

2.2 Groundwater Protection Activities

The following activities are undertaken in Washtenaw County to protect groundwater resources. Washtenaw County Government manages several of the regulations, policies, and programs that contribute to groundwater protection.

Activity #1 Time of Sale Regulation

The Washtenaw County Time of Sale Program aids in the protection of surface and ground water through an inspection program that identifies deficiencies in wells and septic systems and requires those deficiencies to be corrected prior to transfer of property.

This program mandates homes that have wells and or septic systems must have inspections to determine whether the water is safe, the septic system is functioning properly, and any wells that are not in use are properly sealed to make sure they cannot serve as a conduit for contamination. Testing is conducted for bacteria, arsenic, nitrates, and other contaminants. Corrections to these systems are required if significant problems are found.

The program initiated in 2000 and has resulted in over 5,000 wells and septic systems being inspected, with corrections to nearly 1,000 potentially hazardous conditions. Some of the conditions observed include: direct sewage discharge to creeks or fields, failing septic systems, improperly abandoned out-of-use drinking water wells, and unsafe drinking water wells.

Activity #2 Pollution Prevention Regulation

This program requires companies that use or store hazardous materials to report their inventory annually. The County inspects approximately 1,500 facilities. County representatives inspect these facilities and assure chemicals are properly stored, secondary containment is in place, and spill response plans have been developed to keep unwanted chemicals from contaminating groundwater and surface water.

Activity #3 Well Regulation

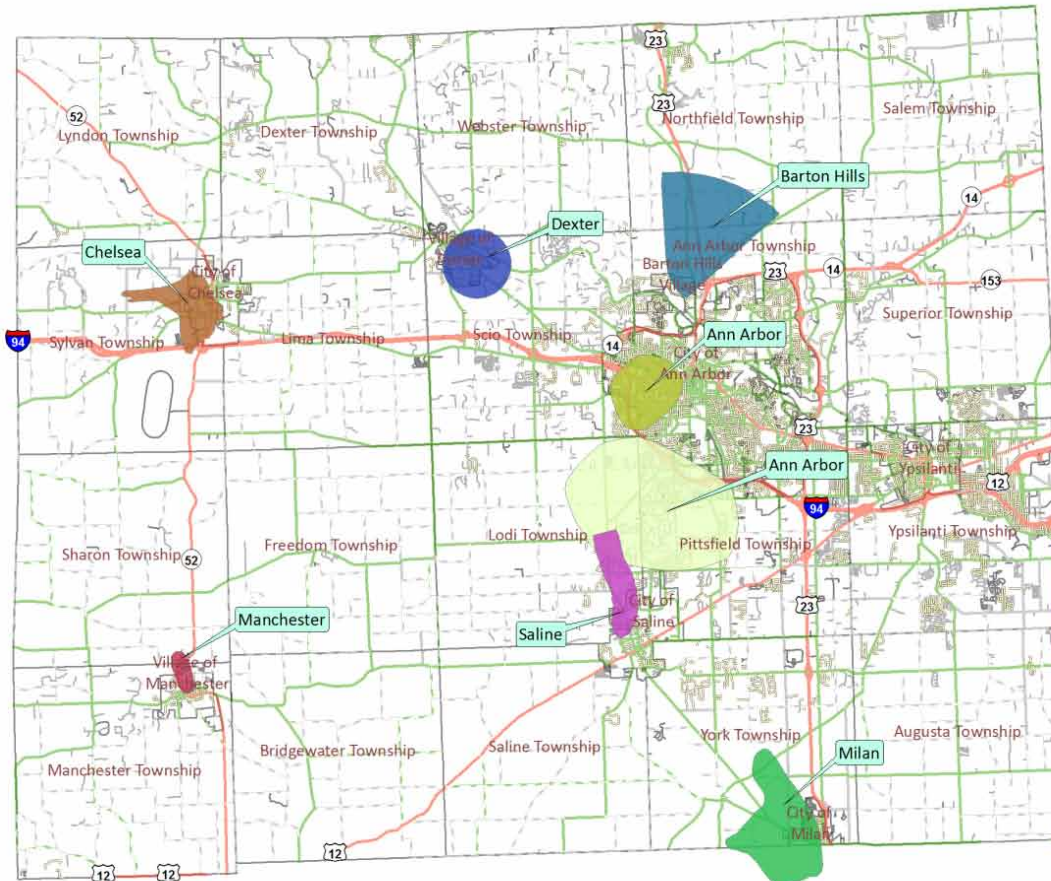
The County Well Regulation mandates a permit be obtained prior to drilling a groundwater well. The permit stipulates isolation requirements from contamination, construction techniques, sampling requirements, logging of geological strata encountered, sealing the area around the well casing to prevent contamination of the groundwater, and proper abandonment of wells when taken out of service.

Activity #4 Well Restricted Areas

Washtenaw County well restricted areas are areas where a building permit is prohibited without first proving there is a sustainable supply of high quality groundwater to feed the well for the duration of its use. Commonly called “Well First” areas, there are 11 such areas spread throughout the County (Map 2). Well First areas essentially limit new construction based on the availability of a viable water supply. There can be a number of reasons to implement a Well First area.

- *Water Quantity:* There may be areas that yield low volumes of groundwater. New wells in such areas may have insufficient groundwater available to service a modest residential home.
- *Water Quality – Natural:* There may be areas where there are naturally occurring high levels of metals or gases that pose a health risk, including arsenic, barium, hydrogen sulfide, or methane.
- *Water Quality – Contaminants:* There may be areas of known environmental contamination where groundwater may be unsuitable for drinking water purposes.

Map 3: Wellhead Protection Areas



Washtenaw County:



Legend

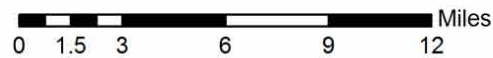
Wellhead Protection Areas

- Ann Arbor
- Ann Arbor
- Barton Hills
- Chelsea
- Manchester
- Milan
- Saline

Sourcewater Protection Areas

- Dexter

MUNICIPALTY	PROTECTION AREA TYPE	DATE APPROVED	AREA (SQ. MILES)	AREA (ACRES)
Ann Arbor (Steere Farm)	Wellhead Protection Area	11/21/2006	14.5	9,310
Ann Arbor (Northwest Supply)	Wellhead Protection Area	10/29/2002	3.3	2,130
Manchester	Wellhead Protection Area	10/17/2000	0.5	350
Barton Hills	Wellhead Protection Area	1/16/1996	7.6	4,860
Chelsea	Wellhead Protection Area	6/8/2004	2.8	1,770
Saline	Wellhead Protection Area	6/1/2000	2.2	1,410
Milan	Wellhead Protection Area	12/13/2000	6.0	3,820
Dexter	Source Water Protection Area	11/26/2001	3.1	2,010



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Activity #5 Wellhead Protection

Clean and safe water can be protected for public water systems by implementing a wellhead protection or source water protection program. Wellhead and source water protection planning is a process designed to protect public water systems from groundwater contaminants. Much like watershed planning, wellhead protection is geared toward designing responsible land use practices for all of the land and groundwater recharge areas that contribute to the groundwater that supplies the public water system. All of the municipalities in the County that provide water have a designated wellhead protection or source water protection program (Map 3).

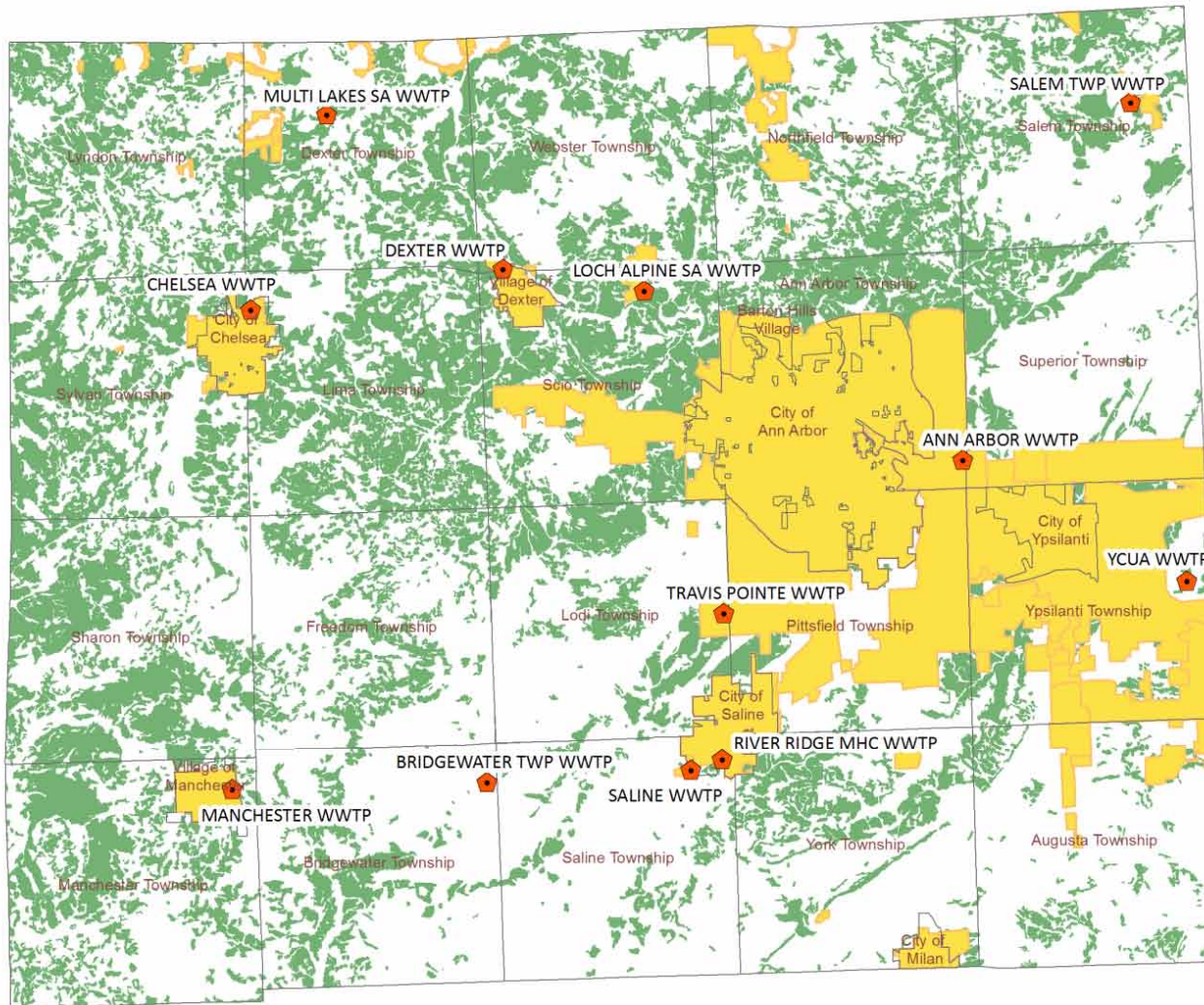
Activity #6 Privately Owned Community Sewer Systems

Privately owned community sewer systems, sometimes referred to as small community systems, are sewage systems serving more than two properties that are owned and operated by a private individual or organization as opposed to a municipal sewage system. These systems are typically proposed for a residential development to allow greater density than would otherwise be available through onsite sewage systems serving individual homes. These systems have the potential to treat sewage to a higher quality effluent, resulting in a lower risk to surface and ground water with the added feature of assuring monitoring and maintenance take place. Due to a legal decision that removes the requirement for local units of government to assume the responsibility for the system should it fail, these systems are likely to become more prevalent in the future and represent a potential change to common development practices in the County. Challenges to these proposals include concern over the perpetual financing of the required monitoring and maintenance, legal challenges to local zoning, proper siting and construction, and the greater volume of sewage that would be released should the system fail. Various efforts are underway at the state and local level to address these concerns.

Activity #7 Onsite Sewage Regulation

Washtenaw County's Onsite Sewage Program seeks to ensure septic systems are located, constructed, and maintained in a manner that minimizes contamination of surface and ground water. Inadequate treatment of sewage from septic systems can lead to groundwater and surface water pollution. Prior to issuing a permit to install a septic system, the proposed site is evaluated to determine the distance to surface and ground water, the soil's structure, and its ability to treat and transport effluent safely. Septic tanks are required to be leak proof and construction materials are required to be able to withstand decades of use. Inspections are conducted to assure the system is constructed in accordance with an approved plan and specifications. Educational materials on how to maintain the septic system is also provided. The county has historically issued approximately 800 residential sewage permits each year.





Map 4: Municipal Sewer Services and Septic Suitability Areas



Washtenaw County:



Legend

-  Wastewater Treatment Plant
-  Municipal Sewer Service
-  Onsite Septic Suitable Area (Slight to Moderate Limitations)
-  Townships



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Activity #8 Groundwater Withdrawal Disputes

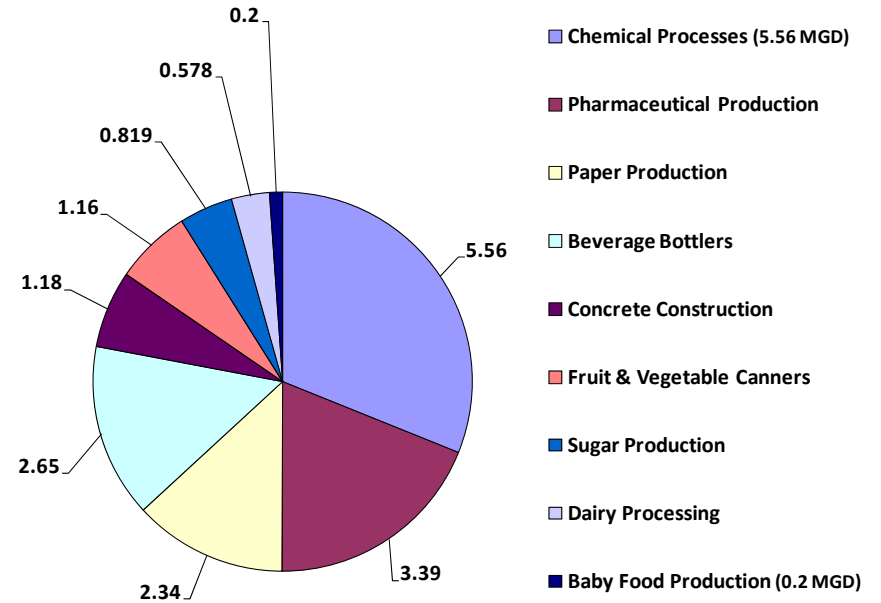
Groundwater withdrawal has been a public concern in Michigan (Figure 1), highlighted in recent years by construction of a large water bottling plant in Mecosta County, large agricultural irrigation in Saginaw County, and the impact of mining operations in Monroe County and parts of Washtenaw County.

These concerns have led to legislation aimed at protecting property owners from disruption in their drinking water supply. Part 317, the Aquifer Protection and Dispute Resolution Act, 2003 PA 177 (Act 177), was added to the Natural Resources and Environmental Protection Act, 1994 PA 451. Part 317 became effective statewide on July 1, 2004. For more information visit: http://www.michigan.gov/deq/0,1607,7-135-3313_3675_3694-103304--,00.html

Activity #9 Brownfield Redevelopment

The Washtenaw County Brownfield Redevelopment Authority is a designated agency that is authorized by the State to administer Brownfield Redevelopment funds, including issuance of bonds, grant management, sub granting, and planning activities. Brownfield redevelopment is characterized by two primary interests; environmental remediation or containment, and economic development. This tool can be used to clean up, or limit the exposure pathways, of sites that pose a risk to groundwater by the migration of contaminants like petroleum or perchloroethylene into the aquifers.

Figure 1: Commercial Groundwater use in Michigan (Million Gallons per Day)



Activity #10 Michigan Safe Drinking Water Act (Act 399)

The Michigan Safe Drinking Water Act sets safe drinking water standards and requires all community water suppliers to generate an annual water quality summary or Consumer Confidence Report (CCR) for their customers. The report follows guidelines set by the United States Environmental Protection Agency (USEPA) and the Michigan Department of Environmental Quality (MDEQ). The purpose of the Consumer Confidence report is to provide residents with current and accurate information, allowing them to make informed decisions about their drinking water. The report lists the parameters tested and indicate how well the water supplier is doing in meeting those standards.

The water is tested for many different contaminants such as lead, sodium and arsenic. The water must meet the standards established for the particular samples being analyzed or notice to the users must be given. In some cases a “Boil Water Advisory” is issued until the water supply returns to compliance. The level and frequency of exceeding a standard dictates what action is necessary. The presence of these contaminants does not necessarily pose a health risk. Contaminants can enter water from a variety of sources. As water travels over the land or through the ground, it dissolves naturally-occurring minerals, and in some cases, radioactive materials. Water can also pick up substances resulting from animal or human activity. Contaminants that may be present in source water include:

- *Microbial contaminants*, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.
- *Inorganic contaminants*, such as salts and metals, which can be naturally occurring, or result from urban storm water runoff and residential uses.

- *Organic chemical contaminants*, including synthetic and volatile organic chemicals, which are byproducts of industrial processes and petroleum production and can also come from gas stations, septic systems, and urban or agricultural runoff (i.e., pesticides and herbicides).
- *Radioactive contaminants*, which can be naturally occurring or the result of oil and gas production and mining activities.

The Safe Drinking Water Act classifies different kinds of drinking water service providers as well as sets the reporting standards for service providers based on their water usage.

- Type I Community Water Systems – Large municipal service providers must annually produce a Consumer Confidence report.
- Type II Community Systems – Systems servicing more than 25 units must also meet requirement to produce an annual Consumer Confidence report.
- Type III Onsite Water Supplies – Individual Wells – sites serving less than 25 units or individual residential wells are not required to produce annual reports that outline the water quality.