

# How are we managing our groundwater?

Ottawa County is in the process of developing a Groundwater Management Plan to help guide communities, residents, and businesses in sustaining our groundwater.

Components of the plan may include:



Educational Outreach Materials



Land Use Planning Techniques



Water and Waste Water Infrastructure Expansion Recommendations



Well Water Monitoring Procedures



Water Conservation Strategies

# Managing Our Groundwater

Proactive planning to ensure continued access to abundant, fresh groundwater



Ottawa County  
Where You Belong.



## Contact Us.

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Learn more at: [www.miottawa.org/groundwater](http://www.miottawa.org/groundwater)



Ottawa County  
Where You Belong.

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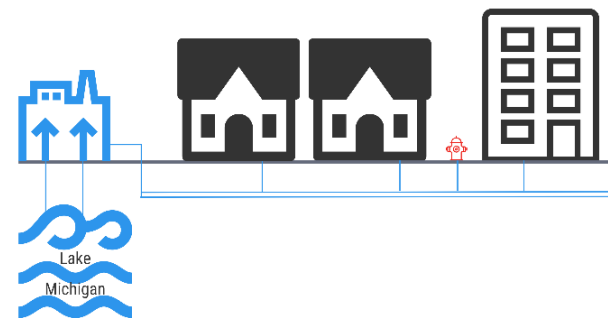
In collaboration with:

Michigan Geologic Survey • Ottawa County Department of Public Health  
Ottawa County Road Commission, Public Utilities Department

## How do we get our water?

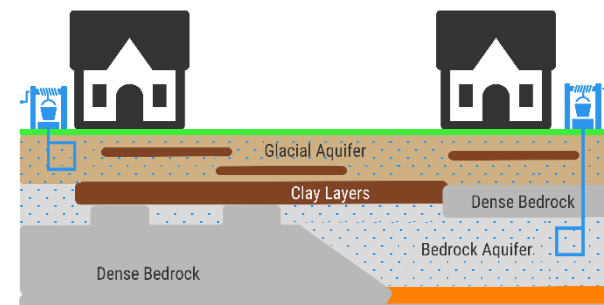
1

Urban areas are served primarily by municipal pipeline systems that pump water from Lake Michigan.



2

Rural areas are served primarily by private wells that pump groundwater from the glacial or bedrock aquifers. Aquifers are porous geologic materials that hold water.



# What are our groundwater issues?

The County's aquifer systems are facing two primary issues.

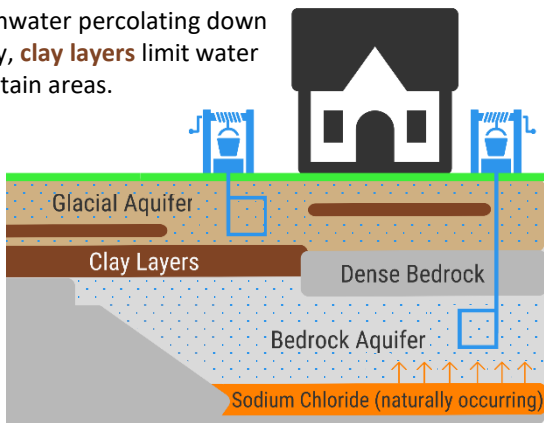
## 1) Lack of freshwater recharge:

The aquifers are recharged by freshwater percolating down from the surface. In Ottawa County, **clay layers** limit water from recharging the aquifers in certain areas.

## 2) Increase in sodium chloride:

**Sodium chloride** exists naturally in the bedrock aquifer underneath Ottawa County. Due to increased water consumption and a lack of freshwater recharge, **sodium chloride** levels are increasing.

Conditions like hotter summers lead to greater water demand, resulting in lower water levels and continued increases in **sodium chloride** levels. Winter application of road salts used to ensure motorist safety also can contribute to elevated levels of **sodium chloride** in the glacial aquifer.



# What are the impacts?

Impacts of a lack of freshwater recharge include decreased water levels or dry wells.



Decreased Water Levels or Dry Wells

Impacts of increased sodium chloride levels include water tasting salty, crop damage, and corroded plumbing, as well as potential health effects from ingesting sustained levels of high sodium chloride water.



Water Tastes Salty



Crop Damage



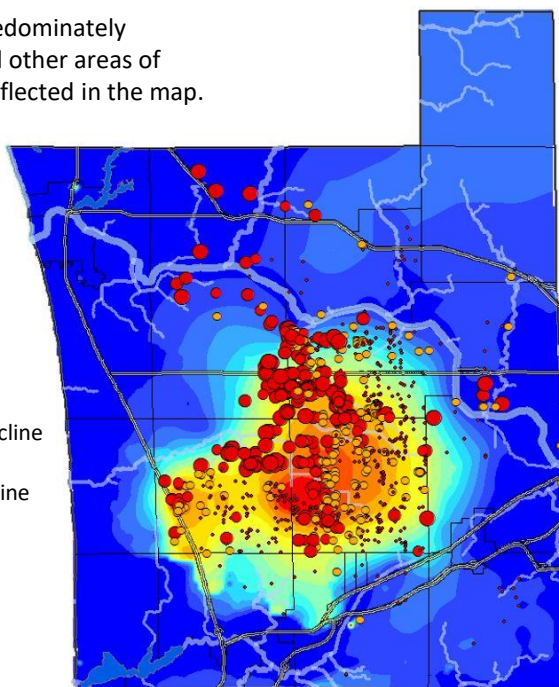
Corroded Plumbing



Health Effects

# Where are the issues located?

Both groundwater issues are predominately affecting the central portion and other areas of Ottawa County at this time as reflected in the map.



- More Severe Static Water Level Decline
- Less Severe Static Water Level Decline
- Higher Chloride Levels (>250 mg/L)
- Moderately High Chloride Levels

# Why do we need to manage our groundwater?

## Growing Population



fastest growing in the state

## Strong Economy



high employment growth rate

## Thriving Agriculture



most diverse in the state

Continued Need for  
**Ground H<sub>2</sub>O**  
to Sustain our Excellent Quality of Life