

**ELEMENTS OF A CONCEPTUAL GROUNDWATER QUALITY MANAGEMENT
APPROACH THAT COULD BE CONSIDERED TO MONITOR AND MANAGE NO₃-N
IN CHIPPEWA COUNTY AS PART OF FUTURE PROGRAM EFFORTS**

General Approach

Apply principles of management to control and limit further increases in Nitrate Nitrogen (NO₃-N) to groundwater and wells.

1. Define a performance goal to establish a clear management objective (i.e. to limit NO₃-N increases to zero (0) as measured through time).

Establish a long-term rural drinking water monitoring well network, using a subset of the 500 wells sampled in 2007 and 2016.

Sample these wells on a scheduled basis (i.e. once/five years to monitor change and evaluate if performance goal is being met).

2. Actively maintain all of the groundwater inventory and monitoring components of the existing Chippewa County Groundwater Inventory, established in Chapter 62 of the County Code of Ordinances.
 - Well permitting/driller log, mapping
 - County-wide NO₃-N sampling service
 - Schedule sampling studies

Information and Education

Develop a structured information and education project to convey project results.

Project should be designed to:

1. Identify target audiences and include specific education outreach messages for each target audience.
2. Include a budget and schedule for implementation with beginning and end dates.
3. Include an evaluation mechanism and metrics to document outcomes.

Technical Assistance & Financial Incentives

Develop an structured outreach project to reduce the potential for groundwater pollution from known cultural sources.

Project should be designed to:

1. Allocate nutrient management funding, and provide technical assistance to select landowners and agricultural producers at sites where there is limited capacity to attenuate pollutants (high susceptibility), and where high nitrate levels have been documented.
2. Identify specific geographic locations and operations that are in immediate proximity and upgradient of high risk wells.
3. Include a budget and schedule for implementation with beginning and end dates.
4. Include an evaluation mechanism and metrics to document outcomes.

Regulation

Operate within the limits of the regulatory authority under State law.

Evaluate the costs/benefits of updating County Ordinances to control land use and manage new development that have the potential to increase NO₃-N.

Examples may include:

1. Update the County Animal Waste Ordinance to:
 - Include (all or select) NR151 Agricultural Performance Standards.
 - Require annual operational certification.
2. Update the County Zoning Ordinance to establish an agricultural zoning industrial production district for new or expanding large-scale livestock operations.
3. Update the County Zoning and/or land division ordinance to account for NO₃-N contributors from septic systems.

It is important to note that any changes in local regulation may be controversial and require:

- Political will.
- Additional resources (time, \$, staff hours, skill sets).