

## 1 EXECUTIVE SUMMARY

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*“The mission of the Pomme de Terre River Association is to protect and improve the surface and ground water resources of the Pomme de Terre River Watershed by addressing water quality and quantity issues while also promoting healthy and sustainable agriculture, industrial, and recreational based economy for the region.”*

The Pomme de Terre River Association (PDTRA) is a functioning watershed-based entity that provides the ability for both Joint Powers Board members and landowners to address issues on a watershed scale. Founded in 1981, the PDTRA created a partnership between:

- Big Stone County
- Douglas County
- Grant County
- Otter Tail County
- Stevens County
- Swift County
- Big Stone Soil & Water Conservation District
- Douglas Soil & Water Conservation District
- Grant Soil & Water Conservation District
- West Otter Tail Soil & Water Conservation District
- Stevens Soil & Water Conservation District
- Swift Soil & Water Conservation District

The Pomme de Terre River Comprehensive Watershed Management Plan has been developed to meet the requirements of the One Watershed, One Plan (1W1P) program which is described under Minnesota Statute §103B.801. This program supports partnerships of local governments in developing prioritized, targeted, and measurable implementation plans at the major watershed scale. Moving forward with the Comprehensive Watershed Management Plan and implementation, the PDTRA will be the primary entity for plan execution and fiscal responsibilities.

The Pomme de Terre River watershed is located in west central Minnesota. The two largest cities in the watershed are Morris and Appleton. The watershed covers approximately 874 square miles (559,968 acres) of which 74% of the land is used for cropland and pasture. The watershed drains through the Pomme de Terre River, before discharging into the Minnesota River below Marsh Lake. At its headwaters in Ottertail County, the watershed is dominated by lakes and hardwood forests. As the Pomme de Terre River flows south, the landscape transitions to mostly cropland. Within the Minnesota River basin, the Pomme de Terre watershed has some of the best water quality. However, there is still need for improvement as many stream segments and lakes are impaired for aquatic life, recreation and consumption. The Land and Water Resources Inventory (Appendix A) describes important watershed characteristics that set the context for the other plan elements. The Pomme de Terre River Watershed is illustrated in Figure 1-1.

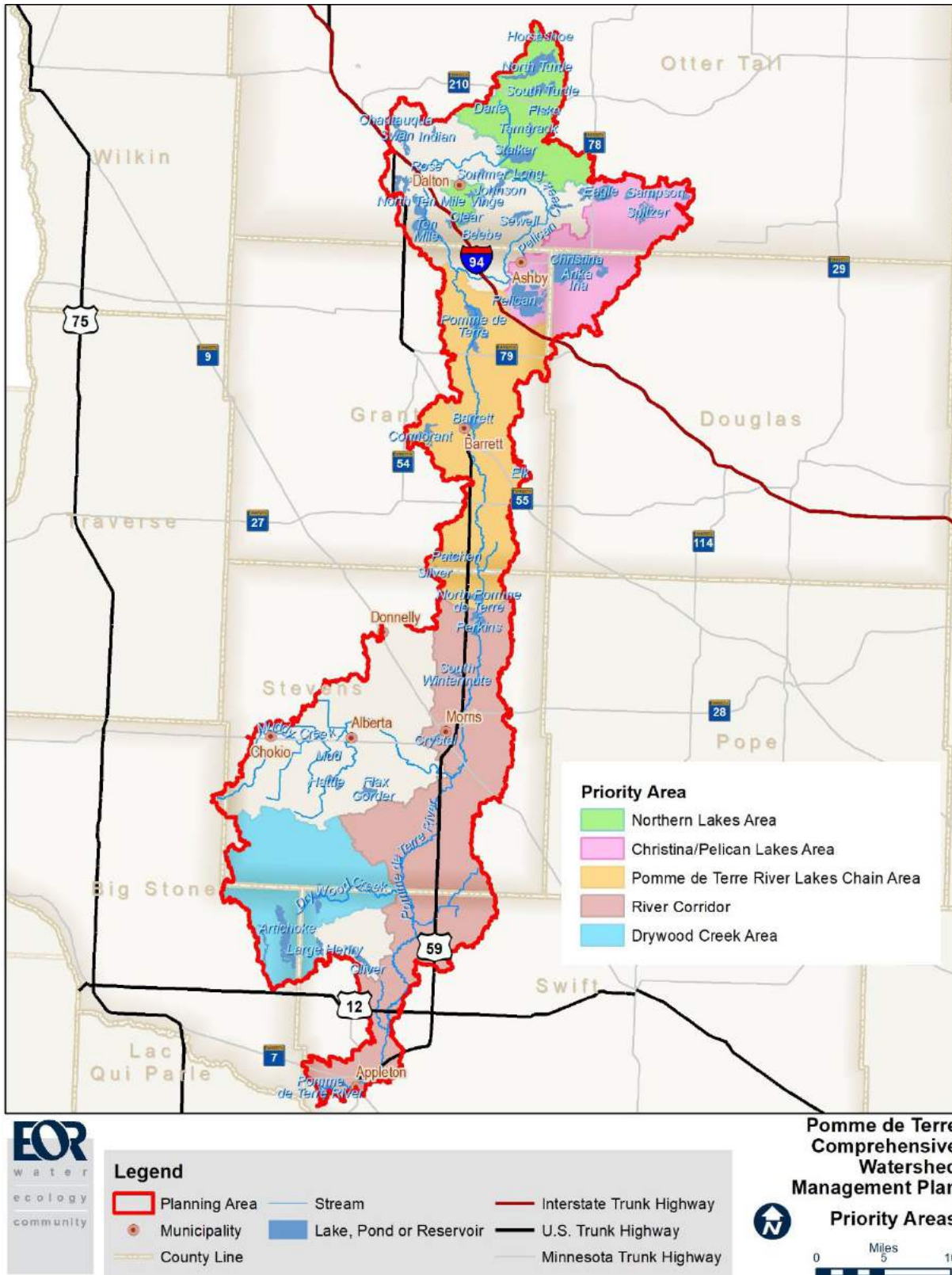


Figure 1-1. Pomme de Terre River Planning Area and Priority Areas

The Plan identifies five priority areas where the majority of the work will be completed in the next 10 years (see Section 2.4 *Prioritizing Issues and Resources*). These priority areas were identified using local values; high-level priorities identified in the state’s Nonpoint Priority Funding plan; various modeling tools (e.g. Zonation conservation model and watershed pollutant loading model results) and current impairment results. The five priority areas include (from north to south):

- *Northern Lakes Area*
- *Christina/Pelican Lakes Area*
- *Pomme de Terre River Lakes Chain Area*
- *Pomme de Terre River Corridor*
- *Drywood Creek Area*

In addition, the Plan identifies 11 priority issues that address:

- *Drinking Water Protection*
- *Groundwater Conservation*
- *Altered Hydrology*
- *Poor Quality Lakes*
- *High Quality Lakes*
- *Protect and Restore Perennial Cover and Shallow Basins*
- *Excess Pollutants*
- *Loss of In-Stream Habitat*
- *Aquatic Invasive Species*
- *Watershed Outreach*
- *Lakeshore Owner Education*

Some priority issues are unique to a priority area and others are an issue for the entire watershed.

The Plan identified 20 measurable goals, which were developed to address the priority issues in the 10-year timeframe of the plan. Specific and targeted implementation activities were identified that are needed to achieve plan goals. Summaries of priority issues, goals and implementation activities by priority area are provided on the following pages.



*Pomme de Terre Reservoir - Morris*

## Watershed Wide (All Counties)

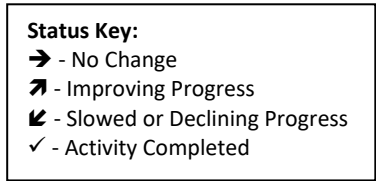
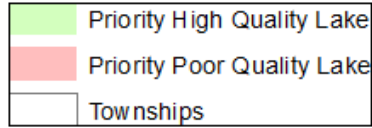
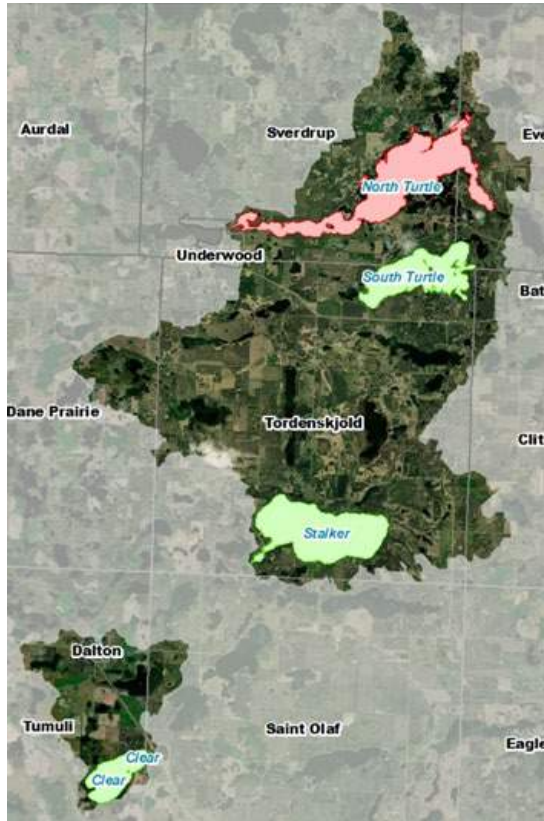
Priority	Goal	Implementation Activities	Status
<b>Drinking Water Protection</b> Section 3.1.1	Provide educational resources to private well owners about water testing programs and available treatment options for nitrate and arsenic	Host annual well water nitrate/arsenic testing clinic and coordinate to make testing kits available to the public	
<b>Drinking Water Protection</b> Section 3.1.1	Reduce the number of conduits to the groundwater system (e.g. abandoned wells) to protect groundwater quality by sealing abandoned wells	Provide cost-share assistance to well owners for sealing of unused wells.	
<b>Groundwater Conservation</b> Section 3.1.2	Assist agricultural producers with groundwater conservation by promoting water conservation measures to improve water use; request County Geologic Atlas to fill data gaps; continue well monitoring.	Promote and encourage the adoption of irrigation management BMPs	
		Request County Geologic Atlas	
		Identify recharge areas from Atlas	
<b>Altered Hydrology</b> Section 3.2.1	Reduce annual runoff by 0.08 inch of runoff (or 3,527 acre-feet) at the outlet of the Pomme de Terre River watershed	Increase perennial vegetation	
		Restore wetlands	
		Create and develop spatial database for tracking projects	
		Implement structural agricultural BMPs	
		Implement nonstructural BMPs	
<b>Altered Hydrology</b> Section 3.2.1	No increase in runoff from public water basins during peak run-off periods	Identify non-contributing areas	
		Pursue management plans for existing and future controlled outlets on public water basins	
<b>Aquatic Invasive Species</b> Section 3.5.1	Work towards preventing spread of AIS by improving coordination of County programs across the planning area	Annual workshops to coordinate County AIS plans and implementation	
		Attend DNR District-led meetings	
		Continue implementing education programs	
		Work with local law enforcement agencies on inspections	
<b>Watershed Outreach</b> Section 3.6.1	Facilitate strategic networking, learning, and participation of targeted groups to assess, build, and leverage community capacity	Establish and facilitate Networking/Advisory Groups for targeted groups	
		Establish soil health teams for Northern and Southern Regions with 2 meetings per year	
		Regional tours on prioritized portions of the watershed to facilitate partnerships, highlight improvements, and discuss areas	
<b>Watershed Outreach</b> Section 3.6.1	Increase adoption of BMPs by increasing engagement and communication with residents, local landowners and agricultural producers	BMP-focused demonstrations/workshops	
		Soil health field days	
		Continue work initiated by the WRAPS Cycle II; identify target audience for BMP adoption through follow-up interview	
<b>Watershed Outreach</b> Section 3.6.1	Provide information about how land-use decisions impact the watershed and its resources to locally elected and appointed decision-makers	Conduct a 5-year watershed tour to re-evaluate progress, reconnect with partners, and create new partnerships	
		Host conversation/meeting on the state of local water quality and watershed management to all types of local and state/federal officials	
		Create and host consistent orientation to all types of newly elected local officials	
<b>Watershed Outreach</b> Section 3.6.1	Encourage soil and water stewardship and awareness across all generations	Work with UMN Extension to host watershed education event	
		Conduct annual Kayak Tour on the Pomme de Terre River and provide education about streamside ecology	
		Continue K-12 curriculum about watershed management	
		Create a StoryMap to highlight 1W1P plan priority areas and existing conservation practices/programs	
		Create a list serve to share information about the watershed on a routine basis	

**Status Key:**

- - No Change
- ↗ - Improving Progress
- ↘ - Slowed or Declining Progress
- ✓ - Activity Completed

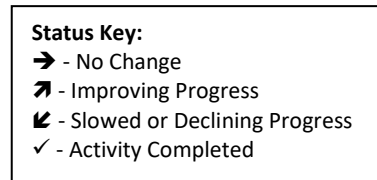
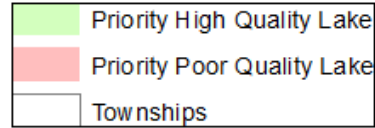
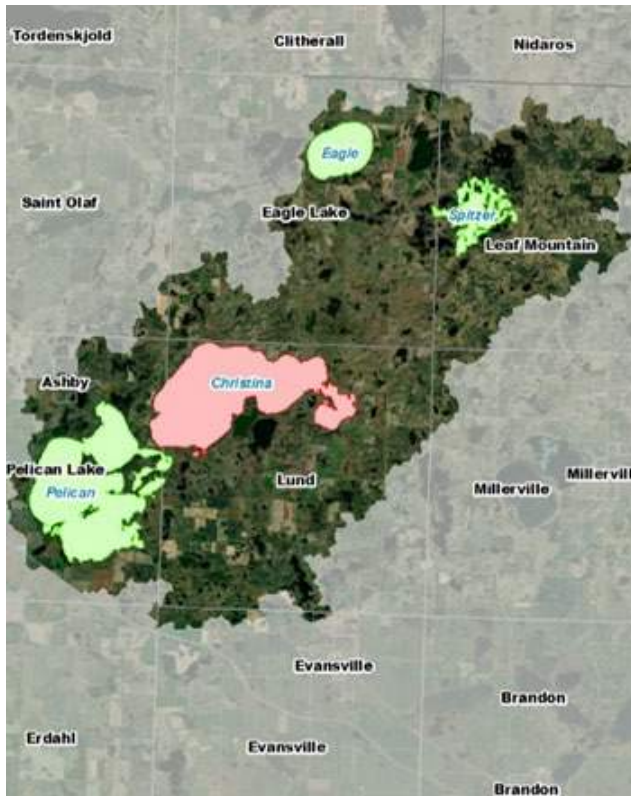


## Northern Lakes Area (Otter Tail County)



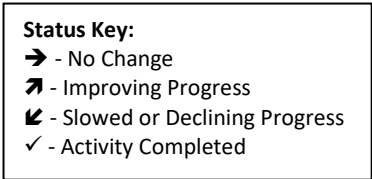
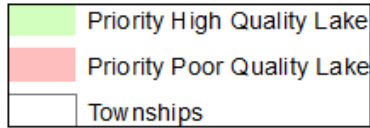
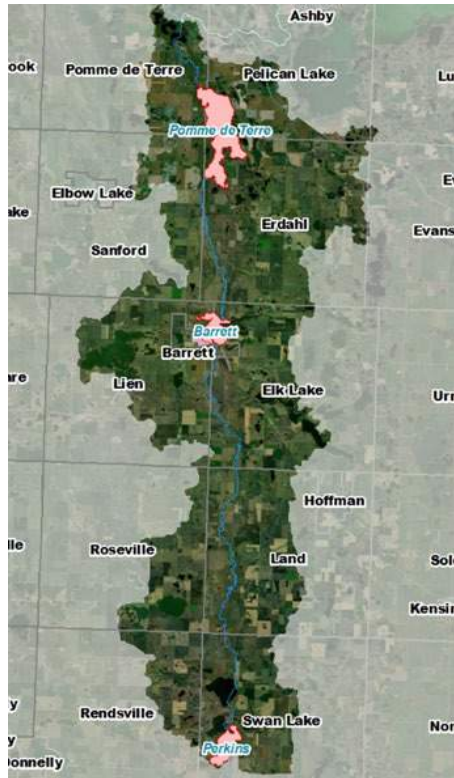
Priority	Goal	Implementation Activities	Status
<b>Poor Quality Lakes</b> Section 3.3.1	Achieve a phosphorus reduction in direct drainage runoff of 57 lb/yr to North Turtle Lake (based on project feasibility)	Series of meetings to identify in-lake management and engage affected landowners	
		Inspect subsurface sewage treatment systems	
		Update noncompliant septic systems	
		Conduct shoreline condition inventories	
		Implement shoreline restoration projects for erosion control	
		Implement structural agricultural BMPs	
<b>High Quality Lakes</b> Section 3.3.2	Achieve a phosphorus reduction in direct drainage runoff of 25 lb/yr to South Turtle Lake, 135 lb/yr to Stalker Lake, and 126 lb/yr to Clear Lake (based on project feasibility)	Implement nonstructural BMPs	
		Inspect subsurface sewage treatment systems	
		Update noncompliant septic systems	
		Conduct shoreline condition inventories	
		Implement shoreline restoration projects for erosion control	
		Implement structural agricultural BMPs	
<b>Lakeshore Owner Education</b> Section 3.6.2	Increase shoreland owner understanding of why there are shoreland regulations and how to be better stewards of the watershed's lakes shoreline	Implement nonstructural BMPs	
		Provide annual lakeshore management education and outreach to lakeshore owners	
		Distribute education materials to existing lakeshore owners in tax mailing	
		Distribute educational materials to new lakeshore owners at property transfer	

## Christina-Pelican Lakes Area (Otter Tail, Grant, & Douglas County)



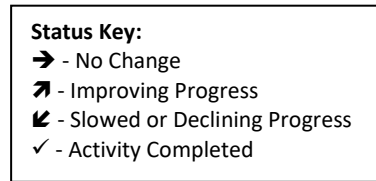
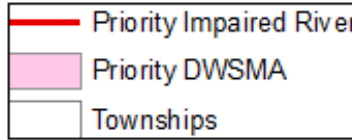
Priority	Goal	Implementation Activities	Status
<b>Poor Quality Lakes</b> Section 3.3.1	Achieve a phosphorus reduction in direct drainage runoff of 59 lb/yr to Lake Christina (based on project feasibility)	Series of meetings to identify in-lake management and engage affected landowners	
		Inspect subsurface sewage treatment systems	
		Update noncompliant septic systems	
		Conduct shoreline condition inventories	
		Implement shoreline restoration projects for erosion control	
		Implement structural agricultural BMPs	
		Implement nonstructural BMPs	
<b>High Quality Lakes</b> Section 3.3.2	Achieve a phosphorus reduction in direct drainage runoff of 14 lb/yr to Eagle Lake, 95 lb/yr to Spitzer Lake, and 29 lb/yr to Pelican Lake (based on project feasibility)	Inspect subsurface sewage treatment systems	
		Update noncompliant septic systems	
		Conduct shoreline condition inventories	
		Implement shoreline restoration projects for erosion control	
		Implement structural agricultural BMPs	
		Implement nonstructural BMPs	
<b>Lakeshore Owner Education</b> Section 3.6.2	Increase shoreland owner understanding of why there are shoreland regulations and how to be better stewards of the watershed's lakes shoreline	Provide annual lakeshore management education and outreach to lakeshore owners	
		Distribute education materials to existing lakeshore owners in tax mailing	
		Distribute educational materials to new lakeshore owners at property transfer	
<b>Protect and Restore Perennial Cover and Shallow Basins</b> Section 3.3.3	Protect existing water quality of shallow basins by maintaining wetland and grassland currently enrolled in conservation programs and increasing the amount of perennial vegetation and wetland storage in the watershed	Implement perennial vegetation and protect wetlands	

## Pomme de Terre River Lakes Chain (Grant & Stevens County)



Priority	Goal	Implementation Activities	Status
<b>Drinking Water Protection</b> Section 3.1.1	Protect public drinking water supplies with moderate and high vulnerability (Barrett)	Convert cropland to perennial vegetation	
		Review wellhead protection plans and serve on wellhead protection planning teams	
		Contact landowners about completing BMP projects	
<b>Poor Quality Lakes</b> Section 3.3.1	Achieve a phosphorus reduction in direct drainage runoff of 275 lb/yr to Perkins Lake, 98 lb/yr to Barrett Lake, and 142 lb/yr to Pomme de Terre Lake (based on project feasibility)	Series of meetings to identify in-lake management and engage affected landowners	
		Inspect subsurface sewage treatment systems	
		Update noncompliant septic systems	
		Conduct shoreline condition inventories	
		Implement shoreline restoration projects for erosion control	
		Implement structural agricultural BMPs	
<b>High Quality Lakes</b> Section 3.3.2	Achieve a phosphorus reduction in direct drainage runoff of 4 lb/yr to Elk Lake (based on project feasibility)	Implement nonstructural BMPs	
		Inspect subsurface sewage treatment systems	
		Update noncompliant septic systems	
		Conduct shoreline condition inventories	
		Implement shoreline restoration projects for erosion control	
<b>Lakeshore Owner Education</b> Section 3.6.2	Increase shoreland owner understanding of why there are shoreland regulations and how to be better stewards of the watershed's lakes shoreline	Implement structural agricultural BMPs	
		Implement nonstructural BMPs	
		Provide annual lakeshore management education and outreach to lakeshore owners	
		Distribute education materials to existing lakeshore owners in tax mailing	
		Distribute educational materials to new lakeshore owners at property transfer	

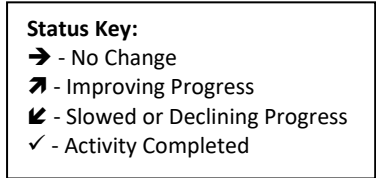
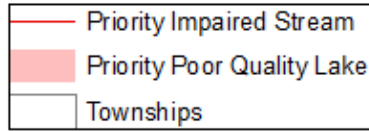
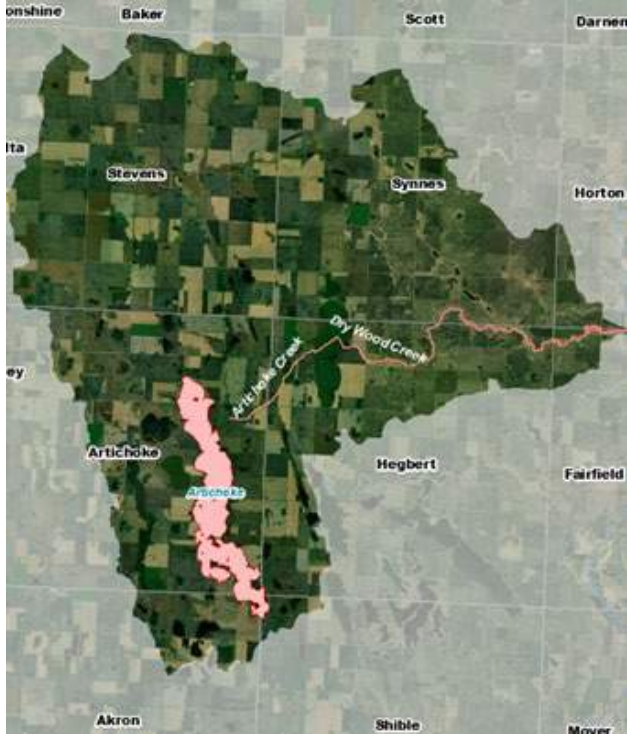
## Pomme de Terre River Corridor (Stevens & Swift County)



Priority	Goal	Implementation Activities	Status
Drinking Water Protection Section 3.1.1	Protect public drinking water supplies with moderate and high vulnerability (Morris and Appleton)	Convert cropland to perennial vegetation	
		Review wellhead protection plans and serve on wellhead protection planning teams	
		Contact landowners about completing BMP projects	
Excess Pollutants Section 3.4.1	Achieve a phosphorus reduction of 382 lb/yr and a sediment reduction of 2,501 tons/yr in direct runoff to the Pomme de Terre River	One-on-one conversations with landowners to enroll in cost-share programs for top-ranked structural and non-structural practices	
		Implement structural agricultural BMPs	
		Implement nonstructural BMPs	
		Restore drained shallow basins	
		Implement nutrient management plans	
Excess Pollutants Section 3.4.1	Reduce stormwater runoff impacts	Implement BMPs associated with urban stormwater runoff (e.g., rain gardens)	
		Work with cities to develop stormwater management plans in urban areas	
Loss of In-Stream Habitat Section 3.4.2	Improve in-stream habitat by reducing sedimentation due to stream bank erosion	Implement BMPs to reduce erosion due to livestock	
		Implement pasture management and rotational grazing plans	
		Complete streambank stabilization projects	
		Implement side water inlets where appropriate	
Loss of In-Stream Habitat Section 3.4.2	Improve riparian habitat by establishing and maintaining perennial buffers and floodplain connections	Implement buffer on “other waters” coming into the main stem of the Pomme de Terre River	



## Drywood Creek Area (Stevens, Swift, & Big Stone County)



Priority	Goal	Implementation Activities	Status
<b>Poor Quality Lakes</b> Section 3.3.1	Achieve a phosphorus reduction in direct drainage runoff of 99 lb/yr to Artichoke Lake (based on project feasibility)	Series of meetings to identify in-lake management and engage affected landowners	
		Inspect subsurface sewage treatment systems	
		Update noncompliant septic systems	
		Conduct shoreline condition inventories	
		Implement shoreline restoration projects for erosion control	
		Implement structural agricultural BMPs	
<b>Excess Pollutants</b> Section 3.4.1	Achieve a phosphorus reduction of 209 lb/yr and a sediment reduction of 1,029 tons/yr in direct runoff to Drywood Creek	Implement nonstructural BMPs	
		One-on-one conversations with landowners to enroll in cost-share programs for top-ranked structural and non-structural practices	
		Implement structural agricultural BMPs	
		Implement nonstructural BMPs	
		Restore drained shallow basins	
<b>Loss of In-Stream Habitat</b> Section 3.4.2	Improve in-stream habitat by reducing sedimentation due to stream bank erosion	Implement nutrient management plans	
		Implement ag. pit closures	
		Implement BMPs to reduce erosion due to livestock	
		Implement pasture management and rotational grazing plans	
<b>Loss of In-Stream Habitat</b> Section 3.4.2	Improve riparian habitat by establishing and maintaining perennial buffers and floodplain connections	Complete streambank stabilization projects	
		Implement side water inlets where appropriate	
		Implement buffer on “other waters” coming into the main stem of the Pomme de Terre River	

All of the plan elements will be implemented by the Counties and SWCDs under a Joint Powers Agreement (JPA) that describes the structure of the Pomme de Terre River Association Joint Powers Board (PdTRA JPB). The PdTRA JPB is a watershed based entity within the Pomme de Terre River Watershed that provides the ability for both JPB members and land occupiers to address issues on a watershed scale rather than by individual geographical areas of each local unit of government. Table 1-1 identifies the roles of the Pomme de Terre River Association Joint Powers Board and Staff as well as the Technical Advisory Committee in plan implementation.

Staff representatives from each of the JPB members will coordinate the implementation of plan activities and collaborate to obtain the grants and funding necessary to implement the plan. The Joint Powers Board and Staff will meet regularly to ensure progress is being made toward achieving the goals of the plan. The Technical Advisory Committee will be called to provide expertise, assist in work plan development and implementation and to assist with performance-tracking.

**Table 1-1.** Anticipated roles for plan implementation to be incorporated into governance structure.

Entity	Primary Implementation Role/Function
<p><b>Pomme de Terre River Association Joint Powers Board</b></p>	<ul style="list-style-type: none"> <li>- Adopting the Plan</li> <li>- Implementation of the Plan</li> <li>- Amending the Plan</li> <li>- Allocating funding sources</li> <li>- Approving work plans</li> <li>- Approving contractual agreements</li> <li>- Approving fiscal reports and budgets</li> <li>- Approving reports required by grantors</li> <li>- Approve grant applications and accept grant funds</li> <li>- Approve assessment on plan progress and measurable results</li> <li>- Establish committees</li> </ul>
<p><b>Pomme de Terre River Association Staff</b></p>	<ul style="list-style-type: none"> <li>- Prepare work plan</li> <li>- Prepare fiscal reports and budgets</li> <li>- Prepare reports required by grantors</li> <li>- Prepare and submit grant applications</li> <li>- Complete assessment on plan progress and measure results</li> <li>- Provide general administrative and fiscal functions</li> </ul>
<p><b>Technical Advisory Committee</b></p>	<ul style="list-style-type: none"> <li>- Provide expertise and scientific data</li> <li>- Develop recommendations for Plan Implementation</li> <li>- Assist with work plan development and implementation</li> <li>- Identify and coordinate grant opportunities</li> <li>- Assist with assessment on plan progress and measure results</li> <li>- Provide recommendations to the PdTRA JPB</li> </ul>
<p><b>Individual County Boards and Soil and Water Conservation Districts</b></p>	<ul style="list-style-type: none"> <li>- Approving the Plan prior for submittal to the Board of Water and Soil Resources</li> <li>- Local Adoption of the Plan</li> <li>- Implementation of the Plan</li> </ul>