LAKE LIDA

Lakeshed Assessment

HOUSTON engineering, inc.
Lake Services

Lakeshed Assessment

Cost & Funding

- Awarded a BWSR Grant in 2025 for $57,000
- 10% Match Required (LID: $5,700)
- Total Project Budget: $62,700

Goals and Study Components

Lakeshed Study

Check the current condition of the lake

Lake Model

Understand where phosphorus is coming from

Implementation

Identify practical actions to protect and improve water quality

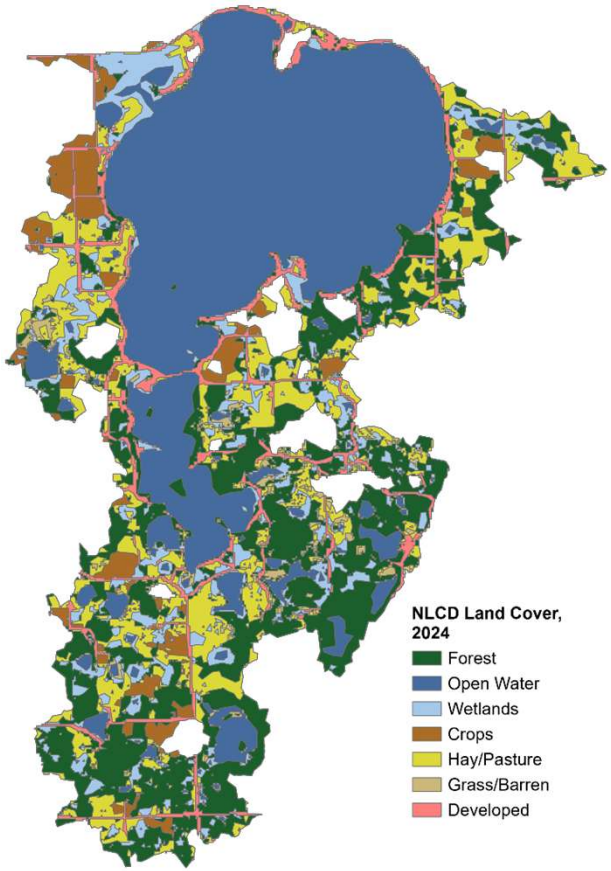
Why phosphorus?

Nutrient found in soil, fertilizer, wastewater, and organic matter, but too much in lakes can cause…

- More algae growth
- Cloudy water
- Less oxygen for fish

Indicator for lake health

Lakeshed Study



Land Use and Lake Stats

Number of Parcels

831 Parcels

Shoreline Development Classification

General Development

Water Quality

Total Phosphorus
North Lida Mean: 18 ug/L
South Lida Mean: 31 ug/L
Ecoregion Range: 23-50 ug/L
Impaired Waters Standard: >40 ug/L

[3]Chlorophyll-a
North Lida Mean: 5 ug/L
South Lida Mean: 12 ug/L
Ecoregion Range: 5-22 ug/L
Impaired Waters Standard: >14 ug/L

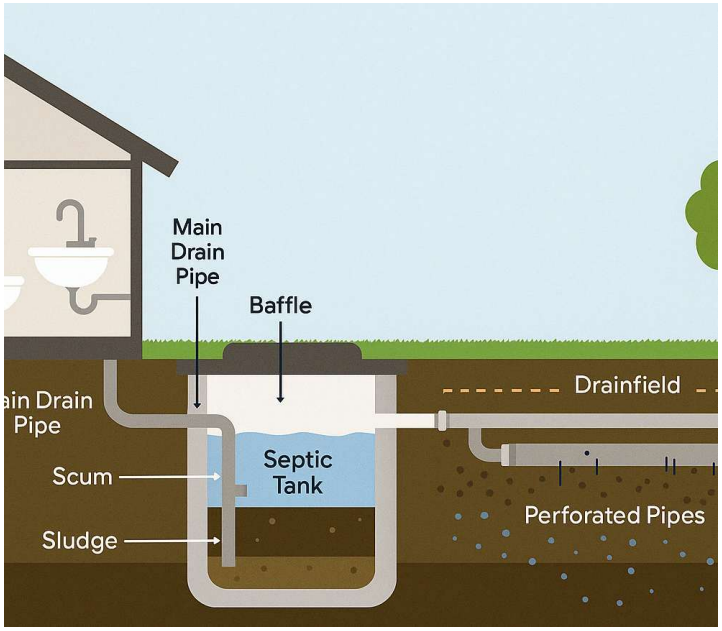
Secchi Depth
North Lida Mean: 16 ft
South Lida Mean: 11 ft
Ecoregion Range: 4.9-10.5 ft
Impaired Waters Standard: <4.6 ft

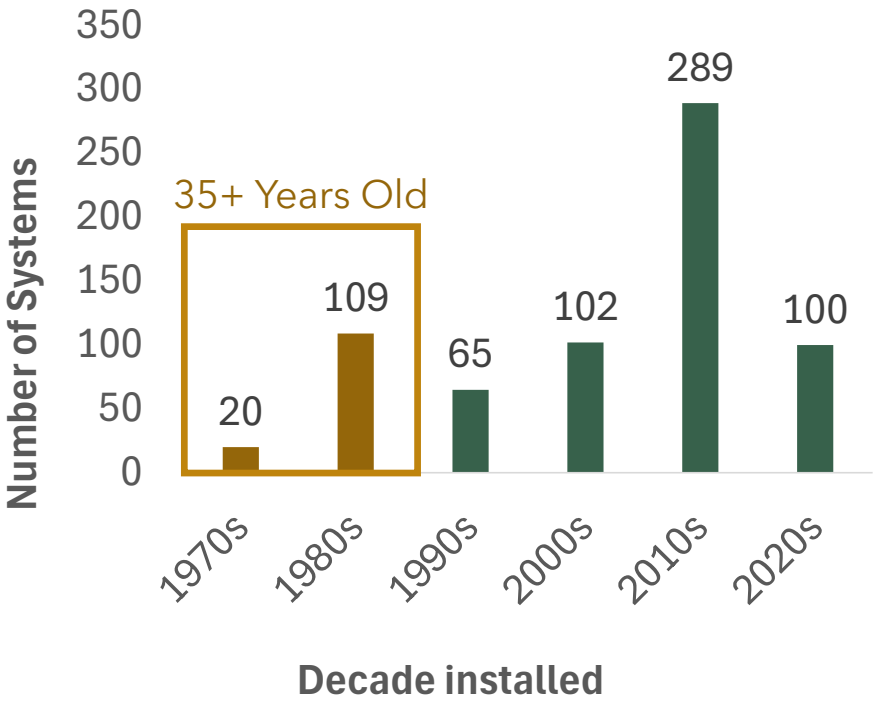
Trends - North Lida
Years Monitored: 1998-2025
Total Phosphorus: Improving
Chlorophyll-a: Improving
Secchi Depth: Improving

Trends - South Lida
Total Phosphorus: Improving
Chlorophyll-a: Improving
Secchi Depth: Improving

Lakeshed Study

Septic Systems





Lakeshed Study

Shoreline Survey – Vegetation Cover

Low **Moderate** **High**

North Lida

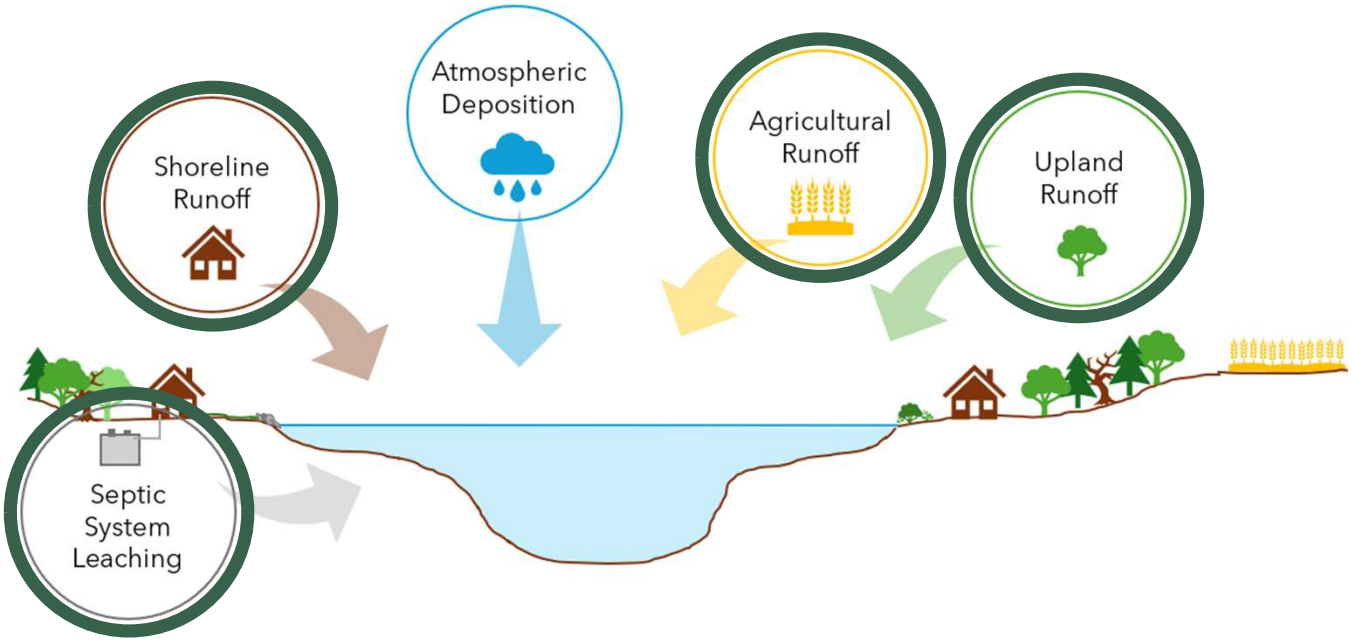
South Lida

Source: MI Shoreland Stewards Program Guide
https://www.shorelinepartnership.org/uploads/4/6/8/6/46869113/shoreland_stewards_program_guide_final10-31-17_web.pdf

Lake Model

Where is Phosphorus coming from?

What can change?



Identify actions that effectively improve water quality over time.

Lake Model

10-Year Goal

Phosphorus

5%

Chlorophyll a (algae)

Water Clarity

North Lida

Scenario	Today	Future
TP (µg/l)	20.8	19.5
Chl-a (µg/l)	6.8	6.2
Secchi (ft)	11.8	12.5

South Lida

Scenario	Today	Future
TP (µg/l)	32.2	23.5
Chl-a (µg/l)	13.9	9.2
Secchi (m)	10.2	13.8

Implementation

Practical actions…

Phosphorus

↓ 5%

Chlorophyll a (algae)

↓

Water Clarity

↑

- Enhance Shoreline Vegetation
- Protect Adjacent Forests & Natural Lands
- Implement Ag Best Management Practices
- Maintain Septic Systems

What Can Lake Residents Do?

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Enhance Shoreline Vegetation

- Keep natural vegetation intact
- Minimize fertilizer use
- Plant buffer strips

Protect Adjacent Forests and Natural Lands

- Conservation easements
- Sustainable Forest Initiative Act

Implement Ag Best Management Practices

- Plant cover crops and buffer strips
- Install sediment control basins
- Other projects that reduce runoff

Technical and financial assistance

West Otter Tail SWCD

WOTSWCD.ORG/PROGRAMS

Maintain Septic Systems

- Smart septic practices
- County cost-share program

Technical and financial assistance

Otter Tail County Septic Resources

OTTERTAILCOUNTY.GOV

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Curly Leaf Pondweed Management

2026-2027

2026 CLP treatment areas

2026 Treatments:
Overall Effective

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Post-treatment Survey

New CLP area identified (North Lida)

Treatments effective overall

Some areas to treat in 2027

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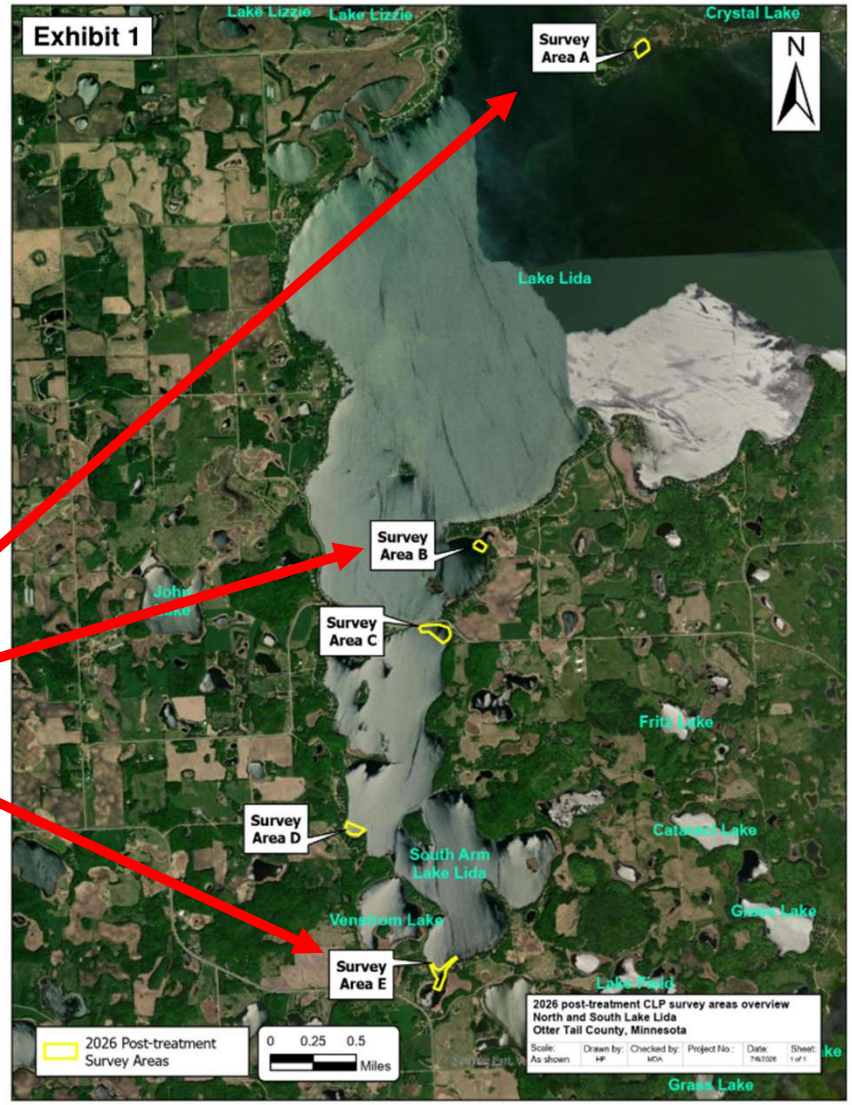
2027 Treatment Recommendation

Areas recommended for treatment in 2027



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Thank You!