SECTION 6.0 IMPLEMENTATION SCHEDULE

A primary outcome of a 1W1P planning effort is to identify the most effective actions which can be implemented to make the greatest progress towards plan goals. This section contains a targeted implementation schedule to summarize information about each action, where and when it will occur, who will be responsible for implementation, how it will be measured, and how much it will cost.

Many types of actions can be implemented to make progress towards goals. Actions may occur across the watershed (watershed-wide) or be targeted within a specific planning region. Similar actions are grouped below, representing implementation programs that will be discussed in Section 7. All actions contained within this section are summarized in Appendix S.

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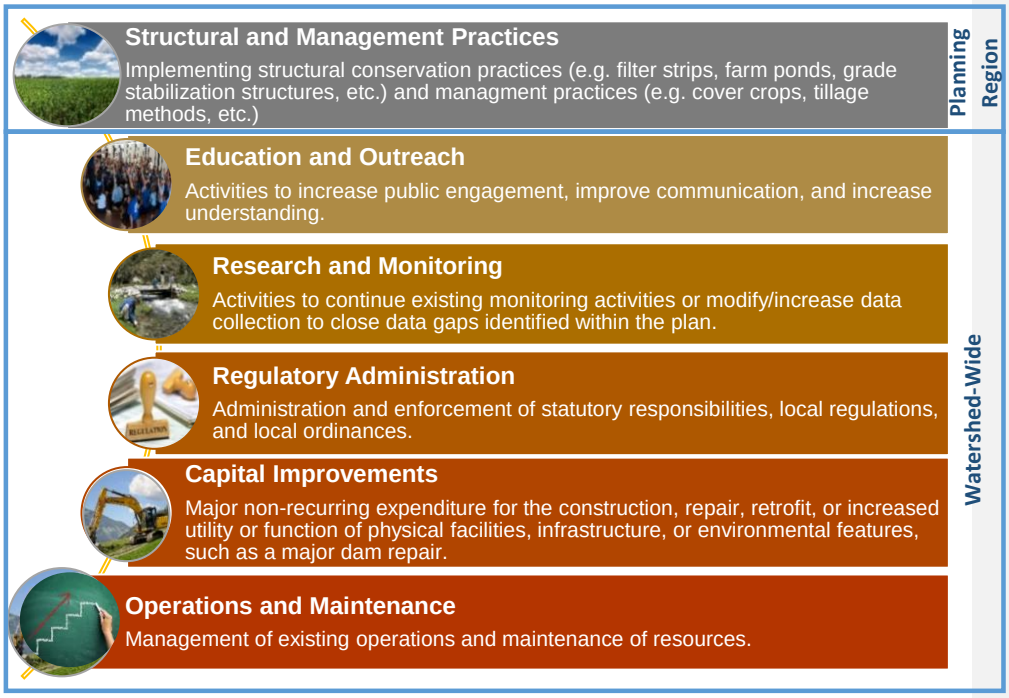
Many of the actions within this plan section are identified as "ongoing." ". The annual work planning process will establish the exact timing of actions that will be pursued each year. Actions identified for that year or as "ongoing" will be considered at that point. During the second biennium, the group will establish the timeline for the ongoing actions in this plan. Many of the ongoing actions were established before this planning process ~~began, and~~began and will continue during plan implementation.



The ability to achieve measurable goals, and the speed at which they are realized, largely depends on the amount of funding available for implementation. If more funds are available, more actions within the targeted implementation schedule can be implemented and more progress can be made toward goals. The amount of funding for implementing this plan is uncertain, presenting a challenge for planning purposes. To address this challenge, three funding levels are provided in this plan.

- Baseline Funding: The Baseline Funding scenario provides the 10-yr budget and assumes plan funding will remain similar to current funding focused on water issues within the plan area. Baseline Funding was determined by defining the annual budgets of the WWPP entities and allocating by percent of area each county has in the watershed. Actions included in this scenario are the highest priority for implementation. Ten years of funding is assumed to be $6,811,000 to maintain an existing level of implementation within the WRW.
- Enhanced Funding: The Enhanced Funding scenario provides an alternate 10-yr budget, including ten years of baseline annual funding with additional funding from Clean Water Fund dollars (Watershed Based Implementation Funding (WBIF)). Actions included in this scenario are second highest priority for implementation. Ten years of Enhanced Funding is assumed to equal $3,373,750. Assuming WBIF is consistently available over the 10-year life cycle of this plan, the amount of implementation dollars available for WRW implementation efforts will be Baseline funds plus Enhanced funds.
- Collaborative Efforts and Competitive Funding: Collaborative Efforts and Competitive Funding values in Table 6-1 (following page) indicate the amount of additional funding needed to complete plan actions that cannot be completed with only Baseline and Enhanced Funding. That is, to implement all Research and Monitoring and Capital Improvement related actions, more money will need to be leveraged by the group than is available with Baseline and Enhanced Funding levels combined. The (*formal name to be determined pending formal agreement*)~~TBD~~ plans to pursue competitive grant funding, funding from or partnerships with individual counties or municipalities, and other alternative funding sources to support these actions.

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Table 6-1 provides the estimated costs for implementing actions in the plan for the three funding levels~~categories~~). Costs are also included for Operations and Maintenance of natural and artificial waterways at or near their current expenditure level. This plan assumes local, state, and/or federal fiscal support of regulation and enforcement remains unchanged and includes funding for plan administration costs.

Table 6-1: Estimated implementation cost per implementation program.

	$ Baseline Funding Est. 10-year Baseline Budget Est. 10-Year Cost	$$ Enhanced Funding Est. 10-year Additional Funding Needs Est. 10-Year Additional Funding	$$$ Collaborative Efforts and Competitive Funding Est, 10-year Budget Shortfall Est. 10-Year Additional Funding
Implementation Program			
Structural and Management Practices Cost-Share Incentive Program~~Structural and Management Practices Cost-Share Initiative~~	$215,000	$2,685,000	N/A
Education and Outreach Implementation Program	$352,000	$240,000	N/A
Research and Monitoring Implementation Program	$79,000	$78,750	$388,750
Regulatory Administration Implementation Program	$685,000	$0	N/A
Capital Improvements Implementation Program	$180,000	$370,000	$7,475,000
Additional Expenses			
Operations and Maintenance	$5,300,000	$0	N/A
Total	$6,811,000	$3,373,750	$7,863,750
Cumulative Total	$6,811,000	$10,184,750	$18,048,500

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For the Structural and Management Practices Cost Share Incentive Program, t~~T~~otal watershed funding was distributed among the six planning regions based on the allocations specified in Table 6-2. Each planning region's overall funding was then divided between management practices (40% of overall structural and management practices budget), structural projects (40%), and easements (20%).

Planning Region Name	Percent of Total ~~Watershed~~ Structural and Management Practice Funding	Baseline Funding				Enhanced Funding			
		10-yr Baseline Funding	10-yr Funding for Structural BMPs	10-yr Funding for Management BMPs	10-yr Funding for Easements	10-yr Enhanced Funding	10-yr Enhanced Funding for Structural BMPs	10-yr Enhanced Funding for Management BMPs	10-yr Enhanced Funding for Easements
North Fork Watonwan River	10%	$25,000	$10,000	$10,000	$5,000	$275,000	$110,000	$110,000	$55,000
Upper Watonwan River	15%	$35,000	$15,000	$15,000	$5,000	$400,000	$160,000	$160,000	$80,000
Saint James Creek	25%	$50,000	$20,000	$20,000	$10,000	$665,000	$265,000	$265,000	$135,000
South Fork Watonwan River	20%	$40,000	$15,000	$15,000	$10,000	$535,000	$215,000	$215,000	$105,000
Perch Creek	10%	$25,000	$10,000	$10,000	$5,000	$275,000	$110,000	$110,000	$55,000
Lower Watonwan River	20%	$40,000	$15,000	$15,000	$10,000	$535,000	$215,000	$215,000	$105,000
Total		$215,000	$85,000	$85,000	$45,000	$2,685,000	$1,075,000	$1,075,000	$535,000

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The targeted implementation schedule includes actions intended to be completed by local entities as well as other plan partners, including state agencies, federal agencies, and non-governmental organizations (NGOs). To execute actions described within the plan, all participants will need to exercise considerable coordination and cooperation. The planning region priority maps, WRAPS priorities, and professional judgement were used by the Steering Committee to allocate funding percentage distributions.

6.2 Measurable Goals Reference Guide

Within the subsequent subsections of Section 6, the implementation actions are linked to the measurable goals from Section 5. Table 6-3 is a quick reference guide for identifying the connection between actions in this Section 6 and the short-term goals they are intended to make progress towards from Section 5. It was assumed that the short-term progress would connect to the long-term goals.

Table 6-3: Quick reference guide for identifying the connection between actions in this Section 6 and the goals they are intended to make progress towards from Section 5.

Goal Number	Goal
SW 1.1a	Coordinate with the drainage authorities to implement multipurpose drainage management (MDM) on 10 public drainage systems to improve water quality and flood resiliency in tandem with the maintenance and repair of drainage systems.
SW 1.1b	Develop an MDM plan and set 5-year and 10-year goals for anticipated future conditions.
SW 1.2a	~~SW 1.2a:~~ Drainage systems that are in need of repair and would benefit from conservation practices are identified through coordination with partners.
SW 2.1a	Restoration - Achieve a 10% reduction in phosphorus load in lakes identified for restoration.
SW 2.1b	Protection - Achieve a no-net increase in phosphorus loading to lakes identified for protection.
SW 2.2a	Conduct 2 educational outreach efforts with the DNR to discuss lake management.
SW 3.1a	Planning Region Scale (Nutrient and Sediment Goals)
SW 3.1b	Reach-Specific Scale (Nutrient and Sediment Goals)
SW 3.1c	Conduct 10 educational efforts to highlight existing nutrient management and watershed BMP incentive programs.
SW 3.2a	Planning Region Scale (bacteria)
SW 3.2b	Reach-Specific Scale (bacteria)
SW 3.2c	Conduct 10 educational efforts to highlight watershed livestock BMP and SSTS incentive programs
SW 3.3a	Conduct a bridge and culvert inventory to document the location, size, condition, and estimated cost of repair or upgrade.
SW 3.4a	Implement 3 practices to restore and/or stabilize degraded stream reaches.
SW 4.1a	Restore and improve 500 acres of wetlands.

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Goal Number	Goal
SW 4.1b	Complete 1,000 contacts with local landowners to encourage enrollment in state and federal programs to preserve and restore wetlands.
SW 5.1a	Implement and maintain additional vegetative cover practices on 41,900 acres of the total watershed land area.
SW 5.1b	Conduct 20 educational efforts to highlight available technical and financial assistance to protect soil health and reduce peak-flow rates.
SW 5.2a	Achieve 0.10 inches of water runoff reduction across the watershed, or 4,327 acre-feet of runoff reduction by implementation of targeted PTMApp practices across the watershed.
SW 5.2b	Achieve 4% watershed-wide reduction in peak and annual streamflow, defined as the 10-year target in the WRW WRAPS
SW 5.2c	Conduct 20 educational efforts to highlight available technical and financial assistance to implement runoff reduction and rate-control BMPs.
SW 5.3a	Conduct 20 educational efforts about water quantity and community resilience to extreme weather events.
SW 5.3b	Conduct a bridge and culvert inventory to document the location, size, condition, and estimated cost of repair or upgrade.
GW 1.1a	Protection (in areas with nitrate concentration 0 – 4.9 mg/L): Maintain and improve existing vegetative cover by discouraging or preventing conversion to cultivated land; Contaminant source management on existing land uses (PTMApp Source Reduction, BMPs, SSTS management, and easements).
GW 1.1b	Protection (in areas with nitrate concentration 5.0 – 9.9 mg/L): Contaminant source reduction or elimination; Shift land uses away from those that may leach excess nitrogen (Alternative management tools, upgrade failing STSS, easements).
GW 1.1c	Hold 10 educational efforts to promote implementation of nutrient management practices.
GW 1.1d	Hold 10 water testing clinics to determine nitrate concentrations in irrigation water and provide access to testing kits to irrigators.
GW 1.1e	Hold 20 clinics to educate citizens on private well nitrogen levels.
GW 1.2a	Maintain zero wells with pesticide concentrations above human-health based drinking water standards or referenced values.

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Goal Number	Goal
GW 1.2b	Hold 20 educational efforts to inform the public of the potential threat of contaminants in groundwater and the importance of testing.
GW 2.1a	Implement 20 practices that promote aquifer recharge in DWSMA and Wellhead Protection Areas.
GW 2.1b	Hold 10 educational efforts for the public to learn current successes and issues with groundwater use and groundwater recharge.
HR 1.1a	Across the watershed, meet a 12% increase in MPCA Stream Habitat Assessment score, defined as the 10-year target in the WRW WRAPS.
HR 1.1b	Complete culvert/fish barrier inventory.
HR 1.2a	Work with DNR to prioritize locations to address bank and channel instability.
HR 1.3a	Restoration- Manage existing AIS infestations to address existing degradation of aquatic habitat.
HR 1.3b	Protection- Work to prevent introduction and spread of aquatic invasive species, including (but not limited to) invasive carp, Eurasian Watermilfoil, Purple Loosestrife, Zebra Mussels, and Spiny Water Fleas (which have not been recorded in the WRW).
HR 2.1a	Complete 20 habitat projects to restore habitat corridors and decrease habitat fragmentation.
HR 2.2a	Manage existing terrestrial and nuisance species to address existing degradation of terrestrial habitat.
HR 2.2b	Work to minimize the spread of terrestrial invasive species, including (but not limited) to: Emerald Ash Borer, Canada Thistle, Purple Loosestrife, and Palmer Amaranth.
HR 3.1a	HR 3.1a: Maintain and improve existing public accesses, trails and roads.
LKB 1.1a	Conduct 100 comprehensive site visits to promote and foster implementation of water quality BMPs and encourage comprehensive conservation recommendations.
LKB 1.1b	Increase landowner awareness through 10 BMP educational outreach efforts.
LKB 1.2a	Conduct 10 outreach efforts to discuss watershed plan implementation to increase in awareness and knowledge of the plan and to identify potential implementation roadblocks.
LS 1.1a	Install urban stormwater BMPs in 10 communities to address peak flow rates, sediment, and nutrient loading.

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Goal Number	Goal
LS 1.1b	Promote green space in urban areas by hosting 10 outreach efforts.
LS 2.1a	Implement 5 soil health practices per Planning Region in high priority areas.
LS 2.2a	Address at least 50% of estimated imminent public health threat systems.
LS 2.3a	Identify and address 10 targeted surface water/riparian areas where manure management has adversely affected surface water and where improvements can be made.
LS 2.3b	Conduct 10 outreach efforts to inform producers of existing manure management ordinances and associated BMPs.
LS 3.1a	Improve and increase riparian and shoreland natural resources management through coordinated efforts, as measured through the number of DNR Score Your Shore assessments completed and percentage of scores improved.

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~~6.6~~6.3 Planning Region Implementation Efforts

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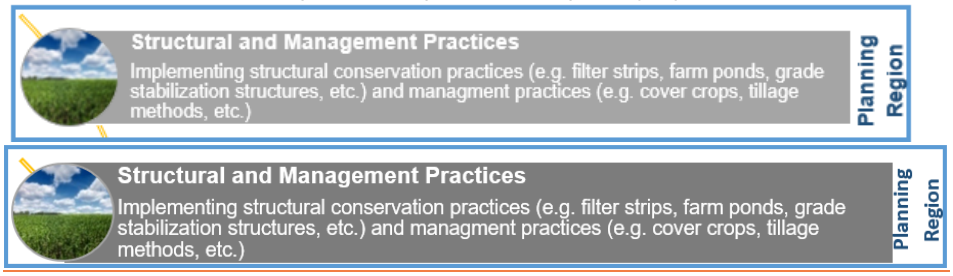
For purposes of this plan, actions that summarize structural and management practices are planning region specific. The specific details for structural and management practices (who, what, when, where, and cost) are described in the implementation profile for each planning region.



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The Prioritize, Target, and Measure Application (PTMApp) was used to prioritize and target possible locations of structural and management practices in each planning region. ~~t~~The results ~~of which~~ of this analysis are summarized in the implementation profiles below. ~~The~~ Each implementation profile~~s~~ make use of standard information products from PTMApp, which can be used in many business workflows, including:

- Describing conditions within the watershed;
- Prioritizing the locations of water quality concerns;

- Completing a source assessment to identify the largest source of sediment and nutrients;
- Evaluating potential locations where structural and management practices appear to be technically feasible;
- Estimating the water quality benefits of structural and management practices; and
- Targeting the preferred locations for structural and management practices based on cost-effectiveness, cost, absolute load reduction or some other metric.

PTMApp estimates existing loads and water quality value arising from implementation of structural and management practices. These values are expressed as the annual mass load of sediment, total phosphorus (TP), or total nitrogen (TN) prior to, and following practice implementation. For purposes of this plan, existing loads and load reduction benefits are summarized at planning region outlets. However, load reduction benefits can be evaluated for any of the priority resource points within the WRW (Appendix ~~Q~~M).

Project and practice costs were approximated using EQIP cost estimates (1.25 x 2016 rates). It is assumed that a one-time EQIP-based cost share payment is representative of the funding needed for plan implementation. For each treatment group a representative BMP was chosen, and costs were analyzed for that BMP to ensure average cost and cost range met expectations. Table 6-3 provides the unit costs of PTMApp practices used for this planning effort.

Table 6-3: PTMApp unit costs used to estimate the best management practice (BMP) cost for each treatment group.

Treatment Group	Practice Unit Cost
Storage	$3.38 per cubic yard of water stored
Filtration	$592.59 per acre of practice surface area
Biofiltration	$56.15 per cubic yard of water inflow (treated volume)
Infiltration	$33,999.11 per acre of practice surface area
Protection	$2,666.69 per acre of practice surface area
Source Reduction	$38.59 per acre of practice surface area

The WRW PTMApp implementation approach was designed to select the most cost-effective structural projects and management practices for removing sediment, TP, and TN until the cost of those recommended projects equaled the Enhanced Funding s~~S~~cenario (Baseline plus WBIF). Cost-effectiveness means the lowest dollar invested per mass reduced of sediment, TP, and TN. Individual budgets were allocated to structural projects and management practices to ensure that both types of activities would be included in each planning region.

The type, number, cost, and location of structural and management practices shown in the targeted implementation schedule and implementation profiles reflect the PTMApp implementation approach designed for this plan. These assumed planning elements will inevitably change during plan implementation due to a wide variety of factors, including but not limited to:

- Voluntary participation by landowners and residents;
- Field verification of practice type and location;
- Amount of funding available for implementation;
- New data on resource conditions;
- Practices/projects ready to implement;
- Location and type of existing practice on the landscape; and
- Effectiveness of education, outreach, and research initiatives.

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As such, the type, number, cost, and location of structural and management practices shown in the targeted implementation schedule are presented to represent a best-case-scenario for planning purposes. During implementation, alternative practices will also be pursued to make progress towards plan goals.

The ~~cost~~ cost-effectiveness of a water quality improvement project will be a key factor in informing decisions about which alternative practices to fund to improve water quality. An investment guide (Table 6-4) was created to show the distribution of estimated monetary investment needed to provide a mass unit reduction in sediment, TP, and TN based on the cost and estimated load reduction for the PTMApp structural and management practices that were selected for this plan. Practices with an estimated cost-effectiveness near the lower quartile value in the table are very cost-effective relative to the targeted structural and management practices presented in the implementation profiles. Practices with an estimated cost-effectiveness near the median value have similar cost-effectiveness as the targeted structural and management practices. And practices with an estimated cost-effectiveness near the upper quartile are less cost-effective, but still practical relative to the targeted structural and management practices.

This information can provide a guide for evaluating potential alternative or additional structural and management practices to determine if they provide a cost-effective solution for making progress towards water quality goals. For example, if there is an opportunity to implement a project or practice that is not part of the set of structural and management practices within the targeted implementation schedule, and the ~~dollar per unit reduction~~cost-effectiveness falls within the range presented in the investment guide (Table 6-4), it is likely that project or practice would provide a good option for making progress towards measurable water quality goals. Or if a landowner within the watershed proposes a structural or management practice with an anticipated cost-effectiveness that falls outside of the range presented within this investment guide, other options can be pursued. This guide was created specifically for evaluating water quality improvements. Other methods will be necessary to evaluate the cost-effectiveness of other benefits (e.g. habitat improvement) for implemented practices. A list of possible alternative practices is shown in Table 6-5, but it is not all-inclusive.

Table 6-4: Cost-effectiveness investment guide for making progress towards water quality goals ~~at Planning Region Outlets~~.

Planning Region	Practice Type	Sediment ($/ton/year)			Phosphorus ($/lb./year)			Nitrogen ($/lb./year)		
		Lower Quartile $	Median $$	Upper Quartile $$$	Lower Quartile $	Median $$	Upper Quartile $$$	Lower Quartile $	Median $$	Upper Quartile $$$
North Fork Watonwan River	Structural Practices	$69.67	$102.22	$154.34	$401.13	$606.25	970.09	$14.83	$22.73	$34.33
	Management Practices	$48.97	$64.90	$72.80	$297.41	$315.60	349.62	$37.13	$39.40	$43.65
Upper Watonwan River	Structural Practices	$70.09	$114.53	$156.07	$412.14	$601.90	1071.03	$14.80	$23.65	$39.41
	Management Practices	$49.56	$65.11	$73.58	$308.49	$334.97	361.65	$38.51	$41.82	$45.15
Saint James Creek	Structural Practices	$93.20	$154.89	$220.52	$390.71	$622.45	990.39	$15.00	$23.72	$36.63
	Management Practices	$60.37	$75.75	$88.50	$303.13	$336.04	369.52	$37.84	$41.95	$46.13
South Fork Watonwan River	Structural Practices	$63.49	$108.59	$157.40	$348.50	$626.28	1131.21	$13.43	$22.34	$40.06
	Management Practices	$40.98	$53.45	$64.51	$292.64	$305.14	336.01	$36.53	$38.09	$41.95
Perch Creek	Structural Practices	$68.72	$93.07	$121.71	$332.36	$601.99	1040.51	$12.39	$21.70	$38.34

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	Management Practices	$30.68	$38.13	$45.59	$310.96	$333.81	351.57	$38.82	$41.67	$43.89
Lower Watonwan River	Structural Practices	$72.34	$113.82	$152.11	$342.69	$564.32	1029.00	$12.34	$19.66	$37.33
	Management Practices	$37.54	$54.98	$68.04	$302.93	$312.94	$336.69	$37.82	$39.07	$42.03

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The following implementation profiles for each of the WRW planning regions are provided to guide the selection and placement of management practices and structural projects. The implementation profile for each region summarizes the:

- current conditions in the planning region
- practices feasible for implementation;
- types and locations of "best," most cost-effective management practices and structural projects which collectively comprise the implementation approach to work toward achieving water quality goals in the planning region;
- estimated costs arising from practice implementation, relative to goals; and
- anticipated load reduction benefits arising from implementation, relative to the planning region goals.

The estimated load reduction benefits from implementation of the practices is estimated in PTMApp. Benefits are expressed as the mass load reduction of sediment, TP, and TN resulting from implementation, although sediment reduction cost-effectiveness was the only criteria used to prioritize practice selection. Reductions in TP and TN loads are secondary benefits from implementing the recommended structural and management practices. Load reduction benefits are summarized in the implementation profiles at the outlet of the planning region.

Cost-effectiveness curves (graphs within each implementation profile) were developed for each planning region to better understand the necessary financial investment to improve water quality and work toward water quality goals. Each cost-effectiveness curve was developed by ranking structural and management practices from most cost-effective to least cost effective using the data from specific practices (management or structural) and from a single planning region (e.g. $/lb. of TP reduction at the outlet of Saint James Creek). Cost-effectiveness was the sole factor used to rank practices. In reality, other factors such as landowner willingness, capacity, and feasibility should also play a large role in determining which practices should be prioritized.

It should be mentioned that the cumulative benefit of structural and management practices implemented in upstream planning regions will lead to measurable reductions in sediment, TP, and TN loads at the outlet of any downstream planning region. For example, structural and management practices implemented within the Saint James Creek Planning region have the potential to improve water quality at the outlet of the Lower Watonwan River planning region, thus decreasing the necessary investment to improve water quality within the Lower Watonwan River planning region.

Some structural and management practices do not use PTMApp data for targeting. Examples of these practices include in channel restoration, wind breaks, and cattle exclusion. Instead, priority resources (and associated measurable goals, Section 5) can be used to inform decisions about where these types of practices should go.

Lastly, Structural and Management practice implementation profiles include an action focused on maintaining or expanding existing acres of the watershed enrolled in land conservation programs. While this plan recognizes that there are other perpetual easements of value in the plan area, the implementation profiles focus on state and federal programs such as the continuous conservation

reserve program (CCRP), conservation reserve enhancement program (CREP), and reinvest in Minnesota (RIM) easements.

These land conservation programs are administered by state and/or federal agencies with the aim of targeting environmentally sensitive lands for conservation practice installation or removal from agricultural production. CCRP, for example, offers a yearly rental payment to farmers who enroll in the program and agree to remove environmentally sensitive land from agricultural production and plant species that will improve environmental health and quality.