



# Whitefish Lake Implementation Plan

## Introduction

In 2018-2019, Crow Wing and Cass Counties' Soil and Water Conservation Districts (SWCDs) and citizens partnered to develop a comprehensive watershed management plan for the Pine River. This process consisted of:

- 1) Ten stakeholder meetings that included citizens, businesses, lake associations, state agencies, and local officials.
- 2) Prioritized water and soil health issues and concerns for the watershed
- 3) Developed action items for specific watershed areas
- 4) State and local agencies adopted a ten-year watershed conservation plan.

The Whitefish Lake Plan is based on the Pine River Comprehensive Watershed Management Plan. The plan characterized Whitefish Lake as having a decrease in water visibility (water clarity), high sensitivity to phosphorus, and high economic significance to the community. The plan categorized the lake and land as Enhance/Protect Management. This plan does not address Aquatic Invasive Species (AIS) because Counties have their own AIS Plan.

## Why?

Because this is Minnesota's favorite place. Lakes are our heritage and our way of life, and there is a direct correlation between water quality and economic sustainability in this area. If we work to keep our lakes clean future generations will continue to enjoy them.

## Management Focus For This Lake Is:

### ENHANCE/ PROTECT

-- Fix It --

**Definition:** Reduce phosphorus loading through stormwater and agricultural best management practices.

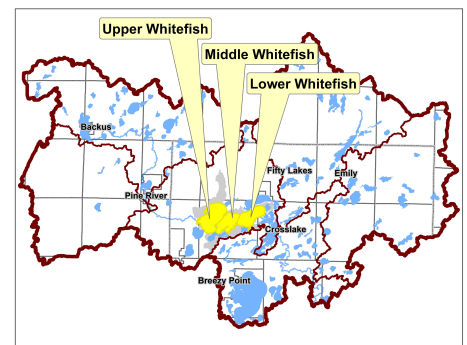
### PROTECT

-- Keep It --

### VIGILANCE

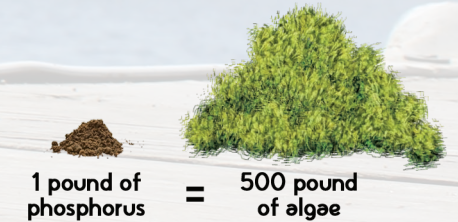
-- Keep It --

## Location of lake within the watershed:



"Harmonizing people, water, forests, and the economy in a place to renew your spirit."

Phosphorus is a nutrient found in manure, leaves, soil, and fertilizer. Under natural conditions phosphorus is typically scarce in water. Human activities, however, have resulted in excessive phosphorus loading into our lakes. Phosphorus triggers harmful algae blooms.



## Plan goals and current status

The plan goals are indicated by the blue circles. Whitefish Lake project status is indicated below.

### Shoreline and Land Protection

- 1 Protect and enhance forest cover, outstanding lake water quality, habitat, surficial sand aquifers, and downstream drinking water by promoting 75% land protection in targeted minor watersheds.
  - 2 Protect two miles of undeveloped riparian lands, ice ridges and forested riparian corridors through outreach to private residents.
- Whitefish Lake Status
- o Current % of the minor watershed protected: **66%** (Whitefish chain of lakes)
  - o Additional acres needed to reach the 75% protection goal: **1,498 acres** (Whitefish chain of lakes)
  - o Acres that have the potential to be protected: **1,398 acres** (Whitefish chain of lakes)

### Phosphorus Reduction

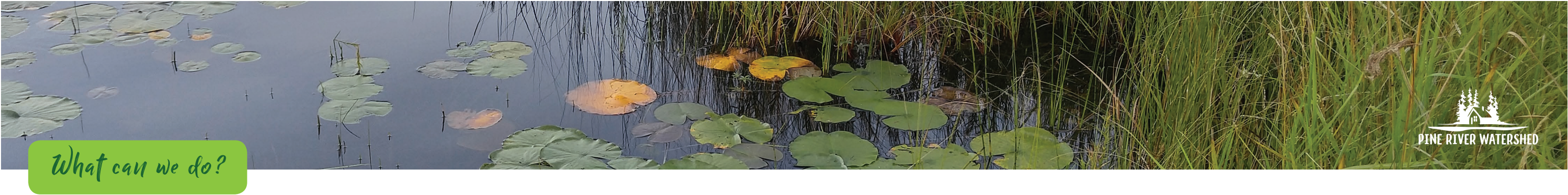
- 3 Reduce annual phosphorus loading into declining lakes by 5% by implementing long-term stormwater best management practices in residential and road areas.
- Whitefish Lake Status
- o Phosphorus source: **Watershed**
  - o Phosphorus load to the lake per year: **15,849 lbs**
  - o 5% Reduction Goal: **792 lbs**
    - Pine River load reduction goal: **558 lbs**; currently investigating pasture management opportunities.
    - Other tributaries load reduction goal: **120 lbs**; currently investigating reduction opportunities.
    - Nearshore reduction goal: **114 lbs**; currently investigating stormwater runoff opportunities.

### Shoreline Restoration

- 4 Maintain and enhance/restore two miles of riparian vegetation near streams and lakes with over 10% impervious surface/disturbed area through outreach to private residents.
- Whitefish Lake Status
- o Average Impervious surface: **5.5%**
  - o Number of parcels that are high priority for management (Map 1): **154 parcels**
  - o Ten-year goal: **30 projects**

### Groundwater

- 5 Maintain high quality drinking water in wells by encouraging landowners to have their subsurface sewage treatment systems maintained every three years to achieve a 90% maintenance rate for the watershed.
- Whitefish Lake Status
- o Estimated number of septic systems in the shoreland zone above the surficial sand aquifer: **334**
- 6 Locate and seal 30 unused residential wells per year to prevent groundwater contamination.
- Whitefish Lake Status
- o Estimated number of wells in the shoreland zone above the surficial sand aquifer: **334**
- 7 Manage chlorides reaching surface and groundwater from road salts and water softener salts going into sewage treatment systems.



Private landowners can help improve lake water quality and achieve watershed plan goals by implementing the following projects below. Technical and financial assistance is available to help with these projects.

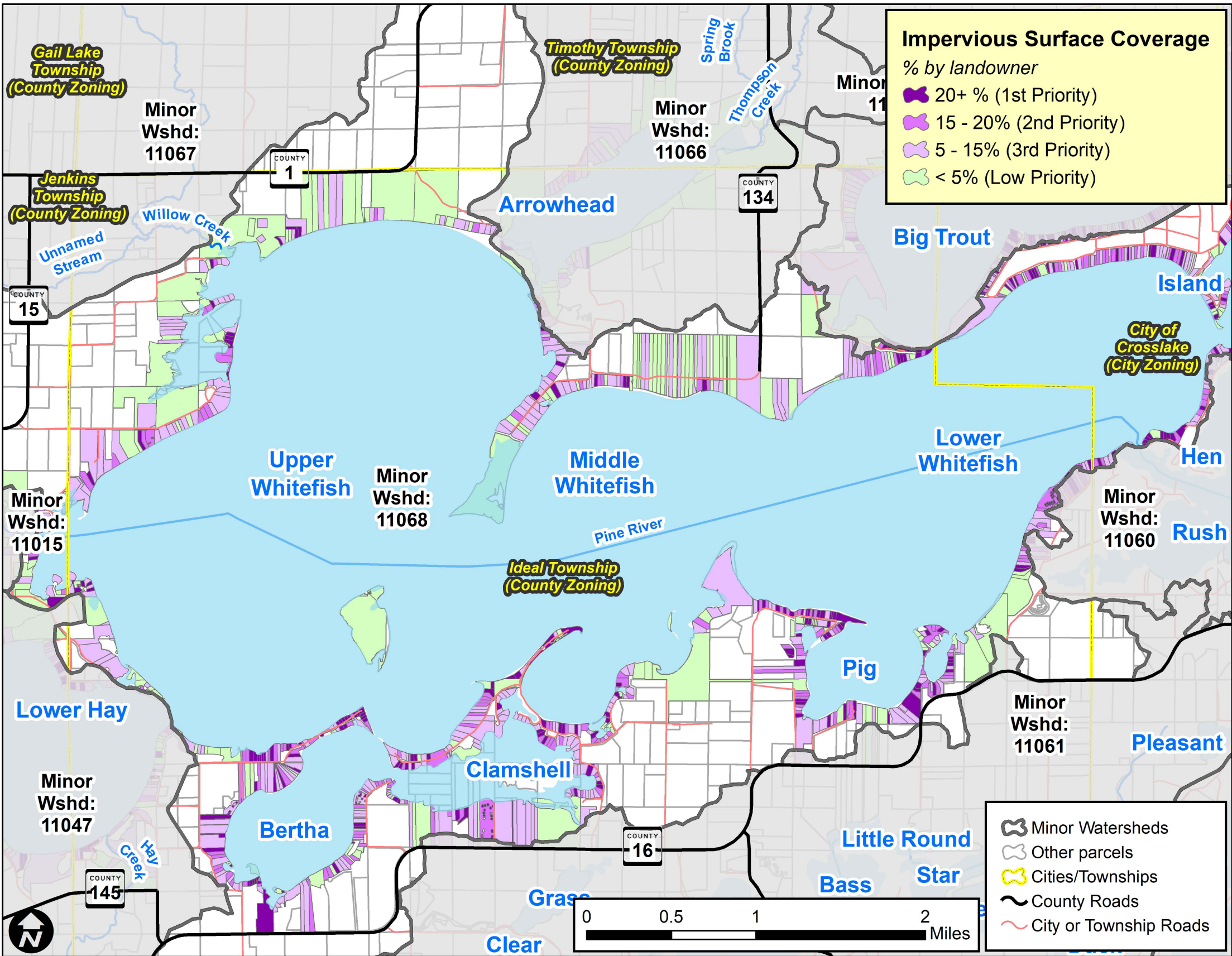
Goal	Implementation Action	Minimum 10-year goal	Annual Goal	Where	Lead Entity	Supporting Entities	Total Cost	Landowner Cost
Phosphorus Reduction	Install rain gardens and stormwater management practices to capture rainwater and let it infiltrate instead of running off into the lake.	30 rain gardens, (6 lbs phosphorus)	3 projects/year	Map 1	Crow Wing SWCD <i>Cost share available</i>	WAPOA, Landowners	\$5,000 each \$150,000 total	\$0 each in priority areas
Shoreline Restoration	Install shoreline buffers of native plants to protect the shoreline from erosion and provide habitat for fish and wildlife.	30 projects	3 projects/year	Map 1	Crow Wing SWCD <i>Cost share available</i>	WAPOA	\$4,000 each \$36,000 total	\$0 each in priority areas
	Plant trees along your shoreline.	500 trees	50/year	Map 1	Crow Wing SWCD Tree Sale <a href="https://crowwingswcd.org/annual-tree-plant-sale/">https://crowwingswcd.org/annual-tree-plant-sale/</a>	Landowners	\$36 for 25 trees \$720 total	\$36 for 25 trees
Shoreline & Land Protection	Develop a Forest Stewardship Plan (minimum 20-acre area).	5 forest plans	1 every other year	Map 2	Crow Wing SWCD <i>Cost share available</i>	Landowners	\$3,000	SWCD covers cost of plan in priority areas
	Sign up for Sustainable Forest Initiative Act (SFIA) to receive payments to keep wooded areas undeveloped (minimum 20-acre area).	1,398 acres	140 acres/year	Map 2	Crow Wing SWCD	Landowners	\$94,702	Requires a Forest Stewardship Plan (above)
	Permanently protect undeveloped land and shoreline with conservation easements.			Map 2	Crow Wing SWCD	NWLT, TNC, MLT, DNR, MHB, Landowners	\$481,858	Attorney fees, title commitment, closing costs
Monitoring	Continue to monitor Secchi depth annually to track trends.	10-year trend analysis	Minimum of 5 readings per year	Site 101	WAPOA	Crow Wing County	\$0	\$0
Groundwater	Have subsurface sewage treatment systems maintained/pumped every three years.	Pump 3 times in 10 years	Pump every 3 years	Map 3	Crow Wing County, Cass County	Crow Wing SWCD, Cass SWCD, Landowners, WAPOA, Lake Associations	Approx. \$140 each	Approx. \$140 each
	Seal unused wells in the Shoreland Zone.	10 wells	1/year	Map 3	Crow Wing County <i>Cost share available for half of total</i>	Landowners	\$1,000 each \$10,000 total	\$500 each
	Minimize chloride use on driveways, sidewalks, and in water softeners.	Only use minimum amount necessary	--	Map 1	Landowners	--	\$0	\$0

Acronyms: SWCD = Soil and Water Conservation District • NWLT = Northern Waters Land Trust • MHB = Mississippi Headwaters Board • TNC = The Nature Conservancy • MLT = Minnesota Land Trust • WAPOA = Whitefish Area Property Owners Association



Map 1: Impervious Surface.

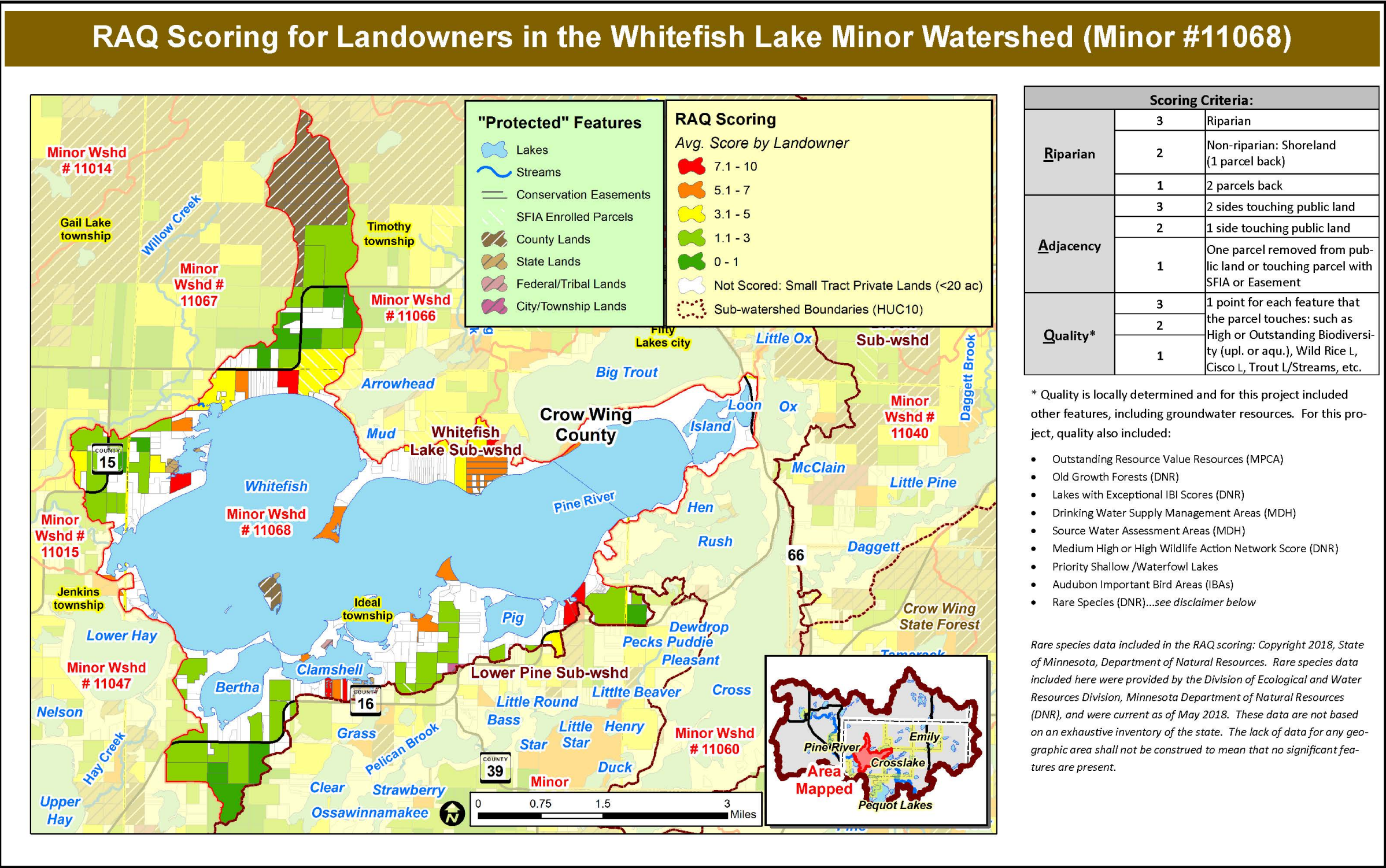
This map shows each parcel around the shoreline and it's percent impervious surface. Parcels that are dark purple are the highest priority for rain gardens, shoreline buffers and tree planting. Large parcels that are light green could be candidates for easements for permanent protection.

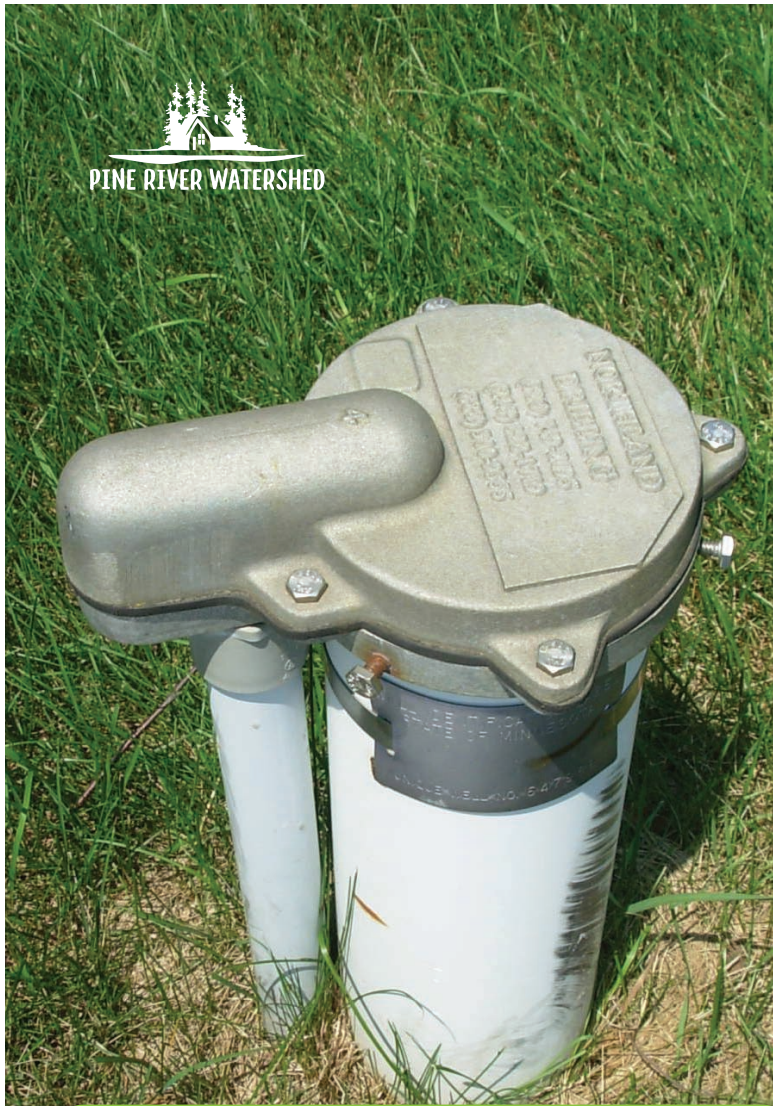




Map 2: Protection.

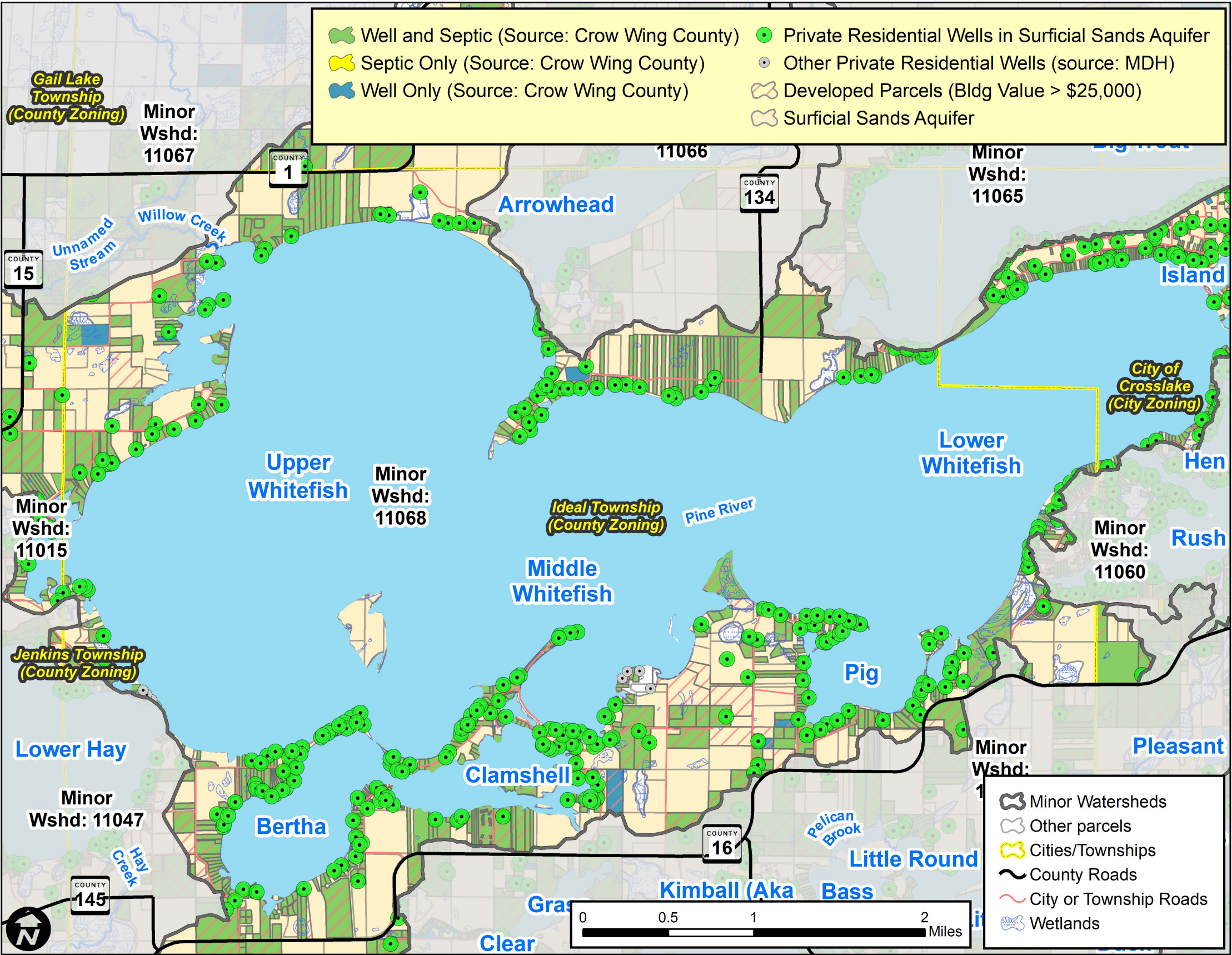
This map shows each parcel in the land area that drains towards the lake. Parcels that are red or orange are the highest priority for increasing protection of the land. Landowners in these high priority areas can contact the SWCD for protection options.





### Map 3: Wells & Septic Systems.

This map shows the locations of wells within the Whitefish Lakeshed. It is assumed that where there are wells there are also septic systems. Wells and septic systems above the surficial sands aquifer are the first priority for management.





*Want to find out more?*

Find out more! To dig deeper into the plan details, visit: [www.crowwing.us/1476/Pine-River-1W1P](http://www.crowwing.us/1476/Pine-River-1W1P)

## *Plan Administration*

This plan will be implemented through a Memorandum of Understanding between Cass County, Cass SWCD, Crow Wing County, and Crow Wing SWCD.



Crow Wing County (218) 824-1010  
Crow Wing SWCD (218) 828-6197  
Cass County (218) 547-7241  
Cass County SWCD (218) 547-7399