GROUND WATER MANAGEMENT STRATEGY

Michigan Chapter Soil & Water Conservation Society Seminar
Wednesday, March 6, 2019

1. AWARENESS

2. PARTNERSHIPS

3. STRATEGIES
AWARENESS OF STUDY FINDINGS
GROUNDWATER MEETINGS – OTTAWA FARM BUREAU JANUARY 2019

OTHER OUTREACH
Dry wells, salty crops force Ottawa County to confront issues

Groundwater levels, quality drop in Ottawa County

Groundwater in Ottawa Co. is drying up, conservation at all-time high

Fastest-Growing Michigan County reckons with groundwater depletion

Ottawa County pursues plan for groundwater management

Where are the groundwater issues located?

Higher Chloride Levels (>200 mg/L)

Moderately High Chloride Levels

RUNNING LOW ON DRINKABLE WATER
Public Presentations - Ottawa County Libraries and Rotaries

Learn More - www.miottawa.org/groundwater
PARTNERSHIPS
WITH ESSENTIAL STAKEHOLDERS

EXECUTIVE COMMITTEE—SCIENTISTS, ENGINEERS, HEALTH, LEGAL, POLICY

GRAND VALLEY STATE UNIVERSITY
ROBERT B. ANNIS WATER RESOURCES INSTITUTE

OTTAWA COUNTY
WHERE YOU BELONG.

MICHIGAN GEOLOGICAL SURVEY
ESTABLISHED 1887

miOttawa Department of
Public Health

OTTAWA COUNTY ROAD COMMISSION
Public Utilities Department
GVSU partners with Ottawa County for groundwater management plan
OTTAWA AREA ISD – GROUNDWATER CURRICULUM DEVELOPMENT

OTTAWA COUNTY PARKS – EXHIBITS, INTERPRETIVE SIGNAGE, EVENTS
WATERSHED & ENVIRONMENTAL GROUPS

- MICHIGAN ENVIRONMENTAL COUNCIL
- SIERRA CLUB MICHIGAN CHAPTER
- Macatawa Area Coordinating Council
  A Cooperative Effort Among Units of Government
- LGROW
- OTTAWA CONSERVATION DISTRICT
- WMEAC
- SUSTAINABLE RESEARCH GROUP
- ALLEGAN
- MUSKEGON CONSERVATION DISTRICT

WATERSHED PARTNERSHIPS

Coastal development & impervious surface
- Sedimentation and toxins
Failed septic systems
- Nutrients and pathogens
Stormwater runoff
- Sedimentation, toxins, nutrients, and pathogens
Deforestation
- Sedimentation
Oil and chemical spills
- Toxins
Road construction
- Sedimentation
Agriculture
- Nutrients and sedimentation

WATER USE & AQUIFER RECHARGE
STRATEGIES TO ENSURE SUSTAINABLE DRINKING WATER SUPPLY
PRIMARY GOAL

1) Reduce dependency on deep bedrock aquifer system

Objectives
   a) Implement creative solutions to offset new withdrawals from bedrock aquifer
   b) Protect and enhance recharge of bedrock aquifer
   c) Embrace water conservation and reuse
ADJUST MUNICIPAL SYSTEM CONNECTION STANDARDS

Ottawa County community bans new housing developments on well water

ALLENDALE TOWNSHIP, MI -- One of Michigan's fastest-growing communities has banned all further housing developments not connected to municipal water amid concerns that groundwater is drying up.
SEPTIC DESIGN AND ISOLATION DISTANCES

REAL ESTATE TRANSFER PROGRAM ENHANCEMENTS
LOW IMPACT DEVELOPMENT STANDARDS

FLOW CONTROL: The regulation of stormwater runoff flow rates.

DETECTION: The temporary storage of stormwater runoff in underground vaults, ponds, or detention areas. This helps reduce peak flow rates.

RETENTION: The storage of stormwater runoff on site to allow for sedimentation of suspended solids.

FILTRATION: The sequestration of pollutants from stormwater runoff through a natural media such as sand or foam, biologic system, or a rainwater filter.

INFILTRATION: The vertical movement of stormwater runoff through soil, replenishing groundwater.

TREATMENT: Processes that utilize physical, chemical, or bacterial processes to metabolize contaminants in stormwater runoff.

WATER RE-USE IRRIGATION
WATER RE-USE IRRIGATION
CONATIVE

GREYWATER REUSE
COMMERCIAL
GREYWATER REUSE
RESIDENTIAL

Advanced greywater treatment

Planter bed

To Groundwater

Overflow

Pump-pit

Sand-filter

Septic tank

Greywater sources

SENSITIVE AREA OVERLAYS (RECHARGE)
DATA-DRIVEN INFRASTRUCTURE PLANNING

WATER RESOURCE ASSESSMENT AND EDUCATION COMMITTEE
BEST MANAGEMENT PRACTICES - RAINWATER STORAGE
BEST MANAGEMENT PRACTICES – WEATHER MODELING SENSORS

USDA NRCS
U.S. Department of Agriculture
Natural Resources Conservation Service

OTTAWA COUNTY FARM BUREAU®
STARTS WITH: EDUCATION
TRY XERISCAPING – WITH NATIVE PLANTS
DON'T WATER YOUR LAWN WHILE IT'S RAINING

BE SMART. USE A RAINGAUGE
WATER IS A VALUABLE COMMODITY

EDUCATION + OPERATE DIFFERENTLY