

## Thief River 1W1P Priority A and B Issues

### Priority Tier A Issues

Resource Category	Resource Concern	Issue
<b>2. Surface Waters: Water resulting from excess precipitation leaving the landscape and collecting in streams, rivers, creeks, wetlands, lakes and ponds.</b>		
<b>2. Surface Waters</b>	2.1 Aquatic Life and Recreation	2.1.1: Water Quality: Elevated concentrations of suspended solids, sediment, and total phosphorus approaching (protection) or exceeding (restoration) water quality standards for aquatic life, which can lead to aquatic life impairments.
		2.1.2: Water Quality: Elevated concentrations of bacteria approaching (protection) or exceeding (restoration) water quality standards for aquatic recreation, which can impact beneficial uses.
		2.1.7 Water Quality: Decreased stream channel stability driven by hydrologic changes that increase erosion and sediment transport, which can decrease beneficial uses of streams, rivers, and lakes.
	2.2 Surface Runoff and Flooding	2.2.1: Water Quantity: Changes in natural water storage and vegetative cover on the landscape, including natural depressional areas, wetlands, loss of vegetative cover and soil organic matter, which can cause an increase in the volume of runoff, peak discharges, and water levels, causing flooding and flood damages to agricultural land, wildlife habitat, transportation systems, and building and structures.
		2.2.2: Water Quantity: High peak flows causing flood damages to agricultural land and public infrastructure, homes and other structures, rerouted flows, and accelerated bank erosion to artificial and natural waterways; low flows which can impact aquatic life and aquatic recreation.
	2.3 Drainage Management Systems	2.3.1: Increased erosion and sedimentation resulting from bank failure and slumping, and gully formation prevents the proper function of drainage systems and increases maintenance costs.
	2.5 Drinking Water	2.5.1: Water Quality: Elevated concentrations of sediment, and organic matter have a detrimental impact on drinking water quality.
2.6 Wetlands	2.6.1: Sediment deposition in wetlands degrades hydrologic function, contributes to nonnative plant species succession, and contributes to sediment and highly organic/low dissolved oxygen water to downstream waterways.	

<b>3. Fish and Wildlife Habitat and Unique Natural Features: Visible natural features and characteristics of the landscape, often which are prominent or unique.</b>		
<b>3. Fish and Wildlife Habitat</b>	3.1 Aquatic Habitat for Fish, Macroinvertebrates, Wildlife, and Aquatic Life	3.1.3: Degradation of aquatic habitat, aquatic vegetation, and riparian habitat associated with increased drainage, channelization, ditch maintenance, and development, and the physical damage to the banks and beds of creeks, streams and rivers from higher and faster flows pose public lands and waters management challenges.
	3.2 Shoreland and Riparian Zones	3.2.1: Quantity and quality of vegetation along waterways, including riparian forests and buffers along ditches in shorelines, that filter pollutants, retain soil, improve water quality, and restore wildlife habitat.
<b>5. Local Development and Land Stewardship: The management of urban and rural land use through sustainable development.</b>		
<b>5. Local Development and Land Stewardship</b>	5.2 Healthy Rural Landscapes	5.2.1: Reduced soil health, soil protection, excess loss of fertilizers or pesticides, and its impact on agricultural productivity, surface water quality and quantity, sedimentation in water features, and water holding capacity.
		5.2.3: Improperly installed or poorly functioning subsurface sewage treatment systems (SSTS) and individual sewage treatment system (ISTS) increase the potential for ground and surface water contamination, adversely impacting human health and water quality.

### Priority Tier B Issues

<b>Resource Category</b>	<b>Resource Concern</b>	<b>Issue</b>
<b>1. Groundwater: Water which is held underground within the pores of rocks and soils.</b>		
<b>1. Groundwater</b>	1.1 Drinking Water	1.1.1: Water Quality: Protection of generally good quality groundwater supplies from elevated levels of nitrates, arsenic, or other contaminants which if excessive can result in implications to human health and treatment costs for public and private wells. Protection is particularly important in vulnerable DWSMAs.
		1.1.2: Water Quality: A limited amount of data available for nitrate, arsenic, and other types of groundwater contamination, which can lead to poorly informed management decisions.
<b>2. Surface Waters: Water resulting from excess precipitation leaving the landscape and collecting in streams, rivers, creeks, wetlands, lakes and ponds.</b>		
<b>2. Surface Waters</b>	2.1 Aquatic Life and Recreation	2.1.3: Water Quality: Reduced concentrations of dissolved oxygen approaching (protection) or exceeding (restoration) tolerable levels that can affect the diversity of quality of aquatic life.
		2.1.6: Aquatic Life use assessments needed for channelized reaches now that Tiered Aquatic Life Use (TALU) standards are in place.

	2.2 Surface Runoff and Flooding	2.2.3: Regional and basin wide flood issues that might not be addressed by local actions, which can impact local infrastructure, natural resources, agricultural lands and communities.
	2.4 Impoundments and Reservoirs	2.4.1: Increased erosion and sedimentation resulting in reduced storage capacity, invasive species takeover, and ultimately, wildlife habitat degradation.
	2.6 Wetlands	2.6.2: Wetlands have been altered or drained for agricultural production, resulting in a loss of wildlife habitat and temporary water storage on the landscape.
<b>3. Fish and Wildlife Habitat and Unique Natural Features: Visible natural features and characteristics of the landscape, often which are prominent or unique.</b>		
<b>3. Fish and Wildlife Habitat</b>	3.1 Aquatic Habitat for Fish, Macroinvertebrates, Wildlife and Aquatic Life	3.1.1: Modification of waterways, culverts, and dams at impoundment outlets reduce hydrologic connectivity and altered the flow regime resulting in the reduced potential of waterways to support quality fish populations.
	3.3 Terrestrial Habitat for Wildlife	3.3.1: Increased habitat fragmentation and loss of habitat providing food, shelter, terrestrial ecological corridors, and breeding territory for both protected (e.g. endangered, threatened, special concern, and Species of Greatest Conservation Need) and unprotected species.
<b>4. Local Knowledge Base and Technical Capacity: The collective understanding of water related matters within the community and the ability to respond to and resolve water related issues.</b>		
<b>4. Local Knowledge Base and Technical Capacity</b>	4.1 Public Knowledge of and Behavior Relative to Water Issues	4.1.1: Increase public awareness and knowledge of water management issues including general citizens down through school aged children.
		4.1.3: Increase regular input from stakeholders to guide future efforts related to this plan.
	4.2 Data Collection	4.2.1: Information needed to understand baseline conditions for resources to better inform management decisions.
<b>5. Local Development and Land Stewardship: The management of urban and rural land use through sustainable development.</b>		

5. Local Development and Land Stewardship	5.1 Healthy Urban Landscapes	5.1.1: Downstream water quality consequences from stormwater runoff due to increased impervious surface area around water bodies such as lake, streams, and wetlands.
		5.1.4: High levels of E. coli in water monitoring data at stormwater outlets in Thief River Falls, which can impact the beneficial use of downstream resources.
	5.2 Healthy Rural Landscapes	5.2.2: Increased sheet, rill, and wind erosion, and its impact on agricultural productivity, surface water quality, and deposits in drainage systems.
		5.2.4: The impact of feedlots on surface and groundwater quality.

### Priority Tier C Issues

Resource Category	Resource Concern	Issue
<b>2. Surface Waters: Water resulting from excess precipitation leaving the landscape and collecting in streams, rivers, creeks, wetlands, lakes and ponds</b>		
2. Surface Waters	2.1 Aquatic Life and Recreation	2.1.4: Water Quality: Elevated concentrations of nitrate-nitrite and ammonia approaching (protection) water quality standards for aquatic life, which can impact the beneficial uses of the water body.
	2.3 Drainage Management Systems	2.3.2: Water Quantity: Changes in the timing and magnitude of runoff delivery related to drainage management systems and the effects on surface runoff, which impacts flooding, ditch maintenance, wildlife habitat, and agricultural productivity.
		2.3.3: Altered Hydrology: Extreme flow fluctuations, peak discharges, erosion and sedimentation from bank failure, slumping, and gully formation, and stream instability, because of changes in watershed hydrology.
		2.3.4: Nitrates entering tile drainage and impacting aquatic life and drinking water supplies of downstream resources.
	2.4 Impoundments and Reservoirs	2.4.2: Need for increased coordination for management of waters released from impoundments and reservoirs needed to balance interests of natural resources management, agricultural productivity, and flood damage reduction.
		2.4.3: Levels controlled by water control structures and its impact on aquatic life, development, recreation, and the local economy.
2.5 Drinking Water	2.5.2: Water Quality: Protect surface water intakes, the inner-emergency response area, and outer source water management area from potential contaminants and sediment to protect the source and quality of drinking water.	
<b>3. Fish and Wildlife Habitat and Unique Natural Features: Visible natural features and characteristics of the landscape, often which are prominent or unique.</b>		

3. Fish and Wildlife Habitat	3.3 Terrestrial Habitat for Wildlife	3.3.2: Presence of noxious weeds threatening the quality of native plant communities.
<b>4. Local Knowledge Base and Technical Capacity: The collective understanding of water related matters within the community and the ability to respond to and resolve water related issues.</b>		
4. Local Knowledge Base and Technical Capacity	4.1 Public Knowledge of and Behavior Relative to Water Issues	4.1.4: Need for recognition of the fiscal impact of agricultural, conservation practices, and other economically important land uses in the context of individual landowners, taxpayers, and government entities that could be addressed through education, fiscal benefits, and incentives.
<b>5. Local Development and Land Stewardship: The management of urban and rural land use through sustainable development</b>		
5. Local Development and Land Stewardship	5.1 Healthy Urban Landscapes	5.1.2: The frequency of flooding and its impact on commercial, residential and infrastructure areas.
		5.1.3: Point sources and their impact on surface water quality.
	5.2 Healthy Rural Landscapes	5.2.5: Frequency of use and public access to quality outdoor recreation experiences.

### Unranked Issues

Resource Category	Resource Concern	Issue
<b>1. Groundwater: Water which is held underground within the pores of rocks and soils</b>		
1. Groundwater	1.1 Drinking Water	1.1.3: Water Quality: Current and future land use (and associated potential contaminants) can negatively impact DWSMAs and groundwater recharge areas. Protection is particularly important in vulnerable DWSMAs.
<b>2. Surface Waters: Water resulting from excess precipitation leaving the landscape and collecting in streams, rivers, creeks, wetlands, lakes and ponds</b>		
2. Surface Waters	2.1 Aquatic Life and Recreation	2.1.5: Water Quality: Biochemical oxygen demand and dissolved oxygen fluctuation approaching (protection) or exceeding (restoration) water quality standards for aquatic life, which can impact beneficial uses of the water body.
		2.1.8: Elevated concentrations of algal toxins that can impact aquatic life and aquatic recreation uses.

	2.5 Drinking Water	2.5.3: Water Quality: Excess hydrogen sulfide gas resulting in foul odors during certain winter conditions.
<b>3. Fish and Wildlife Habitat and Unique Natural Features: Visible natural features and characteristics of the landscape, often which are prominent or unique.</b>		
3. Fish and Wildlife Habitat	3.1 Aquatic Habitat for Fish, Macroinvertebrates, Wildlife and Aquatic Life	3.1.2: Elevated nutrient loads coming into aquatic habitat contribute to algal blooms as well as the growth of invasive species (e.g., hybrid cattail).
<b>4. Local Knowledge Base and Technical Capacity: The collective understanding of water related matters within the community and the ability to respond to and resolve water related issues.</b>		
4. Local Knowledge Base and Technical Capacity	4.1 Public Knowledge of and Behavior Relative to Water Issues	4.1.2: Engage citizen participation in sampling and data collection in standardized monitoring program.