CHAPTER 5: PUBLIC SANITARY SEWER AND PRIVATE WASTEWATER DISPOSAL; PUBLIC WATER SERVICE AND PRIVATE WELLS

Public Sanitary Sewer

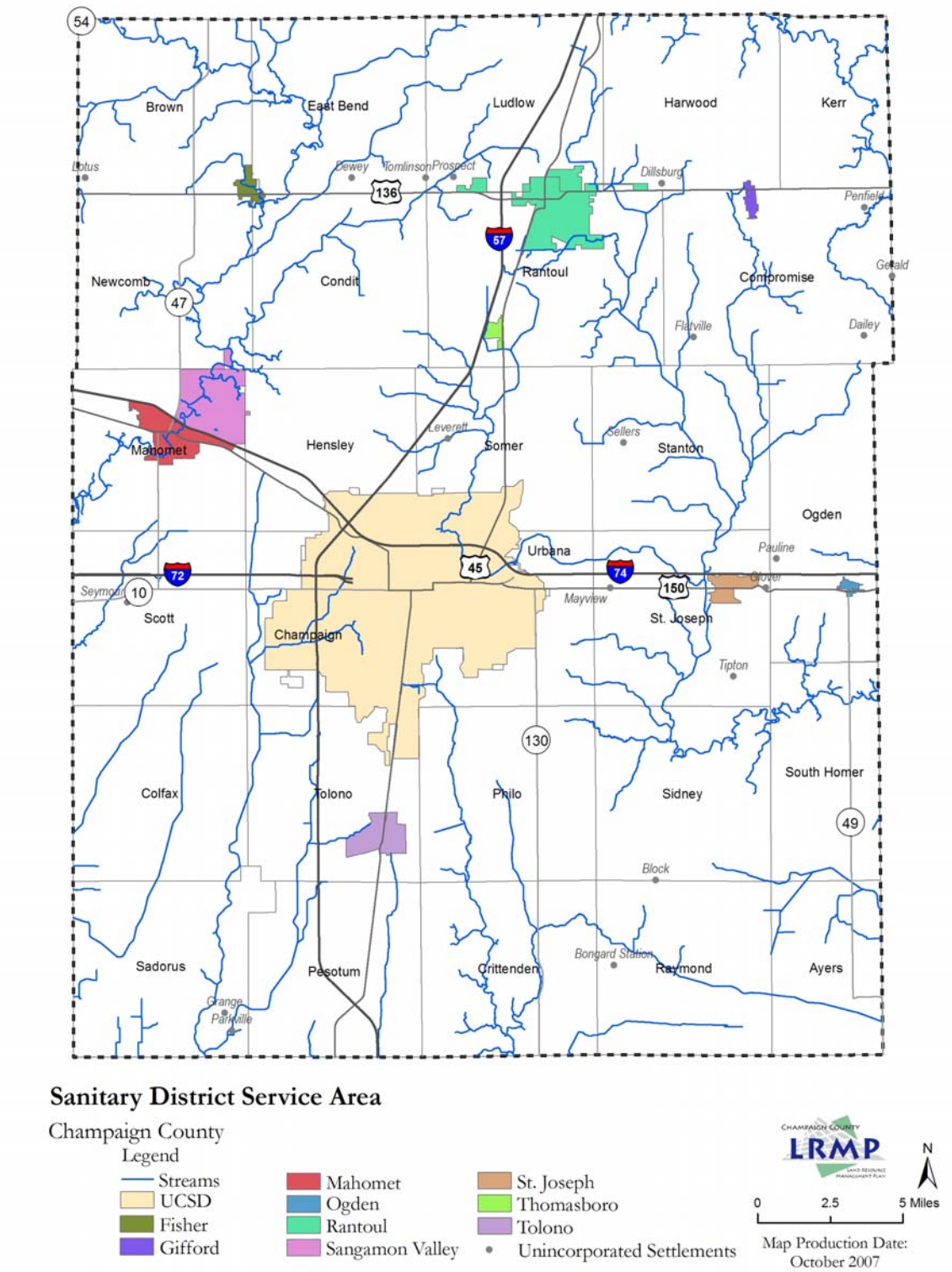
The presence or absence of public sanitary sewer service is a major factor in site selection for new development. Generally, within the County, public sanitary sewer service is available to the larger municipalities and adjacent urbanized areas. Figure 5-1 illustrates all existing public sanitary district service areas within the County. These limits are approximate and primarily obtained through interviews with municipal staff and contracted engineers. Table 5-1 provides information regarding the status of public sanitary sewer service availability within the urbanized areas of the County as of December 2007.

Table 5-1: Availability of Public Sanitary Sewer

City or Village	Is Public Sewer available?	Are plans underway to provide Public Sewer?	Notes
Allerton	no	no	Allerton is located partially within Champaign County.
Bondville	no	yes	IEPA certification process to begin Spring '08, followed by18-month construction period. Estimated project completion date is Dec '09. Bondville's public sanitary sewer will connect to Urbana-Champaign Sanitary District.
Broadlands	no	no	--
Champaign	yes	n/a	Urbana-Champaign Sanitary District
Foosland	no	no	--
Fisher	yes	n/a	Village of Fisher Public Sewer
Gifford	yes	n/a	Village of Gifford Public Sewer
Homer	no	yes	IEPA certification process to begin Spring '08, followed by18-month construction period. Estimated project completion date is Dec '09.
Ivesdale	no	no	Ivesdale is located partially within Champaign County.
Longview	no	no	--
Ludlow	no	no	--
Mahomet	yes	n/a	Village of Mahomet Public Sewer; Sangamon Valley Public Sewer
Ogden	yes	n/a	Village of Ogden Public Sewer
Pesotum	no	no	--
Philo	no	no	--
Rantoul	yes	n/a	Village of Rantoul Public Sewer
Royal	no	no	--
Sadorus	no	no	--
Savoy	yes	n/a	Urbana-Champaign Sanitary District
Sidney	no	no	--
St. Joseph	yes	n/a	Village of St. Joseph Public Sewer
Thomasboro	yes	n/a	Village of Thomasboro Public Sewer
Tolono	yes	n/a	Village of Tolono Public Sewer
Urbana	yes	n/a	Urbana-Champaign Sanitary District

One of a total of 20 small unincorporated settlements within the County, Seymour is presently in early stages of planning for the installation of a public sewer system to serves its population. No other unincorporated community has a public sewer system or is planning for one at the present time. (Note: Figure 1-1 includes small unincorporated settlements within the County.)

Figure 5-1: Sanitary Sewer District Service Areas



Urbana and Champaign Sanitary District

The Urbana and Champaign Sanitary District (UCSD) provides sanitary sewage treatment for the City of Urbana, City of Champaign, Village of Savoy, University of Illinois, and adjacent urbanized areas, with service to be extended to the Village of Bondville in the near term. The UCSD owns and operates two treatment plants (Northeast Plant in Urbana and Southwest Plant in Champaign), several pump stations and miles of interceptor sewers constructed within its service area. The USCD facility planning area is shown in Figure 5-2.

Individual municipalities within the UCSD facilities planning area own and maintain the collector sewers and UCSD owns and operates the interceptor sewers and treatment plants. The agreement between member municipalities and the UCSD requires that, as a condition of receiving a sanitary sewer connection, annexation to the appropriate municipality must be provided for the developing property. This agreement helps the municipalities of Champaign, Urbana and Savoy plan for development.

The UCSD completed a Long-Range Facilities Plan in April 2002. Improvements completed during 2005 include the renovation and expansion of the Southwest Plant to accommodate the recent growth of areas west of I-57. Upgrading and rehabilitating of existing Northeast Plant facilities are improvements planned for completion in 2010. In 2006 the UCSD completed construction of the Windsor/Curtis interceptor that serves development in the area north of Curtis Road and east of I-57. At present, UCSD is planning the East Urbana interceptor to serve development in the area east of High Cross Road between I-74 and Windsor Road.[1]

Sangamon Valley Sanitary District

The Sangamon Valley Sanitary District is a special tax district established apart from the Village of Mahomet Sewer District to provide sanitary sewer service to areas adjacent to the north and west of the Village of Mahomet.

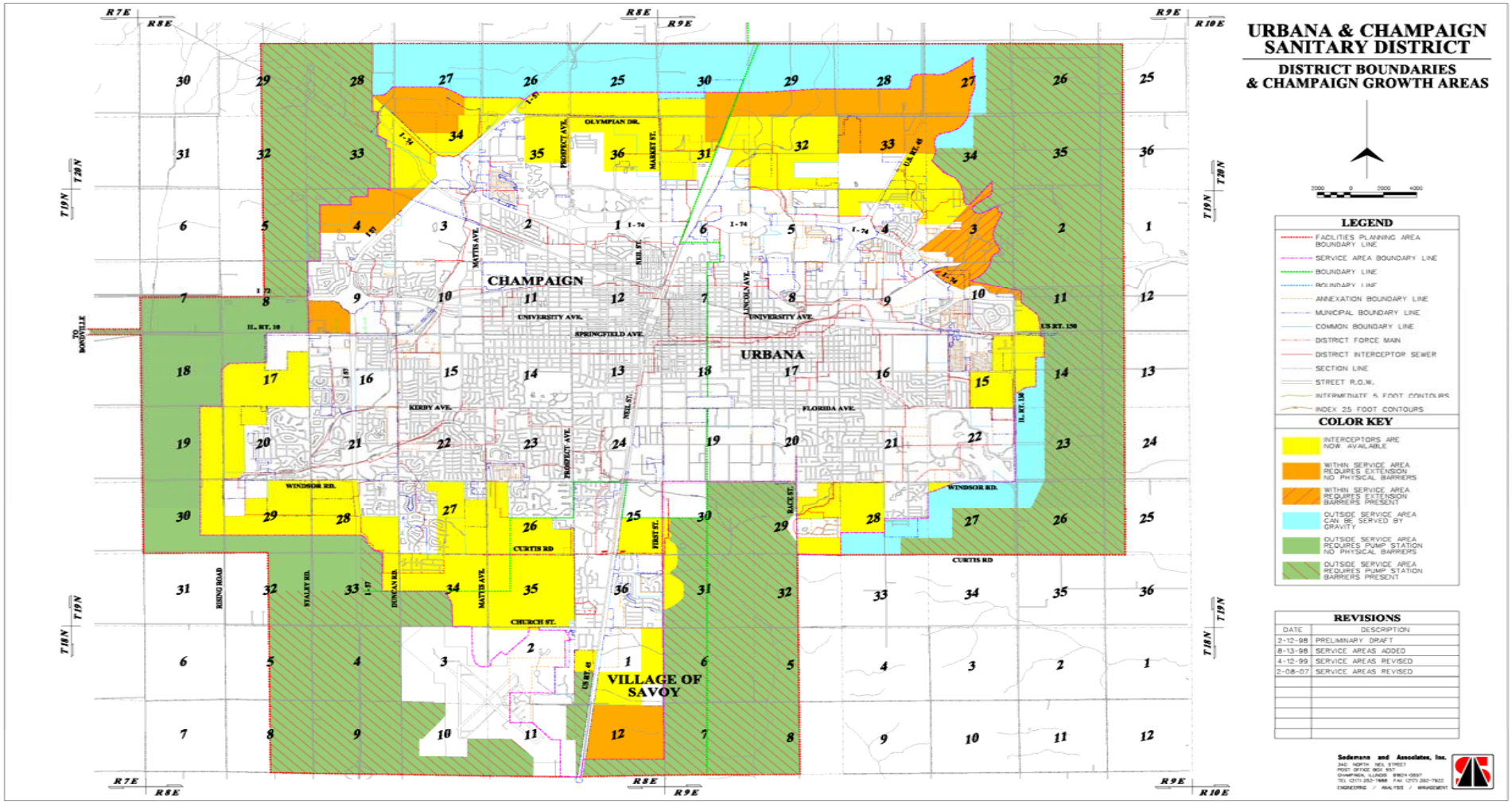
Municipal Public Sanitary Sewer Service

Municipalities within the County that provide public sanitary sewer services to their populations are: St. Joseph; Ogden; Mahomet; Fisher; Rantoul; Thomasboro; Gifford; and Tolono. Both Bondville and Homer are in the process of planning for construction of public sanitary sewers to serve their respective populations, with approximately two years remaining before public sewer service is available in both villages.

Onsite Wastewater Disposal Systems

At the present time, most of the smaller villages and rural settlements in outlying rural areas of the County rely on private, on-site wastewater disposal systems as the method of wastewater treatment and disposal. The smaller villages in this category include: Longview, Broadlands, Foosland, Pesotum, Sadorus, Sidney, Philo, and Allerton. Bondville and Homer presently have private, on-site wastewater disposal systems, but will be converting to public sewer, as discussed in the previous section. All but one (Seymour) of the 20 unincorporated settlements within the County rely on private wastewater disposal systems.

Figure 5-2: Urbana and Champaign Sanitary District Facility Planning Area



Source: Urbana & Champaign Sanitary District

The Champaign County Public Health Department approves the installation, repair, alteration, extension or replacement of onsite wastewater disposal systems. Table 5-2 indicates the number of permits issued from the Champaign County Public Health Department for private onsite wastewater disposal systems during the years 1998 through 2006, with limited additional information available regarding the type of system installed from the year 2001 through 2006.[2] The permits referenced in Table 5-2 do not include the significant number of permits issued for the repair of existing systems, as that information was not readily available.

Table 5-2: Number of Permits Issued by the Champaign County Public Health Department for Private Onsite Wastewater Disposal Systems Installed in Champaign County

Type	1998	1999	2000	2001	2002	2003	2004	2005	2006
Surface	-	-	-	98	77	112	100	64	49
Subsurface	-	-	-	102	76	125	142	131	107
Total	50	180	189	200	153	237	242	195	156

Rural Residential Onsite Wastewater Disposal Systems

The Department of Planning and Zoning staff report entitled *Locational Considerations and Issues for Rural Subdivisions in Champaign County, Illinois* completed in November 1998 reviewed the two most common types of private onsite wastewater disposal systems in use for residential development in rural areas of the County and site requirements for these two types of onsite wastewater disposal systems, including the suitability of Champaign County soils to accommodate these systems.[3]

The two most common types of private onsite wastewater disposal systems in use in rural areas in the County remain:

1) surface discharge systems that discharge treated wastewater directly to the ground's surface, a collection tile, or a body of water; and
2) subsurface absorption systems, by means of septic tank leach fields, that release wastewater into the ground below the ground surface.

Appendix 3 contains an excerpt of *Locational Considerations and Issues for Rural Subdivisions in Champaign County, Illinois*, which provides information regarding techniques used to determine the suitability of a site for onsite wastewater disposal systems in rural areas of the County.

In Illinois, all onsite wastewater disposal systems require initial approval by a government agency in order to safeguard the public health and safety.[4] In Champaign County, the agency that issues permits for onsite wastewater disposal systems is the Champaign County Public Health Department. At present in Illinois (and within the County as well) once private residential wastewater systems are installed, there are no requirements in place that set effluent limits for some pollutants, or that require that effluent be tested periodically to ensure that onsite wastewater disposal systems are functioning as they should.

Within the County, the actual level of failure of onsite wastewater treatment systems is not known. Significant numbers of permits are issued annually for replacement systems each year, and generally it is believed that the failure of subsurface soil absorption systems is quite common.[5]

If several onsite wastewater disposal systems are not functioning properly within a single watershed, collectively the malfunctioning systems can be a potentially significant source of

phosphorus pollution to a stream or river. Additionally, failing onsite wastewater disposal systems may potentially discharge minimally-treated or untreated sewage, along with disease-causing organisms, directly to ground surface or to a body of water.

Figure 5-3 (on the following page) shows those soils within the County rated as having 'very high' or 'high' potential for septic tank absorption fields and Table 5-3 summarizes countywide soil potential ratings for septic tank absorption fields in Champaign County.[6] This information was developed by the Champaign County Soil and Water Conservation District.

Table 5-3: Potentiality Ratings for Septic Tank Absorption Fields in Champaign County

Soil Potentiality Rating for Septic Tank Absorption Fields	Percentage of Soils Countywide (estimate)
Very High Potential	….2.6 %
High Potential	….10.0 %
Medium Potential	….34.1 %
Low Potential	….48.4 %
Very Low Potential	….. 3.2 %

County Regulations Regarding Installation of Onsite Wastewater Disposal Systems

The County Zoning Ordinance requires onsite wastewater disposal systems in lieu of connection to a public sewer system for new or existing developments. At the present time, the minimum lot size requirement of 30,000 square feet for a new dwelling unit in the AG-2 Agriculture Zoning District is inconsistent with state permitting requirements that surface discharge systems be spaced a minimum of one acre apart.

Public Water Service

A primary determinant of site suitability for development is the availability of a water supply. Generally, the service areas for water systems that serve urbanized areas are usually defined by elevation, everything below a certain elevation located within the service area. Most public water systems are gravity driven, with the service area limited to the highest elevation to which the existing gravity system can deliver adequate water pressure to fight fires. Public water systems will sometimes be supplemented with extra pumps or lift stations to serve a development that would otherwise be outside a service area. The costs associated with maintenance of pumps and lift stations is significant and most operators prefer to plan for a system that is gravity-driven.

Public Water Supply Service Availability

Within Champaign County, many of the urban areas are served by a public water supply system. Outlying rural areas rely on groundwater availability through private wells. Table 5-4 lists the municipalities with public water service available.

Figure 5-3: Areas of 'Very High' or 'High' Potential for Septic Tank Absorption Fields

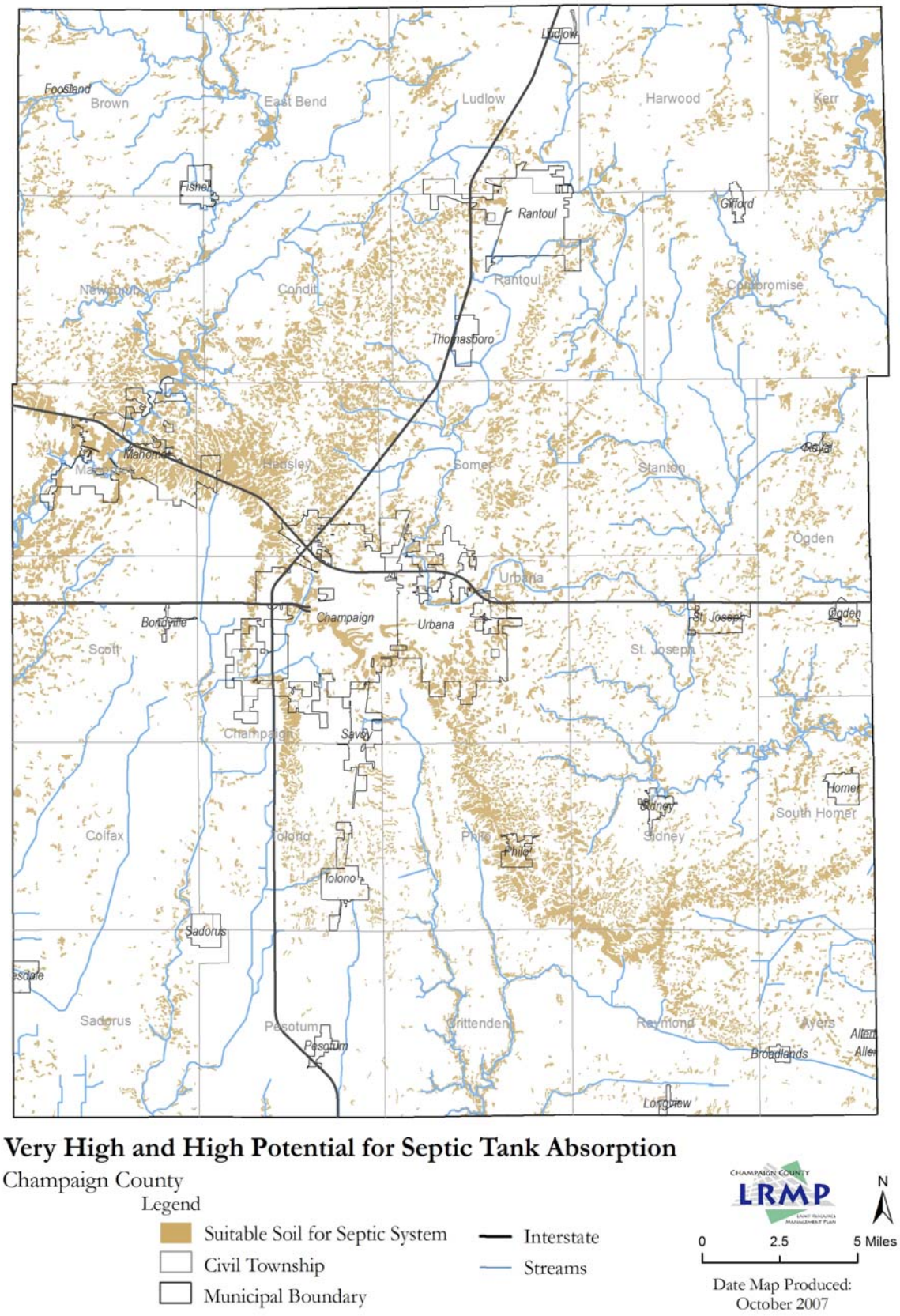


Table 5-4 Public Water Service Availability within Champaign County

Municipality	Public Water Service
Village of Bondville	Illinois American Water Company, Eastern Division, Champaign District
City of Champaign	
Village of Pesotum	
Village of Savoy	
Seymour	
Village of St. Joseph	
City of Urbana	
Village of Broadlands	Embarras Area Water District
Village of Fisher	Village-operated well
Village of Gifford	
Village of Homer	
Village of Ivesdale *(partially within County)*	
Longview	
Village of Ludlow	
Village of Ogden	
Village of Rantoul	
Village of Royal	
Village of Sadorus	
Village of Thomasboro	
Village of Mahomet	Village of Mahomet Water District; Sangamon Valley Water District
Village of Philo	Illinois American Water Company wholesale purchaser
Village of Sidney	
Village of Tolono	

Illinois American Water Company

The Illinois American Water Company (IAWC) is the locally managed utility regulated by the state and a water service supplier to larger urbanized areas and some smaller communities in the County. IAWC owns subsidiaries that manage municipal water and wastewater systems under contract and others that supply homeowners, businesses, and communities with water resource management products and services. Rates charged by IAWC are set and approved by the Illinois Commerce Commission (ICC). Changes in IAWC customer rates must be filed with the ICC and are approved only after due process, which includes the opportunity for customer and public intervention. IAWC operates under rules and regulations established by the U.S. Environmental Protection Agency (EPA), Illinois Environmental Protection Agency (IEPA) and the Illinois Department of Public Health. [7]

The source of supply for the IAWC Champaign County District is groundwater from sand and gravel aquifers, including the Glasford Aquifer and the Mahomet Aquifer. Currently 21 large capacity wells deliver water for treatment to two lime-softening plants: the East Plant located in Urbana, and the West Plant, located in Champaign. The wells are primarily located in two

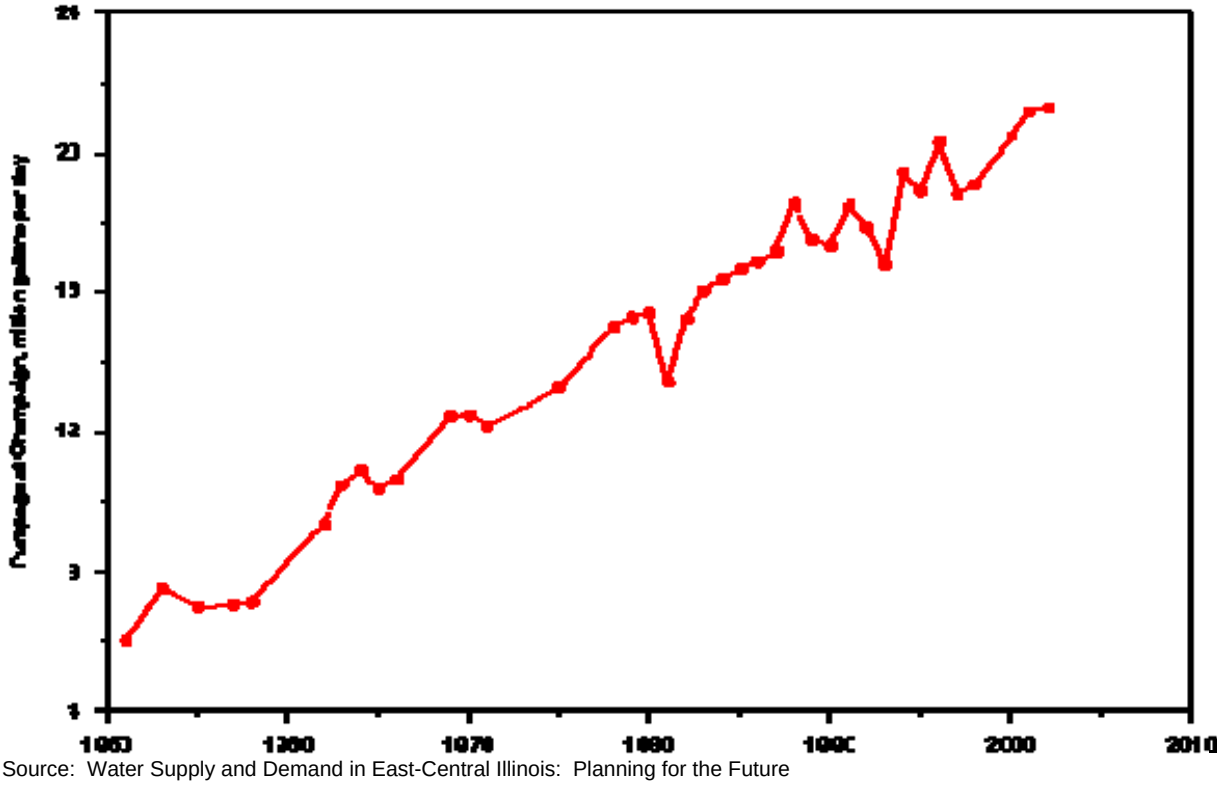
areas. The north well field taps the Glasford Aquifer and consists of seven wells that supply the East Plant. The west well field consists of 14 wells that draw from the Mahomet Aquifer and supply water to both the East and West Plants. The wells range from 150 to 366 feet in depth and are protected from surface contamination by geologic barriers in the aquifers.[8]

IAWC recently completed a long-range comprehensive facilities plan that includes construction of a new water treatment plant in Champaign County to support anticipated growth of communities served by IAWC within the County. During the last 20 years, water demand within the IAWC service areas of Champaign County increased 35 percent while the number of IAWC customers increased by 40 percent.

In February 2007, the City of Champaign entered into a pre-annexation agreement with IAWC regarding the planned construction of the new treatment plant on a 40-acre site in Scott Township located north of I-72 on County Road 1400 N between County Road 500 East and County Road 600 East. The new treatment plant will have an initial capacity of 15 million gallons per day (mgd) with plant capacity to be expanded to 20 mgd as needed. [9] Preparatory site work commenced in September 2007 and IAWC received the required IEPA construction permit during October 2007. Completion of the new treatment plant is expected in late 2008.

Upward Trend of Groundwater Withdrawals. Figure 5-4 illustrates the long-term upward trend of IAWC water withdrawals from wells in the IAWC Champaign District, from approximately 7 mgd in 1955 to just under 20 mgd in1998.[9] Average daily water use based on annual totals was tracked, rather than peak water use. Additional information regarding actual and projected water demand and water supply from the Mahomet Aquifer will be available upon completion of the Mahomet Aquifer Consortium regional water planning study.

Figure 5-4: IAWC Water Withdrawals to Serve Growing Communities



Source: Water Supply and Demand in East-Central Illinois: Planning for the Future

IAWC published *The 2006 Annual Water Quality Report* for the IAWC Champaign County District served.[11] The report provides data regarding substances detected in the drinking water supplied during 2006 and indicates that all substances found are under the 'Maximum Contaminant Level' set by the EPA. The full text of the report appears in Appendix 4.

Additional information regarding the IAWC water supply sources, water quality, and potential sources of contamination within IAWC's Champaign County District is available in the report entitled *Source Water Assessment Program Fact Sheet, IL American-Champaign, Champaign County*, prepared by the IEPA in cooperation with the U.S. Geological Survey (provided for review in Appendix 5).

Private Onsite Wells

In outlying rural areas of the County, residences and other developments that are not served by a public water system rely on private wells for water supply. Generally private onsite wells are bored to access subsurface areas of water bearing sand and gravel deposits (or aquifers) that are sufficiently sized to provide a dependable water supply. If a well is dug into sand and gravel deposits of greater thickness, the likelihood of a dependable water supply increases.

In most outlying areas of Champaign County, private wells can be dug to draw water from the existing network of sand and gravel water-bearing deposits that exist below the water table. Illinois State Water Survey (ISWS) scientists indicate that within the County, the water table is usually located within a depth of 10 feet from the land surface.[12] Figure 5-5 provides locational information regarding private wells known to be used for domestic household purposes; this map may or may not include other well types such as irrigation, low capacity, industrial/ commercial users, parks, schools, or community supplies. Specific information regarding public wells may be available upon request only via individual contact with the ISWS.[13]

As described further in Chapter 10, groundwater availability can be problematic in the southeastern portion of the County—the area generally situated east of U.S. Route 45 and south of Philo (refer to Figure 10-7). The layer of sand and gravel water-bearing deposits in this area is much less thick, ranging from one to 25 feet in thickness. In this area groundwater is available, but it may or may not be available at any given location and the groundwater supply may be undependable during periods of drought.[14]

Figure 5-5: Water Well Locations