiffany Creek reducing **36.0 lbs of P per year** from entering stream. Calculated using NRCS gully erosion estimation tool and estimated soil P content of 0.06%, which is the measured soil phosphorus content of streambanks in Dunn County with similar surrounding land use.
- 2 grassed waterways (3,250 lin. ft). Since contributing area phosphorus was not measured, P-reduction was estimated using the method outlined in the implementation plan on page 28. The P-reduction for these two grassed waterways was calculated to be **22.2 lbs/year**.
- 1 grade stabilization structure (55 drainage acres, 50% cropland). Phosphorus reduction calculated to be **13.75 lbs/year**.

Farmland Preservation Program: 16,293 acres (entire parcel is included in FPP reporting, not all may be farmland). This reporting includes participants of the Grant Agricultural Enterprise Area. Phosphorus reduction as a result of this program is calculated below as a part of nutrient management planning, which is required of all FPP participants.

Nutrient Management Planning: 15,639 acres *reported* (17% of cropland) in TMDL within Dunn County. NMPs are tracked by LWCD under the following programs: NMPs funded through SEG, landowners who have received a Dunn Co. manure storage permit since April 18, 2000, Farmland Preservation Program participants, and some are voluntarily provided by operators. There are certainly other landowners in Dunn County who have an NMP but are not reported to Dunn County since they aren't required to do so unless they fall under the above mentioned programs.

There are two confined animal feeding operations (CAFOs) located in the Red Cedar TMDL within Dunn County. CAFOs are permitted under a DNR WPDES permit. The two CAFOs are both dairy operations and have a combined current animal unit (AU) total of 2,995 as of 1/31/2018 (data retrieved from DNR website on 12/28/2018). CAFOs are required to have an NMP and report their NMP checklist annually to the DNR. The NMP acres for these CAFOs are included in the total NMP acres given above.

Phosphorus reduction for land under an NMP, estimated as moderate delivery fields, is calculated to be **3,753 lbs per year**. The delivery rate determined for moderate delivery fields was 1.6 lbs/acre per the implementation plan (pg. 25). The estimated phosphorus reduction for moderate delivery fields is 15%.

Transect survey: (soil loss and no-till): During the transect survey, it was determined that approximately 24% of all cropped land was no till. This is equal to 21,805 acres in the TMDL area of the county (24% x 90,855 acres of row crops). This results in **15,699 lbs/year** of phosphorus reduction based

on calculations show on page 21 of the implementation plan (63,400 lbs/yr over 88,400 acres = 0.72 lbs/ac/yr reduction using a non-targeted approach to no-till. 0.72lbs/ac/yr x 21,805 ac = 15,699 lbs/yr)

Conservation Reserve Enhancement Program (CREP): There are 258 acres of CREP in the TMDL area of Dunn County. The calculated environmental benefits of these agreements are:

- Phosphorus reduced by **976 lbs/yr**
- Nitrogen reduced by 504 lbs/yr
- Sediment erosion reduced by 416 tons/yr.

Environmental benefits were calculated using DATCP Form ARM-LWR-284.

Appendix B: Projects designed and built by Rod Olson, Desair Lake Restoration, with occasional volunteer help 2016-2018:

1. Designed and built a water belt diversion system to a raingarden from a public parking area that drained two-acres of asphalt directly into the lake.
2. Adapted and modified previous waterway projects to be more efficient and hardened against heavy rainfall.
3. Built multiple small check dams to slow the flow of water and reduce gully sediment loss from 37 acres of watershed.
4. Modified a check dam to enhance a wetland from one acre to four acres reducing sediment runoff from 100 acres.
5. Maintained and cleared woody debris from a dry run with three gabion dams reducing runoff from 137 acres.
6. Planted an acre of prairie and built a large raingarden that drains two acres of a private home.
7. Deepened 2000 feet of eroding ditches on a steep hill leading to a lake and armored them with rock and diversion lanes to reduce water flow from 25 acres.
8. Built a rock waterway and diversion for a 20-acre field at a heavily eroded slope.
9. Established a fifty-acre nature conservancy complete with 1 ½ Kilometer cross country trail and a bridge across the creek.
10. Repaired and deepened a Township shoulder and ditch down a steep hill washed out by a spring rain. Worked with Town Board chair on the importance of maintaining road shoulders to prevent washouts.
11. Restored 250 feet of streambank erosion area by removing center islands down to the streambed and building up the streambank. With ground cloth, boulders and rock, I armored the banks from future eroding.
12. Collected water monitoring and rainfall information for the DNR on Desair Lake.
13. Built a raingarden and restored an old beach on Rice Lake.
14. Built a catchment basin at the public landing on Lake Montanis.

15. Repaired and provided maintenance to the Arnold Landing on Rice Lake.
16. Built a 200-foot berm and a 300-foot waterway on private property diverting runoff from a field directly into a private home.

Participated in other local projects relating to water quality:

1. Encouraged the Kodesh Dairy to build a leachate drainage system from their feed storage area and is now diverted from going into a creek by a pumping system to their manure pit. There is no longer winter manure spreading at this 350 head dairy farm. With no-till and experimenting with cover crops, this family are early adopters of conservation agriculture over their 1000+ acre farm.
2. Advised the Barron County Fairgrounds Board, in conjunction with the Rice Lake Lake Improvement District and the Land Conservation Department, built a large detention pond to collect the water off its 30-acre fairgrounds that typically went directly into Rice Lake.
3. Supported a private property owner in donating 15-acres in preservation of a wetland that collects water from 600 acres and filters it before it reaches Rice Lake.
4. Supported the City of Rice Lake in designing and constructing three large detention ponds in a new housing project and protects the river from 137 acres of runoff.
5. Sat on a committee to design a new Town Shop and Office concentrating on how to collect building and pavement runoff into a sediment basin.

Educational and community governance projects:

1. Supported the formation of a Barron County Farmer Lead Council
2. Advised and encouraged Lake Districts and Associations to be more proactive in water quality projects.
3. Worked with students from UW Stout and UW Eau Claire Barron County Campus as interns in learning about water quality.
4. Gave Power Point presentations to the following on erosion and soil health:
 - Jennie-O Turkey Store
 - Red Cedar River Conference breakout session on "Keeping the Soil on the Land and out of the Water"
 - UW EC BC Campus classes on environmental science
 - Rice Lake High School classes on "The Red Cedar River, Wounded Waters"
 - NW Wisconsin Water Treatment Association presentation
 - Local civic groups such as the Mens Club, Rotary, Womens Group, Fortnightly, Bear Lake Association, Woodlands Association of Barron

County, Rice Lake City Council presentations on how to keep the soil on the land and out of the water.

Appendix C: St. Croix County Implementation Strategy for Wisconsin Phosphorus Rules

St. Croix County implements NR151 on all Farmland Preservation agreements with compliance reviews every 4 years.

St. Croix County also completes NR151 Reviews on all Certified Survey Maps (CSM's), animal waste storage structure permits, livestock siting permits, land use permits, and conditional use permits. With all of these applications, NR151 standards must be met before receiving the requested permit.

In the case of complaints, St. Croix County is required to make an offer of cost-share, but in some situations, compliance is reached voluntarily without financial assistance.

If enforcement action is determined necessary, a 2-3 year timeline to gain compliance is allowed in order to give individuals time to make management changes.

Appendix D: 2018 Accomplishments by the Tainter Menomin Lake Improvement Association

Events and Service:

- Hosted Red Cedar Watershed Conference: Land, Water, and People Coming Together
- Hosted Guest Speaker Series at the beginning of select monthly meetings
- Organized lake themed check point challenge as part of the St. Valentine's Day Hustle Bike Race
- Hosted water themed book club
- TMLIA members maintain Slow-No-Wake buoys on Tainter Lake
- Organized ice clean-up event to remove trash from Lake Menomin
- Organized Menomin Meander bike ride event
- Attended the Lakes Partnership Conference in Stevens Point and Wisconsin Lake Leader Institute
- Judged environmental speech contest
- Gave Earth Day presentation to 200 Menomonie 6th graders

Collaborative Participation within These Groups:

- Wilson Annis Creek Watershed Partnership
- Red Cedar Water Quality Partnership for TMDL implementation
- Joint Sustainable Working Group
- Dunn County Conservation Alliance
- Hold memberships with Menomonie Chamber of Commerce, Wisconsin Lakes, River Alliance of

Wisconsin, and the Wisconsin Wildlife Federation

- Support LAKES REU program
- Participate in Civic Governance training to better empower watershed citizens

Informational Booths Held at:

- Menomonie Winter and Summer Farmer's Markets
- Red Cedar Trail Days
- Music Over Menomin

Support through Advocacy:

- Presented on social aspects of local water challenges and sustainability efforts in our community
- Reviewed a water quality resolution to be presented at the annual WI Wildlife Federation meeting
- Informed membership of Dunn County's Water Quality Plan and how to engage in the process
- Represent TMLIA in the local League of Women Voters Environmental Committee
- Advertised call for public comment on HWY M Red Cedar River erosion project in Colfax
- Publicized City of Menomonie's progress on Jarrett Creek management decisions
- Submitted letter of support to Dunn County Transit's application for funding of an electric bus
- Met with elected officials and candidates to express our water values

Grants:

- Contributed \$300 to support annual Dunn County Conservation Intern
- Pledged \$1,500 matching funds for Farmers and Fishers Partnership Grant to extend trout stream

restoration efforts on Wilson Creek

- Received \$3,000 Xcel Energy Environmental Grant to finalize funding of rain garden signage
- Supplied 13 students from Colfax and Menomonie scholarships to attend the 2018 Red Cedar Watershed Conference.

Appendix E: Table of Best Management Practices installed in the Watershed in 2018.

The following table is not a complete list of all best management practices (BMPs) installed in the watershed. It is a partial list of those practices known to have been installed in 2018, and those for which we were able to get data. There are considerably more acres of various practices installed under NRCS programs, but at the time of publication, a complete accounting of those data were not available.

Best Management Practice	Watershed plan goal (acres or #)	Watershed plan goal (lbs of P)	County	HUC 12	NRCS Cost Share BMPs (acres or #)	lbs P reduced/yr	Annual or Perennial	non-NRCS BMP installation (acres or #)	lbs P reduced/yr	Annual or Perennial	Comments	
No till farming practice	60,000-86,000 acres	63,000	St. Croix	70500070501	Upper South Fork of the Hay River			133	36			
No till farming practice			St. Croix	70500070502	Middle South Fork of the Hay River			125	99			
No till farming practice			St. Croix	70500070504	Sandy Creek-Tiffany Creek			53	54			
No till farming practice			St. Croix	70500070503	Beaver Creek			292	200			
Manure storage structures	50 structures	34,000	Dunn	All				21,805	15,699	Annual		
Nutrient Management Plans	86,000 acres	31,500	St. Croix	70500070506	Lower South Fork of the Hay River			227	128			
Nutrient Management Plans			St. Croix	70500070504	Sandy Creek-Tiffany Creek			2,635	1,202			
Nutrient Management Plans			St. Croix	70500070503	Beaver Creek			387	173			
Nutrient Management Plans			Dunn	All				15,639	3,753	Annual		
Cover Crops	107,000 acres	18,000	Barron	All				9,970	1,674	Annual	2 grassed waterways, 1 grade stabilization structure, 1 streambank protection	
Traditional Conservation Practices	10% of cropland	11,000	Dunn	All				4 Practices	72	Perennial		
Traditional Conservation Practices			Barron	All				12 waterways	unknown	Perennial		
Treatment of Milk House Waste	50 sites	6,600	Barron	All				9200 ft	unknown	Perennial		
Urban Storm Water Control (non-permitted)		5,700						1 system	unknown	Perennial		
Stream Buffers on Riparian Frontage	10% of frontage	4,700	Dunn	All				258 ac	976	Perennial	These were done over the period 2016-2018	
Barnyard Upgrades	68 sites	3,800	Barron	All				7 barnyards	383	Perennial		
Replace Failing, Critically Located Septic	440 sites	420										
Storm Water Control on Rural Properties	2,200 lots	220										
Wetland Restorations	200 acres	210										
Land Retirement			St. Croix	70500070501	Upper South Fork of the Hay River				10 ac	9		
Land Retirement			St. Croix	70500070504	Sandy Creek-Tiffany Creek				44.5 ac	54		
Land Retirement			St. Croix	70500070503	Beaver Creek				16.6 ac	13		
Urban Storm Water Control in MS4 areas			Dunn					City of Menomonie		323	Perennial	Load reductions from MS4 permitted areas are specified in the TMDL
Urban Storm Water Control in MS4 areas			Barron					City of Rice Lake ?			Perennial	Load reductions from MS4 permitted areas are specified in the TMDL