Chapter 4

COMMUNITY FACILITIES AND UTILITIES ELEMENT

INTRODUCTION

With 37 municipalities in Waukesha County, community facilities and utilities are important in providing high quality services to enhance the safety and welfare of County residents. The major community facilities and utilities within the county include telecommunications infrastructure, public and private utilities, school districts, libraries, cemeteries, healthcare facilities, childcare facilities, and public safety.

WAUKESHA COUNTY COMMUNITY FACILITIES AND UTILITIES STRENGTHS, CONCERNS AND WEAKNESSES

The Waukesha County Comprehensive Planning Community Facilities and Utilities Element subcommittee expressed the following strengths, concerns, and weaknesses.

Community Facilities and Utilities Strengths

- **Waukesha County operates a state of the art central communication center for police, fire, and emergency response**
  All municipalities within Waukesha County have the opportunity to become a part of the County's central communication center for dispatching emergency calls. The ultimate goal is to have all municipalities in the county participate.
- **Waukesha County has an extensive network of police and fire departments**
  Twenty-four municipal police departments, the Waukesha County Sheriffs Department, and the Wisconsin State Patrol provide law enforcement services to Waukesha County residents. Thirty fire departments operate 51 fire stations within the County.
- **As an agent for the Department of Commerce, Waukesha County has assured that private sewage systems are properly designed, sited and maintained**
  The use of private sewage systems provides for development in areas not served by municipal sewer; infill development of vacant lots; returns groundwater to the aquifer; prevents most replacement systems from using sewage holding tanks; and are a cost effective means of providing safe on-site sewage disposal.
- **Waukesha County municipalities have well planned sewer service areas**
  These sewer service areas allow for higher density development and adequate services for residential and business growth.
- **Waukesha County has a nationally recognized recycling program**
  Thirteen villages, and seven towns participate in the Waukesha County Recycling Program.
- **Waukesha County has an excellent public school system and several districts are nationally recognized for their performance**
  Twenty public school districts and 54 private schools within Waukesha County provide K-12 education to over 80,000 students. These exceptional educational institutions are a major reason why families are attracted to Waukesha County.
- **Private electric, gas, phone and cable systems are in place to meet projected county growth**
  The intermediate population growth projection for Waukesha County is 446,768 residents by Year 2035. The existing private electric, gas, phone, and cable systems are in place to meet the County's growing population.

Community Facilities and Utilities Concerns and Weaknesses

- **Businesses compete in a global environment and it is very important to make certain that all new business parks are built with the necessary infrastructure**
  In the 1970s, the biggest concern for industrial parks was adequate municipal sewer and water capacity. Today, the biggest concern for business parks is the need for adequate fiber optics and wireless infrastructure to compete in a global business environment.
- **Concern about new technology private sewage systems that are available**
  New technology is available for alternative on-site wastewater treatment systems (POWTS) to address soil conditions not suitable for in-ground conventional systems. The types of systems available demand that several Waukesha County divisions discuss and cooperate on all levels of land development.
- **New pharmaceutical products are creating concern about water quality**
  Public waste treatment and private on-site sewage systems do not have the capability to filter out pharmaceutical waste, which eventually ends up in surface and groundwaters.

UTILITIES

Telecommunications Service

In September 2006, SEWRPC adopted *"A Wireless Antenna Siting and Related Infrastructure Plan"* for Southeastern Wisconsin. This plan serves as the regional wireless plan for the southeastern Wisconsin region. The intent of the plan is to develop a high level of telecommunications service within the Region to maintain economic competitiveness and to help meet growing needs in such areas as public safety, emergency response, and home health care.

Although there are many telecommunication service providers, there are only a few basic types of communication services. These are: 1) Voice Transmission Services, including "Plain Old Telephone Service" (POTS) cellular wireless, satellite wireless, packet-based telephone networks, and Internet voice services; 2) Data Transmission Services, Including the Internet, ATM-Frame Relay, and third generation (3G) cellular wireless networks; 3) Multimedia Services, including video, imaging, streaming video, data, and voice; and 4) Broadcast Services, including AM/FM terrestrial radio, satellite radio and television, terrestrial radio and television, terrestrial television, and cable television.

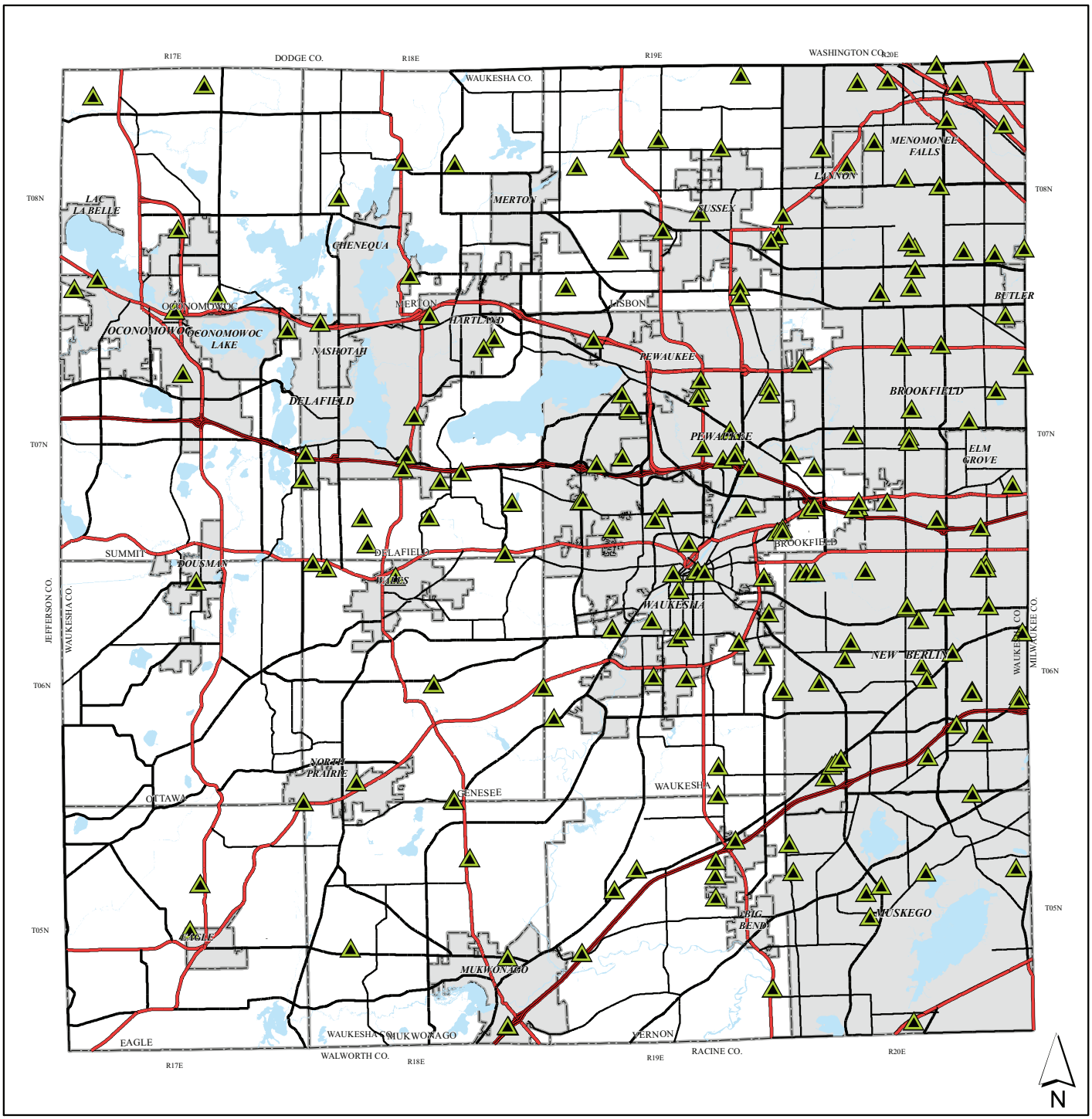
Two hundred and seventy six cellular tower antenna sites exist in Waukesha County, (Map IV-1). This includes City of Oconomowoc – 10 sites; Cities of Delafield and Pewaukee – 13 sites each; City of New Berlin – 15 sites; City of Muskego – 17 sites; City of Waukesha – 26 sites; City of Brookfield – 30 sites; Villages of Big Bend, Butler, Chenequa, Oconomowoc Lake, Sussex and Wales – 1 site each; Villages of Dousman and Eagle – 2 sites each; Village of Lannon 3 sites; Villages of Hartland and North Prairie – 4 sites each; Villages of Elm Grove and Mukwonago – 5 sites each; Village of Pewaukee – 9 sites; Village of Menomonee Falls – 28 sites; Town of Eagle – 2 sites; Town of Mukwonago – 5 sites; Town of Oconomowoc – 6 sites; Towns of Brookfield, Delafield, Merton and Waukesha – 7 sites; Town of Vernon – 9 sites; Town of Genesee – 16 sites; and Town of Lisbon – 18 sites.

Wireless (WiFi, WiMAX)

The first broadband wireless standard that served as an alternative to a wired local area network (LAN) was IEEE 802.11 or wireless fidelity (WiFi). Introduced in 1997, this standard initially utilized the frequency hopping spread spectrum (FHSS) technology operating in the 2.4 gigahertz band. The frequency hopping spread spectrum technology was soon abandoned and replaced with direct sequence spread spectrums (DSSS-IEEE standards 802.11b) or orthogonal frequency division multiplanning (OFDM-IEEE standard 802.11g) for physical layer operation. The 802.11b standard became the popular WiFi for coffee shops, airports, schools, hotels, and other

Map IV-1

WIRELESS TELECOMMUNICATION FACILITIES IN WAUKESHA COUNTY: 2006



Legend

- Interstate
- US
- State
- County
- Local Major
- Town
- City or Village
- Major Water Body
- Location of Cell Tower

Source: Waukesha Co. Planning and Zoning/SEWRPC

0 1 2 4 Miles

Civil Divisions as of 12/31/06
Prepared by Waukesha Co. Dept. of Parks and Land Use

locations where people are on the move. These locations are known as hot spots. The number of WiFi hot spots has grown rapidly in the Region over the last few years. The 802.11b standard has now been superseded by 802.11g which has connection speeds of up to 54 megabits per second.

A new major IEEE standard 802.16 (WiMAX) is due for release in 2006 in the form of standard 802.16d. WiMAX is an acronym for Worldwide Interoperability for Microwave Access. WiMAX is a long range version of 802.11 WiFi. WiMAX capabilities include extending the range of WiFi from 300 feet to up to 30 miles. WiFi will continue to serve as a low cost, high speed access network for direct interconnection with end users. The higher speed access and wireless services will provide enhanced services for both business development and local government public safety services. WiMAX is well positioned to serve as a backhaul network for localized WiFi access networks.

The proposed telecommunications plan that SEWRPC recommends for the Region consists of two levels of wireless networks—a wireless (WiMAX) backhaul network plan, and a pilot, community level, wireless (WiFi) access network plan. The backhaul network would have the capability to service a multitude of community level access points that would forward data to the backhaul network for cost effective Internet connection.

PUBLIC UTILITIES

Sewage Disposal and Water Supply

Sanitary sewerage and water supply utilities are particularly important to land use planning because the location and density of urban development influences the need for such services and, conversely, the existence of such services influences the location and density of new urban development. The extent and location of areas served by existing sanitary sewerage and water supply utilities are thus important considerations in any land use planning effort. The majority of sewerage and water supply utilities in the County are organized as sewer and water departments of incorporated municipalities and serve largely those areas within the respective political boundaries of the municipalities. A general pattern of sewer and water service areas following political boundaries rather than natural topographic boundaries, such as watershed boundaries, exists within the County.

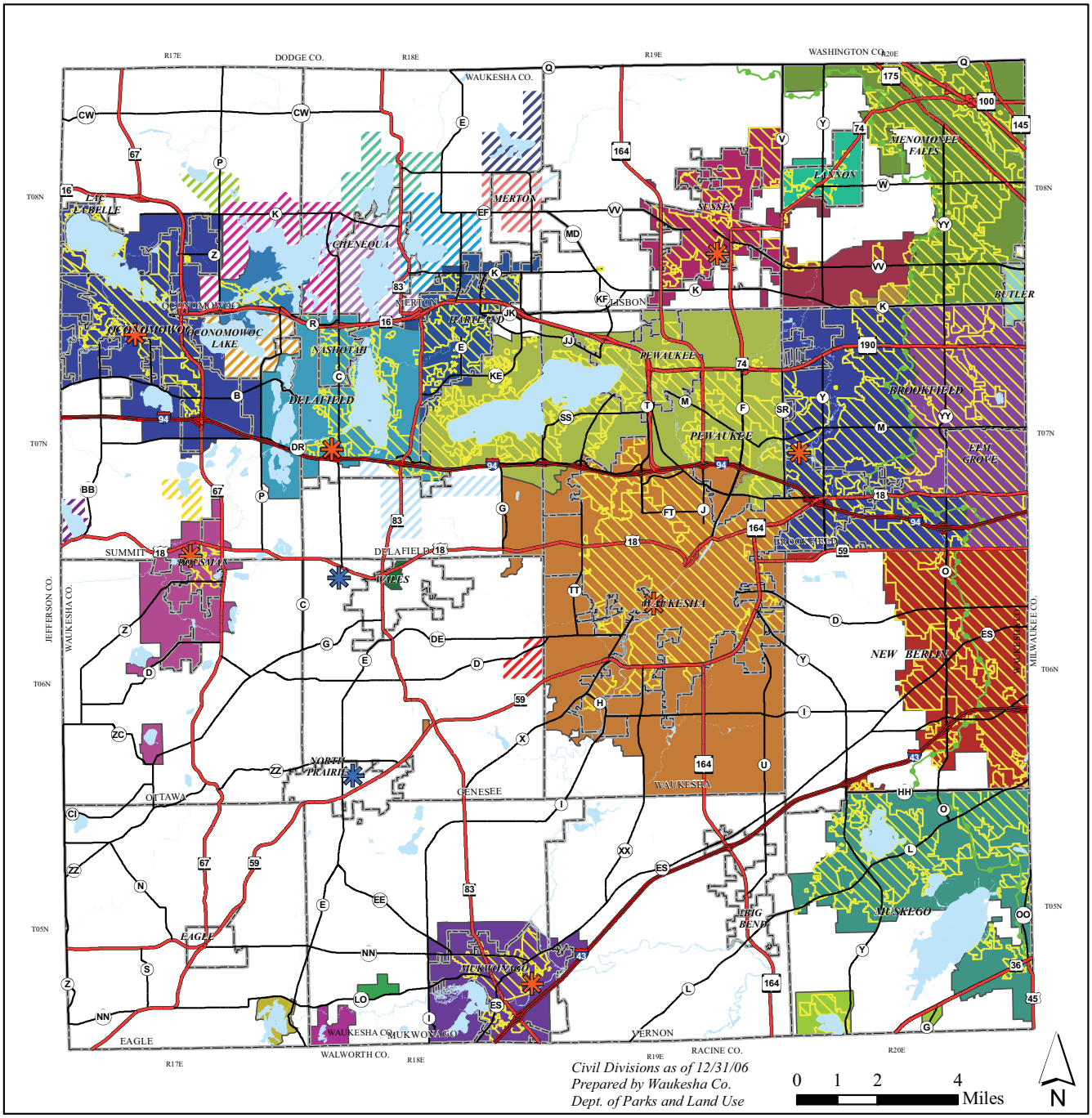
Sanitary Sewerage Facilities

In 2000, Waukesha County was served by 10 public sewage treatment plants, seven of which were located within the County. The seven public sewage treatment plants located within the County are: the City of Oconomowoc sewage treatment plant, the Village of Dousman sewage treatment plant, the Delafield-Hartland Water Pollution Control Commission sewage treatment plant, the Village of Mukwonago sewage treatment plant, the City of Waukesha sewage treatment plant, the Village of Sussex sewage treatment plant, and the Fox River Water Pollution Control Center sewage treatment plant. Of the remaining three public sewage treatment plants serving Waukesha County, two, the Jones Island and South Shore treatment plants, both operated by the Milwaukee Metropolitan Sewerage District, are located in the City of Milwaukee and the City of Oak Creek, respectively, and one, the Town of Norway Sanitary District No. 1 sewage treatment plant, is located in the Town of Norway in Racine County. The locations of major public sewage treatment facilities and sewer service areas in the County are shown on Map IV- 2.

As indicated in Table IV-1 and shown on Map IV-2 , three of the public sewage treatment plants located within the County, those operated by the Villages of Dousman, Mukwonago, and Sussex, serve relatively small, localized areas and small populations and have design capacities under two million gallons per day. The remaining four public sewage treatment plants, those operated by the Delafield-Hartland Water Pollution Control Commission, by the City of Oconomowoc, by the City of Waukesha, and by the Fox River Water Pollution Control Center, all have design capacities exceeding two million gallons per day and serve much larger areas and populations. Substantial portions of the eastern quarter of the County, including portions of the Cities of Brookfield, Muskego, and New Berlin, and the Villages of Butler, Elm Grove, and Menomonee Falls, are served by two

Map IV-2

EXISTING AND PLANNED SANITARY SEWER SERVICE IN WAUKESHA COUNTY: 2006



Legend

Sewage Treatment Plants (2005)

- *Existing*
- *Planned*
- *Subcontinental Divide*
- *Currently Served by Muni. Sewer (2000)*

Planned Sewer Service Areas (2007)

Refined Area

- *Brookfield East*
- *Brookfield West*
- *Butler*
- *Delafield-Nashotah*
- *Dousman*
- *Eagle Spring Lake*
- *Hartland*
- *Lannon*
- *Menomonee Falls-Fox River*
- *Menomonee Falls-MMSD*
- *Menomonee Falls-South*
- *Mukwonago Co. Park*
- *Mukwonago*
- *Muskego*
- *New Berlin*
- *Norway*
- *Oconomowoc*
- *Okauchee Lake*
- *Pewaukee*
- *Rainbow Springs*
- *Sussex*
- *Wales*
- *Waukesha*

Unrefined Area

- *Ashippun Lake*
- *Delafield South*
- *Beaver Lake*
- *Oconomowoc Lake*
- *Okauchee Lake*
- *Pine Lake*
- *Genesee Lake*
- *Golden Lake*
- *Merton*
- *Genesee East*
- *Lake Keesus*
- *North Lake*

Source: SEWRPC

Table IV-1
SELECTED CHARACTERISTICS OF EXISTING PUBLIC SEWAGE TREATMENT FACILITIES IN WAUKESHA COUNTY: 2000

Name of Public Sewage Treatment Plant	Estimated Total Area Served (square miles)	Estimated Total Population Served	Date of Original Construction and Major Modification	Sewage Treatment Plant Processes	Disposal of Effluent	Existing Loading: 1990[a]		
						Annual Average Hydraulic (mgd)	Maximum Monthly Average Hydraulic (mgd)	Average Annual Organic (pounds BOD_5/day)
Fox River Water Pollution Control Center[b]	14.8	33,800	1973, 1984	Phosphorus removal, activated sludge, sand filtration, chlorination, dechlorination, post aeration	Fox River	6.74	10.36	8,332
Delafield-Hartland Pollution Control Commission	4.9	10,600	1980	Rotating biological contactors, nitrification, sand filtration, chlorination, post aeration	Bark River	1.40	1.50	2,252
Village of Dousman	0.4	1,300	1961, 1972, 1983	Activated sludge (oxidation ditch), microscreen filtration, chlorination	Bark River	0.22	0.26	317
Village of Mukwonago	1.0	4,400	1950, 1971	Activated sludge, phosphorus removal, chlorination basin	Fox River	0.51	0.68	606
City of Oconomowoc[c]	5.6	12,000	1935, 1976	Activated sludge, sand filtration, chlorination	Oconomowoc River	2.33	2.74	3,930
Village of Sussex[d]	1.7	4,400	1960, 1975, 1978	Activated sludge, (contact stabilization), dual-media filtration, phosphorus removal, chlorination	Sussex Creek	0.98	1.46	1,092
City of Waukesha[e]	13.4	50,300	1949, 1967, 1979	Primary trickling and secondary filter, sand filters, phosphorus removal, chlorination	Fox River	8.74	11.74	14,956

Name of Public Sewage Treatment Plant	Design Capacity				Reserve Capacity		
	Population[f]	Average Hydraulic (mgd)	Average Organic		Average Hydraulic Capacity[g] (mgd)	Average Organic	
			Pounds BOD_5/day)	Population Equivalent		Pounds BOD_5/day	Population Equivalent[f]
Fox River Water Pollution Control Center[b]	33,800	10.00[b]	15,200[b]	72,380[b]	- -[b]	6,868[b]	32,700[b]
Delafield-Hartland Pollution Control Commission	20,800	2.20	3,740	17,800	0.70	1,488	7,080
Village of Dousman	2,200	0.35	584	2,780	0.09	267	1,270
Village of Mukwonago	4,400	1.50	2,502	11,910	0.83	1,896	9,030
City of Oconomowoc[c]	29,500	4.00	8,340	39,700	1.26	4,410	21,000
Village of Sussex[d]	4,400	1.00[d]	1,580[d]	7,520[d]	- -[d]	488[d]	2,320[d]
City of Waukesha[e]	50,300	16.00[e]	20,000[e]	95,240[e]	4.26[e]	5,040[e]	24,000[e]

[a]Existing loading data based upon values reported to the Wisconsin Department of Natural Resources for 1990.

[b]As of 1993, the City of Brookfield had completed facility planning for a plant upgrading and expansion to provide for a design hydraulic capacity of 12.5 mgd on an average daily flow basis.

[c]Includes data from the Town of Ixonia Sanitary District No. 2.

[d]As of 1993, the Village of Sussex was constructing a new sewage treatment plant with a design hydraulic capacity of 3.20 mgd on an average daily flow basis.

[e]As of 1993, the City of Waukesha was constructing an expansion and upgrading for this plant to provide for upgraded treatment efficiencies and capabilities to handle peak flows better. The new plant design hydraulic capacity is 14.0 mgd on a daily flow basis.

[f]The population design capacity for a given sewage treatment facility was obtained from plant operating personnel or directly from engineering reports prepared by or for the local unit of government operating the facility and reflects assumptions made by the design engineer. The population equivalent design capacity was estimated by the Commission staff by dividing the design BOD_5 loading in pounds per day, as set forth in the engineering reports, by an estimated per capita contribution of 0.21 pound of BOD_5 per day. If the design engineer assumed a different daily per capita contribution of BOD_5, the population equivalent design capacity shown will differ from the population design capacity shown in the table.

[g]The reserve hydraulic capacity was calculated as the difference between average hydraulic design capacity and maximum monthly average hydraulic loading.

Source: Wisconsin Department of Natural Resources and SEWRPC.

very large plants of the Milwaukee Metropolitan Sewerage District (MMSD) located on the Lake Michigan shoreline. The MMSD serves approximately 106,988 residents within these communities. In addition, a small area in the southwest portion of the City of Muskego around Lake Denoon is served by the Town of Norway Sanitary District No. 1.

The sewage treatment plant operated by the City of Oconomowoc is adjacent to the Oconomowoc River in the City of Oconomowoc and serves the City of Oconomowoc, the Village of Lac La Belle, and portions of the Town of Oconomowoc. In addition, the City of Oconomowoc plant also serves a portion of the Town of Ixonia in Jefferson County. The sewage treatment plant operated by the Village of Dousman is located adjacent to the Bark River in the Village of Dousman and serves the Village of Dousman. The Delafield-Hartland Water Pollution Control Commission sewage treatment plant is adjacent to the Bark River in the City of Delafield and serves the City of Delafield, the Villages of Hartland and Nashotah, and a small portion of the Town of Summit. The Village of Mukwonago sewage treatment plant is adjacent to the Fox River in the Village of Mukwonago and serves the Village of Mukwonago. The City of Waukesha sewage treatment plant is adjacent to the Fox River in the City of Waukesha and serves the City of Waukesha and portions of the City of Pewaukee and Town of Waukesha and Village of Wales. The Village of Sussex sewage treatment plant is adjacent to Sussex Creek in the Village of Sussex and serves the Village of Sussex and a small portion of the Town of Lisbon. The Fox River Water Pollution Control Center sewage treatment plant is located adjacent to the Fox River in the extreme western portion of the City of Brookfield and serves portions of the City of Brookfield, the Villages of Menomonee Falls and Pewaukee, and the Towns of Brookfield, and Delafield.

In 2000, the 10 existing public sewage treatment plants and the tributary sewerage collection and conveyance systems in the County together served 110.7 square miles, or about 19 percent of the total area of the County. The 2000 resident population of the areas served is estimated to be 272,250, or about 76 percent of the total population of the County.

Under the recommended SEWRPC 2035 regional land use plan, most of the proposed new urban development within the County would be served with public sanitary sewer facilities. In addition, the plan recommends that public sanitary sewer service continue to be extended to urban areas that lack such facilities. Areas of the County envisioned to be served with public sanitary facilities under the plan are shown on Map IV-2. The unsewered urban areas ultimately proposed to be provided by public sanitary sewer service were generally limited to those areas which had been identified for such service in the regional sanitary sewer system plan, in the regional water quality management plan, and in local facility planning programs. Those earlier planning programs identified the long-term need for public sanitary sewer service on the basis of consideration of the density of development, water quality considerations, proximity to existing public sewerage systems, and consideration of the general suitability of the areas for onsite sewage disposal systems. These earlier planning programs also provided opportunities for public input on recommendations to include certain areas within the planned future public sewer service area. In some cases, such as the urban development surrounding Beaver and Pine Lakes, lands have been included within the planned sewer service area even though the area has a low-density character where there are presently no known severe problems with onsite systems and it is likely unnecessary to provide for public sewer service in the next 20 years or more. However, these areas lie within or adjacent to a larger area for which public sanitary sewer service will likely be required; thus they are included to allow for proper long-range planning of sewerage components, such as major intercommunity trunk sewers. Other areas, such as the Village of Merton, have been included since they were initially identified in the earlier studies as areas which should be provided with public sewer service, but were not included in the planned service area during the 20-year planning period of that plan as a result of public comment and reevaluation. However, given the longer-term framework of the current planning effort, that area is now included within the long-term public sanitary sewer service area. Certain other existing urban areas, such as the Villages of Eagle and Big Bend, have not been included in the areas to be provided public sanitary sewer service, since to date, no regional or sub-regional planning programs have established the need and cost-effectiveness for a public sewer system in those areas.

It is envisioned that there will be some revision and refinement of the extent of the planned sewer service areas in the County as a result of sub-regional and local facility sewerage system planning programs. Such planning

efforts are needed to evaluate specifically the existing onsite sewerage systems and their cost-effectiveness and the need for public sanitary sewer systems in selected areas.

Private Onsite Wastewater Treatment Systems (POWTS)
Waukesha County, under the authority in Chapter 145.20, Wisconsin Statutes, is the governing body for the administration of private sewage systems. This responsibility is assigned to the Department of Parks and Land Use, Environmental Health Division, as the government unit that provides assurance of compliance with State Statutes, Administrative Codes and County Ordinance by verification of soil and site conditions, plan review, permit issuance, on-site inspection at time of installation and an enforceable maintenance tracking program.

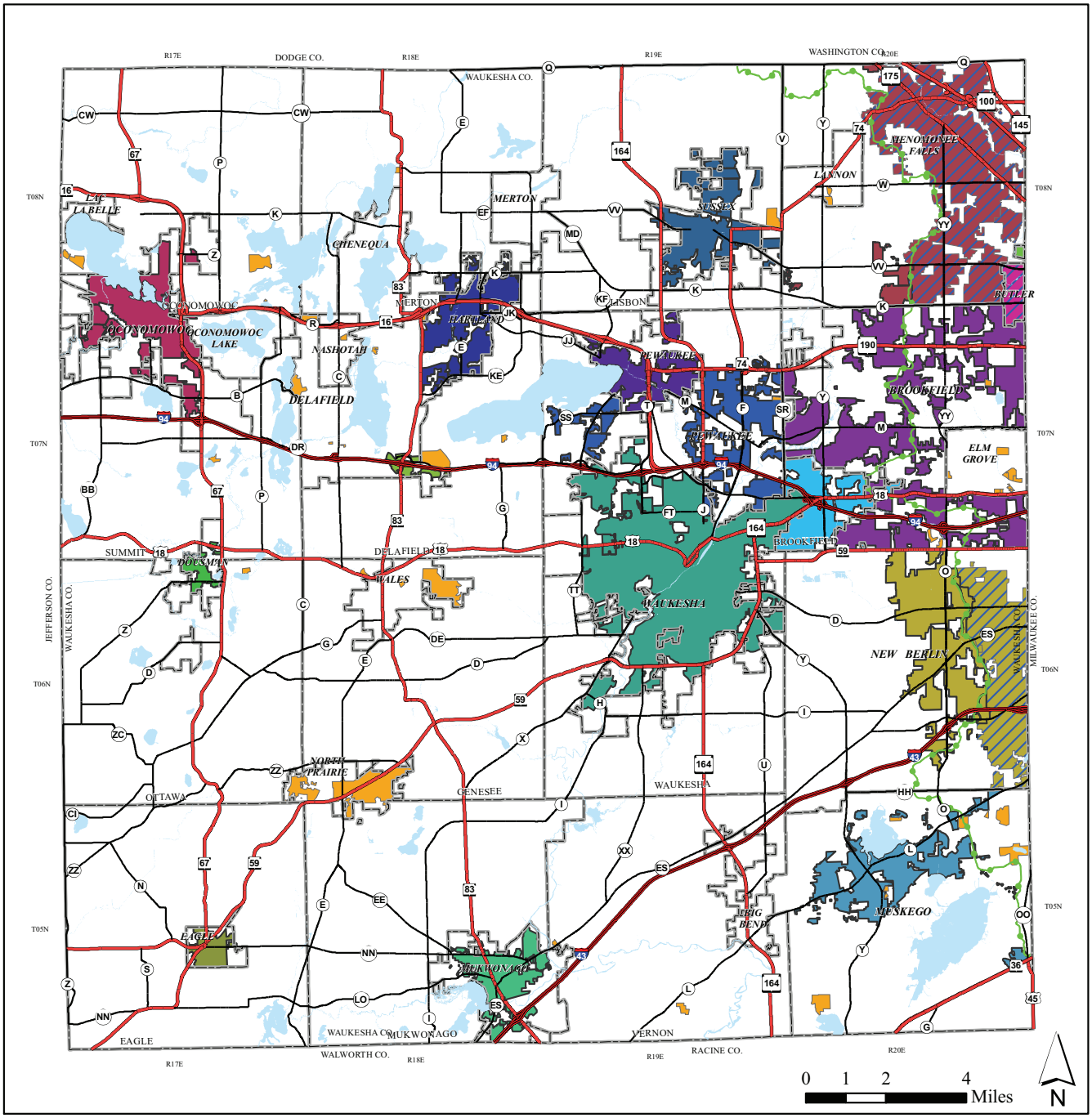
Water Supply Facilities
In 2005, 16 municipal water supply utility systems provided water to about 88 square miles of service area, or about 16 percent of the area of Waukesha County. These systems served a 2005 population of about 234,200 persons, or about 62 percent of the residential population in Waukesha County. Most of the water supply systems in Waukesha County rely on groundwater as the source of supply. The exceptions include the Village of Butler Public Water Utility, portions of the City of New Berlin Water Utility, and portions of the Village of Menomonee Falls Water Utility; these utilities purchase treated Lake Michigan surface water, which is returned to the Lake Michigan Basin via the Metropolitan Milwaukee Sewerage District. The existing service areas of these systems are shown on Map IV-3.

In addition to the 16 municipal water supply systems, there are two additional water service supply systems; the Prairie Village Water Trust and the Ethan Allen School. The Prairie Village Water Trust, located in the Village of North Prairie, serves about 1,600 residents, or approximately 85 percent of the residential population within the Village. This system is classified as "other than municipal, community water systems" by the WDNR. Located in the Town of Delafield, the Ethan Allen School is an institution operated by the Wisconsin Department of Corrections that serves a population of about 750 transient residents. This system is classified as "municipal, community water system" by the WDNR. Neither of these systems is required to provide annual reports to the Public Service Commission of Wisconsin.

In 2005, the total storage capacity for the seven municipal water systems operating in Waukesha County was approximately 45.8 million gallons, divided among the 40 elevated tanks and standpipes and 43 reservoirs. As the largest water provider, the City of Waukesha Water Utility maintained six elevated tanks and standpipes and six reservoirs, with a total storage capacity of about 15.3 million gallons. Based on Wisconsin Public Service Commission annual reports for the year 2005, approximately 29.3 million gallons per day of water were pumped for use in the16 municipal systems concerned. The water use totaled about 25.6 mgd for residential, commercial, industrial, institutional, or other urban uses, with the remaining 3.7 mgd of total pumpage being used for purposes, such as water production and system maintenance, or being unaccounted-for water. Overall, about 13.7 mgd, or about 54 percent of total municipal water used, was for single- and two-family housing units residential purposes; about 8.3 mgd, or about 33 percent, for commercial, multi-family residential, institutional, and miscellaneous uses; and about 2.9 mgd, or about 11 percent, was for industrial uses. The remaining 0.7 mgd, or about 3 percent, was used for other municipal purposes. Based upon the population served and reported water use, residential water consumption within the seven water supply systems was approximately 72 gallons per person per day in 2005. When accounting for all municipal water uses, the average water consumption was about 134 gallons per person per day. In 2005, the amount of water, which was unaccounted for, ranged from 5 to 15 percent, with an average of 8 percent of the water pumped. This, unaccounted-for water was not included in the computed per capita consumption rates. It should be noted that the residential water use reported by the water utilities excludes that associated with the use of water by multiple-unit dwelling units with a single meter serving three or more units. Those uses are included with commercial water uses. Chapter 3 of this Plan contains a complete discussion of ground and surface water supplies.

Map IV-3

EXISTING WATER SUPPLY SERVICE IN WAUKESHA COUNTY: 2006



Legend

- *Interstate*
- *US*
- *State*
- *County*
- *Major Water Body*
- *Civil Division Boundary*
- *Subcontinental Divide*
- *Private Water Service Areas (2005)*

Public Water Source

- *Lake Michigan*
- *Groundwater*

Areas Currently Served by Municipal Water (2005)

- *Brookfield Sanitary District No. 4*
- *City of Brookfield Municipal Water*
- *City of Milwaukee Water Works*
- *City of Muskego Public Water*
- *City of New Berlin Water*
- *City of Oconomowoc Utilities*
- *City of Pewaukee Water & Sewer*
- *City of Waukesha Water*
- *Delafield Municipal Water*
- *Dousman Water Utility*
- *Hartland Municipal Water*
- *Mukwonago Municipal Water*
- *Sussex Village Hall and Water*
- *Village of Butler Public Water*
- *Village of Eagle Municipal Water*
- *Village of Menomonee Falls Water*
- *Village of Pewaukee Water*

Civil Divisions as of 12/31/06 *Prepared by Waukesha Co. Dept. of Parks and Land Use* *Source: SEWRPC*

Radium in the Water Supply
Over the past few years, naturally occurring radium in groundwater has created some public health concerns. Radium in groundwater is derived from naturally occurring radioactive isotopes radium-226 and radium-228 in certain types of rock. Radium enters groundwater by dissolution of aquifer materials, desorption from rock or sediment surfaces, and ejection from minerals by radioactive decay. The human body metabolizes radium in much the same way that it metabolizes calcium. Ingestion of trace quantities of radium over time will result in an accumulation of radium in the skeleton. Ultimately, the damage from continuous exposure to radium can potentially cause bone and sinus cancer.

A number of water supply systems in Waukesha County exceeded the current five picocuries per liter U.S Environmental Protection Agency (EPA) standard for radium. These water supply systems serve all or parts of the Cities of Brookfield, New Berlin, Pewaukee, and Waukesha and the Villages of Eagle, Mukwonago, Pewaukee, and Sussex. Water-treatment processes such as ion-exchange softening, lime softening, and filtration to remove iron can appreciably reduce radium concentrations in groundwater. Some communities dilute groundwater that contains elevated concentrations of radium by blending it with surface water or groundwater from aquifers with lower radium concentrations. Water softeners, ion exchange, or reverse osmosis water-treatment systems can be installed in the home to reduce radium concentrations.

Solid Waste Management
Solid waste management has become an increasingly important issue of concern to State, County, and local units of government. This concern stems from the growing per capita generation of solid wastes and the heightened public awareness of the need to process and dispose of those wastes in an environmentally sound and cost-effective manner. In 2005, Waukesha County generated 190,432 tons of residential solid waste. Of this total, 67,076 or 35 percent was recycled.

Landfills
Landfilling is still the primary method of disposal of solid wastes generated in Waukesha County. As of 2006, there were two active, licensed, privately owned and operated sanitary landfills accepting municipal wastes within the county; the Parkview/Orchard Ridge Landfill in Menomonee Falls and the Emerald Park Landfill in Muskego.

The Parkview Landfill, located in the northeastern portion of the Village of Menomonee Falls, is part of an over 700-acre complex. In addition to landfill operations, the complex also serves as a center for hauling operations and contains a yard waste management facility, a commercial materials recycling and recovery facility, a medical waste incinerator, and a chemical waste disposal facility. The Parkview Landfill reached capacity in early 1994; as a result, the Orchard Ridge Landfill, located adjacent to the Parkview Landfill, opened in early 1994. The initial phase of the Orchard Ridge landfill had an estimated life of 10 years. The initial phase of the Orchard Ridge Landfill reached capacity in 2004. The Orchard Ridge Landfill expanded by 75 acres in 2004, with an estimated life of 11 years based on a design capacity of 10,917,662 cubic yards.

The Emerald Park Landfill, located on 124th Street (USH 45), one-half mile south of Loomis Road, in the southeast portion of the City of Muskego, is part of a 480-acre complex. The Emerald Park Landfill opened in 1994 and began a three-phase expansion in 1996. The Emerald Park Landfill has an estimated life of 10 years.

Recycling
Wisconsin Statutes provide for designation of "responsible units" for implementing recycling programs throughout the State. The duties of responsible units include: 1) to develop and implement a recycling or other program to manage the solid waste generated within its region, 2) to submit to the Wisconsin Department of Natural Resources a report setting forth the manner in which the responsible unit intends to implement its program, and 3) to provide information to the DNR on the status of implementation of the program. The County became a Responsible Unit for recycling for 25 municipalities and receives state grant funding (Table IV-2). The total Population served is about 272,000. The remaining 12 municipalities maintain their own Responsible Unit status and receive state funds directly.

Waukesha County has operated a processing facility for residential recyclables, the Materials Recycling Facility (MRF), since 1991. The existing facility was enlarged and updated with full paper and container sort lines in 1995. It is a dual-stream MRF, with separation of paper and containers required by residents and haulers. The County hires a private company, currently FCR, Inc., under a multi-year contract to maintain and operate the facility and process and market the recyclables. Under the current contract, the county pays a per ton processing fee and receives 50% of the revenue from sale of recyclables. Annual tonnage processed is about 24,000 tons during one shift, five days per week. An average of 90-100 tons per day of recyclables are delivered by private haulers; approximately 64% paper and 36% bottles and cans by weight. Table IV-3 presents the solid waste tonnage generated and recycled by Waukesha County municipalities in 2005.

The 25 participating municipalities are responsible for collection contracts with private haulers to collect recyclables and solid waste. Four municipalities do not have municipal contracts, instead they license haulers to provide collection and residents subscribe directly with a private hauler. Haulers in participating municipalities are directed by contract or license agreement to deliver recyclables to the County Materials Recycling Facility (MRF).

A consultant was hired in 2007 to conduct a study of long term recycling needs, including recycling processing capacity and system design, comparison of two types of collection and processing systems (existing dual vs. new single stream), per capita generation and population projections, and review of landfill diversion goals in order to increase landfill diversion and position municipalities for increasing landfill costs and reduced capacity in the future.

The study examined the recycling processing capacity of the existing dual-stream Waukesha County Materials Recycling Facility, and the forces pushing new collection and processing systems. A cost/benefit analysis of single vs. dual stream recycling systems was conducted, including collection and processing costs, and its impact on recycling participation.

The study made the following recommendations:

1. Switch the system to automated single stream recycling and trash collection to save on collection costs and increase competition.
2. Coordinate municipal collection contracts to help communities realize cost savings from automated collection.
3. Greater tons make a new single stream recycling processing facility more cost effective, therefore the county should discuss with neighboring municipalities an opportunity to develop a regional single stream MRF.

Yard Waste

Waukesha County owns property in the Town of Genesee that had been mined of gravel and sand by the County and private vendors for several decades. The mining activity had left the property in need of reclamation. To generate enough topsoil to reclaim the site, the County in 2004 initiated operation of a municipal yard waste composting facility. Through a contract with a private vendor, municipalities in the County deliver yard and wood waste to the site. The yard waste material is processed and composted. The compost material is combined with the available subsoil on-site, to create topsoil for final restoration. The project will be completed within a 10- year period. The facility has processed over 6,600 tons of yard waste per year. As of 2005, 13 municipalities have signed agreements to participate in the yard waste composting project. Other communities in the County operate their own yard waste processing and composting facilities.

Table IV-2
WAUKESHA COUNTY RECYCLING PROGRAM, PARTICIPATING COMMUNITIES: 2006

TOWN OF	VILLAGE OF	CITY OF
Brookfield	Big Bend	Brookfield
Delafield	Chenequa	Delafield
Lisbon	Dousman	New Berlin
Merton	Eagle	Oconomowoc
Oconomowoc	Elm Grove	Pewaukee
Summit	Hartland	Waukesha
Waukesha	Lac La Belle	
	Merton	
	Nashotah	
	Oconomowoc Lake	
	Pewaukee	
	Wales	

Source: Waukesha County Department of Parks and Land Use

Storm Water Management

Municipal storm water management systems are comprised of facilities that function to provide stormwater drainage, control runoff pollution and downstream flooding, and more recently, to increase infiltration of storm water. The facilities that perform these functions generally work as part of an integrated system, which ultimately connect to the streams, lakes, ponds, wetlands, and the groundwater system of the study area. Components of a storm water management system may include subsurface pipes and appurtenant inlets and outlets, streams and engineered open channels, detention basins, retention basins, pumping facilities, infiltration facilities, bioretention and constructed wetlands for treatment of runoff, and proprietary treatment devices based on settling processes and control of oil and grease. Those storm water practices that are designed to reduce water pollution are called "best management practices" (BMPs) under a variety of state and federal water pollution control regulations.

In Wisconsin, the U.S. Environmental Protection Agency has designated the Wisconsin Department of Natural Resources as the administering authority for the program to regulate storm water discharges as required under the 1972 Federal Clean Water Act. Under Chapter NR 216 Wisconsin Administrative Code, the Department administers Wisconsin Pollutant Discharge Elimination System (WPDES) permits for discharges from municipal separate storm sewer systems ("MS4 permits"). Under this program, MS4 permits were issued to 32 communities in the county in two phases. Map IV-4 shows the communities in Waukesha County that are impacted by this regulation and their MS4 permit phase. All MS4 permits have now been issued in the county, with Phase II communities permitted in the fall of 2006.

Phase 1 community discharge permits were issued for the cities of Brookfield, New Berlin, Pewaukee, and Waukesha, the Villages of Butler, Elm Grove, Menomonee Falls, Pewaukee, and Sussex, and the Towns of Brookfield, Delafield, Lisbon and Waukesha. Phase 2 community discharge permits were issued for Waukesha County, the Cities of Delafield, Muskego, and Oconomowoc, the Villages of Big Bend, Dousman, Hartland, Lannon, Merton, Mukwonago, Nashotah, North Prairie, Wales and the Towns of Genesee, Merton, Oconomowoc, Summit, and Vernon.

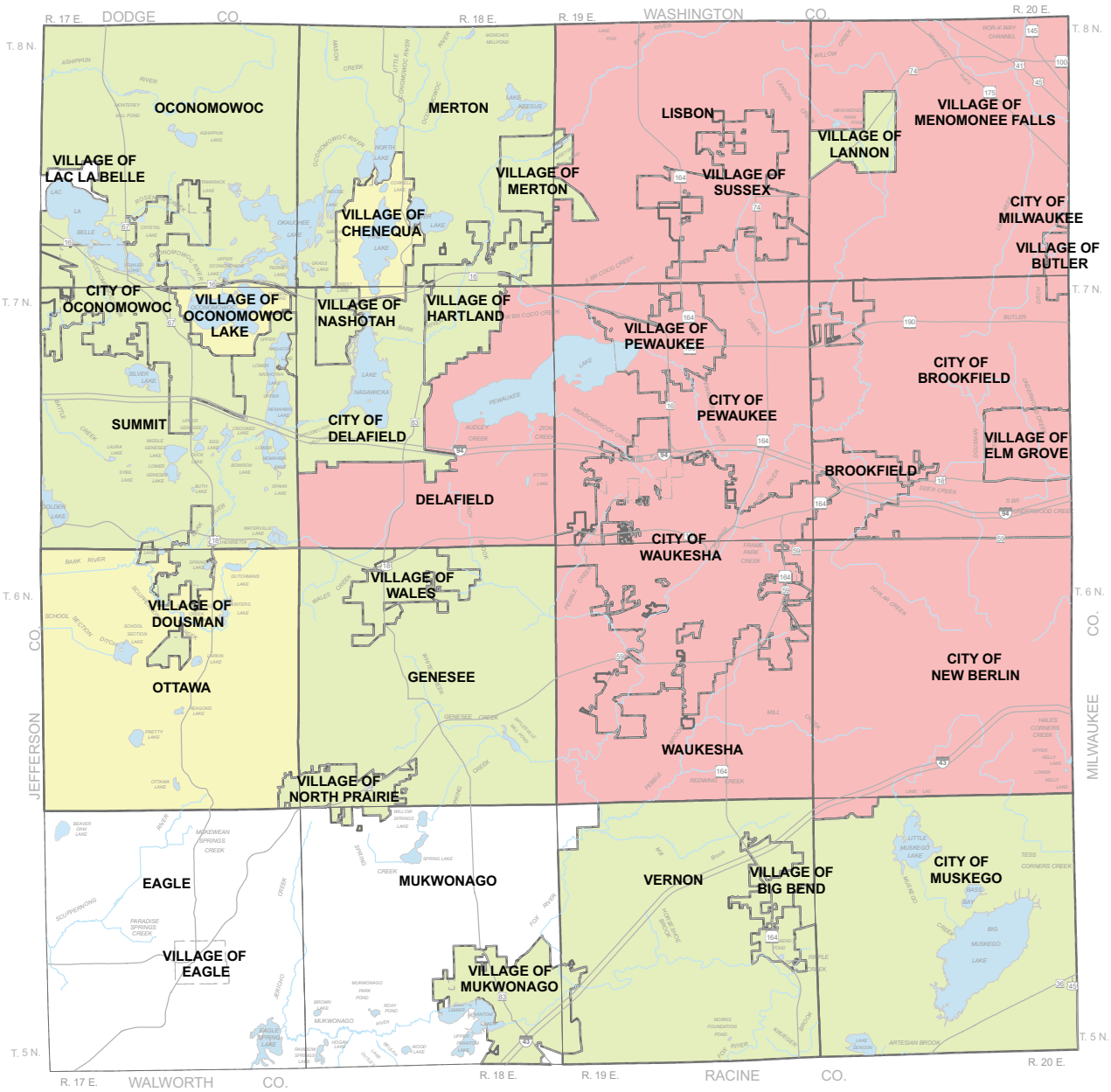
Table IV-3
WAUKESHA COUNTY MUNICIPALITIES SOLID WASTE
GENERATED AND RECYCLED IN TONS: 2005

COMMUNITY	TOTAL RECYCLED	TOTAL WASTE	PERCENT RECYCLED
CITIES			
BROOKFIELD	16,444	29,958	55%
DELAFIELD	595	2,966	20%
MUSKEGO	3,502	10,762	33%
NEW BERLIN	7,376	20,584	36%
OCONOMOWOC	2,131	6,962	31%
PEWAUKEE	2,001	7,186	28%
WAUKESHA	9,404	26,722	35%
TOWNS			
BROOKFIELD	778	2,752	28%
DELAFIELD	753	4,243	18%
EAGLE	510	2,083	24%
GENESEE	1,109	3,728	30%
LISBON	3,328	7,171	46%
MERTON	1,509	4,384	34%
MUKWONAGO	1,077	4,003	27%
OCONOMOWOC	1,110	4,368	25%
OTTAWA	412	1,588	26%
SUMMIT	542	2,656	20%
VERNON	1,339	3,211	42%
WAUKESHA	1,348	4,791	28%
VILLAGES			
BIG BEND	193	593	33%
BUTLER	311	954	26%
CHENEQUA	89	373	24%
DOUSMAN	196	820	24%
EAGLE	220	955	23%
ELM GROVE	1,519	3,788	40%
HARTLAND	984	3,682	27%
LAC LABELLE	42	179	24%
LANNON	78	298	26%
MEN. FALLS	3,722	13,684	27%
MERTON	186	1,047	18%
MUKWONAGO	909	3,116	29%
NASHOTAH	80	647	12%
NORTH PRAIRIE	288	1,018	28%
OCONOMOWOC LAKE	92	341	27%
PEWAUKEE	1,439	3,627	40%
SUSSEX	1,137	3,881	29%
WALES	322	1,309	25%
TOTAL TONS	**67,076**	**190,432**	**35%**

Source: WDNR and Waukesha County.

Map IV-4

MUNICIPAL SEPARATE STORM SEWER SYSTEM (MS4) DISCHARGE PERMITS
WAUKESHA COUNTY: 2006



Legend

- Phase I Community
- Phase II Community
- Exempted Communities
- Communities Not Subject to MS4 Permit

*Townships - Only portions meeting the Urbanized Area designation by the EPA

Source: WDNR & Waukesha County

N

0 1 2 Miles

0 4,000 8,000 12,000 16,000 Feet

Planning storm water systems by watershed area has proven to be the most cost-effective way to address storm water management issues. Land use planning plays a large role in this process because different types of land use generate widely varying quantities and quality of storm water runoff. These facts often create challenges for intergovernmental cooperation since watershed boundaries rarely follow any municipal boundaries. Due to MS4 permits and the fiscal impacts that storm water management has on local budgets in general, storm water planning has become an important function of local governments.

Some local planning efforts combine land use and storm water planning together with a review of related local regulatory and educational efforts for the purpose of protecting a particular water resource. This is called watershed protection planning. A local example of this type of planning effort is the Pebble Creek Watershed Protection Plan, which was aimed to protect a cold-water stream in the center of the county that is experiencing significant development pressures.

Storm Water Utility Districts

Long-term maintenance of storm water best management practices (BMPs) is important to ensure that they continue to function as designed. Storm water BMP maintenance may involve considerable public and private expense and is one of the requirements of community MS4 permits. In order to establish a reliable funding source to meet this need, many communities in Waukesha County and across the nation are creating storm water utility districts. These districts usually create a segregated fund to be used for storm water planning, capital improvements and maintenance work. The source of funding is usually a graduated fee applied to all lands within the district boundaries based on the amount of impervious surface present.

Public Inland Lake Protection and Rehabilitation Districts

SEWRPC defines major inland lakes as those with a surface area of 50 acres or larger, a size capable of supporting reasonable recreational use with minimal degradation of the resource. Waukesha County contains all or portions of 33 major lakes of 50 or more acres in size with a combined surface area of approximately 14,000 acres. Under Wisconsin Statute 33.22, public inland lake protection and rehabilitation districts may be created for the purpose of undertaking a program of lake protection and rehabilitation. In 2005, there were 11 lake protection districts in Waukesha County (Table IV-4).

Any district organized under state statute 33.22, may have such powers of a town sanitary district. Lake districts also have powers to enter into contracts; own property; disburse funds; and bond, borrow, and/or levy special assessments to raise money. A lake district's specific lake management powers include: 1) study of existing water quality conditions to determine the causes of existing or expected water quality problems, 2) control of aquatic macrophytes and algae, 3) implementation of lake rehabilitation techniques, including aeration, diversion, nutrient removal, dredging, sediment covering, and water drawdown, 4) construction and operation of water level control structures, and 5) control of nonpoint runoff pollution

Management of the affairs of the district is designated to a board of commissioners. The board of commissioners consists of a person appointed by the county board and three owners of property within the district. Members of the board of commissioners serve staggered three-year terms.

Table IV-4
LAKE DISTRICTS IN WAUKESHA COUNTY: 2005

District Name	Lake Size
Ashippun Lake Inland Lake Protection and Management District	84 Acres
Big Muskego/Bass Bay Lake Inland Lake Protection and Management District	2360 Acres
Eagle Spring Lake Inland Lake Protection and Management District	311 Acres
Fowler Lake Management District #2	78 Acres
Lac La Belle Inland Lake Protection and Management District	1164 Acres
Lake Keesus Inland Lake Protection and Management District	237 Acres
Little Muskego Lake Inland Lake Protection and Management District	506 Acres
Lower Genesee Lake Management District	66 Acres
Middle Genesee Lake Management District	109 Acres
North Lake Inland Lake Protection and Management District	437 Acres
Okauchee Lake Inland Lake Protection and Management District	1187 Acres
Pewaukee Lake Sanitary District	2493 Acres
Phantom Lake Inland Lake Protection and Management District	433 Acres
Pretty Lake Inland Lake Protection and Management District	64 Acres
School Section Lake Inland Lake Protection and Management District	117 Acres
Upper Nemahbin Lake Inland Lake Protection and Management District	283 Acres
Spring Brook Watershed Lake Management District – Willow Springs Lake	40 Acres

Source: Wisconsin Lake List, UW-Extension, 2005

Lake Associations
A lake association can be formed when any number of individuals concerned with lake issues decides to organize and deal with them. Many associations incorporate under Chapter 181 Wisconsin Statutes. Associations can be comprised of all or a few people living on a lake and may have members not living on the lake. Membership in associations is rarely mandatory; people may or may not decide to participate. Lake associations are run by officers elected by the membership. Associations use various fund-raising activities and voluntary dues to raise capital for their activities.

GAS AND ELECTRIC UTILITIES

WE Energies
WE Energies provides natural gas to all of Waukesha County and electric service to most of Waukesha County. With the exception of the City of Oconomowoc and a minor area surrounding the city limits, these areas are serviced by the City of Oconomowoc Electric Utility. Through expanded power production projects in Port Washington and Oak Creek, We Energies will increase total energy generation from 6,000 megawatts to 8,300 megawatts by 2010. This is crucial since the Region and state are facing an emerging electricity shortage. On average, electricity consumption increases by a rate of 2.5 to 3 percent per year due to population growth, business expansion, and higher usage among all customer segments. Projections show that Wisconsin will require an additional 7,000 megawatts of electricity in 2016 to keep pace with increasing demand. Because other areas of the country are facing the same supply situation, purchasing power is not a future option due to limited supplies and the need for an improved transmission line grid.

Oconomowoc Electric Utility
The City of Oconomowoc serves it residents and a minor area surrounding the City with electricity. This municipal utility serves approximately 10,000 people.

American Transmission Company
The electric system is comprised of three components: generating plants, transmission lines and distribution facilities. American Transmission Company is a public utility that owns and operates the transmission system,

which carries electricity from generating plants to load centers or areas where a considerable amount of electricity is needed. American Transmission Company delivers transmission power in southeastern Wisconsin with various transmission facilities including:

- North-south 345-kV lines extending from Edgewater, Point Beach and Sheboygan Energy power plants
- 345-kV lines from Pleasant Prairie Power Plant
- 345-kV, 230-kV and 138-kV lines from Oak Creek Power Plant and numerous 138-kV lines in and around metro Milwaukee

In 2006, American Transmission Company completed a ten year assessment. They identified low voltages, transmission facility overloads, and transmission service limitations in southeastern Wisconsin. Specifically, one area identified as vulnerable to low voltages is west of Milwaukee. These low voltages are mainly caused by low probability outages at substations. The low-voltage situation west of Milwaukee is an indication that load growth will exceed the load-serving capabilities of the 138-kV network serving that area, and the existing network will be insufficient without significant reinforcements. Currently, the City of Waukesha is most vulnerable to facility overloads and low voltages are a system limitation in Hartland, Menomonee Falls, and Delafield.

SCHOOL DISTRICTS

Public School Districts and Private Schools

Twenty public school districts and 54 private schools operate within the boundaries of Waukesha County (Map IV-5 and Table IV-6).

School Age Population Projections

Wisconsin Department of Public Instruction projections show that the school age population in Waukesha County will increase from 82,090 in 2005 to 86,700 in 2030 resulting in a 5 percent increase (Table IV-5). However, the projected school age population projections will decrease between 2005 and 2015 and begin to increase slowly after this period. This projection is lower than the projected intermediate population growth from 377,365 in 2005 to 440,289 in 2030 resulting in an increase of 14 percent. This is the result of a continuing trend of declining household size and a population that continues to grow older.

State Pre-Kindergarten Programs

The 4-year-old kindergarten program is organized by school districts to provide educational experience for 4-year-old children. Twenty-five percent of school districts in Wisconsin offer this program, which serves over 16,500 four year old children from throughout the state. Teachers for this program must possess a Pre K-3 certification or a Pre K-6 certification.

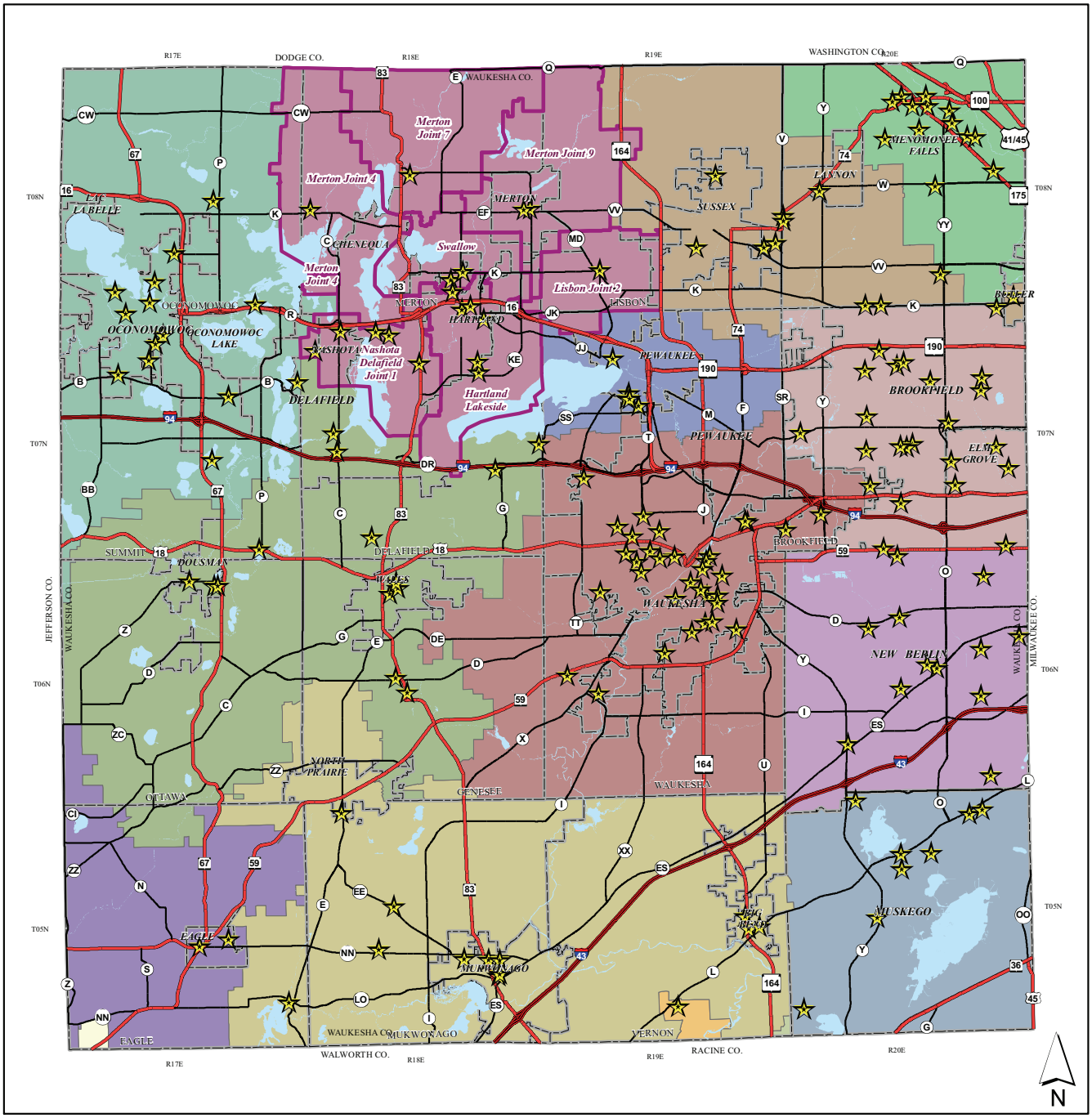
Table IV-5
SCHOOL AGE POPULATION PROJECTIONS FOR WAUKESHA COUNTY: 2005-2030

Age Group	2005	2010	2015	2020	2025	2030
5-9	26,237	25,444	25,796	26,792	28,343	28,894
10-14	27,986	27,764	26,871	27,244	28,478	29,968
15-19	27,867	27,232	27,033	26,182	26,752	27,838
Total	**82,090**	**80,440**	**79,700**	**80,218**	**83,573**	**86,700**

Source: Wisconsin Department of Public Instruction, 2005

Map IV-5

PUBLIC AND PRIVATE SCHOOLS IN WAUKESHA COUNTY: 2006



Legend

- *Interstate*
- *US*
- *State*
- *County*
- *Major Water Body*
- *Civil Division Boundary*

K-12 and Union School Districts

- *Arrowhead Union*
- *East Troy*
- *Elmbrook*
- *Hamilton*
- *Kettle Moraine*
- *Menomonee Falls*
- *Mukwonago*
- *Muskego Norway*
- *New Berlin*
- *Norris*
- *Oconomowoc*
- *Palmyra Eagle*
- *Pewaukee*
- *Waterford Union*
- *Waukesha*

Source: Waukesha Co. Tax Listing

Public or Private School Building

Road Labels

Arrowhead Elementary Districts

0 1 2 4 Miles

Civil Divisions as of 12/31/06
Prepared by Waukesha Co.
Dept. of Parks and Land Use

Table IV-6
PUBLIC AND PRIVATE SCHOOLS AND SCHOOL DISTRICTS, WAUKESHA COUNTY: 2006-2007

Public Schools	Grades	Enrollment	Address
Arrowhead UHS School District			
Arrowhead High	9-12	2,344	700 North Ave, Hartland
Elmbrook School District			
Brookfield Elementary	K4-5	492	2530 N Brookfield Rd, Brookfield
Burleigh Elementary	K4-5	762	16185 Burleigh Pl, Brookfield
Central High	9-12	1,414	16900 West Gebhardt Rd, Brookfield
Dixon Elementary	KG-5	445	2400 Pilgrim Square Dr, Brookfield
East High	9-12	1,392	3305 North Lilly Rd, Brookfield
Fairview South	02	19	3525 Bermuda Blvd, Brookfield
Hillside Elementary	KG	388	2250 Lynette Ln, Brookfield
Pilgrim Park Middle	6-8	878	1500 Pilgrim Pkwy, Elm Grove
Swanson Elementary	KG	617	305 N Calhoun Rd, Brookfield
Tonawanda Elementary	KG	397	13605 Underwood River Pkwy, Elm Grove
Wisconsin Hills Middle	6-8	855	18700 W Wisconsin Ave, Brookfield
Hamilton School District			
Hamilton High	9-12	1,279	W220N6151 Town Line Rd, Sussex
Lannon Elementary	KG-5	271	7145 N Lannon Rd, Lannon
Maple Avenue Elementary	KG-5	466	W240N6059 Maple Ave, Sussex
Marcy Elementary	KG-5	463	W180N4851 Marcy Rd, Menomonee Falls
Passage Middle School	7-9	Not Reported	9501 W Watertown Plank Rd, Wauwatosa
Templeton Middle	6-8	954	N59W22490 Silver Spring Dr, Sussex
Willow Springs Learning Ctr	K4-PK	262	W220N6660 Town Line Rd, Menomonee Falls
Woodside Elementary	KG-5	656	W236N7465 Woodside Rd, Sussex
Hartland-Lakeside J3 Sch Dis			
North Elementary	K4-5	446	232 Church St, Hartland
North Shore Middle	6-8	452	800 N Shore Dr, Hartland
South Elementary	K4-5	506	651 E Imperial Dr, Hartland
Kettle Moraine School District			
Cushing Elementary	PK-5	489	227 N Genesee St, Delafield
Dousman Elementary	PK-5	556	341 E Ottawa Ave, Dousman
Kettle Moraine High	9-12	1,483	349 N Oak Crest Dr, Wales
Kettle Moraine Middle	6-8	1,033	301 E Ottawa Ave, Dousman
Magee Elementary	PK-5	318	PO Box 37, Genesee Depot
Wales Elementary	PK-5	537	219 N Oak Crest Dr, Wales
Lake Country School District			
Lake Country School	PK-8	517	1800 Vettelson Rd, Hartland
Menomonee Falls Sch Dis			
Benjamin Franklin Elementary	PK-5	874	N81W14701 Franklin Dr, Menomonee Falls
Menomonee Falls High	9-12	1,245	W142N8101 Merrimac Dr, Menomonee Falls
North Jr Campus	8-9	723	N88W16750 Garfield Dr, Menomonee Falls
Riverside Elementary	PK-5	331	W153N8681 Margaret Rd, Menomonee Falls
Shady Lane Elementary	PK-5	394	W172N8959 Shady Ln, Menomonee Falls
Thomas Jefferson Middle	6-7	712	W165N8301 Lavergne Ave, Menomonee Falls
Valley View Elementary	PK-5	319	W180N8130 Town Hall Rd, Menomonee Falls
Merton Community School District			
Merton Intermediate	4-8	501	PO Box 15, Merton
Merton Primary	K4-3	498	PO Box 15, Merton
Mukwonago School District			
Big Bend Elementary	PK-6	453	W230S8695 Big Bend Dr, Big Bend
Clarendon Avenue Elementary	PK-6	543	915 Clarendon Ave, Mukwonago

Eagleville Charter School	1-6	122	S101 W34511 Hwy LO
Mukwonago High	9-12	1,732	605 W School Rd, Mukwonago
Park View Middle	7-8	816	930 N Rochester St, Mukwonago
Prairie View Elementary	PK-6	443	W330S6473 Highway E, North Prairie
Rolling Hills Elementary	PK-6	578	W322 S9230 Beulah Road, Mukwonago
Section Elementary	PK-6	397	W318S8430 County Road EE, Mukwonago
Muskego-Norway School District			
Bay Lane Middle	5-8	656	S75W16399 Hilltop Dr, Muskego
Country Meadows Elementary	PK-4	290	S75W16399 Hilltop Dr, Muskego
Lake Denoon Middle	5-8	774	W216S10586 Crowbar Drive, Muskego
Lakeview Elementary	PK-4	411	26335 Fries Ln, Wind Lake
Mill Valley Elementary	PK-4	343	W191S6445 Hillendale Dr, Muskego
Muskego Elementary	PK-4	240	S75W17476 Janesville Rd, Muskego
Muskego High	9-12	1,753	W183S8750 Racine Ave, Muskego
Tess Corners Elementary	PK-4	403	W147S6800 Durham Dr, Muskego
New Berlin School District			
Eisenhower Middle/High	7-12	1,253	4333 S Sunnyslope Rd, New Berlin
Elmwood Elementary	PK-6	551	5900 S Sunnyslope Rd, New Berlin
Glen Park Elementary	PK-6	317	3500 S Glen Park Rd, New Berlin
New Berlin Middle/High	7-12	1,079	18695 W Cleveland Ave, New Berlin
Orchard Lane Elementary	PK-6	379	2015 S Sunnyslope Rd, New Berlin
Poplar Creek Elementary	PK-6	471	17401 W Cleveland Ave, New Berlin
Ronald Reagan Elementary	PK-6	618	4225 S Calhoun Rd, New Berlin
Norris School District			
Norris High	6-12	78	W247S10395 Center Rd, Mukwonago
North Lake School District			
North Lake Elementary	PK-8	355	PO Box 188, North Lake
Oconomowoc Area School District			
Greenland Elementary	K4-6	467	440 Coolidge St, Oconomowoc
Ixonia Elementary	K4-6	194	N8425 North St, Ixonia
Meadow View Elementary	K4-6	519	W360N7077 Brown St, Oconomowoc
Oconomowoc High	9-12	1,494	641 E Forest St, Oconomowoc
Oconomowoc Middle	6-8	696	623 E Summit Ave, Oconomowoc
Park Lawn Elementary	K4-6	531	300 Parklawn St, Oconomowoc
Summit Elementary	K4-6	562	1680 Valley Rd, Oconomowoc
Pewaukee School District			
Asa Clark Middle	7-8	330	472 Lake St, Pewaukee
Horizon School	4-6	449	458 Lake St, Pewaukee
Pewaukee High	9-12	743	510 Lake St, Pewaukee
Pewaukee Lake Elementary	PK-3	669	436 Lake St, Pewaukee
Richmond School District			
Richmond Elementary	K4-8	453	N56W26530 Richmond Rd, Sussex
Stone Bank School District		330	
Stone Bank Elementary	KG-8	330	N68W33866 County Rd K, Oconomowoc
Swallow School District			
Swallow Elementary	PK-8	502	W299N5614 Highway E, Hartland
Waukesha School District			
Banting Elementary	K4-6	497	2019 Butler Dr, Waukesha
Bethesda Elementary	PK-6	543	730 S University Dr, Waukesha
Blair Elementary	K4-6	340	301 Hyde Park Ave, Waukesha
Butler Middle	7-8	610	310 N Hine Ave, Waukesha
Central Middle	7-8	661	400 N Grand Ave, Waukesha
Hadfield Elementary	K4-6	349	733 Linden St, Waukesha

Harvey Philip Alt Charter School	9-12	85	621 W College Ave, Waukesha
Hawthorne Elementary	PK-6	308	1111 Maitland Dr, Waukesha
Heyer Elementary	PK-6	459	1209 Heyer Dr, Waukesha
Hillcrest Elementary	PK-6	352	2200 Davidson Rd, Waukesha
Horning Middle	7-8	593	2000 Wolf Rd, Waukesha
iQ Academies of Wisconsin	9-12	739	222 Maple Ave, Waukesha
Lowell Elementary	PK-6	418	140 N Grandview Blvd, Waukesha
Meadowbrook Elementary	PK-6	358	3130 Rolling Ridge Dr, Waukesha
North High	9-12	1,265	2222 Michigan Ave, Waukesha
Pleasant Hill Elementary	PK-6	183	175 S Barker Rd
Prairie Elementary	PK-6	410	1801 Center Rd, Waukesha
Project Change	9-12	3	111 E Main St, Waukesha
Randall Elementary	PK-6	360	114 S Charles St, Waukesha
Rose Glen Elementary	PK-6	556	W273S3845 Brookhill Dr, Waukesha
Saratoga Elementary	K4-6	261	130 Walton Ave, Waukesha
South High	9-12	1,353	401 E Roberta Ave, Waukesha
Summit View Elementary	PK-6	628	2100 Summit Ave, Waukesha
Waukesha Acad Health Profs	9-10	Not Reported	401 E Roberta Ave, Waukesha
West High	9-12	1,548	3301 Saylesville Rd, Waukesha
White Rock Elementary	KG-6	341	1150 Whiterock Ave, Waukesha
Whittier Elementary	PK-6	357	1103 S East Ave, Waukesha

Private Schools	**Grades**	**Enrollment**	**Address**
Arrowhead UHS School District			
University Lake School	PK-12	339	4024 Nagawicka Rd, Hartland
Elmbrook School District			
Brookfield Academy	PK-12	759	3460 N Brookfield Rd, Brookfield
Christ the Lord Ev Luth School	PK-8	92	1650 N Brookfield Rd, Brookfield
Elm Grove Lutheran School	PK-8	144	945 North Terrace Drive, Elm Grove
Heritage Christian Elementary	PK-5	317	1275 S Elm Grove Rd, Brookfield
Immanuel Lutheran School	PK-8	168	13445 Hampton Rd, Brookfield
Milw/Brookfield Christian School	PK-8	155	14155 W Burleigh Rd, Brookfield
St Dominic Catholic Gr School	PK-8	396	18105 West Capitol Dr, Brookfield
St. John Vianney Gr School	PK-8	514	17500 Gebhardt Rd, Brookfield
St. Luke Catholic School	PK-8	178	18000 Greenfield Ave, Brookfield
St. Mary Grade School	KG-8	359	13000 Juneau Blvd, Elm Grove
Hamilton School District			
Peace Lutheran Academy	PK-8	46	W240N6145 Maple Ave, Sussex
Pilgrim Evang Lutheran School	KG-8	69	W156N5429 Bette Dr, Menomonee Falls
St. Agnes Catholic Grade School	PK-8	163	
St. Johns Luth Grade School	KG-8	149	20813 Forest View Dr, Lannon
Zion Lutheran Grade School	PK-8	50	W188N4868 Emerald Hills Dr, Menomonee Falls
Hartland-Lakeside J3 Sch Dis			
St. Charles Grade School	KG-8	208	526 Renson Rd, Hartland
Zion Lutheran School	PK-8	70	1023 E Capitol Dr, Hartland
Kettle Moraine School District			
Abundant Life Christian Acad	KG-12	33	995 S Sawyer Rd, Oconomowoc
Lakewood School	UE-US	43	PO Box 15, Dousman
Prairie Hill Waldorf School	PK-08	209	N14S29143 Silvernail Rd, Pewaukee
St. Anthony Grade School	KG-8	201	W280N2101 Highway SS, Pewaukee
St. Bruno Grade School	PK-8	116	266 W Ottawa Ave, Dousman
St. Paul Grade School	KG-8	166	S38W31602 Hwy, Genesee Depot
St. Johns NW Military Academy	7-12	309	1101 N Genesee St, Delafield

Lake Country School District			
Country Christian School	PK-8	172	4476 Lakeland Dr, Nashotah
Divine Redeemer Luth School	PK-8	365	31385 Hill Rd, Hartland
St. Joan of Arc School	PK-8	137	120 Nashotah Rd, Nashotah
Menomonee Falls School District			
Bethlehem Evang Lutheran Sch	5-8	99	N108W14290 Bel Aire La, Germantown
Calvary Baptist School	5-8	256	N84W19049 Menomonee Ave, Menomonee Falls
Falls Baptist Academy	KG-12	116	N69W12703 Appleton Ave, Menomonee Falls
Grace Evang Lutheran School	PK-8	223	N87W16171 Kenwood Blvd, Menomonee Falls
Isa Inc/Aquinas Academy	PK-6	Not reported	N72W15935 Good Hope Rd, Menomonee Falls
St. Anthony Grade School	PK-8	195	N74W13604 Appleton Ave, Menomonee Falls
St. Mary Grade School	PK-8	353	N89W16297 Cleveland Ave, Menomonee Falls
Mukwonago School District			
Christ Lutheran School	PK-8	97	W229S8930 Clark, Big Bend
Rooster Loft Montessori Children	PK-KG	6	W243S7125 Cameron Dr, Waukesha
St. James Grade School	PK-8	148	830 Co Hwy NN East, Mukwonago
St. Johns Lutheran School	PK-8	118	410 County Road NN East Unit 3, Mukwonago
St. Joseph Grade School	PK-8	139	W227S8930 St. Joseph Dr, Big Bend
St. Pius V Catholic School	PK-8	Not reported	425 Grand Avenue, Mukwonago
Muskego-Norway School District			
St. Leonard School	KG-8	199	W173S7777 Westwood Dr, Muskego
St. Pauls Lutheran School	PK-8	278	S66W14325 Janesville Rd, Muskego
New Berlin School District			
Holy Apostles Grade School	KG-8	487	16010 W National Ave, New Berlin
Star of Bethlehem Evang Luth	PK-8	184	3700 South Casper Dr, New Berlin
Oconomowoc Area School District			
Holy Trinity Evan Luth School	PK-8	104	N49W35199 E Wisconsin Ave, Okauchee
Impact Sch of Oconomowoc Inc	PK-8	22	206 W Jefferson, Oconomowoc
Lake Country Lutheran Hi School	9-12	184	1101 S Silver Lake, Oconomowoc
Oconomowoc Dvlp Training Ctr	1-US	119	36100 Genesee Lake Rd, Oconomowoc
St. Jerome Parish School	PK-8	327	1001 S Silver Lake St, Oconomowoc
St. Pauls Evan Lutheran School	PK-8	168	210 E Pleasant St, Oconomowoc
St Matthew Lutheran School	PK-8	149	818 West Wisconsin Ave, Oconomowoc
Pewaukee School District			
Queen of Apostles School	PK-8	164	449 West Wisconsin Ave, Pewaukee
Trinity Academy	KG-12	157	Pewaukee
Waukesha School District			
Beautiful Savior Lutheran School	PK-8	74	1205 S East Ave, Waukesha
Catholic Memorial High	9-12	732	601 E College Ave, Waukesha
Lake Country Montessori	PK-KG	32	3031 Summit Ave, Waukesha
Montessori School of Waukesha I	PK-8	197	2600 Summit Ave, Waukesha
Mount Calvary Lutheran School	PK-8	189	1941 Madison St, Waukesha
St Joseph Middle	6-8	238	818 N East Ave, Waukesha
St Mary Grade School	PK-5	323	520 E Newhall Ave, Waukesha
St William Campus WCSS	PK-5	173	444 N Moreland Blvd, Waukesha
Trinity Lutheran School	PK-8	244	1060 White Rock Ave, Waukesha
Waukesha Christian Academy	KG-12	70	W271S2470 Merrill Hills Rd, Waukesha
West Suburban Christian Academy	PK-8	310	1615 Silvernail Rd, Waukesha

Source: Wisconsin Department of Public Instruction, 2007

Colleges and Universities
Cardinal Stritch University, Carroll College, the Keller Graduate School of Management, Ottawa University, the University of Phoenix, the University of Wisconsin-Waukesha, Upper Iowa University, and Waukesha County Technical College offer associate or bachelor degrees at locations in Waukesha County. In addition, the University of Wisconsin-Whitewater and the University of Wisconsin-Milwaukee provide Master of Business Administration (MBA) Degree programs at UW-Waukesha. The University of Phoenix and the Keller Graduate School of Management also offer graduate degrees at locations within the county. In addition, the University of Wisconsin Cooperative Extension through a partnership with Waukesha County provides university outreach and life long learning opportunities to residents of Waukesha County.

LIBRARIES

Waukesha County Federated Library System
Sixteen public libraries operate in Waukesha County. They are all members of the Waukesha County Federated Library System. These libraries are located within the Cites of Brookfield, Delafield, Muskego, New Berlin, Oconomowoc, and Waukesha; the Villages of Big Bend, Butler, Eagle, Elm Grove, Hartland, Menomonee Falls, Mukwonago, Pewaukee, and Sussex, and the Town of Merton. The libraries in the federated system serve the needs of all library and non-library communities within the county.

In 2002, the Waukesha Federated Library System conducted a countywide telephone survey of residents that used at least one of the libraries in Waukesha County. This survey replicated a national survey conducted by the American Library Association. Some of the key survey findings are noted below:

- Almost 45% of the respondents had used a library within Waukesha County more than 11 times in the past year compared to 25% nationally.
- Individuals use from home of a computerized library catalog was only 11% in Waukesha County and 46% nationally. (Note that fewer libraries have web accessible catalog in Waukesha County).
- Waukesha County residents reported use of a computer in the library at a 59% rate compared to 31% nationally.
- Nearly 83% of Waukesha County residents were either extremely satisfied or very satisfied with their public library. That compared to 60% of U.S library users.
- Nearly 88% of Waukesha County residents rated their library's use of tax funds as good or excellent, comparable to the rate found nationally.
- Nearly 80% of those that responded in Waukesha County thought that $26 per capita or more was a proper amount of library taxes to pay. That compared to 52% nationally.
- In Waukesha County, 95% of respondents believe that libraries will continue to exist despite the Internet. That compares to 91% nationally.

In 2006, the Waukesha County Board of Supervisors appointed a long term library planning committee pursuant to the provisions of Wisconsin Act 150. The Committee report concluded that it was not cost effective to consolidate any of the 16 libraries within the County. The planning recommendations can be found at http://www/wcfls.lib.wi.us/150/index.htm.

CEMETERIES

Waukesha County has a total of 74 cemeteries, which includes mausoleums. Fifty-seven of these cemeteries, or 77 percent, are less than 5 acres in size. The remaining 17 cemeteries are five acres in size or larger. In addition, the State Historical Society of Wisconsin lists four historic burial mound sites within the County. Additional information on the cultural resources within Waukesha County is presented in Chapter 3 and Appendix B.

HEALTHCARE FACILITIES

Waukesha County has five operating hospitals that provide care to county residents (See Table IV-7). In addition, over 600 physicians practicing in Waukesha County provide a variety of healthcare services for residents. Aurora Healthcare is in the process of developing a new 110-bed hospital in the Town of Summit near Interstate I-94.

Table IV-7
HOSPITALS IN WAUKESHA COUNTY: 2006

Name of Hospital	City	Number of Beds
Waukesha Memorial Hospital	Waukesha	400
Community Memorial Hospital	Menomonee Falls	208
Elmbrook Memorial Hospital	Brookfield	166
Oconomowoc Memorial Hospital	Oconomowoc	130
Rogers Memorial Hospital	Oconomowoc	90
Total		**994**

CHILDCARE FACILITIES

Adequate childcare facilities are necessary in order to provide maximum participation in the county labor force. In order to become a child care provider in Wisconsin, you must obtain a certificate, unless you are a relative of the child. There are several qualifications a person must meet to become a certified childcare provider. They include:

- Must be at least 18 years of age.
- Written verification of negative TB test.
- References regarding his/her child care abilities.
- Agency and Police Background check on all household members.
- In-Home inspection to insure the safeness of the home facility for child care.
- If all requirements are met, a provisional certification will be issued.
- A regular certification will be issued if the day care provider chooses to take a 15-hour course in childcare.
- Recertification will be done every two years after the initial certification is issued.

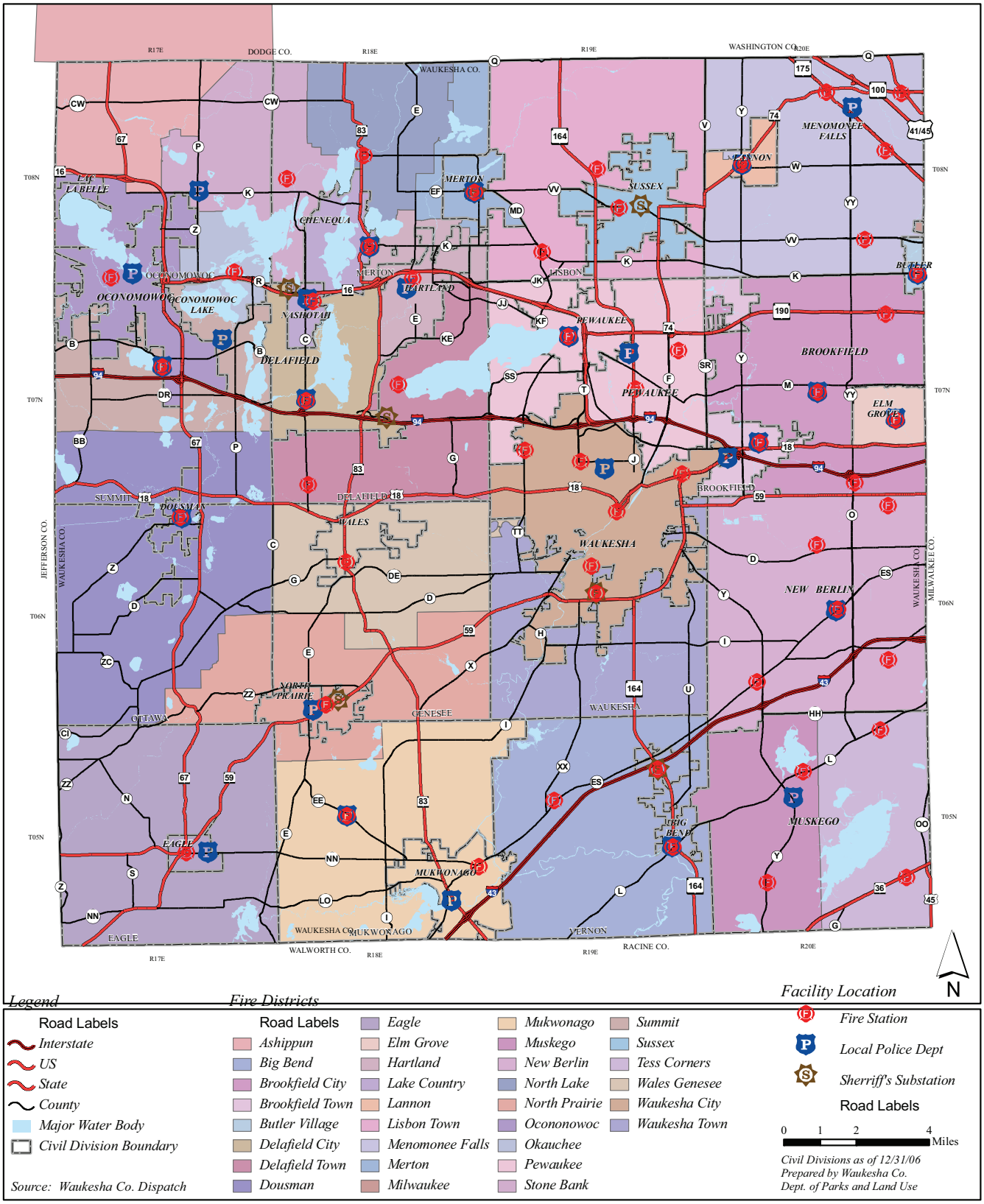
The Bureau of Regulation and Licensing (BRL) in the Division of Children and Family Services is responsible for licensing and regulating child care centers, residential care facilities for children and private child welfare agencies in Wisconsin. More information on licensed childcare facilities can be found at http://www.dhfs.state.wi.us/rl_dcfs/index.htm.

PUBLIC SAFETY

Fire Departments and Emergency Medical Services

Waukesha County has 30 fire departments (Map IV-6). Municipalities operate twenty-four (24) of these departments and six (6) are privately managed. The majority of these fire departments rely on volunteers, paid on call, or a combination of the two. These 30 fire departments have 51 fire stations within the County, with 90 fire engines, 20 ladder trucks, and 64 ambulances. These fire departments serve areas from 1 square mile to 57 square miles ranging in populations of 1,000 residents to over 65,000 residents. In 2003, there were approximately 6,500 fire calls within the County and an additional 19,000 Emergency Medical Service (EMS) calls. Within the County, the Cities of Brookfield, Delafield, New Berlin, and Waukesha; the Villages of Big Bend/Vernon, Elm Grove, and Mukwonago; and the Town of Brookfield provide paramedic services. Discussions continue among several municipalities in the County regarding the appropriateness of I-99 advanced life support service versus paramedic service. I-99 service is just below the paramedic level. I-99's are able to administer certain cardiac

Map IV-6
FIRE STATIONS, LOCAL POLICE DEPARTMENTS AND SHERIFF SUBSTATIONS IN WAUKESHA COUNTY: 2006



drugs via IV's. The IV Tech, also known as the Intermediate Technician can start IV's, however they are only authorized to administer certain fluids, such as dextrose and glucagons. The IV Techs do not have the authority to administer cardiac drugs. Waukesha County contracts with the City of Waukesha to provide HAZMAT (Hazardous Materials) services to all communities within Waukesha County.

Full-Time Fire Department/District

A municipality may by ordinance establish a full-time fire department. A full-time department provides around the clock service seven days a week using full-time professional fire fighters. Only the Cities of Brookfield and Waukesha have full-time fire departments in Waukesha County.

Combination Full-time, Part-time Volunteer Fire Department/District

A combination fire department consists of at least one full-time staff and other staff serving in a part-time, volunteer, or paid-per call capacity. The average population of a community with a combination fire department in Wisconsin is 12,269. The Cities of Delafield, New Berlin, Oconomowoc, and Pewaukee, the Villages of Big Bend/Town of Vernon, Dousman, Eagle, Hartland, Menomonee Falls, Mukwonago, Sussex and Wales/Town of Genesee and the Towns of Brookfield, Delafield, Lisbon, and Waukesha operate combination fire departments in Waukesha County.

Volunteer Fire Department

Volunteer fire departments are the most common method of fire protection in Wisconsin. A volunteer department has no full-time paid staff. The volunteers may receive a minimal stipend when responding to calls. In Waukesha County, Ashippun, Stone Bank, the Villages of Chenequa, Elm Grove, Lannon, Nashotah, and North Prairie, and the Town of Summit operate volunteer fire departments.

Private Fire Companies

Municipalities can contract with private fire companies for fire protection services. Contracts can be written in several ways. In some cases, the municipality owns the fire equipment and buildings housing the equipment, while the company provides the personnel. In other situations, a municipality might own the fire station, while the company provides the equipment and personnel. Private fire companies in Waukesha County serve the Village of Butler, Merton, North Lake, the City of Muskego, Tess Corners, and Okauchee.

Private fire companies can be organized in four ways:

- As a volunteer fire company under ch. 213, Wisconsin Statutes
- As a nonprofit corporation organized under ch. 181, Wisconsin Statutes
- As a business corporation organized under ch. 180 Wisconsin Statutes
- As a non-profit association organized under ch. 184, Wisconsin Statutes

Law Enforcement Departments

Twenty-four municipal police departments, the Waukesha County Sheriffs Department, and the Wisconsin State Patrol provide law enforcement services to Waukesha County residents. The Cities of Brookfield, Delafield, Muskego, Pewaukee, New Berlin, Oconomowoc, and Waukesha; the Villages of Big Bend, Butler, Chenequa, Dousman, Eagle, Elm Grove, Hartland, Lannon, Lisbon, Mukwonago, North Prairie, Oconomowoc Lake, and Pewaukee; and the Towns of Brookfield, Mukwonago, Oconomowoc, and Summit all operate municipal police departments. In 2005, the Waukesha County Sheriffs Department contracted to provide law enforcement services to the Villages of Merton and Sussex and the Towns of Merton and Waukesha. Waukesha County pays for light coverage by the Waukesha County Sheriff's Department in the Towns of Delafield, Eagle, Genesee, Lisbon, Ottawa, and Vernon and the Villages of Lac La Belle and Nashotah.

The Waukesha County Sheriff's Department Jail Division operates the Waukesha County Jail and Huber Facility. In 2005, these correctional facilities housed an average of 333 inmates a day at the jail and 269 inmates at the Huber facility. The jail division booked 9,310 inmates in 2005. Corrections make up nearly 43 percent of the $28

million dollar Waukesha County Sheriff's Department budget. Patrol is the second highest expenditure making up nearly 29 percent of the total budget.

Shared Dispatch

In 2005, Waukesha County began shared dispatch where 911 police, fire, and emergency management calls for service go to the County's central communication center in Waukesha. In addition, all 911 calls made from cell phones in Waukesha County go directly to the Waukesha County Central Communication Center. Currently, 24 of 37 communities participate in shared dispatch. The Cities of Brookfield, Delafield, and Pewaukee; the Villages of Butler, Chenequa, Dousman, Eagle, Hartland, Lac La Belle, Merton, Nashotah, North Prairie, Oconomowoc Lake, Pewaukee, Sussex, and Wales; and the Towns of Brookfield, Delafield, Genesee, Lisbon, Merton, Ottawa, Summit, and Waukesha participate in shared dispatch.

IMPLEMENTATION RECOMMENDATIONS

1. The County should work with the Southeastern Wisconsin Regional Planning Commission (SEWRPC) as part of the regional water supply planning process to identify groundwater aquifers that can sustain planned development.

2. The County should consider modifying its Park and Open Space Planning process to identify lands that may need to be preserved for municipal groundwater supplies, specifically meeting the use isolation distances required for high capacity wells.

3. Municipalities should be encouraged to work on a county-wide basis to plan for the future placement and current use of emergency service facilities to optimize emergency response times and to eliminate overlap of service areas and equipment.

4. Since watershed boundaries rarely follow municipal boundaries, municipalities and Waukesha County should work to develop storm water system plans based on watershed areas.

5. Where unique surface water resources exist in Waukesha County (Outstanding or Exceptional Resource Waters or Cold Water Streams), local and County planning efforts should combine land use and storm water planning together with a review of related local regulatory and educational efforts to prepare watershed protection plans.

6. Waukesha County, in cooperation with SEWRPC and local municipalities, should develop a long-range wireless facilities plan to enhance business competitiveness, public safety and government communications.

7. School Districts should be encouraged to work with Waukesha County to use the demographic data and land use projections contained in this Plan for facility and sub-district planning. Often, School Districts are in a reactionary mode in responding to increases and decreases in the school age population. The population and trend data as well as the land use projections contained in a comprehensive development plan can be invaluable information to forecast facility demands for the school age population. In addition, it is suggested that school districts use the information contained in this Plan as baseline and conduct an annual assessment of actual enrollment to verify projections contained in this Plan.

8. In 2000, the Waukesha County Land Development Workgroup, consisting of many of the municipalities in the County, addressed several issues created by current land division and development processes. The goal was to create a consistent definition for land development projects to be considered subdivisions as well as a uniform checklist for the review of subdivisions. Municipalities in the County should continue to consistently use and cooperatively amend the review checklist as necessary.