CITY OF PEWAUKEE

COMPREHENSIVE PLAN FOR THE YEAR 2035

ADOPTED BY THE CITY PLAN COMMISSION ON MARCH 19, 2009

ADOPTED BY THE CITY COMMON COUNCIL ON APRIL _____, 2009

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Appendix A Waukesha County Park and Open Space Plan
(In a separate document)

Appendix B Cultural Resources
(In a separate document)

Appendix C Waukesha County Housing Conditions by Community, 2007
(In a separate document)

Chapter 1

INTRODUCTION

In 1928, the U.S. Department of Commerce institutionalized comprehensive planning in the Standard City Planning Enabling Act. Since this time, communities across the country and state have engaged in planning processes. By 1998, twenty nine percent of all Wisconsin communities had an adopted land use or comprehensive plan. The comprehensive planning process allows local governments to think strategically about their communities and how they interact. Comprehensive planning is an orderly approach to help identify local needs and provide an official statement of land use policies, along with information needed to support and validate those policies. The plan serves as a framework for establishing and administering sound land use regulations and serves as a useful decision making tool for local government, citizens, and businesses.

BACKGROUND

In the 1990's, many cities, villages and towns in Waukesha County prepared local comprehensive plans or land use plan components. As indicated in Table I-1, 34 of the 37 towns, villages and cities have prepared a comprehensive "master" plan or the land use element of such a plan. In 1992, Waukesha County, through the assistance of the Southeastern Wisconsin Regional Planning Commission (SEWRPC), began the preparation of the first county development plan. This four year planning process, under the direction of the Waukesha County Development Plan Advisory Committee, conducted extensive inventories and analysis of factors and conditions affecting the physical development of Waukesha County. These included inventories and analyses of demographics, economics, housing, natural resources, land uses, transportation and public utilities, and existing community plans and regulations. The planning program further involved the formulation of development objectives, principles, and standards; the design of a land use plan and supporting housing, transportation, and park and open space plan elements; and the identification of measures to implement the plan effectively. The Comprehensive Development Plan for Waukesha County incorporated the comprehensive plans that were adopted by towns, villages and cities that were found to be consistent with the objectives established by the county advisory committee. This process resulted in a plan that was adopted in November 1996 and became effective on January 1, 1997.

PLANNING BENEFITS

Comprehensive development planning has many benefits. A formal planning process provides a community with an opportunity to focus on the future and establish community goals, objectives, and policies regarding future use, physical development and conservation of land. With clear goals, local government officials often make decisions that are in the best interest of citizens or the future of the community. Finally, comprehensive planning allows for continuity throughout a community by determining where a community is at the present, how did the community get to this point, where does the community want to go, and how will it get there.

Coordinated comprehensive planning among municipalities provides several benefits, including:

1. All units of government benefit from the updated demographic and growth information and how it relates to economic forecasting and development trends.
2. It is cost-effective to coordinate. Coordinated planning reduces the need for each municipality to complete all of the elements of a comprehensive land use plan.
3. Participating entities all have active roles in the planning process.
4. A coordinated planning process offers greater opportunity for public input.
5. A coordinated planning process makes efficient use of professional planning resources currently available.

6. Coordinated planning allows for the creation of a plan amendment process that considers all possible impacts, including effect on the adjoining municipality.
7. Comprehensive planning provides an opportunity to evaluate all aspects of future use and development, thus providing local officials with the essential information to make informed decisions.
8. A coordinated effort provides an opportunity to continue building intermunicipal cooperation on land use issues.

Table I-1

LAND USE, MASTER, AND COMPREHENSIVE PLANS PREPARED BY COUNTY AND LOCAL GOVERNMENTS IN WAUKESHA COUNTY: 2004

Community	Plan	Prepared By	Adoption Date[a, b]	
			Plan Commission	Governing Body
Waukesha County	SEWRPC Community Assistance Planning Report No. 209, *A Development Plan for Waukesha County, Wisconsin,* August 1996	SEWRPC	- -	11/26/96
City of Brookfield	City of Brookfield Year 2020 Master Plan, December 1999	Cunningham Group with assistance from Jonathan Barnett, Maxfield Research, and Ayres Associates	11/10/99	12/7/99
	124th Street and Capitol Drive Neighborhood Plan	City of Brookfield	10/25/04	- -
City of Delafield	Comprehensive Plan, City of Delafield, March 1991	Camiros, Ltd.	2/27/91	3/4/91
City of Muskego	City of Muskego 2010 Comprehensive Plan, March 2001	City of Muskego	6/22/00	3/13/01
City of New Berlin	Growth and Development Master Plan Update, City of New Berlin, July 2000	Clarion Associates and McBride Dale Clarion	- -	7/11/00
City of Oconomowoc	City of Oconomowoc Comprehensive Master Plan 1994-2010, November 1994	Lakeside Group and Vandewalle & Associates, Inc.	11/9/94	11/15/94
City of Pewaukee	SEWRPC Community Assistance Planning Report No. 76, *A Land Use Plan for the Town and Village of Pewaukee,* December 1982	SEWRPC	6/82	6/82
	SEWRPC Community Assistance Planning Report No. 209, *Waukesha County Development Plan,* August 1996[c]	City of Pewaukee and SEWRPC	1/16/97	1/20/97
City of Waukesha	SEWRPC Community Assistance Planning Report No. 169, *A Land Use Plan for the City of Waukesha,* September 1993	SEWRPC	7/14/93	9/7/93
Village of Big Bend	Village of Big Bend Comprehensive Land Use Plan: Opportunities 2020, May 1998	Village of Big Bend with assistance from Independent Inspections, Ltd.	5/28/98	- -
Village of Butler	A Master Plan for the Village of Butler, 1966	Carl L. Gardner and Associates, Inc.	- -	3/21/67
Village of Chenequa	None	None	- -	- -
Village of Dousman	Village of Dousman Land Use Master Plan, October 1999	Landscape Architects, Inc.	10/6/99	10/6/99

Table I-1 (Continued)

LAND USE, MASTER, AND COMPREHENSIVE PLANS PREPARED BY COUNTY AND LOCAL GOVERNMENTS IN WAUKESHA COUNTY: 2004

Community	Plan	Prepared By	Adoption Date[a, b]	
			Plan Commission	Governing Body
Village of Eagle	SEWRPC Community Assistance Planning Report No. 85, *A Land Use Plan for the Village of Eagle: 2000,* September 1983	SEWRPC	1/27/83	2/3/83
Village of Elm Grove	None	None	- -	- -
Village of Hartland	SEWRPC Community Assistance Planning Report No. 254, *A Master Plan for the Village of Hartland: 2020*	SEWRPC	12/20/04	12/20/04
Village of Lac La Belle	Master Plan, Village of Lac La Belle, December 1979	Jahnke & Jahnke Associates, Inc.	- -	6/11/79
Village of Lannon	Village of Lannon Comprehensive Land Use Plan: 2020 "Vision Beyond 2000", February 1999	Village of Lannon with assistance from Independent Inspections, Ltd.	2/9/99	2/9/99
Village of Menomonee Falls	SEWRPC Community Assistance Planning Report No. 163, *A Land Use and Transportation System Plan for the Village of Menomonee Falls:* 2010, April 1990; amended 2004	SEWRPC	6/8/04[d]	- -
Village of Merton	Year 2022 Comprehensive Plan for the Village of Merton, May 2002	Ruekert & Mielke	- -	5/6/02
Village of Mukwonago	Designing Mukwonago: Comprehensive/Master Plan for the Village of Mukwonago, April 2000	Village of Mukwonago Planning Department	3/20/00	4/4/00
	Amendment to the Residential Designations and Densities in the Village of Mukwonago's Comprehensive/Master Plan	Village of Mukwonago Planning Department	- -	2003
Village of Nashotah	Village of Nashotah Comprehensive Land Use Plan, September 1980; amended 1995	Graef, Anhalt, Schloemer And Associates, Inc.	- -	10/4/95
Village of North Prairie	Village of North Prairie Master Land Use and Transportation Plan, December 1999	Ruekert & Mielke	12/9/99	12/9/99
Village of Oconomowoc Lake	Village of Oconomowoc Lake Master Plan, August 1990	Camiros, Ltd.	- -	8/23/90
Village of Pewaukee	Village of Pewaukee Master Plan, November 1998	The Bradlee Group	- -	11/17/98
Village of Sussex	Village of Sussex Comprehensive Plan: 2020 March 25, 2003	Village of Sussex and HNTB	- -	3/25/03
Village of Wales	SEWRPC Community Assistance Planning Report No. 256, *A Master Plan for the Village of Wales: 2020,* April 2004	SEWRPC	10/29/03	11/3/03
Town of Brookfield	None	None	- -	- -
Town of Delafield	Land Use Plan, Town of Delafield, June 1999	Planning and Design Institute, Inc., and R. A. Smith and Associates	8/3/99	9/14/99
Town of Eagle	Town of Eagle Land Use Plan, December 1983; revised 1991	Graef, Anhalt, Schloemer and Associates	7/28/83	- -

Table I-1 (Continued)

LAND USE, MASTER, AND COMPREHENSIVE PLANS PREPARED BY COUNTY AND LOCAL GOVERNMENTS IN WAUKESHA COUNTY: 2004

Community	Plan	Prepared By	Adoption Date[a, b]	
			Plan Commission	Governing Body
Town of Genesee	Alternative and Recommended Land Use Plans for the Town of Genesee-2010	SEWRPC	- -[e]	- -[e]
Town of Lisbon	Town of Lisbon Land Use Plan, September 1996	The Bradlee Group	1/96	9/23/96
Town of Merton	Town of Merton 2010 Master Land Use Plan, June 1999	Town of Merton Ad Hoc Committee	2/16/05	3/8/05
Town of Mukwonago	Town of Mukwonago Master Plan, December 1981; revised 1998; amended June 2000	Town of Mukwonago with assistance from Waukesha County	6/28/00	7/5/00
Town of Oconomowoc	Town of Oconomowoc Master Land Use Plan, September 1993	Town of Oconomowoc	9/7/93	9/7/93
Town of Ottawa[f]	Town of Ottawa Master Land Use Plan, June 1994	Town of Ottawa with assistance from Waukesha County	6/13/94	6/13/94
Town of Summit	Town of Summit Master Plan; 2010, June 2001	MSA Professional Services, Inc.	3/21/01	6/4/01
Town of Vernon	Town of Vernon Master Plan, November 1995; revised July 1995	Town of Vernon with assistance from Waukesha County	10/27/94	11/2/94
Town of Waukesha	Town of Waukesha Master Land Use Plan, November 1994	Town of Waukesha	- -	11/10/94

[a]No record of adoption provided to SEWRPC if no date is listed.

[b]Under the master planning statute (Section 62.23 of the Wisconsin Statutes), which was the State law under which all of the city, village, and town plans except those for the Villages of Merton and Sussex and the Town of Summit were prepared, the Plan Commission has the authority to adopt by resolution a master plan or elements thereof. The plans for the Villages of Merton and Sussex and the Town of Summit were prepared under the comprehensive planning law (Section 66.1001 of the Statutes), which requires the plan to be adopted by an ordinance of the governing body. The Waukesha County Development Plan, prepared under Section 59.69 of the Statutes, was adopted by an ordinance of the County Board.

[c]The City of Pewaukee adopted the land use plan map in the Waukesha County Development Plan, with seven modifications, as an update to the land use element of the City of Pewaukee plan adopted in 1982.

[d]The Village of Menomonee Falls adopted only the planned land use map in the plan report.

[e]The plan was not adopted by the Town of Genesee.

fThe Town of Ottawa plan is being updated with assistance from Waukesha County.

Source: SEWRPC.

COMPREHENSIVE PLANNING LAW

In 1999, the Wisconsin Legislature enacted a comprehensive planning law which is set forth in Section 66.1001 of the Wisconsin Statutes. The comprehensive planning law requires that comprehensive plans be completed and adopted by local governing bodies by January 1, 2010 in order for a county, city, village, or town to enforce its zoning, subdivision, or official mapping ordinances. According to this law, a comprehensive plan means:

1. For a county, a development plan that is prepared or amended under s.59.69 (2) or (3).
2. For a city or a village, or for a town that exercises village powers under s. 60.22 (3), or a master plan that is adopted or amended under s. 62.23 (2) or (3).

3. For a regional planning commission, a master plan that is adopted or amended under s. 66.0309 (8), (9), or (10).

The law also requires that all comprehensive plans address the following nine elements:

1. Issues and Opportunities
2. Housing
3. Transportation
4. Utilities and Community Facilities
5. Agricultural, Natural, and Cultural Resources
6. Economic Development
7. Intergovernmental Cooperation
8. Land Use
9. Implementation

COUNTY PARTNERSHIP

Twenty-nine of the 37 local government units in Waukesha County signed cooperative agreements to work together on a county comprehensive plan update. Table I-2 lists the project municipal partners. These communities agreed to collaborate and develop a comprehensive plan that addresses both countywide issues and their own local concerns. This collaborative effort will improve intergovernmental cooperation and utilize resources efficiently. Each community appointed a representative to serve on the county comprehensive planning advisory committee and four subcommittees were established for the major elements of the comprehensive plan process. The six major issues addressed by the subcommittees were utility and community facilities, agriculture, natural, and cultural resources, economic development, intergovernmental cooperation, transportation and land use. Each subcommittee developed a set of implementation recommendations for their respective planning elements.

ADVISORY COMMITTEE AND STAFF STRUCTURE

The preparation of the Comprehensive Development Plan for Waukesha County was performed under the guidance of the Waukesha County Comprehensive Development Plan Advisory Committee. The Advisory Committee was comprised of representatives from the municipalities that signed cooperative agreements to formally participate in this planning process, Southeastern Wisconsin Regional Planning Commission (SEWRPC), and the County. Upon signing the cooperative agreement, each municipality was asked to formally designate an individual to represent their municipality. Accordingly, members of the Advisory Committee had the responsibility to keep their municipal leaders informed and involved.

All staff work attendant to the preparation of the comprehensive development plan was accomplished by the Waukesha County Department of Parks and Land Use, the Regional Planning Commission staff, the University of Wisconsin – Extension and municipal planning and engineering staffs.

PLAN ELEMENTS

The planning effort leading to the preparation of this comprehensive development plan was designed to be a compilation of inventories and analyses for several planning elements conducted through the four subcommittees. The following component elements were addressed in the planning process.

TRENDS, ISSUES AND OPPORTUNITIES ELEMENT

Objectives are goals toward which the preparation of plans and plan implementation programs were directed. The formulation of objectives, thus, becomes an essential task that was undertaken prior to or concurrent with the preparation of plans. Planning principles are fundamental or generally accepted tenets used to support objectives and prepare standards and plans. Standards are criteria, which were established as a basis for determining the adequacy of plan proposals to attain agreed-upon development objectives.

Table I-2

WAUKESHA COUNTY COMPREHENSIVE PLAN PARTNERS

Waukesha County	Village of Pewaukee
Village of Big Bend	Village of Menomonee Falls
City of Brookfield	Town of Merton
Town of Brookfield	Town of Mukwonago
Village of Butler	Village of Nashotah
Village of Chenequa	Village of North Prairie
Town of Eagle	City of Oconomowoc
Village of Elm Grove	Town of Oconomowoc
City of Delafield	Village of Oconomowoc Lake
Town of Delafield	Town of Ottawa
Village of Dousman	City of Pewaukee
Town of Genesee	Town of Summit
Village of Hartland	Town of Vernon
Village of Lac La Belle	City of Waukesha
Town of Lisbon	Town of Waukesha

The Comprehensive Development Plan Advisory Committee identified issues and opportunities and established objectives, principles and standards necessary to guide the preparation of the Comprehensive Development Plan for Waukesha County. Consideration was given to the objectives, principles, and standards set forth in the adopted regional plans prepared by SEWRPC. The Advisory Committee identified a series of key issues facing Waukesha County that have been addressed through the following planning elements and related plan chapters. The issues were:

- Coordination of land use planning with school district planning
- Groundwater Supply
- Cost of Community Services
- Public Participation
- Transportation: analysis of North-South Corridor issues
- Use of Regional Storm Water Facilities
- Infrastructure for Commercial and Shopping Center Location (how located and transportation impacts)
- Coordination of Public Interest
- Defining Rural Character and Development Design options to preserve Rural Character
- Needs of the Business Community-New Technology Businesses
- Business Retention, Expansion, and New Start-Ups
- Land Use Development Patterns and Transportation Impacts
- State Input and Legislation Effecting Land Use
- Keeping the County Competitive for Business in light of Global Competition
- Tax Structure
- Timely relationship between land use and transportation
- Government Role/Relationship between Communities and Land Use
- Future of Agriculture in the County
- Impacts of Annexations
- Revenue Sharing Options
- Review of Urban Growth Areas-Sewer Service Areas
- Identification of Existing Housing and Affordable Housing Needs

COMMUNITY FACILITIES AND UTILITIES ELEMENT

Utility systems form a functional supporting network for urban land uses. Knowledge of the major utility systems--including sanitary sewerage, water supply, storm water management, and solid waste disposal systems--provided another important input to the preparation of the Comprehensive Development Plan for Waukesha County. Information concerning sanitary sewerage, water supply, and storm water management facilities was provided primarily through the collation of data from SEWRPC, County and local municipal files. Information regarding existing solid waste disposal facilities was collected from previously completed studies conducted by the County.

1. Water Supply:
   The existing public and private water supply systems and service agreements in the County were identified and analyzed. Suitable scale maps were prepared showing the location of all water treatment facilities, reservoirs, and wells serving the public need. Land areas served by existing public water supply systems also were mapped.

2. Sanitary Sewerage:
   Existing public sanitary sewerage systems in the County, including the location and capacity of sewage treatment facilities, levels of treatment, and the means of disposal of treated wastes, are described and analyzed. Suitable scale maps were prepared showing the location of all existing major sanitary trunk sewers, sewage pumping stations, and sewage treatment plants. Land areas served by existing public sanitary sewerage systems also were mapped.

   The future pattern of urban land uses is closely related to the future provision of public utilities, particularly sanitary sewerage facilities. Intensive forms of urban development should be served by centralized sanitary sewerage facilities. Other forms of urban development should to the extent practicable, be served by centralized sanitary sewer facilities. The extent of future sanitary sewer service areas is thus a key input to the preparation of the land use element of the comprehensive development plan. Sewer service area refinement plans completed by the SEWRPC as part of the implementation of the regional water quality management plan were collated for use in the comprehensive development plan.

3. Storm Water Management:
   The major storm water drainage patterns including major watersheds, sub watersheds, and sub basins in the County were identified. In addition, the areas served by engineered storm water drainage systems were identified.

4. Solid Waste Disposal:
   The existing methods and sites of public and private solid waste management in the County were described by collating the inventory findings of previously completed solid waste management planning studies.

5. Private Utilities:
   Private utilities in the County, including natural gas, electric, and telecommunication facilities were contacted to obtain information concerning areas of service and the physical facilities used to provide service. Proposals for utility expansion were also inventoried.

6. Existing Community Facilities
   Knowledge of existing community facilities is another important input to the preparation of a comprehensive physical development plan. Accordingly, the location of the following community facilities were plotted on suitable scale maps: public and private elementary and secondary schools and school district boundaries; technical school centers; public libraries; police and fire stations; and public and private hospitals.

AGRICULTURAL, NATURAL AND CULTURAL RESOURCES ELEMENT

A re-examination of the agricultural base in the County was necessary to update the recommendations regarding the location and extent of farmland preservation areas in the County. Such recommendations were initially set forth in the Waukesha County Agricultural Land Preservation Plan which was completed in 1981 and adopted by the County Board on November 8, 1984 and the Waukesha County Development Plan, 1997. This re-examination provided data on existing agricultural land use, agricultural soil capabilities and the size of individual farm units in the County. Information regarding soil capabilities for agricultural uses was collated from United States Department of Agriculture Soil Survey database files.

Recommendations regarding the preservation of prime farmlands were necessary to consider the extent to which such lands are already committed to urban development due to the proximity to existing and expanding concentrations of urban uses and the prior commitment of capital investments and utility extensions.

The natural resources of the County provide the sustaining base for both rural and urban development and to which such development must be adjusted if an environment suitable for a high quality of life is to be maintained. For this reason, information concerning the natural resource base and elements closely related to the natural resource base was essential to the preparation of a comprehensive development plan.

Accordingly, the planning effort included a descriptive analysis of the natural resource base and environmental corridors, including consideration of woodlands, wetlands, wildlife habitat areas, prairies, areas of steep slopes, soils and soil characteristics, and lakes, streams, and rivers, along with their associated shore lands and flood lands. This information was obtained primarily through the collation of data contained in the SEWRPC Regional Natural Areas and Critical Species Habitat Protection and Management Plan for Southeastern Wisconsin, the Park and Open Space Plan for Waukesha County, and SEWRPC inventories.

This planning element also included a description of certain features, which, while not strictly a part of the natural resource base, are closely linked to the underlying resource base. Such natural resource base-related elements include existing State, County and municipal parks and recreation facilities, and sites of natural and scientific value. Information regarding these inventories was collated from input from municipal park boards, Waukesha County and SEWRPC files.

An inventory of the cultural and historic resources of the County was completed as part of this planning element. Historic sites in the County often have important recreational, educational, and cultural value. The information was obtained primarily from inventories and surveys conducted by the State of Wisconsin Historical Society and by local municipalities and historical societies.

ECONOMIC DEVELOPMENT ELEMENT

Knowledge of the past and present economy of the County is fundamental to preparing a comprehensive physical development plan. The future development of the communities in the County is directly related to the future of its economy. Economic growth leads to population growth and a demand for more conversion of rural land to urban uses. Therefore, a description of the economic base of the County was provided. Included are a description of employment levels and the spatial distribution of employment within the municipalities along with a description of the industrial base. Information from SEWRPC, local chambers of commerce, and the Waukesha County Economic Development Corporation were compiled and analyzed.

As the basis for the year 2035 regional land use plan, SEWRPC developed long-range forecasts indicating the anticipated levels of economic change, focusing on employment levels in the region. These forecasts, as they pertain to Waukesha County, were adopted for use in the preparation of the comprehensive development plan.

HOUSING ELEMENT

Although residential housing is directly related to the land use element of a comprehensive development plan, the issue of accommodating housing stock to meet the needs of the regional or sub-regional workforce and business community continues to be unresolved. Through this cooperative comprehensive planning process, participating municipalities were responsible for compiling data and recommendations to fulfill the housing element.

1. Existing housing stock:
   Participating communities prepared a descriptive analysis of the existing housing stock. This analysis includes data regarding the size, distribution, and characteristics of the housing stock. Housing unit characteristics include, at a minimum, information regarding the tenure status, structure type, value, and rent. Data regarding the existing housing stock was extracted from the 2000 Federal Census of Population and Housing and municipal appraisal information.

2. Existing housing needs:
   Each participating community prepared an analysis of the adequacy of the housing stock in terms of the extent to which it meets the needs of the resident population of the municipality. Inadequacies were identified on the basis of currently accepted statistical measures of housing need--including measures pertaining to overcrowding, availability of essential amenities such as plumbing facilities, and the relationship between housing costs and household income. Information was collated from the 2000 Federal Census and from the comprehensive housing affordability strategies prepared by the City of Waukesha and Waukesha County as a condition for participation in the Federal Community Development Block Grant program and certain Federal housing programs.

3. Housing availability constraints:
   The participating municipalities explored cost factors and other factors that may constrain the availability of housing within their respective community. While housing costs are largely determined by the operation of the real estate market, land use controls enacted by local units of government have a bearing on development costs and, in some cases, the availability of certain types of housing. In this respect, an analysis of existing zoning, land division regulations, and other land use controls was examined in order to identify whether changes may be warranted to affect housing availability or affordability.

4. Housing programs:
   The Intergovernmental Cooperation Element Sub-Committee conducted an inventory and analysis of publicly assisted housing within the County and of other government-sponsored housing efforts.

In addition to the housing problems of the resident County population, the Sub-Committee analyzed the potential availability of housing in the County for non-county residents who commute to places of work in Waukesha County. This aspect of the study included an assessment of the income levels of commuting workers relative to housing costs within the County. Pertinent income data was extracted from the Home Interview Survey conducted as part of SEWRPC's 2001 Household Travel, Regional Travel Survey.

LAND USE ELEMENT

A detailed inventory of land use is required as an integral part of any comprehensive physical development-planning program. Such an inventory must reveal the existing amount, type, intensity, and spatial distribution of land use sufficient to enable the identification of historic patterns and trends and to provide a basis for the revision of the Comprehensive Development Plan for Waukesha County. Much of the land use data needed for the revision of the development plan is available through inventories conducted by SEWRPC as part of its continuing regional land use and transportation planning programs. In addition, significant land use planning work has been completed by many of the municipalities and the County. Land use data current as of April 2000 was available for use in the revision of the development plan. Changes in land use were analyzed.

1. Community Plans:

The revision of a comprehensive development plan consisted of a refinement of the regional land use plan through a process which attempts to incorporate local development goals, providing for the integration of local and regional development objectives. Local plans and land use regulatory ordinances implicitly or explicitly contain locally conceived development objectives, which were considered.

An inventory was made of all existing community plans in the County, with particular attention given to the formal adoption status of such plans by local units of government concerned. In recognition of the importance of conserving and renewing existing urban areas, this work element included an inventory of existing urban conservation plans, as part of which locally designated urban conservation or reinvestment areas and any related redevelopment objectives were identified and analyzed.

2. Land use regulatory ordinances:

All existing subdivision regulatory ordinances, zoning ordinances and zoning district maps and official maps were inventoried and their development implications discussed.

3. Future urban land use pattern:

The adopted year 2035 regional land use plan developed by SEWRPC sets forth a generalized pattern of recommended land uses--including urban development areas, environmentally sensitive areas termed "primary environmental corridors, and rural areas." Within the areas designated for rural uses, the regional plan recommends that each county identify prime agricultural lands to be preserved for agricultural use, based on soils data, parcel sizes, and surrounding uses. The regional plan encourages continued agricultural use in rural areas not designated as prime farmland. Where residential development is to be accommodated in rural areas, the plan recommends an overall density of no more than one home per 5 acres, preferably using conservation design principles.

The land use element of the Comprehensive Development Plan for Waukesha County refines and details the generalized recommendations of the regional land use plan as it applies to the municipalities in the County. Specifically, the land use element of the Comprehensive Development Plan for Waukesha County indicates more precisely the future urban land use pattern which is recommended for the County; indicates more precisely the extent of future sewer service areas in the County and identifies more precisely the location of primary environmental corridors and other environmentally sensitive areas in the County. The County plan also identifies the location of those prime agricultural lands which are recommended for preservation. Moreover, in the revision of the land use element, consideration was given to adopted local land use plans and zoning regulations; and local development objectives, where the local plans were consistent with the objectives and standards of the Plan and were incorporated, to the extent possible, into the Comprehensive Development Plan for Waukesha County.

The Comprehensive Development Plan for Waukesha County refines and details the recommendations of the regional land use plan to indicate more precisely the types of land uses--for example, residential by major density category, commercial, industrial, and institutional--which are recommended within the County by the year 2035.

TRANSPORTATION ELEMENT

An efficient transportation system is essential to the sound social, as well as economic, development of the County. A thorough understanding of the existing transportation system is fundamental to the revision of a comprehensive physical development plan.

1. Existing arterial street and highway system:
   A description of the arterial street and highway system, including a description of the location and capacity of existing arterials, was included in the Comprehensive Development Plan for Waukesha County. This information was collated from SEWRPC, Waukesha County and local municipal files.

   The location and kinds of railway and inter-city bus facilities serving the County was described and analyzed. Full use was made of SEWRPC, County and municipal files for this purpose.

2. Existing Transit Facilities
   Existing public transit services within the County were described, this was also accomplished through the collation of data from SEWRPC, County and municipal files. The facility analysis includes a discussion of pedestrian and bike trails, railways, bus service and transportation systems for the disabled.

3. Existing Airport Facilities
   A description of existing airport facilities, aviation services, and aeronautical activity was included in the report. This information was collated from SEWRPC and Waukesha County files.

4. Transportation Element:
   The transportation element consists of a collation of completed transportation plans including: the regional transportation system plan for 2035, which includes the arterial street and highway element, transit element, and bicycle and pedestrian element; the Waukesha County Jurisdictional Highway System Plan which identifies the governmental level and agency that should have responsibility for acquiring, constructing, and maintaining each of the recommended freeways and surface arterials; the street and highway width map, which establishes widths of streets and highways in the County as identified in the jurisdictional highway system plan; transit system development plans for the City of Waukesha and Waukesha County, which set forth specific operational changes that would improve the performance of the transit systems; and the regional airport system plan together with the airport master plans--serving to implement the regional plan which have been completed or are underway for Waukesha County Crites Field.

INTERGOVERNMENTAL COOPERATION AND IMPLEMENTATION ELEMENT

The intergovernmental cooperation and implementation elements consists of a collation of opportunities and needs for cooperation between the various levels and units of government in the County, including general-purpose units of government and school and sewerage districts. Particular emphasis was placed upon coordinating activities relative to the siting and construction of public facilities and to the sharing of public services. In addition, opportunities were examined to actively pursue formal and binding boundary agreements, political or service consolidations, common ordinances and uniform approaches to regulation and the potential for the designation of forums for the resolution of intergovernmental disputes and problems. Drawing from the opportunities and needs analyses, and existing and future intergovernmental cooperation, recommendations were prepared.

Following review and adoption of the plan by the various local agencies and units of government concerned, the implementation of the plan would be the responsibility of those units and agencies of government. This Plan contains a chapter specifically discussing and describing methods for plan implementation. The plan implementation element specifically addresses intergovernmental coordination needs, in particular, the extent to which the plans and programs of local governments having concurrent and overlapping jurisdictions and recommendations for adjustment so that those plans and programs work together toward common ends. This

portion of the plan implementation section also deals with the extent to which local government plans and programs in the County should be adjusted to be fully consistent with applicable Federal and State policies, the objective being to attain not only "horizontal" coordination, but also "vertical" coordination of all the planning efforts within and pertaining to Waukesha County.

PLAN AMENDMENT PROCESS

The implementation chapter of the development plan establishes an administrative procedure to provide for annual plan amendments to the Comprehensive Development Plan for Waukesha County. The amendment process will provide an opportunity to reflect changing conditions and any changes in county and local development objectives. Further, the plan amendment process will need to respect the statutory authorizations of municipalities to amend local comprehensive plans and have those changes reflected in the Comprehensive Development Plan for Waukesha County. These will be processed so formal amendments are not required every time an issue is raised which may or may not be appropriate for plan amendment. All applications requesting a plan amendment will be subject to a public hearing and advertised according to statutory requirements.

PUBLIC INVOLVEMENT

Wisconsin's Comprehensive Planning law requires public participation in every stage of the development of a plan. Specifically, Wisconsin Statutes, Section 66.1001(4) (a) requires that:

" The governing body of a local government unit shall adopt written procedures that are designed to foster public participation, including open discussion, communication programs, information services, and public meetings for which advance notice has been provided, in every stage of the preparation of a comprehensive plan. The written procedures shall provide for a wide distribution of proposed, alternative, or amended elements of a comprehensive plan and shall provide an opportunity for written comments on the plan to be submitted by members of the public to the governing body and for the governing body to respond to such written comments. The written procedures shall describe the methods the governing body of a local governmental unit will use to distribute proposed, alternative, or amended elements of a comprehensive plan to owners of property, or to persons who have a leasehold interest in property pursuant to which the persons may extract nonmetallic mineral resources in or on property, in which the allowable use or intensity of use of the property is changed by the comprehensive plan."

As required by the statutes a public participation plan was adopted by the Waukesha County Board of Supervisors on April 12, 2005, based on a recommended plan prepared by the Comprehensive Plan Advisory Committee. A public participation plan was also adopted by the governing body of each of the cities, villages, and towns participating in the planning process.

Waukesha County and the local municipalities understood that public participation is very important in the planning process. The biggest challenge in this process was making citizens understand that this process collectively benefits all communities in Waukesha County as well as setting the stage for the physical development of their community.

In the early stages of the planning process it was important to enhance public awareness. News articles, websites, and public meetings were effective in creating public awareness. Citizen representation on the planning element subcommittees was also used to implement this public awareness campaign.

Education is the central focus of any public participation effort. The citizens need a better understanding of the current and past growth and change trends that occurred in Waukesha County. News releases, fact sheets, newsletters, comprehensive planning website, and display exhibits at libraries, local government offices, and regional events are valuable tools in educating the public. The public participation function was the responsibility of the Comprehensive Development Plan Advisory Committee.

Giving citizens the opportunity to help identify key community issues and develop a vision of what Waukesha County and the local communities should look like in the Year 2035 was an intensive effort. The most effective way to get this done was through a public opinion survey. Citizens also made comments through a planning web site.

The final step that required extensive public input was the draft plan review and plan adoption process. In this step, local units of government and citizens reviewed the plan. Public education provided information to help citizens understand the review process and describe plan specifics. Public input was solicited through open houses and public hearings. The web site also allowed citizens the opportunity to comment. The draft plan was available for review at local government offices and on the planning website.

In summary, the public participation steps for the comprehensive development planning process included:

1. Education on current and past growth and change trends in Waukesha County.
2. Utilizing visioning and public opinion information in developing plan goals and objectives.
3. Citizen and local government review of the draft comprehensive plan.

COMPREHENSIVE DEVELOPMENT PLAN FOR WAUKESHA COUNTY OUTLINE

The general format and organization of the development plan is intended to follow a logical progression of information. Each chapter relates directly to the nine required elements of a comprehensive development plan as defined in State statutes. The plan chapters are as follows:

Executive Summary

Chapter 1: Introduction

- Plan Elements
  1. Issues and Opportunities Element
  2. Community Facilities and Utilities Element
  3. Agricultural, Natural and Cultural Resources Element
  4. Economic Development Element
  5. Housing Element
  6. Land Use Element
  7. Transportation Element
  8. Intergovernmental Cooperation and Implementation Element
  9. Public Participation

- Comprehensive Development Plan Outline

Chapter 2: Issues and Opportunities Element and Planning Standards

- Demographic and Economic Base
- Historic Growth Analysis
- Population, Households and Employment Forecasts
- Natural Resource Trends
- Principles, Objectives, and Standards

Chapter 3: Agricultural, Natural and Cultural Resources Element

- Geology and Physiography
- Soils
- Groundwater Resources
- Surface Water Resources
- Natural Areas and Critical Species Habitat
- Climate
- Air Quality
- Cultural and Historic Resources Inventory

Chapter 4: Community Facilities and Utilities Element

- Telecommunication
- Sanitary Sewerage
- Water Supply
- Solid Waste Disposal
- Storm water Management
- Public Inland Lake Protection Districts
- Private Utilities
- School Districts and Libraries
- Health Care Facilities
- Public Safety

Chapter 5: Housing Element

- Housing Inventory
- Housing Needs and Constraints
- Housing Programs

Chapter 6: Economic Development Element

- Workforce Analysis
- Employer and Employee Trends
- Industry Analysis
- Employment Projections
- Economic Programs and Initiatives

Chapter 7: Land Use Element

- Land Use Plan Design Process
- Adopted Plans and Land Use Regulations
- Historic Growth and Trends Analysis
- Existing Land Use Inventory
- Recommended Land Use Plan

Chapter 8: Transportation Element

- Transportation Facilities and Services
- State Transportation Programs
- Regional Transportation Plan Recommendations
- Jurisdictional Highway System
- Bicycle and Pedestrian Facilities

Chapter 9: Intergovernmental Cooperation and Implementation Elements

- Implementation Recommendations
- Plan Adoption
- Monitoring and Updating

Chapter 2

TRENDS, ISSUES, OPPORTUNITIES AND PLANNING STANDARDS

INTRODUCTION

Information regarding existing conditions and historic trends with respect to the demographic and economic base, the natural environment, and the man-made environment is essential to the comprehensive planning process. An extensive database has been developed by the Southeastern Wisconsin Regional Planning Commission (SEWRPC) pertaining to these and other aspects of the Southeastern Wisconsin Region, updating that database periodically. A major inventory update effort was carried out by SEWRPC in the early 2000's in support of the preparation of new land use and transportation plans and other elements of the comprehensive plan for the Region, including Waukesha County and its municipalities. This chapter presents a summary of the results of that inventory update pertaining to the population, land use, water supply, the natural resource base and the agricultural resource base.

Much of the demographic data in this chapter is from the U.S. Bureau of the Census. This data is collected every ten years and is derived from both short and long form questionnaires. The short form provides a complete count of all persons living in the United States along with over 300 tables with counts and cross tabulations of race, ethnicity, gender, and age data. The long form is sent to 1 out of every 6 households in the United States. It provides sample data for topics related to education, housing, income, and other social and economic issues.

DEMOGRAPHIC AND ECONOMIC BASE

Population Growth by County

In 1930, Dodge and Waukesha County each had approximately 52,000 residents (Table II-1). Waukesha County began to experience significant population growth in the 1950s and experienced a population boom since 1940 that resulted in population increases per decade ranging from 23,000 people to 73,000 people (Table II-1). From 1960 to 2005 the county population more than doubled increasing from 158,249 to 377,348 (Table II-1). All of the counties surrounding Waukesha experienced smaller gains in total population since 1960 with the exception of a population decline in Milwaukee County. Between 1970 and 2005, Milwaukee County declined by 115,254 people, as population, business, and industry migrated from the City of Milwaukee.

Waukesha County Community Population Trends

Between 1970 and 1980 the majority of the county's growth in population occurred in cities and towns. In fact, 46 percent took place in cities, 44 percent in towns, and only 10 percent in villages. Between 1990 and 2000 the growth in cities remained the same (46 percent) with a more even distribution of growth between villages (31 percent) and towns (23 percent). In 2005, an estimated 20 percent of the total county population lived in towns (75,626 people), 24 percent resided in villages (91,157 people) and 56 percent were residents of cities (210,565).

The most significant population growth in communities took place in the City of Waukesha where the population increased by 27,915 people since 1970 (Table II-2). The Village of Sussex had the greatest increase in population (7,003 people) for any village within the county from 1970 to 2005. The Town of Mukwonago experienced the largest population growth of any town gaining 5,552 people from 1970 to 2005 (Table II-2).

Components of Population Change

Population change can be attributed to natural increase and net migration. Natural increase is the balance between births and deaths in an area over a given period of time; it can be measured directly from historical records on the number of births and deaths for an area. Net migration is the balance between migration to and from an area over a given period of time; as a practical matter, net migration is often determined as a derived number, obtained by

subtracting natural increase from total population change for the time period concerned. Of the total population increase of 56,052 persons in the County between 1990 and 2000, 18,582 can be attributed to natural increase; the balance of 37,470 persons can be attributed to net in-migration. Table II-2 illustrates that the level of natural increase in the County has been relatively stable since the 1970's.

Table II-1

SELECTED COUNTY POPULATION GROWTH TRENDS: 1840-2005

Year County	Dodge County	Jefferson County	Milwaukee County	Racine County	Walworth County	Washington County	Waukesha County
1840	67	914	5,605	3,475	2,611	343	N/A
1850	19,138	15,317	31,077	14,973	17,862	19,485	19,558
1860	42,818	30,438	62,518	21,360	26,496	23,622	26,831
1870	47,035	34,050	89,936	26,742	25,992	28,274	28,258
1880	45,931	32,155	138,523	30,921	26,249	33,270	28,957
1890	44,984	33,530	236,101	36,268	27,802	35,229	33,270
1900	46,631	34,789	330,017	45,644	20,259	23,589	35,229
1910	47,436	34,606	433,187	57,424	29,614	23,784	37,100
1920	49,742	35,022	539,449	78,961	29,327	25,713	42,612
1930	52,092	36,785	725,263	90,217	31,058	26,551	52,358
1940	54,280	38,868	766,885	94,047	33,103	28,430	62,744
1950	57,611	43,069	871,047	109,585	41,584	33,902	85,901
1960	63,170	50,094	1,036,041	141,781	52,368	46,119	158,249
1970	69,004	60,060	1,054,249	170,838	63,444	63,829	231,338
1980	75,064	66,152	964,988	173,132	71,507	84,848	280,203
1990	76,559	67,783	959,275	175,034	75,000	95,328	304,715
2000	85,897	75,784	940,164	188,831	91,996	117,493	360,767
2005	88,748	79,188	938,995	193,239	98,496	125,940	377,348

Source: U. S. Bureau of the Census and the Wisconsin Department of Administration.

Table II-2

POPULATION GROWTH BY COMMUNITY IN WAUKESHA COUNTY: 1970-2005

Community	1970	1980	1990	2000	2005
Town of Brookfield	4,303	4,364	4,232	6,390	6,379
Town of Delafield	3,750	4,597	5,735	7,820	8,286
Town of Eagle	1,250	1,758	2,028	3,117	3,492
Town of Genesee	3,172	5,126	5,986	7,284	7,542
Town of Lisbon	4,709	8,352	8,277	9,359	9,733
Town of Merton	4,424	6,025	6,430	7,988	8,347
Town of Mukwonago	1,930	4,979	5,967	6,868	7,482
Town of Oconomowoc	6,010	7,340	7,323	7,451	7,882
Town of Ottawa	1,698	2,795	2,988	3,758	3,850
Town of Summit	3,809	4,050	4,003	4,999	5,178
Town of Vernon	2,857	6,372	7,549	7,227	7,455
Town of Waukesha	4,408	6,668	7,566	8,596	8,832
Village of Big Bend	1,148	1,345	1,299	1,278	1,285
Village of Butler	2,261	2,059	2,079	1,881	1,835
Village of Chenequa	642	532	601	583	586
Village of Dousman	451	1,153	1,277	1,548	1,808
Village of Eagle	745	1,008	1,182	1,707	1,772
Village of Elm Grove	7,201	6,735	6,261	6,249	6,234
Village of Hartland	2,763	5,559	6,906	7,905	8,365
Village of Lac La Belle	227	289	258	329	333
Village of Lannon	1,056	987	924	1,009	957
Village of Menomonee Falls	31,697	27,845	26,840	32,647	33,939
Village of Merton	646	1,045	1,199	1,926	2,376
Village of Mukwonago	2,367	4,014	4,464	6,162	6,506
Village of Nashotah	410	513	567	1,266	1,372
Village of North Prairie	669	938	1,322	1,571	1,855
Village of Oconomowoc Lake	599	524	493	564	637
Village of Pewaukee	3,271	4,637	5,287	8,170	8,969
Village of Sussex	2,758	3,482	5,039	8,828	9,761
Village of Wales	691	1,992	2,471	2,523	2,567
City of Brookfield	31,761	34,035	35,184	38,649	39,797
City of Delafield	3,182	4,083	5,347	6,472	6,876
City of Muskego	11,573	15,277	16,813	21,397	22,427
City of New Berlin	26,910	30,529	33,592	38,220	38,969
City of Oconomowoc	8,741	9,909	10,993	12,382	13,459
City of Pewaukee	7,551	8,922	9,621	11,783	12,625
City of Waukesha	39,665	50,365	56,894	64,825	67,580
Waukesha County	231,335	280,203	304,715	360,767	377,348

Note: The Town of Pewaukee was incorporated as the City of Pewaukee in 1999.
Source: U.S. Bureau of the Census and the Wisconsin Department of Administration

Racial Composition

According to the 2000 U.S. Census, almost 96 percent of residents in Waukesha County were Caucasian in 2000. However, the population of Waukesha County continues to grow more diverse. Between 1990 and 2000 the Hispanic population in the County nearly doubled from 5,448 to 9,503. The City of Waukesha experienced the largest growth in the number of Hispanics. Several neighborhood block groups within the City of Waukesha recorded populations that were over 25 percent Hispanic. Asians made up the third largest racial group within Waukesha County with nearly 5,400 people.

Household Trends

In addition to population, the number of households, or occupied housing units, is of importance in land use and public facility planning. Households directly influence the demand for urban land as well as the demand for transportation and other public facilities and services. A household includes all persons who occupy a housing unit-defined by the Census Bureau as a house, an apartment, a mobile home, a group of rooms, or a single-room that is occupied, or intended for occupancy, as separate living quarters.

Table II-3

OWNER VS. RENTER OCCUPIED UNITS IN WAUKESHA COUNTY MUNICIPALITIES: 2000

Community	Owner Occupied	Percent	Renter Occupied	Percent
Town of Brookfield	1,763	63.8	999	36.2
Town of Delafield	2,521	96.0	104	4.0
Town of Eagle	1,049	93.8	69	6.2
Town of Genesee	2,431	98.0	50	2.0
Town of Lisbon	3,104	96.5	114	3.5
Town of Merton	2,706	92.3	226	7.7
Town of Mukwonago	2,184	97.5	57	2.5
Town of Oconomowoc	2,765	90.8	280	9.2
Town of Ottawa	1,232	89.6	143	10.4
Town of Summit	1,747	91.8	157	8.2
Town of Vernon	2,380	99.0	25	1.0
Town of Waukesha	2,891	98.2	54	1.8
Village of Big Bend	448	98.0	9	2.0
Village of Butler	455	49.7	461	50.3
Village of Chenequa	193	86.5	30	13.5
Village of Dousman	315	54.8	260	45.2
Village of Eagle	529	89.4	63	10.6
Village of Elm Grove	2,444	95.6	112	4.4
Village of Hartland	1,746	58.2	1,256	41.8
Village of Lac La Belle	114	97.4	3	2.6
Village of Lannon	361	84.9	64	15.1
Village of Menomonee Falls	9,939	77.4	2,905	22.6
Village of Merton	558	94.4	33	5.6
Village of Mukwonago	1,516	63.4	876	36.6
Village of Nashotah	427	96.0	18	4.0
Village of North Prairie	455	85.7	76	14.3
Village of Oconomowoc Lake	185	88.9	23	11.1
Village of Pewaukee	2,330	64.1	1,305	35.9
Village of Sussex	2,179	65.8	1,131	34.2
Village of Wales	722	85.3	124	14.7
City of Brookfield	12,482	89.9	1,409	10.1
City of Delafield	1,694	66.4	859	33.6
City of Muskego	6,228	82.7	1,305	17.3
City of New Berlin	11,778	81.3	2,717	18.7
City of Oconomowoc	3,102	62.4	1,866	37.6
City of Pewaukee	3,826	84.0	727	16.0
City of Waukesha	14,508	56.5	11,155	43.5
Waukesha County Total	**103,373**	**76.4**	**31,856**	**23.6**

Source: U.S. Bureau of the Census

The number of households in the County increased by 29,239 households, or 28 percent, from 105,990 households in 1990 to 135,229 households in 2000.

This follows increases of 17,438 households during the 1980s, 26,617 households during the 1970s, 19,541 households during the 1960s, and 18,795 households during the 1950s. In 2000, slightly over 76 percent (103,373) of the total housing units were owner occupied in Waukesha County. This figure is consistent with neighboring counties with the exception of Milwaukee County which had 52 percent owner occupied homes in 2000. In Waukesha County municipalities, owner occupied housing ranges from 56.5 percent of total housing stock in the City of Waukesha to 99 percent in the Town of Vernon (Table II-3).

Household Size

In 2000, the average household size ranged from 2.05 in the Village of Butler to 3.26 in the Village of Merton (Table II-4). This figure continues to decline slightly in Waukesha County communities. From 1990 to 2000, the average household size declined in Waukesha County from 2.83 to 2.63. This trend is occurring on a regional, state, and national scale as families continue to become smaller. A growing population with a decreasing household size has implications for development of housing stock, demand for future water and sanitary sewer capacity, land use, and other utilities and community facilities. This trend is examined in more detail in the Housing and Utilities and Community Facilities chapters of this report.

Table II-4

AVERAGE HOUSEHOLD SIZE IN WAUKESHA COUNTY: 2000

Community	Average Household Size	Community	Average Household Size	Community	Average Household Size
Town of Brookfield	2.29	Village of Big Bend	2.85	City of Brookfield	2.74
Town of Delafield	2.93	Village of Butler	2.05	City of Delafield	2.52
Town of Eagle	2.97	Village of Chenequa	2.61	City of Muskego	2.80
Town of Genesee	3.00	Village of Dousman	2.58	City of New Berlin	2.62
Town of Lisbon	2.90	Village of Eagle	2.88	City of Oconomowoc	2.40
Town of Merton	2.95	Village of Elm Grove	2.49	City of Pewaukee	2.57
Town of Mukwonago	3.14	Village of Hartland	2.63	City of Waukesha	2.43
Town of Oconomowoc	2.69	Village of Lac La Belle	2.81	Waukesha County	2.63
Town of Ottawa	2.73	Village of Lannon	2.37		
Town of Summit	2.76	Village of Menomonee Falls	2.52		
Town of Vernon	3.00	Village of Merton	3.26		
Town of Waukesha	2.97	Village of Mukwonago	2.54		
		Village of Nashotah	2.84		
		Village of North Prairie	2.96		
		Village of Oconomowoc Lake	2.71		
		Village of Pewaukee	2.19		
		Village of Sussex	2.67		
		Village of Wales	2.98		

Source: U.S. Bureau of the Census

Median Age

Waukesha County‘s median age is increasing. The median age in 1970 for the county was 27. The median age increased to 34 in 1990 and in 2000 reached 38.1. The City of Waukesha and villages of Hartland and Sussex had median ages well below the county’s median age in 2000 (Table II-5). The towns of Brookfield, Ottawa, the villages of Chenequa, Elm Grove, Lac La Belle, and Oconomowoc Lake and the City of Brookfield were well above the county’s median age. Ozaukee County was the only county in southeastern Wisconsin with a higher median age (38.9) than Waukesha County in 2000.

Age Composition

The 45 to 64 and 65 and over age groups will continue to grow in number reflecting the aging of the "baby boomers" (people born between 1946 and 1964). The population aged 25 to 44 will begin to decrease as "baby boomers" grow older and fewer numbers of persons born in the 1970s move into this age group. This change in age composition will have implications for school districts, housing, labor, and transportation.

Table II-5

WAUKESHA COUNTY COMMUNITIES:
POPULATION BY AGE GROUP AND MEDIAN AGE: 2000

	Under 5	5 to 14	15 to 24	25 to 44	45 to 64	65 and Over	Median Age
Town of Brookfield	368	815	494	1,582	1,551	1,580	44.4
Town of Delafield	488	1,347	1,136	1,933	2,403	513	38.6
Town of Eagle	226	532	326	1,030	799	204	36.9
Town of Genesee	437	1,289	865	2,101	2,121	471	38.7
Town of Lisbon	620	1,542	994	2,716	2,515	982	38.6
Town of Merton	483	1,553	828	2,279	2,159	686	38.3
Town of Mukwonago	426	1,316	856	2,128	1,839	303	36.7
Town of Oconomowoc	402	1,136	817	2,188	2,175	733	39.7
Town of Ottawa	206	596	409	999	1,118	430	41.1
Town of Summit	286	762	569	1,411	1,421	532	39.6
Town of Vernon	346	1,206	1,353	864	2,360	412	39.4
Town of Waukesha	488	1,555	1,020	2,415	2,405	713	38.8
Village of Big Bend	76	236	147	384	320	105	36.8
Village of Butler	82	214	186	580	377	442	40.9
Village of Chenequa	25	69	66	111	217	95	47.6
Village of Dousman	106	262	191	514	268	243	35.4
Village of Eagle	164	306	175	649	301	112	32.8
Village of Elm Grove	320	950	516	1,266	1,789	1,408	45.7
Village of Hartland	550	1,353	1,062	2,647	1,703	590	34.1
Village of Lac La Belle	22	44	24	81	122	36	43.9
Village of Lannon	52	125	114	301	281	136	39.8
Village of Menomonee Falls	2,161	4,709	3,053	9,950	7,650	5,124	39.2
Village of Merton	140	441	213	634	423	75	34.5
Village of Mukwonago	434	864	882	1,980	1,328	674	33.9
Village of Nashotah	91	233	126	366	337	113	37.8
Village of North Prairie	98	296	188	515	392	92	36.3
Village of Oconomowoc Lake	21	92	53	122	216	64	44.5
Village of Pewaukee	578	981	829	3,048	1,742	992	35.5
Village of Sussex	799	1,413	988	3,202	1,695	731	34.1
Village of Wales	151	443	356	732	736	105	37.3
City of Brookfield	2,072	6,311	3,740	8,957	10,760	6,808	42.5
City of Delafield	430	991	669	1,931	1,752	699	38.7
City of Muskego	1,431	1,482	2,232	6,737	5,332	1,781	37.5
City of New Berlin	2,275	5,425	4,222	11,083	10,372	4,843	39.8
City of Oconomowoc	781	1,716	1,757	2,253	2,686	2,092	38.0
City of Pewaukee	669	1,566	1,169	3,482	3,628	1,269	40.4
City of Waukesha	4,792	8,634	9,574	21,813	13,118	6,894	33.4
Waukesha County	23,096	54,805	41,587	107,439	90,406	43,434	38.1

Source: U.S. Bureau of the Census

Household Income
Waukesha County has a substantially higher median household income than adjacent counties. The median household income was $62,839 in 2000 for Waukesha County (Table II-6). This figure was over 60 percent higher than the median household income in Milwaukee County. The median household income in Waukesha County communities (Table II-7) ranged from $33,883 in the Village of Butler to over $160,000 in the Village of Chenequa.

Table II-6

MEDIAN HOUSEHOLD INCOME BY SELECTED COUNTIES: 1999

County	Median Household Income
Milwaukee County	$38,100
Dodge County	$45,190
Walworth County	$46,274
Jefferson County	$46,901
Racine County	$48,059
Washington County	$57,033
Waukesha County	$62,839

Source: U.S. Bureau of the Census

Employment Trends
Waukesha County has continued to enhance its economy through new job creation. Waukesha County experienced a 43 percent growth in employment from 1990 to 2000 resulting in a net addition of 81,100 jobs. (Table II-8). Ozaukee County also recorded impressive employment growth during this period. Although, Milwaukee County has nearly three times as many jobs as Waukesha, it recorded only a 2 percent increase in jobs during the 1990's.

Waukesha County like the rest of Wisconsin has experienced a decline in manufacturing as a percent of total employment. Despite this fact, Waukesha County is still above the national average in manufacturing employment. Approximately 21 percent of all jobs in Waukesha County are in manufacturing. Nationally, only about 12 percent of all jobs are in manufacturing. Service employment has increased significantly over the last decade and now is the most important sector for jobs in the county accounting for 28 percent of all jobs within Waukesha County (Table II-9).

Waukesha County has the third highest percentage of people with associate, bachelors, graduate, and professional degrees in Wisconsin (Table II-10). Over 41 percent of people 25 years of age and older have an associate, bachelors, graduate, or professional degree within Waukesha County. Only Dane with 49.5 percent and Ozaukee at 45.6 percent have higher percentages in Wisconsin. Within Waukesha County municipalities, this figure ranges from 18 percent in the Village of Butler to 70 percent in the Village of Chenequa (Table II-11). In the State of Wisconsin, 31 percent of residents age 25 and over have earned an associate, bachelors, graduate, or professional degree.

Table II-7

MEDIAN HOUSEHOLD INCOME BY WAUKESHA COUNTY COMMUNITIES: 1999

Community	Median Household Income
Town of Brookfield	$55,417
Town of Delafield	$98,779
Town of Eagle	$69,071
Town of Genesee	$78,740
Town of Lisbon	$69,012
Town of Merton	$78,937
Town of Mukwonago	$75,067
Town of Oconomowoc	$68,676
Town of Ottawa	$69,493
Town of Summit	$76,859
Town of Vernon	$71,366
Town of Waukesha	$73,984
Village of Big Bend	$61,771
Village of Butler	$38,333
Village of Chenequa	$163,428
Village of Dousman	$53,409
Village of Elm Grove	$86,212
Village of Hartland	$58,359
Village of Lac La Belle	$100,000
Village of Lannon	$44,375
Village of Menomonee Falls	$57,952
Village of Merton	$75,000
Village of Mukwonago	$56,250
Village of Nashotah	$82,949
Village of North Prairie	$70,781
Village of Oconomowoc Lake	$112,760
Village of Pewaukee	$53,874
Village of Sussex	$76,859
Village of Wales	$75,000
City of Brookfield	$76,225
City of Delafield	$71,995
City of Muskego	$64,247
City of New Berlin	$67,576
City of Oconomowoc	$51,250
City of Pewaukee	$75,589
City of Waukesha	$50,084
Waukesha County	$62,839

Source: U.S. Bureau of the Census

Table II-8

TOTAL EMPLOYMENT TRENDS BY SELECTED COUNTIES: 1990-2000

County	1990	2000	Number Increase In Employment 1990-2000	Percent Increase In Employment 1990-2000
Waukesha County	189,700	270,800	81,100	43%
Milwaukee County	609,800	624,600	14,800	2%
Ozaukee County	35,300	50,800	15,500	44%
Racine County	89,600	94,400	4,800	5%
Washington County	46,100	61,700	15,600	34%
Walworth County	39,900	51,800	11,900	30%

Source: U.S. Bureau of Economic Analysis and SEWRPC

Table II-9

WAUKESHA COUNTY EMPLOYMENT INDUSTRY TRENDS: 1990-2000

Waukesha County	1990	2000	1990-2000 Number Change in Employment	2000 Percent of Total Employment
Agriculture	1,191	1,011	-180	1%
Construction	12,679	18,462	5,783	7%
Manufacturing	44,871	56,754	11,883	21%
Transportation, Communication and Utilities	8,185	9,516	2,434	4%
Wholesale Trade	16,128	22,508	6,380	8%
Retail Trade	31,054	43,132	12,078	16%
Finance, Insurance and Real Estate	13,131	22,340	9,209	8%
Services	46,293	76,265	29,979	28%
Government and Government Enterprises	13,994	17,059	3,065	7%
Other	2,135	3,749	1,614	1%

Notes: Services include Business, Repair, Personal, Entertainment, Recreation, Health, Education, Accommodation and Food, Social, and Professional services. Government and Government Enterprises includes all non-military government agencies and enterprises, regardless of SIC code. Other includes agricultural services, forestry, commercial fishing, mining, and unclassified jobs.

Source: U.S Bureau of Economic Analysis and SEWRPC

Table II-10

WAUKESHA COUNTY EDUCATIONAL ATTAINMENT FOR PERSONS 25 AND OVER: 2000

Educational Attainment Level	Number	Percent
Less than 9th Grade	5,537	2.3
High School, No Diploma	14,873	5.7
High School Graduate	66,651	27.6
Some College (No Degree)	54,483	22.6
Associate Degree	18,492	7.7
Bachelor's Degree	57,050	23.6
Graduate /Professional Degree	25,213	10.4
Total	**241,299**	**100**

Source: U.S. Bureau of the Census

LAND USE

SEWRPC relies on two types of inventories and analyses in order to monitor urban growth and development in Southeastern Wisconsin—an urban growth ring analysis and a land use inventory. The urban growth ring analysis delineates the outer limits of concentrations of urban development and depicts the urbanization over the past 150 years. When related to urban population levels, the urban growth ring analysis provides a good basis for calculating urban population and household densities. By contrast, SEWRPC's land use inventory is a more detailed inventory that places all land and water areas into one of 66 discrete land use categories, providing a basis for analyzing specific urban and non-urban land uses. Both the urban growth ring analysis and the land use inventory have been updated to the year 2000 under the continuing regional planning program, therefore serve as the basis for the land use trends present in this Plan.

Urban Growth Ring Analysis

The urban growth ring analysis shows the historical pattern of urban settlement, growth, and development since 1850 for selected points in time. Areas identified as urban under this time series analysis include areas where residential structures or other buildings have been constructed in relatively compact groups, thereby indicating a concentration of residential, commercial, industrial, governmental, institutional, or other urban land uses. In addition, the identified urban areas encompass certain open space lands such as urban parks and small areas being preserved for resource conservation purposes within the urban areas.

As part of the urban growth ring analysis, urban growth for the years prior to 1940 was identified using a variety of sources, including the records of local historical societies, land subdivision plat records, farm plat maps, U. S Geological Survey maps, and Wisconsin Geological and Natural History Survey records. Urban growth for the years 1940, 1950, 1963, 1970, 1980, 1990, and 2000 was identified using aerial photographs. Because of limitations inherent in the source materials, information presented for the years prior to 1940 represents the extent of urban development at approximately those points in time, whereas the information presented for later years can be considered precisely representative of those respective points in time. The urban growth ring analysis, updated through 2000, is presented graphically on Map II-1.

Table II-11

RESIDENTS OF AGE 25 AND OVER WITH ASSOCIATES, BACHELOR'S, GRADUATE, OR PROFESSIONAL DEGREES BY COMMUNITY IN WAUKESHA COUNTY: 2000

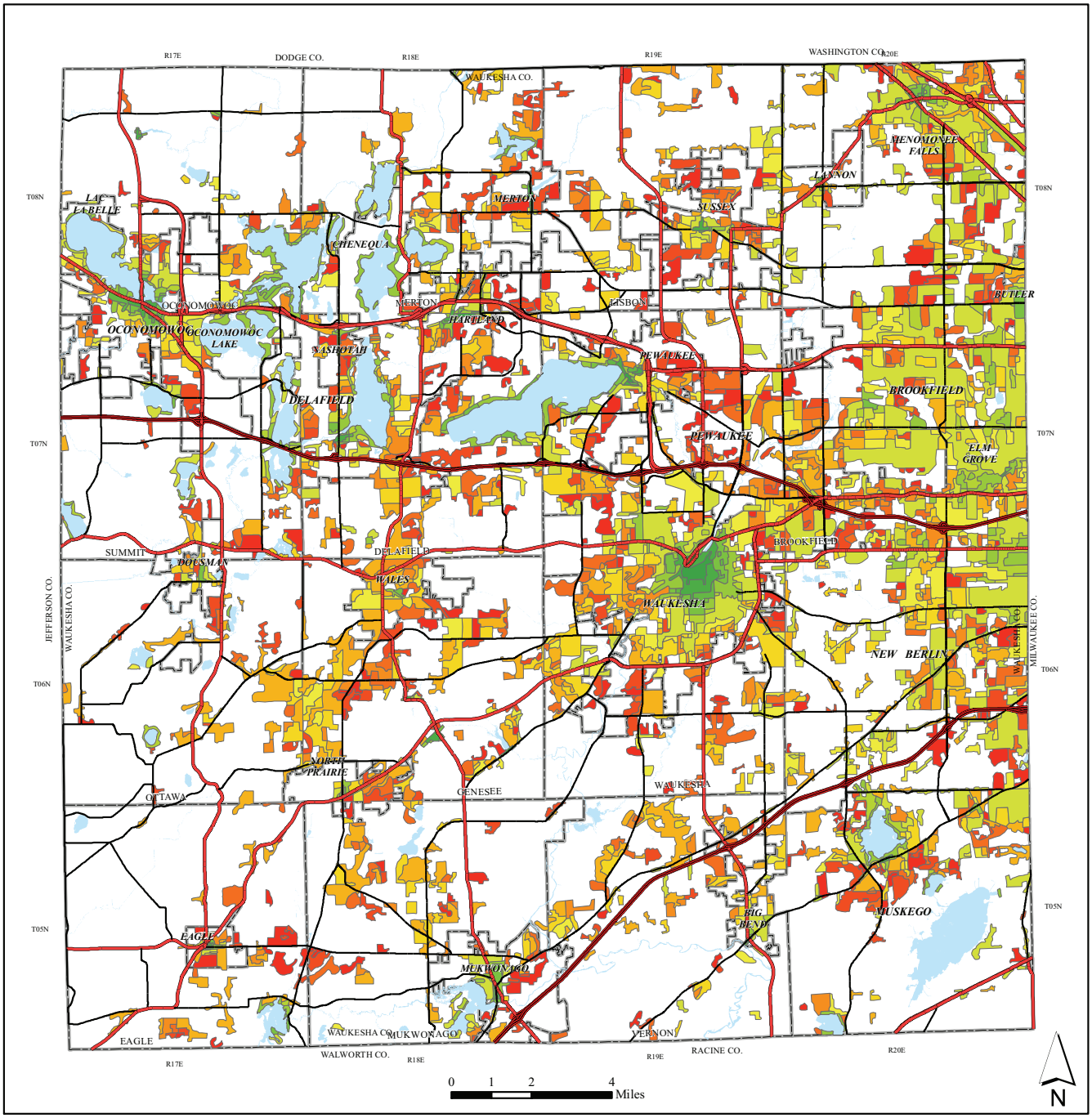
Community	Number	Percent
Town of Brookfield	2,026	45.6
Town of Eagle	673	34.2
Town of Delafield	2,802	57.5
Town of Genesee	2,100	45.5
Town of Lisbon	2,149	28.3
Town of Merton	2,282	44.9
Town of Mukwonago	1,757	42.3
Town of Oconomowoc	1,957	38.8
Town of Ottawa	959	37.5
Town of Summit	1,355	40.2
Town of Vernon	1,428	30.1
Town of Waukesha	2,247	40.8
Village of Big Bend	228	28.1
Village of Butler	257	18.4
Village of Chenequa	291	70.4
Village of Dousman	287	27.2
Village of Eagle	309	26.9
Village of Elm Grove	3,058	69.1
Village of Hartland	2,028	40.9
Village of Lac La Belle	139	58.5
Village of Lannon	111	15.7
Village of Menomonee Falls	8,566	37.6
Village of Merton	451	37.4
Village of Mukwonago	1,381	35.0
Village of Nashotah	436	53.7
Village of North Prairie	370	36.6
Village of Oconomowoc Lake	244	61.6
Village of Pewaukee	2,227	38.3
Village of Sussex	2,012	36.2
Village of Wales	761	49.3
City of Brookfield	14,727	55.3
City of Delafield	2,002	45.1
City of Muskego	4,699	33.1
City of New Berlin	11,562	44.0
City of Oconomowoc	3,221	38.5
City of Pewaukee	3,927	46.0
City of Waukesha	3,927	37.6

Source: U.S. Bureau of the Census

Map II-1

HISTORIC GROWTH RING ANALYSIS IN WAUKESHA COUNTY: 1850-2000

Historic Urban Growth in Waukesha County: 1850-2000



Legend

- *Civil Division Boundary*
- *Interstate*
- *US*
- *State*
- *County*

Historic Urban Growth

Year

- *1850*
- *1880*
- *1900*
- *1920*
- *1940*
- *1950*
- *1963*
- *1970*
- *1975*
- *1980*
- *1985*
- *1990*
- *1995*
- *2000*

Source: SEWRPC and Waukesha County Civil Divisions as of 5/31/08
Prepared by Waukesha Co. Dept. of Parks and Land Use

Table II-12

POPULATION PROJECTIONS BY COMMUNITY IN WAUKESHA COUNTY: 2010-2035

Community	2010	2015	2020	2025	2030	2035
Town of Brookfield	6,957	7,212	7,468	7,782	8,055	8,349
Town of Delafield	9,120	9,712	10,295	10,949	11,603	12,313
Town of Eagle	3,817	4,138	4,451	4,793	5,156	5,554
Town of Genesee	7,970	8,281	8,593	8,971	9,305	9,664
Town of Lisbon	9,751	9,926	10,110	10,378	10,565	10,770
Town of Merton	8,729	9,062	9,397	9,804	10,162	10,546
Town of Mukwonago	7,631	7,989	8,346	8,765	9,153	9,571
Town of Oconomowoc	7,400	7,370	7,354	7,404	7,384	7,374
Town of Ottawa	4,057	4,191	4,327	4,497	4,641	4,795
Town of Summit	5,308	5,479	5,653	5,870	6,053	6,250
Town of Vernon	7,209	7,192	7,189	7,250	7,243	7,245
Town of Waukesha	8,873	9,001	9,139	9,354	9,493	9,646
Village of Big Bend	1,202	1,165	1,132	1,110	1,078	1,048
Village of Butler	1,769	1,714	1,666	1,634	1,587	1,543
Village of Chenequa	573	568	564	566	562	559
Village of Dousman	1,721	1,781	1,842	1,917	1,981	2,051
Village of Eagle	1,912	2,005	2,097	2,205	2,306	2,414
Village of Elm Grove	5,948	5,802	5,672	5,597	5,469	5,351
Village of Hartland	8,828	9,247	9,662	10,149	10,601	11,088
Village of Lac La Belle	358	372	385	401	415	431
Village of Lannon	958	933	911	898	876	856
Village of Menomonee Falls	34,668	35,565	36,483	37,696	38,651	39,684
Village of Merton	2,238	2,378	2,517	2,672	2,826	2,994
Village of Mukwonago	6,839	7,131	7,422	7,770	8,084	8,423
Village of Nashotah	1,548	1,677	1,803	1,941	2,087	2,247
Village of North Prairie	1,900	2,048	2,193	2,353	2,520	2,702
Village of Oconomowoc Lake	651	660	670	686	696	707
Village of Pewaukee	9,299	9,813	10,320	10,902	11,462	12,068
Village of Sussex	10,745	11,620	12,475	13,412	14,399	15,480
Village of Wales	2,537	2,540	2,548	2,578	2,584	2,594
City of Brookfield	39,577	39,959	40,396	41,179	41,607	42,096
City of Delafield	7,322	7,707	8,089	8,530	8,950	9,402
City of Muskego	23,183	23,984	24,791	25,792	26,648	27,570
City of New Berlin	40,333	41,265	42,228	43,535	44,529	45,607
City of Oconomowoc	13,190	13,542	13,902	14,375	14,751	15,158
City of Pewaukee	13,434	14,227	15,009	15,898	16,768	17,708
City of Waukesha	68,905	70,666	72,471	74,859	76,734	78,762
Waukesha County	**386,460**	**397,922**	**409,570**	**424,472**	**436,986**	**450,620**

Source: Wisconsin Department of Administration
Note: The projections for years 2030 and 2035 were made with simple trend extrapolation techniques by the University of Wisconsin Applied Population Laboratory. These projections are built upon the Wisconsin Department of Administration's Demographic Services Center's population projections for municipalities (through 2025) and for counties (through 2030).

Population Projections
Projections are estimates of the population for future dates. They illustrate plausible courses of future population change based on assumptions about future births, deaths, international migration, and domestic migration.

While projections and estimates may appear similar, there are some distinct differences between the two measures. Estimates are for the past, while projections are based on assumptions about future demographic trends. Estimates generally use existing data collected from various sources, while projections must assume what demographic trends will be in the future.

In the report, *The Population of Southeastern Wisconsin*, SEWRPC projected a range of future population and household levels – using high, intermediate, and low growth scenarios for Waukesha County. The analysis uses the cohort-component projection model that projects population based on births, deaths,, and migration rates. (Previously said fertility, survival, and migration rates). After analyzing the data, the intermediate growth projection was used for land use planning purposes. The intermediate population projection predicts a modest increase in birth rates, a slight improvement in death rates, and a relatively stable migration pattern through 2035. The intermediate projection of growth for Waukesha County is slightly higher than projections developed by the Wisconsin Department of Administration (Tables II-13 and II-14). SEWPRC in their study did not attempt to create projections for individual communities in Waukesha County. The Wisconsin Department of Administration developed projections through 2025 for communities within the County (Table II-12). The University of Wisconsin Applied Population Laboratory made the projections for years 2030 and 2035 with simple trend extrapolation techniques. These projections are built upon the Wisconsin Department of Administration's Demographic Services Center's population projections for municipalities (through 2025) and for counties (through 2030). At the community level it is more difficult to project future population growth. There is greater uncertainty with making demographic trend assumptions at the community level. For example, fertility is influenced by many factors including age of residents, income, educational attainment, race, and percentage of married couple families. Domestic migration or movement from one community to another is also difficult to project at a local community level. This variable is influenced by age, marriage, income, housing availability, and percentage of renters vs. homeowners. Between 1995 and 2000 over 66,000 Waukesha County residents moved to different houses within communities in the County. As a result, the projections for communities are a best projection guess, but may end up being quite different at the community level 30 years into the future.

Table II-13

PROJECTED POPULATION IN WAUKESHA COUNTY: 2010-2035
(INTERMEDIATE PROJECTION)

	2010	2015	2020	2025	2030	2035
Waukesha County	391,499	404,086	417,362	429,635	440,289	446,768

Source: SEWRPC

Household Projections
Based upon the intermediate projection, SEWRPC estimates that Waukesha County will gain an additional 38,900 households by 2035 (Table II-14). The SEWRPC intermediate population growth projection for the County in 2035 is 446,768. This projected trend would result in a continued decline in household size to 2.50 persons.

Table II-14

ACTUAL AND PROJECTED HOUSEHOLDS IN WAUKESHA COUNTY: 2000-2035 (INTERMEDIATE PROJECTION)

		Change from Preceding Year	
Year	**Households**	**Absolute**	**Percent**
Actual Households:			
2000	135,200	--	--
Projected Households:			
2005	144,300	9,100	6.7
2010	150,800	6,500	4.5
2015	156,700	5,900	3.9
2020	162,300	5,600	3.6
2025	167,400	5,100	3.1
2030	171,900	4,500	2.7
2035	174,100	2,200	1.3
Change: 2000-2035	**--**	**38,900**	**28.8**

Source: U.S. Bureau of the Census and SEWRPC.

Population Projections for the Planning Area and Southeastern Wisconsin

The projected population for the Waukesha County planning analysis areas (presented in Map II-2) in 2035 is 446,768 persons. This is a projected increase of 86,000 persons, or about 23.8 percent, over the 2000 population level of 360,800. Existing and projected population, households and job totals for planning analysis areas are set forth in Table II-15. More detailed discussion regarding employment and other economic trends are presented in Chapter 6.

Planned urban service areas generally include the corporate boundaries of cities and villages and additional contiguous lands needed to accommodate anticipated urban development. The 2000 population in each urban service area shown on Table II-16 is therefore greater than the 2000 population in the corresponding city or village corporate boundaries because the planned urban service area includes lands that are now in the towns. Although most cities and villages require land to be annexed before providing sewer, this plan does not assume that annexation is a prerequisite to providing public sewer. Cities and villages may enter into boundary or cooperative agreements that could provide for the extension of sewer and other services without annexation, subject to conditions negotiated between the city or village and the adjacent town as part of an agreement.

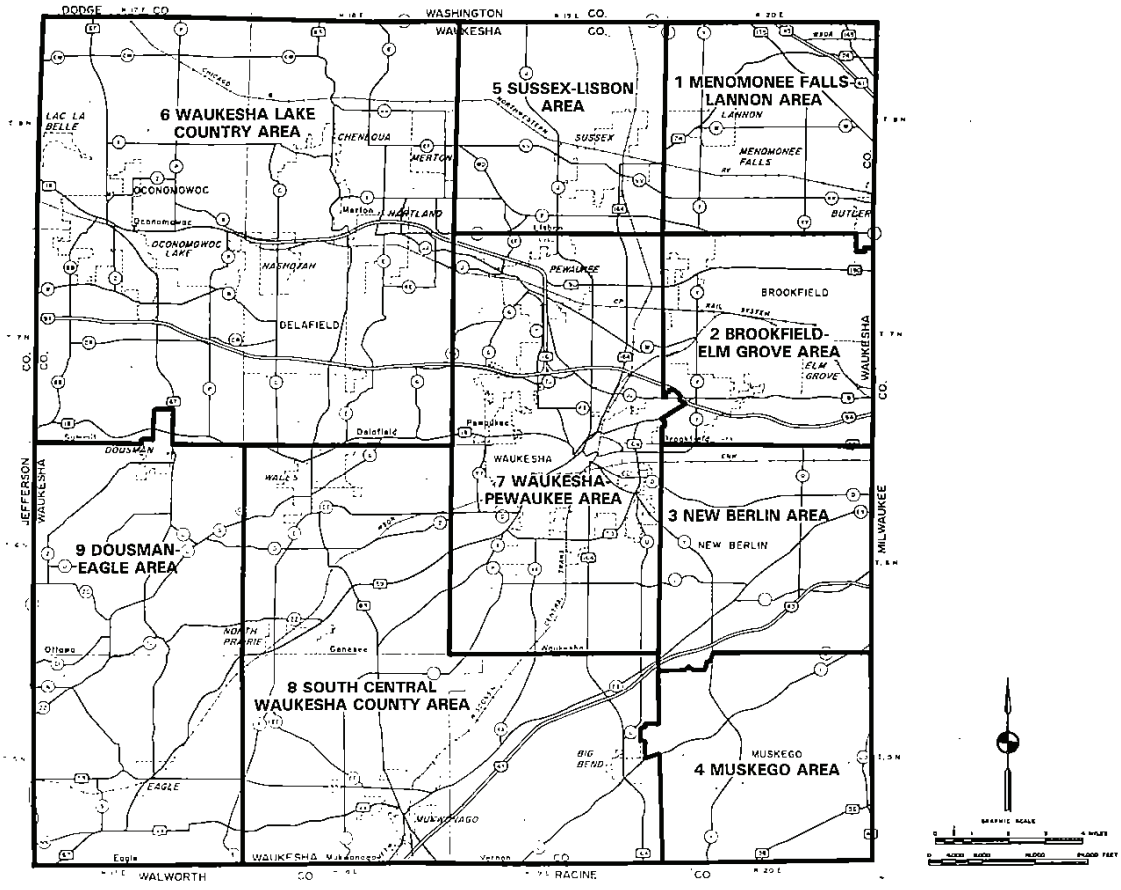
Land Use Inventory

SEWRPC land use inventory is intended to serve as a relatively precise record of land use at selected points in time. The land use classification system used in the inventory consists of nine major categories which are divisible into 66 sub-categories, making the inventory suitable for both land use and transportation planning, adaptable to storm water drainage, public utility, and community facility planning, and compatible with other land use classification systems. Aerial photographs serve as the primary basis for identifying existing land use, augmented by field surveys as appropriate.

The first regional land use inventory was prepared by SEWRPC in 1963 and has been updated periodically following the preparation of new aerial photography, with the most recent inventory prepared using aerial photographs taken in spring of 2000. As part of the year 2000 land use inventory, the delineation of existing land use was referenced to real property boundary information not available in prior inventories. This change increases the precision of the land use inventory and makes it more useable to public agencies and private interests. As a result of this change, however, year 2000 land use inventory data are not strictly comparable with data from the 1990 and prior inventories. The data remains suitable for denoting general land use trends. The results of the year 2000 land use inventory are presented along with the results of prior land use inventories in Table II-17.

Map II-2

WAUKESHA COUNTY PLANNING ANALYSIS AREAS



Source: SEWRPC.

Table II-15

EXISTING 2000 AND PLANNED 2035 POPULATION, HOUSEHOLDS AND EMPLOYMENT BY PLANNING ANALYSIS AREA

County and Planning Analysis Area (See Map II-2)	Population				Households				Jobs			
	Existing 2000	Planned Increment: 2000 - 2035		Total 2035	Existing 2000	Planned Increment: 2000 – 2035		Total 2035	Existing 2000	Planned Increment: 2000 - 2035		Total 2035
		Number	Percent			Number	Percent			Number	Percent	
Waukesha												
1	35,500	9,200	25.9	44,700	14,200	4,300	30.3	18,500	43,800	9,800	22.4	53,600
2	50,900	6,300	12.4	57,200	19,000	3,200	16.8	22,200	58,500	6,500	11.1	65,000
3	38,200	7,200	18.8	45,400	14,500	3,400	23.4	17,900	27,000	7,400	27.4	34,400
4	21,400	9,400	43.9	30,800	7,500	3,800	50.7	11,300	7,400	1,300	17.6	8,700
5	18,400	7,200	39.1	25,600	6,600	3,100	47.0	9,700	9,300	4,300	46.2	13,600
6	59,400	16,300	27.4	75,700	21,800	7,100	32.6	28,900	31,500	13,400	42.5	44,900
7	93,800	20,500	21.9	114,300	36,800	9,600	26.1	46,400	78,900	10,400	13.2	89,300
8	32,900	7,300	22.2	40,200	11,200	3,200	28.6	14,400	11,500	7,800	67.8	19,300
9	10,300	2,600	25.2	12,900	3,600	1,200	33.3	4,800	2,900	2,000	69.0	4,900
Total	360,800	86,000	23.8	446,800	135,200	38,900	28.8	174,100	270,800	62,900	23.2	333,700

Source: SEWRPC.

Table II-16

POPULATION IN THE REGION BY SEWER SERVICE AREA: EXISTING 2000 AND 2035 RECOMMENDED PLAN

County and Sewer Service Area Name	Existing Population: 2000			Sewered Population: 2035 Recommended Plan		
					Change	
	Sewered	Unsewered[a]	Total	2035	Number	Percent
Waukesha County						
Big Bend	-	1,860	1,860	1,930	1,930	-
Brookfield East[i]	18,430	-	18,430	20,380	1,950	10.6
Brookfield West[ii]	27,740	360	28,100	32,580	4,840	17.4
Butler	1,840	-	1,840	1,880	40	2.2
Delafield[iii]	5,940	4,680	10,620	12,800	6,860	115.5
Dousman[iv]	1,960	1,690	3,650	4,960	3,000	153.1
Eagle Spring Lake/ Mukwonago Park/ Rainbow Springs	-	460	460	450	450	-
Elm Grove	5,570	-	5,570	5,770	200	3.6
Golden Lake	-	180	180	190	190	-
Hartland	8,770	260	9,030	11,310	2,540	29.0
Lake Country[v]	1,280	11,110	12,390	14,080	12,800	>300.0
Lannon	1,210	80	1,290	1,900	690	57.0
Menomonee Falls East[vi]	28,740	840	29,580	34,410	5,670	19.7
Menomonee Falls West[vii]	480	1,040	1,520	4,910	4,430	>300.0
Mukwonago (part)	6,260	1,090	7,350	11,260	5,000	79.9
Muskego[viii]	19,090	350	19,440	28,610	9,520	49.9
Muskego South[ix]	1,090	40	1,130	1,240	150	13.8
New Berlin[x]	31,970	2,500	34,470	41,190	9,220	28.8
Oconomowoc[xi]	13,750	1,810	15,560	21,380	7,630	55.5
Pewaukee[xii]	20,560	1,900	22,460	32,140	11,580	56.3
Sussex/Lisbon	10,270	1,660	11,930	17,770	7,500	73.0
Wales	-	1,600	1,600	1,950	1,950	-
Waukesha	67,300	8,410	75,710	88,440	21,140	31.4

Source: SEWRPC

[i] Includes area of the City of Brookfield tributary to the Milwaukee Metropolitan Sewerage District
[ii] Includes area of the City of Brookfield tributary to the Fox River Water Pollution Control Commission sewage treatment plant, along with small areas of the Village of Menomonee Falls and the City of New Berlin tributary to that treatment plant
[iii] Includes Village of Nashotah and Nemahbin Lakes Sewer Service Area
[iv] Includes Lower Genesee Lake, Pretty Lake, and School Section Lake Sewer Service Areas
[v] Includes the following sewer service areas located generally east of the City of Oconomowoc: Ashippun Lake, Beaver Lake, Lake Keesus, North Lake, Oconomowoc Lake, Okauchee Lake, Pine Lake, and the Village of Merton
[vi] Includes area of the Village of Menomonee Falls tributary to the Milwaukee Metropolitan Sewerage District
[vii] Includes area of the Village of Menomonee Falls tributary to the Sussex sewage treatment plant
[viii] Includes area of the City of Muskego tributary to the Milwaukee Metropolitan Sewerage District
[ix] Includes area of the City of Muskego tributary to the Town of Norway Sanitary District No. 1 sewage treatment plant
[x] Includes area of the City of New Berlin tributary to the Milwaukee Metropolitan Sewerage District
[xi] Includes the Village of Lac la Belle Sewer Service Area
[xii] Includes the City and Village of Pewaukee and Pewaukee Lake Sewer Service Areas

Table II-17

CHANGE IN LAND USE ACRES IN WAUKESHA COUNTY: 1963-2000

Land Use Category[a]	1963	1970	1980	1990	2000
Urban					
Residential	28,148	35,476	50,745	59,247	75,221
Commercial	1,197	1,831	2,754	3,827	5,351
Industrial	924	1,758	2,747	3,802	5,525
Transportation, Communication, and Utilities	16,079	18,545	21,867	22,805	30,001
Governmental and Institutional	2,550	3,587	4,037	4,215	4,887
Recreational	3,311	4,605	5,756	6,465	8,253
Unused Urban Land	8,509	8,516	8,017	7,025	7,806
Subtotal Urban	**60,718**	**74,318**	**95,923**	**107,386**	**137,044**
Non-urban					
Natural Areas					
Surface Water	16,076	16,461	16,753	16,878	16,891
Wetlands	52,588	51,660	51,233	51,978	52,661
Woodlands	31,181	30,818	29,472	29,584	28,931
Subtotal Natural Areas	**99,845**	**98,939**	**97,458**	**98,440**	**98,483**
Agricultural	200,241	184,390	161,558	142,428	112,611
Unused Rural and Other Open Lands	10,786	13,943	16,651	23,336	23,397
Subtotal Nonurban	**310,872**	**297,272**	**275,667**	**264,204**	**234,491**
Total	371,590	371,590	371,590	371,590	371,535

Note: As part of the regional land use inventory for the year 2000, the delineation of existing land use was referenced to real property boundary information not available for the 1990 and prior inventories. This change increases the precision of the land use inventory and makes it more useable to public agencies and private interests throughout the Region. As a result of the change, however, year 2000 land use inventory data are not strictly comparable with data from the 1990 and prior inventories. At the county and regional level, the most significant effect of the change is to increase the transportation, communication, and utilities category—the result of the use of actual street and highway rights-of-way as part of the 2000 land use inventory, as opposed to the use of narrower estimated rights-of-way in prior inventories. This treatment of streets and highways generally diminishes the area of adjacent land uses traversed by those streets and highways in the 2000 land use inventory relative to prior inventories.

Land Use Change: 1963-2000

Residential development was responsible for the most significant land use change within Waukesha County since 1963. Over 47,000 acres of land was converted to residential use as the county gained over 100,000 households between 1960 and 2000. Agricultural lands experienced the greatest loss of any land use within the county between 1963 and 2000. Nearly 88,000 acres of agricultural lands were converted to other land uses.

NATURAL RESOURCES

Groundwater Supply

The importance of groundwater as a source of water supply in Waukesha County and Southeastern Wisconsin can be shown by analyzing water-use data. According to estimates by the U.S. Geological Survey, water users in the Southeastern Wisconsin Region used about 324 million gallons per day (mgd) of water from surface and groundwater sources in 2000, not including water used for thermoelectric-power production. From this amount, 228 mgd, or about 70 percent, was withdrawn from surface water sources, primarily Lake Michigan; and 96 mgd, or about 30 percent, from groundwater (see Table II-18). In Waukesha County, nearly all of the water supply has historically been obtained from the groundwater system. This has recently changed somewhat with the conversion of the eastern portion of the Village of Menomonee Falls, the Village of Butler, and the eastern portion of the City of New Berlin to Lake Michigan water over the period of 1999 to 2005. Groundwater use and total water use in Waukesha County have risen steadily since 1985, increasing by about 36 percent over the period 1985 to 2000.

Table II-18

TRENDS IN REPORTED SURFACE (SW) AND GROUNDWATER (GW) USE IN SOUTHEASTERN WISCONSIN: 1979-2000
(IN MILLION GALLONS PER DAY)

County Name	1979			1985			1990			2000		
	SW	GW	Total	SW	GW	Total	SW	GW	Total	SW	GW	Total
Kenosha	17.81	3.42	21.23	17.87	2.54	20.41	20.41	2.56	22.97	16.04	2.69	18.73
Milwaukee	172.47	10.18	182.65	213.26	9.91	223.17	184.96	6.17	191.13	183.22	6.32	189.54
Ozaukee	1.19	6.66	7.85	1.15	6.33	7.48	1.43	6.66	8.09	1.52	7.80	9.32
Racine	22.55	7.69	30.24	22.55	7.28	29.83	29.32	8.85	38.17	26.24	13.63	39.87
Walworth	0.14	9.89	10.03	1.16	9.14	10.30	0.08	16.07	16.15	0.07	14.95	15.02
Washington	0.15	10.11	10.26	0.06	9.37	9.43	0.08	9.76	9.84	0.08	13.30	13.38
Waukesha	0.02	33.37	33.39	0.12	27.84	27.96	0.04	30.78	30.82	0.35	37.56	37.91
Total	**214.33**	**81.32**	**295.65**	**256.17**	**72.41**	**328.58**	**236.32**	**80.85**	**317.17**	**227.52**	**96.25**	**323.77**
Percent of Total	72.5	27.5	100.0	78.0	22.0	100.0	74.5	25.5	100.0	70.3	29.7	100.0

Note: The trends are based on currently available data, but the sources of information and accuracy of data may vary from one reporting period to another. The USGS obtains most of water-use data from files of state agencies, and makes estimates for categories for which data are not reported (private domestic and agricultural uses). Water used for thermoelectric power is not included.
GW: Groundwater; SW: Surface Water
Source: SEWRPC and U. S. Geological Survey, 2000.

Recharge to groundwater is derived almost entirely from precipitation. Much of the groundwater in shallow aquifers originates from precipitation that has fallen and infiltrated within a radius of about 20 or more miles from where it is found. The bedrock formations underlying the unconsolidated surficial deposits of Waukesha County consist of Precambrian crystalline rocks; Cambrian sandstone; Ordovician dolomite, sandstone, and shale; and Silurian dolomite. The uppermost bedrock unit throughout most of the county is pervious Silurian dolomite, primarily Niagara dolomite, underlaid by a relatively impervious layer of Maquoketa shale. In some of the pre-Pleistocene valleys in the southwestern and central portions of the county, however, the Niagara dolomite is absent and the uppermost bedrock unit is the Maquoketa shale.

The deeper sandstone aquifers are recharged by downward leakage of water through the Maquoketa Formation from the overlying aquifers or by infiltration of precipitation in western Waukesha County where the sandstone aquifer is not overlain by the Maquoketa Formation and is unconfined. On the average, precipitation annually brings about 32 inches of water to the surface area of the county. It is estimated that approximately 80 percent of that total is lost by evapotranspiration. Of the remaining water, part runs off in streams and part becomes groundwater. It is likely that the average annual groundwater recharge to shallow aquifers is 10 to 15 percent of annual precipitation.

To document the utilization of the shallow aquifers in the county, it may be assumed, for example, that, on the average, 10 percent of the annual precipitation reaches groundwater. Then, the average groundwater recharge in the County would be about 88 mgd. As previously noted, the estimated daily use of groundwater in 2000 was about 38 mgd, which is about 43 percent of the total amount of groundwater assumed to be recharged in a given year. This indicates that there is an adequate annual groundwater recharge to satisfy water demands on the shallow aquifer system in Waukesha County on a countywide basis. However, the availability on a localized area basis will vary depending upon usage, pumping system configuration, and groundwater flow patterns.

The situation is different for the deep aquifers where withdrawals of groundwater cause supply/demand imbalance in areas of concentrated use of groundwater, which has resulted in the declining potentiometric surface and mining of groundwater. For example, Professor Douglas Cherkauer of the University of Wisconsin-Milwaukee, estimated that the demand on groundwater from the deep sandstone aquifer in Waukesha County is greater than the available supply (see Table II-19).

Table II-19

ESTIMATES OF AVAILABLE GROUNDWATER IN WAUKESHA COUNTY, 1999

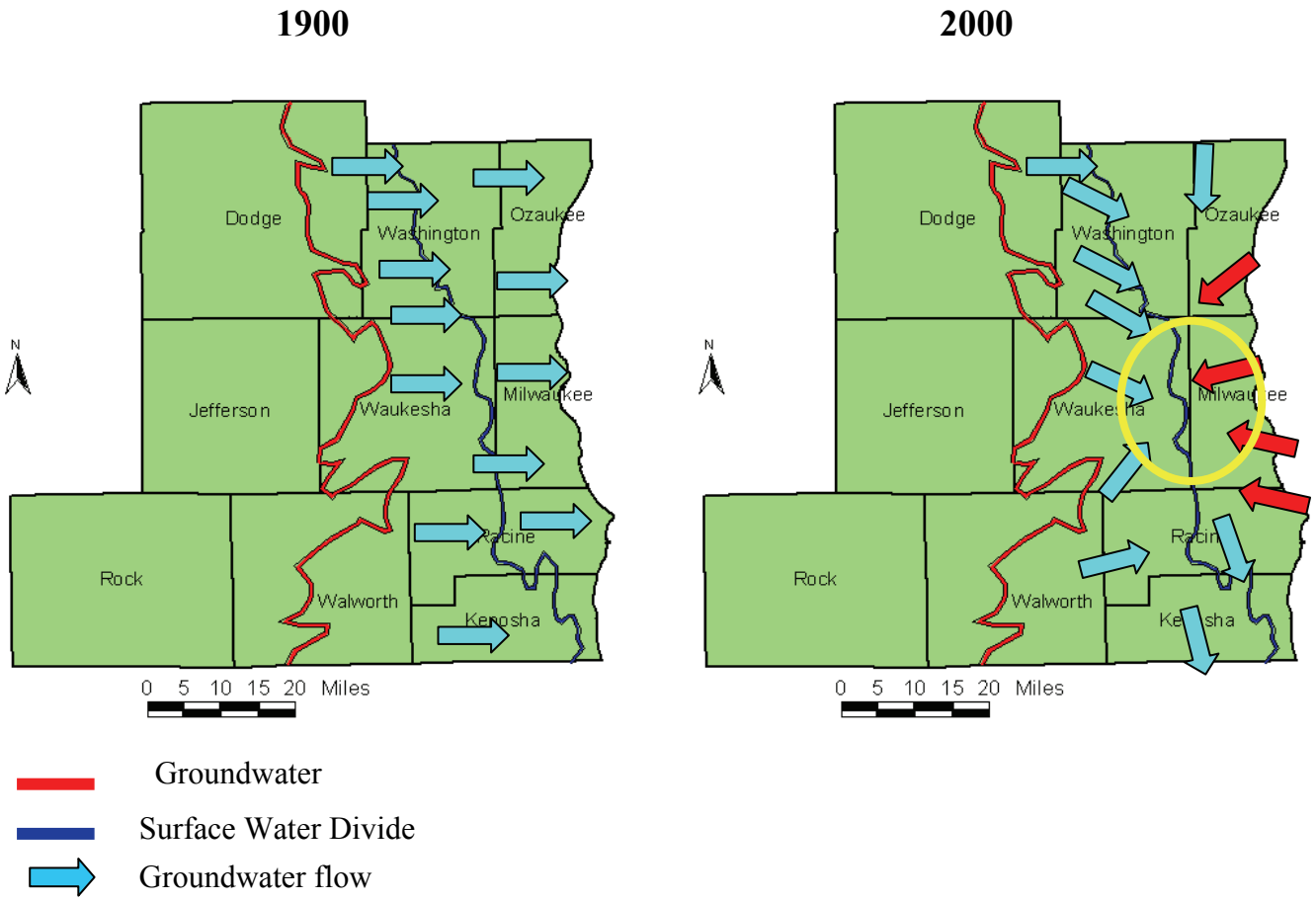
Aquifer	Recharge Area (square miles)	Estimated Recharge Rate (inches per year)	Average Daily Recharge (mgd)	Average Daily Demand (mgd)
Shallow	400	3.1	59	3.5
Deep	100	3.1	14.8	31.5

Note: mgd: million gallons per day
Source: D.S. Cherkauer, 1999

The imbalanced withdrawal of groundwater has shifted the major pumping center in Southeastern Wisconsin from the City of Milwaukee in the early 1900's to eastern Waukesha County in 2005. As a result of the groundwater use trend, the center of the "cone of depression", a term used to describe the deepest part of the pumping drawdown, has shifted westward about eight miles from Milwaukee to near eastern Waukesha County. Groundwater levels in the "cone of depression" have dropped about 500 feet since the onset of groundwater pumping. Figure II-1 shows how groundwater flows have been influenced as a result of groundwater pumping.

Figure II-1

SIMULATED GROUNDWATER FLOW DIRECTION ALTERATION FROM GROUNDWATER PUMPING



Source: SEWRPC

Surface Water Resources
Waukesha County has or contains portions of 33 lakes that comprise approximately 14,000 acres or almost 4 percent of the total area of the county. Surface water drains into the Fox, Rock, Root, and Menomonee River watersheds. The Menomonee and Root River watersheds lie east of the subcontinental divide and drain into the Great Lakes basin. The Fox and Rock Watersheds are west of the subcontinental divide and drain west into the Mississippi River basin.

FORMULATION OF OBJECTIVES

Planning may be described as a rational process for formulating and achieving objectives. The formulation of objectives is an essential task to be undertaken before plans can be prepared. This chapter presents a set of objectives along with supporting principles and related standards recommended by the Comprehensive Development Plan Advisory Committee as a basis for the preparation of a Comprehensive Development Plan for Waukesha County. The objectives are derived from the objectives contained in the year 2035 Regional Land Use Plan for Southeastern Wisconsin.

The key steps in the comprehensive planning process are 1) formulation of objectives, principles and standards, 2) inventory, 3) analyses and forecasts, 4) plan design, 5) plan evaluation, and 6) plan refinement and plan adoption. Plan implementation, although a step beyond the planning process, is considered throughout the process so that realization of the plan may be achieved.

The terms "objective," "principle," "standard," "plan," "policy," and "program" are subject to a range of interpretations. Although this chapter deals with only the first three of these terms, an understanding of the interrelationship between the foregoing terms and the basic concepts which they represent is essential to any consideration of objectives, principles, and standards. Under the regional planning program, these terms have been defined as follows:

1. Objective: a goal or end toward the attainment of which plans and policies are directed.
2. Principle: a fundamental, primary, or generally accepted tenet used to support objectives and prepare standards and plans.
3. Standard: a criterion used as a basis of comparison to determine the adequacy of plan proposals to attain objectives.
4. Plan: a design that seeks to achieve agreed-upon objectives.
5. Policy: a rule or course of action used to ensure plan implementation.
6. Program: a coordinated series of policies and actions to carry out a plan.

GENERAL DEVELOPMENT OBJECTIVES

The following general development objectives, presented as part of the year 2035 regional land use plan, have been reaffirmed by the Comprehensive Development Plan Advisory Committee for use in the preparation of the Comprehensive Development Plan for Waukesha County; no ranking is implied by the order in which these objectives are listed:

1. Economic growth at a rate consistent with county resources, including land, water, labor, and capital, and primary dependence on free enterprise in order to provide needed employment opportunities for the expanding labor force.
2. A wide range of employment opportunities through a broad diversified economic base.
3. Preservation and protection of desirable existing residential, commercial, industrial, and agricultural development in order to maintain desirable social and economic values and renewal of obsolete and deteriorating areas in both urban and rural areas; and prevention of slums and blight.
4. A broad range of choice among housing designs, sizes, types, and costs, recognizing changing trends in age group composition, income, and family living habits.
5. An adequate, flexible, and balanced level of community services and facilities.

6. An efficient and equitable allocation of fiscal resources within the public sector of the economy.
7. An attractive and healthful physical and social environment with ample opportunities for high-quality education, cultural activities, and outdoor recreation.
8. Protection, sound use, and enhancement of the natural resource base.
9. Development of communities having distinctive individual character, based on physical conditions, historical factors, and local desires.

SPECIFIC DEVELOPMENT OBJECTIVES

Within the framework established by the general development objectives, a secondary set of more specific objectives, which are directly relatable to physical development plans, and which can be at least crudely quantified has been developed. The specific development objectives are concerned primarily with spatial allocation to, and distribution of, the various land uses; land use compatibility; resource protection; and accessibility.

The following specific development objectives have been formulated by the Comprehensive Development Plan Advisory Committee. No ranking is implied by the order in which these objectives are listed:

1. A balanced allocation of space to the various land use categories, which meets the social, physical, and economic needs of the county population.
2. A spatial distribution of the various land uses that will result in a convenient and compatible arrangement of land uses.
3. A spatial distribution of the various land uses which maintains biodiversity and which will result in the preservation and sustainable management of the natural resources of the County.
4. A spatial distribution of the various land uses which is properly related to the supporting transportation, utility, and public facility systems in order to assure the economical provision of transportation, utility, and public facility services.
5. The availability of a broad range of choice among housing designs, sizes, types, and costs, recognizing changing trends in age group composition, income, and family living habits.
6. The development and preservation of residential areas within a physical environment that is healthy, safe, convenient, and attractive.
7. The preservation, development, and redevelopment of a variety of suitable industrial and commercial sites both in terms of physical characteristics and location.
8. The conservation, renewal, and full use of existing urban service areas of the Region and the County.
9. The preservation of productive agricultural lands.
10. The preservation and provision of open space to enhance the total quality of the environment, maximize essential natural resource availability, give form and structure to urban development, and provide opportunities for a full range of outdoor recreational activities.

FORMULATION OF STANDARDS

Complementing each of the foregoing specific development objectives is a set of planning standards. Each set of standards is directly related to the objective. The standards facilitate application of the objectives in plan design and evaluation. The standards related to the ten specific objectives were developed by the subcommittee addressing the particular planning element. The following objective and standards serve as an example for industrial and commercial sites.

Objective
The preservation, development, and redevelopment of a variety of suitable industrial and commercial sites both in terms of physical characteristics and location.

Standards

1. Industrial, retail, and office uses should meet the following standards:

    a. Available adequate water supply, sanitary sewer service, storm water drainage facilities, and power supply.
    b. Ready access to the arterial street and highway system.
    c. Adequate off-street parking (may not be directly on-site) and loading areas.
    d. Provision of properly located points of ingress and egress appropriately controlled to prevent congestion on adjacent arterial streets.
    e. Site design appropriately integrating the site with adjacent land uses.
    f. Served by local transit service.

BALANCING OF PLANNING STANDARDS

In applying the planning standards and preparing the Comprehensive Development Plan for Waukesha County, it should be recognized that it is unlikely that the Plan can meet all of the standards completely. It should also be recognized that some objectives are complementary, with the achievement of one objective supporting the achievement of others. Conversely, some objectives may be conflicting, requiring reconciliation through consensus building and/or compromise.

For example, as part of the planning process, the objectives of preserving agricultural and other open space lands, must be balanced with the need to convert certain lands to urban use in support of the orderly growth and development of the County.

Most of the development objectives, principles, and standards were incorporated without significant change from the set of planning objectives, principles, and standards included in the adopted design year 2035 Regional Land Use Plan.

PLANNING OBJECTIVES AND STANDARDS

Agricultural, Natural and Cultural Resources Objective No. 1

A spatial distribution of the various land uses which maintains biodiversity and which will result in the preservation and sustainable use of the natural resources of the County.

Environmental Corridors and Isolated Natural Resource Areas

Principle

The preservation of environmental corridors and isolated natural resource areas in essentially natural, open use yields many benefits, including recharge and discharge of groundwater; maintenance of surface water and groundwater quality; attenuation of flood flows and flood stages; maintenance of base flows of streams and watercourses; reduction of soil erosion; abatement of air and noise pollution; provision of wildlife habitat; protection of plant and animal diversity; protection of rare and endangered species; maintenance of scenic beauty; and provision of opportunities for recreational, educational, and scientific pursuits. Conversely, since some environmental corridors and isolated natural resource areas are poorly suited for urban development, their preservation can help avoid serious and costly development problems while protecting the County's most valuable natural resources.

Notes: Environmental corridors are elongated areas in the landscape which contain concentrations of natural resource features (lakes, rivers, streams, and their associated shorelands and floodlands; wetlands; woodlands; prairies; wildlife habitat areas; wet, poorly drained, and organic soils; and rugged terrain and high-relief topography) and natural resource-related features (existing park and open space sites; potential park and open space sites; historic sites; scenic areas and vistas; and natural areas and critical species habitat sites). Primary

environmental corridors include a variety of these features and are at least 400 acres in size, two miles long, and 200 feet in width. Secondary environmental corridors also contain a variety of these features and are at least 100 acres in size and one mile in length. Isolated natural resource areas are smaller concentrations of natural resource features that are physically separated from the environmental corridors by intensive urban or agricultural uses; by definition, such areas are at least five acres in size and 200 feet in width.

Standards

a. Primary environmental corridors should be preserved in natural, open uses.
b. Secondary environmental corridors and isolated natural resource areas should be preserved in essentially natural, open uses to the extent practicable, as determined in county and local plans.

Uses considered compatible with both planning standards relating to the preservation of environmental corridors and isolated natural resource areas are indicated in Table II-20.

Table II-20

GUIDELINES FOR DEVELOPMENT CONSIDERED COMPATIBLE WITH ENVIRONMENTAL CORRIDORS

Component Natural Resource and Related Features within Environmental Corridors[a]	Permitted Development															
	Transportation and Utility Facilities (see General Development Guidelines below)				Recreational Facilities (see General Development Guidelines below)											Rural Density Residential Development (see General Development Guidelines below)
	Streets and Highways	Utility Lines and Related Facilities	Engineered Stormwater Management Facilities	Engineered Flood Control Facilities[b]	Trails[c]	Picnic Areas	Family Camping[d]	Swimming Beaches	Boat Access	Ski Hills	Golf	Playfields	Hard-Surface Courts	Parking	Buildings	
Lakes, Rivers, and Streams	--[e]	--[f,g]	--	--[h]	--[i]	--	--	X	X	--	--	--	--	--	--	--
Shoreland	X	X	X	X	X	X	--	X	X	--	X	--	--	X	X[j]	--
Floodplain	--[k]	X		X	X	X	--	X	X	--	X	X	--	X	X[l]	--
Wetland[m]	--[k]	X	--	--	X[n]	--	--	--	X	--	--[o]	--	--	--	--	--
Wet Soils	X	X	X	X	X	--	--	X	X	--	X	--	--	X	--	--
Woodland	X	X	Xp	--	X	X	X	--	X	X	Xp	Xp	Xp	Xp	X[p]	X
Wildlife Habitat	X	X	X	--	X	X	X	--	X	X	X	X	X	X	X	X
Steep Slope	X	X	--	--	--[q]	--	--	--	--	X[r]	X	--	--	--	--	--
Prairie	--	--[g]	--	--	--[q]	--	--	--	--	--	--	--	--	--	--	--
Park	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	--
Historic Site	--	--[g]	--	--	--[q]	--	--	--	--	--	--	--	--	X	--	--
Scenic Viewpoint	X	X	--	--	X	X	X	--	X	X	X	--	--	X	X	X
Natural Area or Critical Species Habitat Site	--	--	--	--	--[q]	--	--	--	--	--	--	--	--	--	--	--

NOTE: An "X" indicates that facility development is permitted within the specified natural resource feature. In those portions of the environmental corridors having more than one of the listed natural resource features, the natural resource feature with the most restrictive development limitation should take precedence.

Footnotes to Table II-20:

[a]*The natural resource and related features are defined as follows:*

Lakes, Rivers, and Streams: Includes all lakes greater than five acres in area and all perennial and intermittent streams as shown on U. S. Geological Survey quadrangle maps.
Shoreland: Includes a band 50 feet in depth along both sides of intermittent streams; a band 75 feet in depth along both sides of perennial streams.
Floodplain: Includes areas, excluding stream channels and lake beds, subject to inundation by the 100-year recurrence interval flood event.
Wetlands: Includes areas that are inundated or saturated by surface water or groundwater at a frequency, and with a duration sufficient to support, and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.
Wet Soils: Includes areas covered by wet, poorly drained, and organic soils.
Woodlands: Includes areas one acre or more in size having 17 or more deciduous trees per acre with at least a 50 percent canopy cover as well as coniferous tree plantations and reforestation projects; excludes lowland woodlands, such as tamarack swamps, which are classified as wetlands.
Wildlife Habitat: Includes areas devoted to natural open uses of a size and with a vegetative cover capable of supporting a balanced diversity of wildlife.
Steep Slope: Includes areas with land slopes of 12 percent or greater.
Prairies: Includes open, generally treeless areas which are dominated by native grasses; also includes savannas.
Park: Includes public and nonpublic park and open space sites.
Historic Site: Includes sites listed on the National Register of Historic Places. Most historic sites located within environmental corridors are archeological features such as American Indian settlements and effigy mounds and cultural features such as small, old cemeteries. On a limited basis, small historic buildings may also be encompassed within delineated corridors.
Scenic Viewpoint: Includes vantage points from which a diversity of natural features such as surface waters, wetlands, woodlands, and agricultural lands can be observed.
Natural Area and Critical Species Habitat Sites: Includes natural areas and critical species habitat sites as identified in the regional natural areas and critical species habitat protection and management plan.

[b]*Includes such improvements as stream channel modifications and such facilities as dams.*

[c]*Includes trails for such activities as hiking, bicycling, cross-country skiing, nature study, and horseback riding, and excludes all motorized trail activities. It should be recognized that trails for motorized activities such as snowmobiling that are located outside the environmental corridors may of necessity have to cross environmental corridor lands. Proposals for such crossings should be evaluated on a case-by-case basis, and if it is determined that they are necessary, such trail crossings should be designed to ensure minimum disturbance of the natural resources.*

[d]*Includes areas intended to accommodate camping in tents, trailers, or recreational vehicles, which remain at the site for short periods of time, typically ranging from an overnight stay to a two-week stay.*

[e]*Certain transportation facilities such as bridges may be constructed over such resources.*

[f]*Utility facilities such as sanitary sewers may be located in or under such resources.*

[g]*Electric power transmission lines and similar lines may be suspended over such resources.*

[h]*Certain flood control facilities such as dams and channel modifications may need to be provided in such resources to reduce or eliminate flood damage to existing development.*

[i]*Bridges for trail facilities may be constructed over such resources.*

[j]*Consistent with Chapter NR 115 of the* Wisconsin Administrative Code.

[k]*Streets and highways may cross such resources. Where this occurs, there should be no net loss of flood storage capacity or wetlands. Guidelines for mitigation of impacts on wetlands by Wisconsin Department of Transportation facility projects are set forth in Chapter Trans 400 of the* Wisconsin Administrative Code.

[l]*Consistent with Chapter NR 116 of the* Wisconsin Administrative Code.

[m]*Any development affecting wetlands must adhere to the water quality standards for wetlands established under Chapter NR 103 of the* Wisconsin Administrative Code.

[n]*Only an appropriately designed boardwalk/trail should be permitted.*

[o]*Wetlands may be incorporated as part of a golf course, provided there is no disturbance of the wetlands.*

[p]*Only if no alternative is available.*

[q]*Only appropriately designed and located hiking and cross-country ski trails should be permitted.*

[r]*Only an appropriately designed, vegetated, and maintained ski hill should be permitted.*

Source: SEWRPC and Waukesha County

GENERAL DEVELOPMENT GUIDELINES

- Transportation and Utility Facilities: All transportation and utility facilities proposed to be located within the important natural resources should be evaluated on a case-by-case basis to consider alternative locations for such facilities. If it is determined that such facilities should be located within natural resources, development activities should be sensitive to, and minimize disturbance of, these resources, and, to the extent possible following construction, such resources should be restored to preconstruction conditions.

  The above table presents development guidelines for major transportation and utility facilities. These guidelines may be extended to other similar facilities not specifically listed in the table.

- Recreational Facilities: In general, no more than 20 percent of the total environmental corridor area should be developed for recreational facilities. Furthermore, no more than 20 percent of the environmental corridor area consisting of upland wildlife habitat and woodlands should be developed for recreational facilities. It is recognized, however, that in certain cases these percentages may be exceeded in efforts to accommodate needed public recreational and game and fish management facilities within appropriate natural settings.

  The above table presents development guidelines for major recreational facilities. These guidelines may be extended to other similar facilities not specifically listed in the table.

- Residential Development: Limited residential development may be accommodated in upland environmental corridors, provided that buildings are kept off steep slopes. The maximum number of housing units accommodated at a proposed development site within the environmental corridor should be limited to the number determined by dividing the total corridor acreage within the site, less the acreage covered by surface water, floodplains and wetlands, by five. The permitted housing units may be in single-family or multi-family structures. When rural residential development is accommodated, conservation subdivision designs are strongly encouraged to locate development outside the corridor while maintaining an overall development density of no more than one dwelling per five acres.

  Single-family development on existing lots of record should be permitted as provided for under county or local zoning at the time of adoption of the land use plan.

- Other Development: In lieu of recreational or rural density residential development, up to 10 percent of the upland corridor area in a parcel may be disturbed in order to accommodate urban residential, commercial, or other urban development under the following conditions: 1) the area to be disturbed is compact rather than scattered in nature; 2) the disturbance is located on the edge of a corridor or on marginal resources within a corridor; 3) the development does not threaten the integrity of the remaining corridor; 4) the development does not result in significant adverse water quality impacts; and 5) development of the remaining corridor lands is prohibited by a conservation easement or deed restriction. Each such proposal must be reviewed on a site-by-site basis.

  Under this arrangement, while the developed area would no longer be part of the environmental corridor, the entirety of the remaining corridor would be permanently preserved from disturbance. From a resource protection point of view, preserving a minimum of 90 percent of the environmental corridor in this manner may be preferable to accommodating scattered homesites and attendant access roads at an overall density of one dwelling per five acres throughout the upland corridor areas.

- Pre-Existing Lots: Single-family development on existing lots of record should be permitted as provided for under county or local zoning at the time of adoption of the Comprehensive Development Plan or on lands with the Primary Environmental Corridor amended through adopted sewer service plans.

- All permitted development presumes that sound land and water management practices are utilized.

OTHER ENVIRONMENTALLY SENSITIVE AREAS

Principle
Care in locating urban and rural development in relation to other environmentally sensitive areas can help to maintain the overall environmental quality of the County and to avoid developmental problems.

Standards
a. Small wetlands, woodlands, and prairies not identified as part of an environmental corridor or isolated natural resource area should be preserved to the extent possible, as determined in county and local plans.
b. All natural areas and critical species habitat sites identified for preservation in the Regional Natural Areas and Critical Species Habitat Protection and Management Plan should be preserved.
c. One hundred-year recurrence interval floodlands should not be allocated to any development, which would cause or be subject to flood damage; and no unauthorized structure should be allowed to encroach upon and obstruct the flow of water in perennial stream channels and floodways.
d. Urban and rural development should be directed away from areas with steep slopes (12% or greater) or with seasonally high groundwater one foot or less from the surface.
e. Land use patterns should be designed to discourage development of below grade structures on soils with seasonally high groundwater less than 3 feet from the surface. The intent is to allow development on these marginal soils, providing below grade structures (including basements) maintain a minimum of one foot separation from the seasonally high groundwater level.

RESTORATION/ENHANCEMENT OF NATURAL CONDITIONS

Principle
The restoration of unused farmland and other open space land to more natural conditions, resulting in the re-establishment or enhancement of wetlands, woodlands, prairies, grasslands, and forest interiors, can increase biodiversity and contribute to the overall environmental quality of the County by providing additional functional values as set forth in Objective No. 1 above.

Standard

a. Carefully planned efforts to restore unused farmland and other open space land to more natural conditions should be encouraged.

Agricultural, Natural and Cultural Resources Objective No. 2

The preservation of productive agricultural land.

Principle

The preservation of productive agricultural land is important for meeting future needs for food and fiber. Agricultural areas, in addition to providing food and fiber, can provide wildlife habitat and contribute to the maintenance of an ecological balance between plants and animals. Moreover, the preservation of agricultural areas also contributes immeasurably to the maintenance of the scenic beauty and cultural heritage of the County. Maintaining agricultural lands near urban areas can facilitate desirable and efficient production-distribution relationships, including community-supported agriculture operations.

The preservation of agricultural lands can maximize return on investments in agricultural soil and water conservation practices; and minimizes conflicts between farming operations and urban land uses.

Standard

Prime agricultural lands in Waukesha County includes those lands that meet all the following: 1) Land use is agricultural, unused/open (rural), primary/secondary environmental corridor or isolated natural areas, using SEWRPC definitions; 2) The stated land use makes up at least 5 square miles of "contiguous" lands, meaning all connecting lands are at least 1000 lineal feet in width - including adjacent communities, and excluding transportation corridors; 3) 75% of the land ownership parcels within the contiguous area are 35 acres or more; 4) Every parcel is outside of a planned sewer service area boundary; 5) 75% of every parcel is agricultural or open/unused (rural) land uses by SEWRPC definitions; and 6) 50% of the soils for every parcel are Land Capability Class I or II by NRCS definitions.

This standard is a modification of the standard used to prepare the Development Plan for Waukesha County in 1996. The standard in the 1997 Development Plan read "Prime agricultural lands in Waukesha County includes those lands in agricultural use which meet the following criteria: 1) the farm unit must be at least 35 acres in area; 2) at least 50 percent of the farm unit must be covered by soils which meet Natural Resources Conservation Service standards for National prime farmland; and 3) the farm unit must be located within a block of farmland at least five square miles in size". The definition used in 1997 became difficult to map using land information system technology. As a result, the Agriculture, Natural and Cultural Resources Element Subcommittee of the Comprehensive Development Plan Advisory Committee at their August 3, 2005 meeting approved the modification of the standards used for the delineation of prime agricultural lands. The modified standards can be mapped using land information system technology. In general, the modified standards produced the same map results used in the 1997 Development Plan.

The standard utilized in the identification of prime agricultural lands in the design year 2010 regional land use plan, including the criterion indicating that the farm unit be located within a block of farmland at least 100 acres in size, and the criterion indicating that at least 50 percent of the farm unit must be covered by Class I, Class II, or Class III soils was, to a large extent, based upon criteria utilized in the identification of farmland preservation areas in county farmland preservation plans completed within the Region in the early 1980s, including the Waukesha County Agricultural Land Preservation Plan. The 100-acre minimum combined farmland area was chosen for such plans because it was consistent with the State's minimum acreage planning criterion for farmland preservation areas under Wisconsin's Farmland Preservation Program. This relatively small area would enable the largest number of farmers to qualify for tax credits under the State Farmland Preservation Program.

While the recognition in a land use plan of smaller blocks of farmland may enable a larger number of farmers to qualify for tax credits, the maintenance of long-term agricultural use within such smaller blocks in an urbanizing region such as Southeastern Wisconsin has proven to be very difficult. Among those reasons frequently cited to explain that difficulty is the following:

1. Relatively large blocks of farmland are necessary to support such agriculture-related businesses as distributors of farm machinery and parts and farm supplies. Scattered, relatively smaller blocks of farmland do not provide the critical mass necessary for such agribusiness support enterprises. Consequently, farmers remaining in such smaller blocks must travel ever-increasing distances for support services.

2. In many cases, smaller blocks of farmland are merely remnants of formerly larger blocks which have been subject to intrusion by urban residential development. This intrusion has resulted in significant urban-rural conflicts, including problems associated with the objection by residents of urban-type land subdivision developments to odors associated with farming operations; to the use of fertilizers, herbicides and pesticides, and other agriculturally related chemicals; to the noise associated with the operation of farm machinery during the early and late hours of the day; and to the movement of large farm machinery on rural roads being used increasingly for urban commuting.

3. For most farming enterprises, the economies of scale require relatively large tracts of land, frequently involving many hundreds of acres. The breakup of large blocks of farmland by urban intrusion makes it more difficult for farmers to assemble such larger tracts either through ownership or rental arrangements. Tract assembly is thus complicated by scattered field locations, resulting in costly and inconvenient related travel distances and, therefore, in unproductive time and higher fuel consumption.

4. In agricultural communities on the fringe of urbanizing areas, there is often a declining interest among the next generation of farmers to continue farm operations. This is particularly true where alternative land uses are perceived to be available. This phenomenon is reinforced by the rigors of day-to-day farm life when compared with urban lifestyles.

The criterion specifying that prime agricultural lands include those areas where 50 percent or more of the farm unit is covered by soils meeting U. S. Natural Resources Conservation Service standards for National prime farmland or farmland of Statewide importance was valid when the first county farmland preservation plans were prepared in the early 1980's. Inclusion of soils of statewide importance, or Class III soils, in the standard was appropriate even though such soils may have had marginal crop production value because a high proportion of the farms within the County then were dairy operations. Dairy operations can be viable even though a relatively large portion of the farm unit may be covered by Class III soils because such soils are suitable for grazing, production of animal feed crops, and the use of cover crops related to the dairy operations. However, increased specialization of farm operations, and loss of smaller “family” farms and dairy farms in Waukesha County has now raised questions concerning continued utilization of farmland of statewide importance, or Class III soils, as a criterion in the identification of prime agricultural lands within Waukesha County.

Local public officials, farmers, landowners, and soil scientists stated, at meetings held to review the preliminary 1997 Development Plan for Waukesha County land use plan, that lands covered by Class III soils should not be considered as prime farmland. It was noted that such soils in Waukesha County, being excessively wet, droughty or steep, rendering them unsuitable for the production of cash grain crops such as corn or soybeans. Because Class III soils are not as well-suited for intensive cash grain farming as Class I and Class II soils, and because of the significant loss of dairy farm operations within Waukesha County over the past three decades, lands covered by Class III soils no longer have the same inherent value as an agricultural resource as when dairy farms were prevalent. The criterion for the five square mile farmland block size is not a new criterion. Indeed, the Southeastern Wisconsin Regional Planning Commission utilized the five-square-mile-block criterion in the identification of prime agricultural land under the first-generation, design year 1990, regional land use plan adopted by the Commission in 1966. This criterion was established with direct input from, and utilizing the collective judgment of, University of Wisconsin-Extension agricultural agents working in the Region at that time.

As a practical matter, the application of the "block" standard would involve the delineation of gross areas of at least five square miles containing concentrations of farmland meeting the three criteria cited above. At least 75 percent of the gross area should be comprised of such farmland including adjacent associated environmental corridor lands, that occur within the blocks of such farmland.

In 2005, the Agriculture, Natural and Cultural Resources Subcommittee of the Comprehensive Development Plan Advisory Committee reaffirmed the concerns over the inclusion of Class III soils and using a farmland block size smaller than five square miles in the standards for prime agricultural lands.

Notes: National prime farmland consists of agricultural lands covered by U. S. Natural Resources Conservation Service-designated Class I and Class II soils. Class I soils are deep, well drained, and moderately well drained, nearly level soils with no serious limitation that restrict their use for cultivated crops. Class II soils are generally deep and well drained but may have some limitations that reduce the choice of plants that can be economically produced or require some conservation practices.

Farmland of Statewide importance consists of agricultural lands covered by U. S. Natural Resources Conservation Service-designated Class III soils. Class III soils have moderate limitations due to wetness, steepness or drought conditions that restrict the choice of plants or require special conservation practices or both.

Agricultural, Natural and Cultural Resources Objective No. 3

The preservation and provision of open space to enhance the total quality of the County environment, maximize essential natural resource availability, give form and structure to urban development, and provide opportunities for a full range of outdoor recreational activities.

Principle
Open space is the fundamental element required for the preservation and sustainable use of such natural resources as soil, water, woodlands, wetlands, native vegetation, and wildlife; it provides the opportunity to add to the physical, intellectual, and spiritual growth of the population; it enhances the economic and aesthetic value of certain types of development; and it is essential to outdoor recreational pursuits.

Standards
a. Major park and recreation sites providing opportunities for a variety of natural resource-oriented, self actualized outdoor recreational activities should be provided by the County within a 4-mile service radius of every dwelling unit in the County, and should have a minimum gross site area of 250 acres. Examples of such uses include: camp site, swimming beach, picnic area, golf course, ski hill, hiking and cross country ski trails, horseback riding, boat launch, nature study area, and play field area.
b. Other park and recreation sites should be provided within a maximum service radius of one mile of every dwelling unit in an urban area, and should have a minimum gross site area of five acres. (S*tandard to be refined through working with municipalities; SEWRPC standard for neighborhood parks, include a standard for one community park with a min. site area of 25 acres in each Town.*) *Suggested text from SEWRPC "In rural areas, a minimum of one community park having a minimum gross site area of 25 acres should be provided by each Town."*
c. Typically local municipalities provide outdoor recreation facilities to afford the resident population of the opportunities to participate in intensive nonresource-oriented outdoor recreation activities. These types of facilities are activity specific such as tennis, baseball, basketball, soccer, skate parks and playgrounds.
d. Areas having unique scientific, cultural, scenic, or educational value should not be allocated to any urban or agricultural land uses; adjacent surrounding areas should be retained in open space use, such as agricultural or limited recreational uses.
e. The County should acquire or otherwise protect land and establish Greenways along the following waterways: the Ashippun, Bark, Fox, Mukwonago, Oconomowoc and Pewaukee Rivers and Mill, Pebble, Scuppernong, and Spring Creeks and Pebble Brook. For the purposes of this plan, greenways are located along a stream or

river and are intended to provide aesthetic and natural resource continuity and often serve as ideal locations for trail facilities.

f. Where open space is mentioned as part of a conservation design residential planned unit development, said open space shall be protected as green or natural open space and no more than five (5) percent of said open space area shall be allowed to have impervious surfaces.

Agricultural, Natural and Cultural Resources Objective No. 4

A spatial distribution of land uses and specific site development designs which protects or enhances the surface and ground water resources of the County.

Principle

Information regarding existing and potential surface and ground water quality and quantity conditions is essential to any comprehensive land use and natural resource planning program. The existing quality condition of the surface and ground water resource provides important baseline data. The potential condition becomes the goal upon which planners and resource managers target their land use efforts.

Standards

a. Potentially contaminating land uses should not be located in areas where the potential for groundwater contamination is the highest.
b. Storm water management planning should seek to meet the potential biological use objectives of the streams in the County (presented in Chapter 3 of this Plan).

Notes: The Wisconsin Department of Natural Resources (DNR) is required, under Wisconsin Statutes and the State Water Resources Act of 1965, to establish a set of water use objectives and supporting water quality standards applicable to all surface waters of the state. The type of aquatic community a particular surface water resource is capable of supporting is represented by the biological use objectives. The potential biological use of streams indicates the biological use or trout stream class a stream could achieve if it was well managed and pollution sources were controlled.

The Wisconsin Department of Natural Resources (DNR) has established Administrative Code NR 140 to establish groundwater quality standards for substances detected in or having a reasonable probability of entering the groundwater resources of the state; to specify scientifically valid procedures for determining if a numerical standard has been attained or exceeded; to specify procedures for establishing points of standards application, and for evaluating groundwater monitoring data; to establish ranges of responses the department may require if a groundwater standard is attained or exceeded; and to provide for exemptions for facilities, practices and activities regulated by the department.

c. Land use development patterns and practices should be designed to preserve important groundwater recharge areas and should support maintaining the natural surface and groundwater hydrology to the extent possible.
d. Storm water management planning should seek to encourage ground water recharge to maintain the natural groundwater hydrology.

Notes: As of the writing of this Plan, the Southeastern Wisconsin Regional Planning Commission is engaged in the preparation of a Regional Water Supply Plan. The recommendations contained in the plan will be incorporated into future amendments to this Comprehensive Development Plan for Waukesha County.

Agricultural, Natural and Cultural Resources Objective No. 5

A spatial distribution of the various land uses which maintains biodiversity and clean air and will result in the protection and wise use of the natural resources of the County, including its soils, nonmetallic minerals, inland lakes and streams, groundwater, wetlands, woodlands, prairies, and wildlife.

Principle
The proper allocation of uses to land can assist in maintaining an ecological balance between the activities of man and the natural environment.

1. Soils

Principle
The proper relation of urban and rural land use development to soil types and distribution can serve to avoid many environmental problems, aid in the establishment of better regional settlement patterns, and promote the wise use of an irreplaceable resource.

Standards
1. Sewered urban development, particularly for residential use, should not be located in areas covered by soils identified in the detailed operational soil survey as having severe limitations for such development.
2. Unsewered suburban residential development should not be located in areas covered by soils identified in the detailed operational soil survey as unsuitable for such development.
3. Rural development, including agricultural and rural residential development, should not be located in areas covered by soils identified in the detailed operational soil survey as unsuitable for such uses.
4. Urban and rural development should be directed away from areas, with steep slopes (12% or greater) or with seasonally high groundwater one foot or less from the surface.
5. Land use patterns should be designed to discourage development of below grade structures on soils with seasonally high groundwater less than 3 feet from the surface. The intent is to allow development on these marginal soils, providing below grade structures (including basements) maintain a minimum of one foot separation from the seasonally high groundwater level.

2. Nonmetallic Minerals

Principle
Nonmetallic minerals, including sand and gravel, dimensional building stone, and organic materials, have significant commercial value and are an important economical supply of the construction materials needed for the continued development of Waukesha County and the Region and for the maintenance of the existing infrastructure. Urban development of lands overlying these resources and urban development located in close proximity to these resources may make it impossible to economically utilize these resources in the future and thus may result in shortages and concomitant increases in the costs of those materials, which would ultimately be reflected in both consumer prices and in the community tax structure.

Standard
All known economically viable nonmetallic mineral deposits should be protected and preserved for future mining.

3. Clean Air

Principle
Air is a particularly important determinant of the quality of the environment for life, providing the vital blend of oxygen and other gases needed to support healthy plant and animal life. Air, however, contains pollutants contributed by both natural and human sources which may be harmful to plant and animal life, that may injure or destroy such life, and that may severely damage personal and real property.

Standards
1. Encourage a centralized land use development pattern to minimize automobile travel and related air pollutant emissions.
2. Encourage protection of existing woodlands, wetlands, and prairies to enhance atmospheric oxygen supply levels.

Land Use Development Objective No. 1

A balanced allocation of space to the various land use categories which meets the social, physical, and economic needs of the County population.

Principle
The planned supply of urban land use should approximate the known and anticipated demand for that use.

Standards
a. For each additional 100 dwelling units to be accommodated within the County at each urban residential density, the following amounts of residential and related land should be allocated:

Residential Density	Residential Area (Net Area)		Residential Area Plus Supporting Land Uses (Gross Area)	
	Acres Per 100 Dwelling Units	Dwelling Units Per Acre	Acres Per 100 Dwelling Units	Dwelling Units Per Acre
High-Density Urban	8	12.5	13	7.7
Medium-Density Urban	23	4.3	32	3.1
Low-Density Urban	83	1.2	109	0.9
Suburban-Density	167	0.6	204	0.5
Rural-Density	500	0.2	588	0.17

b. For each additional 1,000 persons to be accommodated within the County, at least 5 acres of land should be set aside in major public parks of at least 250 acres in size, and at least 9 acres should be set aside in other public parks.
c. For each additional 1,000 persons to be accommodated within the County, approximately 12 acres of governmental and institutional land should be allocated.[1]
d. For each additional 100 industrial employees to be accommodated within the County, approximately 12 acres of industrial land should be allocated.[2]
e. For each additional 100 commercial employees to be accommodated in retail and service settings within the County, approximately 6 acres of retail and service land should be allocated.[2]
f. For each additional 100 commercial employees to be accommodated in office settings within the County, approximately 2.5 acres of commercial office land should be allocated.[3]

[1] *Commercial, industrial, and governmental and institutional area includes the area devoted to the given use, consisting of the ground floor site area occupied by any building, required yards and open space, and parking and loading areas.*

[2] *The industrial standard is intended to be representative of typical new single-story industrial development. It should be recognized that the number of industrial employees per acre can vary considerably from site to site, depending upon the nature of the manufacturing activity, the level of automation, the extent to which warehousing or office functions are located at the site, and other factors.*

[3] *The office standard is equivalent to a floor area ratio of 30 percent and a gross building area of about 325 square feet per employee.*

Land Use Development Objective No. 2

A spatial distribution of the various land uses which will result in a convenient and compatible arrangement of land uses.

Principle
The proper allocation of uses to land can avoid or minimize hazards and dangers to health, safety, and welfare and maximize amenity and convenience in terms of accessibility to supporting land uses.

Standards
1. Urban high-, medium-, and low-density residential uses should be located within neighborhood and other planning units which are served with centralized public sanitary sewerage and water supply facilities and contain, within a reasonable walking and bicycling distance necessary supporting local service uses, such as park, commercial, and elementary-school facilities.
2. Mixed-use development designs should be used, as appropriate, to accommodate urban land uses that are compatible and complimentary in the vicinity of each other. Mixed-use development may consist of residential and compatible business uses together.
3. To the extent practicable, residential and employment-generating land uses should be located so as to provide opportunities for living in proximity to work.
4. When accommodated, rural residential development should be located in such a way as to minimize conflicts attendant to dust, odors, and noise associated with farming activity that may arise when residences are located in the vicinity of agricultural operations. Rural residential development should also be located in such a way as to minimize impacts on the natural resource base including wildlife habitat.

Land Use Development Objective No. 3

A spatial distribution of the various land uses which is properly related to the supporting transportation, utility, and public facility systems in order to assure the economical provision of transportation, utility, and public facility services.

Principle
The transportation and public utility facilities and the land use pattern which these facilities serve and support are mutually interdependent in that the land use pattern determines the demand for, and loading upon, transportation and utility facilities; and these facilities, in turn, are essential to, and form a basic framework for, land use development.

Standards
1. Urban development should be located and designed so as to maximize the use of existing transportation and utility systems.
2. The transportation system should be located and designed to serve not only all land presently devoted to urban development but to land planned to be used for such urban development.
3. The transportation system should be located and designed to minimize the penetration of existing and planned residential neighborhood units by through traffic.
4. Transportation terminal facilities, such as off-street parking, off-street truck loading, and public transit stops, should be located in proximity to the principal land uses to which they are accessory.
5. Land developed or planned to be developed for urban high-, medium-, and low-density residential use should be located in areas serviceable by an existing or planned public sanitary sewerage system and preferably within the gravity drainage area tributary to such a system.
6. Land developed or planned to be developed for urban high-, medium-, and low-density residential use should be located in areas serviceable by an existing or planned public water supply system.
7. Land developed or planned to be developed for urban high, medium- density residential and commercial use should be located in areas serviceable by existing or planned public transit facilities.

8. Mixed use development should be encouraged to accommodate multi-purpose trips, including pedestrian trips, as a matter of convenience and efficiency.
9. In the absence of public sanitary sewer service, onsite sewage disposal systems should be utilized only in accordance with the following:
   a. Onsite soil absorption sewage disposal systems should be sited and designed in accordance with Chapter Comm 83 of the *Wisconsin Administrative Code.*
   b. The use of onsite sewage disposal systems should be limited to the following types of development:
      - Rural density residential development.
      - Suburban density residential development, limited, however, to areas already committed to such use through subdivision plats or certified surveys.
      - Urban land uses, which may be, required in unsewered areas limited to agriculture businesses, communication facilities, utility installations, public institutional uses and park and recreation sites.
   c. New urban development served by onsite sewage disposal systems in areas planned to receive sanitary sewer service is discouraged. Where such development is permitted, it should be designed so that the public and private costs of conversion to public sanitary sewer service are minimized.
   d. For a private sewage system serving multiple buildings located on a separate property and owned by multiple owners, the private sewage system must be owned and maintained by a governmental entity or agency. For condominium private sewage systems serving multiple units/buildings, owned by multiple owners and located on the same property as the unit/building, the owner/association must accept responsibility for the operation and maintenance of the private sewage system and have the local municipality provide written acceptance of this responsibility should the owner/association fail to do so.

Land Use Development Objective No. 4

The development and preservation of residential areas within a physical environment that is healthy, safe, convenient, and attractive.[4]

Principle A
Residential development in the form of planned residential neighborhoods can provide a desirable environment for families as well as other household types; can provide efficiency in the provision of neighborhood services and facilities; and can foster safety and convenience.

Standards
a. Urban high-, medium-, and low-density residential neighborhoods should be designed as cohesive units properly related to the larger community of which they are a part. Such neighborhoods should be physically self-contained within clearly defined and relatively permanent recognizable boundaries, such as arterial streets and highways, major park and open space reservations, or significant natural features, such as rivers, streams, or hills. Desirably, the neighborhoods should contain enough area to provide the following: housing for the population served by one elementary school and one neighborhood park; an interconnected internal street, bicycle-way, and pedestrian system which provides multiple opportunities for access and circulation; and those community and commercial facilities necessary to meet the day-to-day living requirements.[5]
b. Desirably, urban residential neighborhoods should accommodate a mix of housing sizes, structure types, and lot sizes, resulting in an overall density that is within the planned density range for each neighborhood.

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[4] *This objective does not address suburban density residential development (between 0.2 and 0.6 dwelling units per acre) since new suburban density residential development would be limited to that which is already committed in subdivision plats and certified surveys.*

[5] *Neighborhood sizes envisioned under these standards are as follows: high-density—160 acres; medium-density—640 acres; and low-density—2,560 acres. As a practical matter, smaller household sizes and the attendant lower neighborhood population levels often require that an elementary school or retail and service area be provided to serve two or more contiguous neighborhoods, rather than a single neighborhood.*

c. Conservation subdivision design concepts should be incorporated into high-, medium-, and low-density neighborhoods, as appropriate.[6]
d. To the extent possible, efforts directed at the conservation and renewal of existing residential areas should be undertaken on a neighborhood basis and should seek to preserve those cultural features which contribute to the promotion of neighborhood identity within the larger urban complex.

To meet the foregoing standards, land should typically be allocated as follows:

Land Use Category	Percent of Area in Land Development Category					
	Urban High-Density (7.0-17.9 dwelling units per net residential acre)	Urban Medium-Density (2.3-6.9 dwelling units per net residential acre)	Urban Low-Density (0.7-2.2 dwelling units per net residential acre)	Suburban-Density (0.2-0.6 dwelling units per net residential acre)	Rural-Density (0.1-0.2 dwelling units per net residential acre)	Agricultural (less than 0.2 dwelling units per net residential acre)
Residential	66.0	71.0	76.5	82.0	85.0	6.0
Streets and Utilities	25.0	23.0	20.0	18.0	15.0	4.0
Parks and Playgrounds	3.5	2.5	1.5	- -	- -	- -
Public Elementary Schools	2.5	1.5	0.5	- -	- -	- -
Other Governmental and Institutional	1.5	1.0	1.0	- -	- -	- -
Retail and Service	1.5	1.0	0.5	- -	- -	- -
Nonurban	- -	- -	- -	- -	- -	90.0
Total	100.0	100.0	100.0	100.0	100.0	100.0

Principle B
Residential development in mixed-use settings can provide a desirable environment for a variety of household types seeking the benefits of proximity to places of employment as well as civic, cultural, commercial, and other urban amenities. Examples of mixed use settings include dwellings above the ground floor of commercial uses and residential structures intermixed with, or located adjacent to, compatible commercial, institutional, or civic uses.

Standards
a. Opportunities should be provided for residential dwellings—particularly in the medium- and high-density range—within a variety of mixed-use settings.
b. Residential uses should be integrated into, or located in close proximity to, major economic activity centers.

Principle C
Residential development in a rural setting can provide a desirable environment for households seeking proximity to open space.

[6] *Conservation subdivision designs generally involve locating dwelling units in clusters surrounded by open space, thereby achieving the desired density for the site on an overall basis. The layout of individual lots and supporting streets is done in a manner that preserves the most significant existing natural resource features to the extent possible. In a rural setting, conservation subdivisions can include agricultural lands as part of the open space area that is planned to be preserved.*

Standards

a. The County and regional land use plans seek to maintain the rural character of lands located outside planned urban service areas.
b. Continued agricultural and other open space uses are encouraged in such areas.
c. Where residential development is to be accommodated, an overall density of no more than one dwelling unit per five acres should be maintained. The use of residential cluster designs, with homes developed in clusters surrounded by agriculture or other open space sufficient to maintain the maximum recommended density of no more than one home per five acres, is encouraged.
d. A development density of no more than one home per five acres in rural areas is recommended to help accomplish the following:
    - Minimize traffic volumes on rural highways and the need to widen highways beyond two lanes.
    - Preserve natural drainage systems insofar as possible and minimize drainage problems and the need for storm water management facilities.
    - Preserve open space and rural character, especially through the use of cluster design, to accommodate residential development while avoiding "wall to wall" residential subdivisions.
    - Minimize the risks to the groundwater supply and quality which the widespread use of onsite sewage treatment and wells at higher densities may pose in the long term.
    - Preserve, through careful design, the overall integrity of the rural landscape, including environmental corridors and wildlife habitat areas.
    - Minimize the loss of farmland covered by agricultural soils classified as Class I and Class II soils.

Land Use Development Objective No. 5

Provide for the preservation, development, and redevelopment of a variety of suitable industrial and commercial sites both in terms of physical characteristics and location.

Principle

The production and sale of goods and services are among the principal determinants of the level of economic vitality in any society; the important activities related to these functions require areas and locations suitable to their purposes.

Standards

1. Industrial, retail, and office uses should meet the following standards:
    a. Available adequate water supply, sanitary sewer service, stormwater drainage facilities, and power supply.
    b. Ready access to the arterial street and highway system.
    c. Adequate on-street and off-street parking (may not be directly on-site but within vicinity) and loading areas.
    d. Provision of properly located points of ingress and egress appropriately controlled to prevent congestion on adjacent arterial streets.
    e. Site design emphasizing integrated nodes or centers, rather than linear strips.
    f. Site design appropriately integrating the site with adjacent land uses.
    g. Served by local transit service (applies to industrial, retail, and office uses located within, or in proximity to, medium- and high-density areas).[7]

[7] *It should be recognized that industrial, retail, and office uses located in outlying areas may not be able to be served by transit service.*

2. In addition, major centers accommodating industrial, retail, and office development should meet the following standards:[8]
   a. Served by rapid and express transit service.
   b. Access within two miles of the freeway system.
   c. Access to a transport-corporate airport within a maximum travel time of 30 minutes (major office and industrial development).[9]
   d. Reasonable access through appropriate components of the transportation system to railway and seaport facilities, consistent with the requirements of the industries concerned (major industrial development).
   e. Residential uses appropriately integrated into, or located in proximity to, the major center.

Land Use Development Objective No. 6

The conservation, renewal, and full use of existing urban areas of the County.

Principle

The conservation and renewal, as appropriate, of existing urban areas can enhance their viability and desirability as places to live, work, recreate, and participate in cultural activities. Such efforts, along with infill development on vacant land within existing urban service areas, serves to maximize the use of existing public infrastructure and public service systems and can moderate the amount of agricultural and other open space land converted to urban use to accommodate growth in the county and regional population and economy.

Standards

1. Existing urban areas should be conserved and renewed, as appropriate.
2. To the extent possible, the additional urban land necessary to accommodate growth in the regional population and economy should be met through the renewal or redevelopment as appropriate of older, underutilized urban areas that are in need of revitalization and through the infilling of undeveloped land within existing urban service areas.

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[8] *A major economic activity center is defined as a concentrated area of commercial and/or industrial land having a minimum of 3,500 total employees or 2,000 retail employees. Major economic activity centers are further classified according to the following employment levels, recognizing that a major economic activity center may meet more than one of the indicated thresholds:*

Major industrial center: A major economic activity center that accommodates at least 3,500 industrial employees.

Major office center: A major economic activity center that accommodates at least 3,500 office employees.

Major retail center: A major economic activity center that accommodates at least 2,000 retail employees.

General-purpose major center: A center that qualifies as a major economic activity center having total employment of at least 3,500, but does not meet any of the above individual thresholds for an industrial, office, or retail center.

It should be recognized that major industrial, office, and retail centers generally encompass a mix of uses. A major industrial center may accommodate offices, service operations, and research facilities in addition to manufacturing, wholesaling, and distribution facilities. A major retail center may accommodate office and service uses in addition to retail operations. The mix of uses extends to residential uses—which should be integrated into, or provided in close proximity to, major economic activity centers, as those centers develop or are re-developed.

[9] *A transport-corporate airport is defined as an airport that is intended to serve business and corporate jets as well as virtually all small single- and twin-engine general aviation aircraft. Existing and proposed transport-corporate airports in the Region are identified in the regional airport system plan, documented in SEWRPC Planning Report No. 38 (2nd Edition),* A Regional Airport System Plan for Southeastern Wisconsin: 2010*, November 1996.*

Transportation Objective No. 1

A multi-modal transportation system which, through its location, capacity, and design, will effectively serve the existing regional and County land use pattern and promote the implementation of the regional land use plan and the Comprehensive Development Plan for Waukesha County, meeting and managing the anticipated travel demand generated by the existing and proposed land uses.

Principle

An integrated multi-modal regional transportation system connects major land use activities within the Region and County, providing the accessibility essential to the support of these activities. The transportation system should provide higher accessibility to areas recommended for development and redevelopment, and lower accessibility to areas not recommended for development.

Standards

1. The transportation system should be consistent with and serve to support, and promote the implementation of the land use plan.
    a. Higher relative transportation accessibility should be provided to areas recommended for development than to areas not recommended for development;
    b. Improvements in accessibility should be provided to areas recommended for development rather than to areas not recommended for development.

Transportation Objective No. 2

A multi-modal transportation system which provides appropriate types of transportation needed by all residents of the County at an adequate level of service; provides choices among transportation modes; and provides inter-modal connectivity.

Principle

A multi-modal regional transportation system is necessary to provide transportation service to all segments of the population and to support and enhance the economy and quality of life. The arterial street and highway system serving personal travel by automobile and freight travel by truck is, has been, and will likely continue to be the dominant element of the transportation system carrying over 90 percent of total daily travel, and serving the overwhelming majority of the population. However, there are substantial reasons for a multi-modal regional transportation system, including public transit and bicycle-pedestrian elements. Moreover, in the most heavily traveled corridors, public transit and bicycle and pedestrian facilities can alleviate peak travel loadings on highway facilities and the demand for land for parking facilities. Also, a multi-modal transportation system can support and enhance the quality of life and economy by providing a choice of modes.

Standards

1. Arterial Street and Highway System
    a. A grid of arterial streets and highways should be provided in urban areas of the Region at intervals of no more than one-half mile in each direction in urban high-density areas, at intervals of no more than one mile in each direction in urban medium-density areas, and at intervals of no more than two miles in each direction in urban low-density and suburban-density areas. In rural areas, arterials should be provided at intervals of no less than two miles in each direction.
    b. In urban areas of the Region, the grid of arterial streets should be direct and understandable.
    c. Arterial street and highway facilities should be provided with adequate traffic-carrying capacity to minimize traffic congestion.[a]

[a] *Design capacity is the maximum level of traffic volume a facility can carry before beginning to experience morning and afternoon peak traffic hour traffic congestion, and is expressed in terms of number of vehicles per average weekday. The design capacity and level of congestion thresholds are set forth in the following table:*

Facility Type	Average Weekday Traffic Volumes (vehicles per 24 hours)			
	Design Capacity and Upper Limit of Level of Service C	Upper Limit of Moderate Congestion and Level of Service D	Upper Limit of Severe Congestion and Level of Service E	Extreme Congestion and Level of Service F
Freeway				
Four-lane	60,000	80,000	90,000	> 90,000
Six-lane	90,000	121,000	135,000	> 135,000
Eight-lane	120,000	161,000	180,000	> 180,000
Standard Arterial				
Two-lane	14,000	18,000	19,000	> 19,000
Four-lane Undivided	18,000	23,000	24,000	> 24,000
Four-lane with Two-way Left Turn Lane	21,000	29,000	31,000	> 31,000
Four-lane Divided	27,000	31,000	32,000	> 32,000
Six-lane Divided	38,000	45,000	48,000	> 48,000
Eight-lane Divided	50,000	60,000	63,000	> 63,000

The level of congestion on arterial streets and highways may summarized by the following operating conditions:

Freeway			
Level of Traffic Congestion	Level of Service	Average Speed	Operating Conditions
None	A and B	Freeway free-flow speed	No restrictions on ability to maneuver and change lanes.
None	C	Freeway free-flow speed	Some restrictions on ability to maneuver and change lanes.
Moderate	D	1 to 2 mph below free-flow speed	Substantial restrictions on ability to maneuver and change lanes.
Severe	E	Up to 10 mph below free-flow speed	Virtually no ability to maneuver and change lanes. Operation at maximum capacity. No usable gaps in the traffic stream to accommodate lane changing.
Extreme	F	Typically 20 to 30 mph or less	Breakdown in vehicular flow with stop-and-go, bumper-to-bumper traffic.

Surface Arterial			
Level of Traffic Congestion	Level of Service	Average Speed	Operating Conditions
None	A and B	70 to 100% of free-flow speed	Ability to maneuver within traffic stream is unimpeded. Control delay at signalized intersections is minimal.
None	C	50 to 100% of free-flow speed	Restricted ability to maneuver and change lanes at mid-block locations.
Moderate	D	40 to 50% of free-flow speed	Restricted ability to maneuver and change lanes. Small increases in flow lead to substantial increases in delay and decreases in travel speed.
Severe	E	33 to 40 percent of free-flow speed	Significant restrictions on lane changes. Traffic flow approaches instability.
Extreme	F	25 to 33 percent of free-flow speed	Flow at extremely low speeds. Intersection congestion with high delays, high volumes, and extensive queuing.

2. Public Transit
   a. The public transit system should serve and connect medium and high density areas of the Region and the Region's major activity centers that currently generate, or have the potential to generate, ridership. The public transit services provided should include rapid, express, local, shuttle, and paratransit services. The detailed planning objectives, principles and standards for the public transit system are documented in SEWRPC Planning Report No. 49, A Regional Transportation System Plan for Southeastern Wisconsin: 2035.

3. Bicycle and Pedestrian Facilities
   a. All arterial streets and highways (including their bridge and underpass facilities) except freeways should provide accommodation for bicyclists upon construction or reconstruction, or for arterial facilities having a rural cross section if possible, when resurfaced.
   b. A regional system of off-street bicycle paths should be provided in accordance with the recommendations set forth in the adopted park and open space plans. These off-street bicycle paths should provide reasonably direct connections between the urban areas and communities on safe and aesthetically attractive routes with separation from motor vehicle traffic.
   c. The detailed planning objectives, principles and standards for bicycle and pedestrian facilities are documented in SEWRPC Planning Report No. 43, A Regional Bicvcle and Pedestrian Facilities System Plan for Southeastern Wisconsin: 2010, and amendments thereto.

Community Facilities Objective No. 1

To provide police, fire and other emergency service facilities necessary to maintain high-quality protection throughout the County.

Principle
The adequacy of police, fire and other emergency protection in the County is dependent upon the relationship between the distribution of land uses and the location of facilities available to serve those uses.

Standard
The future placement and current use of emergency service facilities needs to be coordinated to optimize emergency response times and to eliminate overlap of service areas and equipment.

Housing Objective No. 1

The provision of an adequate stock of decent, safe, and sanitary housing to meet the county's total housing requirement and, as components of that requirement, the effective market demand and true housing need.

Principle
Increases in the total number of households within the County as a result of new household formations and net in-migration of additional households as well as changing size and composition of existing households require a concomitant increase in housing units. New centers of employment, which accommodate industrial, retail, service, governmental, or other uses, may also prompt the need for additional employee housing.

Standards
1. The supply of vacant and available housing units should be sufficient to maintain and facilitate ready housing consumer turnover. Rental and homeowner vacancy rates at the county level and, if possible, within local municipalities should be maintained at a minimum of 4 percent and a maximum of 6 percent for rental units and a minimum of 1 percent and a maximum of 2 percent for homeowner units over a full range of housing types, sizes, and costs.
2. The supply of sound housing units should be provided through the working of the private housing sector to the maximum extent possible, with continued assistance, incentives, and cooperation by various Federal, State, and local governmental agencies rendered as necessary.
3. A sufficient supply of new housing should be made available within reasonable proximity to new employment centers. To meet this standard, additional housing at a rate of 75 housing units per 100 new jobs should be provided within a six-mile one-way travel distance of such employment centers.

Housing Objective No. 2

The provision of adequate locational choice of housing.

Principle
The Southeastern Wisconsin Region provides a wide variety of employment, educational, cultural, and recreational facilities. Adequate choice in the size, cost, and location of housing units will facilitate the opportunity for all households to utilize and enjoy these facilities. Geographic distribution and price level variety of housing units can also assist in reducing economic and racial imbalances and equalize fiscal disparities and services differences among communities within the Region.

Standard
Communities that seek to attract jobs, as reflected in the accommodation of new commercial and industrial development, should ensure that a broad range of housing styles, types and price ranges are provided so as to provide opportunities to minimize geographic imbalances between job and residence locations. In so doing, a community should examine both its range of housing stock and its range of jobs, with a view toward ensuring that the price range of the existing and planned housing stock compares favorably with the income range of the workers in those jobs.

Chapter 3

AGRICULTURAL, NATURAL, AND CULTURAL RESOURCES

INTRODUCTION

This chapter presents an inventory and analysis of the agricultural, natural and cultural resource base of Waukesha County. Included is descriptive information pertaining to climate, air quality, physiography, bedrock geology, topography, soils, groundwater resources, surface water resources, wetlands, woodlands, natural areas and critical species habitat sites, park and open space sites, environmental corridors, historic and cultural resources and agricultural lands.

The natural resource base of Waukesha County is one of the most important factors influencing the development potential of the County. It is the natural resource base, which makes the County an attractive location for residential, commercial, and industrial development. The natural resource base has great economic as well as recreational and aesthetic value. In order to preserve and protect this important asset, future urban development in Waukesha County must be carefully adjusted to the ability of the natural resource base to support various forms of urban and rural development without deterioration or destruction of that underlying and sustaining base.

The natural resource base is susceptible to irreversible damage through inappropriate land use, transportation, and public facility development, especially in Waukesha County, where a considerable proportion of the population resides in close proximity to environmentally sensitive inland lakes and waterways. Without sufficient understanding and recognition of the character and importance of the various elements of the natural resource base, human use and alteration of the natural environment proceeds at the risk of excessive costs in terms of both monetary expenditures and environmental degradation. A sound and meaningful countywide planning effort must therefore acknowledge that natural resources are limited, and that urban development should be properly adjusted to the natural resource base so that serious and costly environmental problems can be avoided.

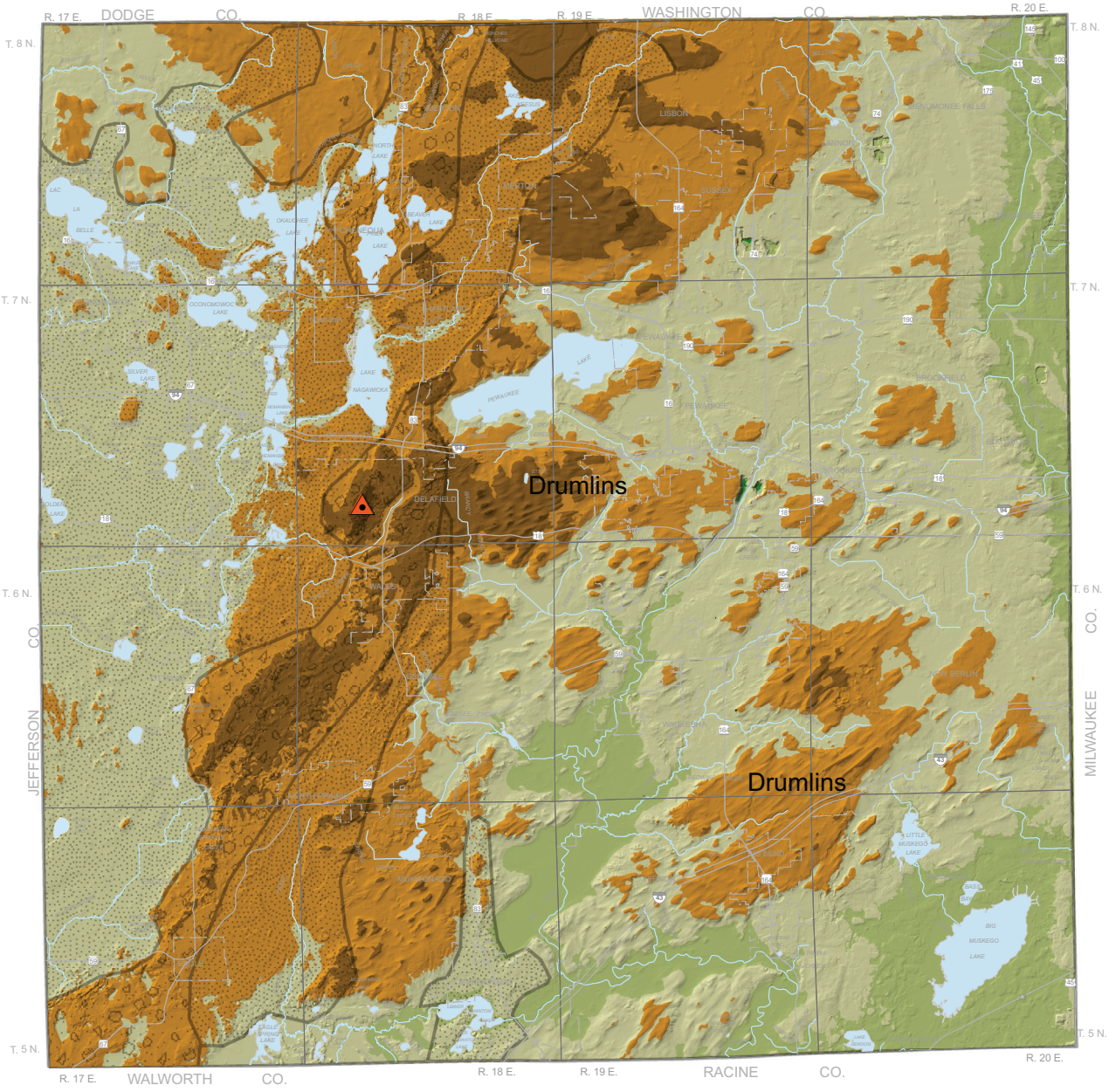
GEOLOGY AND PHYSIOGRAPHY

Surface Geology and Physiography

Four major stages of glaciation, the last of which was the Wisconsin stage, ending approximately 10,000 years ago in the State, have largely determined the physiography, topography, and soils of Waukesha County. Map III-1 presents the topographic and physiographic features of Waukesha County. The dominant physiographic and topographic feature in Waukesha County is the Kettle Moraine, an interlobate glacial deposit formed between the Green Bay and Lake Michigan lobes of the continental glacier that moved in a generally southerly direction from its origin in what is now Canada. The Kettle Moraine, which is oriented in a general northeast-southwest direction across western Washington, Waukesha, and Walworth Counties, is a complex system of kames, or crudely stratified conical hills; kettle holes formed by glacial ice blocks that became separated from the ice mass and melted to form depressions and small lakes as the meltwater deposited material around the ice blocks; and eskers, long, narrow ridges of drift deposited in abandoned drainage ways. The remainder of the County is covered by a variety of glacial landforms and features, including various types of moraines, drumlins, kames, outwash plains, and lake basin deposits.

Map III-1

TOPOGRAPHIC & PHYSIOGRAPHIC FEATURES OF WAUKESHA COUNTY



Legend

Elevation (In Feet)

- 1200 - 1232
- 1100 - 1200
- 1000 - 1100
- 900 - 1000
- 800 - 900
- 700-800
- <700
- Lapham Peak

Physiography

- Rolling Ground Moraine
- Nearly Level Outwash
- Kettle Moraine

N

0 1 2 Miles

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

Source: Waukesha County

The combined thickness of unconsolidated glacial deposits, alluvium, and marsh deposits overlying bedrock exceeds 100 feet throughout most of the County. Thicknesses are greatest where glacial materials fill the bedrock valleys and in areas of topographic highs formed by end moraines.

The most substantial glacial deposits, from 300 to 500 feet thick, are located in the northwestern part of the County in the lakes area and in portions of the Towns of Mukwonago and Vernon. The thinnest glacial deposits, 20 feet thick or less, are found along an approximately six-mile-wide band traversing the County in a northeasterly direction from the Village of Eagle to the Villages of Lannon and Menomonee Falls.

Geologic properties can influence the manner in which land is used, since geologic conditions, including the depth to bedrock, can affect the cost and feasibility of building site development and provision of public facilities and infrastructure. In the case of potential mineral extraction areas, the geologic attributes of the County are a valuable and irreplaceable resource. A need, therefore, exists in any planning program to examine not only how land is developed, but how the geologic resources can best be used and managed.

Topography

Topographic elevation in Waukesha County, as depicted in Map III-1, ranges from approximately 730 feet above mean sea level in the extreme eastern portions of the County along tributaries of the Menomonee River in Brookfield, Elm Grove, and Menomonee Falls, to 1,233 feet at Lapham Peak in the Town of Delafield, a variation of over 500 feet. Most of the high points in the County are located along the Kettle Moraine in three distinct areas: the southern half of the Town of Delafield near Lapham Peak, the southwestern quarter of the Town of Lisbon, and between State Highways 59 and 67 in the Towns of Genesee and Ottawa.

Bedrock Geology

Bedrock topography was shaped by preglacial and glacial erosion of the exposed bedrock. The consolidated bedrock underlying Waukesha County generally dips eastward at a rate of about 10 feet per mile. The bedrock surface ranges in elevation from about 900 feet above mean sea level, at Lapham Peak, to approximately 500 feet above mean sea level in the eastern portion of the County. The bedrock formations underlying the unconsolidated surficial deposits of Waukesha County consist of Precambrian crystalline rocks; Cambrian sandstone; Ordovician dolomite, sandstone, and shale; and Silurian dolomite. Figure III-1 shows a cross-section of the bedrock geology of Waukesha County. The uppermost bedrock unit throughout most of the County is Silurian dolomite, primarily Niagara dolomite, underlaid by a relatively impervious layer of Maquoketa shale. In some of the pre-Pleistocene valleys in the southwestern and central portions of the County, however, the Niagara dolomite is absent and the uppermost bedrock unit is the Maquoketa shale.

Suitability for Nonmetallic Mining

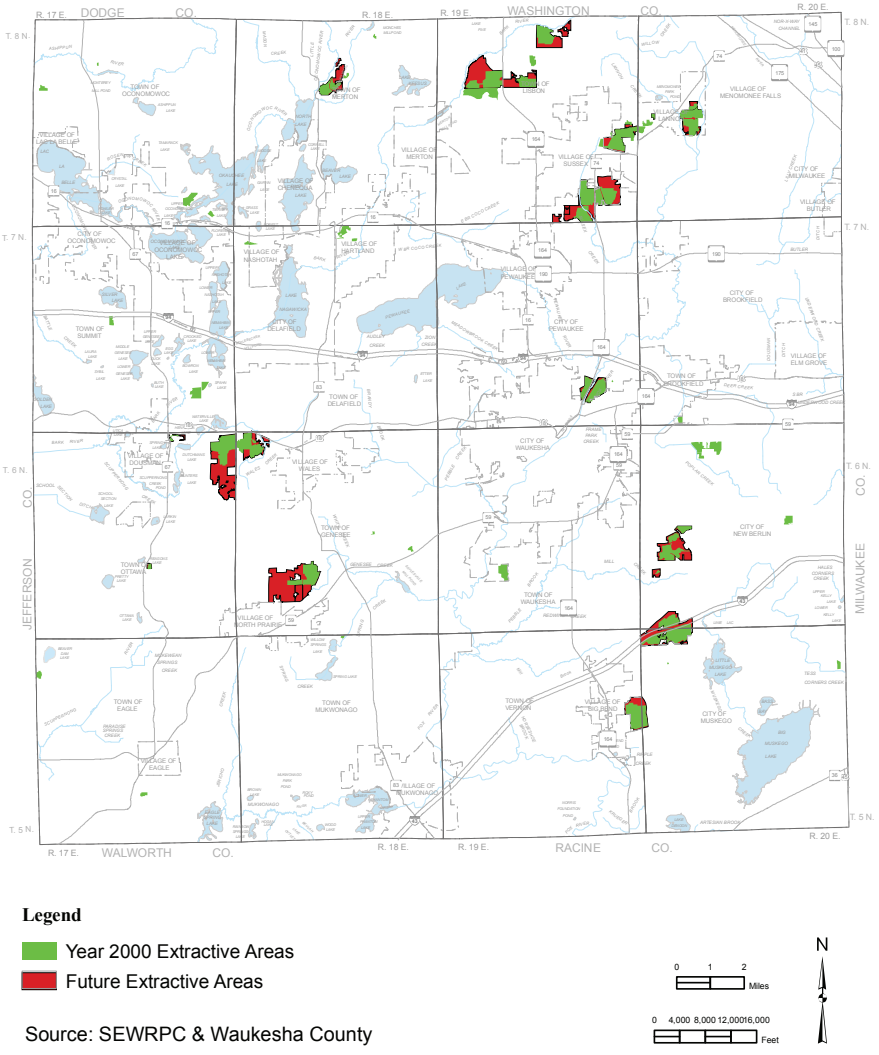
Waukesha County has an abundant supply of sand, gravel, and stone. The geology around and in the Kettle Moraine is the most likely source areas for sand and gravel. In this area, the melting waters of the glacier were most active in sorting and depositing high-quality sand and gravel as kames, eskers, and outwash terraces. Ground moraine, common in other parts of the County, typically has not been sorted, as has the glacial outwash, and is generally not as well suited for commercial sand and gravel. The most high quality material for nonmetallic mining is concentrated in the western half of the County along the Kettle Moraine and on outwash plains, although many other small deposits are also scattered throughout the remainder of the County. The most suitable areas for quarrying of stone are concentrated in the Villages of Lannon and Sussex, Town of Lisbon and the City of Pewaukee, with some smaller areas in other parts of the County.

Extractive land use in the County totaled about 4,000 acres, or about 1 percent of the total area of the County. This area consists primarily of lands devoted to the extraction of sand, gravel, and stone but also includes lands formerly used for such purposes and which lay idle. Areas devoted to extractive uses are scattered throughout the County.

Over the past approximately three decades, the area of the County devoted to extractive use increased by about 67 percent, from about 2,400 acres in 1963 to the 2000 level of 4,000 acres. Much of the additional extractive use during this time occurred in the form of the expansion of sites already used for extractive purposes in 1963 (see Map III-2).

In addition to the Waukesha County extractive land use data collated from the SEWRPC's 2000 land use inventory, information concerning existing ownership of lands utilized for mining or extractive operations, as well as adjacent lands with the potential for future commercially viable mining operations in the County, was provided by the Aggregate Producers of Waukesha County (see Map III-2). It should be noted that the information provided by the Aggregate Producers does not constitute a complete inventory of mineral resources in Waukesha County. An inventory of this type would involve the conduct of detailed studies concerning the economic viability of the potential extraction of nonmetallic mineral deposits in all areas of the County, given forecasts of the need or market demand for resource products of potential mining operations.

Map III-2
Waukesha County Nonmetallic Mineral Extraction Sites: 2005



Significant Geological Sites

A survey of scientifically and historically important bedrock geological sites in Southeastern Wisconsin was conducted by Dr. Joanne Klussendorf of the University of Illinois-Champaign-Urbana and Dr. Donald G. Mikulic of the Illinois State Geological Survey. Based on published literature, library archives of manuscripts, letters and unpublished reports, field notes and maps of earlier geologists and new field examinations, a list of significant geological sites known to have existed over the last 150 years, was compiled. The report identifies 30 significant geological sites in Waukesha County. Of the sites, 9 are classified as sites of statewide or greater significance, 8 sites are of county wide or regional significance and the remaining 13 sites are of local significance. Table III-1 presents the significant geological areas in Waukesha County.

Table III-1

SIGNIFICANT GEOLOGICAL AREAS IN WAUKESHA COUNTY: 2005

Site Name	Classification Code	Location	Description and Comments
Scuppernong Creek Spillway	GA-1	T6N, R18E Sections 5, 6 Town of Genesee T7N, R18E Sections 32, 33 Town of Delafield	One of the finest examples of a glacial spillway remaining in the United States. Studied on a national and international basis. Associated with several other interlobate glacial features including kames, a kame delta, and kettles.
Johnston Quarry and Kilns	GA-1	T6N, R18E Section 24 Town of Genesee	Two quarries excavated in Silurian Waukesha Dolomite in side of 20-foot-high bedrock hill. Contains fossil cephalopods. Listed on National Register of Historic Places.
Carroll College Quarry	GA-1	T6N, R19E Section 3 City of Waukesha	Covered rock exposures of first quarry opened in Waukesha County. Visited by many prominent 19th-century geologists; source of large fossil collections, including those of major museums across the United States. The type section of the Waukesha Dolomite.
Jones Quarry	GA-1	T7N, R18E Sections 23, 24 Town of Delafield	Undisturbed 19th-century quarry remains only source of rich Ordovician fossil biota in Southeastern Wisconsin. To east is an excellent exposure of the Niagara Escarpment.
Pewaukee Stone Pits, Quarries, and Outcrops	GA-1	T7N, R19E Section 9 Village of Pewaukee	Small stone pits, quarries, and outcrops expose only reef known in the Waukesha Dolomite in Southeastern Wisconsin. This reef is older than any other fossil reef in the area.
Sussex Lime Kiln	GA-1	T8N, R19E Section 23 Village of Sussex	One of the best-unaltered late-19th-century kilns remaining in Southeastern Wisconsin. Eligible for listing on the National Register of Historic Places.
Menomonee Falls Reef	GA-1	T8N, R20E Section 10 Village of Menomonee Falls	Series of natural outcrops which form a river gorge, as well as old quarry exposures and lime kilns, situated along the Menomonee River. Falls form from exposure-resistant reef rock. One of the earliest bedrock sites described in Southeastern Wisconsin, having been noted by Increase Lapham in the 1840s.

Site Name	Classification Code	Location	Description and Comments
Raasch's Dome	GA-1	T8N, R20E Section 17 Village of Lannon	Elliptical rock dome with sides that dip as much as 20 degrees away from center. Excellent example of an unusual geologic feature.
Kettle Moraine	GA-1	Western portion of County	Interlobate moraine consisting of a complex system of irregular, knobby ridges, trending northeast-southwest across the western portion of the Region.
Scuppernong Pitted Outwash	GA-2	T5N, R17E Sections 7-9, 16-20 Town of Eagle	A large, pitted outwash plain.
Eagle Esker	GA-2	T5N, R17E Sections 28, 29 Town of Eagle	Good example of an esker with a local relief of between 40 feet and 65 feet.
Eagle Kettle Hole	GA-2	T5N, R17E Section 30 Town of Eagle	Deepest kettle hole in Waukesha County (approximately 90 feet deep).
Delafield Drumlin Fields	GA-2	T6N, R18E Sections 1, 2 Town of Genesee T7N, R18E Sections 34, 35, 36 Town of Delafield	A very well developed example of a drumlin field.
Delafield Interurban Cut	GA-2	T7N, R18E Sections 23, 24 Town of Delafield	Fossil-rich exposure of lower Mayville Dolomite along abandoned interurban railway line.
Menomonee Park Quarry and Domes	GA-2	T8N, R20E Sections 7, 8 Village of Menomonee Falls	Natural and human-made exposures of Racine Dolomite. Contains some of the least-disturbed rock-controlled geomorphology in Waukesha County.
Menomonee River Outcrop	GA-2	T8N, R20E Section 36 Village of Butler Village of Menomonee Falls	Low outcrops of Racine Dolomite interreef strata along Menomonee River.
Little Menomonee River Reef District	GA-2	T9N, R20E Sections 35, 36 Village of Germantown T9N, R21E Sections 19, 20, 30 City of Mequon T8N, R20E Section 2 Village of Menomonee Falls	Silurian Racine Dolomite reef rock exposures. Has considerable importance in scientific research. Contains a wide variety of reef features.

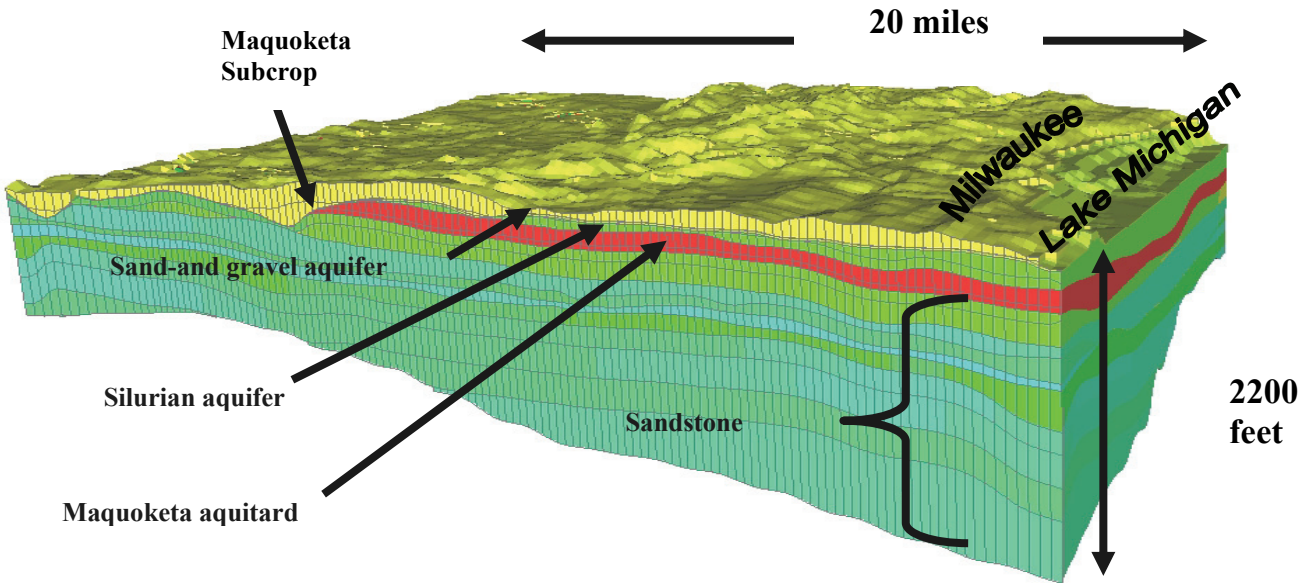
Site Name	Classification Code	Location	Description and Comments
Stark Road Quarry	GA-3	T5N, R17E Section 10 Town of Eagle	Exposed wall of small, old quarry containing good exposure of Niagara Escarpment.
Brady's Rock	GA-3	T5N, R17E Section 10 Town of Eagle	Natural rock bluff along west edge of Kettle Moraine representing some of the southernmost exposures of Niagara Escarpment in Wisconsin.
Scuppernong Glacial Lake	GA-3	T5N, R17E Sections 3-5, 8, 9, 16-18 Town of Eagle	Eastern edge of extensive glacial lake.
Jericho Creek Outcrop	GA-3	T5N, R17E Section 24 Town of Eagle	Natural outcrops of Mayville Dolomite along banks of Jericho Creek, first studied by Increase Lapham in 1840s.
Hunter's bluff	GA-3	T6N, R17E Sections 11, 14 Town of Ottawa	Natural rock bluff along west side of Kettle Moraine representing some of the southernmost exposures of Niagara Escarpment in Wisconsin.
Unnamed bluff	GA-3	T6N, R17E Section 22 Town of Ottawa	Natural bluff exposing Niagara Escarpment.
Unnamed Quarry	GA-3	T6N, R17E Section 14 Town of Ottawa	Old quarry with exposures of Niagara Escarpment.
Prospect Hill Drumlin	GA-3	T6N, R20E Sections 29-32 City of New Berlin	A conspicuous drumlin.
Tessmann Drumlin	GA-3	T7N, R18E Section 36 Town of Delafield	Drumlin with a local relief of 80 feet.
Audley's Quarry	GA-3	T7N, R18E Section 20 City of Delafield	Old quarry with exposure of Niagara Escarpment.
Merton Esker	GA-3	T8N, R18E Section 4 Town of Merton	Perfectly preserved, northwest-southeast, 50-foot-high esker.
Sussex Railroad Cut	GA-3	T8N, R19E Section 21 Town of Lisbon	Cuts through low bedrock hill along railway right-of-way expose Lannon beds of the Racine Dolomite, rocks that supplied the Lannon stone industry.
Derrick Quarry	GA-3	T8N, R20E Section 8 Village of Menomonee Falls	Small abandoned Lannon stone quarry, noted for containing only surviving 19th-century-style wooden stone-hoisting derrick.

GA-1 identifies Geological Area sites of statewide or greater significance
GA-2 identifies Geological Area sites of countywide or regional significance
GA-3 identifies Geological Area sites of local significance

Source: Wisconsin Department of Natural Resources, Wisconsin Geological and Natural History Survey, and SEWRPC.

Figure III-1

GENERAL HYDROGEOLOGY OF SOUTHEAST WISCONSIN



SOILS

Soil properties exert a strong influence on the manner in which land is used, since they affect the costs and feasibility of building site development and provision of public facilities. In the case of productive agricultural lands and potential mineral extraction areas, soils are a valuable and irreplaceable resource. A need, therefore, exists in any planning program to examine not only how land and soils are currently used, but also how they can best be used and managed. Soil suitability interpretations for specific types of urban and rural land uses are therefore important aids to physical development planning and for determining the best use of soils within an area.

In 1963, to assess the significance of the diverse soils found in Southeastern Wisconsin, the Southeastern Wisconsin Regional Planning Commission negotiated a cooperative agreement with the U. S. Department of Agriculture, Soil Conservation Service (SCS), now known as the Natural Resources Conservation Service (NRCS), under which detailed operational soil surveys were completed for the entire Region. The results of the soil surveys have been published in SEWRPC Planning Report No. 8, Soils of Southeastern Wisconsin and subsequently updated by the NRCS, 2003. These soil surveys have resulted in the mapping of the soils within the Region in great detail. At the same time, the surveys have provided definitive data on the physical, chemical, and biological properties of the soils and, more importantly, have provided interpretations of the soil properties for planning, engineering, agricultural, and resource conservation purposes.

Major Soil Association Groups

The soils in Waukesha County range from very poorly drained organic soils to excessively drained mineral soils. General grouping of these soils into soil associations is useful for comparing the suitability of relatively large areas of the County for various land uses. A soil association is defined as a landscape with a distinctive proportional pattern of soils, typically comprised of one or more major soil types and at least one minor soil type, as identified by the U. S. Department of Agriculture, Natural Resources Conservation Service, and named after the major soils. Nine soil associations are found in the County.

Suitability for Agriculture
In order to lend uniformity to the identification of productive farmlands throughout the nation, the NRCS established a soil classification system under which soils are categorized relative to their agricultural productivity. The two most highly productive soils are categorized as either National prime farmland or as farmland of statewide significance. National prime farmland is defined as land that is well suited for the production of food, feed, forage, fiber, and oilseed crops, with the soil quality, growing season, and moisture supply needed to produce economically sustained high yields of crops when properly treated and managed. Farmland of statewide importance includes land in addition to national prime farmland, which is of statewide importance for the production of food, feed, fiber, forage, and oilseed crops.

As shown on Map III-3, approximately 28% of the land in Waukesha County (104,475 acres) was in agricultural uses in 2005. Of those lands, 77% is covered by soils that are classified as National prime farmland by NRCS, and 23% is classified as farmland of statewide importance.

Suitability for Development
Map III-4 shows the primary soil features that present potential limitations for land development, including depth to water table and bedrock and steep slopes. The soil features are presented for planning purposes only. Detailed on-site soil analysis is necessary to validate site conditions. Hydric soils generally have seasonal depth to water table of one (1) foot or less and are capable of supporting wetland vegetation. Poorly drained soils have seasonal depth to water table of three (3) feet and are concentrated on the eastern part of the county where many of the soils have a high clay content, often causing a perched water table condition. Shallow water table conditions risk groundwater contamination from on-site septic systems and could cause wetness problems for dwellings with basements. Shallow bedrock conditions pose higher construction costs for basements and also risk groundwater contamination from on-site septic systems because of the lack of a filtering soil layer. Steep slopes represent possible increased grading costs and higher risks for soil erosion during land development activities. Note that steep slopes are concentrated near the Kettle Moraine area. Shallow bedrock is concentrated near the northeast part of the county, where a number of quarry operations are also located, as noted earlier.

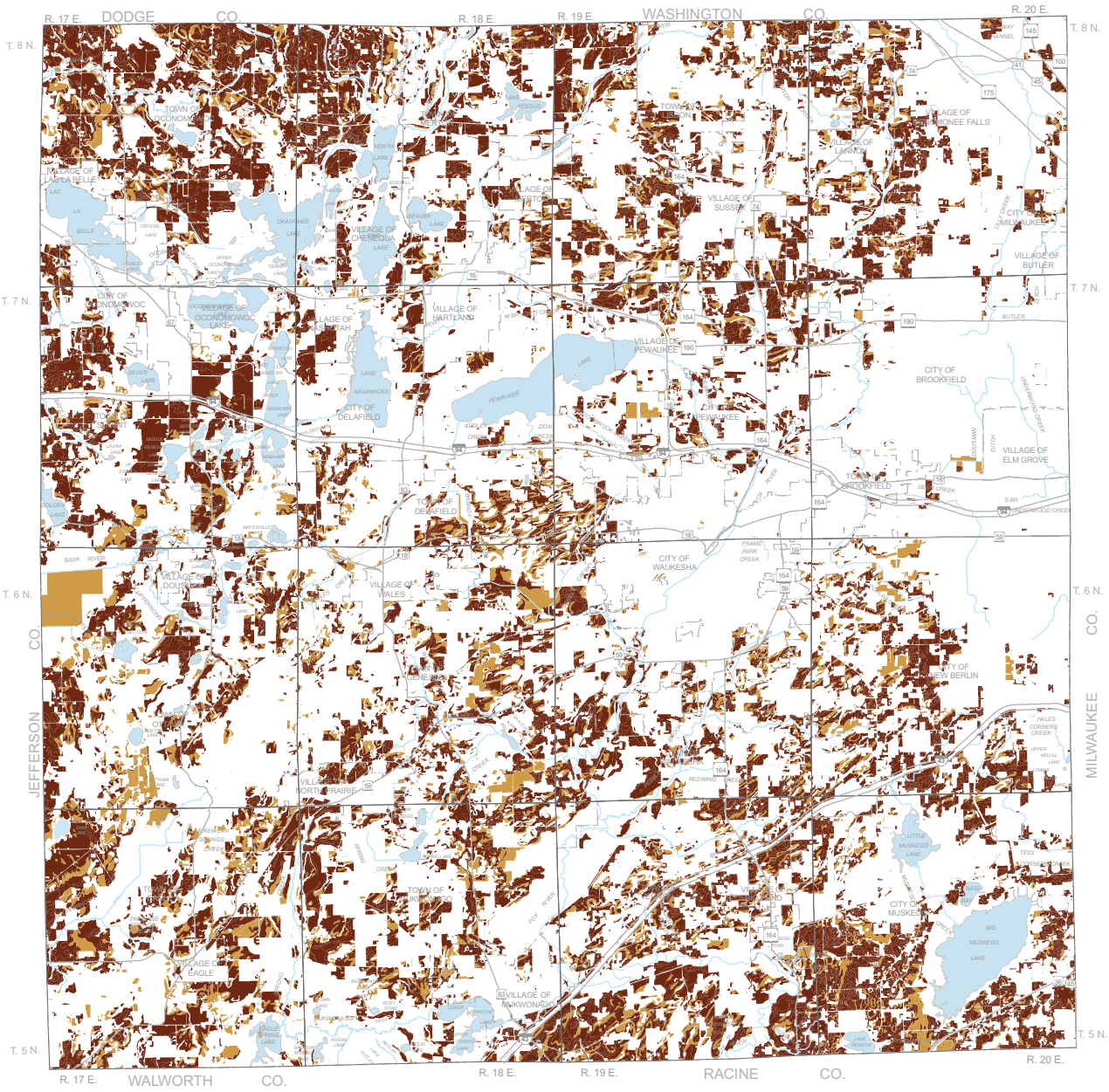
GROUND WATER RESOURCES

Groundwater is a vital natural resource of Waukesha County, which not only sustains lake levels and wetlands and provides the perennial base flow of the streams, but also is a major source of water supplies. In general, the County has an adequate supply of groundwater to support its growing population, agriculture, commerce, and a viable, diverse industry. However, overproduction and water shortages may occur in areas of concentrated development and intensive water demand, especially in the sandstone aquifer and in selected areas served by the shallow aquifers. The amount, recharge, movement, and discharge of the groundwater is controlled by several factors, including precipitation, topography, drainage, land use, soil, and the lithology and water-bearing properties of rock units ranging in age from Quaternary to Precambrian.

In 2002, SEWRPC published Technical Report 37 entitled, Groundwater Resources of Southeastern Wisconsin. The Report provided baseline information regarding groundwater availability and use in southeastern Wisconsin.

Map III-3

AGRICULTURAL USE AND CLASSIFICATION OF SOILS FOR WAUKESHA COUNTY



Legend

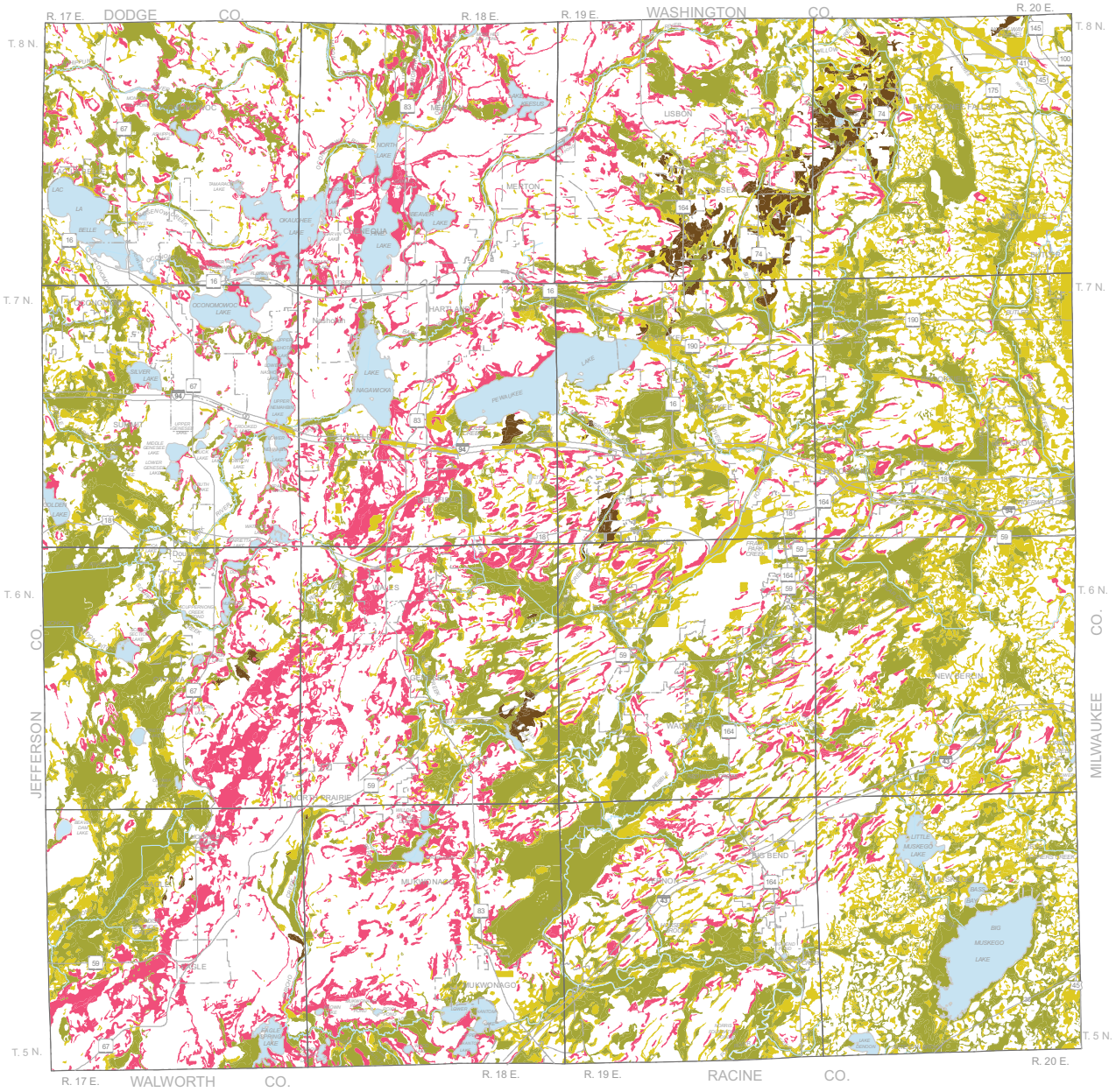
NRCS Prime Agricultural Soils Group (includes prime if drained or protected from flooding)

Soils of Statewide Importance (not in NRCS Prime group)

Note: Agricultural land use data from 2000 SEWRPC inventory. All subdivisions and condominium plats recorded up to March 2005 have been removed.

Map III-4

WAUKESHA COUNTY POTENTIAL SOIL LIMITATIONS FOR DEVELOPMENT



Legend

- Hydric Soils
- Poorly Drained Soils
- Bedrock < 6'
- Slopes > 12%

N

0 1 2 Miles

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

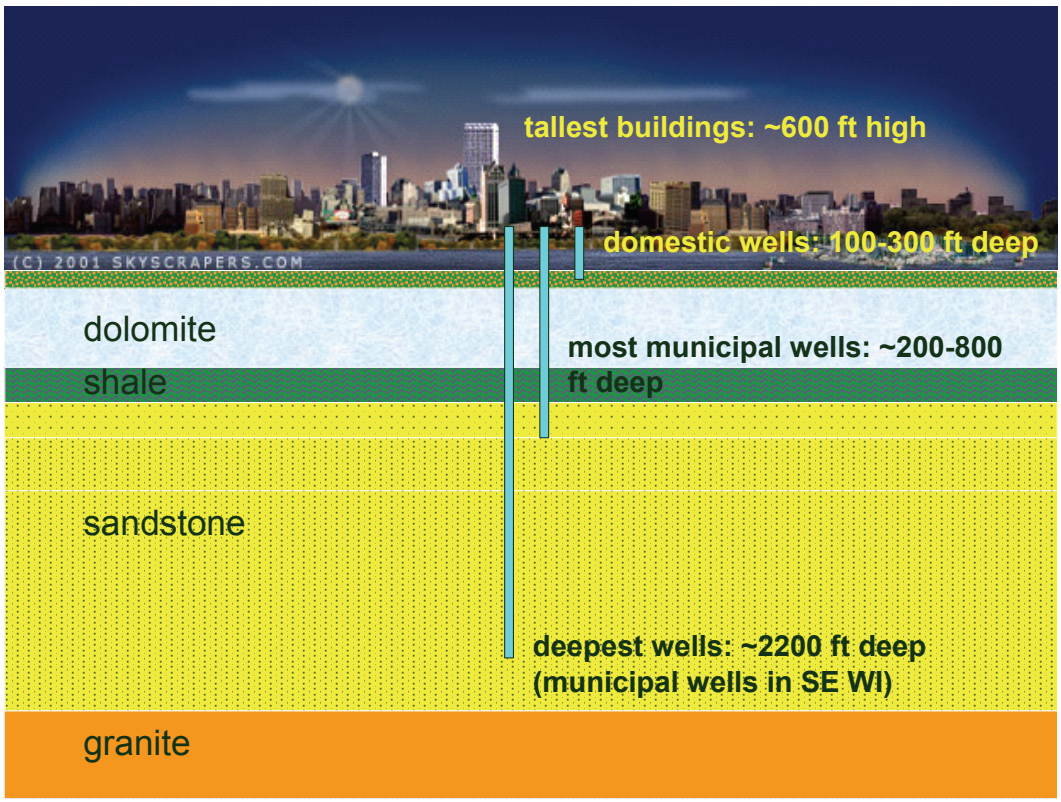
Source: NRCS, SEWRPC & Waukesha County

Groundwater Aquifers

Groundwater is present within three major aquifers that underlie the County. From the land's surface downward, they are: 1) the sand and gravel deposits in the glacial drift; 2) the shallow dolomite strata in the underlying bedrock; and 3) the deeper sandstone, dolomite, siltstone, and shale strata. Because of their proximity to the land's surface and hydraulic interconnection, the first two aquifers are commonly referred to collectively as the "shallow aquifer," while the latter is referred to as the deep aquifer. Within most of the County, the shallow and deep aquifers are separated by the Maquoketa shale, which forms a relatively impermeable barrier between the two aquifers (see Figure III-1). That shale layer is absent in the far western portion of the County. Figure III-2 depicts the typical well depths as they relate to the groundwater aquifers.

Figure III-2

RELATIVE WELL DEPTHS



Source: SEWRPC

Groundwater Use

The importance of groundwater as a source of water supply in Waukesha County and Southeastern Wisconsin can be shown by analyzing water use data. According to estimates by the U.S. Geological Survey, water users in the Southeastern Wisconsin Region used about 324 million gallons per day (mgd) of water from surface and groundwater sources in 2000, not including water used for thermoelectric-power production (see Table III-2). From this amount, 228 mgd, or about 70 percent, was withdrawn from surface water sources, primarily Lake Michigan; and 96 mgd, or about 30 percent, from groundwater (see Table III-3). In Waukesha County, nearly all of the water supply has historically been obtained from the groundwater system. This has recently changed somewhat with the conversion of the eastern portion of the Village of Menomonee Falls, the Village of Butler, and the eastern portion

Table III-2

ESTIMATED USE OF WATER WITHIN THE COUNTIES LOCATED WITHIN, OR PARTIALLY WITHIN, THE REGIONAL WATER QUALITY MANAGEMENT PLAN UPDATE STUDY AREA: 2000 (IN MILLION GALLONS PER DAY)

County	Domestic	Agricultural	Irrigation	Industrial	Commercial	Public Use and Losses	Total
Kenosha	7.02	0.18	0.25	4.44	2.95	3.89	18.73[a]
Milwaukee	54.06	0.01	0.81	57.92	33.14	43.60	189.54[b]
Ozaukee	4.11	0.32	0.51	1.88	1.08	1.42	9.32[c]
Racine	13.00	1.80	2.16	10.82	5.22	6.87	39.87
Walworth	5.13	2.16	0.66	3.20	1.67	2.20	15.02
Washington	5.64	0.62	0.31	2.55	1.84	2.42	13.38[d]
Waukesha	14.12	0.27	2.68	9.10	5.07	6.67	37.91
Total	103.08	5.36	7.38	89.91	50.97	67.07	323.77
Percent of Total	31.80	1.70	2.30	27.80	15.70	20.70	100.00

[a]Does not include 15.2 mgd of thermo-electric use.

[b]Does not include 1,867.6 mgd of thermo-electric use.

[c]Does not include 118.8 mgd of thermo-electric use.

[d]Does not include 2.4 mgd of thermo-electric use.

Source: B.R. Ellefson, G.D. Mueller, and C.A. Buchwald, U.S. Geological Survey, "Water Use in Wisconsin, 2000."

Table III-3

TRENDS IN REPORTED WATER USE IN SOUTHEASTERN WISCONSIN: 1979-2000 (IN MILLION GALLONS PER DAY)

	1979			1985			1990			2000		
County Name	SW	GW	Total	SW	GW	Total	SW	GW	Total	SW	GW	Total
Kenosha	17.81	3.42	21.23	17.87	2.54	20.41	20.41	2.56	22.97	16.04	2.69	18.73
Milwaukee	172.47	10.18	182.65	213.26	9.91	223.17	184.96	6.17	191.13	183.22	6.32	189.54
Ozaukee	1.19	6.66	7.85	1.15	6.33	7.48	1.43	6.66	8.09	1.52	7.80	9.32
Racine	22.55	7.69	30.24	22.55	7.28	29.83	29.32	8.85	38.17	26.24	13.63	39.87
Walworth	0.14	9.89	10.03	1.16	9.14	10.30	0.08	16.07	16.15	0.07	14.95	15.02
Washington	0.15	10.11	10.26	0.06	9.37	9.43	0.08	9.76	9.84	0.08	13.30	13.38
Waukesha	0.02	33.37	33.39	0.12	27.84	27.96	0.04	30.78	30.82	0.35	37.56	37.91
Total	214.33	81.32	295.65	256.17	72.41	328.58	236.32	80.85	317.17	227.52	96.25	323.77
Percent of Total	72.5	27.5	100.0	78.0	22.0	100.0	74.5	25.5	100.0	70.3	29.7	100.0

NOTE: The trends are based on currently available data, but the sources of information and accuracy of data may vary from one reporting period to another. The USGS obtains most of water use data from files of state agencies, and makes estimates for categories for which data are not reported (private domestic and agricultural uses). Water used for thermoelectric power is not included. *GW = Ground water source; SW = Surface water source.*

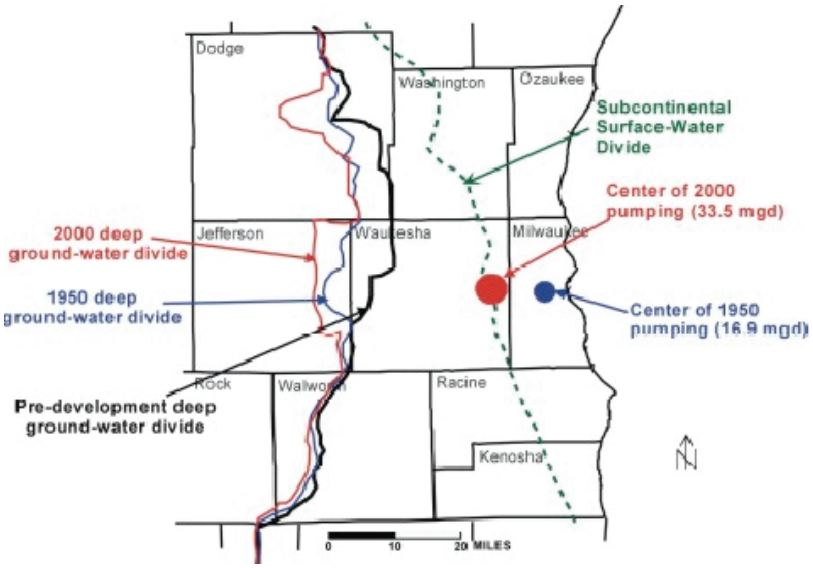
Source: SEWRPC, U.S. Geological Survey, 2000.

of the City of New Berlin to Lake Michigan water over the period of 1999 to 2005. Groundwater use and total water use in Waukesha County have risen steadily since 1985, increasing by about 36 percent over the period 1985 to 2000.

Figure III-3 illustrates the impact of increased groundwater pumping in southeastern Wisconsin on the groundwater divide as well as the shift in the center of pumping (cone of depression). As development occurred west of Lake Michigan with a reliance on groundwater supply, the groundwater divide pushed west along with the center of pumping. Figure III-3 depicts the approximate groundwater divide and center of pumping by the years 1950 and 2000.

Figure III-3

IMPACTS OF PUMPING ON THE DEEP SANDSTONE AQUIFER



In 2003, the Wisconsin Legislature passed the Groundwater Protection Act (Act 310) which sets new standards and conditions for approval of high capacity wells by the Department of Natural Resources (DNR) and other requirements for the management of the use of groundwater. Under Act 310, groundwater management areas were established in Southeastern and Northeastern Wisconsin, most notably Waukesha and Brown Counties, respectively. Those areas were designated as such because declining groundwater levels have become a chronic concern.

Groundwater Availability

Recharge to groundwater is derived almost entirely from precipitation. Much of the groundwater in shallow aquifers originates from precipitation that has fallen and infiltrated within a radius of about 20 or more miles from where it is found. The deeper sandstone aquifers are recharged by downward leakage of water through the Maquoketa Formation from the overlying aquifers or by infiltration of precipitation in western Waukesha County where the sandstone aquifer is not overlain by the Maquoketa Formation and is unconfined. On the average, precipitation annually brings about 32 inches of water to the surface area of the County. It is estimated that approximately 80 percent of that total is lost by evapotranspiration. Of the remaining water, part runs off in streams and part becomes groundwater. It is likely that the average annual groundwater recharge to shallow aquifers is 10 to 15 percent of annual precipitation.

To document the utilization of the shallow aquifers in the County, it may be assumed, for example, that, on the average, 10 percent of the annual precipitation reaches groundwater. Then, the average groundwater recharge in the County would be about 32 billion gallons annually, or about 88 million gallons per day (mgd). As previously noted in Table III-3, the estimated daily use of groundwater in 2000 was about 38 mgd, which is about 43 percent of the total amount of groundwater assumed to be recharged. This indicates that there is an adequate annual groundwater recharge to satisfy consumptive water demands on the shallow aquifer system in Waukesha County on a countywide basis. However, the availability for consumptive use on a localized area basis and the impact on local surface water resources will vary depending upon usage, pumping system configuration, and groundwater flow patterns.

The situation is different for the deep aquifers where withdrawals of groundwater cause supply/demand imbalance in areas of concentrated use of groundwater, which has resulted in the declining potentiometric surface and mining of groundwater. For example, Professor Douglas Cherkauer of the University of Wisconsin-Milwaukee, estimated that the demand on groundwater from the deep sandstone aquifer in Waukesha County is greater than the available supply (see Table III-4).

Table III-4

ESTIMATES OF AVAILABLE GROUNDWATER IN WAUKESHA COUNTY: 1999

Aquifer	Recharge Area (square miles)	Estimated Recharge Rate (inches per year)	Average Daily Recharge (mgd)	Average Daily Demand (mgd)
Shallow	400	3.1	59	3.5
Deep	100	3.1	14.8	31.5

Source: D.S. Cherkauer, 1999

Radium Concentrations

Certain formations within the Cambrian sandstones in southeastern Wisconsin are known to produce relatively high concentrations of naturally occurring radium, a radioactive metallic element. This naturally occurring radium has been found to exceed U. S. EPA standards in approximately 50 of the 1,300 municipal water supplies in Wisconsin. Most of the water supplies which exceed the radium standard draw water from the deep sandstone aquifer and lie in a narrow band from the Illinois-Wisconsin border through Kenosha, Racine, and Waukesha Counties and north through Green Bay. Evaluations are being undertaken to consider means of reducing the radium level in these wells. Systems serving portions of the Cities of Brookfield, Delafield, Muskego, Pewaukee, and Waukesha; the Villages of Eagle, Mukwonago, Pewaukee, and Sussex; and a few private water systems have reported some violations of the current radium standard.

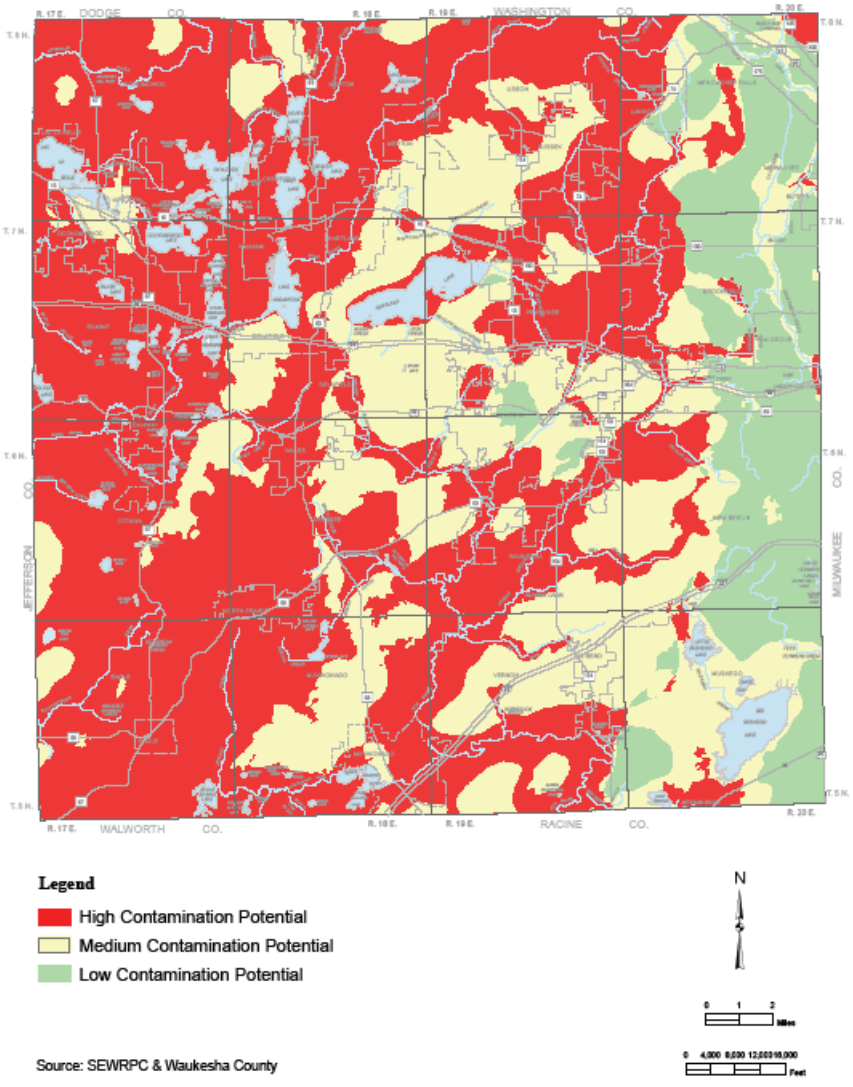
Vulnerability to Contamination

Groundwater quality conditions can through improper construction or management, be impacted by such sources of pollution on the surface as infiltration of storm water runoff, landfills, agricultural fertilizer, pesticides, manure storage and application sites, chemical spills, leaking surface or underground storage tanks, and onsite sewage disposal systems. The potential for groundwater pollution in the shallow aquifer is dependent on the depth to groundwater, the depth and type of soils through which precipitation must percolate, the location of groundwater recharge areas, and the subsurface geology. As shown in Map III-5 most of Waukesha County exhibits moderate to high potential for contamination of groundwater in the shallow glacial drift and Niagara aquifers. Generally, the areas of the County most vulnerable to groundwater contamination are where both Niagara dolomite and the water table are near the surface.

Compared to the deep aquifer, the shallow aquifers are more susceptible to pollution from the surface because they are nearer to the source in terms of both distance and time, thus minimizing the potential for dilution, filtration, and other natural processes that tend to reduce the potential detrimental effects of pollutants. Isolated cases of contamination have been identified in portions of Waukesha County. Such problems can often be traced to runoff pollution sources, septic system discharges, and chemical spills or leakage.

In the far western portion of the County, there is no confining impermeable layer of rock between the glacial drift and the sandstone aquifer. This is cause for concern in planning for the future development of that area. Urban development adversely affects both the quantity and quality of recharge water, especially where the aquifer is overlaid by outwash, end moraine, or other highly permeable glacial material. An increase in the area of impervious surfaces such as pavement affects the recharge of the sandstone aquifer by diverting larger amounts of precipitation into surface drainage courses as runoff, rather than allowing it to percolate into the ground.

Map III-5
Groundwater Contamination Potential in Waukesha County



Water Supply Planning
In January 2005, the Southeastern Wisconsin Regional Planning Commission announced that it has initiated the conduct of a regional water supply study for the Southeastern Wisconsin Region. That study will lead to the preparation and adoption of a regional water supply system plan. The preparation of the regional water supply plan represents the third, and final, element of the SEWRPC regional water supply management program. The first two elements, comprising the development of basic groundwater inventories and the development of a groundwater simulation model for the Southeastern Wisconsin Region, were completed previously.

The regional water supply plan is intended to include the following major components:

- Development of water supply service areas and of forecast demand for water use.
- Development of recommendations for water conservation efforts to reduce water demand.
- Evaluation of alternative sources of supply, culminating in identification of recommended sources of supply for each service area and in recommendations for development of the basic infrastructure required to deliver that supply.
- Identification of groundwater recharge areas to be protected from incompatible development.
- Specification of any new institutional structures found necessary to carry out the plan recommendations.
- Identification of any constraints to development levels in sub areas of the Region that may emanate from water supply sustainability concerns.

The regional water supply plan will be based upon a design year of 2035. It is expected that the regional water supply plan will be completed by the end of 2008.

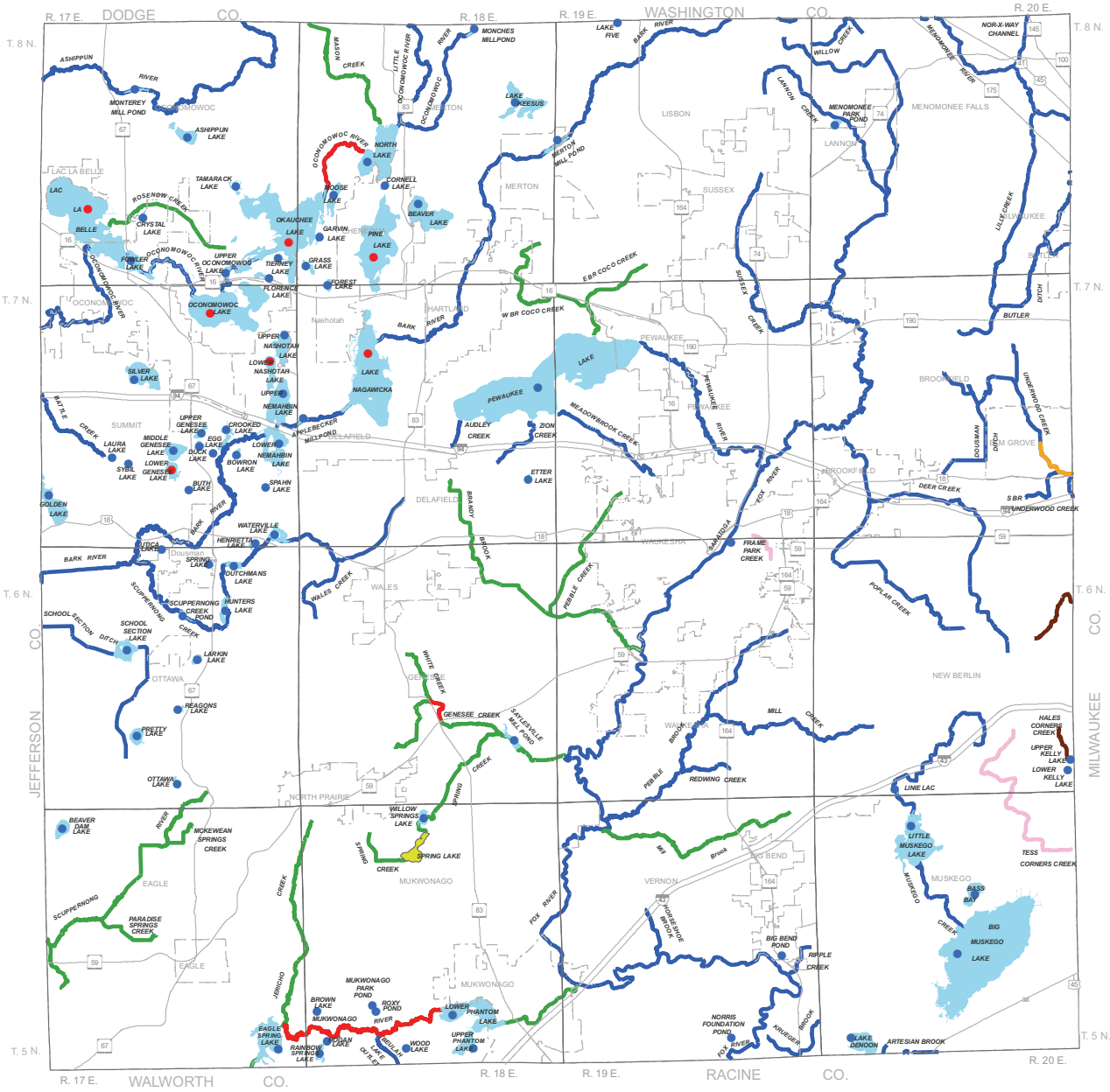
SURFACE WATER RESOURCES

Surface water resources constitute an extremely valuable part of the natural resource base of Waukesha County. Surface waters are a focal point of water-related recreational activities and provide an attractive setting for properly planned residential development. Surface waters, particularly the major lakes, also provide substantial economic benefits. Expenditures by boaters and other recreational users of surface waters benefit the owners of restaurants, grocery and convenience stores, service stations, and sporting goods stores in the County. Lakeshore properties, which generally have high-assessed valuations, also serve to enhance the property tax base of the County. In addition, when viewed in the context of open space areas, surface waters greatly enhance the aesthetic and scenic characteristics of the natural environment. Because surface water quality is highly susceptible to deterioration from pollutant runoff, both urban and rural land uses must be carefully managed to achieve a balance between level and extent of use and the maintenance of water quality. Surface water resources in the County, consisting of lakes and streams are shown on Map III-6 and described below.

Lakes
In 1997, the Wisconsin Legislature created a lake classification grant program. The program was intended to further the degree of protection of lakeshore habitat with the State. In 2000, Waukesha County received a Lake Protection Grant to initiate a program for the classification of the lakes within the County. The objective was to develop criteria for determining the sensitivity of lakes within the County to disturbance from land-based activities. Specifically, these criteria could be used to review and potentially refine the County's shoreland zoning code to provide an appropriate degree of protection for aquatic ecosystems. Previous county-wide inventories of lake classification were conducted by the Wisconsin Department of Natural Resources in 1963 (then the Wisconsin Conservation Department) and subsequently updated by the Southeastern Wisconsin Regional Planning Commission as part of regional water quality management plans.

Map III-6

SURFACE WATER RESOURCES OF WAUKESHA COUNTY



WATER RESOURCE CLASSIFICATION CODES

- Outstanding Resource Water (ORW)
- Exceptional Resource Water (ERW)
- Lake Supports Fish and Aquatic Life (FAL)
- Lake Supports Cold Water Species (Cold)
- Cold Water Streams (Cold)
- Fish and Aquatic Life (FAL)
- Special Variance Waters
- Limited Forage Fish (LFF)
- Limited Aquatic Life (LAL)

Source: WDNR, SEWRPC & Waukesha County

Major inland lakes are defined 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 with a combined surface area of approximately 14,000 acres, or 21.9 square miles, or about 3.8 percent of the total area of the County. This represents about 38 percent of the combined surface area of the 101 major lakes in the seven-county Southeastern Wisconsin Region, more than any other county in the Region. Thirty of the major lakes are located entirely within the County, while three major lakes, Lake Denoon, Golden Lake, and Lake Five, are located only partly within the County.

The major lakes in Waukesha County and their surface areas are presented in Table III-5. As indicated in Table III-5, the major lakes in the County range in size from 58 acres, Crooked Lake, to the second-largest lake in the Region, Pewaukee Lake, with a surface area of 2,493 acres. Seven lakes in the County have a surface area exceeding 640 acres, or one square mile.

In addition to the major lakes, there are 45 other water bodies with lake characteristics referenced in the DNR publication, "Wisconsin Lakes", PUBL-FM-800 91.

Because lake water quality is significantly affected by surrounding land use and cover, urban development and agricultural activity on land that drains into lakes and streams has led to a decline in water quality on many lakes in Waukesha County. Water quality often changes as a result of increasing levels of such nutrients as nitrogen and phosphorus entering a lake. Eutrophication is the condition reached by lakes when the accumulation of nutrients produces increasing amounts of aquatic plants. As the resulting lush aquatic plant growth dies each year, organic deposits fill in the lake. This is a natural process that is generally more prevalent in warm, shallow lakes, such as Big Muskego Lake, than in colder, deep lakes, such as Oconomowoc Lake. However, the process can be greatly accelerated by additional nutrients from inadequate or failing onsite sewage disposal systems, lawn fertilizers, agricultural runoff containing fertilizer and animal wastes, construction site runoff, and street debris.

The trophic status of most major lakes in Waukesha County is also presented in Table III-5. The trophic state serves as an indicator of overall water quality, taking into consideration water clarity, phosphorus content, algae content, and regional location in Wisconsin. In some cases, the current lake trophic state is a combination of two (i.e. Meso-eutrophic).

An oligotrophic lake is one in which little of the eutrophication process can be measured. As a result of very little nutrient accumulation, there is little aquatic plant and algae growth and the water appears very clear. The lake is probably very deep and the bottom is sandy or marly. This type of lake will support such cold-water fish as trout. No such lakes are present in Waukesha County.

A mesotrophic lake shows some signs of eutrophication. The presence of a greater amount of nutrients than in an oligotrophic lake results in lowered clarity and the presence of aquatic plants. Swimming and boating can be enjoyed on this type of lake without limitations.

A eutrophic lake has relatively large amounts of aquatic plants because of higher nutrient levels. The water may be cloudy because of suspended algae cells, dying plants may produce unpleasant smells, and mats of plants may interfere with swimming and boating. These lakes are generally shallow, with mucky bottoms. Eutrophic lakes can be excellent warm-water fishing lakes for such fish as bass and bluegills.

As indicated in Table III-5, of the 33 major lakes in the County, two, Big Muskego Lake and Little Muskego Lake, were classified as eutrophic; nine lakes were classified as meso-eutrophic, or between mesotrophic and eutrophic rankings; 18 lakes were classified as mesotrophic; and two lakes could not be classified because of lack of data.

Table III-5

MAJOR LAKES IN WAUKESHA COUNTY

Lake	Watershed	Township	Surface Area (acres)	Max. Depth (feet)	Lake Type	Trophic State	Class. Code(s)
Ashippun	Ashippun	Oconomowoc	83	40	SP	Mesotrophic	FAL
Bass Bay	Middle Fox	Muskego	100	23		Eutrophic	FAL
Beaver	Oconomowoc	Merton	316	49	SP	Mesotrophic	FAL
Big Muskego	Middle Fox	Muskego	2,260	4	DG	Eutrophic	FAL
Crooked	Bark	Summit	58	16	DG	Mesotrophic	FAL
Denoon	Middle Fox	Muskego	162	55	SE	Mesotrophic	FAL
Eagle Spring	Mukwonago	Eagle	311	8	DG	Mesotrophic	FAL
Fowler	Oconomowoc	Oconomowoc	99	50	DG	Mesotrophic	FAL
Golden	Bark	Summit	250	46	SP	Mesotrophic	FAL
Hunters	Bark	Ottawa	57	46	SP	Mesotrophic	FAL
Keesus	Oconomowoc	Merton	237	42	SP	Mesotrophic	FAL
Lac La Belle	Oconomowoc	Oconomowoc	1,117	45	DG	Mesotrophic	Cold, 303(d)
Larkin	Bark	Ottawa	57	4	SP	N/A	FAL
Little Muskego	Middle Fox	Muskego	506	65	DG	Mesotrophic	303(d)
Lower Genesee	Bark	Summit	66	45	SP	Mesotrophic	Cold
Lower Nashotah	Bark	Summit	90	43	SP	Mesotrophic	Cold
Lower Nemahbin	Bark	Summit	271	36	DG	Mesotrophic	FAL
Lower Phantom	Mukwonago	Mukwonago	433	12	DG	Mesotrophic	FAL
Middle Genesee	Bark	Summit	109	40	SE	Mesotrophic	FAL
Nagawicka	Bark	Delafield	957	90	DG	Mesotrophic	Cold
North	Oconomowoc	Merton	439	78	DG	Mesotrophic	FAL
Oconomowoc	Oconomowoc	Oconomowoc	804	62	DG	Mesotrophic	Cold, 303(d)
Okauchee	Oconomowoc	Oconomowoc	1,187	94	DG	Mesotrophic	Cold
Pewaukee	Upper Fox	Delafield	2,493	45	SP	Mesotrophic	FAL
Pine	Oconomowoc	Merton	703	85	SP	Mesotrophic	Cold, 303(d)
Pretty	Bark	Ottawa	64	35	SE	Oligo-mesotrophic	FAL
School Section	Bark	Ottawa	125	8	DG	Mesotrophic	FAL
Silver	Oconomowoc	Summit	222	44	SE	Mesotrophic	FAL
Spring	Middle Fox	Mukwonago	105	22	SP	Mesotrophic	ORW
Upper Nashotah	Bark	Summit	133	53	SP	Mesotrophic	FAL
Upper Nemahbin	Bark	Summit	283	61	DG	Mesotrophic	FAL
Upper Phantom	Mukwonago	Mukwonago	110	29	SP	Mesotrophic	FAL
Waterville	Bark	Summit	68	12	DG	Eutrophic	FAL

Source: WDNR,SEWRPC

Notes: N/A indicates not available.
Cold = Supports a cold water community either naturally occurring or artificially stocked.
FAL = Fish and Aquatic Life. This is a default classification equivalent to Warm Water Sport Fish Community.
303(d) = Water body appears on the Wisconsin Impaired Waters List.
ORW = An Outstanding Resource Water as defined by Chapter NR 102 Wisconsin Administrative Code.
DG (Drainage Lake) = Impoundments and natural lakes with the main water source from stream drainage.
SE (Seepage Lake) = Landlocked. Water level maintained by groundwater table and basin seal. May have intermittent outlet.
SP (Spring Lake) = Groundwater fed lakes always with an outlet of substantial flow.

Sediments and associated substances delivered to lakes and streams in Waukesha County are a significant source of water pollution. Nutrients, in the form of fertilizers and animal wastes, are carried on eroded soil particles from agricultural and urban lands. This may cause the excessive growth of aquatic plants and thereby affect water clarity and increase oxygen demand.

Streams may exhibit a net deposition, net erosion, or no net change in internal sediment transport, depending on the tributary land uses, hydrology, precipitation, and geology. Thus some streams are capable of removing sediments before they reach lakes.

Rivers and Streams

For flood control and water quality planning purposes, the Southeastern Wisconsin Regional Planning Commission has divided the Region into 11 major watersheds, four of which are located wholly or partially in Waukesha County. The subcontinental divide traverses the County in a north-south direction in the eastern tier of communities, separating the County between the Mississippi River and the Great Lakes-St. Lawrence River drainage systems. As shown on Map III-7, two of the major watersheds, the Menomonee River and Root River watersheds, lie east of the subcontinental divide and are part of the Great Lakes-St. Lawrence River drainage system. The other two watersheds, the Fox (Illinois) and Rock River watersheds, lie west of the sub-continental divide and are part of the Mississippi River drainage area. The watershed covering the largest area of Waukesha County is that of the Fox River, encompassing about 58 percent of the total area of the County.

Major streams are perennial streams, which maintain, at a minimum, a small contiguous flow throughout the year except under unusual drought conditions. The major streams in Waukesha County are presented in Table III-6**.** As indicated in Table III-6, Waukesha County contains a total of approximately 268 miles of perennial streams. The longest major streams are the Fox (Illinois) and Bark Rivers, with 46.1 and 31.8 stream miles, respectively, in the County.

Map III-7
Watersheds of Waukesha County

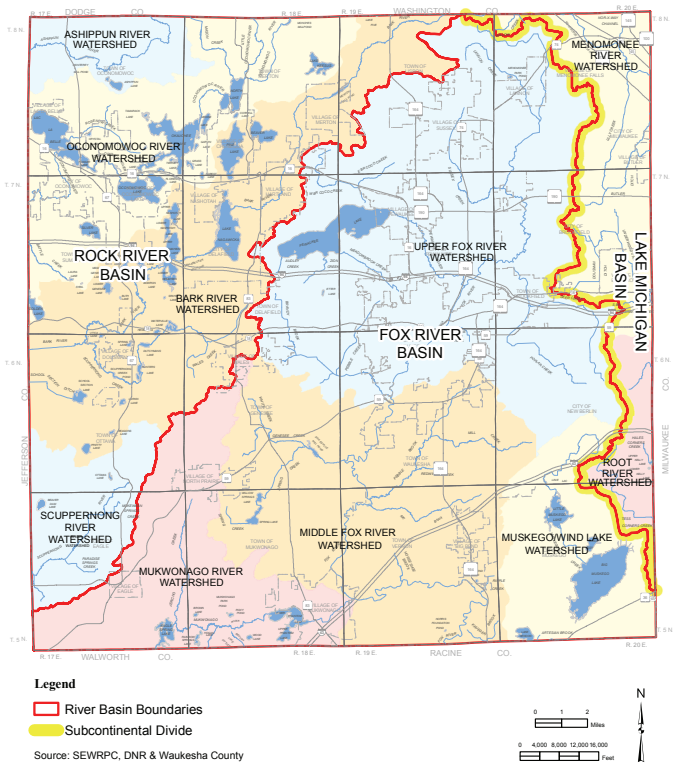


Table III-6

MAJOR STREAMS IN WAUKESHA COUNTY

Stream Name	Watershed	Township	Length (miles)	Classification Code(s)
Ashippun River	Ashippun	Oconomowoc	11.1	FAL, AQ-3 (RSH)
Bark River	Bark	Delafield	29.7	FAL, AQ-1 & AQ-2 (RSH)
School Section Ditch	Bark	Ottawa	5.7	FAL
Scuppernong Creek	Bark	Ottawa	12.8	FAL, AQ-2 (RSH)
Wales Creek	Bark	Genesee	2.1	FAL
Butler Ditch	Menomonee	Brookfield	3.9	FAL
Dousman Ditch	Menomonee	Brookfield	2	FAL
Lilly Creek	Menomonee	Menomonee Falls	5.1	FAL
Menomonee River	Menomonee	Menomonee Falls	7.8	FAL, AQ-3
Nor-X-Way Channel	Menomonee	Menomonee Falls	1.3	FAL
Underwood Creek	Menomonee	Brookfield	6.9	Special Variance
Willow Creek	Menomonee	Lisbon	2.3	FAL
Artesian Brook	Muskego-Wind	Vernon	1	FAL
Muskego Creek	Muskego-Wind	Muskego	6.6	FAL
Krueger Brook	Middle Fox	Vernon	2.1	FAL
Ripple Creek	Middle Fox	Vernon	1	FAL
Horseshoe Brook	Middle Fox	Vernon	1.5	FAL
Mill Brook	Middle Fox	Vernon	5.7	COLD, AQ-2 (RSH)
Pebble Brook	Middle Fox	Vernon	8.7	FAL, AQ-3
Redwing Creek	Middle Fox	Waukesha	1.4	FAL
Mill Creek	Middle Fox	Waukesha	5.1	FAL, AQ-3
Genesee Creek	Middle Fox	Waukesha	6.7	ERW, COLD, AQ-2 (RSH)
Spring Creek	Middle Fox	Mukwonago	6	COLD
White Creek	Middle Fox	Genesee	1.4	COLD
Beulah Lake Outlet	Mukwonago	Mukwonago	1.1	FAL
Mukwonago River	Mukwonago	Mukwonago	10.2	ERW, COLD, AQ-1 (RSH)
Jericho Creek	Mukwonago	Eagle	5.8	COLD, AQ-2 (RSH)
Battle Creek	Oconomowoc	Summit	2.8	FAL, 303(d)
Little Oconomowoc	Oconomowoc	Merton	3.5	FAL, AQ-3 (RSH)
Mason Creek	Oconomowoc	Merton	4.5	COLD, 303(d), AQ-2 (RSH)
Oconomowoc River	Oconomowoc	Merton	14.3	ERW, FAL, AQ-3 (RSH)
Rosenow Creek	Oconomowoc	Oconomowoc	3.5	COLD, AQ-3
Hales Corners Creek	Root	New Berlin	1	LAL
Tess Corners Creek	Root	Muskego	5.5	LFF
Paradise Springs Creek	Scuppernong	Eagle	1.6	COLD
Scuppernong River	Scuppernong	Eagle	7.4	COLD, AQ-2 (RSH)
Audley Creek	Upper Fox	Delafield	1.2	FAL
Brandy Brook	Upper Fox	Genesee	5	COLD, AQ-3
Deer Creek	Upper Fox	Brookfield	6.6	FAL, 303(d)
Fox (Ill River)	Upper Fox	Waukesha	50.6	FAL, 303(d), AQ-2 (RSH)
Frame Park Creek	Upper Fox	Waukesha	1	LFF, 303(d)
Lannon Creek	Upper Fox	Menomonee Falls	5.4	FAL
Pebble Creek	Upper Fox	Waukesha	6.9	COLD, AQ-3

Stream Name	Watershed	Township	Length (miles)	Classification Code(s)
Pewaukee River	Upper Fox	Pewaukee	6.4	FAL, AQ-3 (RSH)
Poplar Creek	Upper Fox	Brookfield	8	FAL, 303(d), AQ-3 (RSH)
Sussex Creek	Upper Fox	Brookfield	6.6	FAL, 303(d)
Coco Creek (East Br.)	Upper Fox	Pewaukee	2	COLD, AQ-3
Coco Creek (West Br.)	Upper Fox	Pewaukee	4.8	COLD, AQ-3
Zion Creek	Upper Fox	Delafield	1.6	FAL, 303(d)

Classification Codes

COLD = Includes surface waters capable of supporting a community of cold water fish and other aquatic life.

FAL = Fish & Aquatic Life. Default classification equivalent to Warm Water Sport Fish Community.

LFF = Limited Forage Fishery. Surface waters capable of supporting only a limited community of forage fish.

LAL = Limited Aquatic Life. Marginal surface waters that support only a limited aquatic life community.

303(d) = Water body appears on the Wisconsin Impaired Waters list.

ERW = An Exceptional Resource Water as defined by Chapter NR102 of the WI Administrative Code.

AQ-1 = Identifies Aquatic Areas of statewide or greater significance.

AQ-2 = Identifies Aquatic Areas of countywide or regional significance.

AQ-3 = Identifies Aquatic Areas of local significance.

RSH = Rare Species Habitat. Aquatic areas which support endangered, threatened, or "special concern species" officially designated by the DNR.

Source: SEWRPC, DNR

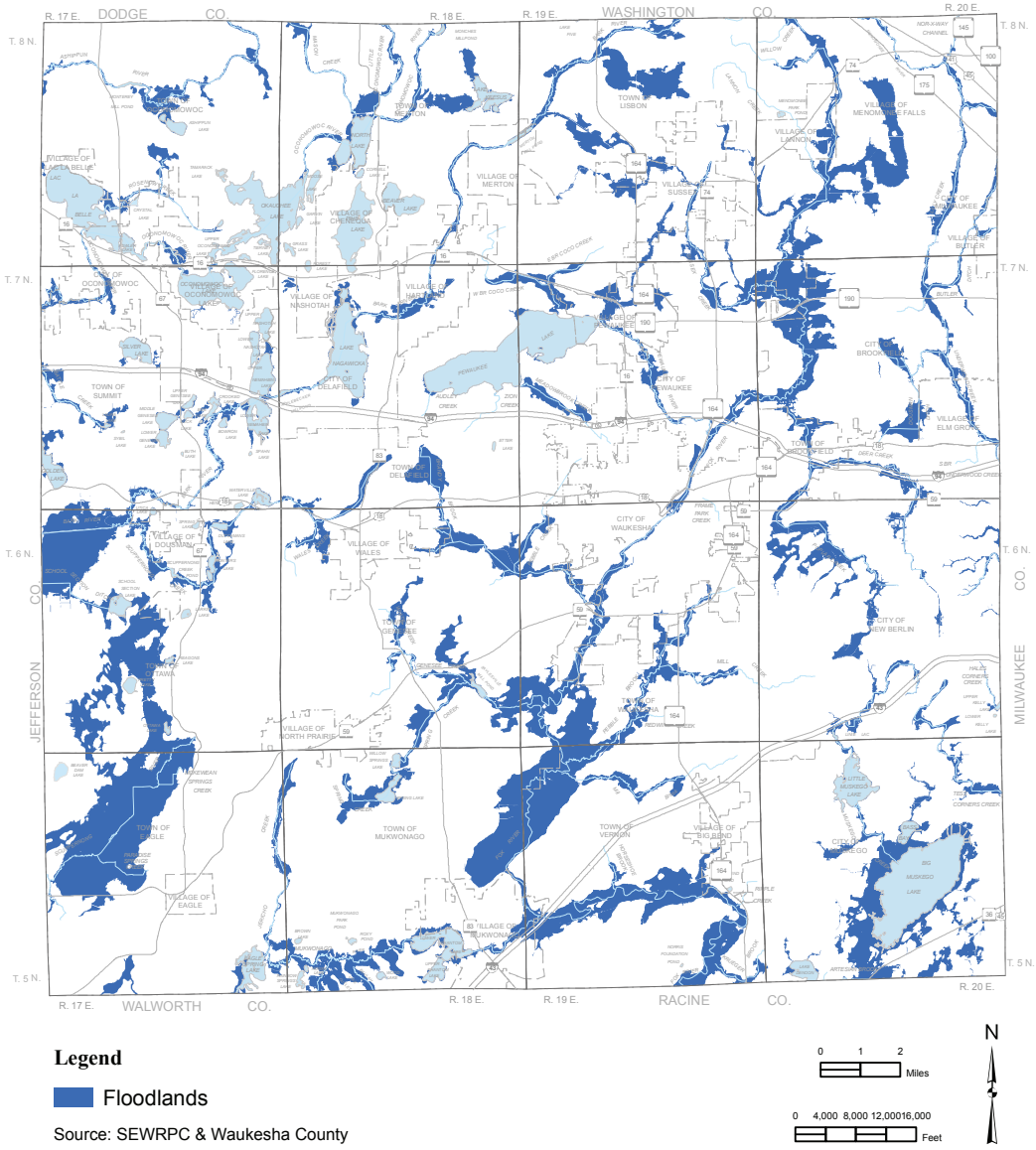
Floodlands

The floodlands of a stream are the wide, gently sloping areas contiguous with and usually lying on both sides of a stream channel. Streams occupy their channels most of the time. However, during even minor flood events, stream discharges increase beyond the capacity of the channel to accommodate the entire flow, especially where urban development increases runoff or alters the stream channel. As a result, stages increase and the river or stream spreads laterally over the floodlands. The periodic flow of a river onto its floodlands is a recurring phenomenon and, in the absence of costly flood control measures, will occur regardless of the extent of urban development in floodlands.

For planning and regulatory purposes, floodlands are normally defined as the areas, excluding the channel, subject to inundation by the 100-year recurrence interval flood event. This is the event that would be reached or exceeded in severity on the average of once every 100 years. It should be noted that the 100-year recurrence interval floodland contains within its boundaries the areas inundated by floods of less severe but more frequent occurrence such as every 5, 25, or 50 years. Floodlands are not suited to urban development because of flood hazards, high water tables, and inadequate soils. These areas are, however, generally suitable locations for valuable park and open space areas. Floodlands also provide storage for floodwaters and thereby decrease downstream flood discharges and stages.

General floodlands in Waukesha County, delineated by the Southeastern Wisconsin Regional Planning Commission, the Federal Emergency Management Agency, and the Wisconsin Department of Natural Resources, are shown on Map III-8. The 100-year flood recurrence interval flood hazard area encompasses about 72 square miles, not including nearly 24 square miles of surface water in lakes and streams, or about 13 percent of the County's total land area. In 1990, a total of about 13.7 square miles, or about 19 percent, of these floodlands were located within state, county, or local public park and open space land.

Map III-8
General Floodlands of Waukesha County



Impaired Waters List (303d)

The Department of Natural Resources (DNR) is required every two years to submit a list to the Environmental Protection Agency (EPA) which identifies waters which are not meeting water quality standards, including both water quality criteria for specific substances or the designated biological and recreational uses. This list is known as the "impaired waters list" or simply the "303(d) list" in reference to the particular section of the Clean Water Act. Several factors can cause waters to become impaired and therefore be identified on the "impaired waters list". These factors include: 1) Point source dominated; 2) nonpoint source dominated; 3) Point source and nonpoint source

combined; 4) Contaminated sediment waters; 5) Atmospheric deposition dominated; 6) Habitat/physical impaired; or 7) Other factors.

Biological Use Classification

Surface waters are classified into one of the following water resource classifications. The type of aquatic community a particular surface water resource is capable of supporting is represented by the biological use objectives. Only the first three classifications are considered suitable for the protection and propagation of a balanced fish and other aquatic life community. These waters usually exhibit the highest degree of water quality. The last two classifications are unable to maintain the specified water quality conditions and support a balanced community because of their naturally limited habitat or water quality. The water resource classifications are:

Cold Water Communities (COLD) include surface waters capable of supporting a community of cold-water fish and other aquatic life or serving as a spawning area for cold water species. This use includes, but is not restricted to, surface waters identified as trout waters in the publication (6-3600[80]) *Wisconsin Trout Streams*. Also present in these communities are forage fish and macroinvertebrates, which are intolerant of pollution. In Waukesha County, Brandy Brook, Coco Creek, Jericho Creek, Mason Creek, McKeawn Spring Creek, Mill Brook, Mukwonago River, Paradise Springs Creek, Pebble Creek, Rosenow Creek, Scuppernong River, South Branch Scuppernong River and Spring Brook are classified as cold-water communities.

Warm Water Sport Fish Communities (WWSF) are capable of supporting a community of warm water sport fish or have served as a spawning area for warm water sport fish. Macroinvertebrates, which are relatively intolerant of pollution, are present in these communities.

Warm Water Forage Fish Communities (WWFF) are capable of supporting an abundant diverse community of forage fish and other aquatic life. Macroinvertebrates, which are relatively intolerant of pollution, are present in these communities.

Limited Forage Fishery Communities (LFF) are communities capable of supporting only a limited community of forage fish and aquatic life. These surface waters have naturally poor water quality and habitat. Pollution-tolerant macroinvertebrates are present in these communities.

Limited Aquatic Life Communities (LAL) includes surface waters severely limited because of very low or intermittent flow and naturally poor water quality or poor habitat. These surface waters are capable of supporting only a limited community of aquatic life.

In addition to the above classifications, the Wisconsin Department of Natural Resources has two other special classifications used for the highest quality lakes and streams. These classifications are Outstanding Resource Waters and Exceptional Resource Waters. They are described as:

Outstanding Resource Waters (ORW) have the highest quality water and fisheries in the state and are therefore deserving of special protection. They do not receive wastewater discharges and point source discharges will not be allowed in the future unless the quality of the wastewater discharged is equal to or better than background conditions. The only outstanding resource water in Waukesha County is Spring Lake.

Exceptional Resource Waters (ERW) provides valuable fisheries, hydrologically or geologically unique features, outstanding recreational opportunities, or unique environmental settings, which are not significantly impacted by human activities. These resource waters already receive wastewater discharges or may receive future discharges. In Waukesha County, Genesee Creek, the Mukwonago River and the Oconomowoc River between North Lake and Okauchee Lake are designated as exceptional water resources.

More stringent site design and storm water management requirements are typically necessary to address thermal and other runoff impacts to cold-water communities, outstanding water resources and exceptional water resources. Map III-6 depicts the current water resource classifications in Waukesha County.

ENVIRONMENTAL CORRIDORS AND ISOLATED NATURAL RESOURCE AREAS

The most important elements of the natural resource base of the County, including the best remaining woodlands, wetlands, prairies, wildlife habitat, surface water and associated shorelands and floodlands, and related features, including existing park and open space sites, scenic views, and natural areas and critical species habitat sites, occur in linear patterns in the landscape, termed "environmental corridors." The most important of these have been identified as "primary environmental corridors," which are by definition at least two miles long, 200 feet wide, and 400 acres in area. As shown on Map III-9 primary environmental corridors are generally located along river and major stream valleys, around major inland lakes, and in the Kettle Moraine. This County comprehensive plan recommends the preservation of primary environmental corridors in essentially natural, open use. The preservation of these corridors is considered essential to the overall environmental quality of the County and the maintenance of its unique cultural and natural heritage and natural beauty. Because these corridors are generally poorly suited for urban development owing to soil limitations, steep slopes, or flooding potential, their preservation will also help to avoid the creation of new environmental and developmental problems.

In addition to primary environmental corridors, other concentrations of natural resources—referred to as "secondary environmental corridors" and "isolated natural resource areas"—have been identified as warranting strong consideration for preservation. Secondary environmental corridors contain a variety of resource features and are by definition at least one mile long and 100 acres in area. Isolated natural resource areas are concentrations of natural resources of at least five acres in size and 200 feet in width that have been separated from the environmental corridor network by urban or agricultural uses. Planned secondary environmental corridors and isolated natural resources are also shown on Map III-9

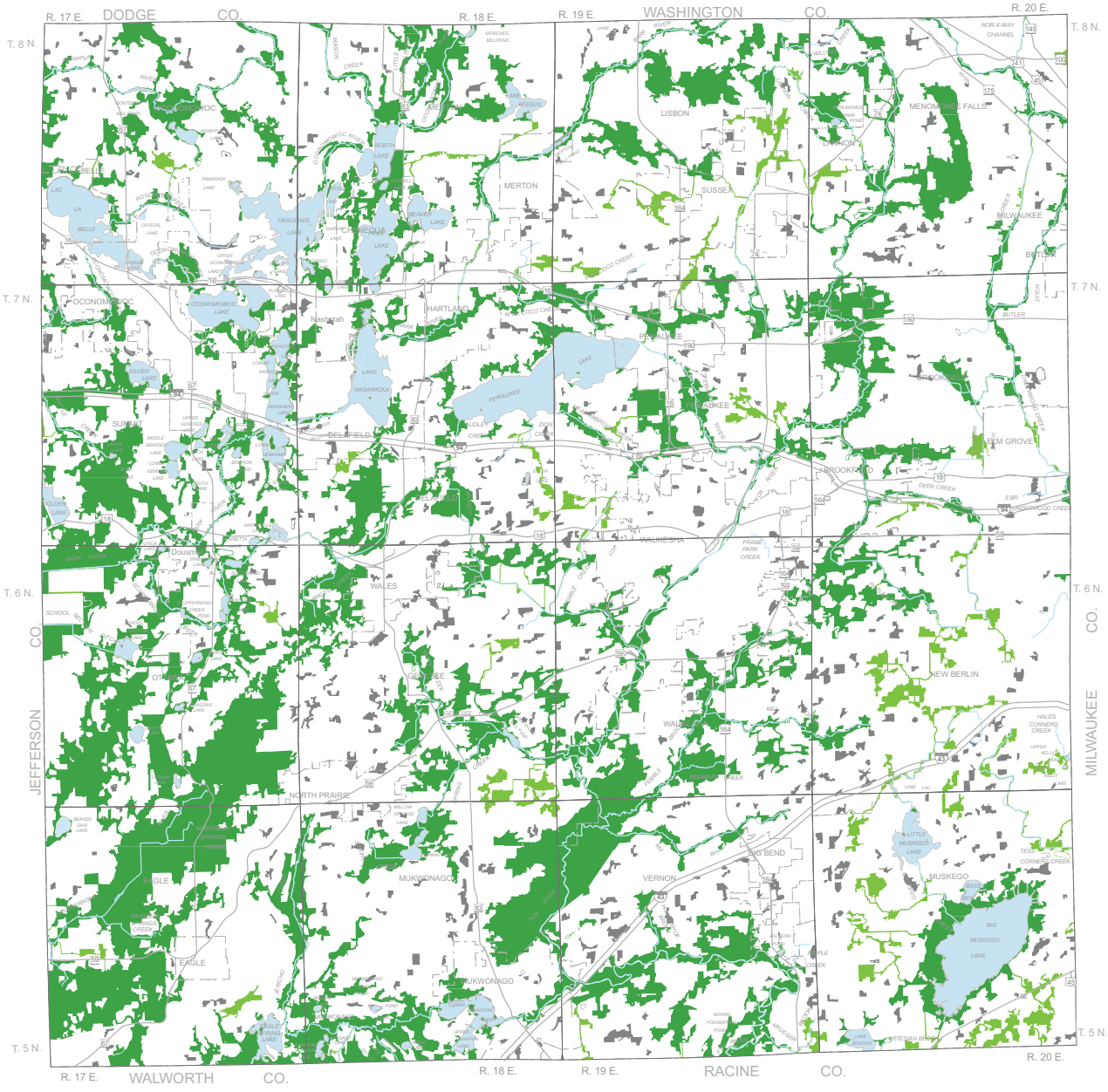
While this plan recommends the protection of environmental corridors and isolated natural resource areas, it recognizes that certain development may be accommodated in such areas without jeopardizing their overall integrity. The plan recognizes that certain transportation and utility uses may of necessity have to be located within such areas and that limited residential and recreational uses may be accommodated in such areas. Guidelines pertaining to such development within environmental corridors are presented in Table III-20, contained in the planning standards section of Chapter 2. Under these guidelines, residential development in environmental corridors would be limited to upland environmental corridors at an overall density of no more than one dwelling unit per five acres. Conservation subdivision designs are strongly encouraged where such rural density residential development is accommodated.

Under the comprehensive plan, the existing (year 2000) configuration of environmental corridors and isolated natural resource areas would be modified slightly. These modifications include minor deletions attendant to prior local commitments documented in adopted sewer service area plans, along with certain additions. The additions include currently farmed floodplains adjacent to existing environmental corridors within planned urban service areas that may be expected to revert to more natural conditions over time and become part of the corridor.

Under the comprehensive plan, primary environmental corridors would encompass about 148.5 square miles, or about 31 percent of the County, in 2035. This represents a net increase of 5.7 square miles, or 4 percent, over the existing 2000 area. Secondary environmental corridors would encompass 11 square miles in 2035, a decrease of about 2 percent, from 2000. Isolated natural resource areas would encompass about 12.5 square miles in 2035, a decrease of about 4 percent from 2000.

Map III-9

PLANNED ENVIRONMENTAL CORRIDORS & ISOLATED NATURAL RESOURCE AREAS IN WAUKESHA COUNTY: 2000



Legend

- Primary Environmental Corridor (PEC)
- Secondary Environmental Corridor (SEC)
- Isolated Natural Resource Area (INRA)

N

0 1 2 Miles

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

Source: SEWRPC & Waukesha County

NATURAL AREAS AND CRITICAL SPECIES HABITAT

A comprehensive inventory of natural areas within the County was conducted by the Southeastern Wisconsin Regional Planning Commission in 1994 as part of the natural areas and critical species habitat protection and management plan being prepared by the Commission and currently being updated. The inventory systematically identified all remaining high-quality natural areas and critical species habitat then existing within the Region.

Natural areas were classified based upon the natural area classification system developed by the Wisconsin Department of Natural Resources. Three classification categories are used: NA-1, natural areas of Statewide or greater significance, which contain nearly complete and relatively undisturbed plant and animal communities which are believed to resemble closely those of presettlement times; NA-2, natural areas of countywide or regional significance, which contain native biotic communities judged to be of lower than NA-1 significance, either because of evidence of a limited amount of human disturbance or because of limited size; and NA-3, natural areas of local significance, which have been substantially altered by human activities, but which provide refuge for native plant and animal species that no longer exist in the surrounding area because of land uses and associated activities.

A total of 105 natural areas, encompassing about 13,710 acres, or about 4 percent of the County, were identified by the Regional Planning Commission in Waukesha County in 1994. Of the 105 identified sites, nine were classified as NA-1 sites and encompass about 1,775 acres, 30 were classified as NA-2 sites and encompass about 4,890 acres, and 66 were classified as NA-3 sites and encompass about 7,045 acres.

The inventory also identified a total of 77 critical species habitat sites within Waukesha County, including 22 critical bird habitat sites, one critical mammal habitat site, and 54 critical plant habitat sites. Of the total sites, 12 critical bird habitat sites, one critical mammal habitat site, and 23 critical plant habitat sites were located outside an identified natural area, for a total of 36 critical species habitat sites located outside natural areas.

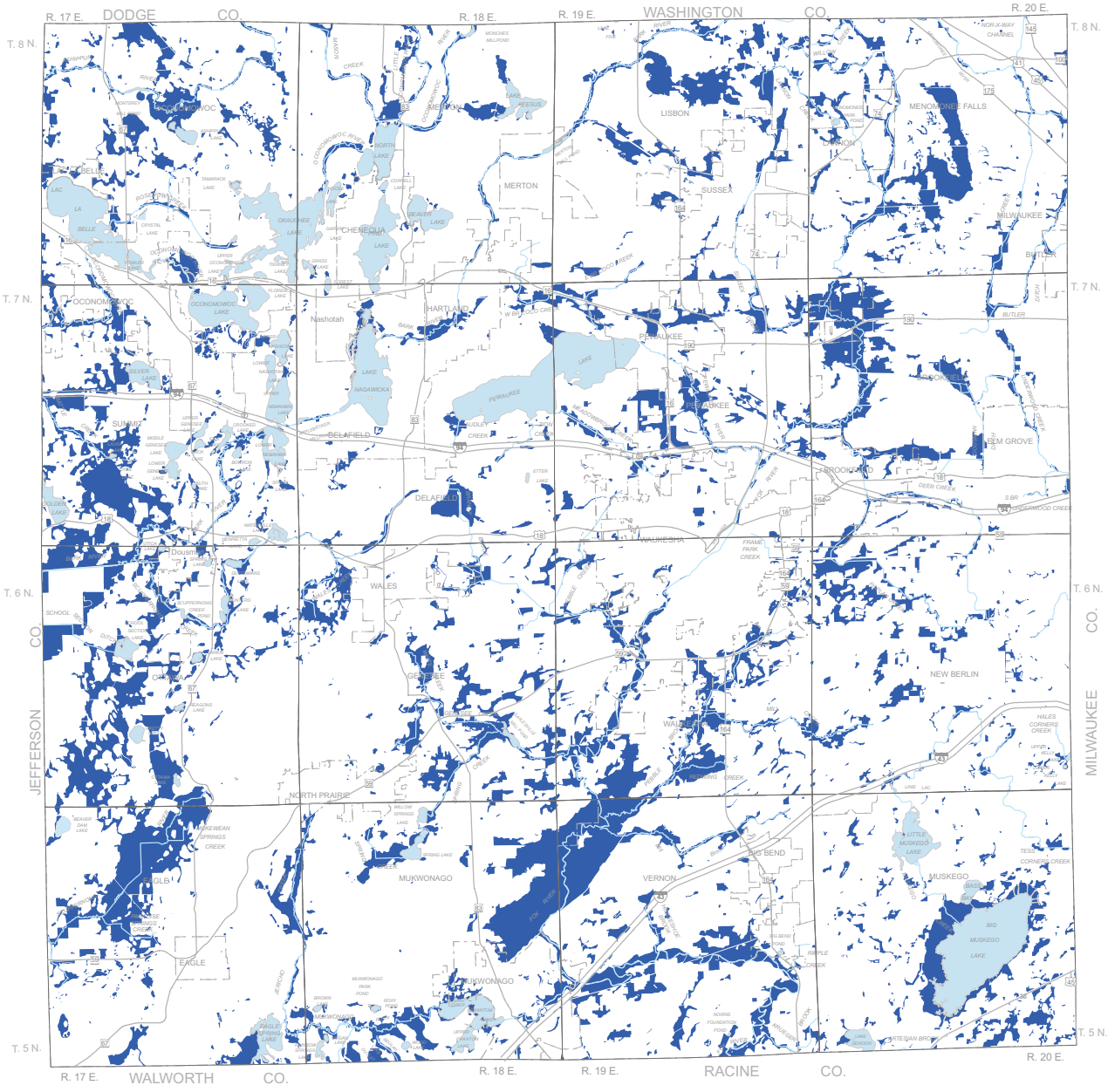
Wetlands

Wetlands perform an important set of natural functions, which make them particularly valuable resources lending to overall environmental health and diversity. Some wetlands provide seasonal groundwater recharge or discharge. Those wetlands that provide groundwater discharge often provide base flow to surface waters. Wetlands contribute to the maintenance of good water quality, except during unusual periods of high runoff following prolonged drought, by serving as traps, which retain nutrients and sediments, thereby preventing them from reaching streams and lakes. They act to retain water during dry periods and hold it during flooding events, thus keeping the water table high and relatively stable. They provide essential breeding, nesting, resting, and feeding grounds and predator escape cover for many forms of fish and wildlife. These attributes have the net effect of improving general environmental health; providing recreational, research, and educational opportunities; maintaining opportunities for hunting and fishing; and adding to the aesthetics of an area.

Wetlands pose severe limitations for urban development. In general, these limitations are related to the high water table, and the high compressibility and instability, low bearing capacity, and high shrink-swell potential of wetland soils. These limitations may result in flooding, wet basements, unstable foundations, failing pavements, and failing sewer and water lines. Moreover, there are significant and costly onsite preparation and maintenance costs associated with the development of wetland soils, particularly in connection with roads, foundations, and public utilities. Wetlands existing in 2000 are shown on Map III-10, covering 52,652 acres scattered throughout the County.

Map III-10

GENERAL WETLANDS OF WAUKESHA COUNTY



Legend

Wetlands

N

0 1 2 Miles

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

Source: SEWRPC & Waukesha County

Woodlands
Woodlands have both economic and ecological value and can serve a variety of uses providing multiple benefits. Located primarily on ridges and slopes and along streams and lakeshores, woodlands provide an attractive natural resource, accentuating the beauty of the lakes, streams, and the topography of the County. In addition to contributing to clean air and water, woodlands contribute to the maintenance of a diversity of plant and animal life and provide for important recreational opportunities.

Under balanced use and sustained yield management, woodlands can, in many cases, serve scenic, wildlife, educational, recreational, environmental protection, and forest production benefits simultaneously. Woodlands existing in 2000 cover 28,931 acres, are shown on Map III-11. These woodlands exist in large contiguous areas along the Kettle Moraine in the western half of the County and in scattered small areas throughout the remainder of the County.

Prairies
Prairies are open, treeless or generally treeless areas dominated by native grasses. Such areas have important ecological and scientific value and consist of four basic types: low prairies, mesic or moderately moist prairies, dry prairies, and oak openings. The low prairies typically occupy ancient glacial lake beds; mesic prairies tend to occur on glacial outwash plains, the glacial till of recessional moraines, and the loessial, windblown depositional soils which cover the dolomitic bedrock; dry prairies occur on well-drained soils, usually on steep hillsides; oak openings are savannahs dominated by dry prairie grasses, with between one and 17 oak trees, usually bur oaks, per acre.

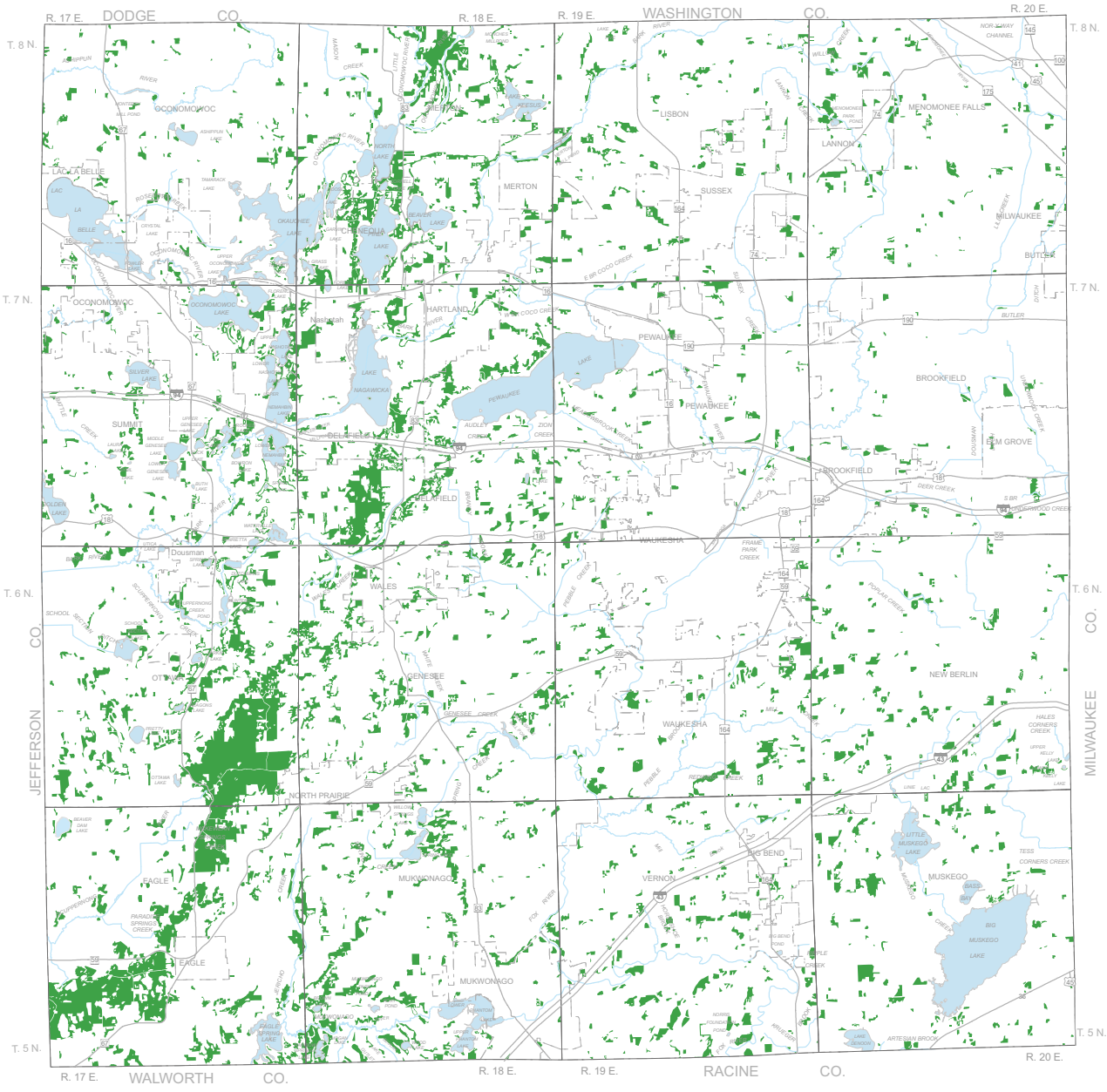
Prairies existing in 1990 consist of 34 sites covering a combined total of approximately 280 acres, a very small portion of the total land area of the County, located mostly in the southwestern quarter of the County. Very few native prairies are left in Waukesha County, although they once covered large portions of the County. The loss of native prairie and oak openings was primarily a result of agricultural practices, urbanization, and the suppression of the wildfires, which had served to restrain the advancing shrubs and trees that shade out prairie plants.

Wildlife
Inventories of wildlife habitat in the Southeastern Wisconsin Region were conducted jointly by the Wisconsin Department of Natural Resources and the Southeastern Wisconsin Regional Planning Commission in 1985. As a part of the 1985 inventory, three classes of wildlife habitat were identified: Class I (high-value) wildlife habitat, Class II (medium-value) wildlife habitat, and Class III (other significant) wildlife habitat. Class I habitat areas contain a good diversity of wildlife, are adequate in size to meet all of the habitat requirements for the species concerned, and are generally located in proximity to other wildlife habitat areas. Class II wildlife habitat areas generally lack one of the three criteria for Class I wildlife habitat. However, they do retain a good plant and animal diversity. Class III wildlife habitat areas are remnant in nature in that they generally lack two of the three criteria for a Class I wildlife habitat, but may, nevertheless, be important if located in proximity to high- or medium-value wildlife habitat areas, if they provide corridors linking higher-value wildlife habitat areas, or if they provide the only available range in the area.

Wildlife habitat areas encompassed a combined area of 182 square miles, or 31 percent of the total area of the County in 1985. These areas are concentrated on the Kettle Moraine, in the Vernon Marsh, along Scuppernong Creek and the Scuppernong River, and around the major lakes in the County. Class I wildlife habitat encompassed 88 square miles, or 49 percent of total wildlife habitat; Class II wildlife habitat encompassed 61 square miles, or 33 percent of total wildlife habitat; and Class III wildlife habitat encompassed 33 square miles, or 18 percent of total wildlife habitat.

Map III-11

MAJOR WOODLANDS OF WAUKESHA COUNTY: 2000



Legend

Woodlands

N

0 1 2 Miles

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

Source: SEWRPC & Waukesha County

CLIMATE

Its midcontinental location gives Waukesha County a continental climate that spans four seasons, one season succeeding the other through varying time periods of unsteady transition. Summers, generally the months of June, July, and August, are relatively warm, with occasional periods of hot, humid weather and sporadic periods of cool weather. The cold winter, accentuated by prevailing frigid northwesterly winds, generally spans the months of December, January, and February, but may in some years include parts of November and March. Autumn and spring in the County are transitional times of the year between the dominant seasons and usually periods of widely varying weather conditions. Temperatures are extremely varied, and long periods of precipitation are common in autumn and spring. Some of the more pronounced weather events include tornadoes and major snowmelt occurrences.

Air temperatures within the County are subject to extreme seasonal variation. Data on temperature observations in the County, recorded at the City of Waukesha, indicate variations in temperature from a low in January with a mean daily temperature of 18.7 degrees to a high in July with a mean daily temperature of 71.8 degrees. The growing season, which is defined as the number of days between the last freeze in the spring and the first freeze in the fall, averages about 155 days in Waukesha County. The last freeze in the spring normally occurs during the first two weeks in May and the first freeze in the fall normally occurs in mid-October.

Precipitation in Waukesha County, in the form of rain, sleet, hail, and snow, ranges from gentle showers to destructive thunderstorms. The more pronounced weather events can cause major property and crop damage, inundation of poorly drained areas, and lake and stream flooding. Daily precipitation data for observations recorded at the City of Waukesha record that the total average annual precipitation observed is slightly more than 32 inches, expressed as water equivalent. Monthly averages range from a low of 1.2 inches in February to a high of 3.70 inches in June. Snowfall and sleet averages approximately 41 inches annually, with January receiving the most snow and sleet, at about 11 inches.

Waukesha County is positioned astride cyclonic storm tracks along which low-pressure centers move from the west and southwest. The County also lies in the path of high-pressure centers moving in a generally southeasterly direction. This location at the confluence of major migratory air masses results in the County being influenced by a continuously changing pattern of air masses associated with alternately high- and low-pressure centers and results in frequent weather changes superimposed on the aforementioned annual range in weather characteristics, especially in winter and spring.

Prevailing winds in the County are northwesterly in the late fall and winter, northeasterly in the spring, and southwesterly in the summer and early fall. Wind velocities are less than five miles per hour (mph) for about 15 percent of the year, between five and 15 mph for about 60 percent of the year, and more than 15 mph for about 25 percent of the year.

AIR QUALITY

The Clean Air Act requires the U.S. Environmental Protection Agency (EPA) to set national ambient air quality standards (NAAQS) for six criteria pollutants (carbon monoxide, lead, nitrogen dioxide, particulate matter, ozone, and sulfur oxides) which are considered harmful to public health and the environment. Areas not meeting the NAAQS for one or all of the criteria pollutants are designated as nonattainment areas by the EPA. In areas where observed pollutant levels exceed the established NAAQS and which are designated as “nonattainment” areas by the EPA, growth and development patterns may be constrained. For example, major sources of pollutants seeking to locate or expand in a designated nonattainment area, or close enough to impact upon it, must apply emission control technologies. In addition, new or expanding industries may be required to obtain a greater than one-for-one reduction in emissions from other sources in the nonattainment area so as to provide a net improvement in ambient air quality. Nonattainment area designation may therefore create an economic disincentive for industry with significant emission levels to locating or expanding within or near the boundaries of such an area. In order to eliminate this disincentive and relieve the potential constraint on development, it is necessary to demonstrate compliance with the NAAQS and petition EPA for redesignation of the nonattainment areas.

The Southeastern Wisconsin Region currently meets all but the ozone NAAQS, and the EPA has designated a single six-county ozone nonattainment area within the Region which is made up of Kenosha, Milwaukee, Ozaukee, Racine, Washington, and Waukesha Counties. Ozone is formed when precursor pollutants, such as volatile organic compounds and nitrogen oxides, react in the presence of sunlight. The ozone air quality problem within the Region is a complex problem because ozone is meteorologically dependant. In addition, the ozone problem in the Region is believed to be attributable in large part to precursor emissions which are generated in the large urban areas located to the south and southeast and carried by prevailing winds into the Region. The ozone problem thus remains largely beyond the control of the Region and State and can be effectively addressed only through a multi-state abatement effort. Over the past decade, the combination of local controls and offsets implemented within and external to the Region, along with national vehicle emissions control requirements have resulted in a significant improvement in ambient air quality within the Region as well as nationally, and projections of future emissions indicate a continued decline in precursor emissions and a continued improvement in air quality.

CULTURAL RESOURCES

Historic sites in Waukesha County often have important recreational, educational, and cultural value. A variety of inventories and surveys of sites that possess architectural, cultural, and archaeological value have been conducted by the Wisconsin Historical Society and by various units and agencies of government in Waukesha County. Certain sites of known historic significance in Waukesha County are listed on the National Register of Historic Places. In 2005, there were 652 sites listed on the National Register. Historic sites in Waukesha County listed on the National Register of Historic Places in 2005 are presented in Appendix B.

It is important to note that the potential exists for the identification of additional sites of historical significance which either are eligible for listing on the National Register or which are potentially eligible for listing but would require additional evaluation. In 2005, there were 44 eligible historic sites in Waukesha County that have not been listed on the National Register. Eligible historic sites in Waukesha County that have not been listed on the National Register in 2005 are presented in Appendix B. In addition, there were 102 sites in Waukesha County that are potentially eligible but would require additional evaluation. Historic sites in Waukesha County that are potentially eligible but would require additional evaluation are presented in Appendix B.

Archeological Sites

Data provided by the Wisconsin Historical Society (www.wisconsinhistory.org) indicate that over 500 historic and prehistoric archaeological sites have been identified in Waukesha County. Of these sites, 5 have been listed on the National Register of Historic Places (see Table III-7).

Cultural Based Facilities

Adding to the quality of life in Waukesha County is the presence of cultural based facilities such as museums and community theaters. Table III-8 presents data on cultural based facilities provided by municipalities and convention and visitors bureau's.

PARK AND OPEN SPACE

The first park and open space plan for Waukesha County was developed by the County Park System in 1973. The second generation of the planning effort was presented in A Regional Park and Open Space Plan for Southeastern Wisconsin: 2000, adopted by the Southeastern Wisconsin Regional Planning Commission on December 1, 1977. Since that time, the County and several municipalities have updated their park and open space plans.

Through the planning process for updating this Comprehensive Development Plan, County Department of Parks and Land Use staff met with the park staff and Boards of each municipality, local nonprofit conservation organizations, the Wisconsin Department of Natural Resources and the Southeastern Wisconsin Regional Planning Commission. The Waukesha County Parks System is a natural resource based system, which demonstrates stewardship while

Table III-7

ARCHAEOLOGICAL SITES IN WAUKESHA COUNTY
LISTED ON THE NATIONAL REGISTER OF HISTORIC PLACES: 2005

Site Name	Location	National Register Listing Date	Description
Barforth Blood Mound Group	Town of Mukwonago T5N, R18E, Section 13	September 2, 1982	Middle Woodland mound group
Goodwin-McBean	Town of Vernon T5N, R19E, Section 15	September 17, 1982	Late Woodland village and former mound group
Dewey Group	Town of Vernon T5N, R19E, Section 28	December 19, 1978	Large effigy mound group
Nicolai-Peterson	Town of Vernon T5N, R19E, Section 25	September 2, 1982	Middle and Late Woodland campsite and mounds
Big Bend Group #2	Town of Vernon T5N, R19E, Section 24	December 19, 1978	Effigy mound group

Source: Wisconsin Historical Society

Table III-8
CULTURAL BASED FACILITIES

Facility Name	Location	Description
Dousman Stagecoach Inn	1075 Pilgrim Parkway Brookfield	The historical site includes a 1847 farmhouse and Stagecoach Inn, smokehouse, ice house, and original Woodside School bell tower. The site was originally on the route of horse drawn carriages along the Watertown Plank Road.
Ploch Art Gallery	located in the Sharon Lynne Wilson Center 198th and Capitol Drive Brookfield	Free art gallery displaying the work of Wisconsin artists, providing juried exhibits throughout the year in collaboration with the Wisconsin Academy of Sciences, Arts & Letters in Madison.
Sharon Lynne Wilson Center for the Arts	198th and Capitol Drive Brookfield	Auditorium, Studio Theater, Outdoor Theater, and Arts education.
Milwaukee Opera Theater	145 Ormsby Street Pewaukee	Opera performances.
Sunset Playhouse	800 Elm Grove Road Elm Grove	Community theater.
Waukesha Civic Theater (Margaret Brate Bryant Civic)	264 W. Main Street Waukesha	Live theater performances and educational programs.
Shattuck Auditorium	Carroll College 100 N. East Ave Waukesha	Theater and symphony orchestra performances.
Lake Country Playhouse	221 E. Capitol Drive Hartland	Community theater.
Old World Wisconsin	S103 W37890 Hwy 67 Eagle	History of Wisconsin's immigrants and pioneers.
Friends of the East Troy Railroad	Hwy's ES & J Mukwonago	Historic Electric Trolley Rides
Red Brick House Mukwonago Museum	103 Main Street Mukwonago	Waukesha County's first brick house
Ten Chimneys Foundation	S42 W31610 Depot Road, Genesee Depot	Former estate of Alfred Lunt and Lynn Fontanne, open for public tours and specialized programs for theatre, arts, and arts education professionals.

Source: Wisconsin Historical Society

providing recreational and educational opportunities. Through this vision, Waukesha County seeks to provide resource related and self-actualized recreational opportunities. City, village and town governments typically provide sites and facilities for intensive nonresource-oriented recreational facilities. The intent was to prepare a Park and Open Space Plan for Waukesha County that conveys a shared vision for park and open space lands and facilities to serve the resident County population anticipated under full development of the County land use plan. The updated park and open space plans are also prepared to meet planning requirements for use of State and Federal parkland and recreational grants.

Inventory data needed for the preparation of the park and open space plan are provided in other chapters of this Comprehensive Development Plan. Such data includes historic and planned population and household levels, existing and planned land use and the location and extent of environmental corridors, natural areas, floodlands and other important natural resource related information. These data were carefully considered and used in the preparation of the park and open space plan presented in Appendix A.

IMPLEMENTATION RECOMMENDATIONS

1. Following completion of the Regional Water Supply Plan or availability of sufficient data, the planning objectives and standards used to prepare this plan may need to be refined to address groundwater supply and recharge issues.

2. Amend land use categories to direct development away from areas with seasonally high groundwater one-foot or less from the surface and steep slopes (12% or greater) and to discourage development of below grade structures on soils with groundwater limitations less than 3 feet from the surface. Amend applicable zoning and land division codes to establish a minimum of one-foot separation between structures (including basements) and the seasonally high groundwater level.

3. Amend applicable zoning codes, land division and storm water management ordinances to more stringent site design and storm water management requirements necessary to address thermal and other runoff impacts detail to cold-water communities, outstanding water resources and exceptional water resources.

4. Provide to the municipalities in Waukesha County the lists of historical sites that are eligible for historic designation but have not been designated and the list of potentially eligible sites that need additional evaluation for inclusion as eligible sites.

5. Amend the planned land use map and appropriate zoning codes and maps to reflect lands identified as prime agricultural areas using the planning standards contained in this chapter.

6. To protect and encourage the preservation of high quality agricultural tillable lands, (U.S.D.A. Class I and II soils) contained in the Prime Agricultural and Rural Density and Other Agricultural Land plan categories, discourage residential development on agriculturally productive and environmentally sensitive areas, provide for some marketability of such lands and encourage more economical use of lands suited to limited and controlled residential development by permitting more intensive use of such lands without changing overall rural character, it is recommended land use tools such as residential density transfer opportunities be provided. Within land use regulatory codes, these opportunities, with the following components, should be provided:

    a. Through development design techniques, including but not limited to Planned Unit Developments and conservation design developments, high quality agricultural tillable lands can be preserved.
    b. The density transfer technique would permit variable lot sizes in the utilization of the most desirable terrain for housing sites while encouraging preservation of high quality agricultural tillable lands worthy of such preservation.

c. To transfer residential density opportunities to promote the preservation of the rural character of the County by encouraging farm fields, pastures, orchards, and natural open spaces to be retained either as common open spaces, or as part of a farm operation. The transfer of residential development rights from one area of a parcel to another, from one tract of land to another, and from the Prime Agricultural and Rural Density and Other Agricultural Land plan categories thereby is recommended allowing the increase in density of development on suitable lands for development in exchange for establishing the preservation of more desirable agriculturally productive lands.
d. In order to preserve the rural character as well as the efficiency and safety of existing road systems, the inappropriate development of lots strung out along such roads with individual driveway accesses from each lot should be minimized. The goal of this objective is to encourage grouping of lots on an interior street, which will then access the existing road system.
e. Any land claimed in addition to the actual described residential lots, for credit toward meeting the density factor requirement, would have its status established, and guaranteed, either by dedication to the public, or by appropriate covenants running with the lands, through the conveyance of agricultural easements. Such covenants and easements would be recorded in the office of the Register of Deeds and would restrict the property against any development or use except as is consistent with its preservation as high quality agricultural tillable land or as a form of common open space unless the zoning of the property is changed in accordance with an update to the Comprehensive Development Plan for Waukesha County. The preserved land status of any parcel would be indicated on official zoning maps.

7. To protect and encourage the preservation of primary and secondary environmental corridors and isolated natural areas, discourage residential development in environmentally sensitive areas, provide for some marketability of such lands, encourage more economical use of lands suited to limited and controlled residential development by permitting more intensive use of such lands without impacting the environmentally sensitive areas, it is recommended residential density transfer opportunities be provided. Within land use regulatory codes, these opportunities, with the following components should be provided:

   a. Through development design techniques, including but not limited to Planned Unit Developments and conservation design developments, primary and secondary environmental corridors and isolated natural areas should be preserved.
   b. The density transfer technique would permit variable lot sizes while encouraging preservation of primary and secondary environmental corridors and isolated natural areas.
   c. To transfer residential density opportunities to promote the preservation of the rural character of the County by preserving primary and secondary environmental corridors and isolated natural areas to be retained as common open spaces.

8. In an effort to prevent land use conflicts with nonmetallic mining operations in the County, the Waukesha County Mineral Extraction Advisory Committee developed a series of recommendations. They are:

   a. Within appropriate land use regulatory codes, create a Mineral Extraction Notification Overlay District that extends beyond the property lines of nonmetallic mining operations. Creation of the Overlay District would require notifications to appear on recorded documents associated with land divisions within the District denoting the parcel's proximity to an active or planned mining operation. Loundon County, Virginia is an example of the use of overlay districts.
   b. Within appropriate land use regulatory codes, a minimum setback from nonmetallic mining operations and adjoining properties should be established. Landscape berms and vegetative screening could be provided in the setback area.
   c. New wells placed on properties immediately adjacent to nonmetallic mining operations should be constructed to minimize the impacts from mining operations.

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.

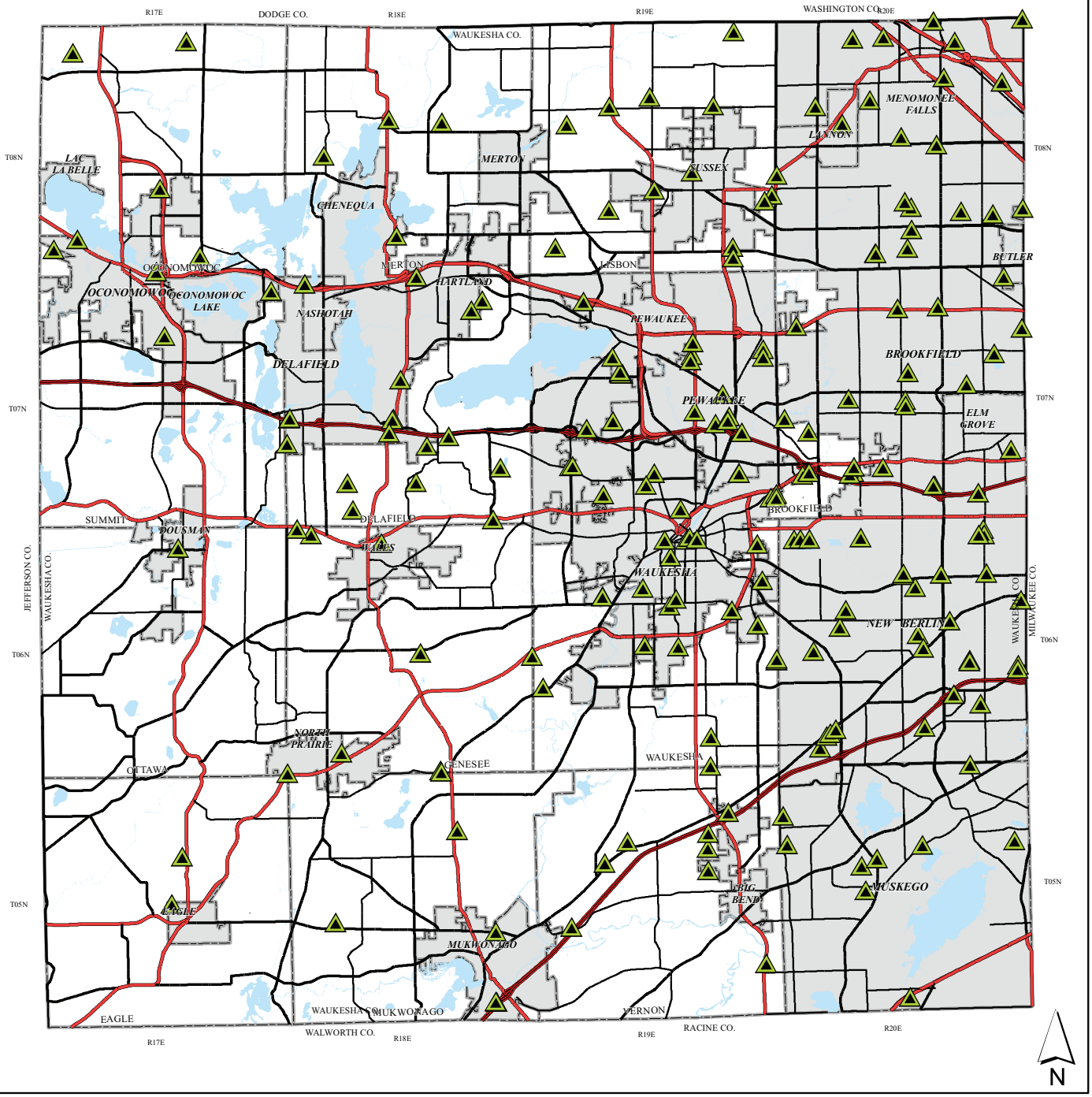
Two hundred and seventy six cellular tower antenna sites exist in Waukesha County, (Map IV-1). This includes City of Oconomowoc – 10 sites; Cities of Delafield and Pewaukee – 13 sites each; City of New Berlin – 15 sites; City of Muskego – 17 sites; City of Waukesha – 26 sites; City of Brookfield – 30 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.

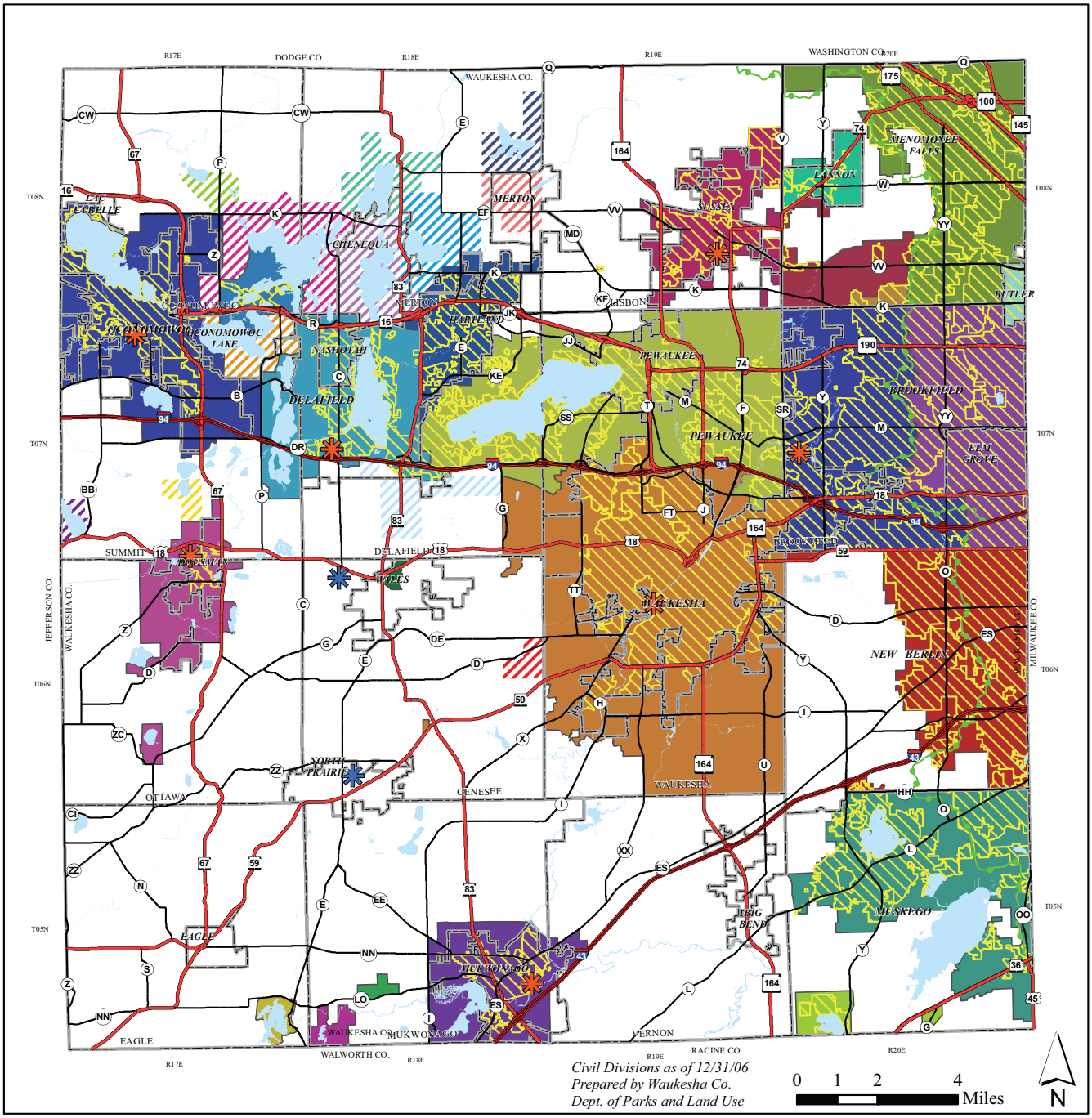
Sanitary Sewerage Facilities

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.

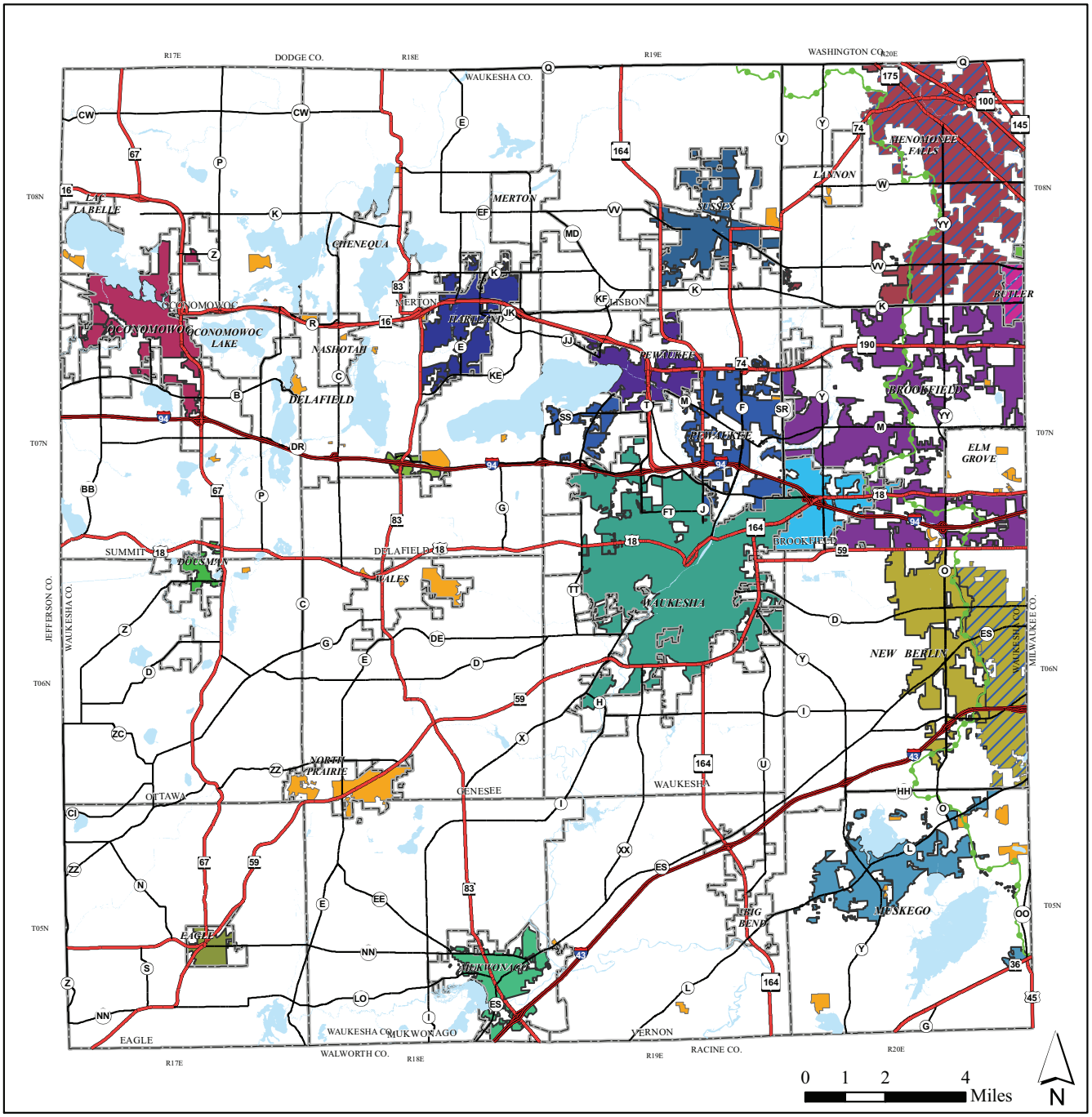
Water Supply Facilities
In 2005, 16 municipal water supply utility systems provided water to about 88 square miles of service area, or about 16 percent of the area of Waukesha County. These systems served a 2005 population of about 234,200 persons, or about 62 percent of the residential population in 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*

Source: SEWRPC

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

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.

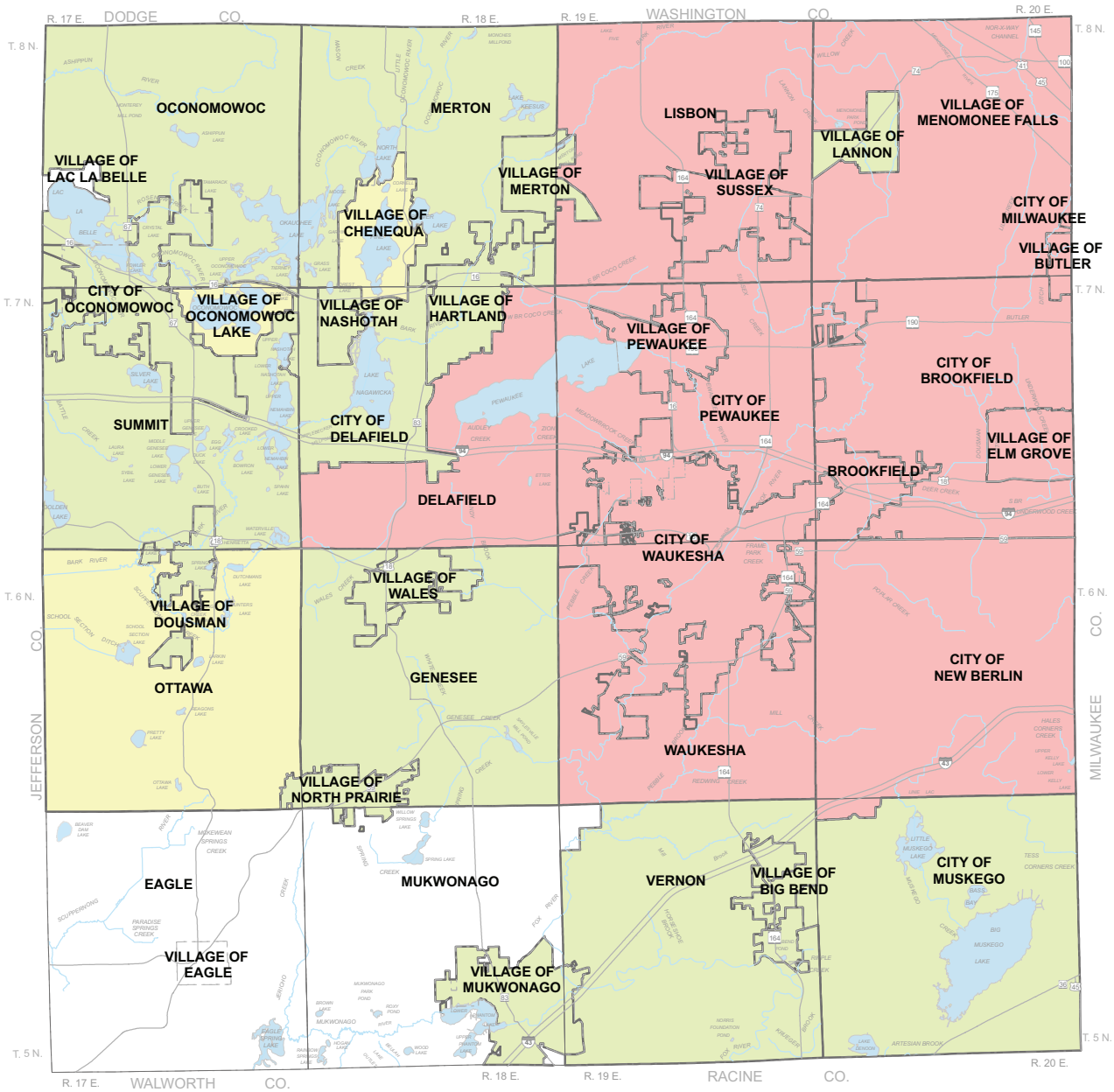
Table IV-3
WAUKESHA COUNTY MUNICIPALITIES SOLID WASTE
GENERATED AND RECYCLED IN TONS: 2005

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

N

0 1 2 Miles

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

Source: WDNR & Waukesha County

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.

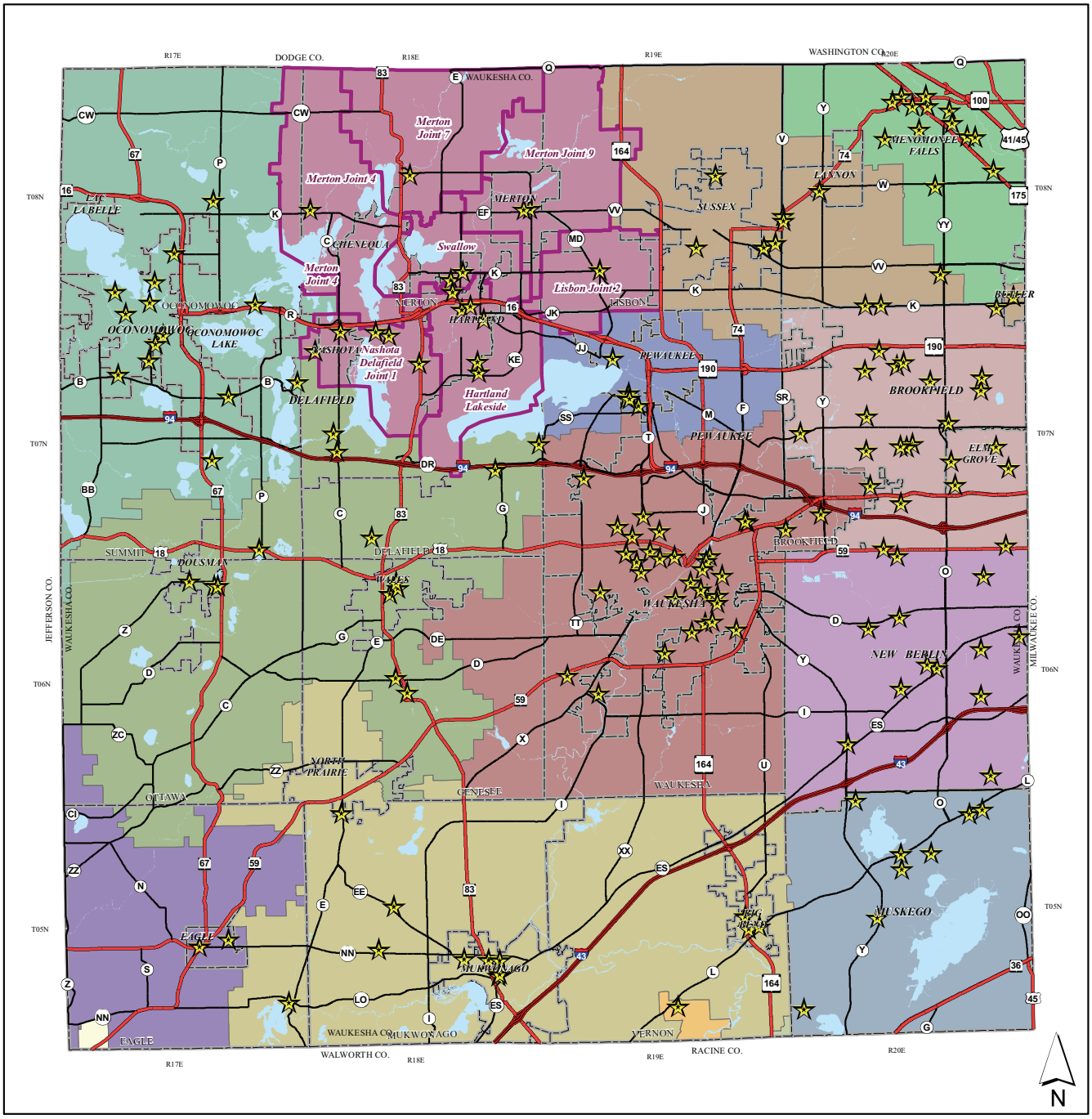
Table IV-5
SCHOOL AGE POPULATION PROJECTIONS FOR WAUKESHA COUNTY: 2005-2030

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.

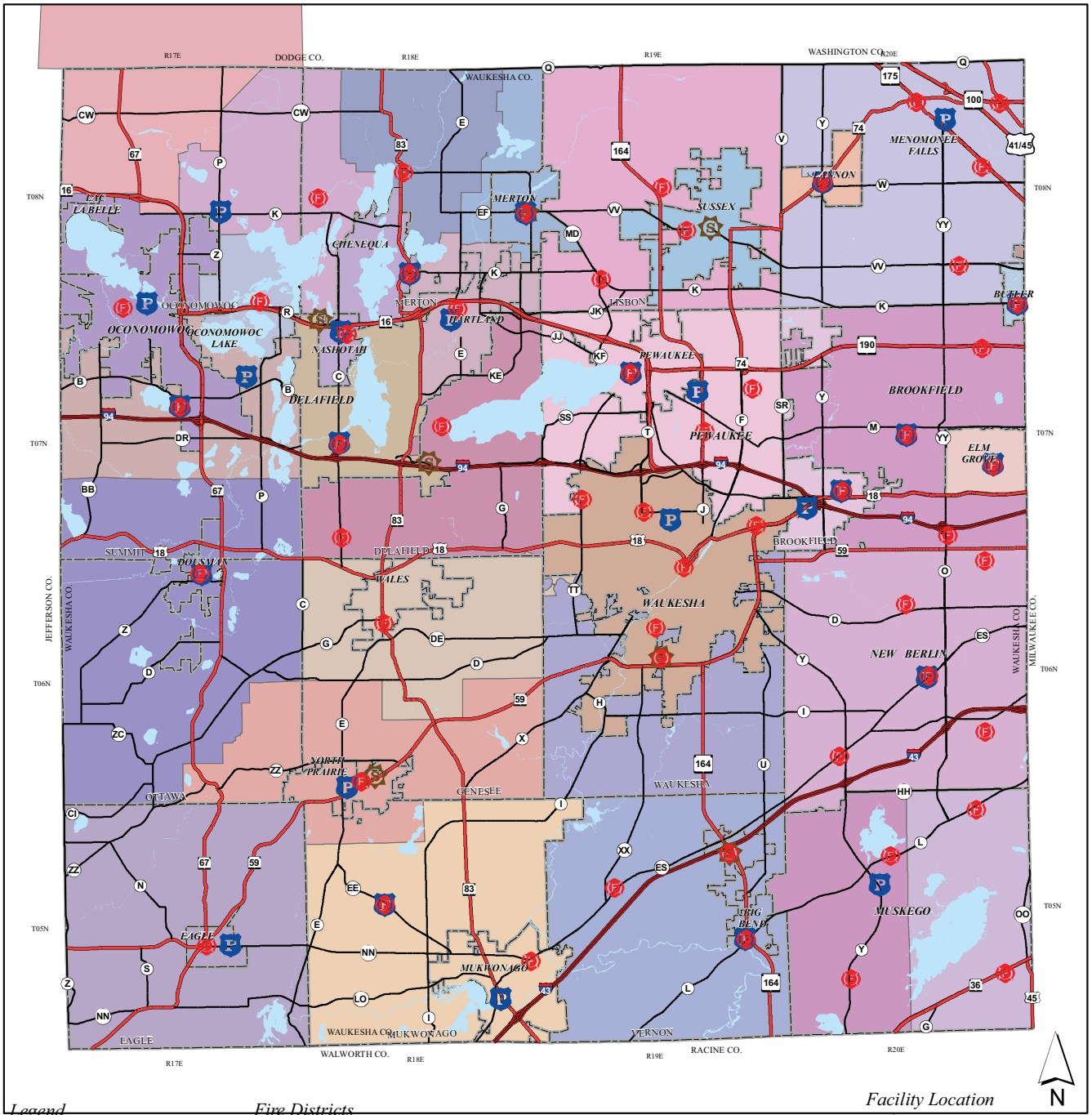
The Bureau of Regulation and Licensing (BRL) in the Division of Children and Family Services is responsible for licensing and regulating child care centers, residential care facilities for children and private child welfare agencies in Wisconsin. More information on licensed childcare facilities can 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.

Chapter 5

HOUSING ELEMENT

INTRODUCTION

The housing element is one of the nine elements of a comprehensive plan required by Section 66.1001 of the *Wisconsin Statutes*. Section 66.1001 (2) (b) of the *Statutes* requires the housing element to assess the age, structural condition, value, and occupancy characteristics of existing housing stock in the County and participating local governments. In addition, specific policies and programs must be identified that:

- Promote the development of housing for residents of the County and participating local governments and provide a range of housing choices that meet the needs of persons of all income levels and age groups and persons with special needs.
- Promote the availability of land for the development or redevelopment of affordable housing.
- Maintain or rehabilitate existing housing stock.

In addition, the following comprehensive planning goals related to the housing element are set forth in Section 16.965 of the *Statutes* and must be addressed as part of the planning process:

- Promotion of the redevelopment of lands with existing infrastructure and public services and the maintenance and rehabilitation of existing residential, commercial, and industrial structures.
- Encouragement of land uses, densities and regulations that promote efficient development patterns and relatively low municipal, state government, and utility costs.
- Provide an adequate supply of affordable housing for individuals of all income levels throughout each community.
- Provide adequate infrastructure and public services and an adequate supply of developable land to meet existing and future market demand for residential, commercial, and industrial uses.

Part 1 of this chapter provides an inventory of existing housing stock, including age, structural condition, value, and occupancy characteristics. This information, along with housing demand inventory data such as household, income, and demographic information presented in Chapter II of this plan, is used to analyze future housing needs for residents of the County and participating local governments.

Part 2 provides a description of government programs which facilitate the provision of housing, including affordable housing and information on community policies established for the percentage distribution of single-family, two-family, and multi-family units.

Part 3 of this chapter sets forth recommendations through the plan design year of 2035. Planning principles, standards, and objectives for the housing element are found in Chapter II.

Census Data

Census 2000 Summary File 1 and Census 2000 Summary File 3 were used in the collection of the existing housing stock data presented in this chapter. This information is collected by the U.S. Bureau of the Census every 10 years. The United States government has collected census data since 1790. Summary File 1 (also known as the short census form) data was used when possible. Data from Summary File 1 is generally more

accurate than Summary File 3 because it is based on 100 percent of the responses to the 2000 Census. In most cases, data from Summary File 3 were used because the data were not available from Summary File 1. Summary File 3 (also known as the long census form) is generally less accurate because the data is based on a sampling of one in six households; however, Summary File 3 covers a greater range of topics. Because the sample sizes are different, the data reported by the Census may differ for each data source. Unfortunately, the Census does not make adjustments to reconcile the discrepancies. In addition, some of the data to follow in this chapter are based on total housing units and some are based on occupied units only, depending on how the Census data were reported. This distinction is footnoted on all applicable tables.

WAUKESHA COUNTY HOUSING STRENGTHS, CONCERNS, AND WEAKNESSES

The Waukesha County Comprehensive Planning Land Use, Housing and Transportation Subcommittee expressed the following housing strengths, concerns, and weaknesses.

Housing Strengths

- Sufficient housing supply for mid-to high-market single-family residential
- High housing quality
- Diverse housing age and style
- Safe neighborhoods
- Strong neighborhood associations
- Increasing ethnic and racial diversity
- Public willingness to have cluster design subdivisions

Housing Concerns and Weaknesses

- High cost of land
- A need for increased density
- Densities driven more toward single-family (suburban) densities
- Need for increased availability of affordable housing
- Housing affordability needs to be based on projected job growth
- Municipalities pushing for higher value development for tax base purposes
- A lack of diverse housing stock in neighborhoods (ie. two-family or more with single-family homes)
- A need for more energy and water efficient appliances and continued emphasis on green building concepts
- A need for more education on storm water management and other infiltration techniques
- A need for increased political support to decrease the cost of the land and utilities to achieve affordable housing
- Few municipal caps on maximum housing size
- A need for increased understanding regarding the connection between the housing and community and regional economics
- A need for increased ethnic and racial diversity

HOUSING INVENTORY

The characteristics of existing housing in Waukesha County have been inventoried to help determine the number and type of housing units that will best suit the needs of County residents through 2035. The existing housing stock inventory includes:

- Total housing units
- Vacancy rate
- Value of owner-occupied housing units
- Monthly cost of housing units by tenure

- Number of bedrooms
- Structure type and year built
- Condition of existing housing stock

Total Housing Units

The quantity and tenure (owner- or renter-occupied) of existing housing units in Waukesha County and each participating local government is one of the key inventory items needed to forecast the number of additional housing units the planning area will require in 2035. Table V-1 sets forth the total number of housing units in the County and each participating local government in 2000. In 2000, there were 140,309 total housing units in the County. Of the total housing units, 79.32 percent, or 103,373, were owner-occupied and 16.13 percent, or 31,856, were renter-occupied. The number of vacancies in 2000 was 5,080 units, or 4.56 percent. The percentage of owner occupied housing units ranged from 48.51 percent in the Village of Butler to 95.09 percent in the Town of Vernon. The percentage of renter occupied units ranged from 2.36 percent in the Village of Lac La Belle to 49.15 percent in the Village of Butler. Over 35 percent of the entire renter, occupied housing units within the County were located within the City of Waukesha in 2000.

Vacancy Rate

Another key housing supply inventory item is the vacancy rate of various housing types. The vacancy rate is the number of vacant and available housing units divided by the total number of housing units within the County. The vacancy rates for owner-occupied units and rental units are shown on Table V-2.

Some vacancies are necessary for a healthy housing market. The U.S. Department of Housing and Urban Development (HUD) states that an area needs a minimum overall vacancy rate of 3.0 percent to ensure adequate housing choices, which should include a minimum 1.5 percent vacancy rate for owner-occupied housing units and a minimum 5 percent vacancy rate for rental units to ensure adequate housing choices. Vacant units can fall into several categories including for rent; for sale only; for seasonal, recreational, or occasional use; for migrant workers; and other vacant units.

The overall vacancy rate in the County was 3.62 percent in 2000. Although the overall vacancy rate for the County met HUD guidelines, the rate was less than 3 percent in Towns of Genesee, Lisbon, Mukwonago, Vernon, and Waukesha, the Villages of Big Bend, Butler, Dousman, Eagle, Lac La Belle, Lannon, Menomonee Falls, Merton, Nashotah, North Prairie, and Wales, and the Cities of Brookfield, Muskego, and New Berlin. The Village of Oconomowoc Lake (15.45%) and Village of Chenequa (20.36%) each had a particularly high vacancy rate in 2000. Of all vacancies, Oconomowoc Lake had 12.20% in the "rented or sold, but not occupied category". The vacancy rate in Chenequa is largely due to the "seasonal, recreational, or occasional use" homes along Pine Lake.

The vacancy rate in the County for "owner-occupied units"[1] was determined by dividing the number of units for sale (842) from Table V-2 by the total number of owner-occupied units (103,373) in the County from Table V-1. The approximate vacancy rate for rental units was determined by dividing the number of units for rent (1,645) from Table V-2 by the number of rental units (31,856) from Table V-1. The results of these calculations were a vacancy rate of 0.81 percent for owner-occupied units and 5.16 percent for rental units in the County in 2000. The owner-occupied unit vacancy rate was substantially lower than the minimum vacancy rate of 1.5 percent identified by HUD to provide for an adequate choice of owner-occupied units. The rental unit vacancy met HUD guidelines.

[1] *The data for specified owner-occupied housing units excludes mobile homes, houses with a business or medical office on the property, houses on 10 or more acres, and housing units in multi-unit buildings.*

Table V-1

TOTAL HOUSING UNITS BY TENURE IN WAUKESHA COUNTY COMMUNITIES: 2000

Community	Owner-Occupied Units		Renter-Occupied Units		Vacant Units		Total Housing
	Number	*Percent*	*Number*	*Percent*	*Number*	*Percent*	*Number*
Town of Brookfield	1,763	61.58%	999	34.89%	101	3.53%	2,863
Town of Delafield	2,290	87.24%	231	8.80%	104	3.96%	2,625
Town of Eagle	984	88.01%	65	5.81%	69	6.17%	1,118
Town of Genesee	2,248	90.61%	183	7.38%	50	2.02%	2,481
Town of Lisbon	3,104	94.89%	114	3.49%	53	1.62%	3,271
Town of Merton	2,503	85.37%	203	6.92%	226	7.71%	2,932
Town of Mukwonago	2,075	92.59%	109	4.86%	57	2.54%	2,241
Town of Oconomowoc	2,338	76.78%	427	14.02%	280	9.20%	3,045
Town of Ottawa	1,232	85.79%	143	9.96%	61	4.25%	1,436
Town of Summit	1,554	81.62%	193	10.14%	157	8.25%	1,904
Town of Vernon	2,287	95.09%	93	3.87%	25	1.04%	2,405
Town of Waukesha	2,786	94.60%	105	3.57%	54	1.83%	2,945
Village of Big Bend	371	81.18%	77	16.85%	9	1.97%	457
Village of Butler	455	48.51%	461	49.15%	22	2.35%	938
Village of Chenequa	193	68.93%	30	10.71%	57	20.36%	280
Village of Dousman	315	53.66%	260	44.29%	12	2.04%	587
Village of Eagle	529	87.44%	63	10.41%	13	2.15%	605
Village of Elm Grove	2,196	85.92%	248	9.70%	112	4.38%	2,556
Village of Hartland	1,746	55.61%	1,256	40.00%	138	4.39%	3,140
Village of Lac La Belle	114	89.76%	3	2.36%	10	7.87%	127
Village of Lannon	361	83.18%	64	14.75%	9	2.07%	434
Village of Menomonee Falls	9,939	75.64%	2,905	22.11%	296	2.25%	13,140
Village of Merton	558	93.31%	33	5.52%	7	1.17%	598
Village of Mukwonago	1,516	60.59%	876	35.01%	110	4.40%	2,502
Village of Nashotah	427	93.85%	18	3.96%	10	2.20%	455
Village of North Prairie	455	83.64%	76	13.97%	13	2.39%	544
Village of Oconomowoc Lake	185	75.20%	23	9.35%	38	15.45%	246
Village of Pewaukee	2,330	61.95%	1,305	34.70%	126	3.35%	3,761
Village of Sussex	2,179	63.32%	1,131	32.87%	131	3.81%	3,441
Village of Wales	722	83.66%	124	14.37%	17	1.97%	863
City of Brookfield	12,482	87.85%	1,409	9.92%	317	2.23%	14,208
City of Delafield	1,694	63.09%	859	31.99%	132	4.92%	2,685
City of Muskego	6,228	80.89%	1,305	16.95%	166	2.16%	7,699
City of New Berlin	11,778	78.94%	2,717	18.21%	426	2.86%	14,921
City of Oconomowoc	3,102	59.21%	1,866	35.62%	271	5.17%	5,239
City of Pewaukee	3,826	80.36%	727	15.27%	208	4.37%	4,761
City of Waukesha	14,508	54.02%	11,155	41.54%	1,193	4.44%	26,856
Waukesha County	**103,373**	**79.32%**	**31,856**	**16.13%**	**5,080**	**4.56%**	**140,309**

Totals are based on 100 percent of respondents to the 2000 Census (Summary File 1)
Source: U.S. Bureau of the Census and SEWRPC.

Table V-2

HOUSING VACANCIES IN WAUKESHA COUNTY COMMUNITIES: 2000[a]

Community	For Rent	For Sale Only	Rented or Sold, Not Occupied[b]	Seasonal, Recreational, or Occassional Use	For Migrant Workers	Other Vacant[c]	Total Vacancies	Total Units	Vacancy Rate
Town of Brookfield	60	8	13	14	6	0	101	2,863	3.53%
Town of Delafield	6	13	1	58	26	0	104	2,625	3.96%
Town of Eagle	2	11	5	48	3	0	69	1,118	6.17%
Town of Genesee	9	8	5	13	15	0	50	2,481	2.02%
Town of Lisbon	5	22	10	11	1	4	53	3,271	1.62%
Town of Merton	7	17	10	170	22	0	226	2,932	7.71%
Town of Mukwonago	5	13	9	20	10	0	57	2,241	2.54%
Town of Oconomowoc	19	22	17	198	24	0	280	3,045	9.20%
Town of Ottawa	6	4	1	43	7	0	61	1,436	4.25%
Town of Summit	1	8	4	121	23	0	157	1,904	8.25%
Town of Vernon	5	7	6	1	6	0	25	2,405	1.04%
Town of Waukesha	2	18	13	4	17	0	54	2,945	1.83%
Village of Big Bend	2	3	1	1	2	0	9	457	1.97%
Village of Butler	12	4	1	5	0	0	22	938	2.35%
Village of Chenequa	1	1	1	50	4	0	57	280	20.36%
Village of Dousman	7	2	3	0	0	0	12	587	2.04%
Village of Eagle	5	2	3	1	2	0	13	605	2.15%
Village of Elm Grove	11	46	12	29	14	0	112	2,556	4.38%
Village of Hartland	38	51	27	6	16	0	138	3,140	4.39%
Village of Lac La Belle	2	8	0	0	0	0	10	127	7.87%
Village of Lannon	6	1	2	0	0	0	9	434	2.07%
Village of Menomonee Falls	84	80	53	35	44	0	296	13,140	2.25%
Village of Merton	1	3	1	2	0	0	7	598	1.17%
Village of Mukwonago	58	19	8	11	14	0	110	2,502	4.40%
Village of Nashotah	1	3	2	3	1	0	10	455	2.20%
Village of North Prairie	4	4	3	2	0	0	13	544	2.39%
Village of Oconomowoc Lake	4	1	30	3	0	0	38	246	15.45%
Village of Pewaukee	53	15	7	33	4	14	126	3,761	3.35%
Village of Sussex	90	10	10	11	10	0	131	3,441	3.81%
Village of Wales	7	3	3	1	3	0	17	863	1.97%
City of Brookfield	56	70	59	86	46	0	317	14,208	2.23%
City of Delafield	25	6	10	72	19	0	132	2,685	4.92%
City of Muskego	39	27	19	49	32	0	166	7,699	2.16%
City of New Berlin	136	129	62	32	67	0	426	14,921	2.86%
City of Oconomowoc	84	68	38	46	35	0	271	5,239	5.17%
City of Pewaukee	39	38	26	78	27	0	208	4,761	4.37%
City of Waukesha	753	97	128	54	161	0	1,193	26,856	4.44%
Waukesha County	**1,645**	**842**	**603**	**1,311**	**661**	**18**	**5,080**	**140,309**	**3.62%**

[a]Totals are based on 100 percent of the responses to the 2000 Census (Summary File 1)

[b]The unit is classified "rented or sold, not occupied" if any money towards rent has been paid or the unit has recently been sold but the occupant has not yet moved in.

[c]If a vacant unit does not fall into any of the other categories it is classified as an "other vacant unit." An example would be a unit held for occupancy by a caretaker.

Source: U.S. Census and SEWRPC

Value of Owner-Occupied Housing Units

Table V-3 presents the values of specified owner-occupied housing units in the County and each local government in 2000. These values can be used to determine if there are adequate home ownership opportunities for residents of all income levels in the County. Homes that had values between $50,000 and $99,999 comprised 4.95 percent of housing units. Homes that had values between $100,000 and $149,999 comprised 29.15 percent of all owner-occupied housing units, and 32.63 percent had values between $150,000 and $199,999. Owner-occupied homes that had values between $200,000 and $249,999 comprised 13.86 percent of housing units, 8.56 percent fell within $250,000 and $299,000, and 10.43 percent had values at $300,000 or more. The median value for owner-occupied housing units in the County in 2000 was $170,400.

Table V-4 shows the value of owner-occupied housing units for each county in the Southeastern Wisconsin Region and for the State in 2000. The median value of $170,400 in the County was second highest among counties in the Region. The median value of owner-occupied housing units was $124,441 in the Region, $112,200 in the State, and $119,600 in the Nation. Waukesha County also had the highest household median income of counties in the Region and among adjacent counties (See Chapter II, Table II-6).

More recent data regarding the value of owner-occupied housing units, available from the Wisconsin Realtors Association is presented in Table V-5. These sources provide information regarding the actual selling prices of existing housing in the Region. The selling price data pertains to single-family homes, but does not include condominiums. The data shows there was a significant increase in median selling prices in Waukesha County (42.43 percent) and for the Region (43.56 percent) between 2000 and 2006. In 2000, 2001, 2002, and 2003 Ozaukee County had the highest median selling prices of existing housing in the Region. In 2004, 2005, and 2006 Waukesha County experienced the highest median selling prices of existing housing in the Region. This statistic indicated that housing prices escalated at a much higher rate than the increase in wages. It is too early to tell how the downturn in the housing market that began in late 2006 will impact median selling price in the near future. This perceived downturn in the housing market is not yet supported by statistical data that shows that the median selling price of existing homes or the number of existing home sales is declining substantially.

Monthly Housing Costs

Monthly housing costs for owner-occupied housing units and rental housing units have been inventoried to determine if there is an adequate supply of affordable housing units for each household income level in the planning area. HUD defines affordability as access to decent and safe housing that costs no more than 30 percent of a household's gross monthly income. As shown in Table V-6, over 75 percent of all owner occupied housing units in Waukesha County had a mortgage loan in 2000. Twenty-seven percent had a second mortgage or home equity loan. These were the highest percentages within the Region and adjacent counties. The lowest percentages of owner occupied housing units with a mortgage were in Dodge and Milwaukee counties.

Table V-7 sets forth monthly housing costs[2] for specified owner-occupied housing units with a mortgage in the planning area and each participating local government in 2000. The median monthly housing cost for homeowners with a mortgage in the County was $1,366 in 2000. About 22 percent of homeowners with a mortgage spent less than $1,000 per month. Nearly 40 percent of homeowners in the County with a mortgage spent between $1,000 and $1,499 on monthly housing costs. Almost 24 percent spent between $1,500 and $2,000 and close to 15 percent of homeowners with a mortgage spent over $2,000 per month.

Table V-8 shows monthly housing costs for specified owner-occupied housing units with a mortgage for each County in the Region and the State in 2000. The median monthly cost of $1,366 in Waukesha County was the second highest among counties in the Region. Only Ozaukee County with a median monthly cost of $1,420 was higher. The median monthly cost for homeowners with a mortgage was $1,123 in the Region, $1,024 in the State, and $1,088 in the Nation.

[2] *Selected monthly owner costs are the sum of mortgage payments or similar debts on the property; real estate taxes; fire, hazard, and flood insurance on the property; and utilities. Costs do not include maintenance.*

Table V-3

STRUCTURAL VALUE FOR SPECIFIED OWNER-OCCUPIED HOUSING UNITS IN WAUKESHA COUNTY COMMUNITIES: 2000[a]

Community	Less than $50,000		$50,000 - $99,999		$100,000 - $149,999		$150,000 - $199,000		$200,000 - $249,000		$250,000 - $299,999		$300,000 - $399,000		$400,000 or more		Total	Median
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent		
Town of Brookfield	9	0.57%	39	2.45%	393	24.70%	570	35.83%	275	17.28%	175	11.00%	110	6.91%	20	1.26%	1,591	$177,100
Town of Delafield	8	0.38%	26	1.22%	158	7.42%	320	15.02%	304	14.27%	351	16.48%	317	14.88%	646	30.33%	2,130	$285,500
Town of Eagle	15	1.78%	47	5.57%	133	15.76%	255	30.21%	180	21.33%	130	15.40%	41	4.86%	43	5.09%	844	$195,400
Town of Genesee	0	0.00%	92	4.53%	259	12.75%	645	31.76%	496	24.42%	306	15.07%	176	8.67%	57	2.81%	2,031	$202,000
Town of Lisbon	0	0.00%	25	0.94%	545	20.55%	1,163	43.85%	393	14.82%	368	13.88%	139	5.24%	19	0.72%	2,652	$180,700
Town of Merton	14	0.61%	53	2.31%	182	7.95%	529	23.10%	436	19.04%	358	15.63%	346	15.11%	372	16.24%	2,290	$242,100
Town of Mukwonago	20	1.06%	38	2.01%	375	19.87%	669	35.45%	436	23.11%	210	11.13%	112	5.94%	27	1.43%	1,887	$186,800
Town of Oconomowoc	17	0.80%	84	3.96%	433	20.40%	554	26.10%	322	15.17%	170	8.01%	272	12.81%	271	12.76%	2,123	$197,500
Town of Ottawa	0	0.00%	24	2.22%	200	18.52%	337	31.20%	292	27.04%	138	12.78%	73	6.76%	16	1.48%	1,080	$197,400
Town of Summit	23	1.63%	47	3.33%	305	21.63%	224	15.89%	194	13.76%	178	12.62%	215	15.25%	224	15.89%	1,410	$227,300
Town of Vernon	2	0.10%	58	2.76%	405	19.29%	930	44.31%	457	21.77%	177	8.43%	58	2.76%	12	0.57%	2,099	$178,700
Town of Waukesha	12	0.47%	50	1.94%	534	20.74%	1,001	38.87%	465	18.06%	294	11.42%	145	5.63%	74	2.87%	2,575	$184,200
Village of Big Bend	3	0.87%	42	12.17%	173	50.14%	111	32.17%	10	2.90%	2	0.58%	2	0.58%	2	0.58%	345	$137,900
Village of Butler	0	0.00%	108	26.67%	257	63.46%	28	6.91%	12	2.96%	0	0.00%	0	0.00%	0	0.00%	405	$115,100
Village of Chenequa	0	0.00%	2	1.16%	6	3.49%	2	1.16%	8	4.65%	2	1.16%	12	6.98%	140	81.40%	172	$810,000
Village of Dousman	0	0.00%	35	11.59%	181	59.93%	81	26.82%	2	0.66%	2	0.66%	0	0.00%	1	0.33%	302	$137,000
Village of Eagle	0	0.00%	37	6.88%	321	59.67%	171	31.78%	9	1.67%	0	0.00%	0	0.00%	0	0.00%	538	$139,400
Village of Elm Grove	9	0.48%	5	0.27%	100	5.33%	325	17.31%	383	20.40%	420	22.38%	409	21.79%	226	12.04%	1,877	$263,900
Village of Hartland	10	0.62%	73	4.51%	570	35.21%	555	34.28%	216	13.34%	87	5.37%	35	2.16%	73	4.51%	1,619	$161,100
Village of Lac La Belle	0	0.00%	0	0.00%	4	3.54%	7	6.19%	5	4.42%	2	1.77%	16	14.16%	79	69.91%	113	$483,300
Village of Lannon	2	1.03%	26	13.33%	94	48.21%	63	32.31%	2	1.03%	2	1.03%	2	1.03%	4	2.05%	195	$133,400
Village of Menomonee Falls	36	0.39%	407	4.41%	4,067	44.05%	2,688	29.11%	950	10.29%	614	6.65%	365	3.95%	106	1.15%	9,233	$151,600
Village of Merton	4	0.73%	26	4.73%	100	18.18%	144	26.18%	111	20.18%	86	15.64%	68	12.36%	11	2.00%	550	$200,500
Village of Mukwonago	9	0.62%	136	9.37%	722	49.72%	462	31.82%	54	3.72%	54	3.72%	15	1.03%	0	0.00%	1,452	$143,000
Village of Nashotah	0	0.00%	4	1.15%	44	12.61%	63	18.05%	75	21.49%	78	22.35%	71	20.34%	14	4.01%	349	$242,300
Village of North Prairie	0	0.00%	41	9.36%	179	40.87%	144	32.88%	56	12.79%	6	1.37%	0	0.00%	12	2.74%	438	$149,700
Village of Oconomowoc Lake	0	0.00%	2	1.17%	12	7.02%	15	8.77%	2	1.17%	7	4.09%	19	11.11%	114	66.67%	171	$713,500
Village of Pewaukee	0	0.00%	143	8.49%	619	36.74%	453	26.88%	318	18.87%	42	2.49%	103	6.11%	7	0.42%	1,685	$160,700
Village of Sussex	8	0.40%	57	2.85%	568	28.36%	836	41.74%	411	20.52%	106	5.29%	17	0.85%	0	0.00%	2,003	$171,200
Village of Wales	0	0.00%	45	6.34%	93	13.10%	363	51.13%	121	17.04%	39	5.49%	45	6.34%	4	0.56%	710	$183,700
City of Brookfield	36	0.30%	184	1.53%	2,244	18.72%	4,464	37.24%	1,771	14.77%	1,224	10.21%	1,150	9.59%	915	7.63%	11,988	$189,100
City of Delafield	9	0.64%	19	1.36%	304	21.73%	227	16.23%	213	15.23%	230	16.44%	215	15.37%	182	13.01%	1,399	$233,000
City of Muskego	26	0.44%	278	4.74%	1,699	28.96%	2,179	37.15%	935	15.94%	491	8.37%	205	3.49%	53	0.90%	5,866	$166,700
City of New Berlin	13	0.12%	370	3.39%	3,567	32.66%	4,467	40.91%	1,180	10.81%	718	6.58%	500	4.58%	105	0.96%	10,920	$162,100
City of Oconomowoc	7	0.24%	262	9.00%	1,246	42.82%	786	27.01%	248	8.52%	220	7.56%	89	3.06%	52	1.79%	2,910	$147,900
City of Pewaukee	24	0.72%	113	3.40%	527	15.85%	1,216	36.58%	633	19.04%	401	12.06%	270	8.12%	140	4.21%	3,324	$190,600
City of Waukesha	82	0.64%	1,662	12.97%	5,805	45.31%	3,656	28.54%	1,064	8.31%	362	2.83%	135	1.05%	45	0.35%	12,811	$139,900
Waukesha County	398	0.42%	4,660	4.95%	27,424	29.15%	30,703	32.63%	13,039	13.86%	8,050	8.56%	5,747	6.11%	4,066	4.32%	94,087	$170,400

[a]The data for specified owner-occupied housing units excludes mobile homes, houses with a business or medical office on the property, houses on 10 or more acres, and housing units in multiunit buildings. Totals are based on a sample of one in six respondents to the 2000 Census (Summary File 3).
Source: U.S. Bureau of the Census and SEWRPC.

Table V-4

VALUE FOR SPECIFIED OWNER-OCCUPIED HOUSING UNITS IN THE SOUTHEASTERN WISCONSIN REGION AND ADJACENT COUNTIES: 2000[a]

County	Less than $50,000		$50,000-$99,999		$100,000-$149.999		$150,000-$199,999		$200,000-$299,999	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Kenosha	485	1.5%	10,050	30.40%	12,560	24.70%	6,180	18.70%	2,958	9.00%
Milwaukee	16,203	9.9%	61,792	37.60%	52,685	7.42%	20,296	12.40%	9,042	5.50%
Ozaukee	67	0.30%	928	4.40%	6,064	15.76%	5,662	27.30%	4,597	22.10%
Racine	1,668	3.80%	16,896	38.90%	13,066	12.75%	7,278	16.80%	3,566	8.20%
Walworth	288	1.50%	5,223	26.40%	7,091	20.55%	3,742	18.90%	2,279	11.50%
Washington	69	0.30%	2,169	7.90%	10,535	7.95%	8,344	30.40%	4,986	18.10%
Waukesha	398	0.40%	4,660	5.00%	27,424	19.87%	30,703	32.60%	21,089	22.40%
Region	19,178	4.80%	101,707	25.30%	129,329	32.10%	82,127	20.40%	48,506	12.00%
Dodge	519	2.90%	7,538	42.50%	6,230	35.10%	2,308	13.00%	988	5.60%
Jefferson	185	1.20%	4,192	27.10%	6,677	43.20%	2,665	17.30%	1,346	8.70%
Wisconsin	73,450	6.50%	396,893	35.40%	343,993	30.60%	173,519	15.50%	95,163	8.50%

County	$300,000-$499,999		$500,000 or More		Total		Median
	Number	Percent	Number	Percent	Number	Percent	
Kenosha	696	2.10%	127	1.26%	33,057	100.00%	$129,900
Milwaukee	2,785	1.70%	1,359	30.33%	164,162	100.00%	$103,200
Ozaukee	2,636	12.70%	866	5.09%	20,820	100.00%	$177,300
Racine	780	1.80%	180	2.81%	43,434	100.00%	$111,000
Walworth	829	4.20%	344	0.72%	19,796	100.00%	$128,400
Washington	1,108	4.00%	268	16.24%	27,479	100.00%	$155,000
Waukesha	7,486	8.00%	2,327	1.43%	94,087	100.00%	$170,400
Region	16,320	4.10%	5,471	12.76%	402,638	100.00%	$124,441
Dodge	147	0.80%	27	0.20%	17,757	100.00%	$105,800
Jefferson	326	2.10%	55	0.40%	15,466	100.00%	$123,800
Wisconsin	30,507	2.70%	8,942	0.90%	1,122,467	100.00%	$112,200

The data for specified owner-occupied housing units excludes mobile homes, houses with a business or medical office on the property, houses on 10 or more acres, and housing units in multi-unit buildings. Totals are based on a sample of one in six respondents to the 2000 Census (Summary File3).
Source: U.S. Bureau of the Census and SEWRPC

Table V-5

MEDIAN SELLING PRICE OF EXISTING HOUSING[a] IN THE SOUTHEASTERN WISCONSIN REGION AND ADJACENT COUNTIES : 2000-2007

Year	Dodge County		Jefferson County		Kenosha County		Milwaukee County		Ozaukee County	
	Number of Sales	Median Selling Price (dollars)	Number of Sales	Median Selling Price (dollars)	Number of Sales	Median Selling Price (dollars)	Number of Sales	Median Selling Price (dollars)	Number of Sales	Median Selling Price (dollars)
2000	560	94,500	N/A	N/A	1,836	116,700	8,666	101,600	929	182,700
2001	539	102,400	604	130,500	1,969	126,000	9,088	110,700	1,062	184,400
2002	606	103,850	832	133,700	2,246	133,000	9,781	118,600	1,177	210,700
2003	789	115,000	995	138,900	2,267	143,100	9,891	128,200	1,146	220,600
2004	675	123,500	849	151,400	2,560	149,300	11,050	138,700	1,274	235,300
2005	707	131,100	984	160,000	2,589	169,200	11,517	153,300	1,349	237,500
2006	703	131,600	810	172,000	2,319	169,200	10,946	158,700	1,166	244,700
2007	593	134,400	794	170,000	2,044	169,200	8,970	161,500	1,090	244,700

Year	Racine County		Walworth County		Washington County		Waukesha County		Total Sales and Median Selling Price for Nine Counties	
	Number of Sales	Median Selling Price (dollars)	Number of Sales	Median Selling Price (dollars)	Number of Sales	Median Selling Price (dollars)	Number of Sales	Median Selling Price (dollars)	Total Number of Sales	Median Selling Price[b] (dollars)
2000	2,012	108,100	1,252	125,900	1,161	148,000	3,860	177,700	20,276	117,244
2001	2,239	115,400	1,347	132,500	1,412	151,400	4,518	185,500	22,778	137,644
2002	2,392	118,700	1,613	140,000	1,511	161,700	4,697	202,600	24,855	146,983
2003	2,187	129,200	1,677	152,900	1,467	175,400	4,590	220,000	24,220	158,144
2004	2,703	138,700	1,898	163,300	1,709	194,500	4,869	238,100	26,912	170,311
2005	2,810	150,800	1,873	184,400	1,844	204,500	5,287	250,000	27,269	182,311
2006	2,449	155,000	1,565	194,000	1,750	204,500	5,107	253,100	25,302	186,977
2007	2,182	162,000	1,386	198,000	1,483	204,300	4,647	250,000	23,189	188,233

[a]*The price represents only those for single-family homes and does not include condominiums.*

[b]*The price represents the average sale price of the total seven-county median selling prices divided by 9.*

Source: Wisconsin Realtors Association and SEWRPC.

Table V-6

PERCENTAGE OF OWNER OCCUPIED UNITS WITH A FIRST MORTGAGE, SECOND MORTGAGE, OR HOME EQUITY LOAN IN THE SOUTHEASTERN WISCONSIN REGION AND ADJACENT COUNTIES: 2000

	Dodge County	Jefferson County	Kenosha County	Milwaukee County	Ozaukee County	Racine County	Walworth County	Washington County	Waukesha County
First Mortgage	67.30%	71.22%	72.92%	68.17 %	72.67%	71.49%	70.13%	74.49%	75.58%
Second Mortgage or Home Equity Loan	22.71%	24.69%	22.53%	20.47%	26.42%	23.87%	23.65%	26.43%	27.01%

Source: U.S. Bureau of the Census.

Table V-9 displays monthly housing costs for specified owner-occupied housing units without a mortgage in the planning area and each participating local government in 2000. The median monthly housing cost for homeowners without a mortgage in the County was $442 in 2000. Over 68 percent of homeowners without a mortgage spent under $500 a month on housing costs in 2000. About 22 percent of homeowners without a mortgage spent between $500 and $699 a month on housing costs and 10 percent spent over $700 per month.

Table V-10 sets forth monthly housing costs for specified owner-occupied housing units without a mortgage for each county in the Region and the State in 2000. The median monthly cost of $442 in the County was the second highest among Counties in the Region ($4 behind Ozaukee County). The median monthly housing cost for homeowners without a mortgage was $388 in the Region, $333 in the State and $295 in the Nation.

Table V-11 displays monthly housing costs for rental units, or gross rent, in the County and each participating local government in 2000. Contract rent plus the estimated average monthly cost of utilities (electricity, gas, water, and sewer) and fuels (oil, kerosene, wood, and coal) are included in the calculations of monthly gross rent. These costs are included in the monthly cost calculation if the renter pays them or they are paid for the renter by another party, such as the property owner. Rental units that are occupied without payment of rent are included in the no cash rent category of Table V-11. Median rent per month in 2000 ranged from $540 in the Village of Lannon to $1,625 in the Village of Oconomowoc Lake. About 15 percent of all rental housing units within the County in 2000 were below $500 in rent per month. Over 35 percent of all rental housing units in the County in 2000 were in the City of Waukesha.

According to Table V-12, the median monthly cost for rental housing in Waukesha County was the highest in the Region at $726 in 2000. Ozaukee County was second with a median monthly gross rent of $642. The median monthly gross rent was $596 in the Region, $540 in the State, and $602 in the Nation. Over 44 percent of renters in Waukesha County paid more than $750 per month in gross rent and according to the U.S. Bureau of the Census 27 percent of renters paid more than 30 percent of their household income on gross rent payments in 2000. Within the Region, only Washington County (26.62%) and Ozaukee County had a lower percentage of renters paying more that 30 percent of their household income on gross rent. Milwaukee County had the highest percentage of renters paying more than 30 percent of household income on rent. Outside the Region, the bordering counties of Dodge and Jefferson had slightly lower percentages of renters paying more than 30 percent of household income on rent.

Table V-7

MONTHLY OWNER COSTS FOR SPECIFIED HOUSING UNITS WITH A MORTGAGE IN WAUKESHA COUNTY COMMUNITIES: 2000[a]

Community	Less than $700		$700-$999		$1000 - $1499		$1500 - $1,999		$2000 - $2,499		$2500 or more		Median Cost
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	
Town of Brookfield	53	4.57	163	14.05	520	44.83	200	17.24	176	15.17	48	4.14	$1,360
Town of Delafield	61	3.74	102	6.25	376	23.04	388	23.77	244	14.95	461	28.25	$1,855
Town of Eagle	45	6.37	153	21.67	236	33.43	166	23.51	82	11.61	24	3.40	$1,285
Town of Genesee	64	3.80	230	13.66	718	42.64	498	29.57	101	6.00	73	4.33	$1,404
Town of Lisbon	134	6.26	262	12.23	890	41.55	588	27.45	233	10.88	35	1.63	$1,388
Town of Merton	72	4.10	163	9.27	509	28.95	615	34.98	210	11.95	189	10.75	$1,591
Town of Mukwonago	92	5.69	237	14.66	717	44.34	464	28.70	79	4.89	28	1.72	$1,345
Town of Oconomowoc	118	7.26	218	13.41	624	38.38	357	21.96	182	11.19	127	7.80	$1,383
Town of Ottawa	55	6.48	139	16.37	347	40.87	203	23.91	78	9.19	27	3.18	$1,308
Town of Summit	43	3.85	196	17.56	334	29.94	284	25.45	117	10.48	142	12.72	$1,478
Town of Vernon	119	7.09	203	12.09	867	51.64	379	22.57	86	5.12	25	1.49	$1,280
Town of Waukesha	151	7.72	317	16.20	672	34.34	570	29.13	191	9.76	56	2.85	$1,361
Village of Big Bend	40	16.81	53	22.27	115	48.32	28	11.76	2	0.84	0	0	$1,094
Village of Butler	48	17.98	73	27.34	107	40.07	31	11.61	4	1.50	4	1.50	$1,036
Village of Chenequa	0	0	0	0	4	4.17	16	16.67	15	15.63	61	63.53	$3,563
Village of Dousman	35	13.46	60	23.08	133	51.15	24	9.23	7	2.69	1	0.38	$1,127
Village of Eagle	39	8.55	120	26.32	235	51.54	59	12.94	3	0.65	0	0	$1,150
Village of Elm Grove	21	1.78	38	3.23	240	20.39	279	23.70	314	26.68	285	24.21	$2,017
Village of Hartland	69	5.19	218	16.40	630	47.40	252	18.96	101	7.60	59	4.45	$1,316
Village of Lac La Belle	3	3.53	2	2.35	9	10.59	8	9.41	17	20.00	46	54.12	$2,792
Village of Lannon	13	9.70	31	23.13	59	44.03	29	21.64	2	1.50	0	0	$1,147
Village of Menomonee Falls	288	4.42	1,040	15.97	2,824	43.36	1,534	23.55	528	8.11	299	4.59	$1,335
Village of Merton	19	3.96	74	15.42	159	33.13	163	33.96	49	10.21	16	3.32	$1,461
Village of Mukwonago	86	7.45	181	15.67	727	62.94	145	12.55	16	1.39	0	0	$1,201
Village of Nashotah	6	1.92	24	7.67	85	27.16	101	32.27	54	17.25	43	13.73	$1,696
Village of North Prairie	28	7.93	95	26.91	138	39.09	68	19.26	16	4.53	8	2.28	$1,188
Village of Oconomowoc Lake	2	1.94	8	7.77	8	7.77	17	16.50	11	10.68	57	55.34	$2,662
Village of Pewaukee	75	5.35	312	22.24	531	37.85	353	25.16	78	5.55	54	3.85	$1,287
Village of Sussex	109	6.67	233	14.26	661	40.45	557	34.09	58	3.55	16	0.98	$1,386
Village of Wales	38	6.13	101	16.29	282	45.48	116	18.71	48	7.74	35	5.65	$1,303
City of Brookfield	427	5.17	825	9.99	2,779	33.66	2,041	24.72	1,176	14.24	1,009	12.22	$1,520
City of Delafield	43	4.01	113	10.54	345	32.18	307	28.64	137	12.78	127	11.85	$1,554
City of Muskego	188	4.03	719	15.42	2,096	44.94	1,205	25.84	290	6.22	166	3.55	$1,341
City of New Berlin	391	5.08	1,035	13.45	3,150	40.94	2,057	26.74	716	9.31	345	4.48	$1,385
City of Oconomowoc	216	9.89	393	18.00	959	43.93	473	21.67	79	3.62	63	2.89	$1,211
City of Pewaukee	127	4.92	381	14.77	910	35.27	621	24.07	373	14.46	168	6.51	$1,434
City of Waukesha	730	7.21	2,262	22.35	4,283	42.32	2,198	21.72	515	5.09	133	1.31	$1,223
Waukesha County	4,048	5.69	10,774	15.15	28,279	39.77	17,394	24.46	6,388	8.98	4,230	5.95	$1,366

[a]Data for specified owner-occupied housing units excludes mobile homes, houses with a business or medical office on the property, houses on 10 or more acres, and housing units in multiunit buildings. Totals are based on a sample of one in six respondents to the 2000 Census (Summary File 3). Selected monthly owner costs are the sum of mortgage payments or similar debts on the property; real estate taxes; fire, hazard, and flood insurance on the property; and utilities.

Source: U.S. Bureau of the Census and SEWRPC.

Table V-8

MONTHLY OWNER COSTS FOR SPECIFIED HOUSING UNITS WITH A MORTGAGE IN THE SOUTHEASTERN WISCONSIN REGION AND ADJACENT COUNTIES: 2000[a]

County	Less than $700		$700 to $999		$1,000 to $1,499		$1,500 to $1,999		Over $2000		Total		Median Cost (dollars)
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	
Kenosha	2,519	10.5	6,902	28.6	9,650	40	3,525	14.6	1,509	6.3	24,105	100	1,113
Milwaukee	19,943	17.8	34,771	31.1	38,320	34.2	12,594	11.3	6,281	5.6	111,909	100	1,013
Ozaukee	784	5.2	2,245	14.8	5,391	35.6	3,513	23.2	3,196	21.2	15,129	100	1,420
Racine	4,752	15.3	9,272	29.9	11,611	37.4	3,822	12.3	1,594	5.1	31,051	100	1,054
Walworth	1,643	11.8	3,586	25.8	5,754	41.4	1,865	13.5	1,035	7.5	13,883	100	1,125
Washington	1,353	6.6	3,910	19.1	9,448	46.2	4,178	20.4	1,586	7.7	20,470	100	1,248
Waukesha	4,048	5.7	10,774	15.2	28,279	39.8	17,394	24.5	10,618	14.8	71,113	100	1,366
Region	35,031	12.2	71,433	25	108,381	37.6	46,854	16.2	25,819	9	287,518	100	1,123
Dodge	1,942	16.2	4,257	35.6	4,230	35.4	1,140	9.5	382	3.2	11,951	100	984
Jefferson	1,290	11.7	3,255	29.6	4,507	41.0	1,488	13.5	461	4.2	11,001	100	1,091
Wisconsin	144,525	18.7	225,805	29.3	260,821	33.8	92,913	12.1	46,932	6.1	770,996	100	1,024

[a]Data for specified owner-occupied housing units excludes mobile homes, houses with a business or medical office on the property, houses on 10 or more acres, and housing units in multiunit buildings. Totals are based on a sample of one in six respondents to the 2000 Census (Summary File 3). Selected monthly owner costs are the sum of mortgage payments or similar debts on the property; real estate taxes; fire, hazard, and flood insurance on the property; and utilities.

Source: U.S. Bureau of the Census and SEWRPC.

Table V-9

MONTHLY OWNER COSTS FOR SPECIFIED HOUSING UNITS WITHOUT A MORTGAGE IN WAUKESHA COUNTY COMMUNITIES: 2000[a]

	Less than $300		$300 - $399		$400 - 499		$500 - $699		Over $700		Total		Median Cost
Community	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	(dollars)
Town of Brookfield	22	5.10	123	28.54	137	31.79	122	28.31	27	6.26	431	100.00	451
Town of Delafield	30	6.02	93	18.67	126	25.30	127	25.50	122	24.50	498	100.00	500
Town of Eagle	24	17.39	52	37.68	38	27.54	22	15.94	2	1.45	138	100.00	385
Town of Genesee	54	15.56	186	53.60	72	20.75	23	6.63	12	3.46	347	100.00	371
Town of Lisbon	28	5.49	186	36.47	160	31.37	115	22.55	21	4.12	510	100.00	426
Town of Merton	40	7.52	173	32.52	121	22.74	79	14.85	119	22.37	532	100.00	444
Town of Mukwonago	47	17.41	117	43.33	79	29.26	22	8.15	5	1.85	270	100.00	373
Town of Oconomowoc	84	16.90	134	26.96	79	15.90	84	16.90	116	23.34	497	100.00	439
Town of Ottawa	50	21.65	91	39.39	75	32.47	6	2.60	9	3.90	231	100.00	373
Town of Summit	41	13.95	77	26.19	55	18.71	48	16.33	73	24.83	294	100.00	453
Town of Vernon	45	10.71	248	59.05	89	21.19	33	7.86	5	1.19	420	100.00	370
Town of Waukesha	85	13.75	277	44.82	131	21.20	92	14.89	33	5.34	618	100.00	381
Village of Big Bend	15	14.02	58	54.21	28	26.17	6	5.61	0	0.00	107	100.00	371
Village of Butler	16	11.59	79	57.25	31	22.46	12	8.70	0	0.00	138	100.00	365
Village of Chenequa	0	0.00	4	5.26	0	0.00	5	6.58	67	88.16	76	100.00	1,000
Village of Dousman	11	26.19	18	42.86	11	26.19	2	4.76	0	0.00	42	100.00	345
Village of Eagle	26	31.71	54	65.85	2	2.44	0	0.00	0	0.00	82	100.00	328
Village of Elm Grove	9	1.29	18	2.57	107	15.29	250	35.71	316	45.14	700	100.00	669
Village of Hartland	17	5.86	145	50.00	76	26.21	36	12.41	16	5.52	290	100.00	391
Village of Lac La Belle	0	0.00	0	0.00	2	7.14	2	7.14	24	85.71	28	100.00	860
Village of Lannon	6	9.84	20	32.79	18	29.51	14	22.95	3	4.92	61	100.00	425
Village of Menomonee Falls	123	4.52	921	33.86	1,057	38.86	523	19.23	96	3.53	2,720	100.00	430
Village of Merton	25	35.71	19	27.14	10	14.29	14	20.00	2	2.86	70	100.00	338
Village of Mukwonago	61	20.54	111	37.37	51	17.17	66	22.22	8	2.69	297	100.00	384
Village of Nashotah	2	5.56	4	11.11	10	27.78	16	44.44	4	11.11	36	100.00	533
Village of North Prairie	28	32.94	31	36.47	23	27.06	3	3.53	0	0.00	85	100.00	366
Village of Oconomowoc Lake	0	0.00	2	2.94	11	16.18	4	5.88	51	75.00	68	100.00	1,000
Village of Pewaukee	15	5.32	107	37.94	78	27.66	73	25.89	9	3.19	282	100.00	424
Village of Sussex	25	6.78	141	38.21	133	36.04	52	14.09	18	4.88	369	100.00	414
Village of Wales	9	10.00	37	41.11	35	38.89	9	10.00	0	0.00	90	100.00	393
City of Brookfield	101	2.71	836	22.41	1279	34.28	968	25.94	547	14.66	3,731	100.00	473
City of Delafield	17	5.20	75	22.94	106	32.42	86	26.30	43	13.15	327	100.00	467
City of Muskego	34	2.83	310	25.79	457	38.02	320	26.62	81	6.74	1,202	100.00	456
City of New Berlin	110	3.41	568	17.61	1,349	41.82	936	29.01	263	8.15	3,226	100.00	469
City of Oconomowoc	94	12.93	196	26.96	241	33.15	122	16.78	74	10.18	727	100.00	430
City of Pewaukee	90	12.10	227	30.51	156	20.97	199	26.75	72	9.68	744	100.00	435
City of Waukesha	277	10.30	1,081	40.19	758	28.18	515	19.14	59	2.19	2,690	100.00	399
Waukesha County	1,661	7.23	6,819	29.68	7,191	31.30	5,006	21.79	2,297	10.00	22,974	100.00	442

[a]Data for specified owner-occupied housing units excludes mobile homes, houses with a business or medical office on the property, houses on 10 or more acres, and housing units in multiunit buildings. Totals are based on a sample of one in six respondents to the 2000 Census (Summary File 3). Selected monthly owner costs are the sum of mortgage payments or similar debts on the property; real estate taxes; fire, hazard, and flood insurance on the property; and utilities.

Source: U.S. Bureau of the Census and SEWRPC.

Table V-10

MONTHLY OWNER COSTS FOR SPECIFIED HOUSING UNITS WITHOUT A MORTGAGE IN THE SOUTHEASTERN WISCONSIN REGION AND ADJACENT COUNTIES: 2000[a]

County	Less than $300		$300 to $399		$400 to $499		$500 to $699		Over $700		Total		Median Cost
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	(dollars)
Kenosha	2,010	22.5	3,691	41.2	2,015	22.5	943	10.5	293	3.3	8,952	100	366
Milwaukee	11,800	22.6	18,573	35.5	11,465	21.9	7,575	14.5	2,840	5.4	52,253	100	377
Ozaukee	468	8.2	1,755	30.8	1,393	24.5	1,287	22.7	788	13.8	5,691	100	446
Racine	3,155	25.5	5,262	42.5	2,204	17.8	1,397	11.3	365	2.9	12,383	100	357
Walworth	1,565	26.5	2,282	38.6	1,116	18.9	672	11.4	278	4.6	5,913	100	356
Washington	1,011	14.4	2,903	41.4	1,934	27.6	890	12.7	271	3.9	7,009	100	387
Waukesha	**1,661**	**7.2**	**6,819**	**29.7**	**7,191**	**31.3**	**5,006**	**21.8**	**2,297**	**10**	**22,974**	**100**	**442**
Region	21,667	18.8	41,246	35.8	27,306	23.7	17,769	15.4	7,132	6.3	115,120	100	388
Dodge	2,405	15.9	2,988	19.7	1,376	9.1	839	5.5	329	2.2	5,806	100	333
Jefferson	1,664	11.9	2,636	18.9	1,189	8.5	616	4.4	199	1.4	4,445	100	343
Wisconsin	134,168	38.2	115,626	32.9	55,830	15.9	33,054	9.4	12,793	3.6	351,471	100	333

[a]The data for specified owner-occupied housing units excludes mobile homes, houses with a business or medical office on the property, houses on 10 or more acres, and housing units in multiunit buildings. Totals are based on a sample of one in six respondents to the 2000 Census (Summary File 3). Selected monthly owner costs are the sum of mortgage payments or similar debts on the property; real estate taxes; fire, hazard, and flood insurance on the property; and utilities.

Source: U.S. Bureau of the Census and SEWRPC.

Table V-11

MONTHLY GROSS RENT FOR RENTER-OCCUPIED HOUSING UNITS IN WAUKESHA COUNTY COMMUNITIES: 2000[a]

Community	Less than $300		$300 to $499		$500 to $749		$750 to $999		$1,000 to $1,499		$1,500 or More		No Cash Rent[b]		Total	Median Rent
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent		
Town of Brookfield	20	2.01	24	2.41	84	8.44	436	43.82	370	37.19	40	4.02	21	2.11	995	$950
Town of Delafield	0	0.00	10	4.50	52	23.42	114	51.35	21	9.46	17	7.66	8	3.60	222	$839
Town of Eagle	0	0.00	12	22.64	26	49.06	10	18.87	5	9.43	0	0.00	0	0.00	53	$672
Town of Genesee	0	0.00	11	9.40	44	37.61	30	25.64	11	9.40	0	0.00	21	17.95	117	$718
Town of Lisbon	0	0.00	29	34.52	20	23.81	3	3.57	11	13.10	0	0.00	21	25.00	84	$563
Town of Merton	0	0.00	29	14.50	71	35.50	55	27.50	15	7.50	0	0.00	30	15.00	200	$691
Town of Mukwonago	0	0.00	2	4.08	24	48.98	21	42.86	0	0.00	0	0.00	2	4.08	49	$732
Town of Oconomowoc	23	5.75	19	4.75	98	24.50	144	36.00	53	13.25	43	10.75	20	5.00	400	$851
Town of Ottawa	0	0.00	0	0.00	17	15.74	40	37.04	33	30.56	4	3.70	14	12.96	108	$944
Town of Summit	18	10.11	6	3.37	42	23.60	59	33.15	33	18.54	0	0.00	20	11.24	178	$822
Town of Vernon	0	0.00	17	19.10	29	32.58	19	21.35	4	4.49	0	0.00	20	22.47	89	$627
Town of Waukesha	0	0.00	29	49.15	10	16.95	12	20.34	8	13.56	0	0.00	0	0.00	59	$703
Village of Big Bend	0	0.00	5	5.95	41	48.81	16	19.05	13	15.48	0	0.00	9	10.71	84	$641
Village of Butler	107	23.26	68	14.78	194	42.17	80	17.39	7	1.52	4	0.87	0	0.00	460	$590
Village of Chenequa	0	0.00	0	0.00	2	10.53	4	21.05	3	15.79	0	0.00	10	52.63	19	$825
Village of Dousman	4	1.57	9	3.54	66	25.98	160	62.99	13	5.12	0	0.00	2	0.79	254	$796
Village of Eagle	4	6.78	17	28.81	33	55.93	2	3.39	1	1.69	0	0.00	2	3.39	59	$575
Village of Elm Grove	7	2.89	68	28.10	56	23.14	61	25.21	22	9.09	11	4.55	17	7.02	242	$673
Village of Hartland	72	5.72	110	8.74	549	43.61	418	33.20	105	8.34	0	0.00	5	0.40	1,259	$692
Village of Lac La Belle	0	0.00	0	0.00	0	0.00	2	50.00	2	50.00	0	0.00	0	0.00	4	$950
Village of Lannon	7	10.61	18	27.27	18	27.27	15	22.73	0	0.00	0	0.00	8	12.12	66	$540
Village of Menomonee Falls	103	3.58	251	8.72	1,263	43.90	710	24.68	267	9.28	177	6.15	106	3.68	2,877	$702
Village of Merton	4	14.29	4	14.29	10	35.71	4	14.29	2	7.14	0	0.00	4	14.29	28	$700
Village of Mukwonago	0	0.00	50	5.44	681	74.10	158	17.19	20	2.18	0	0.00	10	1.09	919	$669
Village of Nashotah	0	0.00	3	17.65	3	17.65	8	47.06	3	17.65	0	0.00	0	0.00	17	$850
Village of North Prairie	0	0.00	12	16.44	31	42.47	25	34.25	2	2.74	0	0.00	3	4.11	73	$717
Village of Oconomowoc Lake	0	0.00	0	0.00	0	0.00	0	0.00	3	23.08	3	23.08	7	53.85	13	$1,625
Village of Pewaukee	31	2.23	106	7.61	760	54.60	225	16.16	252	18.10	9	0.65	9	0.65	1,392	$695
Village of Sussex	89	7.91	43	3.82	546	48.53	351	31.20	62	5.51	9	0.80	25	2.22	1,125	$717
Village of Wales	0	0.00	19	14.50	55	41.98	27	20.61	22	16.79	8	6.11	0	0.00	131	$673
City of Brookfield	19	1.38	59	4.28	163	11.82	388	28.14	545	39.52	131	9.50	74	5.37	1,379	$1,014
City of Delafield	66	7.52	26	2.96	338	38.50	253	28.82	136	15.49	18	2.05	41	4.67	878	$745
City of Muskego	30	2.36	26	2.04	365	28.69	582	45.75	168	13.21	50	3.93	51	4.01	1,272	$785
City of New Berlin	63	2.35	95	3.55	735	27.46	1,131	42.25	459	17.15	112	4.18	82	3.06	2,677	$830
City of Oconomowoc	97	5.19	184	9.84	939	50.21	475	25.40	65	3.48	57	3.05	53	2.83	1,870	$674
City of Pewaukee	0	0.00	22	3.56	69	11.17	262	42.39	211	34.14	28	4.53	26	4.21	618	$942
City of Waukesha	770	6.89	1,606	14.37	4,678	41.85	2,983	26.69	814	7.28	89	0.80	238	2.13	11,178	$675
Waukesha County	**1,534**	**4.88**	**2,989**	**9.5**	**12,112**	**38.51**	**9,283**	**29.52**	**3,761**	**11.96**	**810**	**2.58**	**959**	**3.05**	**31,448**	**$726**

[a]Contract rent plus the estimated average monthly cost of utilities (electricity, gas, water, and sewer) and fuels are included in the calculations for monthly gross rent. Totals are based on a sample of one in six respondents to the 2000 Census (Summary File 3).

[b]Includes rental units that are occupied without payment of rent. These units may be occupied by friends or relatives of the owner who do not get charged rent or caretakers, tenant farmers, and others who receive the unit as compensation.

Source: U.S. Bureau of the Census and SEWRPC

Table V-12

MONTHLY GROSS RENT FOR RENTER-OCCUPIED HOUSING UNITS IN THE SOUTHEASTERN WISCONSIN REGION AND ADJACENT COUNTIES: 2000[a]

County	Less than $300		$300 to $499		$500 to $749		$750 to $999		$1,000 to $1,499		$1,500 or More		No Cash Rent[b]		Total		Median
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Rent
Kenosha	1,511	8.8	3,487	20.3	7,811	45.6	3,022	17.6	676	3.9	40	0.2	594	3.5	17,141	100	589
Milwaukee	16,438	9.2	49,943	28	77,580	43.4	22,434	12.6	6,947	3.9	1,705	1	3,607	2	178,654	100	555
Ozaukee	381	5.2	837	11.5	3,780	51.8	1,514	20.8	485	6.6	56	0.8	241	3.3	7,294	100	642
Racine	1,735	8.4	5,480	26.6	9,724	47.3	2,228	10.8	540	2.6	41	0.2	824	4	20,572	100	548
Walworth	1,021	9.9	2,158	20.9	4,568	44.3	1,803	17.5	296	2.9	47	0.5	428	4.1	10,321	100	588
Washington	576	5.6	1,706	16.5	5,321	51.5	1,943	18.8	400	3.9	16	0.2	361	3.5	10,323	100	620
Waukesha	**1,534**	**4.9**	**2,989**	**9.5**	**12,112**	**38.5**	**9,283**	**29.5**	**3,761**	**12**	**810**	**2.6**	**959**	**3**	**31,448**	**100**	**726**
Region	23,192	8.4	66,577	24.2	120,856	43.8	42,200	15.3	13,097	4.8	2,715	1	7,012	2.5	275,649	100	596
Dodge	906	11.4	2,368	29.7	3,521	44.2	693	8.7	71	0.9	4	0.1	409	5.1	7,972	100	528
Jefferson	773	10.0	1,897	24.6	3,505	45.5	1,015	13.2	126	1.6	51	0.7	333	4.3	7,700	100	564
Wisconsin	67,538	10.5	189,366	29.5	254,439	39.7	78,955	12.3	22,527	3.5	4,881	0.8	23,966	3.7	641,672	100	540

[a]Contract rent plus the estimated average monthly cost of utilities (electricity, gas, water, and sewer) and fuels are included in the calculations for monthly gross rent. Totals are based on a sample of one in six respondents to the 2000 Census (Summary File 3).

[b]Includes rental units that are occupied without payment of rent. These units may be occupied by friends or relatives of the owner who do not get charged rent or caretakers, tenant farmers, and others who may receive the unit as compensation.

Source: U.S. Bureau of the Census and SEWRPC.

In addition, over 14 percent of renters paid more than 50 percent of their household income on gross rent in Waukesha County in 2000. U.S. Bureau of the Census statistics indicate that this figure was lower in Dodge, Jefferson, Ozaukee, Washington and Walworth counties and higher in Racine, Kenosha, and Milwaukee counties.

Number of Bedrooms

Tables V-13a and 13b set forth the number of housing units by tenure and number of bedrooms in Waukesha County and each community in 2000. This information, when compared with household size information inventoried in Chapter II, provides a greater understanding of what type of housing units will best suit the future needs of Waukesha County residents.

Nearly 83 percent of all owner occupied homes in Waukesha County in 2000 were three or four bedroom units (Table V-13a) The percentage of three bedroom owner occupied units ranged from 20.62% in the Village of Chenequa to 78.15% in the Village of Sussex. The communities with the largest number of owner occupied three bedroom homes in 2000 included the Village of Menomonee Falls, the City of New Berlin, and the City of Waukesha. The percentage of four bedroom units ranged from 11.40% in the Village of Butler to 43.38% in the Village of Lac La Belle. The community with the largest number of four bedroom owner occupied homes in 2000 was the City of Brookfield with 4,260. Two bedroom units comprised over 12 percent of owner occupied housing units. The number of two bedroom units may grow in the County due to the increased incidence of empty nesters as baby boomers continue to age. The community with the largest percentage of two bedroom owner occupied units in 2000 was the Village of Pewaukee with 37.84% in this category. The cities of Brookfield, New Berlin, and Waukesha had the greatest number of two bedroom occupied units in 2000.

Over 80 percent of renter occupied housing units in Waukesha County had two or fewer bedrooms in 2000 (Table V-13b). A family looking for a three bedroom or larger unit to rent has far fewer option in Waukesha County as less than 20 percent of rental occupied units had three, four, or five bedrooms in 2000. The percentage of renter occupied units with one bedroom or less ranged from none in the Town of Mukwonago to 45.87% in the Village of Butler. The largest number of renter occupied units with one bedroom or less were found in the Village of Menomonee Falls or the City of Waukesha. The percentage of renter occupied two bedroom units ranged from 13.33 percent in the Village of Oconomowoc Lake to 63.82% in the Village of Sussex. The largest numbers of two bedroom renter occupied units were found in the Village of Menomonee Falls and the cities of New Berlin and Waukesha. The percentage of renter occupied three bedroom units ranged from none in the Village of Lac La Belle to 44.98 percent in the Town of Merton. The Village of Menomonee Falls and the City of Waukesha had the largest numbers of three bedroom renter occupied housing units in the County in 2000.

Structure Type and Year Built

An inventory of housing units by structure type in the County provides an insight into the number of existing single family, two-family, and multi-family units. The number of units in these types of structures can be compared to resident characteristics to determine the future need for units in each type of structure. An inventory of housing units by structure type also provides insight into the character of the existing housing stock in local governments in the County. Table V-14 sets forth the number of housing units by structure type in Waukesha County and each participating local government in 2000.

Table V-14 includes the number of building permits issued for units in each structure type in the County and local governments from 1970 to 2000 and 2006. The building permit data from the U.S. Bureau of the Census represent the number of new privately-owned housing units authorized by building permits in the United States. A housing unit is defined as a house, an apartment, a group of rooms or a single room intended for occupancy as separate living quarters. Separate living quarters are those in which the occupants live separately from any other individuals in the building and which have a direct access from the outside of the building or through a common hall. In accordance with this definition, each apartment unit in an apartment building is counted as one housing unit. Housing units, as distinguished from "HUD-code" manufactured (mobile) homes, include conventional "site-built" units, prefabricated, panelized, componentized, sectional, and modular units. Housing unit statistics in this table exclude group quarters (such as dormitories and rooming houses), and transient

Table V-13a

OWNER-OCCUPIED HOUSING UNITS BY NUMBER OF BEDROOMS IN WAUKESHA COUNTY COMMUNITIES: 2000[a]

Community	1 or no bedroom		2 bedrooms		3 bedrooms		4 bedrooms		5 or more bedrooms		Total[b]
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	
Town of Brookfield	0	0.00	242	14.14	905	52.89	518	30.27	46	2.69	1,711
Town of Delafield	13	0.56	156	6.75	1,021	44.18	908	39.29	213	9.22	2,311
Town of Eagle	22	2.25	89	9.11	619	63.36	223	22.82	24	2.46	977
Town of Genesee	0	0.00	119	5.26	1,315	58.16	712	31.49	115	5.09	2,261
Town of Lisbon	0	0.00	413	13.19	1,977	63.12	669	21.36	73	2.33	3,132
Town of Merton	36	1.45	226	9.09	1,391	55.98	715	28.77	117	4.71	2,485
Town of Mukwonago	26	1.27	36	1.76	1,291	63.25	620	30.38	68	3.33	2,041
Town of Oconomowoc	52	2.24	276	11.89	1,347	58.01	592	25.50	55	2.37	2,322
Town of Ottawa	38	3.06	106	8.53	794	63.93	259	20.85	45	3.62	1,242
Town of Summit	13	0.84	193	12.44	947	61.06	364	23.47	34	2.19	1,551
Town of Vernon	19	0.83	79	3.45	1,430	62.47	694	30.32	67	2.93	2,289
Town of Waukesha	6	0.21	280	10.02	1,636	58.53	755	27.01	118	4.22	2,795
Village of Big Bend	4	1.08	44	11.89	240	64.86	75	20.27	7	1.89	370
Village of Butler	8	1.75	112	24.56	273	59.87	52	11.40	11	2.41	456
Village of Chenequa	2	1.03	15	7.73	40	20.62	82	42.27	55	28.35	194
Village of Dousman	3	0.91	39	11.89	228	69.51	53	16.16	5	1.52	328
Village of Eagle	6	1.08	60	10.81	403	72.61	82	14.77	4	0.72	555
Village of Elm Grove	56	2.54	301	13.67	960	43.60	735	33.38	150	6.81	2,202
Village of Hartland	4	0.23	129	7.31	1,122	63.57	437	24.76	73	4.14	1,765
Village of Lac La Belle	0	0.00	8	6.96	42	36.52	50	43.48	15	13.04	115
Village of Lannon	5	1.43	93	26.65	195	55.87	47	13.47	9	2.58	349
Village of Menomonee Falls	192	1.94	949	9.58	6,472	65.31	2,055	20.74	242	2.44	9,910
Village of Merton	6	1.03	31	5.34	338	58.28	192	33.10	13	2.24	580
Village of Mukwonago	34	2.21	282	18.32	957	62.18	248	16.11	18	1.17	1,539
Village of Nashotah	2	0.46	107	24.77	183	42.36	133	30.79	7	1.62	432
Village of North Prairie	0	0.00	37	8.06	335	72.98	75	16.34	12	2.61	459
Village of Oconomowoc Lake	1	0.53	10	5.35	66	35.29	59	31.55	51	27.27	187
Village of Pewaukee	109	4.69	879	37.84	986	42.45	324	13.95	25	1.08	2,323
Village of Sussex	0	0.00	96	4.40	1,706	78.15	381	17.45	0	0.00	2,183
Village of Wales	0	0.00	73	9.91	384	52.10	255	34.60	25	3.39	737
City of Brookfield	24	0.19	1,365	10.87	6,160	49.06	4,260	33.93	746	5.94	12,555
City of Delafield	44	2.70	316	19.37	798	48.93	398	24.40	75	4.60	1,631
City of Muskego	66	1.06	687	11.03	4,190	67.27	1,165	18.70	121	1.94	6,229
City of New Berlin	197	1.67	1,374	11.66	7,169	60.82	2,757	23.39	290	2.46	11,787
City of Oconomowoc	35	1.13	493	15.89	1,855	59.80	639	20.60	80	2.58	3,102
City of Pewaukee	17	0.44	851	21.97	1,888	48.75	1,033	26.67	84	2.17	3,873
City of Waukesha	293	2.02	2,473	17.08	8,308	57.38	3,171	21.90	235	1.62	14,480
Waukesha County	**1,333**	**1.29**	**13,039**	**12.60**	**59,971**	**57.97**	**25,787**	**24.93**	**3,328**	**3.22**	**103,458**

[a]Totals are based on a sample of one in six responses to the 2000 Census (Summary File 3)
[b]Totals include occupied housing units only.

Source: U.S. Bureau of the Census and SEWRPC.

Table V-13b

RENTER-OCCUPIED HOUSING UNITS BY NUMBER OF BEDROOMS IN WAUKESHA COUNTY COMMUNITIES: 2000[a]

Community	1 or no bedroom		2 bedrooms		3 bedrooms		4 bedrooms		5 or more bedrooms		Total[b]
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	
Town of Brookfield	286	28.74	611	61.41	98	9.85	0	0.00	0	0.00	995
Town of Delafield	24	10.39	143	61.90	56	24.24	8	3.46	0	0.00	231
Town of Eagle	2	3.17	29	46.03	22	34.92	5	7.94	5	7.94	63
Town of Genesee	22	16.06	82	59.85	13	9.49	20	14.60	0	0.00	137
Town of Lisbon	10	10.42	49	51.04	33	34.38	4	4.17	0	0.00	96
Town of Merton	39	17.03	57	24.89	103	44.98	22	9.61	8	3.49	229
Town of Mukwonago	0	0.00	28	47.46	13	22.03	18	30.51	0	0.00	59
Town of Oconomowoc	60	14.67	188	45.97	119	29.10	22	5.38	20	4.89	409
Town of Ottawa	39	34.82	61	54.46	8	7.14	0	0.00	4	3.57	112
Town of Summit	53	27.04	34	17.35	73	37.24	30	15.31	6	3.06	196
Town of Vernon	21	22.83	27	29.35	38	41.30	4	4.35	2	2.17	92
Town of Waukesha	18	26.47	24	35.29	20	29.41	6	8.82	0	0.00	68
Village of Big Bend	2	2.38	46	54.76	21	25.00	12	14.29	3	3.57	84
Village of Butler	211	45.87	177	38.48	69	15.00	3	0.65	0	0.00	460
Village of Chenequa	2	8.33	4	16.67	7	29.17	6	25.00	5	20.83	24
Village of Dousman	83	32.17	89	34.50	83	32.17	3	1.16	0	0.00	258
Village of Eagle	23	37.10	26	41.94	11	17.74	2	3.23	0	0.00	62
Village of Elm Grove	104	42.98	88	36.36	22	9.09	17	7.02	11	4.55	242
Village of Hartland	283	22.48	677	53.77	276	21.92	23	1.83	0	0.00	1,259
Village of Lac La Belle	0	0.00	2	50.00	0	0.00	2	50.00	0	0.00	4
Village of Lannon	24	36.36	9	13.64	26	39.39	2	3.03	5	7.58	66
Village of Menomonee Falls	1,231	41.80	1,228	41.70	418	14.19	49	1.66	19	0.65	2,945
Village of Merton	4	14.29	14	50.00	8	28.57	0	0.00	2	7.14	28
Village of Mukwonago	280	30.47	502	54.62	126	13.71	11	1.20	0	0.00	919
Village of Nashotah	3	17.65	8	47.06	6	35.29	0	0.00	0	0.00	17
Village of North Prairie	20	26.67	39	52.00	9	12.00	7	9.33	0	0.00	75
Village of Oconomowoc Lake	2	13.33	2	13.33	8	53.33	3	20.00	0	0.00	15
Village of Pewaukee	399	28.66	737	52.95	231	16.59	7	0.50	18	1.29	1,392
Village of Sussex	212	18.84	718	63.82	176	15.64	19	1.69	0	0.00	1,125
Village of Wales	14	10.69	51	38.93	48	36.64	18	13.74	0	0.00	131
City of Brookfield	242	17.39	681	48.92	390	28.02	70	5.03	9	0.65	1,392
City of Delafield	177	20.02	456	51.58	211	23.87	19	2.15	21	2.38	884
City of Muskego	310	23.83	695	53.42	270	20.75	26	2.00	0	0.00	1,301
City of New Berlin	823	30.28	1,509	55.52	309	11.37	67	2.47	10	0.37	2,718
City of Oconomowoc	550	29.41	994	53.16	235	12.57	81	4.33	10	0.53	1,870
City of Pewaukee	156	24.84	348	55.41	97	15.45	27	4.30	0	0.00	628
City of Waukesha	4,649	41.56	4,754	42.50	1,580	14.13	161	1.44	41	0.37	11,185
Waukesha County	10,378	32.67	15,187	47.80	5,233	16.47	774	2.44	199	0.63	31,771

[a]Totals are based on a sample of one in six responses to the 2000 Census (Summary File 3)
[b]Totals include occupied housing units only.

Source: U.S. Bureau of the Census and SEWRPC.

Table V-14

HOUSING UNITS BY STRUCTURE TYPE IN WAUKESHA COUNTY MUNICIPALITIES: 1970 – 2006

Community	Single-Family Detached		Single-Family Attached		Two-Family		Multi-Family		Mobile Homes and Other		Total	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Town of Brookfield												
1970	873	87.6	0	0.0	80	8.0	44	4.4	0	0.0	997	100.0
1980	1,153	88.7	26	2.0	102	7.8	19	1.5	0	0.0	1,300	100.0
1990	1,224	85.6	52	3.6	61	4.3	93	6.5	0	0.0	1,430	100.0
2000	1,436	50.8	260	9.2	68	2.4	1,050	37.1	15	0.5	2,829	100.0
2006	1,702	59.1	0	0.0	64	2.2	1,102	38.2	15	0.5	2,883	100.0
Town of Delafield												
1970	847	83.7	0	0.0	67	6.6	98	9.7	0	0.0	1,012	100.0
1980	1,287	91.6	0	0.0	57	4.1	61	4.3	0	0.0	1,405	100.0
1990	1,705	89.0	39	2.0	53	2.8	93	4.9	25	1.3	1,915	100.0
2000	2,367	90.2	75	2.9	32	1.2	139	5.3	10	0.4	2,623	100.0
2006	2,760	93.5	0	0.0	44	1.5	139	4.7	10	0.3	2,953	100.0
Town of Eagle												
1970	376	97.0	0	0.0	6	1.5	6	1.5	0	0.0	388	100.0
1980	542	94.5	2	0.3	28	4.9	2	0.3	0	0.0	574	100.0
1990	731	95.7	5	0.7	15	2.0	5	0.7	7	0.9	763	100.0
2000	1,088	98.3	0	0.0	19	1.7	0	0.0	0	0.0	1,107	100.0
2006	1,297	98.6	0	0.0	19	1.4	0	0.0	0	0.0	1,316	100.0
Town of Genesee												
1970	765	87.0	0	0.0	72	8.2	42	4.8	0	0.0	879	100.0
1980	1,343	89.6	18	1.2	86	5.7	53	3.5	0	0.0	1,500	100.0
1990	1,742	93.2	14	0.7	68	3.6	39	2.1	8	0.4	1,871	100.0
2000	2,299	95.2	22	0.9	52	2.2	40	1.7	0	0.0	2,413	100.0
2006	2,520	96.5	0	0.0	53	2.0	40	1.5	0	0.0	2,613	100.0
Town of Lisbon												
1970	988	79.9	0	0.0	100	8.1	29	2.3	120	9.7	1,237	100.0
1980	2,131	86.6	13	0.5	63	2.6	32	1.3	222	9.0	2,461	100.0
1990	2,333	85.6	36	1.3	33	1.2	15	0.5	311	11.4	2,728	100.0
2000	2,877	88.1	28	0.9	11	0.3	31	0.9	321	9.8	3,268	100.0
2006	3,234	89.9	0	0.0	11	0.3	31	0.9	321	8.9	3,597	100.0
Town of Merton												
1970	1,212	90.4	0	0.0	65	4.9	27	2.0	36	2.7	1,340	100.0
1980	1,825	92.4	19	1.0	61	3.1	30	1.5	39	2.0	1,974	100.0
1990	2,255	93.2	42	1.7	66	2.7	10	0.4	48	2.0	2,421	100.0
2000	2,776	95.1	39	1.3	60	2.1	12	0.4	33	1.1	2,920	100.0
2006	3,072	96.7	0	0.0	61	1.9	12	0.4	31	1.0	3,176	100.0

Table V-14 (Continued)

HOUSING UNITS BY STRUCTURE TYPE IN WAUKESHA COUNTY MUNICIPALITIES: 1970 – 2006

Community	Single-Family Detached		Single-Family Attached		Two-Family		Multi-Family		Mobile Homes and Other		Total	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Town of Mukwonago												
1970	523	93.4	0	0.0	33	5.9	0	0.0	4	0.7	560	100.0
1980	1,387	93.6	5	0.3	70	4.7	13	0.9	8	0.5	1,483	100.0
1990	1,737	94.0	5	0.3	62	3.4	0	0.0	43	2.3	1,847	100.0
2000	2,107	97.8	15	0.7	17	0.8	7	0.3	9	0.4	2,155	100.0
2006	2,470	98.6	0	0.0	17	0.7	7	0.3	9	0.4	2,503	100.0
Town of Oconomowoc												
1970	1,680	86.9	0	0.0	163	8.4	48	2.5	42	2.2	1,933	100.0
1980	2,194	90.0	33	1.4	148	6.1	61	2.5	0	0.0	2,436	100.0
1990	2,537	89.3	80	2.8	119	4.2	64	2.3	41	1.4	2,841	100.0
2000	2,729	91.1	101	3.4	97	3.2	68	2.3	0	0.0	2,995	100.0
2006	3,178	93.0	0	0.0	125	3.7	113	3.3	0	0.0	3,416	100.0
Town of Ottawa												
1970	472	96.9	0	0.0	10	2.1	0	0.0	5	1.0	487	100.0
1980	792	96.5	6	0.7	16	1.9	7	0.9	0	0.0	821	100.0
1990	1,018	98.8	0	0.0	7	0.7	0	0.0	5	0.5	1,030	100.0
2000	1,312	92.3	10	0.7	3	0.2	96	6.8	0	0.0	1,421	100.0
2006	1,406	93.4	0	0.0	3	0.2	96	6.4	0	0.0	1,505	100.0
Town of Summit												
1970	1,017	93.2	0	0.0	48	4.4	21	1.9	5	0.5	1,091	100.0
1980	1,244	92.5	11	0.8	72	5.4	18	1.3	0	0.0	1,345	100.0
1990	1,489	94.5	12	0.8	28	1.8	46	2.9	0	0.0	1,575	100.0
2000	1,839	97.5	4	0.2	8	0.4	26	1.4	9	0.5	1,886	100.0
2006	2,034	97.9	0	0.0	8	0.4	26	1.3	9	0.4	2,077	100.0
Town of Vernon												
1970	665	91.7	0	0.0	39	5.4	21	2.9	0	0.0	725	100.0
1980	1,742	95.3	1	0.1	63	3.4	22	1.2	0	0.0	1,828	100.0
1990	2,219	97.9	7	0.3	17	0.7	22	1.0	2	0.1	2,267	100.0
2000	2,315	96.4	17	0.7	43	1.8	27	1.1	0	0.0	2,402	100.0
2006	2,541	97.4	0	0.0	43	1.6	27	1.0	0	0.0	2,611	100.0
Town of Waukesha												
1970	998	93.3	0	0.0	58	5.4	14	1.3	0	0.0	1,070	100.0
1980	1,917	93.3	0	0.0	61	3.0	75	3.7	0	0.0	2,053	100.0
1990	2,361	94.8	0	0.0	61	2.4	50	2.0	19	0.8	2,491	100.0
2000	2,622	89.5	184	6.3	51	1.7	47	1.6	25	0.9	2,929	100.0
2006	2,948	93.6	0	0.0	51	1.6	125	4.0	25	0.8	3,149	100.0
Village of Big Bend												
1970	270	85.2	0	0.0	28	8.8	19	6.0	0	0.0	317	100.0
1980	343	84.8	3	0.7	41	10.1	18	4.4	0	0.0	405	100.0
1990	362	85.2	8	1.9	37	8.7	15	3.5	3	0.7	425	100.0
2000	402	86.1	14	3.0	42	9.0	9	1.9	0	0.0	467	100.0
2006	426	89.1	0	0.0	43	9.0	9	1.9	0	0.0	478	100.0

Table V-14 (Continued)

HOUSING UNITS BY STRUCTURE TYPE IN WAUKESHA COUNTY MUNICIPALITIES: 1970 – 2006

Community	Single-Family Detached		Single-Family Attached		Two-Family		Multi-Family		Mobile Homes and Other		Total	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Village of Butler												
1970	375	60.7	0	0.0	215	34.8	28	4.5	0	0.0	618	100.0
1980	410	49.5	5	0.6	200	24.2	213	25.7	0	0.0	828	100.0
1990	414	43.6	22	2.3	175	18.4	327	34.5	11	1.2	949	100.0
2000	443	47.2	8	0.9	175	18.7	308	32.8	4	0.4	938	100.0
2006	455	48.2	0	0.0	177	18.8	308	32.6	4	0.4	944	100.0
Village of Chenequa												
1970	204	92.7	0	0.0	11	5.0	5	2.3	0	0.0	220	100.0
1980	264	94.7	2	0.7	11	3.9	2	0.7	0	0.0	279	100.0
1990	298	95.4	5	1.6	3	1.0	3	1.0	3	1.0	312	100.0
2000	281	99.3	0	0.0	2	0.7	0	0.0	0	0.0	283	100.0
2006	296	99.3	0	0.0	2	0.7	0	0.0	0	0.0	298	100.0
Village of Dousman												
1970	123	86.6	0	0.0	14	9.9	5	3.5	0	0.0	142	100.0
1980	244	76.3	24	7.5	41	12.8	11	3.4	0	0.0	320	100.0
1990	266	74.5	26	7.3	44	12.3	15	4.2	6	1.7	357	100.0
2000	312	51.9	52	8.7	61	10.1	176	29.3	0	0.0	601	100.0
2006	502	66.3	0	0.0	61	8.1	194	25.6	0	0.0	757	100.0
Village of Eagle												
1970	217	100.0	0	0.0	0	0.0	0	0.0	0	0.0	217	100.0
1980	297	91.2	5	1.5	19	5.8	5	1.5	0	0.0	326	100.0
1990	349	87.2	11	2.7	19	4.8	16	4.0	5	1.3	400	100.0
2000	576	91.0	3	0.5	16	2.5	36	5.7	2	0.3	633	100.0
2006	640	91.6	0	0.0	20	2.9	36	5.2	2	0.3	698	100.0
Village of Elm Grove												
1970	1,668	92.9	0	0.0	11	0.6	116	6.5	0	0.0	1,795	100.0
1980	1,829	81.9	27	1.2	21	0.9	357	16.0	0	0.0	2,234	100.0
1990	1,905	79.5	65	2.7	12	0.5	404	16.8	12	0.5	2,398	100.0
2000	1,915	74.9	164	6.4	10	0.4	468	18.3	0	0.0	2,557	100.0
2006	2,083	80.4	0	0.0	11	0.4	499	19.2	0	0.0	2,593	100.0
Village of Hartland												
1970	590	73.7	0	0.0	53	6.6	158	19.7	0	0.0	801	100.0
1980	1,041	54.4	66	3.5	156	8.2	649	33.9	0	0.0	1,912	100.0
1990	1,247	51.4	245	10.1	159	6.5	771	31.8	6	0.2	2,428	100.0
2000	1,648	51.9	315	9.9	240	7.6	972	30.6	0	0.0	3,175	100.0
2006	2,335	64.8	0	0.0	248	6.9	1,020	28.3	0	0.0	3,603	100.0
Village of Lac La Belle												
1970	83	94.3	0	0.0	5	5.7	0	0.0	0	0.0	88	100.0
1980	80	100.0	0	0.0	0	0.0	0	0.0	0	0.0	80	100.0
1990	105	100.0	0	0.0	0	0.0	0	0.0	0	0.0	105	100.0
2000	131	100.0	0	0.0	0	0.0	0	0.0	0	0.0	131	100.0
2006	139	100.0	0	0.0	0	0.0	0	0.0	0	0.0	139	100.0

Table V-14 (Continued)

HOUSING UNITS BY STRUCTURE TYPE IN WAUKESHA COUNTY MUNICIPALITIES: 1970 – 2006

Community	Single-Family Detached		Single-Family Attached		Two-Family		Multi-Family		Mobile Homes and Other		Total	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Village of Lannon												
1970	198	61.3	0	0.0	32	9.9	44	13.6	49	15.2	323	100.0
1980	242	66.8	2	0.6	30	8.3	45	12.4	43	11.9	362	100.0
1990	247	67.2	2	0.5	17	4.6	45	12.2	57	15.5	368	100.0
2000	245	57.7	0	0.0	23	5.4	18	4.2	139	32.7	425	100.0
2006	235	56.0	0	0.0	27	6.4	21	5.0	137	32.6	420	100.0
Village of Menomonee Falls												
1970	6,992	86.5	0	0.0	342	4.2	732	9.0	28	0.3	8,094	100.0
1980	7,272	80.2	269	3.0	298	3.3	1,182	13.0	46	0.5	9,067	100.0
1990	7,617	75.8	309	3.1	291	2.9	1,694	16.9	132	1.3	10,043	100.0
2000	9,602	73.0	535	4.1	294	2.2	2,643	20.1	76	0.6	13,150	100.0
2006	10,880	75.5	0	0.0	374	2.6	3,091	21.4	76	0.5	14,421	100.0
Village of Merton												
1970	145	79.2	0	0.0	28	15.3	10	5.5	0	0.0	183	100.0
1980	286	93.1	0	0.0	14	4.6	5	1.6	2	0.7	307	100.0
1990	314	90.7	2	0.6	18	5.2	10	2.9	2	0.6	346	100.0
2000	584	94.3	13	2.1	14	2.3	6	1.0	2	0.3	619	100.0
2006	908	97.7	0	0.0	14	1.5	6	0.6	2	0.2	930	100.0
Village of Mukwonago												
1970	585	85.0	0	0.0	61	8.9	42	6.1	0	0.0	688	100.0
1980	1,042	77.6	19	1.4	171	12.7	111	8.3	0	0.0	1,343	100.0
1990	1,099	66.9	74	4.5	121	7.4	319	19.4	30	1.8	1,643	100.0
2000	1,470	57.2	149	5.8	129	5.0	821	32.0	0	0.0	2,569	100.0
2006	1,833	63.3	0	0.0	152	5.2	912	31.5	0	0.0	2,897	100.0
Village of Nashotah												
1970	124	91.2	0	0.0	9	6.6	3	2.2	0	0.0	136	100.0
1980	151	89.9	0	0.0	17	10.1	0	0.0	0	0.0	168	100.0
1990	180	94.2	0	0.0	11	5.8	0	0.0	0	0.0	191	100.0
2000	354	77.1	21	4.6	8	1.7	73	15.9	3	0.7	459	100.0
2006	434	83.8	0	0.0	8	1.5	73	14.1	3	0.6	518	100.0
Village of North Prairie												
1970	170	87.7	0	0.0	15	7.7	9	4.6	0	0.0	194	100.0
1980	278	90.3	2	0.6	15	4.9	13	4.2	0	0.0	308	100.0
1990	380	92.5	0	0.0	12	2.9	17	4.1	2	0.5	411	100.0
2000	485	88.3	6	1.1	13	2.4	45	8.2	0	0.0	549	100.0
2006	628	89.1	0	0.0	32	4.5	45	6.4	0	0.0	705	100.0

Table V-14 (Continued)

HOUSING UNITS BY STRUCTURE TYPE IN WAUKESHA COUNTY MUNICIPALITIES: 1970 – 2006

Community	Single-Family Detached		Single-Family Attached		Two-Family		Multi-Family		Mobile Homes and Other		Total	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Village of Oconomowoc Lake												
1970	159	88.9	0	0.0	11	6.1	9	5.0	0	0.0	179	100.0
1980	194	90.7	0	0.0	14	6.5	6	2.8	0	0.0	214	100.0
1990	218	92.0	0	0.0	8	3.4	11	4.6	0	0.0	237	100.0
2000	231	95.5	9	3.7	2	0.8	0	0.0	0	0.0	242	100.0
2006	253	99.2	0	0.0	2	0.8	0	0.0	0	0.0	255	100.0
Village of Pewaukee												
1970	714	77.5	0	0.0	79	8.6	102	11.1	26	2.8	921	100.0
1980	725	40.7	50	2.8	138	7.8	838	47.1	28	1.6	1,779	100.0
1990	874	43.7	159	7.9	147	7.3	721	36.0	103	5.1	2,004	100.0
2000	1,469	38.2	520	13.6	195	5.1	1,632	42.6	18	0.5	3,834	100.0
2006	2,049	46.4	0	0.0	229	5.2	2,113	47.9	20	0.5	4,411	100.0
Village of Sussex												
1970	582	83.1	0	0.0	57	8.1	62	8.8	0	0.0	701	100.0
1980	817	75.5	0	0.0	72	6.7	192	17.8	0	0.0	1,081	100.0
1990	1,152	63.9	55	3.1	67	3.7	512	28.4	17	0.9	1,803	100.0
2000	2,141	62.0	124	3.6	125	3.6	1,052	30.5	9	0.3	3,451	100.0
2006	2,707	66.9	0	0.0	197	4.9	1,132	28.0	9	0.2	4,045	100.0
Village of Wales												
1970	155	89.6	0	0.0	18	10.4	0	0.0	0	0.0	173	100.0
1980	454	80.4	15	2.7	49	8.7	46	8.2	0	0.0	564	100.0
1990	606	82.3	42	5.7	35	4.8	48	6.5	5	0.7	736	100.0
2000	716	79.7	88	9.8	56	6.2	39	4.3	0	0.0	899	100.0
2006	871	89.8	0	0.0	60	6.2	39	4.0	0	0.0	970	100.0
City of Brookfield												
1970	7,999	95.3	0	0.0	112	1.3	287	3.4	0	0.0	8,398	100.0
1980	9,617	91.3	115	1.1	212	2.0	590	5.6	0	0.0	10,534	100.0
1990	10,929	89.1	412	3.4	164	1.3	668	5.5	81	0.7	12,254	100.0
2000	12,104	85.0	869	6.1	132	0.9	1,136	8.0	5	0.0	14,246	100.0
2006	13,219	87.1	0	0.0	150	1.0	1,807	11.9	5	0.0	15,181	100.0
City of Delafield												
1970	895	87.0	0	0.0	63	6.1	71	6.9	0	0.0	1,029	100.0
1980	1,044	70.9	42	2.9	95	6.4	292	19.8	0	0.0	1,473	100.0
1990	1,349	62.1	100	4.6	74	3.4	623	28.7	26	1.2	2,172	100.0
2000	1,672	62.6	211	7.9	124	4.6	666	24.9	0	0.0	2,673	100.0
2006	2,014	67.9	0	0.0	130	4.4	823	27.7	0	0.0	2,967	100.0

Table V-14 (Continued)

HOUSING UNITS BY STRUCTURE TYPE IN WAUKESHA COUNTY MUNICIPALITIES: 1970 – 2006

	Single-Family Detached		Single-Family Attached		Two-Family		Multi-Family		Mobile Homes and Other		Total	
Community	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
City of Muskego												
1970	2,850	94.9	0	0.0	111	3.7	41	1.4	0	0.0	3,002	100.0
1980	3,988	88.8	97	2.2	214	4.8	189	4.2	0	0.0	4,488	100.0
1990	4,782	83.1	174	3.0	196	3.4	520	9.0	87	1.5	5,759	100.0
2000	6,108	79.4	286	3.7	239	3.1	1,061	13.8	0	0.0	7,694	100.0
2006	7,235	84.4	0	0.0	243	2.8	1,101	12.8	0	0.0	8,579	100.0
City of New Berlin												
1970	6,155	90.0	0	0.0	212	3.1	472	6.9	0	0.0	6,839	100.0
1980	8,157	85.5	154	1.6	175	1.8	1,060	11.1	0	0.0	9,546	100.0
1990	9,682	80.0	367	3.0	121	1.0	1,889	15.6	43	0.4	12,102	100.0
2000	11,310	75.7	603	4.0	193	1.3	2,809	18.8	24	0.2	14,939	100.0
2006	12,237	76.8	0	0.0	263	1.7	3,385	21.3	24	0.2	15,909	100.0
City of Oconomowoc												
1970	2,100	71.7	0	0.0	347	11.8	479	16.3	7	0.2	2,933	100.0
1980	2,459	67.8	58	1.6	435	12.0	673	18.5	4	0.1	3,629	100.0
1990	2,726	62.6	173	4.0	357	8.2	1,057	24.3	37	0.9	4,350	100.0
2000	3,169	60.2	328	6.2	346	6.6	1,420	27.0	0	0.0	5,263	100.0
2006	4,326	68.8	0	0.0	438	7.0	1,521	24.2	0	0.0	6,285	100.0
City of Pewaukee												
1970	1,802	93.5	0	0.0	109	5.7	15	0.8	0	0.0	1,926	100.0
1980	2,460	93.8	1	0.0	111	4.2	53	2.0	0	0.0	2,625	100.0
1990	3,026	88.5	85	2.5	91	2.7	173	5.1	40	1.2	3,415	100.0
2000	3,323	70.6	480	10.2	129	2.7	771	16.4	3	0.1	4,706	100.0
2006	4,058	76.0	0	0.0	282	5.3	990	18.6	3	0.1	5,333	100.0
City of Waukesha												
1970	7,546	62.6	0	0.0	1,819	15.1	2,609	21.6	82	0.7	12,056	100.0
1980	9,869	53.8	325	1.8	2,230	12.2	5,870	32.0	39	0.2	18,333	100.0
1990	10,909	49.4	1,185	5.4	2,024	9.2	7,541	34.2	406	1.8	22,065	100.0
2000	13,155	49.0	1,699	6.3	2,107	7.8	9,769	36.4	128	0.5	26,858	100.0
2006	16,062	55.1	0	0.0	2,451	8.4	10,530	36.1	128	0.4	29,171	100.0
Waukesha County												
1970	53,117	83.4	0	0.0	4,503	7.1	5,668	8.9	404	0.6	63,692	100.0
1980	71,120	77.9	1,415	1.5	5,606	6.1	12,813	14.0	431	0.5	91,385	100.0
1990	82,387	74.6	3,813	3.5	4,793	4.3	17,836	16.1	1,623	1.5	110,452	100.0
2000	99,613	70.9	7,252	5.2	5,136	3.7	27,473	19.6	835	0.6	140,309	100.0
2006	115,987	75.2	0	0.0	6,113	4.0	31,373	20.3	833	0.5	154,306	100.0

[a]1970 to 2000 data are from the U.S. Census Bureau. 2006 data includes 2000 Census data plus the number of building permits issued for each type of housing unit from 2000 through 2006. Building permit data were provided by the Wisconsin Department of Administration.

[b]In this data, single-family attached housing units, sometimes called townhouses, are one-unit structures that have one or more walls extending from ground to roof separating it from adjoining structures. These include and are also sometimes referred to as rowhouses, double houses, and houses attached to nonresidential structures. Such Census data was not available for 1970. 2006 data properly includes two attached townhouses in the two-family structure category and 3 or more attached townhouses in the multi-family structure category.

[c]Includes mobile homes and living quarters that do not fit into the other categories.

[d]Totals are based on all housing units, including occupied and vacant units.

[e]Single-family attached, two-family, and multi-family structure totals were combined in the 1970 Census. The 1970 multi-family data reflects this combined total.

Source: U. S. Bureau of the Census, Wisconsin Department of Administration, and SEWRPC.

accommodations (such as transient hotels, motels, and tourist courts that are primarily engaged in providing lodging, or lodging and meals. Also excluded are "HUD-code" manufactured (mobile) homes, moved or relocated units, and housing units created in an existing residential or nonresidential structure. These numbers provide a general indication of the amount of new housing stock that may have been added to the housing inventory. Since not all permits become actual housing starts and starts lag the permit stage of construction, these numbers do not represent total new construction, but do provide a general indicator on construction activity and the local real estate market.

From 2000 to 2006, Waukesha County has experienced an 8.54 percent increase in single-family homes, a 19.02 percent increase in two-family structures, and a 14.20 percent increase in multi-family developments (which includes 3 or more units per structure). Relative to one another, single-family, two-family and multi-family structures proportionally remain similar.

Table V-14 shows the progression of growth in the number of housing units by structure type in the County between 1970 and 2006. The total number of housing units in the County increased from 63,692 in 1970 to 154,306 in 2006 for a gain of 90,614 housing units during this period. The largest growth in housing units occurred between 1990 and 2000 when 29,857 housing units were constructed. The percentage of housing units constructed during this period was 41.07 percent in cities, 32.91 percent in villages, and 26.02 in towns. The growth in new housing units in cities ranged from 501 in the City of Delafield to 4,793 in the City of Waukesha where 39.09 percent of all new housing unit growth in cities occurred. Within villages, new housing unit growth between 1990 and 2000 ranged from five (5) in the Village of Oconomowoc Lake to 3,107 in the Village of Menomonee Falls. Menomonee Falls recorded 31.62 percent of all new housing units constructed within villages between 1990 and 2000. The number of new housing units in towns ranged from 135 in the Town of Vernon to 1,399 in the Town of Brookfield where 18.01 percent of all new housing units in towns between 1990 and 2000 were constructed.

From a County wide perspective, the data in Table V-14 reveals that single family housing is the predominant housing structure type within the County. The second most predominant housing structure type is multi-family housing. The percent of multi-family housing has more than doubled since 1970 from 8.9 percent of all structures to 20.30 percent in 2006. This demand may increase especially as the baby boomer population ages in place and the population of age 65 is projected to double in size within the County between 2000 and 2035. It also is important from a planning perspective to take into account that nationally 28 percent of the population of age 65 and over has a physical disability. As the baby boomers age it is anticipated that the number of people with a physical disability will likely increase. Senior housing options include single family, apartment living, community based residential facilities (CBRF's), group homes, continuing care retirement communities, and nursing homes.

The age of the existing housing stock in the County also provides insight into the character and condition of existing homes. It can be assumed that as housing stock ages, more housing units will need to be rehabilitated or replaced. Table V-15 presents the age of the existing housing stock in the planning area and each local government. The median year built for housing units was 1975 for the County as a whole. The median year built for housing units in cities ranges from 1966 in the City of Brookfield to 1988 in the City of Pewaukee. The median year built for housing units in villages ranges from 1954 in the Village of Oconomowoc Lake to 1993 in the Village of Nashotah. The median year built for towns ranges from 1966 in the Town of Summit to 1990 in the Town of Brookfield.

Structure Type by Community 1970 to 2000

Table V-14 shows the progression of types of housing developed within Waukesha County between 1970 and 2000. This provides insight into the number of existing single family, two-family, multi-family, and mobile home units within the County. The data shows that single family housing is the predominant housing structure type within the County. The second most predominant housing structure type is multi-family housing. This structure type has more than doubled since 1970 from 8.9 percent of all structures to nearly 20 percent in 2000. This shows

Table V-15
YEAR BUILT FOR HOUSING UNITS IN WAUKESHA COUNTY COMMUNITIES: 2000[a]

Community	1995 to March 2000		1990 through 1994		1980 through 1989		1970 through 1979		1960 through 1969		1940 through 1959		Before 1940		Total[b]	Median Year Built
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent		
Town of Brookfield	325	10.39	1,124	35.93	310	9.91	233	7.45	630	20.14	304	9.72	35	1.12	3,128	1990
Town of Delafield	489	18.64	530	20.21	344	13.11	498	18.99	118	4.50	290	11.06	354	13.50	2,623	1981
Town of Eagle	226	20.42	182	16.44	122	11.02	193	17.43	36	3.25	152	13.73	196	17.71	1,107	1979
Town of Genesee	291	12.06	373	15.46	295	12.23	730	30.25	185	7.67	244	10.11	295	12.23	2,413	1977
Town of Lisbon	365	12.97	273	9.70	327	11.62	1,088	38.65	303	10.76	247	8.77	212	7.53	2,815	1975
Town of Merton	454	14.09	333	10.34	322	9.99	590	18.31	257	7.98	328	10.18	694	21.54	3,222	1974
Town of Mukwonago	315	14.62	430	19.95	352	16.33	722	33.50	77	3.57	114	5.29	145	6.73	2,155	1981
Town of Oconomowoc	260	8.68	250	8.35	215	7.18	683	22.80	425	14.19	605	20.20	557	18.60	2,995	1968
Town of Ottawa	219	15.41	236	16.61	115	8.09	306	21.53	134	9.43	265	18.65	146	10.27	1,421	1975
Town of Summit	245	12.99	152	8.06	138	7.32	310	16.44	220	11.66	455	24.13	366	19.41	1,886	1966
Town of Vernon	213	8.21	235	9.06	418	16.12	1,108	42.73	204	7.87	199	7.67	216	8.33	2,593	1976
Town of Waukesha	243	7.76	361	11.52	448	14.30	836	26.68	390	12.45	423	13.50	193	6.16	3,133	1976
Village of Big Bend	7	1.50	14	3.00	21	4.50	116	24.84	69	14.78	146	31.26	94	20.13	467	1959
Village of Butler	32	3.41	13	1.39	95	10.13	189	20.15	101	10.77	340	36.25	168	17.91	938	1959
Village of Chenequa	20	7.07	20	7.07	29	10.25	31	10.95	34	12.01	41	14.49	108	38.16	283	1957
Village of Dousman	120	19.97	79	13.14	47	7.82	128	21.30	35	5.82	56	9.32	136	22.63	601	1976
Village of Eagle	161	26.18	55	8.94	85	13.82	88	14.31	34	5.53	65	10.57	127	20.65	615	1979
Village of Elm Grove	153	5.98	48	1.88	154	6.02	509	19.91	530	20.73	913	35.71	250	9.78	2,557	1962
Village of Hartland	356	11.21	322	10.14	455	14.33	1,044	32.88	277	8.72	374	11.78	347	10.93	3,175	1976
Village of Lac La Belle	24	18.32	26	19.85	3	2.29	6	4.58	23	17.56	18	13.74	31	23.66	131	1967
Village of Lannon	21	4.94	91	21.41	22	5.18	58	13.65	33	7.76	82	19.29	118	27.76	425	1964
Village of Menomonee Falls	1,786	13.58	1,455	11.06	1,050	7.98	1,285	9.77	3,369	25.62	3,520	26.77	685	5.21	13,150	1967
Village of Merton	134	21.65	137	22.13	49	7.92	147	23.75	32	5.17	40	6.46	80	12.92	619	1982
Village of Mukwonago	483	18.80	461	17.94	250	9.73	569	22.15	203	7.90	257	10.00	346	13.47	2,569	1978
Village of Nashotah	178	38.03	103	22.01	19	4.06	53	11.32	25	5.34	38	8.12	52	11.11	468	1993
Village of North Prairie	52	9.47	74	13.48	118	21.49	99	18.03	39	7.10	75	13.66	92	16.76	549	1977
Village of Oconomowoc Lake	25	10.33	15	6.20	19	7.85	20	8.26	29	11.98	40	16.53	94	38.84	242	1954
Village of Pewaukee	1,168	30.46	531	13.85	317	8.27	762	19.87	283	7.38	351	9.15	422	11.01	3,834	1983
Village of Sussex	848	24.57	772	22.37	676	19.59	476	13.79	391	11.33	185	5.36	103	2.98	3,451	1988
Village of Wales	57	6.34	89	9.90	163	18.13	384	42.71	92	10.23	48	5.34	66	7.34	899	1976
City of Brookfield	904	6.35	1,328	9.33	1,918	13.48	2,238	15.72	3,049	21.42	4,479	31.47	317	2.23	14,233	1966
City of Delafield	355	13.02	301	11.04	559	20.51	520	19.08	205	7.52	308	11.30	319	11.70	2,726	1972
City of Muskego	1,110	14.43	1,423	18.49	823	10.70	1,526	19.83	838	10.89	1,539	20.00	435	5.65	7,694	1977
City of New Berlin	2,433	15.90	1,254	8.20	2,375	15.52	2,635	17.22	2,882	18.84	3,170	20.72	549	3.59	15,298	1973
City of Oconomowoc	440	8.36	347	6.59	728	13.83	943	17.92	629	11.95	871	16.55	1,305	24.80	5,263	1967
City of Pewaukee	1,312	25.78	1,719	33.77	779	15.30	752	14.77	478	9.39	478	9.39	416	8.17	5,090	1988
City of Waukesha	3,124	11.63	2,075	7.73	3,787	14.10	6,351	23.65	3,214	11.97	4,114	15.32	4,193	15.61	26,858	1973
Waukesha County	18,948	13.38	17,231	12.17	17,947	12.67	28,226	19.93	19,873	14.03	25,174	17.77	14,262	10.05	141,626	1975

[a] Totals are based on a sample of one in six respondents to the 2000 Census.
[b] Totals are based on all housing units, including occupied and vacant housing units.
Source: U.S. Bureau of the Census and municipalities.

that there may be a growing demand for multi-family housing within the County, especially as the baby boomer population ages in place and the population of age 65 and over more than doubles within the County between 2000 and 2035.

Existing Housing Stock Condition

The condition of individual housing units must be examined to gain a more precise understanding of the number of existing housing units that need to be removed from existing housing stock totals. Generally, this provides a more accurate projection of the number of new housing units that will be needed to serve the projected population of the planning area through 2035.

Municipal assessor's offices and private assessors under contract to provide assessment services generally assign each housing unit within their jurisdiction a condition score. The scores range from excellent to unsound on a six-point scale and measure the present physical condition of each housing unit. Excellent/very good or good indicates the dwelling exhibits above average maintenance and upkeep in relation to its age. Average or fair indicates the dwelling shows minor signs of deterioration caused by normal wear and an ordinary standard of upkeep and maintenance in relation to its age. Poor/very poor indicates the dwelling shows signs of deferred maintenance and exhibits a below average standard of maintenance and upkeep in relation to its age. An unsound rating indicates the dwelling is unfit for use and should be removed from the existing housing stock totals. Housing conditions were collected from 27 out of 37 municipalities in Waukesha County. This information is presented in Appendix C. The records show that the vast majority of single family homes in the county have an average, good, very good, or excellent condition score. Two family and multi-family homes tend to have a larger prevalence of average condition ratings and a higher percentage ranked with a score of poor.

HOUSING DEMAND

Household, income, and demographic characteristics of the County and participating local governments have been inventoried and will be analyzed with housing supply inventory items to help determine the number and type of housing units that will best suit the needs of Waukesha County residents through 2035. Housing demand inventory items include:

- Affordable housing need assessment
- Household projection: 2035
- Household income
- Age distribution
- Household size

As with the above housing supply inventory data, Census 2000 Summary File 1 and Summary File 3 were used in the collection of the housing demand inventory data presented in this chapter. Again, Summary File 1 data were used when possible; however, in most cases only Summary File 3 data were available.

Affordable Housing Need Assessment

As previously stated, HUD defines housing affordability as households "paying no more than 30 percent of their income for housing." Households that pay more than 30 percent of their gross monthly income for housing are considered to have a high housing cost burden. The measure is based on gross pre-tax income. Another measure of affordability is implicit in the long-standing mortgage lending practice of limiting borrower's monthly housing costs to 28 or 29 percent of their gross monthly income as a condition of loan approval. Thus, 28 to 30 percent can be considered a cutoff beyond which housing is not affordable. Data show that most households opt for less than that percentage, while others, particularly those with low incomes, are generally unable to find housing that costs less than 30 percent of their monthly income.

Waukesha County Housing Affordability Facts

The following information is based on the HUD recommended affordability standard of paying no more than 30 percent of gross monthly income for housing costs.

- **About 19 percent of owner occupied households in Waukesha County spent over 30 percent of their monthly income on housing costs in 2000.**
- **About 27 percent of all renter occupied households in the County spent more than 30 percent of their monthly income on housing costs in 2000. Although Waukesha County had the highest median rent per month($726.00) it had the 16th highest percent paying 30% or more of income for rent when compared to other counties in the state.**
  - 17,810 households in the County were extremely low income (below 30 percent of the County median annual household income) or very low income (between 30 and 50 percent of the County median annual household income) households in 2000.
  - An extremely low income household (earning 30 percent of the 2000 County median annual household income of $62,839) could afford monthly housing costs of no more than $471 in 2000.
  - In 2000, 4,523 households paid less than $499 a month on gross rent.
  - In 2000, 4,639 households paid less than $700 a month on housing expenses for owner-occupied housing units with a mortgage.
- **The fair market rent in Waukesha County for a one bedroom apartment was $725 in 2006**
  - A worker earning the average hourly wage for the retail trade sector in Waukesha County ($10.58/hour) would have had to work 53 hours a week to afford the fair market rent for a one bedroom apartment in 2006 or work at one job for 49 hours a week with overtime pay.
- **The fair market rent in Waukesha County for a two bedroom apartment was $830 in 2006**
  - A worker earning the average Waukesha County retail trade sector hourly wage would have had to work 63 hours a week to afford the fair market rent for a two bedroom apartment in 2006 or work at one job for 54 hours with overtime pay.
  - Two retail workers sharing a two bedroom apartment and earning the average retail trade sector hourly wage would have to work 32 hours each a week to afford the fair market rent for a two bedroom apartment.
- **The cost of a typical starter home in Waukesha County was about $200,000 in 2006**
  - The minimum annual household income needed for a $200,000 mortgage in Waukesha County was $73,200, or $6,100.00 a month, in 2006 (assumption based on a 30 year mortgage at 6.9% with a maximum principal, interest, taxes, and insurance payment of $1,830.00 per month with less than 5% down payment. Property taxes calculated at $3,000 per year and home insurance at $500 per year.)
  - A household with two workers earning the average Waukesha County retail trade sector hourly wage would each have to work 67 hours a week to afford the monthly payments for a $200,000 home or 58 hours each a week if they each worked one job and earned overtime pay after 40 hours.
  - A police officer earning a typical entry level wage in Waukesha County ($20.50/hour) would have to work 59 hours a week if they worked one job and earned an average of 19 hours of overtime pay per week to afford the monthly payments for a $200,000 mortgage.
- **The housing wage in Waukesha County**
  - A full-time worker (40 hours per week) had to earn $14.02 per hour ($29,158 per year) to afford a one-bedroom rental unit at the fair market rent in Waukesha County in 2006.
  - A full-time worker (40 hours per week) had to earn $16.13 per hour ($33,545 per year) to afford a two-bedroom rental unit at the fair market rent in Waukesha County in 2006.
  - A full-time worker (40 hours per week) had to earn $35.20 per hour ($73,216 per year) to afford a $200,000, 30 year mortgage in Waukesha County in 2006 (Table V-18).
  - The average hourly wage for jobs located in Waukesha County was $19.75 per hour in 2006.

Table V-16 presents data for select professional, manufacturing, technical, and service occupations within Waukesha County. The data shows that the median income spent on housing mortgage payments including property insurance and property taxes for a $200,000 mortgage is above the 30 percent of median income formula used by HUD to define affordable housing. This means that even for professional level employees to live affordably a second worker within the household must secure employment to earn additional income. It also shows that service workers must have an additional household wage earner making a substantially better income to obtain a mortgage, buy a house, and to live affordably within the County. This data shows that the affordability of housing within the County is an issue for families living in the County with incomes below the median and it might be an issue for families at or above the median as well.

Table V-16

PERCENT OF INCOME SPENT ON A $200,000 MORTGAGE PAYMENT WITH A 30 YEAR LOAN AT 6.9% RATE OF INTEREST IN WAUKESHA COUNTY BY SELECT OCCUPATION TYPES, 2006

Type of Employment	Median Wage Per Hour	Median Income Per Year	30 Percent of Gross Median Income = Monthly Affordable Housing	Actual Affordable Mortgage at 30 Percent of Gross Median Income	Actual Percent of Gross Income Spent on a $200,000 Mortgage Payment
Civil Engineer	$29.52	$61,401	$1,535.02	$183,474	40 percent
Urban Planner	$28.02	$58,281	$1,456.80	$171,517	43 percent
Social Worker	$26.14	$54,371	$1,359.27	$156,788	45 percent
School Teacher (K-8)	$24.50	$50,960	$1,274.00	$143,840	49 percent
Manufacturing Worker	$23.86	$49,634	$1,240.85	$138,807	50 percent
Construction Worker	$23.63	$49,152	$1,228.80	$136,977	50 percent
Police Officer	$20.50	$42,025	$1,050.62	$109,924	55 percent
Legal Secretary	$17.66	$36,732	$918.32	$89,832	67 percent
Roofer	$17.42	$36,233	$905.82	$87,937	68 percent
Dental Assistant	$13.32	$27,705	$692.64	$55,566	90 percent
Travel Agent	$11.88	$24,710	$617.76	$44,197	100 percent
Floral Designer	$10.82	$22,505	$562.62	$35,827	110 percent
Bank Teller	$10.44	$21,715	$542.88	$32,828	114 percent
Child Care Worker	$9.69	$20,155	$503.88	$26,907	123 percent
Fast Food Cook	$8.00	$16,640	$416.00	$13,564	149 percent

Source: U.S. Department of Labor, Bureau of Labor Statistics.

Table V-16 also reflects upon issues with rental housing prices. In 2006, the average fair market rent for a one bedroom apartment was $725 a month and the average fair market rent for a two bedroom apartment was $830 a month in the County. If a person is living alone, they need to make over $13 an hour to live in an affordable one bedroom apartment at the fair rent price. If this wage level is not being earned with one job, other options are to find a second job, double up with an apartment mate who is working and share expenses, live at home with parents or relatives or commute from outside Waukesha County.

The high school age group has the economic benefit of living with parents and relatives. However, this group is a declining source of labor for retailers and food service industries, and has declined since the late 1970s. In 1978, 49.1 percent of all high school teenagers (almost 1 out of every 2) in the United States worked part-time. In 2007, according to the Center for Labor Market Studies at Northeastern University, 34.1 percent (1 out of every 3) of high school teenagers in the nation worked part-time. High school student labor force participation has experienced a declining trend for nearly 30 years. This decline in the number of high school students in the labor

force has been an issue for employers facing tightening labor market issues. This situation presents a critical workforce challenge for future-focused employers and communities. The high school age group is not projected to grow in number in Waukesha County through the year 2030 (See Table IV-5 school age population projections for Waukesha County). Some of this loss in high school age employees may be offset by hiring immigrants and senior citizens to work in retail and especially food service positions.

In general, it is important for economic stability and growth for workers to have housing opportunities. If a range of housing types is available at a range of prices affordable to workers, a local community will have a better opportunity to attract workers and thus grow local businesses. Policies that support a wide range of housing types are an important economic development tool as well as a route to social inclusion.

Table V-17 shows the number of owner-occupied and renter-occupied households in the Region by County with a high housing cost burden in 2000 based on general Census data. About 19 percent of owner-occupied households in the Region experienced a high housing cost burden and about 31 percent of renter-occupied households in the Region experienced a high housing cost burden. Waukesha County had a slightly lower percentage of homes with a high housing cost burden when compared to the Region.

Table V-18 sets forth the median percentage of monthly income spent on housing costs by owner-occupied and renter-occupied households for each community in Waukesha County in 2000. The median percentage of monthly income spent on owner-occupied housing ranged from 19.9 percent in the Village of Butler to 24.0 percent in the Village of Lannon. The median percentage of monthly income on renter occupied housing ranged from 13.4 percent in the Town of Lisbon to 41.6 percent in the Town of Ottawa. The median percentage of monthly income spent on housing costs in the County by owner-occupied households with a mortgage was 21.4 percent. The median percentage spent by owner-occupied households without a mortgage in the County was 11.3 percent and the percentage spent by renter-occupied households was 22.8 percent. This shows that most households in the County opt to pay substantially less than the 30 percent affordability standard as defined by HUD.

Table V-19 sets forth the median percentage of monthly income spent on housing costs by owner-occupied and renter-occupied households in the Region. The median percentage of income spent on monthly housing costs did not vary significantly across the Region. The percentage of income spent on housing by owner-occupied households with a mortgage ranged from 20.7 in Racine County to 22.8 percent in Walworth County. The percentage of income spent on housing costs without a mortgage ranged from 10.2 in Washington County to 12.5 percent in Kenosha County. Percentage of income spent on housing by renter-occupied households was lowest in Washington County at 21.2 and the highest in Milwaukee County at 24.8 percent.

Tables V-20a and V-20b show in detail the number of persons per room in owner and renter occupied households in Waukesha County in 2000. A housing unit is considered “overcrowded” if there is more than one occupant per room. Rooms considered for this calculation include kitchens, bedrooms, enclosed porches, finished recreation rooms and living and dining rooms. Table V-20a sets forth the number of households with more than 1 occupant per room in the County. Within the County, less than one (1) percent of all owner occupied homes had more than one (1) occupant per room. Approximately 3.61 percent of all renter occupied units had more than one occupant per room in the County. Over half of these renter occupied units were in the City of Waukesha.

Table V-17

HOUSEHOLDS WITH A HIGH HOUSING COST BURDEN IN THE SOUTHEASTERN WISCONSIN REGION: 2000[a]

County	Owner-Occupied Households		Renter-Occupied Households		Total Households	
	Number	Percent	Number	Percent	Number	Percent
Kenosha	7,855	20.3	5,359	30.9	13,214	23.6
Milwaukee	38,655	19.4	57,025	31.9	95,680	25.3
Ozaukee	4,570	19.4	1,730	23.7	6,300	20.4
Racine	8,615	17.2	6,265	30.1	14,880	21.0
Walworth	5,285	22.2	3,179	29.8	8,464	24.5
Washington	6,075	18.2	2,380	22.6	8,455	19.3
Waukesha	19,100	18.5	8,750	27.5	27,850	20.6
Region	90,155	19.1	84,688	30.5	174,843	23.3

[a]High housing cost burden is defined by HUD as a household spending more than 30 percent of its gross monthly income on housing costs.

Source: U.S. Census Bureau and SEWRPC.

Table V-18
MEDIAN PERCENTAGE OF MONTHLY INCOME SPENT ON HOUSING IN WAUKESHA COUNTY COMMUNITIES: 2000

Community	Owner-Occupied with a Mortgage[a]	Owner-Occupied Without a Mortgage[b]	Renter-Occupied[c]
Town of Brookfield	20.4	11.8	34.7
Town of Delafield	20.7	9.9	17.7
Town of Eagle	21.1	9.9	15.6
Town of Genesee	20.7	9.9	16.2
Town of Lisbon	20.6	9.9	13.4
Town of Merton	22.2	9.9	18.1
Town of Mukwonago	21.7	9.9	23.1
Town of Oconomowoc	21.9	9.9	19.1
Town of Ottawa	19.8	9.9	41.6
Town of Summit	22.9	12.9	19.3
Town of Vernon	21.3	9.9	18.4
Town of Waukesha	20.0	9.9	21.7
Village of Big Bend	20.5	9.9	17.9
Village of Butler	19.9	14.8	24.5
Village of Chenequa	20.9	10.4	16.9
Village of Dousman	22.2	10.6	26.6
Village of Eagle	22.4	11.7	21.1
Village of Elm Grove	21.0	10.6	20.7
Village of Hartland	21.0	10.0	21.5
Village of Lac La Belle	23.9	20.0	25.0
Village of Lannon	24.0	19.2	17.5
Village of Menomonee Falls	21.3	12.5	25.7
Village of Merton	23.1	9.9	29.2
Village of Mukwonago	22.1	9.9	21.7
Village of Nashotah	23.3	9.9	30.8
Village of North Prairie	21.1	9.9	22.0
Village of Oconomowoc Lake	21.6	10.6	22.5
Village of Pewaukee	22.7	18.8	21.4
Village of Sussex	22.0	9.9	22.9
Village of Wales	20.4	9.9	18.8
City of Brookfield	20.9	10.9	24.4
City of Delafield	21.1	12.9	21.8
City of Muskego	22.2	12.1	21.5
City of New Berlin	21.1	11.8	22.0
City of Oconomowoc	21.9	13.7	21.7
City of Pewaukee	20.3	11.9	19.5
City of Waukesha	22.0	11.5	23.2
Waukesha County	21.4	11.3	22.8

[a]Specified owner-occupied housing units: Median selected monthly owner costs as a percentage of household income in 1999 ; Housing units with a mortgage
[b]Specified owner-occupied housing units: Median selected monthly owner costs as a percentage of household income in 1999 ; Housing units without a mortgage
[c]Specified renter-occupied housing units paying cash rent: Median gross rent as a percentage of household income in 1999

Source: U.S. Bureau of the Census

Table V-19
MEDIAN PERCENTAGE OF MONTHLY INCOME SPENT ON HOUSING IN THE SOUTHEASTERN WISCONSIN REGION: 2000

County	Owner-Occupied with a Mortgage	Owner-Occupied Without a Mortgage	Renter-Occupied
Kenosha	21.4	12.5	24.3
Milwaukee	21.1	12.6	24.8
Ozaukee	21.4	11.3	21.8
Racine	20.7	11.5	24
Walworth	22.8	11.8	24.1
Washington	21.9	10.2	21.2
Waukesha	**21.4**	**11.3**	**22.8**

Source: U.S. Census Bureau and SEWRPC.

Table V-20a

OWNER-OCCUPIED[a] HOUSING OCCUPANCY BY NUMBER OF OCCUPANTS PER ROOM IN WAUKESHA COUNTY COMMUNITIES: 2000[b]

Community	Occupants per room								Total
	0.50 or less		0.51 to 1.00		1.01 to 1.50		1.51 or more		
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	
Town of Brookfield	1,361	79.54	341	19.93	9	0.53	0	0.00	1,711
Town of Delafield	1,903	82.35	408	17.65	0	0.00	0	0.00	2,311
Town of Eagle	682	69.81	286	29.27	9	0.92	0	0.00	977
Town of Genesee	1,636	72.36	596	26.36	20	0.88	9	0.40	2,261
Town of Lisbon	2,160	68.97	956	30.52	16	0.51	0	0.00	3,132
Town of Merton	1,843	74.16	624	25.11	14	0.56	4	0.16	2,485
Town of Mukwonago	1,457	71.39	584	28.61	0	0.00	0	0.00	2,041
Town of Oconomowoc	1,717	73.94	603	25.97	2	0.09	0	0.00	2,322
Town of Ottawa	940	75.68	296	23.83	6	0.48	0	0.00	1,242
Town of Summit	1,164	75.05	374	24.11	13	0.84	0	0.00	1,551
Town of Vernon	1,609	70.29	661	28.88	19	0.83	0	0.00	2,289
Town of Waukesha	2,178	77.92	607	21.72	10	0.36	0	0.00	2,795
Village of Big Bend	257	69.46	102	27.57	11	2.97	0	0.00	370
Village of Butler	352	77.19	92	20.18	12	2.63	0	0.00	456
Village of Chenequa	176	90.72	16	8.25	2	1.03	0	0.00	194
Village of Dousman	234	71.34	94	28.66	0	0.00	0	0.00	328
Village of Eagle	342	61.62	199	35.86	12	2.16	2	0.36	555
Village of Elm Grove	1,932	87.74	270	12.26	0	0.00	0	0.00	2,202
Village of Hartland	1,305	73.94	460	26.06	0	0.00	0	0.00	1,765
Village of Lac La Belle	110	95.65	5	4.35	0	0.00	0	0.00	115
Village of Lannon	262	75.07	79	22.64	6	1.72	2	0.57	349
Village of Menomonee Falls	7,380	74.47	2,467	24.89	45	0.45	18	0.18	9,910
Village of Merton	356	61.38	221	38.10	2	0.34	1	0.17	580
Village of Mukwonago	1,106	71.86	420	27.29	13	0.84	0	0.00	1,539
Village of Nashotah	347	80.32	85	19.68	0	0.00	0	0.00	432
Village of North Prairie	292	63.62	167	36.38	0	0.00	0	0.00	459
Village of Oconomowoc Lake	160	85.56	27	14.44	0	0.00	0	0.00	187
Village of Pewaukee	1,824	78.52	491	21.14	8	0.34	0	0.00	2,323
Village of Sussex	1,485	68.03	679	31.10	19	0.87	0	0.00	2,183
Village of Wales	482	65.40	250	33.92	5	0.68	0	0.00	737
City of Brookfield	10,185	81.12	2,325	18.52	39	0.31	6	0.05	12,555
City of Delafield	1,243	76.21	388	23.79	0	0.00	0	0.00	1,631
City of Muskego	4,313	69.24	1,874	30.09	28	0.45	14	0.22	6,229
City of New Berlin	9,167	77.77	2,530	21.46	74	0.63	16	0.14	11,787
City of Oconomowoc	2,394	77.18	681	21.95	27	0.87	0	0.00	3,102
City of Pewaukee	3,086	79.68	766	19.78	11	0.28	10	0.26	3,873
City of Waukesha	10,855	74.97	3,410	23.55	156	1.08	59	0.41	14,480
County	**78,295**	**75.68**	**24,434**	**23.62**	**588**	**0.57**	**141**	**0.14**	**103,458**

[a]A housing unit is considered overcrowded if there is more than one occupant per room. Rooms considered in the calculation include: living room, dining room, kitchen, bedrooms, finished recreation rooms, and enclosed porches suitable for year-round use. [b]Totals are based on a sample of one in six responses to the 2000 Census.

Source: U.S. Census Bureau and SEWRPC.

Table V-20b
RENTER-OCCUPIED[a] HOUSING OCCUPANCY BY NUMBER OF OCCUPANTS PER ROOM IN WAUKESHA COUNTY COMMUNITIES: 2000[b]

Community	Occupants per room								Total
	0.50 or less		0.51 to 1.00		1.01 to 1.50		1.51 or more		
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	
Town of Brookfield	806	81.01	159	15.98	30	3.02	0	0.00	995
Town of Delafield	174	75.32	54	23.38	3	1.30	0	0.00	231
Town of Eagle	36	57.14	25	39.68	0	0.00	2	3.17	63
Town of Genesee	99	72.26	38	27.74	0	0.00	0	0.00	137
Town of Lisbon	72	75.00	24	25.00	0	0.00	0	0.00	96
Town of Merton	178	77.73	51	22.27	0	0.00	0	0.00	229
Town of Mukwonago	31	52.54	21	35.59	7	11.86	0	0.00	59
Town of Oconomowoc	298	72.86	111	27.14	0	0.00	0	0.00	409
Town of Ottawa	100	89.29	12	10.71	0	0.00	0	0.00	112
Town of Summit	152	77.55	38	19.39	6	3.06	0	0.00	196
Town of Vernon	35	38.04	51	55.43	6	6.52	0	0.00	92
Town of Waukesha	28	41.18	30	44.12	10	14.71	0	0.00	68
Village of Big Bend	62	73.81	16	19.05	3	3.57	3	3.57	84
Village of Butler	367	79.78	80	17.39	8	1.74	5	1.09	460
Village of Chenequa	18	75.00	6	25.00	0	0.00	0	0.00	24
Village of Dousman	148	57.36	103	39.92	5	1.94	2	0.78	258
Village of Eagle	47	75.81	13	20.97	2	3.23	0	0.00	62
Village of Elm Grove	148	61.16	77	31.82	0	0.00	17	7.02	242
Village of Hartland	821	65.21	409	32.49	6	0.48	23	1.83	1,259
Village of Lac La Belle	2	50.00	2	50.00	0	0.00	0	0.00	4
Village of Lannon	49	74.24	9	13.64	6	9.09	2	3.03	66
Village of Menomonee Falls	2,165	73.51	767	26.04	13	0.44	0	0.00	2,945
Village of Merton	22	78.57	6	21.43	0	0.00	0	0.00	28
Village of Mukwonago	521	56.69	343	37.32	32	3.48	23	2.50	919
Village of Nashotah	11	64.71	6	35.29	0	0.00	0	0.00	17
Village of North Prairie	47	62.67	25	33.33	3	4.00	0	0.00	75
Village of Oconomowoc Lake	13	86.67	2	13.33	0	0.00	0	0.00	15
Village of Pewaukee	953	68.46	367	26.36	48	3.45	24	1.72	1,392
Village of Sussex	720	64.00	370	32.89	27	2.40	8	0.71	1,125
Village of Wales	67	51.15	64	48.85	0	0.00	0	0.00	131
City of Brookfield	1,074	77.16	286	20.55	32	2.30	0	0.00	1,392
City of Delafield	576	65.16	289	32.69	19	2.15	0	0.00	884
City of Muskego	903	69.41	362	27.82	16	1.23	20	1.54	1,301
City of New Berlin	1,943	71.49	706	25.97	62	2.28	7	0.26	2,718
City of Oconomowoc	1,333	71.28	509	27.22	26	1.39	2	0.11	1,870
City of Pewaukee	436	69.43	182	28.98	10	1.59	0	0.00	628
City of Waukesha	7,157	63.99	3,399	30.39	331	2.96	298	2.66	11,185
County	**21,612**	**68.02**	**9,012**	**28.37**	**711**	**2.24**	**436**	**1.37**	**31,771**

[a]A housing unit is considered overcrowded if there is more than one occupant per room. Rooms considered in the calculation include: living room, dining room, kitchen, bedrooms, finished recreation rooms, and enclosed porches suitable for year-round use.
[b]Totals are based on a sample of one in six responses to the 2000 Census.
Source: U.S. Census Bureau and SEWRPC.

Household Projections: 2035

The number of additional housing units needed in the 2035 plan design year is projected by first selecting a population projection. The number of residents expected to reside in "group quarters" (in Waukesha County, this generally will include college dormitories and assisted living facilities) is then subtracted from the projected total population, and the result is divided by the projected household size (number of persons per household in 2035). This number is then multiplied by the desired vacancy rate of three (3) percent to determine the total number of housing units needed in Waukesha County in 2035. The resulting number of housing units is about 174,100.

The number of additional housing units needed between 2000 and 2035 to provide an adequate supply is determined by subtracting the number of housing units in 2000 from the projected number of housing units needed in 2035. The resulting projected demand is about 38,900 additional housing units. The type of housing units that ultimately produce this total should be determined based on household income, age distribution, and household size to best meet the needs of County residents.

Household Income

Household income should be considered when developing policies intended to help provide housing units within a cost range affordable to all income groups. Table II-6 in Chapter II sets forth the number of households in various income ranges and the median household income in the County for each participating local government in 1999. The median household income was $62,839 in the County and $46,308 in the Region. However, lower-income households exist in the County and should be provided with affordable housing options.

Households in the County earning less than $18,851 in 1999, or less than 30 percent of the County median household income, were considered extremely low income households. About 5.99 percent of households in the County, or 8,114 households, earned less than $15,000. Another 7.16 percent, or 9,696 households, earned between $15,000 and $24,999 in 1999. These households were in either the extremely low income group or very low income group. Very low income households earned between $18,915 and $31,420 in 1999 (30.1 to 50 percent of the median income). About 8.93 percent of households, or 12,097, earned between $25,000 and $34,999. These households were either in the very low income group or the low income group. Low income earnings for the County were between $31,482 and $50,271 (50.1 to 80 percent of the County median). An additional 19,686 households, or 14.53 percent, earned between $35,000 and $49,999, also placing them in the low-income group. Moderate income earnings for the County were between $50,271 and $59,697, or between 80 and 95 percent of the median income and 13,532 households, or 10 percent of all households fell within the moderate income group for the County in 1999. This resulted in a total of 63,125 households or 46.61 percent of total households in the County that were extremely low, very low, low, or moderate income in 1999.

The intermediate projection developed by SEWRPC for the number of households within the County in 2035 is 174,100. Projecting that the County continues to have a similar percentage of households (46.61%) that are extremely low, very low, low, and moderate income will result in a total of 81,218 households in the following categories:

- 15,164 households or 8.7 are projected to be extremely low income
- 23,226 households or 13.3 percent are projected to be very low income
- 25,418 households or 14.6 percent are projected to be low income
- 17,410 households or 10.0 percent are projected to be moderate income

Housing Need for Non-Resident Workers

The characteristics of resident and non-resident workers in Waukesha County were analyzed to determine whether non-resident workers could afford to live in Waukesha County if they wanted to do so.

Data Sources

The Public Use Microdata Samples (PUMS), released in 2003 by the U.S. Census Bureau, provide information based on a five (5) percent sample of the population from "long-form" questionnaires completed for the 2000 Census of Population and Housing. The PUMS data are intended to permit the cross-tabulation of variables not possible using other Census products and not available in Census publications, while conforming to requirements to protect the confidentiality of Census respondents. The geography used for the PUMS data is a relatively large scale, being based on groups of counties or single counties with 100,000 or greater population. PUMS data were derived from a five (5) percent sample of the total population--less than that used in other tabulations of the Census. Consequently, the data does not precisely match that published in other Census products.

Place of Residence and Place of Work

Table V-21 provides information on the place of residence for people who work in Waukesha County. Workers who both live and work in the County totaled 58.59 percent in 2000, or 120,484 workers. The largest number of commuters, about 57,412 workers, or 27.44 percent of all workers in the Waukesha County, live in Milwaukee County.

In reviewing the Census 2000 MCD/County-to-MCD/County Worker Flow Files before release, some errors were discovered in a number of the MCD/County-to-MCD/County Flows. These errors have been corrected. However, as a result of the corrections the data in these files may not agree with data previously released in Summary File 3 (SF3) and related products. In particular, there may be differences in the number of people working in the State and/or MCD/County of residence between SF3 and similar estimates derived from these files. Additionally, tract 1010 data that includes the City of Milwaukee, but falls within Waukesha County, has been omitted.

Earnings and Household Incomes of Resident and Non-Resident Workers

As shown by Table V-22, non-resident workers earned slightly less in terms of median earnings than did resident workers in 2000. The median earnings for non-resident workers was $29,820, while the median earnings for resident workers was about $30,000--a difference of about $180.00. The median earnings of workers varied significantly by occupation. Both resident and non-resident workers in service occupations had the lowest median earnings, while workers employed in management, business, and financial operations had the highest median earnings. The median wages of non-resident workers exceeded resident workers in the service and production, transportation, and material moving categories. High demand for workers in these two categories within Waukesha County and the increased worker cost for commuting to work in Waukesha County are the two main factors for these differences.

HOUSING PROGRAMS AVAILABLE IN WAUKESHA COUNTY

Government sponsored housing programs have been inventoried to assess government's potential to help the private sector meet housing needs in Waukesha County. The full array of government sponsored programs and funding availability is almost continually changing, therefore, this section focuses on those programs that have the potential for increasing the availability of lower-cost housing and rehabilitation in Waukesha County. Many of the programs available in Waukesha County are administered through local and statewide nonprofit organizations that receive funding from the Federal Government. Several entities are involved in administering and funding the following programs, including the HOME Consortium, the Wisconsin Housing and Economic Development Authority (WHEDA), and the U.S. Department of Housing and Urban Development (HUD).

Additionally, the Wisconsin Department of Commerce, Division of Housing and Community Development released a Household Housing Guide in February 2007 that provides contacts and a brief description of housing programs available for low- and moderate-income households throughout the State. As of September 2007, the guide could be found at the Department of Commerce website at the following address: http://commerce.wi.gov/CDdocs/BOH-Fact-Sheets/cd-boh-housing.pdf.

Table V-21
PERSONS WORKING IN WAUKESHA COUNTY MUNICIPALITIES BY PLACE OF RESIDENCE: 2000[a]

Place of Work	County of Residence									All Other WI Counties	Illinois Counties	All Other Areas	Total
	Waukesha	Dodge	Jefferson	Kenosha	Milwaukee	Ozaukee	Racine	Walworth	Washington				
Town of Brookfield	5,131	70	138	0	3,302	114	128	82	179	180	15	46	**9,385**
Town of Delafield	800	12	16	0	173	0	8	45	16	7	9	0	**1,086**
Town of Eagle	243	4	34	4	20	7	0	49	0	19	0	0	**380**
Town of Genesee	964	2	60	12	149	0	42	80	0	24	0	0	**1,333**
Town of Lisbon	1,111	31	17	0	353	20	14	30	197	28	8	0	**1,809**
Town of Merton	1,143	31	31	0	159	14	4	8	107	5	0	0	**1,502**
Town of Mukwonago	473	1	18	19	71	0	8	19	2	4	0	0	**615**
Town of Oconomowoc	1,083	81	159	0	88	0	11	8	16	19	0	0	**1,465**
Town of Ottawa	220	10	14	0	0	0	0	30	7	16	0	0	**297**
Town of Summit	938	107	225	3	136	0	0	12	7	14	37	0	**1,479**
Town of Vernon	593	2	11	20	182	0	34	36	0	7	0	0	**885**
Town of Waukesha	1,638	18	18	35	236	6	26	44	15	2	0	10	**2,048**
Village of Big Bend	538	9	7	2	134	4	87	13	19	0	18	0	**831**
Village of Butler	1,268	34	39	7	1,477	41	55	11	319	85	12	3	**3,351**
Village of Chenequa	99	0	0	0	7	0	0	0	5	0	0	3	**114**
Village of Dousman	547	8	139	0	47	0	7	9	5	28	0	0	**790**
Village of Eagle	273	5	57	4	27	1	9	51	7	16	0	0	**450**
Village of Elm Grove	1,778	10	24	0	1,654	10	70	15	101	36	21	4	**3,723**
Village of Hartland	3,754	178	229	0	821	38	59	40	166	61	41	18	**5,405**
Village of Lac La Belle	35	4	5	0	0	0	0	0	5	1	4	0	**54**
Village of Lannon	400	10	0	4	213	22	0	0	92	7	0	9	**757**
Village of Menomonee Falls	10,095	327	156	25	8,468	747	283	97	4,569	404	97	59	**25,327**
Village of Merton	1,638	18	18	0	236	6	26	44	15	0	0	0	**2,001**
Village of Mukwonago	2,219	6	53	17	513	8	212	577	26	17	0	2	**3,650**
Village of Nashotah	394	49	47	0	81	0	12	6	4	5	0	0	**598**
Village of North Prairie	433	0	54	0	57	0	22	39	2	2	0	5	**614**
Village of Oconomowoc Lake	218	12	10	0	19	0	0	10	0	0	0	0	**269**
Village of Pewaukee	3,237	64	75	0	782	32	119	36	163	79	12	9	**4,608**
Village of Sussex	3,529	97	140	0	2,050	74	90	59	646	85	37	42	**6,849**
Village of Wales	616	26	57	0	118	0	8	19	24	27	0	0	**895**
City of Brookfield	17,514	233	359	18	13,374	548	500	246	1,319	545	75	92	**34,823**
City of Delafield	2,832	64	179	1	345	32	12	31	89	44	35	7	**3,671**
City of Muskego	2,909	17	26	47	1,413	8	625	106	31	42	6	3	**5,233**
City of New Berlin	10,027	121	174	44	8,532	207	728	357	415	260	50	96	**21,011**
City of Oconomowoc	5,607	887	1,486	13	811	33	44	42	167	76	71	31	**9,268**
City of Pewaukee	8,848	219	313	0	4,095	165	305	170	472	377	71	23	**15,058**
City of Waukesha	27,339	299	1,019	49	7,269	220	632	711	742	532	94	102	**39,008**
Total	**120,484**	**3,066**	**5,407**	**324**	**57,412**	**2,357**	**4,180**	**3,132**	**9,949**	**3,054**	**713**	**564**	**210,642**

Source: U.S. Bureau of the Census and SEWRPC

Table V-22
MEDIAN EARNINGS BY OCCUPATION OF PERSONS WORKING IN WAUKESHA COUNTY: 2000

Occupation Category	Non-Resident Workers[a]	Resident Workers	Resident and Non-Resident Workers
Management, Business, and Financial Operations	$42,330	$50,820	$47,400
Professional and Related	$37,080	$38,840	$37,960
Service Occupations	$16,190	$11,730	$13,550
Sales and Office Occupations	$24,780	$23,980	$24,280
Farming, Forestry, and Fishing[b,c]	- -	- -	- -
Construction, Extraction, and Maintenance	$35,780	$38,030	$36,770
Production, Transportation, and Material Moving	$28,460	$27,100	$28,130
Total	$29,820	$30,000	$29,910

[a]*Includes persons who worked in Waukesha County but did not live in the County.*
[b]*The number of data points and the sample size for the Farming, Forestry, and Fishing category was insufficient to enable any meaningful conclusions with respect to median income.*
[c]*Farmers who farm their own land are included in the Management, Business, and Financial Operations category.*

Source: U.S. Census (Public Use Microdata Samples) and SEWRPC.

Housing Program Administrators

The HOME Consortium

The HOME Consortium is a four-county governmental body, which includes Ozaukee, Washington, Waukesha, and Jefferson Counties, whose purpose is to advance homeownership opportunities and programs for households that earn 80 percent or less of the area's median income. Median incomes based on family size are developed annually by HUD (see Table IX-38). The area served by the Consortium receives an annual funding allocation from HUD. The Consortium's programs are administered by C-CAP LLC and the Community Housing Initiative, Inc., which are nonprofit organizations located in the City of Waukesha. In 2007, the HOME grant was $1,410,000. With the exception of administrative and technical assistance funding, all HOME funds are directed to housing activities. The HOME program is a four county partnership between Waukesha, Washington, Ozaukee and Jefferson counties. Funding is allocated through the HOME Board, an equal representative member board consisting of appointed members by each county. The 2007 allocation follows: $207,000 (15%) of the grant must be allocated and utilized (by HOME regulation) for housing production by locally approved Community Housing Development Organization (CHDO), $339,000 was allocated for housing rehabilitation, $335,000 was allocated for Downpayment Assistance (DPA) for a home purchase and additional allocation of $100,000 was allocated for Homebuyer Counseling associated with the DPA program. Finally, an allocation of $55,000 was allocated to each county for a specific project as needed in the county (Waukesha County used its “County allocation” for renovation of Marion House, a group home serving elderly residents with a mental illness).

Wisconsin Housing and Economic Development Authority (WHEDA)

WHEDA was created by the Wisconsin Legislature in 1972 as a nonprofit "public benefit corporation" to help meet the housing needs of lower-income households in the State. This purpose has expanded to include providing housing facilities to meet the needs of disabled and elderly households. The programs are financed through the sale of tax-exempt bonds and receive no State tax support. These programs involve the administration of several federally funded grants and housing tax credits.

U.S. Department of Housing and Urban Development (HUD)
HUD provides funding for a number of housing programs, including the Section 8 Low-Income Rental Assistance Program and the Home Investment Partnership Act (HOME). In order for units or agencies of government to apply for and receive HUD housing grants or public housing funds, they must prepare a CHAS (Comprehensive Housing Affordability Strategy) and submit that strategy to HUD for approval. The purpose of the CHAS is to ensure that communities receiving funding from HUD have planned for the housing-related needs of low- and moderate-income households in a way that improves the availability and affordability of adequate housing. The CHAS must also include consideration of persons needing supportive services, identify the manner in which private resources will be incorporated in addressing identified housing needs, and provide for both rental and homeownership options.

Community Development Block Grant (CDBG)
CDBG funds can be used to expand the development of decent, accessible, and affordable housing in communities. In all instances, a CDBG assisted activity must meet one of three national objectives: (1) benefiting low and moderate income persons, (2) aiding the prevention or elimination of slums or blight, or (3) meeting a community development need having a particular urgency that a community is unable to finance on its own. For housing, CDBG funds can help with homeownership assistance, rehabilitation and reconstruction, conversion of existing structures for housing, housing counseling, fair housing activities, and new housing construction and related activities**.** The 2007 Waukesha County CDBG grant was $1,433,000. The CDBG program allocates funding for public services, public facilities, housing, economic development, accessibility, planning and other smaller categories of funding. A portion of annual CDBG funding is allocated to participating municipalities and set-aside to the City of Waukesha. In 2007 about $350,000 was allocated for housing rehabilitation with some additional allocations provided for some smaller housing programs. Past loans for housing production or housing rehabilitation generate about $500,000 in program income annually, which is used for additional rehab loans or housing developments.

The Federal Housing Administration (FHA)
The FHA was established by Congress in 1934 and became part of HUD's Office of Housing in 1965. The FHA insures mortgage loans for single family and multi-family homes from FHA-approved lenders throughout the Nation, including Waukesha County, and is the largest insurer of mortgages in the world. FHA mortgage insurance provides approved lenders with protection against losses as the result of default on a loan. The lender bears less risk because the FHA will pay a claim to the lender in the event of a homeowner default. This allows FHA insured loans to be made with less cash investment than other loans, which increases accessibly to lower-income households.

U.S. Department of Agriculture (USDA) Rural Development
The USDA administers the Federal Government's primary program addressing America's need for affordable rural housing. USDA Rural Development provides loans and grants to develop rural community facilities in cities, villages, and towns with populations less than 20,000 that are not part of an urban area. The USDA provides several programs for affordable housing opportunities for low-to moderate-income families; however, the only program available for Waukesha County residents is the Guaranteed Rural Housing (GRH) loan program. In general, the GRH loan program excludes the communities in the central and northeast part of the County as well as Lac La Belle and Oconomowoc.

Green Building Programs, Incentives, Associations, Material Re-use, and Project Examples

Energy Star Qualified Homes
Homes that earn the ENERGY STAR must meet guidelines for energy efficiency set by the U.S. Environmental Protection Agency. ENERGY STAR qualified homes are at least 15 percent more energy efficient than homes built to the 2004 International Residential Code (IRC), and include additional energy-saving features that typically make them 20–30% more efficient than standard homes.

ENERGY STAR qualified homes can include a variety of energy-efficient features, such as effective insulation, high performance windows, efficient heating and cooling equipment, and ENERGY STAR qualified lighting and appliances.

Through ENERGY STAR, builders and other home industry professionals can differentiate themselves in the market. New homes that qualify as ENERGY STAR provide greater comfort and durability for home buyers. For more information on ENERGY STAR homes, products, and incentives, visit: www.energystar.gov.

Energy Star Mortgages-Focus on Energy
Through the Focus on Energy program and participating lenders, Energy Star Mortgages are available to those who purchase a Wisconsin Energy Star home. Benefits include reduced closing costs and qualifying for a slightly higher mortgage due to increased energy savings.

For more information on ENERGY STAR Mortgages, the Wisconsin ENERGY STAR Homes program or other ENERGY STAR programs, call toll-free: 1.800.762.7077 or e-mail: WESHinfo@focusonenergy.com.

Habitat ReStore
Profits from donated left-over building materials purchased at discounted prices are distributed to Habitat for Humanity projects, under the Habitat ReStore program.

Green Built Home
Green Built Home is a national award winning green building initiative that reviews and certifies new homes and remodeling projects that meet sustainable building and energy standards. There are currently nearly forty regional green building programs in existence nationwide. Green Built Home is the only such program in the upper Midwest and was founded in 1999 by Wisconsin Environmental Initiative (WEI) in partnership with the Madison Area Builders Association. The program is implemented by participating builders associations in cooperation with leading utilities and other organizations that promote green building and energy efficiency. As a product of a non-profit organization, Green Built Home provides neutral third party certification of green building practices that meet meaningful environmental, health, and energy standards.

The State of Wisconsin administers Green Built Home throughout the state and reaches thousands of homebuyers and builders through collaborations with builders associations and other affiliated organizations. Support for Green Built Home comes from builder enrollment and home registration fees as well as organizations that promote green building and energy efficiency for Wisconsin.

LEED Program
The Leadership in Energy and Environmental Design (LEED) Green Building Rating System™ is the nationally accepted benchmark for the design, construction, and operation of high performance green buildings. LEED gives building owners and operators the tools they need to have an immediate and measurable impact on their buildings' performance. LEED promotes a whole-building approach to sustainability by recognizing performance in five key areas of human and environmental health: sustainable site development, water savings, energy efficiency, materials selection, and indoor environmental quality. LEED provides a roadmap for measuring and documenting success for every building type and phase of a building lifecycle that can be found at: www.usgbc.org. Below is an introduction to various parts of the LEED program.

LEED for Homes
LEED for Homes is a voluntary rating system that promotes the design and construction of high performance "green" homes. A green home uses less energy, water, and natural resources; creates less waste; and is healthier and more comfortable for the occupants. Benefits of a LEED home include lower energy and water bills; reduced greenhouse gas emissions; and less exposure to mold, mildew and other indoor toxins. The net cost of owning a LEED home is comparable to that of owning a conventional home.

The LEED Rating System is the nationally recognized standard for green building. LEED certification recognizes and rewards builders for meeting the highest performance standards and gives homeowners confidence that their home is durable, healthy, and environmentally friendly.

LEED for Homes Initiative for Affordable Housing
The LEED for Homes Initiative for Affordable Housing promotes sustainable building practices specifically for affordable homes. The ultimate goal of this initiative is to recognize and reward the intrinsic resource efficiencies of affordable housing within the LEED for Homes rating system. With generous support from The Home Depot Foundation, and in collaboration with other leaders in this sector, the U.S. Green Building Council (USGBC) is working to develop appropriate tools, educational offerings, and technical assistance for the affordable housing market. USGBC is also partnering with Enterprise Community Partners to promote green affordable housing.

Enterprise Community Partners and the USGBC have partnered to expand the benefits of green building for developers, operators and residents of affordable housing. Through the partnership, Enterprise and USGBC will accelerate the momentum among affordable housing developers to incorporate green building and sustainable development practices into their activities.

LEED for Existing Buildings
LEED for Existing Buildings maximizes operational efficiency while minimizing environmental impacts. It provides a recognized, performance-based benchmark for building owners and operators to measure operations, improvements and maintenance on a consistent scale. The LEED for Existing Buildings Rating System is a set of voluntary performance standards for the sustainable upgrades and operation of existing buildings not undergoing major renovations. It provides sustainable guidelines for building operations, periodic upgrades of building systems, minor space use changes and building processes.

The goal of LEED for Existing Buildings is to help building owners operate their buildings in a sustainable and efficient way over the long term. To achieve this goal, LEED for Existing Buildings will provide certification and re-certification of building operation to recognize building owners' ongoing achievements.

LEED for Homes Providers
In a new approach for LEED, LEED homes are rated by LEED for Homes Providers, local organizations with demonstrated experience and expertise in their region's market. A LEED for Homes Provider has three primary roles in a given market:

- Marketing LEED to builders;
- Providing green home rating support services to builders; and
- Training, coordinating, and overseeing LEED qualified inspectors and builder support staff.

Twelve LEED for Homes Providers have been established throughout the nation. Currently, there is no LEED for Home Provider in Wisconsin. USGBC will be selecting new providers as needed after the national roll-out of LEED for Homes in fall 2007. For a complete list of LEED for Homes Providers, visit the USGBC website: www.usgbc.org.

LEED for Neighborhood Development

The LEED for Neighborhood Development program integrated the principles of smart growth, new urbanism, and green building to create the first national standard for neighborhood design. LEED certification provides independent, third-party verification that a development's location and design meet accepted high standards for environmentally responsible, sustainable development. LEED for Neighborhood Development is a collaborative effort between the USGBC, the Congress for New Urbanism, and the Natural Resources Defense Council. Projects may constitute whole neighborhoods, fractions of neighborhoods, or multiple neighborhoods. Smaller, infill projects that are single use, but complement existing neighboring uses should be able to earn certification as well as larger and mixed use developments. In terms of eligibility for the pilot program, there is no minimum or maximum for project size and no strict definition for what would comprise a neighborhood. The only requirement is that projects must be able to meet all prerequisites and anticipate that the minimum number of points through credits to achieve certification can be earned.

Using the framework of other LEED rating systems, LEED for Neighborhood Development recognizes development projects that successfully protect and enhance the overall health, natural environment, and quality of life of communities. The rating system encourages smart growth and new urbanist best practices, promoting the design of neighborhoods that reduce vehicle miles traveled and communities where jobs and services are accessible by foot or public transit. It promotes more efficient energy and water use.

The LEED for Neighborhood Development pilot program is in its infancy. A call for pilot projects took place between February and April 2007. After registration, these projects will submit documentation based on the rating system to be verified by a third-party reviewer in order to become LEED Certified pilot projects. The information learned during the pilot program will be used to make further revisions to the rating system, and the resulting draft will be posted for public comment before it is submitted for final approvals and balloting.

LEED for Neighborhood Development Certification

Although the period for applying to be in the pilot program for LEED for Neighborhood Development Certification has passed, projects will be able to participate in the full program, which should launch in early 2009. For most projects, certification under the full program should offer similar value to pilot certification, since LEED for Neighborhood Development enables projects to certify at both very early and very late stages of development. Stages of development are described below.

- Optional Pre-review (Stage 1)

This stage is available, but not required for projects at any point before the entitlement process begins. If pre-review approval of the plan is achieved, USGBC will issue a letter stating that if the project is built as proposed, it will be able to achieve LEED for Neighborhood Development certification. The purpose of this letter is to assist the developer in building a case for entitlement among land use planning authorities, as well as a case for financing and occupant commitments.

- Certification of an Approved Plan (Stage 2)

This stage is available after the project has been granted any necessary approvals and entitlements to be built according to a plan. Any changes to the pre-reviewed plan that could potentially affect prerequisite or credit achievement would be communicated to USGBC as part of this submission. If certification of the approved plan is achieved, USGBC will issue a certificate stating that the approved plan is a LEED for Neighborhood Development Certified Plan and will list it as such on the USGBC website.

- Certification of a Completed Neighborhood Development (Stage 3*)*

This step takes place when construction is complete or nearly complete. Any changes to the certified approved plan that could potentially affect prerequisite or credit achievement would be communicated to USGBC as part of this submission. If certification of the completed neighborhood development is achieved, USGBC will issue plaques or similar awards for public display at the project site and will list it as such on the USGBC website.

Engaging with LEED projects
Program staff and the LEED for Neighborhood Development Core Committee are developing ways for projects that are interested in pursuing LEED for Neighborhood Development to remain engaged during the pilot phase, even if they missed the pilot application deadline. Joining the LEED for Neighborhood Development Corresponding Committee provides information about future opportunities once they become available. The corresponding committee listserv enables a wider group of experts and interested parties to stay updated and receive notification of opportunities to provide feedback. Corresponding committee members receive minutes from core committee meetings and other announcements. The listserv will also be notified when the full program is open for registration. Directions on how to join the corresponding committee are below:

The corresponding committee is open to USGBC members and nonmembers but there are different ways to join:

- USGBC members can visit www.usgbc.org, log into your account and subscribe to the committee listserv.
- Others can send an e-mail to nd@committees.usgbc.org requesting to be added to the corresponding committee.

LEED for Neighborhood Development Registered Pilot Project List for Wisconsin, Illinois, Michigan, Minnesota
The complete list of pilot projects can be accessed through the USGBC website: https://www.usgbc.org/ShowFile.aspx?DocumentID=2960.

IMPLEMENTATION RECOMMENDATIONS

The general housing issue identified in this chapter was the need for a variety of housing choices for the County residents and people who work in the County but cannot afford to live in the County. Sufficient housing choices are important as the population ages and new jobs are created. Housing variety is also important to ensure economic viability as housing options are important for the County's workforce.

This general housing issue is supported by the housing inventory data collected in this Chapter, demographic data collected in Chapter II (Trends, Issues, Opportunities and Planning Standards), and the income and employment data collected in Chapter VI (Economic Development). Further analysis of this data refines the general housing issue into the following more specific issues and recommendations.

Housing Supply

1. Each community within the County should identify a projected number of additional housing units to meet housing demand through year 2035. Land needed to accommodate additional housing units should be included on the planned land use map based on the population trend information presented in Chapter 2 of this Plan.
2. Community comprehensive plans should address the need for adequate consumer housing choices that allow for a full range of housing structure types and sizes including single-family, two-family, and, in sewer service areas, multi-family.
3. Promote construction design concepts such as Universal Design[3] and Visitability. Visitability is a movement to change home construction practices so that all new homes, not just custom built homes, offer a few specific features that make the home easier for people with mobility impairment to live in at least one zero-step entrance approached by an accessible route on a firm surface no steeper than a 1:12 grade from a driveway or public sidewalk.

[3] Accessibility for the disabled can be increased by providing homes with wider doors and hallways, level surfaces, and other features, often referred to as "Universal Design."

Housing Mix

1. Communities that seek to attract jobs, as reflected in the accommodation of new commercial and industrial development, should ensure that a broad range of housing styles, types and price ranges are provided to provide opportunities to minimize geographic imbalances between job and residence locations.
2. Communities should establish policies concerning housing mix to provide a full range of housing choices. Comparing housing types and affordability to existing and projected jobs and wages will be beneficial to establishing effective housing mix policies.
3. Communities should analyze the population trend information presented in Chapter 2 and the employment projection information presented in Chapter 6 to ensure that a range of housing stock to meet the needs of an aging population. This analysis should be repeated annually to determine the effectiveness of the housing mix policy.
4. Communities should analyze existing housing stock to establish baseline conditions for the existing affordable housing. As part of this planning project, Waukesha County worked with the Town of Mukwonago to develop a sample methodology to analyze the value of existing housing stock. The following criteria were used to provide more accurate data on the actual housing stock within the municipality.

    a. Equalized improved value of the property was greater or equal to $40,000 based on tax and assessment information.
    b. Equalized total value (land plus improvements) was less than or equal to $208,700.
    c. Land area was less than 10 acres to exclude large farms.
    d. Special attention was given to removing parcels with partial assessments, parcels with only larger accessory structures, and parcels that had multiple living units or multi-family units.

Housing Affordability and Housing Costs

1. Households should not have to pay more than 30 percent of their adjusted gross income in order to secure decent, safe, and sanitary housing, including, in addition to the contract rent payment or the payment of the principal, interest, and taxes, the necessary insurance, utility, and other attendant costs.
2. Chapter VI (Economic Development) of this Plan, discusses the use of Tax Incremental Financing. Municipalities should consider using Tax Incremental Financing for the redevelopment of properties to higher density residential uses to meet affordable housing needs.
3. Communities within the County should consider and explore the creation of incentives for the development of affordable housing units. Options to consider include density bonuses and waiver of fees.
4. The County should work with municipalities to study the feasibility of an affordable housing trust fund to assist in meeting the projected employment housing needs.
5. Encourage mixed income housing development to avoid concentrating affordable units in a limited number of areas.
6. Encourage the adoption and use of "flexible zoning district" regulations such as Traditional Neighborhood Development, Transit-Oriented Development, and Planned Unit Development regulations.
7. Develop or encourage the development of rent-to-own programs through public-private partnerships and entrepreneurship to give low-to moderate-income families a chance at homeownership. [4]

[4] An example of a rent-to-own development is Metcalfe Park in the City of Milwaukee. A private developer, in partnership with the Milwaukee Urban League and using affordable housing tax credits, is developing 30 homes that will be leased to families that qualify for below-market rents of $675 and $825 per month. In 15 years, the homes will be available for purchase at discounted prices.

8. Study the potential to integrate other types of specialty housing, where applicable, such as "cooperative housing" (sometimes called "coop-housing or co-habiting housing"),[5] "cohousing"[6] and university or campus-related housing for seniors,[7] which may also socially support and help seniors and/or persons with disabilities be self-sufficient.
9. Support the inclusion of accessory units and "live-work-units"[8] (sometimes called "flex units"), where suitable, to help provide affordable housing as well as affordable office or work space for entrepreneurs (i.e. small businesses and home-based businesses).

Household Size

1. The average household size in the County in 1960 was 3.66 persons per household. The projected 2035 household size is 2.48. County projections show that the population of people aged 65 and over will more than double in size increasing from 26,763 people in 2000 to 56,678 in 2035. A higher percentage of smaller housing units, multi-family, independent and assisted living units may be required to better meet the housing needs of smaller households, including the increase in one- and two-person empty nester and elderly households and persons with disabilities.

Transition from Renter to Home Owner Occupied Housing

1. Utilize existing local, state, and federal programs to educate young adults and families in the County to transition from renter to home owner. About 20 percent of housing units in Waukesha County are renter occupied and 80 percent are owner occupied. However, in several communities within the County renter occupied units are over 40 percent of total housing units.

Housing Vacancy

1. The supply of vacant and available housing units should be sufficient to maintain and facilitate ready

[5] A multi-family dwelling owned and maintained by the residents. The entire structure and real property is under common ownership as contrasted in a condominium dwelling where individual units are under separate ownership. Apartments and dwellings may include shared common areas such as kitchen, dining, and/or living rooms, and services, such as housekeeping, organized social and recreational activities, including seniors and persons with disabilities capable of living "independently" (usually requiring no or minimal medical-care or "Stay at Home" related services). More information on cooperative housing in Wisconsin can be accessed from the University of Wisconsin-Extension Center for Cooperatives at http://www.uwcc.wisc.edu/info/uwcc_pubs/coopHouse02.pdf

[6] Cohousing communities are communities or "villages" that generally consist of privately-owned individual homes and community-owned areas and buildings. Households participate in social activities centered in a community-owned building, and help to design and manage their "village" consisting of small groups of homes concentrated around a community building which acts as the social center of the "village". Residents own their private dwellings, usually condos or attached single-family homes, but share common areas, such as dining areas, kitchen, lounges, meeting rooms, a recreational facility, a workshop, children's spaces and the like. Group meals are regularly shared where residents manage the property. Other types of cohousing include elderly cohousing which is generally designed for adults 55 or older. Elder cohousing promotes universal design concepts that support active lifestyles and can accommodate accessibility needs.

[7] Senior housing, rental or homeownership, linked to universities and colleges where services offered to seniors include auditing classes, library and computer privileges, access to healthcare, use of fitness facilities, discount event tickets, and/or reduced meal prices. The universities or colleges may or may not be involved with the development and operation of the retirement community, while providing such services to residents.

[8] Live-work units contain work space that usually occupies more floor area, up to 50 percent of the total floor area of the unit, than a conventional house containing a home occupation, in which the home-based business typically occupies between 10 to 25 percent of the total floor area. Live-work units may contain more types of business activities than a traditional home occupation, such as more parking, traffic, employees, and/or customer visits. Such units may be detached buildings or attached units (especially townhouses) functioning as potential small business incubators. Units may be rented or owned, including as condominiums, thereby allowing owners to accumulate equity.

housing consumer turnover. Rental and homeowner vacancy rates at the county level should be maintained at a minimum of 4 percent and a maximum of 6 percent for rental units and a minimum of 1 percent and a maximum of 2 percent for homeowner units over a full range of housing types, sizes, and costs.

Land Use Regulation and Other Considerations

1. The County and municipalities should examine regulatory codes to identify the extent to which they permit or exclude relatively lower cost housing, and make appropriate changes to facilitate the provision of such housing. This review should primarily focus on the structure types permitted (single-family, two-family, multi-family); development densities; minimum lot area requirements; minimum building setbacks; and minimum dwelling unit floor area requirements.
2. The County should research, study, promote, and educate the use of energy efficient homes and green housing development design concepts.
3. Several of the housing recommendations may be implemented using municipal land use regulations. Waukesha County's land use regulations apply to Towns of Genesee, Oconomowoc, Ottawa or Vernon; or the shoreland/floodland areas (generally within 1,000 feet of a lake or 300 feet of a stream), in all of the Towns. In addition, Waukesha County is an approval or objection agency on proposed subdivision plats and certified surveys, limited to the review authority granted under s.236 Wisconsin Statutes.
4. The rising cost associated with the purchase and development of land for building sites has a significant impact on the increasing prices and reduced affordability of housing. In addition, occupancy costs (distances to employment, shopping, education and other community services; transportation costs) indirectly affect the affordability of housing. The Housing and Land Use planning standards and objectives, presented in Chapter 2 of this Plan, seek to provide affordable housing by calling for increased residential densities on municipal services (sewer, water and transportation alternatives), and in close proximity of employment, education, shopping and other community services. Cities and villages traditionally provide planned municipal sewer, water and public transportation, accommodating higher densities.

Chapter 6

ECONOMIC DEVELOPMENT ELEMENT

INTRODUCTION

Economic development is vital for communities in Waukesha County. With optimum paying jobs and growing businesses, Waukesha County and the Region will be able to maintain and expand its quality of life. In order to maintain the highest quality of life for its residents, communities in Waukesha County must be a partner in the regional economy. Waukesha County and the region need to foster job growth and new business development.

In any planning effort, forecasts are required for those future events and conditions that are outside the scope of the plan, but will affect plan design and implementation. In the preparation of the Comprehensive Development Plan for Waukesha County, the future demand for land, which the plan must seek to accommodate, depends primarily upon future population, household, and employment levels. Control of changes in such levels lie largely outside the scope of governmental activity and the physical planning process. Future population, household, and employment levels must therefore be forecasted, with land use and supporting facility plans being designed to accommodate forecast conditions.

This chapter provides an overview of the methodology and assumptions that underlie the economic and employment projections of southeastern Wisconsin and Waukesha County. Included is descriptive information pertaining to measures of economic activity and employment projections.

WAUKESHA COUNTY ECONOMIC DEVELOPMENT STRENGTHS, CONCERNS, AND WEAKNESSES

The Waukesha County Comprehensive Planning Economic Development Element subcommittee expressed the following strengths, concerns, and weaknesses.

Economic Strengths

- **Rich history of local entrepreneurship fostering business growth**
  Historically, the fostering of local small businesses in Waukesha County has led to the growth of larger companies and jobs.
- **Milwaukee-Waukesha Metropolitan Statistical Area (MSA) with over 1.5 million people**
  Despite the fact that the City of Milwaukee has declined in population, the Milwaukee-Waukesha MSA that includes Milwaukee, Ozaukee, Washington, and Waukesha Counties continues to grow and prosper.
- **Preference for ownership demonstrates longer term commitment to area**
  Businesses want to establish equity by owning commercial or industrial land and buildings. This provides more opportunities to establish equity and creates more options for future expansion, but also challenges the typical dynamics of traditional industrial park development. Business condominium concepts are growing, which encourages ownership and longer term business commitment.
- **Outstanding work ethic**
  In the opinion of business leaders in Waukesha County, when compared to other regions of the country, employees have a superior work ethic.
- **Growing tax base**
  Waukesha County's tax base continues to grow due to development and redevelopment of residential, commercial, and industrial areas.
- **Attractive local, county, and state park system**
  Local, county, and state parks, lakes, and natural areas offer a variety of recreational activities for residents, thereby, attracting employers and employees.

- **Sustained population growth**
  In every federal population census, Waukesha County has recorded an increase in population. Since 1960, the population of the county has more than doubled.
- **Innovative business leaders**
  Waukesha County has grown businesses and jobs mainly through innovation and investment by local leaders.
- **Quality schools are the driving force in attracting families and businesses**
  Waukesha County is recognized as having both quality public and private school systems. This is a huge attraction for families with children. In addition, a quality education system is important for businesses that will employ workers after graduation.

Concerns and Weaknesses

- **The median price of a home is increasing at a faster rate than median income**
  Waukesha County has the second highest median home price in the state. Nineteen percent of household's pay more than 30 percent of their gross monthly income on housing and 5 percent pay over 50 percent of their gross monthly income for housing. The U.S. Department of Housing and Urban Development (HUD), defines affordable housing where housing costs are no more than 30 percent of a households gross monthly income. As the number of potentially lower paying jobs in service sector industries such as hospitality, eating and drinking, and retail trade increases this becomes even more of an issue for providing affordable housing opportunities within Waukesha County.
- **Need to generate enough revenue to continue all municipal and county services while balancing fees and taxes and remaining competitive at the same time**
  The costs to operate government continue to increase, especially with the increase of unfunded state and federal mandates. Sometimes, the pursuit of taxes from new development increases urban sprawl. Citizens continue to express concerns about the taxes they pay and do not support tax increases.
- **Health care costs continue to rise**
  Rising health care costs create obstacles for business and job growth. Health care costs in Wisconsin and the Midwest are higher than other regions of the country.
- **Need to focus on regional and countywide cooperation including school districts in the delivery of governmental services**
  Local governments and school districts have been and should continue to pursue new, cost-effective cooperative approaches to meet their own governmental service demands.
- **Community development plans must be complimentary**
  The Wisconsin Comprehensive Planning law requires that communities must have plans that complement each other. This is a difficult task since there are 37 municipalities within Waukesha County.
- **Transportation costs continue to rise**
  Rising energy prices continue to increase transportation costs for Waukesha County businesses and residents. Transportation infrastructure demands that are not paid for by enhanced tax revenues continue to increase transportation costs.
- **Continued population growth will impact local school districts**
  The intermediate population growth projection developed by SEWRPC shows Waukesha County gaining over 86,000 people from 2000 to 2035. According to the State Department of Public Instruction projections, the K-12 student population in Waukesha County will begin to experience steady growth after 2010. This will result in local school boards addressing the need for more new school buildings and expansion of existing facilities in order to continue to provide quality education and job training.
- **Cyclical over-development of office space within the county**
  Over-development of office space can lead to a temporary condition of more supply than demand, empty office buildings, lower rent prices, and less profit for developers, investors, and real estate professionals as well as creating unneeded or underutilized infrastructure.
- **Need for additional technology development**
  Waukesha County needs to continue to thrive in a knowledge-based economy. To do so, businesses and government must continue to adopt new technologies. A need exists for enhanced communication and collaboration between businesses and research universities.

- **Need to continue to increase the number of people with college and technical degrees**
  Although Waukesha County has a highly skilled workforce there is still demand for additional growth, especially in the areas of business, information technology, engineering, and nursing and health care professions. Both public and private universities in the region must do a better job of making professionals aware of what continuing education opportunities and degrees exist, and identifying what degrees to offer. It is necessary to increase the number of people with both technical college and four-year degrees to grow in a knowledge-based new economy.
- **Need to maintain and expand our transportation infrastructure**
  Waukesha County has an excellent network of local, county, state, and federal roads, streets, and highways. It also has several local and county airports. This infrastructure must be maintained and expanded to meet economic growth needs.
- **Declining water supply**
  Waukesha County's water supply is finite. The trends show that the deep aquifer ground water supply and quality is declining. The county must work together with local communities and regional agencies to identify ways to conserve water and protect the quality of water resources.
- **Aging workforce**
  The potential for a future labor shortage in the county is significant as the rate of retirement is likely to surpass the rate of entry into the workforce between 2015 and 2020.
- **Lack of population diversity**
  Waukesha County has not experienced high growth in ethnic diversity of other populations.

Other Relevant Business Analysis

Waukesha County Economic Development Corporation (WCEDC) completed 24 listening sessions with businesses between March and September 2002. WCEDC published the results of these sessions in their report titled *Waukesha County 2020*. The businesses that attended the listening sessions accounted for 80 percent of the payroll in the County. These businesses prioritized 12 major issues based on the impact each issue was thought to have on the County's economy. These comments do not necessarily reflect the findings of the Comprehensive Development Plan for Waukesha County, but provide additional opinions to inform the preparation of the plan.

- Infrastructure limitations (roads, water, power, high-speed Internet, housing, public transportation) inhibit economic growth, retention and attraction of businesses.
- Labor force issues inhibit the success of existing businesses and the attraction of new business; quantity and quality of workers, and assimilation of ethnic/minority workers.
- Ineffective resource allocation across educational units hinders workforce preparedness in key areas.
- Multiple layers of government create inefficiencies for businesses and higher taxes, thus driving up the cost of doing business.
- Government and the citizenry lack an understanding of business issues.
- Insufficient resources are available to create a supportive environment for "new economy" businesses (finance, information, collaborative networks).
- The high cost of health care is making local businesses and the area in general less competitive.
- The County doesn't have a strong image for attracting business, entrepreneurs, young workers, and visitors.
- The region is losing corporate headquarters with high paying jobs.
- Excessive governmental regulations limit the growth of certain industries.
- There's a resistance/conservatism among area businesses for investing in new technology and businesses processes in the face of global competition.
- Unresolved regional issues are caused by fragmented and short-term governmental and business planning.

WORKFORCE ANALYSIS

In order to plan for future economic growth and development it is essential to understand current workforce demographics. Workforce data that is often analyzed includes income, educational attainment, labor availability, and employer information.

Median Household Income
The Waukesha County median household income was $62,839 in 2000 (Chapter 2, Table II-6). This is the second highest county median household income in the state and fifty-first highest in the nation. A total of 84,720 County residents making up over 21 percent of the population were considered low to moderate household income by the U.S. Department of Housing and Urban Development (HUD). Low to moderate income is defined as household income that is 80 percent or less of county median household income. Seventy-nine percent of County households have incomes above low to moderate income.

Average Adjusted Gross Income Per Return
In 2004, Waukesha County ranked third in Wisconsin in average adjusted gross income behind Milwaukee and Dane counties. In 2004, Waukesha County residents generated 12 billion dollars in individual adjusted gross income. The average adjusted gross income per return filed individually or jointly ranged from $32,824 in the Village of Butler to $592,030 in the Village of Oconomowoc Lake (Table VI-1).

Per Capita Personal Income
Per capita personal income is defined as a location's total personal income divided by its total resident population. This measure is one of the most widely used measures of a location's economic health. According to the U.S. Bureau of Economic Analysis, per capita personal income in Ozaukee County was $50,543 and per capita income in Waukesha County was $43,455 in 2004. Dodge, Jefferson, Milwaukee, Racine, Kenosha, Washington, and Walworth Counties have much lower per capita personal incomes when compared to Waukesha County (Table VI-2).

From a regional and national perspective, looking at metropolitan statistical areas (MSA) of similar population size or larger, the Milwaukee-Waukesha MSA ranks lower in per capita income. Per capita income is higher not only in MSA's within the Midwest, but also in MSA's with similar population in other regions of the United States (Table VI-3). The two exceptions with lower per capita incomes are Virginia Beach – Norfolk MSA and the San Antonio MSA. The lower per capita income in the Milwaukee-Waukesha MSA may be attributed to the high rates of unemployment especially among minorities within the City of Milwaukee.

Educational Attainment
Waukesha County has a highly educated population. As mentioned in Chapter 2, Waukesha County has the third highest percentage of people with associate, bachelors, graduate, and professional degrees in Wisconsin.

Cardinal Stritch University, Carroll University, 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.

Table VI-1

WAUKESHA COUNTY PERSONAL INCOME RETURN BY COMMUNITY, 2004

Name	Number of Income Tax Returns Filed	Total Adjusted Gross Income	Average Adjusted Gross Income
Town of Brookfield	2,234	146,017,403	65,361
Town of Delafield	2,787	308,512,761	110,697
Town of Eagle	1,275	78,148,342	61,293
Town of Genesee	2,699	197,141,600	73,042
Town of Lisbon	3,614	220,328,714	60,965
Town of Merton	2,972	227,533,931	76,559
Town of Mukwonago	3,037	186,874,610	61,533
Town of Oconomowoc	3,411	262,021,428	76,817
Town of Ottawa	1,466	102,246,841	69,745
Town of Summit	1,779	155,004,400	87,130
Town of Vernon	2,775	168,623,902	60,765
Town of Waukesha	10,549	630,247,409	59,745
Village of Big Bend	941	46,266,226	49,167
Village of Butler	1,036	34,005,575	32,824
Village of Chenequa	192	78,402,829	408,348
Village of Dousman	1,489	87,534,086	58,787
Village of Eagle	1,075	56,688,201	52,733
Village of Elm Grove	3,159	385,542,691	122,046
Village of Hartland	5,519	393,350,660	71,272
Village of Lac La Belle	86	11,128,686	129,403
Village of Lannon	526	21,733,173	41,318
Village of Menomonee Falls	17,376	966,570,239	55,627
Village of Merton	830	61,592,664	74,208
Village of Mukwonago	4,512	232,562,133	51,543
Village of Nashotah	1,075	91,612,951	85,221
Village of North Prairie	1,002	56,621,364	56,508
Village of Oconomowoc Lake	88	52,098,656	592,030
Village of Pewaukee	3,401	181,149,139	53,263
Village of Sussex	5,617	293,637,582	52,277
Village of Wales	1,323	79,464,916	60,064
City of Brookfield	19,543	1,671,044,432	85,506
City of Delafield	3,001	273,916,537	91,275
City of Muskego	11,289	664,062,255	58,824
City of New Berlin	20,029	1,183,990,817	59,114
City of Oconomowoc	8,804	572,547,221	65,033
City of Pewaukee	7,979	562,637,841	70,515
City of Waukesha	29,537	1,297,399,051	43,925
Waukesha County	**188,027**	**12,038,261,266**	**64,024**

Source: Wisconsin Department of Revenue.

Table VI–2

PER CAPITA PERSONAL INCOME: BY SELECTED WISCONSIN COUNTIES: 1980-2004

County	1980	1990	2000	2004
Dodge	9,539	14,809	25,514	27,527
Jefferson	9,417	16,870	27,927	31,000
Kenosha	10,801	17,543	27,726	30,389
Milwaukee	11,245	19,259	28,226	32,380
Ozaukee	12,847	25,614	46,092	50,543
Racine	11,016	19,368	28,776	32,744
Walworth	9,827	16,973	27,292	29,089
Washington	10,408	20,207	33,604	36,324
Waukesha	**12,335**	**23,984**	**41,033**	**43,455**

Source: U.S. Bureau of Economic Analysis.

Table VI-3

POPULATION AND PER CAPITA INCOME OF SELECTED U.S. METROPOLITAN STATISTICAL AREAS (MSA), 2004

MSA	Population	Per Capita Personal Income
Minneapolis	3,112,877	40,915
Chicago	9,393,259	37,169
Detroit	4,489,523	36,650
Indianapolis	1,617,414	35,266
Nashville	1,394,960	34,904
St Louis	2,768,641	34,735
Columbus	1,690,721	34,128
Kansas City	1,927,240	34,585
Cincinnati	2,056,843	34,368
Cleveland	2,133,778	34,264
Providence	1,627,194	33,912
Memphis	1,248,492	32,741
Austin	1,411,199	32,494
Milwaukee-Waukesha	**1,513,319**	**32,380**
Virginia Beach – Norfolk	1,641,671	31,811
San Antonio	1,852,508	28,946

Source: U. S. Bureau of Economic Analysis.

A need exists in the County to provide educational opportunities to maintain and enhance businesses and the workforce. Research shows that institutions of higher education are most successful in influencing economic growth when they are attuned to the economic structure of their local economies. It is important for higher education institutions and businesses to continue to develop and maintain relationships that integrate constantly changing concepts, innovation and technology into core business functions so Waukesha County can continue to grow in a rapidly changing global economy.

Workforce Demographics and Labor Availability

In 2005, Waukesha County had 205,012 people employed in its labor force. The average unemployment rate was 3.9 percent. As mentioned earlier, Waukesha County has a highly educated workforce with an outstanding work

ethic that produces high quality goods and services. The biggest concern is the fact that the workforce is growing older. The median age of County residents increased from 27 in 1960 to 38.1 in 2000. The 45 to 64 age group and 65 and over age groups will continue to grow in number reflecting the aging of "baby boomers" (people born from 1946 through 1964). The population aged 25 to 44 will begin to decrease as baby boomers grow older and smaller age cohorts born in the 1970s move into this age group. This changing age composition will have major implications for the future labor market. Waukesha County will need to retain and recruit a younger workforce to fill positions left vacant by retiring baby boomers. This strategy is best accomplished by working at a regional level in southeastern Wisconsin to market the economic strengths and quality of life that the area offers. A focus group involving young professionals working within the City of Milwaukee expressed concern that the Milwaukee region is misinterpreted as a blue collar area and, from an outside perspective, not enough is done to sell and market the economic strengths of the Milwaukee region.

EMPLOYER AND EMPLOYEE TRENDS

Largest Employers

The largest employers in Waukesha County are doing business in the health services, medical product innovation, retail, wholesale, government, education, and communication sectors. Collectively these businesses employ 30,030 workers making up 11 percent of the total workforce in Waukesha County (Table VI-4). In 2002, Waukesha County had 12,579 businesses. Ninety three percent of these businesses had less than 50 employees. The three largest business establishment groups consisted of wholesale/retail trade, professional and administrative services, and construction (Table VI-5).

Waukesha County's total share of regional employment in the seven county Southeastern Wisconsin Region has grown from 3 percent in 1950 to 22 percent in 2000. In 2000, Waukesha County had over 270,000 jobs, an increase of over 80,000 jobs since 1990 (Table VI-6).

Employment and Wages

In 2004, the average annual wage paid to workers employed in Waukesha County was just below $40,000 per year. This figure was 14.2 percent above the state average. Jobs in financial occupations provide the highest average wage in Waukesha County at $51,502 (Table VI-7). Jobs in information technology and manufacturing provide the second and third highest average wages in the County. It is vital to the future economic growth of the County to continue to focus on growing jobs in higher paying sectors, since manufacturing jobs will likely continue to decline.

Table VI-4

LARGEST EMPLOYERS IN WAUKESHA COUNTY, 2005

Name of Employer	Type of Business	Approximate Employment (Full-time equivalents)
Pro Health Care	Health Services	4,964
Kohl's Department Stores	Retail/Company Headquarters	4,045
GE Healthcare	Medical Products/Headquarters	3,976
Roundy's	Food Wholesale/Retail	3,593
Quad Graphics Inc.	Printing/Company Headquarters	3,146
Target Corporation	Retail/Distribution Center	1,623
School District of Waukesha	Education	1,508
AT&T	Communications	1,478
Community Memorial Hospital	Health Services	1,474
Wal-mart Corporation	Retail	1,425
Waukesha County	Government	1,402
Waukesha County Technical College	Education	1,396

Source: Wisconsin Department of Workforce Development, Labor Market Information Bureau and Waukesha County, 2006 employer inquiry updates.

Table VI-5

LARGEST BUSINESS ESTABLISHMENT GROUPS IN WAUKESHA COUNTY, 2002

Type of Business	Number of Businesses
Wholesale/Retail Trade	2,630
Professional & Administrative Services	1,700
Construction	1,589
Education & Health Care Services	1,172
Manufacturing	1,096
Finance, Insurance and Real Estate	1,031

Source: U.S. Bureau of Census, County Business Patterns, 2003

Table VI-6

TOTAL EMPLOYMENT TRENDS BY COUNTIES IN THE SOUTHEASTERN REGION: 1990-2000

County	1990	2000	Number Increase In Employment 1990-2000	Percent Increase In Employment 1990-2000
Kenosha County	52,230	68,654	16,424	24.0
Milwaukee County	609,800	624,600	14,800	2.0
Ozaukee County	35,300	50,800	15,500	44.0
Racine County	89,600	94,400	4,800	5.0
Walworth County	39,900	51,800	11,900	30.0
Washington County	46,100	61,700	15,600	34.0
Waukesha County	189,700	270,800	81,100	43.0

Source: U.S. Bureau of Economic Analysis and SEWRPC

Table VI–7

AVERAGE ANNUAL WAGE BY INDUSTRY DIVISION IN WISCONSIN AND WAUKESHA COUNTY: 2004

Type of Industry	Average Annual Wage for Wisconsin	Average Annual Wage for Waukesha	Percent of Waukesha County Above or Below Wisconsin Average Annual Wage
All Industry	34,749	39,671	114.2
Natural Resources and Mining	27,399	37,255	136.0
Construction	41,258	47,420	114.9
Manufacturing	44,145	48,775	110.5
Trade, Transportation, Utilities	30,088	24,494	114.6
Information	41,759	49,520	118.6
Financial Services	45,103	51,502	122.3
Professional & Business Services	39,580	48,398	122.3
Education & Health Services	36,408	36,261	99.6
Leisure & Hospitality	12,295	11,881	96.6
Other	20,207	23,781	117.7
Public Administration	36,347	34,854	95.9

Source: Wisconsin Department of Workforce Development, Bureau of Workforce Information, Quarterly Census of Employment & Wages

INDUSTRY ANALYSIS

Waukesha County has experienced significant employment growth between 1990 and 2000 in finance, insurance, and real estate, services, construction, wholesale trade and retail trade. For planning and economic development purposes, it is important to analyze and understand what industry sectors have the greatest potential for future job growth.

Agriculture

Agriculture is still a viable economic sector in Waukesha County. Production agriculture has shifted from dairy farming to specialty crop production, orchards, greenhouses, and plant and tree nurseries. Due to continued growth pressures, most agricultural employment is occurring from the growth of small family operated micro enterprise businesses that provide locally grown products for the expanding urban market and the growing green industry that includes horticulture, vegetable farming, and tree and shrub farming. In 1990, Waukesha County had 1,191 jobs in agricultural production. In comparison, 1,011 people worked in production agriculture in 2000 resulting in a reduction of 180 jobs and an overall 15 percent job loss. However, in 2000, an additional 3,000 people were employed in Waukesha County in agricultural services positions. This includes farm equipment sales and service, landscaping services, and agricultural consulting.

Construction

Construction type jobs include all forms of building construction jobs as well as jobs in heavy construction, roads, bridges, sewer and water lines, and sewage treatment facilities. Construction jobs include employment in new development, additions, reconstructions, installations, and repair and maintenance. Construction jobs will continue to provide job growth in Waukesha County. In 2000, Waukesha County had 18,462 jobs in construction for an increase of 5,783 jobs since 1990 and an overall 31 percent change in employment (Table VI-8). Many of these jobs were in residential construction. Residential real estate made up nearly 76 percent of Waukesha County's equalized assessed value in 2005.

Table VI-8

EMPLOYMENT INDUSTRY TRENDS IN WAUKESHA COUNTY: 1990-2000

Type of Industry	1990	2000	2000 Percent of Total Employment	1990-2000 Number Change in Employment	1990-2000 Percent Change in Employment
Agriculture	1,191	1,011	1.0	-180	-15.0
Construction	12,679	18,462	7.0	5,783	31.0
Manufacturing	44,871	56,754	21.0	11,883	21.0
Transportation, Communication and Utilities	8,185	9,516	4.0	1331	14.0
Wholesale Trade	16,128	22,508	8.0	6,380	28.0
Retail Trade	31,054	43,132	16.0	12,078	28.0
Finance, Insurance and Real Estate	13,131	22,340	8.0	9,209	41.0
Services*	46,293	76,265	28.0	29,972	39.0
Government and Government Enterprises**	13,994	17,059	7.0	3,065	18.0
Other***	2,135	3,749	1.0	1,614	43.0

* Services include business, repair, personal, entertainment, recreation, health, education, accommodation and food, social, and professional services. ** Government and Government Enterprises include all non-military government agencies and enterprises, regardless of Standard Industrial Classification Code. *** Other includes agricultural services, forestry, commercial fishing, mining, and unclassified jobs.

Source: U.S Bureau of Economic Analysis and SEWRPC

Manufacturing
Waukesha County grew from 44,870 manufacturing jobs in 1990 to 56,754 manufacturing jobs in 2000 for a 21 percent increase in the number of jobs over the decade. In 2000, the Southeastern Wisconsin Region had 224,300 manufacturing jobs. Since 2000, the number of manufacturing jobs in Wisconsin has declined. Most of these jobs were lower skilled positions with manufacturers producing commodity goods that were eliminated by technological developments, or moved to Mexico or overseas where costs are lower. Wisconsin continues to maintain more skilled manufacturing positions than other states. Many of these manufacturers have a niche product that is not directly subject to the pressure of lowering costs. This is not the case for local manufacturers that produce commodity goods. These manufacturers will continue to experience intense pressure to lower costs resulting in outsourcing to foreign countries. This is significant since manufacturing jobs provide the third highest average wage for workers in Waukesha County.

The Milwaukee-Waukesha MSA has a fewer percentage of total jobs in manufacturing than other areas in the state, but a higher percentage than other areas in the nation (Table VI-9 and Table VI-10). Milwaukee-Waukesha MSA ranks ahead of all MSA's in the Midwest and others of similar size across the country in the total percent of manufacturing jobs. Historically, manufacturing has laid a foundation for optimum paying jobs within the Milwaukee metropolitan area and Wisconsin.

Transportation, Communication, and Utilities
This sector includes jobs in passenger and freight transport, shipping, communication services, gas, electric, water and sanitary services. Businesses in this sector experienced some growth in the 1990's, but new jobs slowed significantly beginning in 2000 due to recession. In 1990, Waukesha County had 8,185 people employed in this sector. This figure increased to 9,516 in 2000 for an increase of 1,331 jobs resulting in a total percent increase of 14 percent for this sector.

Wholesale Trade
This sector includes businesses that employ people who primarily sell products and goods to retailers. Wholesale trade in Waukesha County is linked to manufacturing. In 1990, 16,128 jobs in Waukesha County were in wholesale trade. Jobs increased to 22,508 in 2000 for a gain of 6,380 jobs over the decade and a 28 percent increase.

Retail Trade
This industry includes businesses engaged in selling merchandise primarily for personal or household consumption. Employment in retail trade grew steadily in Waukesha County throughout the 1990's. Jobs in retail trade grew from 31,054 in 1990 to 43,132 in 2000 showing a 12,078 gain in the number of jobs and a 28 percent increase.

Finance, Insurance and Real Estate
This sector includes banks, credit unions, security brokerages, insurance carriers, real estate agencies, and land development firms. This sector experienced significant growth in the 1990's and grew from 13,131 jobs in 1990 to 22,340 jobs in Waukesha County in 2000 for a total gain of 9,209 jobs and a 41 percent increase.

Services
Categories in this sector include business, repair, personal, recreation, accommodations, food, entertainment, social and professional services. This sector has experienced phenomenal growth in jobs in Waukesha County. The number of people employed in services increased from 46,293 in 1990 to 76,265 in 2000. Continuing population growth, the County's aging population, and business growth have all contributed to this growth of 29,972 jobs and an overall 39 percent increase.

Government and Government Enterprises
These jobs include all nonmilitary government positions at the federal, state, county, city, village, town, and school district levels of government. Between 1990 and 2000 Waukesha County governmental positions

Table VI–9

PERCENT OF JOBS BY INDUSTRY SECTOR IN WISCONSIN MSA AREAS, 2004

Wisconsin MSA Area	Natural Resources and Mining	Construction	Manufacturing	Trade, Transportation Utilities	Information	Finance Activities	Professional and Business Services	Education and Health Services	Leisure And Hospitality	Other
Appleton	1.24	8.63	23.03	22.64	1.99	7.01	11.42	10.36	10.16	3.53
Eau Claire	.37	5.03	16.66	25.19	1.94	5.84	11.39	18.20	11.63	3.76
Fond du Lac	1.58	6.59	26.92	22.24	2.85	4.46	6.24	14.00	11.29	3.84
Green Bay	.87	6.21	21.50	24.60	ND	7.48	10.07	13.53	10.80	ND
Janesville	.76	5.46	25.35	26.21	1.95	3.11	8.78	14.49	10.69	3.20
Kenosha	.35	5.22	23.11	23.51	.98	3.53	7.76	16.93	14.46	4.15
La Crosse	.21	4.58	16.00	22.62	2.32	6.50	10.49	21.60	12.11	3.58
Madison	.85	6.57	12.87	23.79	3.18	10.96	12.67	13.14	11.53	4.45
Milwaukee-Waukesha	**.16**	**4.62**	**18.87**	**21.11**	**2.55**	**7.93**	**14.73**	**17.23**	**9.17**	**3.63**
Oshkosh	.25	4.89	30.78	19.22	2.03	4.90	12.91	12.28	8.29	4.47
Racine	.57	5.41	28.66	22.59	.83	3.68	9.40	14.71	10.03	3.62
Sheboygan	.80	4.86	42.93	16.58	.64	4.29	6.41	11.72	8.65	3.12
St. Croix	1.25	7.56	24.44	23.52	.99	4.96	8.91	10.98	13.99	3.41
Superior	3.23	5.58	8.66	24.91	2.65	5.91	7.37	23.74	.69	4.26
Wausau	1.41	4.56	29.88	26.46	1.32	8.39	6.33	10.04	8.32	3.31

Source: U.S Bureau of Economic Analysis.
Note: ND = No Data

Table VI-10

INDUSTRY COMPARISONS FOR SELECTED US MSA AREAS
TOTAL PERCENT OF JOBS BY INDUSTRY SECTOR, 2004

MSA's	Natural Resources and Mining	Construction	Manufacturing	Trade, Transportation, Utilities	Information	Finance Activities	Professional Business Services	Education and Health Services	Leisure	Other
US Total	1.54	6.38	13.14	23.30	2.86	7.27	15.02	14.83	11.49	4.17
State Total	.89	5.43	21.52	22.93	2.15	6.65	10.81	14.74	10.75	4.12
Cleveland	.37	4.73	16.63	21.47	2.18	8.62	14.49	17.74	10.14	3.60
Austin	.45	7.12	11.18	22.50	3.98	7.48	17.45	12.24	13.06	4.54
Columbus	.34	5.32	10.93	24.43	2.61	9.70	17.59	13.46	11.69	3.95
Detroit	.18	4.80	17.08	21.06	2.05	6.42	20.15	14.46	10.36	3.44
Indianapolis	ND	ND	14.09	24.85	2.25	8.36	15.02	13.09	11.46	3.65
Chicago	.21	5.54	13.52	23.39	ND	8.48	17.43	14.44	10.21	ND
Minneapolis	.34	5.65	13.74	22.66	2.93	9.44	16.70	14.13	10.48	3.93
Nashville	.20	5.57	13.76	23.67	ND	7.17	15.15	15.81	12.11	3.49
Milwaukee – Waukesha	**.16**	**4.62**	**18.87**	**21.11**	**2.55**	**7.93**	**14.73**	**17.23**	**9.17**	**3.63**
Memphis	.33	ND	ND	32.53	ND	6.18	14.20	13.26	13.09	ND
Kansas City	.27	6.24	10.47	24.91	ND	8.83	ND	12.74	11.53	ND
St. Louis	.40	ND	ND	22.09	ND	6.84	15.62	16.54	12.15	ND
Norfolk	.23	8.31	10.48	23.74	ND	6.79	16.89	ND	13.77	ND
San Antonio	.83	6.90	7.58	22.89	3.62	9.96	14.51	15.57	14.30	3.85

Source U.S Bureau of Economic Analysis

grew from 13,994 jobs to 17,059 jobs for a modest gain of 3,065 jobs resulting in an 18 percent increase in this sector.

Location Quotient Analysis of Strength of Employment Sector
A location quotient is a ratio that compares the concentration of a resource or activity, such as employment, in a defined area to that of a larger area or base. For example, location quotients can be used to compare state employment by industry to that of the nation. In this case, Waukesha County employment is compared to the State of Wisconsin and the United States.

If a location quotient is equal to one (1), then the industry has the same share of its area employment as it does in the reference or compared area. A location quotient greater than one (1) indicates an industry with a greater share of the local area employment than is the case in the reference area. Location quotients are calculated by first dividing local industry employment by the total of type of employment. Second, reference area industry employment is divided by the all industry total for the reference area. Finally, the local ratio is divided by the reference area ratio.

Waukesha County is higher in construction; manufacturing; trade, transportation, and utilities; information; financial activities; and professional business services employment than the state (all have location quotients greater than one (1) (Table VI-11). When compared to the nation, Waukesha County ranks higher in construction, manufacturing, and trade, transportation, and utilities employment. Construction employment is much higher when compared to the State of Wisconsin and manufacturing employment is significantly greater than the national ratio.

The only three categories that Waukesha County ranks lower in than the rest of Wisconsin is natural resources and mining, professional and business services, and leisure and hospitality employment (all have location quotients less than one (1). When compared to the nation, Waukesha County ranks lower in natural resources and mining, information, financial activities, professional and business services, education and health services, and leisure and hospitality employment.

Commercial and Industrial Uses
In 2000, Waukesha County had 55,451,190 square feet of space in manufacturing (Map VI-1) and another 871,189 square feet projected for future manufacturing development. In addition, 86,334,846 square feet was used for wholesale and storage use and 100,970,824 square feet was in commercial uses within the county.

OVERALL EMPLOYMENT PROJECTIONS

Employment projections are important to analyze when planning for future economic development. Planners, businesses, and local governments should understand the amount of projected employment growth as well as in what occupations this growth will occur.

Total Employment Projections
The State of Wisconsin Comprehensive Planning Law requires that plans project employment growth for a twenty-year planning period. The projections in this document are from SEWRPC Technical Report No. 10 (4th Edition), *The Economy of Southeastern Wisconsin, July 2004*. The data shows employment sector projections based on a regional scale, not a county scale, and are also based upon past industry trends and future regional, state, and national trends as well as projections from the Wisconsin Department of Workforce Development (WDWD) and the Wisconsin Department of Revenue. The employment projections were developed together with population projections for the Southeastern Wisconsin Region. The aging of the population may result in moderate employment growth within the Region. Another significant statistic for the Southeastern Wisconsin Region is the fact that projections show a continuing decline in manufacturing jobs over the next 30 years. This is a concern since manufacturing jobs provided the third highest average wage for workers in Waukesha County in 2004.

Table VI-11

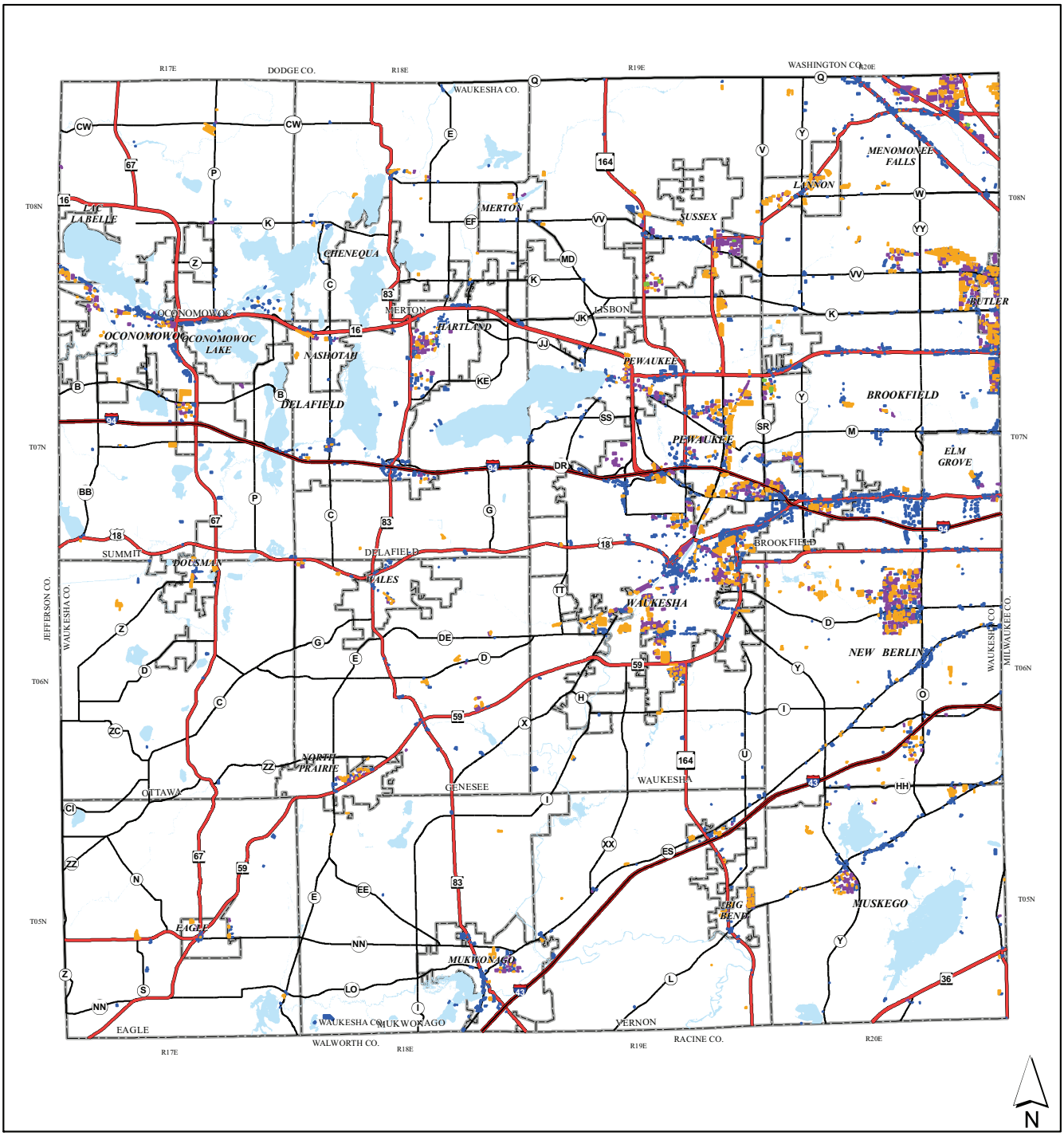
WAUKESHA COUNTY LOCATION QUOTIENT COMPARISONS, 2004

Industry	Comparison With State	Comparison With U.S.
Natural Resources & Mining	.31	.18
Construction	1.41	1.20
Manufacturing	1.07	1.75
Trade, Transportation & Utilities	1.04	1.02
Information Technology	1.18	.89
Financial Activities	1.06	.97
Business Services	1.18	.85
Education & Health Services	.74	.73
Leisure & Hospitality	.80	.86

Source: U.S. Bureau of Economic Analysis

Map VI-1

EXISTING COMMERCIAL AND INDUSTRIAL USES IN WAUKESHA COUNTY: 2000



Legend

- *Interstate*
- *US*
- *State*
- *County*
- *Major Water Body*
- *Civil Division Boundary*
- *Commercial (210, 220)*
- *Manufacturing (310)*
- *Wholesaling and Storage (340)*
- *Industrial Land Under Development (399)*

0 1 2 4 Miles

Civil Divisions as of 5/31/08
Prepared by Waukesha Co. Dept. of Parks and Land Use

Source: SEWRPC and Waukesha County

The total employment for the seven county Southeastern Wisconsin Region is projected at a low, intermediate, and high projection to 2035. The low projection indicates that the Region will gain 44,700 jobs by 2035 (Table VI-12 and Figure VI-1). The intermediate projection estimates that the gain in jobs will reach 145,500. The high projection calculates a job increase of 286,800. For the purposes of this plan, the intermediate projection was chosen as the best estimate of job growth. Using the intermediate projection, Waukesha County will gain 76,400 new jobs by 2035, which is 52 percent of total regional gain. Due to this growth, Waukesha County will increase to 28.2 percent of regional employment share in 2035 (Table VI-13 and Figure VI-2)

The intermediate projection for "Civilian Labor Force" in the Region will increase rapidly until 2015 and then experience slower growth. Between 2010 and 2015, the labor force shows a robust increase of 44,300 jobs over this 5 year period. The labor force will experience a smaller increase between 2015 and 2035 gaining 83,900 jobs over this 20 year period. The intermediate projection for the civilian labor force results in a gain of 145,500 jobs or a 11.9 percent increase between 2000 and 2035.

The intermediate projection for Waukesha County predicts that the labor force will increase from 270,800 jobs in 2000 to 347,200 in 2035. This would result in a growth of 76,400 additional jobs which is actually less than the job growth that occurred between 1990 and 2000.

Table VI-12

ACTUAL AND PROJECTED TOTAL EMPLOYMENT IN THE REGION: 2000-2035

	High Projection			**Intermediate Projection**			Low Projection		
		Change from Preceding Year			**Change from Preceding Year**			Change from Preceding Year	
Year	Jobs	Absolute	Percent	**Jobs**	**Absolute**	**Percent**	Jobs	Absolute	Percent
Actual Employment: 2000	1,222,800			**1,222,800**			1,222,800		
Projected Employment:									
2005	1,197,300	-25,500	-21.0	**1,190,600**	**-32,200**	**-2.6**	1,184,000	-38,800	-3.2
2010	1,270,600	73,300	6.1	**1,240,100**	**49,500**	**4.2**	1,213,300	29,300	2.5
2015	1,343,200	72,600	5.7	**1,284,400**	**44,300**	**3.6**	1,236,600	23,300	1.9
2020	1,393,900	50,700	3.8	**1,308,200**	**23,800**	**1.9**	1,244,200	7,600	0.6
2025	1,431,200	37,300	2.7	**1,323,100**	**14,900**	**1.1**	1,246,700	2,500	0.2
2030	1,469,800	38,600	2.7	**1,343,100**	**20,000**	**1.5**	1,254,500	7,800	0.6
2035	1,509,600	39,800	2.7	**1,368,300**	**25,200**	**1.9**	1,267,500	13,000	1.0
Change: 2000-2035		286,800	23.5		**145,500**	**11.9**		44,700	3.7

Source: U.S. Bureau of Economic Analysis and SEWRPC

Table VI-13

ACTUAL AND PROJECTED EMPLOYMENT IN THE REGION BY COUNTY: 2000-2035

County	Actual Employment 2000		Projected Employment: 2035									
			High Projection			**Intermediate Projection**			Low Projection			
	Number of Jobs	Percent of Region	Number of Jobs: 2035	Change: 2000-2035 Number	Change: 2000-2035 Percent	**Number of Jobs 2035**	**Change: 2000-2035 Number**	**Change: 2000-2035 Percent**	**Number of Jobs 2035**	Change: 2000-2035 Number	Change: 2000-2035 Percent	Percent of Region Jobs[b]
Kenosha	68,700	5.6	93,700	25,000	36.4	**85,000**	**16,300**	**23.7**	**78,700**	10,000	14.6	6.2
Milwaukee	624,000	51.1	639,500	64,900	10.4	**624,900**	**300**	**- -** [a]	**578,900**	-45,700	7.3	45.7
Ozaukee	50,800	4.2	68,100	17,300	34.1	**61,700**	**10,900**	**21.5**	**57,200**	6,400	12.6	4.5
Racine	94,400	7.7	114,700	20,300	21.5	**104,000**	**9,600**	**10.2**	**62,000**	1,900	2.0	7.5
Walworth	51,800	4.2	73,800	22,000	42.5	**66,900**	**15,100**	**29.2**	**96,300**	10,200	19.7	4.9
Washington	61,700	5.0	86,700	25,000	40.5	**78,500**	**16,900**	**27.4**	**72,800**	11,100	18.0	5.7
Waukesha	270,800	22.2	383,100	112,300	41.5	**347,200**	**76,400**	**28.2**	**321,600**	50,800	18.8	25.4
Region	1,222,200	100.0	1,509,600	286,800	23.5	**1,368,300**	**145,500**	**11.9**	**1,267,500**	44,700	3.7	100.0

a Less than one percent.
b Applies to all projections.

Source: U.S. Bureau of Economic analysis and SEWRPC.

Figure VI-1

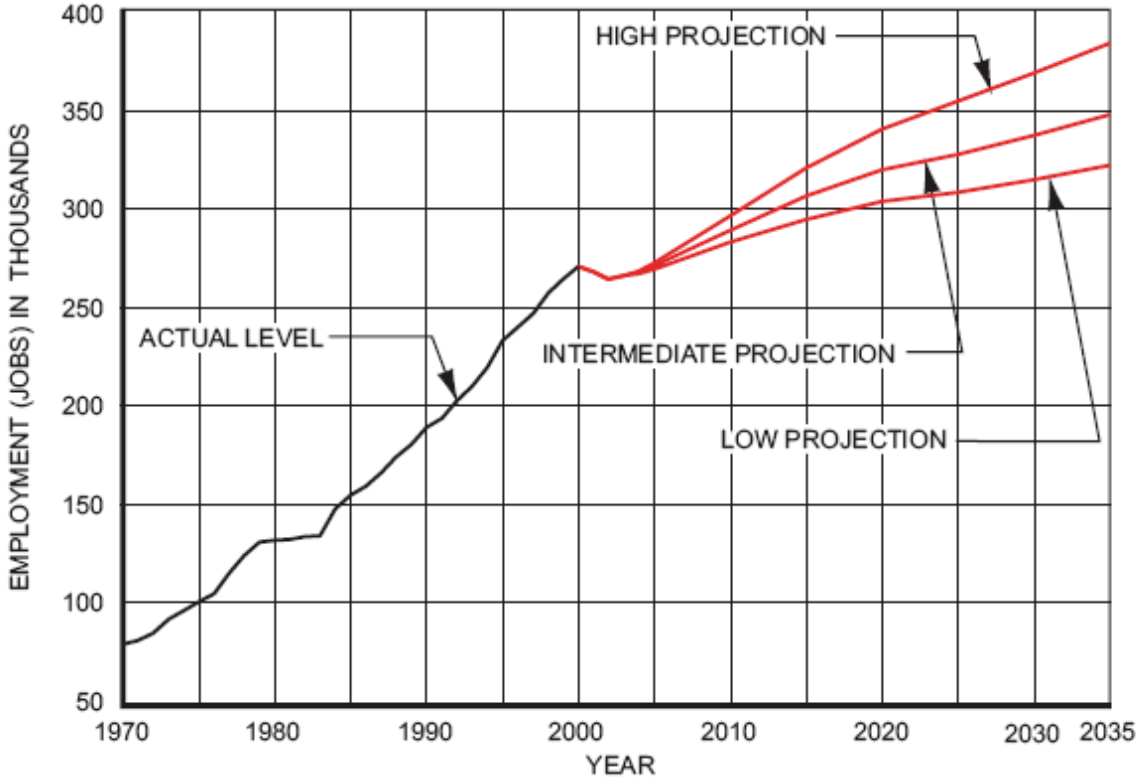
TOTAL EMPLOYMENT PROJECTIONS FOR THE REGION: 2000-2005



Source: U.S. Bureau of Economic Analysis and SEWRPC

Figure VI-2

TOTAL EMPLOYMENT PROJECTIONS: 2000-2005
WAUKESHA COUNTY



Source: U.S. Bureau of Economic Analysis and SEWRPC

EMPLOYMENT PROJECTIONS BY SECTOR

The following employment projections by sector are based on the selected intermediate projections for the seven (7) County Southeastern Wisconsin Region. Projections show that the greatest growth in employment will occur in services, especially business, health, and social services.

Printing and Publishing

Printing and publishing is a strong employment sector within Waukesha County and regional projections show that it will remain a stable industry. The outlook for this sector is promising due to the continued expansion of periodical publications and bookbinding, which are expected to offset the reduced growth in newspaper publishing. In addition, this sector requires investment in the latest of technologies to control costs and enhance product quality. The intermediate projection for Regional jobs in 2035 is 24,700, which is nearly the same as 2000 (24,500 jobs).

Fabricated Metal Products

This sector is projected to continue to decline. It includes establishments engaged in producing metal products, such as metal cans, tin ware, hand tools, cutlery, general hardware, fabricated structural metal products, and metal stampings. Much of this sector will move overseas where it is possible to reduce labor costs and remain competitive. Within the Region, fabricated metals will be reduced from 25,600 jobs in 2000 to 11,600 by 2035, a decrease of 55 percent.

Industrial Machinery and Equipment
The industrial machinery and equipment industry includes the manufacture of engines, turbines, farm and garden machinery, construction machinery, metalworking machinery, and computer and office equipment. The intermediate projection shows a loss of jobs in this sector. In 2000, 48,000 people worked in this sector in the Region, but by 2035 the intermediate projection shows that only 24,900 will be employed in this industry resulting in a 48 percent decrease.

Electronic and Other Electrical Equipment
The electronic and electrical equipment sector will experience decline in the Region and Waukesha County. This sector includes businesses engaged in manufacturing of electricity distribution equipment, electrical industrial apparatus, household appliances, electrical wiring and lighting, and electronic components. The intermediate projection for the number of jobs in this sector for the Region in 2035 is 15,300. This would result in a 43 percent decrease from the 27,000 such jobs in 2000.

Other Manufacturing
These are jobs in a wide range of manufacturing businesses that, taken individually, are not large enough to be considered as a separate category. Using the intermediate projection, jobs in other types of manufacturing would decline in the Region by 10 percent from 99,200 jobs in 2000 to a projected 89,400 jobs in 2035.

Construction
Construction will continue to create new jobs in the Region and Waukesha County, but at a much slower rate than what was experienced in the 1990s. Under the intermediate projection, Regional construction employment would increase from 53,800 jobs in 2000 to 57,100 in 2035, a 6 percent increase.

Retail Trade
Retail trade employment will grow in the Region and Waukesha County through 2035, however not at the pace it experienced in the 1980's and 1990's. A focus on reducing costs, more emphasis on e-commerce, and the lower wages associated with the retail sector, which may create labor shortages are all issues that will slow job growth. The rate of growth will also depend on the health of the economy and how much personal income continues to increase. The intermediate projection predicts that jobs in retail trade will grow by six (6) percent between 2000 and 2035 resulting in an increase from 193,700 to 205,400 such jobs in the Region.

Wholesale Trade
Wholesalers, for the most part, are in engaged in selling merchandise to professional business customers, retail establishments, industrial, commercial, institutional, farm, or construction contractors, and other wholesalers. Wholesale trade is highly dependent on providing merchandise to manufacturers. The projected slow growth of manufacturing will have a significant impact on wholesale trade employment. The intermediate projection predicts that jobs in wholesale trade will remain the same at 64,400 jobs in the Region between 2000 and 2035.

Transportation, Communication, and Utilities
This industry sector will not be a significant provider of new jobs for Waukesha County. The best potential for future job growth projected to occur in the transportation sector is in shipping, especially in the motor freight and warehousing segments. Increasing demand for air travel will continue to contribute new jobs as well. Projections show that the communication and utility segments will continue to lose jobs. New technology and competition in these sectors will continue to reduce the number of jobs in these sectors. The intermediate projection shows an overall loss of jobs in the Region from 2000 to 2035 in the transportation, communication, and utilities sectors. Under the intermediate projection, 51,100 people will be employed in transportation, communication, and utilities by 2035 in the Region. This is a 7 percent decrease from the 2000 level of 54,800 jobs.

Business Services
These establishments provide services such as advertising, computer programming, data processing, security systems services, and building cleaning and maintenance services. Businesses that provide engineering,

accounting, research, management, and other related services are not included in this sector. They are grouped in the "other services" category. Business services also include workers with temporary employment firms and people that provide services on a contract or fee basis to others. This sector will continue to grow rapidly. Under the intermediate projection for the Region, business services employment will increase to 164,600 jobs in 2035, a 60 percent increase over the 2000 level of 102,800 jobs.

Health Services
The health services industry includes establishments engaged in furnishing medical, surgical, and other health services including hospitals, offices and clinics of physicians and health care practitioners, nursing and rest homes, medical and dental laboratories and home health care services. This sector is poised for growth as Waukesha County's median age continues to increase, as the baby-boomer generation continues to grow older, and the overall population continues to increase. Under the intermediate projection, employment in health services in the Region will exceed 132,000 jobs in 2035, an increase of 35 percent over the 2000 level of 97,700 jobs.

Social Services
These establishments provide help and rehabilitation services to individuals with needs requiring special care and to the disabled and disadvantaged. The industry group also includes child day-care facilities and certain residential care facilities for children, the elderly, and others who need help with self-care. This sector will continue to see significant growth as the aging of baby-boomers continues along with the movement to outpatient care and more home-based assistance living. Under the intermediate projection, social services employment will increase in the Region from 34,300 jobs in 2000 to 62,100 jobs in 2035, for an increase of 81 percent.

Other Services
This category includes a diverse range of services including lodging places, laundry and dry-cleaning, funeral homes, automotive repair and miscellaneous repair shops, motion picture theaters, recreational services, and engineering, accounting, research, management and other consulting services. The intermediate projection reveals that Regional employment for other services will increase from 171,200 jobs in 2000 to 231,300 jobs in 2035 for an increase of 35 percent.

Finance, Insurance, and Real Estate
This sector includes banks, credit unions, security brokerages, insurance carriers, real estate agencies, and land development firms. This sector will grow from 93,700 jobs in 2000 to 103,600 jobs in year 2035, resulting in an 11 percent increase for the Region.

Government and Government Enterprises
This area includes all City, Village, Town, County, State, and Federal units and agencies of government, public schools, publicly owned enterprises, and the U.S. Postal Service. Government employment is projected to slightly increase over the next 30 years. In 2000, 114,400 people were engaged in employment regionally in this sector, and this figure will slightly increase to 115,300 by 2035, for an increase of one (1) percent. This slight increase over the next 30 years is due to the fact that government is projected to create more efficiency, and more opportunities for collaboration and intergovernmental cooperation.

Agriculture
Agricultural enterprises include farms, orchards, greenhouses and nurseries engaged in the production of crops, plants, trees, or livestock. The Region will continue to hold a comparative advantage in dairy, grain, and vegetable production especially in Walworth, western Racine, and western Kenosha Counties. However, due to increasing technology and mechanization, modern management practices, and global competition, the employment levels in agriculture will continue to decline. Using the intermediate projection, agricultural employment in the Region will decrease from 6,000 jobs in 2000 to 4,800 jobs in 2035, resulting in a 20 percent decrease.

Other Employment
This category includes jobs in forestry, commercial fishing, mining, and agricultural services such as crop services, veterinary services, landscaping services, and lawn and garden services. As urbanization continues, employment will continue to grow in landscaping and lawn and garden services. The intermediate projection for the Region shows a 39 percent increase for such jobs from 11,700 in 2000 to 16,200 in 2035.

SELECT LOCAL, COUNTY, REGIONAL, AND STATE PROGRAMS AND INITIATIVES AND ORGANIZATIONS

The State of Wisconsin Comprehensive Planning Law encourages cooperation among state government, local government units, and economic development organizations and initiatives. The following initiatives and programs support economic development activities in Waukesha County.

City of Brookfield Economic Development Initiatives
The City of Brookfield's growth objective is to target commercial and industrial development to balance residential growth in such a way that tax rates and bond ratings will be maintained at levels comparable to today and that the City can pay for improvements that will preserve Brookfield's competitive position in the Region.

Redevelopment of the Brookfield Square/Executive Drive area is a priority. The redevelopment is within TID#3 which includes 148.2 acres and 23 properties. The project recommends creating a new mixed-use district consisting of an anticipated, 280,000 feet of new retail space, 60,000 square feet of new office space, and 623 residential units.

The 2020 Master Plan recommended focusing development activity towards targeted intervention areas. These are areas where redevelopment efforts can be best controlled to ensure the stability of the surrounding single-family neighborhoods and where redevelopment investments can yield high returns. The Brookfield Road/Capitol Drive Node is one example of a targeted intervention area. Additional information about Brookfield's targeted intervention areas is available at http://www.cityofbrookfield.com/plan.htm

City of Muskego Economic Development Strategic Plan
In 2003, The City of Muskego developed a strategic economic development plan. The plan has four goals:

- Diversify the tax base to relieve property tax burdens, and to provide more local shopping and employment opportunities.
- Establish a memorable community image that builds on the city's small town atmosphere and natural amenities.
- Improve the overall 'climate' for economic development through public outreach, business development programming, and through the actions and behaviors of City representatives.
- Protect and improve the quality of life by balancing sound fiscal and environmental management.

Additional information about Muskego's strategic economic development plan can be found at http://www.gomuskego.com/EcDev/EconDevPlan.htm

City of New Berlin Programs and Initiatives
City of New Berlin Industrial Park Redevelopment
New Berlin industrial parks are important for both the City of New Berlin and surrounding communities in the Region. New Berlin has three major industrial parks and the Westridge/Towne Business Park. The New Berlin Industrial Park, Moorland Road Industrial Park, and the MSI/Lincoln Industrial Park provide a critical regional employment base and an important tax base as well. The City of New Berlin created a redevelopment/modernization plan for each of these industrial parks in an effort to raise the standards of the parks. This plan was necessary to encourage new businesses to locate within the parks, reduce the relocation or flight of existing businesses, and provide the necessary upgraded infrastructure to allow existing businesses to expand.

City of New Berlin Economic Development and Revitalization Plan
In 2002, the City of New Berlin adopted an economic development and revitalization plan. Two concerns mentioned in the plan were an anticipation of a labor shortage as baby boomers retire and the need to provide more affordable housing choices and a greater variety of housing options to encourage more people who work in the City to also live in the community. The plan has six goals:

- Diversify the local economic base by encouraging and facilitating the retention and expansion of the existing firms in the community while attracting new manufacturing firms and retail businesses.
- Increase employment opportunities for a more diversified workforce, especially in terms of skill levels, and to raise local incomes.
- Maintain a local property tax base to ensure efficient services and to protect economic health.
- Utilize the Growth and Development Master Plan Update, and current zoning regulations to locate manufacturing firms and retain businesses in appropriate sites.
- Seek ways to improve New Berlin's overall quality of life in order to improve the overall economic health of the City.
- Improve the image of the business/industrial parks within the City.

Additional information about economic development in New Berlin can be found at http://www.newberlin.org/display/router.asp?docid=464.

City of Oconomowoc Downtown Plan
Downtown Oconomowoc is the historic center of the community for retail, services, government, and recreation. The City of Oconomowoc worked to develop a downtown revitalization plan in 2003. The plan has 10 goals:

- Establish downtown Oconomowoc as an important multi-use activity center for the community and the region including recreational, cultural, residential, retail, entertainment, office, high-tech business and government land uses.
- Improve public access to the downtown through improvements in parking and multi-modal transportation.
- Balance the need for efficient automobile circulation with improvements aimed at strengthening the historic downtown core as a pedestrian-oriented business district.
- Preserve the historic character of downtown Oconomowoc while accommodating new urban infill development.
- Reinforce downtown Oconomowoc's role as the Heart of Lake Country through better utilization of the lakes and lake frontages.
- Establish a complimentary and synergistic relationship between downtown Oconomowoc and Pabst Farms through coordinated business mix, joint marketing and transportation linkages.
- Improve connections between downtown and community destinations such as the YMCA, the public library, the community center, schools, City parks, recreational trails and neighborhoods.
- Identify new development within the downtown T.I.D. to fund public improvements for streets, parking, transit, pedestrian and bicycle access, and public space development.
- Promote environmentally friendly improvement strategies.
- Build partnerships between the state, local government and the private sector to accomplish downtown revitalization goals.

Additional information about downtown revitalization in Oconomowoc is available at www.oconomowocusa.com.

City of Waukesha Economic Development Programs and Initiatives

The City of Waukesha faces unique challenges as the County seat and the largest city in the County. The City's economic development focus is on maintaining a diversified community. The City strives for a community that provides a diversified work environment, balanced housing stock, and strong business opportunities.

The City actively uses Tax Incremental Financing and Redevelopment Districts to spur redevelopment and additional industrial development. The City is active in numerous public/private partnerships and uses these types of partnerships to leverage large projects. The City looks to this industrial development to provide broader employment opportunities and a solid tax base.

The City of Waukesha has seen a renaissance in the downtown business district over the past ten years that coincides with major improvements made to the environmental areas next to the Fox River including the Riverwalk and Frame Park. The City continues to focus on the redevelopment of downtown, but is also proactively developing redevelopment districts in neighborhoods adjacent to the downtown to spark reinvestment in those critical areas as well.

Tax Increment Financing

Wisconsin's Tax Increment Finance (TIF) program was approved by the legislature in 1975. Its purpose is to provide a way for a city, village, or town to promote tax base expansion through its own initiative and effort. TIF is aimed at eliminating blight, rehabilitating declining property values, and promoting industry and mixed-use development. When a TIF is created, the aggregate equalized value of taxable and certain city-owned property is established by the Department of Revenue. This is called the Tax Incremental Base. The municipality then installs public improvements, and property taxes grow. Taxes paid on the increased value are used to pay for projects undertaken by the community. This is the Tax Increment. It is based on the increased values in the Tax Increment District (TID) and levies of all the taxing jurisdictions that share the tax base. Other taxing jurisdictions do not benefit from taxes collected on value increases until project costs have been recovered and the TID is retired. At this point, the added value is included in the apportionment process and all taxing jurisdictions share the increase in property value. Waukesha County has 25 TIDs (Table VI-14). Six of the TIDs are within the City of Waukesha.

Waukesha County Programs and Initiatives

Waukesha County Economic Development Corporation

The Waukesha County Economic Development Corporation, a public-private partnership, (WCEDC) works to recruit and retain top business talent, strengthens Waukesha County's business marketplace presence, reduces the cost of conducting business, focuses on local business retention, supports regional initiatives, and manages a business revolving loan fund.

WCEDC's CONVERSAcTIONS initiative is a mechanism used to grow businesses. These are business-led small groups of thought leaders that lead to action.

Waukesha County Action Network

The Waukesha County Action Network (WCAN) is a business coalition that recommends strategies for community issues important to maintaining Waukesha County's success in the Region. The Coalition addresses unique issues of public interest related to the conditions and improvements of the infrastructure, educational systems, cultural, social and economic welfare of the broader community of Waukesha County by providing a forum to exchange information, research and alignment of resources for business and community leaders who will spur action through recommendations toward solving matters of concern.

Table VI-14

TAX INCREMENT DISTRICT VALUE INCREMENTS: 2006

DISTRICT	TID#	YEAR	BASE VALUE	Year 2006 VALUE	INCREMENT
Village of Butler	01	1992	12,843,300	29,978,500	17,135,200
Village of Elm Grove	02	2004	33,435,800	35,136,800	1,701,000
Village of Hartland	02	1998	2,834,700	55,168,300	52,333,600
Village of Hartland	03	1998	835,300	20,620,100	19,784,800
Village of Menomonee Falls	02	1991	22,413,600	63,548,600	41,135,000
Village of Menomonee Falls	03	1995	4,613,100	110,301,600	105,688,500
Village of Menomonee Falls	04	1996	13,904,500	102,748,300	88,843,800
Village of Menomonee Falls	05	1999	17,027,500	46,227,200	29,199,700
Village of Mukwonago	03	2003	2,389,500	23,365,100	20,975,600
Village of North Prairie	02	1996	3,210,900	6,991,600	3,780,700
Village of Pewaukee	01	1987	6,323,150	29,057,700	22,734,550
Village of Sussex	04	1994	10,543,600	21,751,900	11,208,300
Village of Sussex	05	1994	799,400	101,019,700	100,220,300
City of Brookfield	03	2004	131,110,100	142,500,100	11,390,000
City of Delafield	03	1994	11,391,400	42,748,700	31,357,300
City of Muskego	08	2000	4,314,400	5,681,200	1,366,800
City of Muskego	09	2003	23,126,100	29,810,000	6,683,900
City of Oconomowoc	03	2001	6,076,800	184,675,000	178,598,200
City of Oconomowoc	04	2003	39,668,300	48,787,600	9,119,300
City of Waukesha	07	1989	21,380,800	50,339,600	28,958,800
City of Waukesha	09	1994	2,025,300	14,609,800	12,584,500
City of Waukesha	11	1997	37,524,600	68,451,800	30,927,200
City of Waukesha	12	2001	107,700	7,692,700	7,585,000
City of Waukesha	13	2003	481,800	2,452,100	1,970,300
City of Waukesha	14	2003	1,898,300	3,554,700	1,656,400

Source: Wisconsin Department of Revenue, 2006

Waukesha County Community Block Grant Program

Waukesha County receives funds from the U.S. Department of Housing and Economic Development for community and economic development projects. These projects must benefit areas of the County with at least 51 percent low to moderate income.

Southeastern Wisconsin Regional Planning Commission

The Southeastern Wisconsin Regional Planning Commission (SEWRPC) was established in 1960 as the official area-wide planning agency for the highly urbanized southeastern region of the state. The Commission serves the seven counties of Kenosha, Milwaukee, Ozaukee, Racine, Walworth, Washington, and Waukesha. The Commission was created to provide the basic information and planning services necessary to solve problems, which transcend the corporate boundaries and fiscal capabilities of the local units of government comprising the southeastern Wisconsin region.

The Commission is organized into eight divisions. Five of these divisions, Transportation Planning, Environmental Planning, Land Use Planning, Community Assistance Planning, and Economic Development Assistance, have direct responsibility for the conduct of the Commission's major planning programs. The remaining three divisions, Administrative Services, Cartographic and Graphic Arts, and Geographic Information Systems, provide day-to-day support of the five planning divisions. Basic financial support for the Commission's work program is provided by a regional tax levy apportioned to each of the seven counties on the basis of equalized valuation. These basic funds are supplemented by State and Federal aids.

Milwaukee 7
This is a Council of representatives from seven counties - Milwaukee, Waukesha, Racine, Kenosha, Walworth, Washington and Ozaukee. The council, made up of about 35 civic and business leaders, was formed with the idea that a regional approach is the key to fostering economic growth. Milwaukee 7 is engaged in efforts focusing on regional strategic planning for economic development.

Among the Council's goals are to pull together comprehensive information about the region, creating a way for businesses to tap easily into data that can help them plan expansion or location decisions.

State and Federal Programs and Initiatives

Wisconsin Department of Commerce
The Wisconsin Department of Commerce has a broad range of financial assistance programs to help businesses undertake economic development. A quick reference guide available at http://commerce.wi.gov/BD/BD-COM-2900.html identifies these programs and selected programs from other agencies. The Department maintains a network of area development managers to offer customized services to each region of Wisconsin. Additional information about the Department of Commerce is available at http://www.commerce.state.wi.us/.

The Wisconsin Department of Workforce Development
The Wisconsin Department of Workforce Development (DWD) is the state agency charged with building and strengthening Wisconsin's workforce. DWD offers a wide variety of employment programs and services, accessible at the state's 78 Job Centers, including: securing jobs for the disabled, assisting former welfare recipients to transition to work, linking youth with jobs of tomorrow, protecting and enforcing worker's rights, processing unemployment claims, and ensuring worker's compensation claims are paid in accordance with the law. Further information is available at http://www.dwd.state.wi.us/.

Wisconsin Housing and Economic Development Authority
Wisconsin Housing and Economic Development Authority (WHEDA) offers innovative products and services in partnership with others to link Wisconsin residents and communities with affordable housing and economic development opportunities. WHEDA helps borrowers obtain financing on favorable terms to start-up, acquire, or expand small businesses. WHEDA also offers assistance to experienced developers or existing business owners in obtaining financing to stimulate economic development in urban neighborhoods. More information is available at http://www.wheda.com/.

Forward Wisconsin
Forward Wisconsin's role in the economic development arena is to help businesses establish profitable Wisconsin operations. They provide state cost comparisons, Wisconsin financial information and a variety of other relocation consulting services to prospective expanding businesses. To enhance the site selection process, Forward Wisconsin also offers a database of available buildings and sites complemented by community profile information. Further explanation about services offered by Forward Wisconsin can be found at http://forwardwi.com/.

Wisconsin Main Street Program
The Wisconsin Main Street Program is a comprehensive revitalization program designed to promote the historic and economic redevelopment of traditional business districts in Wisconsin. The Main Street Program was established in 1987 to encourage and support the revitalization of downtowns in Wisconsin communities. Each year, the Department of Commerce selects communities to join the program. These communities receive technical support and training needed to restore their Main Streets to centers of community activity and commerce. The Village of Pewaukee http://www.positivelypewaukee.com/ is the only community in Waukesha County that is a designated Wisconsin Main Street Program. Information about the Wisconsin Main Street Program is available at http://www.commerce.state.wi.us/CD/CD-bdd.html.

Wisconsin Economic Development Association
The Wisconsin Economic Development Association (WEDA) is a statewide non-profit organization dedicated to expanding the economy of the State of Wisconsin. Since 1975, WEDA has successfully represented the collective economic development interests of both the private and public sectors by providing leadership in defining and promoting statewide economic development initiatives. WEDA maintains Executive and Legislative Directors to administer and direct WEDA's ambitious activities and programs. WEDA provides a variety of membership benefits, including but not limited to the following items:

- Professional Development / Continuing Education Opportunities
- Legislative Affairs
- Resources & Networking

More information about WEDA's services are available at http://www.weda.org/.

U.S Small Business Administration (SBA)
The mission of the SBA is to maintain and strengthen the nation's economy by aiding, counseling, assisting, and protecting the interests of small business and by helping families and businesses recover from national disasters. Additional information about SBA programs is available at www.sba.gov.

U.S. Department of Housing and Urban Development (HUD)
The mission of HUD is to increase home ownership, support community development, and expand access to affordable housing free from discrimination. For many families, the American dream means owning their own home. One of HUD's highest priorities is to help more families realize this dream for themselves. Through its programs and initiatives (www.hud.gov), HUD is breaking down the barriers that lock families out of homeownership.

IMPLEMENTATION RECOMMENDATIONS

Standards For Future Development

1. In order to enhance the viability of existing industrial, office and retail centers, the following standards shall be included in the Land Use Chapter of this Plan (Chapter 7), to guide the placement of new industrial, retail and office uses, such as:

    a. Access to available adequate water supply, sanitary sewer service, storm water drainage facilities, and power supply.
    b. Ready access to the arterial street and highway system.
    c. Adequate on-street and off-street parking and loading areas.
    d. Provision for properly located points of ingress and egress appropriately controlled to prevent congestion on adjacent arterial streets.
    e. Site design emphasizing integrated nodes or centers, rather than linear strips.
    f. Site design appropriately integrating the site with adjacent land uses.
    g. Served by a transit service. (This standard applies to industrial, retail, and office uses located within, or in proximity to, medium- and high-density areas).

2. To address cyclical overdevelopment of commercial space or buildings, in particular office space, municipalities should avoid pre-zoning lands. For example, communities should not create zoning patterns within a community that are not justifiable in the marketplace or for which the above standards have not been met.
3. Promote the use of other comprehensive land development tools and techniques in advising communities regarding planning and zoning actions and decisions.
4. Officials in the County should annually review the capital improvement plans or programs of local governments in an effort to coordinate transportation and other improvements that aid in the delivery of goods, services, and employment.

5. Officials in the County should coordinate access to state and federal resources to assist in funding County and local transportation improvements.

Tax Increment Financing

1. The conservation and renewal of viable urban areas can enhance their viability.
2. Tax Incremental Financing should be used for brownfield and other redevelopment projects.
3. To encourage viable urban centers, increase the use of Tax Incremental Financing in cities and villages.
4. To discourage public subsidizing of development that can occur with lower development costs that cannot be justified. Discourage use of Tax Incremental Financing for development of agricultural lands.

Housing Development

1. In anticipation of projected employment sector growth, promote and provide an adequate supply of new housing of sufficient quantity and density within reasonable proximity to new and existing employment centers (Refer to Chapter 5).

Education, Jobs and Business Growth

1. In response to existing and projected skilled workforce needs, Waukesha County, in cooperation with appropriate business and community organizations, should work with the University of Wisconsin and other higher education systems to provide greater access to bachelor degree programs in Waukesha County.
2. To enhance higher paying jobs, support initiatives to increase development of the bioscience manufacturing industry, especially in the area of medical equipment.
3. Create partnerships between local economic development organizations and colleges and universities to promote entrepreneurial programs, industry collaborations, technology transfer and seed capital.
4. Collaborate with the Milwaukee 7, the Waukesha County Economic Development Corporation, Waukesha County Technical College and UW-Extension to conduct a labor market analysis for Waukesha County and the Region that assesses the existing and anticipated supply and demand for labor as well as employer and employee training needs.
5. To add to the livability of the County and enhance an employer's ability to attract workforce, update the County Park and Open Space Plan in cooperation with municipalities in the County to provide sufficient recreational facilities, including comprehensive trail system, to the resident population.

Government Services and Taxes

1. In an effort to reduce property taxes in Waukesha County, consider consolidations, mergers, shared services or legislative measures to reduce the number of governmental jurisdictions.

Chapter 7

LAND USE ELEMENT

INTRODUCTION

Information regarding adopted land use plans and regulations, historic and existing land use and land use development patterns is essential to any sound comprehensive planning effort. This chapter presents the findings of the land use inventories and analyses conducted in support of the preparation of the Comprehensive Development Plan for Waukesha County. Specifically, this chapter describes adopted land use plans and regulations; historic urban growth within the County; the existing land use base and changes in that base; and presents detailed analyses of the planned land uses within the County. During the plan preparation process, data and planning standards and objectives from previous chapters were used to prepare the land use element.

STRENGTHS, WEAKNESSES, AND CONCERNS

The Waukesha County Comprehensive Development Plan Land Use, Housing and Transportation Element subcommittee expressed the following land use strengths, concerns, and weaknesses.

Land Use Strengths

- A long history of advanced land use planning in the county and region
- An existing land use pattern that has given consideration to compatible uses
- A strong commitment to preserving environmentally sensitive lands
- An increase in the use of conservation or cluster design development
- A growing interest in intergovernmental discussions on land use
- Many municipalities have a strong sense of place (ie. lakes, downtown)

Land Use Concerns and Weaknesses

- Continued pressure for development on poor soil conditions
- A need for increased intergovernmental discussions on land use
- A lack of stable community boundaries
- A lack of commitment to previously defined or developed commercial locations
- A lack of consideration of how regulatory expectations impact the cost of projects and housing
- A lack of willingness by municipalities to re-evaluate existing land use and zoning
- Waukesha County's water supply is finite. The trends show that ground water supply and quality is declining.

LAND USE PLAN DESIGN PROCESS

The process used in preparing the Comprehensive Development Plan for Waukesha County was heavily influenced by statutory requirements with respect to the treatment of locally adopted land use plans. Under the Wisconsin Statutes, counties are required to incorporate into the county development plan all master plans that have been duly adopted by incorporated cities and villages under the State of Wisconsin city planning enabling act. The Statutes do not, however, explicitly prescribe the treatment of plans adopted by towns acting under village powers, nor do the Statutes provide direction in the case of conflicts between any county adopted land use objectives and local master plans. The Statutes do not specifically require that city and village plans for their extraterritorial areas be included in a County comprehensive plan. Therefore, situations in which city or village

extraterritorial planning overlays town planning further complicate the preparation of a County development plan. Owing to the considerable number of local master plans adopted to date by the Cities, Villages, and Towns within Waukesha County, the manner in which such plans are taken into account in the preparation of the County development plan is of paramount importance.

In an effort to adhere to both the requirements of the Wisconsin Statutes governing the preparation of county development plans and to sound planning practice, the Waukesha County Comprehensive Plan Advisory Committee determined that the following approach should be utilized in the preparation of the Comprehensive Development Plan for Waukesha County:

1. All duly adopted local land use plans, whether prepared by incorporated cities and villages or by towns, would be reviewed for consistency with the County development objectives and standards approved by the Advisory Committee, as presented in Chapter 2 of this Plan. All inconsistencies would be identified and described.

2. Although State law is ambiguous in terms of incorporating city and village plans for extraterritorial areas into a county comprehensive plan, the consistency requirement in Section 66.1001(3) of the comprehensive planning law clearly states that any local government that engages in official mapping, general or shoreland zoning, or subdivision regulation must carry out those actions in a way that is consistent with "that local governmental unit's comprehensive plan." This requirement applies most directly to the land use element, and the land use plan map, of local comprehensive plans. Because the Statutes require the regulatory decisions of a local government to be consistent with the local government's comprehensive plan, the Advisory Committee at its October 25, 2007 meeting, recommended that the County would not accept extraterritorial plans without extraterritorial zoning or inter-municipal agreements being in place unless the municipalities involved have accepted the designated land use through formal action or resolution. Although subdivision and official mapping ordinances can also regulate the use of land, zoning is the primary regulatory tool used by county and local governments to determine and control land use.

   Further, the Advisory Committee recommended that the Waukesha County staff develop a planning conflict resolution process to assist in the preparation of the County comprehensive plan. The issue resolution process should involve the County and SEWRPC staff working with affected municipalities to reach agreement.

3. Municipalities will prepare preliminary land use plans in a manner consistent with the Advisory Committee-approved development objectives and standards. Following review of local land use plans, inconsistencies with the development objectives were identified for the municipalities and adjustments were requested. In areas where no duly adopted or preliminary local land use plan exists, a recommended land use pattern was prepared in accordance with the development objectives. Statistical summaries of population, household, and employment levels under planned conditions were prepared through this planning process. Municipal land use plans were compared to the projected population, household, and employment levels contained in this Plan.

4. The compiled preliminary County land use plan would be provided to all cities, villages, and towns in the County for review and comment. Where city or village extraterritorial plans were submitted as part of this planning process, conflicts were identified and were addressed through intergovernmental meetings coordinated by the County and SEWRPC staff. In addressing such conflicts, efforts were made to arrive at consensus resolutions of the identified conflicts, in cooperation with the concerned community or communities, using planning standards as a point of departure for the deliberations. Ideally, plan conflict resolution meetings would provide the foundation for intermunicipal or border agreements. If consensus resolutions were not reached, the extraterritorial plans would not be included in the plan as detailed in number 2 above.

ADOPTED LAND USE PLANS AND LAND USE REGULATIONS

The Comprehensive Development Plan for Waukesha County is intended to refine and detail the regional land use plan, taking into account and integrating, as appropriate, existing County and local development objectives. An understanding of both regional development objectives and County and local development objectives is therefore essential to the preparation of a sound County comprehensive development plan. Accordingly, this chapter provides a brief description of the regional land use plan and various supporting functional plan elements that have been prepared to date as they pertain to Waukesha County. In addition, this chapter describes land use plans and land use regulations, which have been adopted by the County and the cities, villages, and towns within the County, which provide an expression of County and local development objectives.

Regional and Area Wide Plans

Since its creation in 1960, the Southeastern Wisconsin Regional Planning Commission (SEWRPC), the official area wide planning agency for the seven-county Southeastern Wisconsin Region, which includes Waukesha County, has, in accordance with its statutory charge, pursued the preparation of an advisory comprehensive plan for the physical development of the Region. This has been achieved through the systematic formulation of those elements of such a plan most important to the developmental and environmental problems faced by the units and agencies of government operating in the Region. The regional land use plan, complemented by various functional plans for transportation, parks and open space, water quality management, flood control, airports, and housing, is intended to serve as an overall guide to the physical development of the Region. The findings and recommendations of these regional comprehensive plan elements have important implications for the Comprehensive Development Plan for Waukesha County.

Regional Land Use Plan

The regional land use plan, set forth in SEWRPC Planning Report No. 48, *A Regional Land Use Plan for Southeastern Wisconsin: 2035*, and related amendments thereto, is intended to serve as a guide for land use development and redevelopment within the Region. The plan provides for the attainment of specific area wide land use development objectives formulated in cooperation with the local, State, and Federal units and agencies of government concerned and sets forth recommendations regarding the amount and spatial distribution of the various land uses necessary to serve the needs of the existing and probable future resident population and economic activity levels in the Region through the year 2035.

Regional Transportation System Plan

The regional transportation system plan, as set forth in SEWRPC Planning Report No. 49, *A Regional Transportation System Plan for Southeastern Wisconsin: 2035*, describes how the regional land use plan can best be served by highway and transit facilities. The multimodal plan consists of five principal elements: public transit, transportation systems management, travel demand management, bicycle and pedestrian facilities, and arterial streets and highways. Designed to serve and support the regional land use plan, the Regional Transportation System Plan recommends a functional and jurisdictional system of arterial streets and highways to serve the Region through the design year 2035 as well as a functional network of various types of transit lines. The regional transportation system plan was developed on the basis of careful quantitative analyses of existing and probable future traffic movements and of existing highway and transit system capacity and use.

Development Plan for the Interstate Highway (IH) 94 West Freeway Corridor:

In 1990, the Wisconsin Department of Transportation requested that the Regional Planning Commission undertake a land use and transportation study of the IH 94 West Freeway Corridor from the CTH T interchange in the City of Waukesha westward to the Jefferson-Waukesha County line. The study was initiated in response to concerns that land use changes were occurring rapidly in the corridor, that such changes were contributing to increased traffic congestion and related problems in the corridor, that cooperative agreement among Waukesha County and the local governments concerned was needed to formulate a future land use pattern for the IH 94 West Freeway Corridor, and to identify needed supporting transportation improvements. Completed in

1994 and documented in SEWRPC Community Assistance Planning Report No. 201, *A Land Use and Transportation System Plan for the IH 94 West Freeway Corridor: 2010*, the corridor plan represents a refinement and amendment of the regional land use plan for that area, which encompasses about 60 square miles of Waukesha County.

Regional Park and Open Space Plan

The adopted regional park and open space plan, described in SEWRPC Planning Report No. 27, *A Regional Park and Open Space Plan for Southeastern Wisconsin: 2000*, identifies existing and probable future park and open space needs in the Region and recommends a system of large regional resource-oriented parks, recreational corridors, and smaller urban parks, together with associated recreational facilities, to meet such needs. That portion of the regional plan that applies to Waukesha County was revised and updated in 1989 and was adopted by both the Waukesha County Board of Supervisors and the Regional Planning Commission in 1990, is documented in SEWRPC Community Assistance Planning Report No. 137, *A Park and Open Space Plan for Waukesha County.* Subsequent amendments to the Park and Open Space Plan were incorporated into Community Assistance Planning Report No. 209, *A Development Plan for Waukesha County Wisconsin* in 1996 and later amended in 1998.

Regional Water Quality Management Plan

The findings and recommendations of the water quality management planning program for Southeastern Wisconsin are described in SEWRPC Planning Report No. 30, *A Regional Water Quality Management Plan for Southeastern Wisconsin: 1979,* and have been periodically amended through 2008. The plan has five basic elements: 1) a land use element, consisting of recommendations for the location of new urban development in the Region and for the preservation of primary environmental corridors and prime agricultural lands, this element being the adopted regional land use plan, 2) a point source pollution abatement element, including recommendations concerning the location and extent of sanitary sewer service areas; the location, type, and capacity of, and the level of treatment to be provided at, sewage treatment facilities; the location and configuration of intercommunity trunk sewers; and the abatement of pollution from sewerage system overflows and from industrial wastewater discharges, 3) a nonpoint source pollution abatement element, consisting of recommendations for the control of pollutant runoff from rural and urban lands, 4) a sludge management element, consisting of recommendations for the handling and disposal of sludges from sewage treatment facilities, and 5) recommendations for the establishment of continuing water quality monitoring efforts in the Region.

Of particular importance to the preparation of a Comprehensive Development Plan for Waukesha County are the sanitary sewer service area recommendations of the water quality management plan. The adopted regional water quality management plan recommended generalized sanitary sewer service areas attendant to each of the existing and proposed sewage treatment facilities within the Region. That plan also recommended that these areas be refined and detailed through the cooperative efforts of the local units and agencies of government concerned so that the service areas ultimately reflect local, as well as area wide, development objectives. Sewer service area refinement plans continue to be completed for areas in Waukesha County. A more complete discussion of sewer service areas are presented in Chapter 4 of this Plan.

Regional Water Supply Plan

The Southeastern Wisconsin Regional Planning Commission is conducting a regional water supply study for the Southeastern Wisconsin Region. The regional water supply plan together with the abovementioned groundwater inventories and a groundwater simulation model will form the SEWRPC regional water supply management plan. The preparation of these three elements includes interagency partnerships with the U.S. Geological Survey, the Wisconsin Geological and Natural History Survey, the University of Wisconsin-Milwaukee, the Wisconsin Department of Natural Resources, and many of the area's water supply utilities.

The regional water supply plan will include the following major components:

- Water supply service areas and forecast demand for water use.
- Recommendations for water conservation efforts to reduce water demand.

- Evaluation of alternative sources of supply, recommended sources of supply, and recommendations for development of the basic infrastructure required to deliver that supply.
- Identification of groundwater recharge areas to be protected from incompatible development.
- Specification of new institutional structures necessary to carry out plan recommendations.
- Identification of constraints to development levels in subareas of the Region due to water supply sustainability concerns.

[Note: Information from the regional water supply plan will be incorporated into this comprehensive plan as it becomes available. The plan is expected to be completed in early 2009.]

Previous County Development Plan

The Waukesha County development plan set forth in SEWRPC Community Assistance Planning Report No. 209, *A Development Plan for Waukesha County Wisconsin,* was adopted by the Waukesha County Board in 1996. The plan was prepared in accordance with Section 59.97(3) of the Wisconsin Statutes, under which Wisconsin counties are authorized to prepare comprehensive county development plans addressing a wide range of physical development concerns. It represented the first plan of this kind completed in Wisconsin. The Plan contains a discussion of many of the required elements contained in Wisconsin's comprehensive planning law ("Smart Growth"), under Section 66.1001 Wisconsin Statutes enacted by the Wisconsin Legislature in 1999.

Municipal Plan Refinements

Occasionally municipalities will refine regional land use plans, county development plans or municipal land use plans through a more detailed planning process. These plan refinements may be completed for purposes such as redevelopment areas, business improvement districts or neighborhood planning. Table VII-1 presents local plan refinements developed by municipalities in Waukesha County since 1990.

Redevelopment Areas

Cities and villages are authorized under Section 66.1333 of the Wisconsin Statutes to create redevelopment authorities for the purposes of carrying out renewal programs. Such authorities have the power to prepare and administer redevelopment plans and renewal projects within the corporate limits of the community.

Business Improvement Districts

Section 66.1109 of the Wisconsin Statutes authorizes cities, villages, and towns to create one or more business improvement districts to allow businesses in those districts to undertake activities to develop, redevelop, manage and promote the districts, and, importantly to establish an assessment method to fund such activities. An operating plan for the district must be prepared at the time the district is established.

Table VII-1

NEIGHBORHOOD, SUB AREA AND REDEVELOPMENT AREA PLANS COMPLETED BY WAUKESHA COUNTY MUNICIPALITIES SINCE 1990

Municipality	Plan Title	Year Adopted
Town of Brookfield	Redevelopment Plan for the Bluemound Road Corridor	2008
Village of Hartland	A Hartland and Merton Cluster Development Plan	2004
	Business Improvement District	2007
	Hartland Village Center Revitalization Plan	2007
Village of Menomonee Falls	Village Centre Menomonee River Parkway Master Plan	1993
	Village Center Business Improvement District	1993
	Village Centre Redevelopment Plan	1996
	North Hills Neighborhood Plan	2002
	Northeast Area Plan	2005
	Main Street Redevelopment Plan	2005
City of Brookfield	Capitol Drive Corridor Study- Land Use Plan #2	1999
	Brookfield Road and Capitol Drive Neighborhood Plan	1999
	Calhoun Road and Capitol Drive Neighborhood Plan	2000
	Moorland Road Plan	2000
	Calhoun Road South Neighborhood Plan	2001
	Lilly Road and Capitol Drive Neighborhood Plan	2001
	Brookfield Square Neighborhood Development Strategy	2002
	124th Street and Capitol Drive Neighborhood Plan	2004
	Tax Increment District #3 Project Plan	2004
	Village Area Neighborhood Plan	2006
	124th Street and Bluemound Road Neighborhood Plan	2007
	124th Street and Lisbon Road Neighborhood Plan	2007
	Northwest Gateway Neighborhood Plan	2008
City of Muskego	Redevelopment District #1 Plan	2003
	Redevelopment District #2 Plan	2003
City of Oconomowoc	Peripheral Area Plan	1996
	Downtown Revitalization Plan and Market Analysis	2004
	Comprehensive Plan of Redevelopment: St. Paul – East Wisconsin Avenue	2004
	Southwest Summit Avenue Land Use Plan	2007
	Comprehensive Downtown / Central City Plan	1998
	Redevelopment District # 3 Plan	1999
City of Waukesha	Redevelopment District # 5 Plan	2001
	Redevelopment District # 6 Plan	2006
	Redevelopment District # 7 Plan	2007
	Redevelopment District # 8 Plan	2007

Source: Municipal Data

Municipal Boundary Agreements and Consolidations

The Wisconsin Statutes provide several options for neighboring cities, villages, and towns to cooperatively determine common boundaries. Section 66.0307 of the Wisconsin Statutes allows any combination of cities, villages, and towns to determine the boundary lines between themselves under a cooperative plan. Section 66.0307 envisions the cooperative preparation of a comprehensive plan for the affected area by the concerned local units of government and prescribes in detail the contents of the cooperative plan. Importantly, the cooperative plan must identify any boundary change and any existing boundary that may not be changed during

the planning period; identify any conditions that must be met before a boundary change may occur; include a schedule of the period during which a boundary change shall or may occur; and specify arrangements for the provision of urban services to the territory covered by the plan. A boundary agreement can also be achieved under Section 66.0225, which allows two abutting communities that are parties to a court action to enter into a written stipulation determining a common boundary. In addition, communities can agree upon common boundaries under Section 66.0301, the "intergovernmental cooperation" statute.

In 2007, the Wisconsin Legislature enacted Act 43 that clarified the determination of common municipal (city, village and town) boundaries by agreement and the use of alternative dispute resolution in annexation and other boundary disputes.

Communities in the County, which have entered into municipal boundary agreements under any of the aforementioned Statutes as of 2007, are listed in Table VII-2.

Occasionally, municipalities will agree to transfer properties between jurisdictions. Such transfers may be made in an effort to reorganize or more clearly define municipal boundaries.

Under Wisconsin Statutes, adjacent municipalities can pursue consolidation of jurisdictions for the purpose of creating efficiencies and effectiveness in the delivery of services or for the homogeneity of communities. To date, consolidation studies have been undertaken between the City and Village of Pewaukee, the City and Town of Brookfield (the Town did not participate in the study) and the Village of Big Bend and Town of Vernon.

Table VII-2
BOUNDARY AGREEMENTS IN WAUKESHA COUNTY: 2007

Communities With Boundary Agreements	Year Agreement Signed	Statute
Village of Pewaukee/Former Town of Pewaukee	1989	66.0225
City of Delafield/Village of Hartland/Town of Delafield	1998	66.0227
City of Waukesha/Former Town of Pewaukee	1998	66.0307
City of Oconomowoc/Town of Summit	1999 Amended 2007	66.0307
Village of North Prairie/Town of Genesee	1999	66.0225
Village of Oconomowoc Lake/Town of Summit	2000	66.0301 66.0225
Village of Mukwonago/Town of Mukwonago	2000	66.0225
Village of Wales/Town of Genesee	2000	66.0225
Village of North Prairie/Town of Mukwonago	2000	66.0225
Village of Sussex/Town of Lisbon	2001	66.0227
Village of Merton/Town of Lisbon	2002	66.0301 66.0225
Village of Wales/Town of Delafield	2002	66.0225
Village of Dousman/Town of Ottawa	2004	66.0225
Village of North Prairie/Town of Ottawa	2004	66.0225

Source: SEWRPC and Waukesha County

Note: Additional information regarding the boundary agreements are available on the Wisconsin Department of Administration website at http://www.doa.state.wi.us/category.asp?linkcatid=735&linkid=132&locid=9.

LAND USE REGULATIONS

The preparation of a land use plan for Waukesha County also requires consideration of existing land use regulations, including general zoning ordinances and special purpose floodplain and shoreland zoning ordinances, land division ordinances, and official maps. Each of these regulatory tools, as currently applied in Waukesha County, is described in this section. For ease of reference, a tabular summary of the status of these regulations is presented in Table VII-3 for the Cities, Villages and Towns in Waukesha County.

Table VII-3

LAND USE REGULATIONS IN WAUKESHA COUNTY BY MUNICIPALITY: 2007

Community	Type of Ordinance				
	General Zoning	Floodplain Zoning	Shoreland or Shoreland-Wetland Zoning	Subdivision Control	Official Map
Cities					
Brookfield	Adopted	Adopted	Adopted & DNR approved	Adopted	Adopted
Delafield	Adopted	Adopted	Adopted	Adopted	Adopted
Muskego	Adopted	Adopted	Adopted & DNR approved	Adopted	County map in force
New Berlin	Adopted	Adopted	Adopted & DNR approved	Adopted	Adopted
Oconomowoc	Adopted	Adopted	Adopted & DNR approved	Adopted	Adopted
Pewaukee	Adopted	Adopted	Adopted	Adopted	County map in force
Waukesha	Adopted	Adopted	Adopted & DNR approved	Adopted	Adopted
Villages					
Big Bend	Adopted	Adopted	Adopted & DNR approved	Adopted	Adopted
Butler	Adopted	Adopted	Adopted	Adopted	County map in force
Chenequa	Adopted	None[a]	Adopted	None	None
Dousman	Adopted	Adopted	Adopted & DNR approved	Adopted	County map in force
Eagle	Adopted	None[a]	Not required	Adopted	County map in force
Elm Grove	Adopted	Adopted	Adopted	None	Adopted
Hartland	Adopted	Adopted	Adopted	Adopted	Adopted
Lac La Belle	Adopted	Adopted	Adopted	Adopted	Adopted
Lannon	Adopted	Adopted	None	Adopted	None
Menomonee Falls	Adopted	Adopted	Adopted & DNR approved	Adopted	None
Merton	Adopted	Adopted	Adopted	Adopted	Adopted
Mukwonago	Adopted	Adopted	Adopted	Adopted	None
Nashotah	Adopted	None[a]	Adopted & DNR approved	Adopted	County map in force
North Prairie	Adopted	None [b]	Not required	Adopted	County map in force
Oconomowoc Lake	Adopted	Adopted	Adopted & DNR approved	Adopted	County map in force
Pewaukee	Adopted	Adopted	None	Adopted	Adopted
Sussex	Adopted	Adopted	Adopted & DNR approved	Adopted	County map in force
Wales	Adopted	None [a]	Not required	Adopted	None
Towns					
Brookfield	Adopted	County ordinance	County ordinance	Adopted	County map in force
Delafield	Adopted	County ordinance	County ordinance	Adopted	County map in force
Eagle	Adopted	County ordinance	County ordinance	Adopted	County map in force
Genesee	County ordinance	County ordinance	County ordinance	Adopted	County map in force
Lisbon	Adopted	County ordinance	County ordinance	Adopted	Adopted
Merton	Adopted	County ordinance	County ordinance	Adopted	County map in force
Mukwonago	Adopted	County ordinance	County ordinance	Adopted	Adopted
Oconomowoc	County ordinance	County ordinance	County ordinance	Adopted	County map in force
Ottawa	County ordinance	County ordinance	County ordinance	Adopted	County map in force
Summit	Adopted	County ordinance	County ordinance	Adopted	County map in force
Vernon	County ordinance	County ordinance	County ordinance	Adopted	Adopted
Waukesha	Adopted	County ordinance	County ordinance	Adopted	County map in force
Waukesha County	Adopted	Adopted	Adopted & DNR approved	Floodland and shoreland only	County highway width map

[a]Flood hazard areas have been identified or mapped on year 2007 proposed FEMA floodplain maps.
[b]No flood hazard areas have been identified or mapped.

Source: SEWRPC, FEMA and municipalities

Local Zoning Regulations

A zoning ordinance is a public law which regulates and restricts the use of property in order to advance the public health, safety, and welfare. A zoning ordinance divides a community into districts for the purpose of regulating the use of land and structures; the height, size, shape, and placement of structures; and the density of population. Zoning seeks to confine certain land uses to areas of the community, which are particularly well suited to those uses, thereby encouraging the most appropriate use of land throughout the community. Zoning seeks to assure adequate light, air, and open space for each building; to reduce fire hazard; and to prevent the overcrowding of

land, traffic congestion, and the overloading of the utility systems. Zoning also provides an important means for protecting and preserving the natural resource base.

Local zoning regulations include general, or comprehensive, zoning regulations and special-purpose regulations governing floodland and shoreland areas. General zoning and special-purpose zoning regulations may be adopted as a single ordinance or as separate ordinances; they may or may not be contained in the same document. Any analysis of locally proposed land use must take into consideration the provisions of both general and special-purpose zoning.

It should be noted that, in addition to general zoning and special-purpose floodland and shoreland zoning, any county, city, village, or town in Wisconsin that owns Federal- or State-approved airport facilities has the authority under Section 114.136 of the Wisconsin Statutes to adopt a special-purpose height zoning ordinance in the vicinity of the airport to protect aerial approaches to the site. The only airport in Waukesha County subject to special regulations is Waukesha County-Crites Field. The Waukesha County Board of Supervisors adopted a height limitation zoning ordinance in 1964. That ordinance establishes height restrictions for structures in areas within three miles of the airport.

General Zoning

Cities in Wisconsin are granted comprehensive, or general, zoning powers under Section 62.23 of the Wisconsin Statutes. The same powers are granted to villages under Section 61.35 of the Statutes. Counties are granted general zoning powers within their unincorporated areas under Section 59.97 of the Statutes. However, a county zoning ordinance becomes effective only in those towns which ratify the county ordinance. Towns which have not adopted a county zoning ordinance may adopt village powers and subsequently utilize the city and village zoning authority conferred in Section 62.23 subject, however, to county board approval where a general purpose county zoning ordinance exists.

General zoning was in effect in all communities in Waukesha County in 2007. Four Towns in the County, Towns of Genesee, Oconomowoc, Ottawa, and Vernon, were under the jurisdiction of the County zoning ordinance, while the remaining eight towns have adopted their own zoning ordinances under village powers.

Floodplain Zoning

Section 87.30 of the Wisconsin Statutes requires that cities, villages, and counties, with respect to their unincorporated areas, adopt floodplain zoning to preserve the floodwater conveyance and storage capacity of floodplain areas and to prevent the location of new flood damage-prone development in flood hazard areas. The minimum standards, which such ordinances must meet, are set forth in Chapter NR 116 of the Wisconsin Administrative Code. The required regulations govern filling and development within a regulatory floodplain, which is defined as the area subject to inundation by the 100-year recurrence interval flood event, the event which has a one percent probability of occurring in any given year. Under Chapter NR 116, local floodplain zoning regulations must prohibit nearly all forms of development within the floodway, which is that portion of the floodplain required to convey the 100-year recurrence peak flood flow. Local regulations must also restrict filling and development within the flood fringe, which is that portion of the floodplain located outside of the floodway that would be covered by floodwater during the 100-year recurrence flood. Permitting the filling and development of the flood fringe area reduces the floodwater storage capacity of the natural floodplain, and may thereby increase downstream flood flows and stages. It should be noted that towns in Waukesha County may enact floodplain zoning regulations which may be more restrictive than those in the Waukesha County Shoreland and Floodland Protection Zoning Ordinance.

In 2007, floodplain ordinances were in effect in most parts of Waukesha County where flood hazard areas have been identified. The Villages of Chenequa, Eagle, Nashotah, North Prairie and Wales, do not have floodland ordinances. The Federal Emergency Management Agency (FEMA) and the Wisconsin Department of Natural Resources (DNR), in 2007, released preliminary drafts of new Flood Insurance Rate Maps (FIRMs) for Waukesha County. These maps not only serve to identify properties eligible for FEMA's Flood Insurance program, but also serve as the basis for county and municipal floodplain zoning ordinances. Based on the proposed FEMA

floodplain maps, the Villages of Chenequa, Nashotah and Wales have certain areas within their boundaries which do have flood hazard areas.

Shoreland and Shoreland Wetland Zoning

Under Section 59.971 of the Wisconsin Statutes, counties in Wisconsin are required to adopt zoning regulations within statutorily defined shoreland areas. Shoreland areas are those lands within 1,000 feet of a navigable lake, pond, or flowage; or 300 feet of a navigable stream, or to the landward side of the floodplain, whichever distance is greater. Minimum standards for county shoreland zoning ordinances are set forth in Chapter NR 115 of the Wisconsin Administrative Code. Chapter NR 115 sets forth minimum requirements regarding lot sizes and building setbacks; restrictions on cutting of trees and shrubbery; and restrictions on filling, grading, lagooning, dredging, ditching, and excavating that must be incorporated into county shoreland zoning regulations.

In addition, Chapter NR 115 for Cities and Villages and Chapter NR 117 for Counties, requires that all wetlands five acres or larger within the statutory shoreland zoning jurisdiction area be placed into a wetland conservancy zoning district to ensure their preservation after completion of appropriate wetland inventories by the Wisconsin Department of Natural Resources. In 1982, the State Legislature extended shoreland-wetland zoning requirements to cities and villages in Wisconsin. Under Sections 62.231 and 61.351, respectively, of the Wisconsin Statutes, cities and villages in Wisconsin are required to place wetlands five acres or larger and located in statutory shorelands into a shoreland-wetland conservancy zoning district to ensure their preservation. Minimum standards for city and village shoreland-wetland zoning ordinances are set forth in Chapter NR 117 of the Wisconsin Administrative Code.

In 2007, the Waukesha County Shoreland and Floodland Protection Ordinance was in effect in all unincorporated areas of the County. Table VII-3 indicates 21 of the 25 Cities and Villages in the County had adopted shoreland-wetland zoning ordinances. Of the remaining four Villages, two, the Villages of Eagle and North Prairie, did not contain shoreland-wetlands and were thus not required to adopt such ordinances; two, the Villages of Lannon and Pewaukee, had not yet adopted such ordinances. The Waukesha County Shoreland and Floodland Protection Ordinance and 11 of the 19 local shoreland-wetland zoning ordinances have been approved by the Wisconsin Department of Natural Resources.

Land Division Regulations

Chapter 236 of the Wisconsin Statutes requires the preparation of a subdivision plat whenever five or more lots of 1.5 acres or less in area are created either at one time or by successive divisions within a period of five years. The Statutes set forth requirements for surveying lots and streets, for plat review and approval by State and local agencies, and for recording approved plats. Section 236.45 of the Statutes allows any city, village, town, or county that has established a planning agency to adopt a land division ordinance, provided the local ordinance is at least as restrictive as the State platting requirements. Local land division ordinances may include the review of other land divisions not defined as "subdivisions" under Chapter 236, such as when fewer than five lots are created or when lots larger than 1.5 acres are created.

The subdivision regulatory powers of Towns are confined to their respective unincorporated areas. City and village subdivision control ordinances may be applied to extraterritorial areas as well as to their respective incorporated areas. In accordance with Chapter 236 Wisconsin Statutes, counties have subdivision regulatory authority in Towns, Cities and Villages. The County has approval authority in Towns but is limited to objection authority in cities and villages. It is possible for both a county and a town to have concurrent jurisdiction over land divisions in unincorporated areas, or for a city or village to have concurrent jurisdiction with a town or county in the city or village extraterritorial plat approval area. In the case of overlapping jurisdiction, Chapter 66.0105 Wisconsin Statutes states the jurisdiction over the overlapping area shall be divided on a line all points of which are equidistant from the boundaries of each municipality concerned so that not more than one municipality shall exercise power over any area. Furthermore, a municipality may waive their extraterritorial review authority. Table VII-3 indicates communities that have adopted land division ordinances.

Official Mapping and Highway Width Maps
Official mapping powers, granted to local units of government under Section 62.23(6) of the Wisconsin Statutes, are an important but historically under-utilized plan implementation tool. An official map prepared under Section 62.23(6) can be used to identify precisely, the location and width of existing and proposed streets, highways, historic districts, parkways, railroad rights-of-way, waterways, public transit facilities, airports, and the location and extent of parks and playgrounds. The official map prohibits the construction of buildings and associated improvements on lands that are for future public use identified on the map.

Under Section 80.64 of the Statutes, counties may adopt highway-width maps showing the location and width of proposed new highways and the widths of any highways proposed to be expanded. Such maps serve a function similar to local official maps, but with jurisdiction limited to streets and highways. By statute, a county highway-width map is in effect only in those municipalities, which act to approve it. Table VII-3 identifies "county map in force" where the municipality has adopted the Waukesha County Street and Highway width map in place of a complete official map.

Extraterritorial Zoning Regulations
The Statutes authorize cities and villages to adopt extraterritorial zoning regulations for adjacent unincorporated areas, in cooperation with the adjacent town, within three miles of a city of the first, second, or third class, and within 1.5 miles of a city of the fourth class or a village. A city or village can initiate preparation of an extraterritorial zoning ordinance and map at any time. Initiation of the extraterritorial zoning ordinance freezes existing zoning in the extraterritorial (town) area for two years, while the city or village and affected town or towns jointly develop an extraterritorial zoning ordinance and map. A joint committee made up of three representatives from the city or village and three representatives from each affected town is formed to develop the ordinance. The time period can be extended for one additional year at the end of the two-year period.

POPULATION, HOUSEHOLD AND EMPLOYMENT PROJECTIONS

Under the previous year 2020 regional land use plan and county development plan, three projections—low, intermediate, and high growth scenarios—were prepared for population, households, and employment in the Region and County. The intermediate projection was considered the most likely to be achieved and constituted the forecast which was used as the basis for the preparation of the year 2020 regional land use plan and county development plan. The high and low projections were intended to provide an indication of population, household, and employment levels which could conceivably be achieved under significantly higher and lower, but nevertheless plausible, growth scenarios.

Review of Previous County Development Plan Projections
The Waukesha County development plan presented in SEWRPC Community Assistance Planning Report No. 209, A Development Plan for Waukesha County, Wisconsin, dated August 1996, set forth population, household, and employment levels anticipated under buildout conditions (about the year 2050) and as envisioned under a 2010 plan stage. The 2010 plan stage envisioned that the County population would increase from 304,700 persons in 1990 to 384,800 persons in 2010; that the number of households would increase from 106,000 in 1990 to 143,400 in 2010; and that the number of jobs would increase from 172,300 in 1990 to 248,800 jobs in 2010. Based upon straight-line interpolation of the anticipated change between 1990 and 2010, the County development plan envisioned 356,800 persons, 130,300 households, and 222,000 jobs in the County in 2003.

The estimated County population of 371,200 persons in 2003 from the Wisconsin Department of Administration exceeded the population of 356,800 persons envisioned under the County development plan by 14,400 persons, or 4 percent. The estimated number of households in the County in 2003 (142,300) from the Wisconsin Department of Administration exceeded the number of households envisioned under the County plan (130,300) by 12,000 households, or 9 percent. The estimated number of jobs in the County in 2003 (266,400) from the U.S. Bureau of Economic Analysis exceeded the number of jobs envisioned under the County plan (222,000) by 44,400 jobs, or 20 percent.

Year 2035 Projections

Chapter 2 of this Plan provides a more detailed description of the trends associated with population, household and employment change in the County. The methodology and assumptions that underlie the new population, household, and employment projections, along with the projections themselves are fully documented in SEWRPC Technical Report No. 10 (4th Edition), *The Economy of Southeastern Wisconsin* and in SEWRPC Technical Report No. 11 (4th Edition), *The Population of Southeastern Wisconsin*. These two reports were prepared in tandem to ensure consistency between the Commission's long-range population, household, and employment projections.

As indicated in Chapter 2, based on the methodology and assumptions presented in the afore-referenced technical reports, the intermediate growth scenario for population, households and employment will be used to make projections to the plan design year of 2035.

Population Projections

The intermediate projection envisions that the County population would increase by 86,000 persons, or 24 percent, from about 360,800 persons in 2000 to 446,800 persons in 2035. The high projection indicates that the population of the County could be as high as 504,900 persons in 2035, an increase of about 144,100 persons, or 40 percent, over the 2000 level. Conversely, the low projection indicates that the County population could be as low as 411,000 persons in 2035, an increase of 50,200 persons, or 14 percent, over the 2000 level. The SEWRPC-adopted year 2035 regional land use plan and this plan reflect the intermediate population projection of 446,800 persons for Waukesha County in 2035.

Household Projections

The intermediate projection envisions that the number of households in the County would increase by 38,900, or 29 percent, from 135,200 households in 2000 to 174,100 households in 2035, the same projection envisioned under the SEWRPC adopted year 2035 Regional Land Use Plan. The high projection indicates that the number of households in the County could be as high as 196,700 in 2035, an increase of 61,500 households, or 45 percent, over the 2000 level. The low projection indicates that the number of households could be as low as 160,100 in 2035, an increase of 24,900 households, or 18 percent, over the 2000 level. The intermediate projections envision a significant increase in the number of households, however as detailed in Chapter 2, the household sizes are projected to continue to decline from an average of 2.63 persons per household in 2000 to 2.50 persons per household in 2035.

Employment Projections

The intermediate projection envisions total employment of 347,200 jobs in the County in 2035, an increase of 76,400 jobs, or 28 percent, over the 2000 level of 270,800 jobs. The high projection indicates that employment in the County could be as high as 383,100 jobs in 2035, an increase of about 112,300 jobs, or 41 percent, over the 2000 level. The low projection indicates that employment in the County could be as low as 321,600 jobs in 2035, about 50,800 jobs, or 19 percent, over the 2000 level. The SEWRPC adopted year 2035 Regional Land Use Plan, envisions a total of 333,700 jobs in the County in the year 2035, rather than the year 2035 intermediate projection of 347,200 jobs. The slightly lower job level in the regional plan reflects community land use plans in place at the time the regional plan was prepared.

HISTORIC LAND USE GROWTH AND LAND USE TRENDS ANALYSIS

The SEWRPC land use inventory is intended to serve as a relatively precise record of land use at selected points in time. The land use classification system used in the inventory consists of nine major categories which are divisible into 66 sub-categories, making the inventory suitable for both land use and transportation planning; adaptable to storm water drainage, public utility, and community facility planning; and compatible with other land use classification systems. Aerial photographs serve as the primary basis for identifying existing land use, augmented by field surveys as appropriate. The first regional land use inventory was prepared by SEWRPC in 1963 and has been updated periodically following the preparation of new aerial photography, with the most recent inventory prepared using aerial photographs taken in spring of 2000. As part of the year 2000 land use inventory,

the delineation of existing land use was referenced to real property boundary information not available in prior inventories. This change increases the precision of the land use inventory and makes it more useable to public agencies and private interests. As a result of this change, however, year 2000 land use inventory data are not strictly comparable with data from the 1990 and prior inventories. The data remains suitable for denoting general land use trends. The results of the year 2000 land use inventory are presented along with the results of prior land use inventories in Table VII-4 and Map II-1.

Table VII-4
CHANGE IN LAND USE ACRES IN WAUKESHA COUNTY: 1963-2000

Land Use Category	1963	1970	1980	1990	2000
Urban					
Residential	28,148	35,476	50,745	59,247	75,221
Commercial	1,197	1,831	2,754	3,827	5,351
Industrial	924	1,758	2,747	3,802	5,525
Transportation, Communication, and Utilities	16,079	18,545	21,867	22,805	30,001
Governmental and Institutional	2,550	3,587	4,037	4,215	4,887
Recreational	3,311	4,605	5,756	6,465	8,253
Unused Urban Land	8,509	8,516	8,017	7,025	7,806
Subtotal Urban	**60,718**	**74,318**	**95,923**	**107,386**	**137,044**
Non-urban					
Natural Areas					
Surface Water	16,076	16,461	16,753	16,878	16,891
Wetlands	52,588	51,660	51,233	51,978	52,661
Woodlands	31,181	30,818	29,472	29,584	28,931
Subtotal Natural Areas	**99,845**	**98,939**	**97,458**	**98,440**	**98,483**
Agricultural	200,241	184,390	161,558	142,428	112,611
Unused Rural and Other Open Lands	10,786	13,943	16,651	23,336	23,397
Subtotal Nonurban	**310,872**	**297,272**	**275,667**	**264,204**	**234,491**
Total	371,590	371,590	371,590	371,590	371,535

Source: SEWRPC

Residential development was responsible for the most significant land use change within Waukesha County since 1963. Over 47,000 acres of land was converted to residential use as the County gained over 100,000 households between 1960 and 2000. Agricultural lands experienced the greatest loss of any land use within the County between 1963 and 2000. Nearly 88,000 acres of agricultural lands were converted to other land uses.

Urban Land Uses

In 1990, urban land uses, consisting of residential, commercial, industrial, recreational, governmental, institutional, transportation, communication, and utility uses, encompassed about 107,386 acres, equivalent to 160 square miles, or about 28 percent of the County. Residential land comprised the largest urban land use category in the County in 1990, encompassing about 59,247 acres, or about 55 percent of all urban land and 16 percent of the total area of the County. Commercial and industrial lands each encompassed about 7,629 acres, about seven (7) percent of all urban land use and about two (2) percent of the total County area. Land used for governmental and institutional purposes encompassed about 4,200 acres, or about four (4) percent of all urban uses and about one (1) percent of the total area of the County. Lands devoted to intensive recreational uses encompassed about 6,500 acres, some six (6) percent of all urban uses and about two (2) percent of the County. Lands devoted to transportation, communication, and utility uses, including areas used for streets and highways, railways, airports, and utility and communication facilities, totaled about 22,900 acres, or about 22 percent of all urban uses and about six (6) percent of the total County area.

Between 1963 and 1990, urban land uses in the County increased from about 60,718 acres to about 107,386 acres, an increase of about 46,668 acres or about 77 percent. Each of the major urban land use categories increased significantly during this time. The residential land area approximately doubled, the commercial land area approximately tripled, and the industrial land area quadrupled. The transportation, governmental-institutional, and recreational land use categories also increased significantly, by 42 percent, 65 percent, and 86 percent, respectively.

Existing urban land use for cities, villages, and towns in the County is summarized in Table VII-5.

Nonurban Land Uses

In 1990, nonurban lands, consisting of agricultural lands, wetlands, woodlands, and surface water, quarries, landfill sites, and other open lands, comprised about 264,204 acres, the equivalent of 421 square miles, or about 72 percent of the total area of the County. Agricultural land comprised the largest nonurban land use category, encompassing about 142,400 acres, or about 53 percent of all nonurban land and 38 percent of the total area of the County. Wetlands, woodlands, and surface water, in combination, encompassed about 98,400 acres, representing about 37 percent of all nonurban lands and about 27 percent of the County. Quarries and landfill sites, taken together, encompassed about 4,000 acres, representing about two (2) percent of all nonurban lands and about one (1) percent of the total area of the County. Unused lands, consisting of open lands other than wetlands and woodlands and agricultural lands, encompassed about 23,300 acres, representing about nine (9) percent of all nonurban lands and about seven (7) percent of the total area of the County. Unused lands include extractive uses and landfills.

Nonurban lands in the County decreased by about 46,668 acres, or about 15 percent between 1963 and 1990. Most of this loss resulted from the conversion of agricultural land to urban use. Modest losses in wetlands and woodlands also occurred during this time. The wetland acreage declined by about 600 acres, or about one (1) percent, between 1963 and 1990, while the woodland acreage declined by about 1,600 acres, or five (5) percent.

It should be noted that the change in wetland and woodland acreages between 1963 and 1990, like the change in all land use categories, represents the net change within the County. In this respect, the change in the wetland acreage reported between two inventory years is the net result of decreases in certain areas of the County, due, for example, to drainage or filling activity, and increases in other areas, due, for example, to the abandonment of agricultural drainage systems or to planned wetland restoration efforts. Similarly, the change in the woodland acreage between two inventory years reflects the net effect of the clearing of woodlands in certain areas and the reforestation of other areas.

Nonurban land use for cities, villages, and towns in the County is summarized in Table VII-5.

Table VII-5

LAND USE IN WAUKESHA COUNTY BY MUNICIPALITY: 1990

Community	Urban													
	Residential		Commercial		Industrial		Transportation, Communication, and Utilities		Governmental and Institutional		Recreational		Subtotal	
	Acres	Percent of Total	Acres	Percent of Total	Acres	Percent of Total	Acres	Percent of Total	Acres	Percent of Total	Acres	Percent of Total	Acres	Percent of Total
Cities (Subtotal)	23,186	27.2	2,163	2.5	1,739	2.0	7,955	9.3	2,087	2.5	2,078	2.4	39,208	45.9
Brookfield	7,533	44.5	894	5.3	230	1.4	2,144	12.6	646	3.8	398	2.3	11,845	69.9
Delafield	1,256	18.3	71	1.0	33	0.5	536	7.8	122	1.8	235	3.4	2,253	32.8
Milwaukee	0	0.0	0	0.0	0	0.0	1	1.9	0	0.0	0	0.0	1	1.9
Muskego	3,324	14.4	143	0.6	87	0.4	1,002	4.4	193	0.8	406	1.8	5,155	22.4
New Berlin	6,227	26.4	364	1.5	586	2.5	2,061	8.7	422	1.8	384	1.6	10,044	42.6
Oconomowoc	1,049	26.3	135	3.4	83	2.1	428	10.7	153	3.8	280	7.0	2,128	53.3
Waukesha	3,797	34.8	556	5.1	720	6.6	1,783	16.3	551	5.0	375	3.4	7,782	71.2
Villages (Subtotal)	11,245	24.1	873	1.9	1,335	2.9	4,078	8.7	1,165	2.5	1,378	3.0	20,074	43.1
Big Bend	198	41.4	22	4.6	38	7.9	54	11.4	13	2.7	14	2.9	339	70.9
Butler	135	26.6	40	7.9	111	21.9	86	17.0	11	2.2	24	4.7	407	80.3
Chenequa	480	16.2	0	0.0	0	0.0	129	4.4	3	0.1	80	2.7	699	23.4
Dousman	126	15.5	14	1.7	22	2.7	51	6.3	61	7.6	19	2.3	293	36.1
Eagle	222	32.0	5	0.7	6	0.9	74	10.7	24	3.5	30	4.3	361	52.1
Elm Grove	1,354	64.4	68	3.2	13	0.6	377	17.9	129	6.1	58	2.8	1,999	95.0
Hartland	574	27.6	63	3.0	72	3.5	279	13.4	68	3.3	47	2.3	1,103	53.1
Lac La Belle	91	32.2	0	0.0	0	0.0	18	6.4	0	0.0	24	8.5	133	47.1
Lannon	194	12.2	24	1.5	32	2.0	82	5.1	24	1.5	41	2.6	397	24.9
Menomonee Falls	4,539	21.3	402	1.9	728	3.4	1,674	7.9	331	1.6	787	3.7	8,461	39.8
Merton	270	18.7	7	0.5	13	0.9	76	5.3	25	1.7	10	0.7	401	27.8
Mukwonago	431	26.3	65	4.0	35	2.1	196	12.0	124	7.6	54	3.3	905	55.3
Nashotah	186	17.0	9	0.8	10	0.9	123	11.2	5	0.5	4	0.4	337	30.8
North Prairie	332	38.6	18	2.1	25	2.9	84	9.7	11	1.3	11	1.3	481	55.9
Oconomowoc Lake	375	18.9	30	1.5	2	0.1	92	4.6	3	0.2	2	0.1	504	25.4
Pewaukee	427	15.4	51	1.8	85	3.1	288	10.4	203	7.3	37	1.3	1,091	39.3
Sussex	569	22.9	45	1.8	134	5.4	255	10.3	47	1.9	104	4.2	1,154	46.5
Wales	738	51.0	10	0.7	9	0.6	137	9.5	83	5.7	32	2.2	1,009	69.7
Towns (Subtotal)	26,794	11.2	804	0.3	732	0.3	10,831	4.5	963	0.4	3,009	1.3	43,133	18.0
Brookfield	932	23.3	221	5.5	94	2.4	444	11.1	56	1.4	30	0.8	1,777	44.5
Delafield	1,944	14.0	15	0.1	4	0.0	661	4.8	100	0.7	335	2.4	3,059	22.1
Eagle	1,021	4.5	18	0.1	12	0.1	569	2.5	9	0.0	200	0.9	1,829	8.1
Genesee	2,919	14.1	38	0.2	51	0.2	780	3.8	50	0.2	157	0.8	3,995	19.3
Lisbon	2,511	12.1	25	0.1	38	0.2	906	4.4	132	0.6	90	0.4	3,702	17.8
Merton	2,066	11.2	42	0.2	25	0.1	813	4.4	156	0.9	214	1.2	3,309	18.0
Mukwonago	2,198	10.0	35	0.2	6	0.0	771	3.5	34	0.1	371	1.7	3,415	15.5
Oconomowoc	1,879	8.8	57	0.2	37	0.2	852	4.0	52	0.2	296	1.4	3,173	14.8
Ottawa	1,608	7.0	8	0.0	11	0.0	495	2.2	38	0.2	326	1.4	2,486	10.8
Pewaukee	2,526	15.5	215	1.3	378	2.3	1,810	11.1	126	0.8	261	1.6	5,316	32.6
Summit	1,503	8.1	25	0.1	23	0.1	847	4.6	84	0.5	190	1.0	2,672	14.4
Vernon	2,827	12.9	54	0.3	20	0.1	1,106	5.0	69	0.3	269	1.2	4,345	19.8
Waukesha	2,864	17.4	51	0.3	33	0.2	780	4.8	57	0.4	270	1.6	4,055	24.7
Waukesha County	61,225	16.5	3,840	1.0	3,806	1.0	22,864	6.2	4,215	1.1	6,465	1.8	102,415	27.6

Table VII-5 (Continued)

LAND USE IN WAUKESHA COUNTY BY MUNICIPALITY: 1990

Community	Nonurban													
	Agricultural		Wetlands		Woodlands		Surface Water		Other[a]		Subtotal		Total Area	
	Acres	Percent of Total	Acres	Percent of Total	Acres	Percent of Total	Acres	Percent of Total	Acres	Percent of Total	Acres	Percent of Total	Acres	Percent of Total
Cities (Subtotal)	20,516	24.0	8,434	9.9	3,942	4.6	4,523	5.3	8,760	10.3	46,175	54.1	85,383	100.0
Brookfield	852	5.0	1,976	11.7	416	2.4	129	0.8	1,722	10.2	5,095	30.1	16,940	100.0
Delafield	1,804	26.2	265	3.9	902	13.1	997	14.5	651	9.5	4,619	67.2	6,872	100.0
Milwaukee	42	79.2	6	11.3	4	7.5	0	0.0	0	0.0	52	98.1	53	100.0
Muskego	9,596	41.7	2,806	12.2	1,140	4.9	2,802	12.2	1,519	6.6	17,863	77.6	23,018	100.0
New Berlin	6,817	28.9	2,323	9.8	1,283	5.4	128	0.6	2,997	12.7	13,548	57.4	23,592	100.0
Oconomowoc	805	20.2	277	6.9	90	2.3	369	9.2	322	8.1	1,863	46.7	3,991	100.0
Waukesha	600	5.5	781	7.2	107	1.0	98	0.9	1,549	14.2	3,135	28.8	10,917	100.0
Villages (Subtotal)	12,817	27.5	4,478	9.6	2,510	5.4	2,045	4.4	4,663	10.0	26,513	56.9	46,560	100.0
Big Bend	34	7.1	35	7.3	2	0.4	18	3.8	50	10.5	139	29.1	478	100.0
Butler	0	0.0	21	4.1	5	1.0	3	0.6	71	14.0	100	19.7	507	100.0
Chenequa	586	19.8	36	1.2	748	25.2	739	24.9	162	5.5	2,291	76.6	2,963	100.0
Dousman	283	34.9	122	15.0	56	7.0	32	3.9	25	3.1	518	63.9	811	100.0
Eagle	292	42.1	1	0.1	3	0.4	0	0.0	37	5.3	333	47.9	694	100.0
Elm Grove	0	0.0	37	1.8	8	0.4	8	0.4	51	2.4	104	5.0	2,103	100.0
Hartland	203	9.8	195	9.4	125	6.0	4	0.2	447	21.5	974	46.9	2,077	100.0
Lac La Belle	35	12.4	74	26.1	6	2.1	0	0.0	35	12.3	150	52.9	283	100.0
Lannon	461	28.9	187	11.7	71	4.5	5	0.3	473	29.7	1,197	75.1	1,594	100.0
Menomonee Falls	7,255	34.0	2,865	13.4	784	3.7	91	0.4	1,863	8.7	12,858	60.2	21,319	100.0
Merton	886	61.4	42	2.9	67	4.6	17	1.2	31	2.1	1,043	72.2	1,444	100.0
Mukwonago	284	17.4	124	7.6	98	6.0	43	2.6	182	11.1	731	44.7	1,636	100.0
Nashotah	420	38.3	43	3.9	98	8.9	55	5.0	143	13.1	759	69.2	1,096	100.0
North Prairie	186	21.6	16	1.9	21	2.4	0	0.0	157	18.2	380	44.1	861	100.0
Oconomowoc Lake	221	11.1	126	6.4	211	10.6	813	40.9	111	5.6	1,482	74.6	1,986	100.0
Pewaukee	806	29.0	351	12.6	53	1.9	214	7.7	263	9.5	1,687	60.7	2,778	100.0
Sussex	740	29.8	176	7.1	64	2.6	2	0.1	346	13.9	1,328	53.5	2,482	100.0
Wales	105	7.3	27	1.8	90	6.2	1	0.1	216	14.9	439	30.3	1,448	100.0
Towns (Subtotal)	109,096	45.5	39,066	16.3	23,132	9.7	10,310	4.3	14,884	6.2	196,488	82.0	239,648	100.0
Brookfield	322	8.1	1,206	30.1	56	1.4	60	1.5	576	14.4	2,220	55.5	3,997	100.0
Delafield	5,235	37.8	1,023	7.4	1,982	14.3	1,378	10.0	1,165	8.4	10,783	77.9	13,842	100.0
Eagle	11,053	49.1	4,243	18.9	4,073	18.1	322	1.4	982	4.4	20,673	91.9	22,502	100.0
Genesee	9,065	43.6	3,272	15.8	1,832	8.8	106	0.5	2,499	12.0	16,774	80.7	20,769	100.0
Lisbon	11,287	54.4	2,612	12.6	1,138	5.5	76	0.4	1,922	9.3	17,035	82.2	20,737	100.0
Merton	9,134	49.6	1,228	6.7	1,966	10.7	1,611	8.8	1,142	6.2	15,061	82.0	18,397	100.0
Mukwonago	10,793	49.1	4,048	18.4	2,355	10.7	672	3.1	694	3.2	18,562	84.5	21,977	100.0
Oconomowoc	11,909	55.6	2,890	13.5	656	3.0	2,225	10.4	576	2.7	18,256	85.2	21,429	100.0
Ottawa	9,422	41.3	5,075	22.2	4,355	19.1	471	2.1	1,032	4.5	20,355	89.2	22,841	100.0
Pewaukee	5,501	33.7	1,990	12.2	687	4.2	1,040	6.4	1,768	10.9	10,986	67.4	16,302	100.0
Summit	8,193	44.4	3,721	20.1	1,378	7.5	1,838	10.0	658	3.6	15,788	85.6	18,460	100.0
Vernon	10,613	48.3	4,495	20.5	1,481	6.7	395	1.8	643	2.9	17,627	80.2	21,972	100.0
Waukesha	6,589	40.1	3,263	19.9	1,173	7.1	116	0.7	1,227	7.5	12,368	75.3	16,423	100.0
Waukesha County	142,429	38.3	51,978	14.0	29,584	8.0	16,878	4.5	28,307	7.6	269,176	72.4	371,591	100.0

Note: Data for urban land uses includes related off-street parking areas of more than 10 spaces.

[a]Includes extractive, landfill and unused land.

Source: SEWRPC

EXISTING LAND USE INVENTORY

While the previous section of this chapter provides an overview of the historic growth and trends of Waukesha County, this section provides a more detailed description and analysis of the existing land use of the County. For the purposes of this Plan, existing land use is based upon year 2000 data, the most recent detailed inventory of land use completed by SEWRPC. The pattern of land use that existed within the County in 2000, including formal land use amendments approved by Waukesha County through year 2008, is shown on Map VII-1.

Urban Land Uses

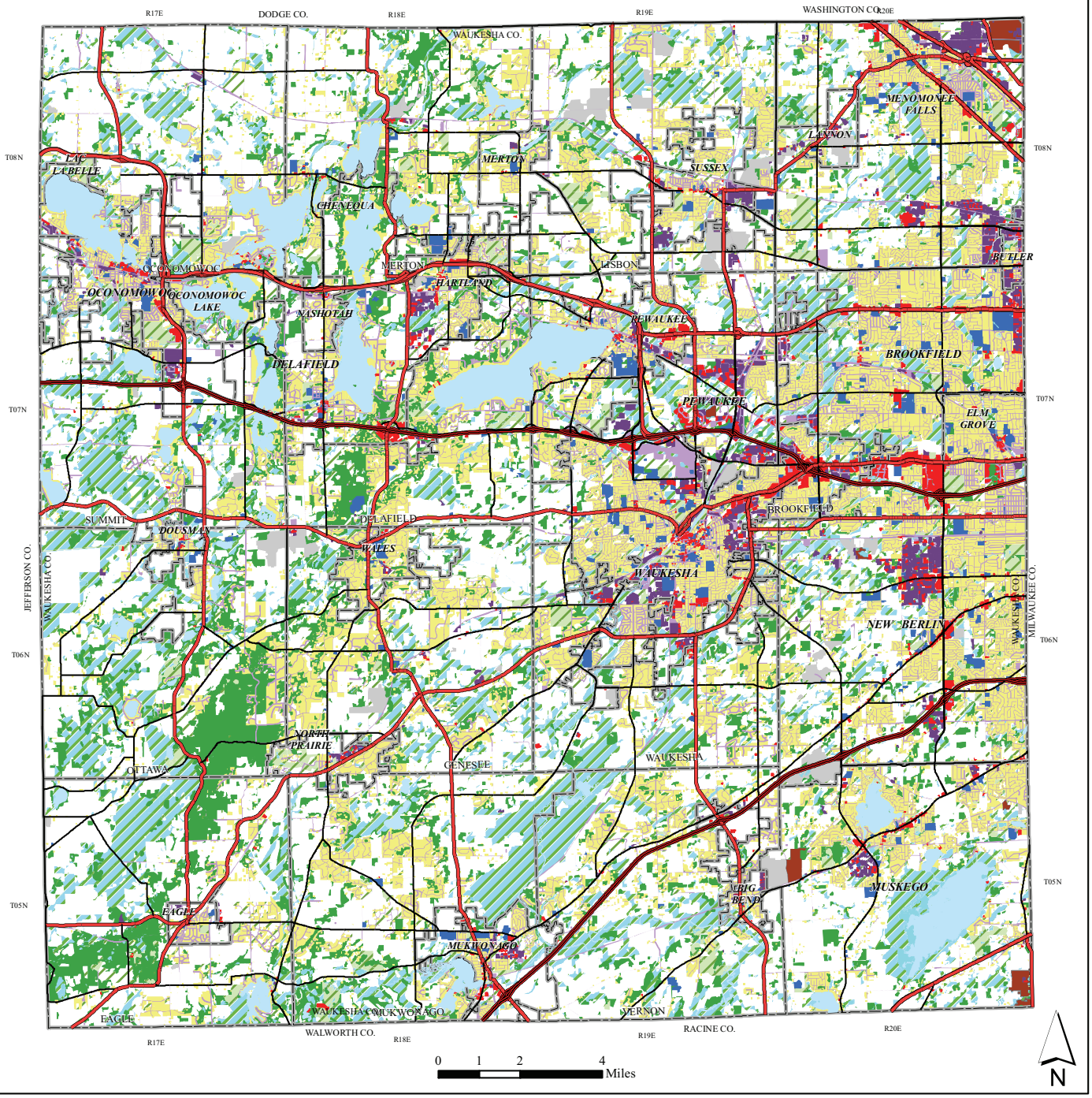
As indicated in Table VII-6, urban land uses, consisting of residential, commercial, industrial, recreational, governmental, institutional, and transportation, communication, and utility uses, encompassed about 130,425 acres, equivalent to about 35 percent of the County, in 2000. Residential land comprised the largest urban land use category in the County in 2000, encompassing about 76,075 acres, or about 59 percent of all urban land and 20 percent of the total area of the County. Commercial and industrial lands each encompassed about 5,500 acres, about four (4) percent of all urban land use and about two (2) percent of the total County area. Land used for governmental and institutional purposes encompassed about 4,900 acres, or about four (4) percent of all urban uses and about one (1) percent of the total area of the County. Lands devoted to intensive recreational uses encompassed about 8,416 acres, or about six (6) percent of all urban uses and about two (2) percent of the County. Lands devoted to transportation, communication, and utility uses, including areas used for streets and highways, railways, airports, and utility and communication facilities, totaled about 30,045 acres, or about 26 percent of all urban uses and about eight (8) percent of the total County area.

Nonurban Land Uses

Nonurban lands, consisting of agricultural lands, wetlands, woodlands, and surface water, quarries, landfill sites, and other open lands, comprised about 241,112 acres, the equivalent of about 65 percent of the total area of the County, in 2000. Agricultural land comprised the largest nonurban land use category, encompassing about 112,620 acres, or about 47 percent of all nonurban land and 30 percent of the total area of the County. Wetlands, woodlands, and surface water, in combination, encompassed about 98,400 acres, representing about 41 percent of all nonurban lands and about 27 percent of the County. Other lands consisting of quarries, landfill sites, and unused lands, consisting of open lands other than wetlands and woodlands and agricultural lands, encompassed about 30,017 acres, representing about 12 percent of all nonurban lands and about 8 percent of the total area of the County.

Map VII-1

EXISTING LAND USE IN WAUKESHA COUNTY: 2000



Legend

- *Interstate*
- *US*
- *State*
- *County*
- *Civil Division Boundary*
- Landfills & Dumps
- Transportation, Communication & Utilities
- Commercial
- Government & Institutional
- Residential
- Industrial
- Extractive
- Woodlands
- Water
- Wetlands
- Recreational
- Unused or Open Lands
- Agricultural

Source: SEWRPC
Civil Divisions as of 11/30/07
Prepared by Waukesha Co. Dept. of Parks and Land Use

Table VII-6
Existing Land Use in Waukesha County by Municipality: 2000

Community	Urban													
	Residential		Commercial		Industrial		Transportation, Communication and Utilities		Governmental and Institutional		Recreational		Subtotal	
	Acres	Percent of Total	Acres	Percent of Total	Acres	Percent of Total	Acres	Percent of Total	Acres	Percent of Total	Acres	Percent of Total	Acres	Percent of Total
Cities (Subtotal)	28,968	27.4	3,343	3.2	3,097	2.9	13,007	12.3	2,644	2.5	2,721	2.6	53,781	50.9
Brookfield	7,760	44.5	1,082	6.2	322	1.8	2,768	15.9	689	3.9	540	3.1	13,160	75.4
Delafield	1,655	23.6	172	2.4	32	0.5	714	10.2	182	2.6	223	3.2	2,978	42.5
Milwaukee	0	0.0	0	0.0	32	65.1	3	7.0	0	0.0	0	0.0	36	72.1
Muskego	4,121	17.9	168	0.7	140	0.6	1,521	6.6	222	1.0	459	2.0	6,632	28.8
New Berlin	6,863	29.1	505	2.1	764	3.2	2,681	11.4	473	2.0	494	2.1	11,779	49.9
Oconomowoc	1,209	21.2	180	3.1	239	4.2	693	12.1	175	3.1	274	4.8	2,769	48.5
Pewaukee	2,826	18.9	467	3.1	647	4.3	1,921	12.9	146	1.0	232	1.6	6,239	41.8
Waukesha	4,535	32.5	770	5.5	921	6.6	2,705	19.4	756	5.4	500	3.6	10,188	73.1
Villages (Subtotal)	13,805	26.3	1,337	2.5	2,002	3.8	5,947	11.3	1,327	2.5	2,193	4.2	26,612	50.7
Big Bend	223	16.4	60	4.4	68	5.0	159	11.7	14	1.0	22	1.6	546	40.3
Butler	123	24.2	49	9.6	155	30.4	108	21.2	10	2.0	22	4.3	467	91.7
Chenequa	470	15.9	0	0.0	0	0.0	135	4.6	2	0.1	82	2.8	688	23.3
Dousman	161	17.2	14	1.5	25	2.6	71	7.6	74	7.9	21	2.2	365	39.2
Eagle	289	37.2	5	0.6	23	3.0	110	14.2	30	3.9	31	4.1	488	62.9
Elm Grove	1,309	62.1	60	2.8	14	0.7	441	20.9	126	6.0	57	2.7	2,007	95.3
Hartland	766	26.4	118	4.1	131	4.5	466	16.1	115	4.0	232	8.0	1,827	63.0
Lac La Belle	120	28.5	0	0.0	0	0.0	15	3.5	0	0.0	142	33.5	277	65.5
Lannon	201	12.6	35	2.2	86	5.4	94	5.9	23	1.5	40	2.5	479	30.1
Menomonee Falls	5,250	24.6	596	2.8	969	4.5	2,259	10.6	344	1.6	991	4.6	10,409	48.8
Merton	555	35.3	6	0.4	18	1.1	114	7.2	39	2.5	13	0.8	744	47.4
Mukwonago	599	18.8	114	3.6	69	2.2	461	14.4	136	4.3	89	2.8	1,469	46.0
Nashotah	349	32.0	10	0.9	12	1.1	155	14.2	6	0.5	11	1.0	543	49.8
North Prairie	481	31.7	22	1.4	39	2.5	160	10.6	11	0.7	225	14.8	938	61.7
Oconomowoc Lake	448	22.0	24	1.2	6	0.3	117	5.7	2	0.1	3	0.1	599	29.4
Pewaukee	644	22.3	125	4.3	83	2.9	437	15.1	213	7.4	41	1.4	1,543	53.5
Sussex	1,008	26.6	84	2.2	296	7.8	467	12.3	83	2.2	145	3.8	2,083	55.0
Wales	809	52.8	16	1.1	10	0.7	178	11.7	99	6.5	27	1.7	1,140	74.4
Towns (Subtotal)	33,301	15.6	763	0.4	447	0.2	11,091	5.2	929	0.4	3,502	1.6	50,033	23.5
Brookfield	1,049	29.7	309	8.7	119	3.4	512	14.5	69	1.9	51	1.4	2,110	59.7
Delafield	3,034	22.8	28	0.2	5	0.0	974	7.3	108	0.8	360	2.7	4,508	33.9
Eagle	1,757	7.8	21	0.1	19	0.1	776	3.5	8	0.0	250	1.1	2,832	12.6
Genesee	4,326	21.2	58	0.3	53	0.3	1,071	5.2	57	0.3	197	1.0	5,761	28.2
Lisbon	3,376	17.5	59	0.3	73	0.4	1,181	6.1	135	0.7	512	2.7	5,335	27.6
Merton	3,271	18.2	40	0.2	25	0.1	1,000	5.6	209	1.2	324	1.8	4,869	27.0
Mukwonago	3,156	15.5	37	0.2	5	0.0	839	4.1	39	0.2	385	1.9	4,460	21.9
Oconomowoc	2,266	10.8	60	0.3	59	0.3	1,010	4.8	53	0.3	199	1.0	3,647	17.4
Ottawa	2,277	10.1	9	0.0	14	0.1	612	2.7	35	0.2	390	1.7	3,337	14.9
Summit	2,161	12.7	24	0.1	19	0.1	896	5.3	83	0.5	189	1.1	3,373	19.8
Vernon	3,306	15.7	39	0.2	17	0.1	1,265	6.0	76	0.4	383	1.8	5,085	24.2
Waukesha	3,323	22.8	79	0.5	39	0.3	956	6.6	57	0.4	261	1.8	4,715	32.3
Waukesha County	76,075	20.5	5,443	1.5	5,546	1.5	30,045	8.1	4,900	1.3	8,416	2.3	130,425	35.1

Table VII-6 (Continued)
Existing Land Use in Waukesha County by Municipality: 2000

Community	Nonurban													
	Agricultural		Wetlands		Woodlands		Surface Water		Other		Subtotal		Total Area	
	Acres	Percent of Total	Acres	Percent of Total	Acres	Percent of Total	Acres	Percent of Total	Acres	Percent of Total	Acres	Percent of Total	Acres	Percent of Total
Cities (Subtotal)	20,316	19.2	11,330	10.7	4,266	4.0	5,677	5.4	10,336	9.8	51,924	49.1	105,704	100.0
Brookfield	405	2.3	2,291	13.1	312	1.8	154	0.9	1,131	6.5	4,293	24.6	17,453	100.0
Delafield	1,277	18.2	257	3.7	903	12.9	997	14.2	599	8.5	4,034	57.5	7,012	100.0
Milwaukee	0	0.0	6	12.0	1	1.6	3	5.3	4	9.0	14	27.9	50	100.0
Muskego	7,974	34.6	2,922	12.7	1,008	4.4	2,851	12.4	1,633	7.1	16,388	71.2	23,020	100.0
New Berlin	5,124	21.7	2,301	9.8	1,154	4.9	112	0.5	3,124	13.2	11,814	50.1	23,594	100.0
Oconomowoc	1,424	24.9	461	8.1	122	2.1	384	6.7	548	9.6	2,939	51.5	5,708	100.0
Pewaukee	3,552	23.8	1,925	12.9	601	4.0	1,052	7.0	1,567	10.5	8,697	58.2	14,936	100.0
Waukesha	560	4.0	1,167	8.4	165	1.2	124	0.9	1,729	12.4	3,745	26.9	13,933	100.0
Villages (Subtotal)	10,483	20.0	5,105	9.7	2,647	5.0	2,147	4.1	5,486	10.5	25,869	49.3	52,480	100.0
Big Bend	653	48.2	57	4.2	22	1.6	21	1.6	56	4.2	809	59.7	1,355	100.0
Butler	0	0.0	21	4.2	4	0.8	2	0.5	14	2.8	42	8.3	509	100.0
Chenequa	521	17.6	38	1.3	771	26.1	741	25.1	192	6.5	2,263	76.7	2,952	100.0
Dousman	326	35.0	133	14.3	50	5.3	28	3.0	31	3.3	568	60.8	933	100.0
Eagle	186	23.9	1	0.2	4	0.5	0	0.0	96	12.4	287	37.1	775	100.0
Elm Grove	0	0.0	43	2.0	12	0.6	7	0.3	38	1.8	99	4.7	2,106	100.0
Hartland	51	1.7	229	7.9	162	5.6	8	0.3	622	21.5	1,071	37.0	2,899	100.0
Lac La Belle	30	7.2	84	19.9	6	1.5	2	0.5	23	5.4	146	34.5	422	100.0
Lannon	397	24.9	202	12.7	63	4.0	5	0.3	447	28.1	1,114	69.9	1,593	100.0
Menomonee Falls	5,151	24.2	2,950	13.8	778	3.6	131	0.6	1,906	8.9	10,916	51.2	21,325	100.0
Merton	639	40.7	36	2.3	92	5.8	17	1.1	43	2.8	827	52.6	1,571	100.0
Mukwonago	760	23.8	399	12.5	100	3.1	87	2.7	376	11.8	1,722	54.0	3,190	100.0
Nashotah	258	23.6	43	3.9	91	8.3	56	5.1	101	9.2	547	50.2	1,091	100.0
North Prairie	202	13.3	19	1.2	66	4.4	9	0.6	285	18.8	581	38.3	1,519	100.0
Oconomowoc Lake	119	5.8	154	7.6	206	10.1	815	39.9	147	7.2	1,440	70.6	2,040	100.0
Pewaukee	307	10.6	406	14.1	37	1.3	204	7.1	388	13.4	1,341	46.5	2,884	100.0
Sussex	757	20.0	266	7.0	112	3.0	16	0.4	551	14.6	1,702	45.0	3,785	100.0
Wales	126	8.2	23	1.5	72	4.7	1	0.1	170	11.1	392	25.6	1,532	100.0
Towns (Subtotal)	81,822	38.4	36,216	17.0	22,019	10.3	9,068	4.3	14,195	6.7	163,319	76.5	213,352	100.0
Brookfield	169	4.8	911	25.8	39	1.1	37	1.1	268	7.6	1,426	40.3	3,536	100.0
Delafield	3,235	24.4	1,039	7.8	2,046	15.4	1,387	10.4	1,064	8.0	8,772	66.1	13,280	100.0
Eagle	9,463	42.2	4,194	18.7	4,173	18.6	313	1.4	1,426	6.4	19,570	87.4	22,402	100.0
Genesee	7,226	35.4	3,298	16.1	1,752	8.6	112	0.5	2,287	11.2	14,675	71.8	20,436	100.0
Lisbon	8,162	42.3	2,603	13.5	944	4.9	82	0.4	2,175	11.3	13,966	72.4	19,301	100.0
Merton	6,896	38.3	1,265	7.0	1,987	11.0	1,613	9.0	1,381	7.7	13,143	73.0	18,013	100.0
Mukwonago	8,288	40.7	3,879	19.0	2,185	10.7	635	3.1	931	4.6	15,918	78.1	20,378	100.0
Oconomowoc	10,685	51.1	2,880	13.8	691	3.3	2,199	10.5	828	4.0	17,284	82.6	20,931	100.0
Ottawa	8,058	35.9	5,028	22.4	4,516	20.1	496	2.2	1,011	4.5	19,110	85.1	22,447	100.0
Summit	6,025	35.4	3,642	21.4	1,315	7.7	1,780	10.5	891	5.2	13,653	80.2	17,026	100.0
Vernon	8,855	42.1	4,474	21.3	1,340	6.4	336	1.6	928	4.4	15,934	75.8	21,019	100.0
Waukesha	4,758	32.6	3,001	20.6	1,030	7.1	76	0.5	1,002	6.9	9,868	67.7	14,584	100.0
Waukesha County	112,620	30.3	52,651	14.2	28,932	7.8	16,892	4.5	30,017	8.1	241,112	64.9	371,537	100.0

Note: In 1999, the Town of Pewaukee incorporated as a City.
Source: SEWRPC

RECOMMENDED LAND USE PLAN

The year 2035 county land use plan was developed to meet the established planning objectives and standards presented in Chapter 2 of this Plan insofar as practicable, using the information and plan design concepts set forth in the previous sections of this Chapter. The plan was designed to accommodate the intermediate population, household and employment projections for the County. Map VII –2 presents the recommended land use plan for Waukesha County for the year 2035. The map shows urban areas in the County as envisioned under the plan including suburban areas, which are neither truly urban or rural in character; primary environmental corridors—i.e., areas containing concentrations of the best remaining elements of the natural resource base—which are recommended for preservation in essentially natural open uses; and rural areas consisting of prime agricultural land, other agricultural land, rural-density residential land, and other open lands. The various components of the land use plan, as depicted on Map VII-2, are described in this section. Table VII-8 presents the planned land uses by municipality for year 2035.

Basic Definitions

Urban Land and Urban Development

For purposes of the 2035 recommended land use plan, "urban land" or "urban development" is defined as intensively developed areas devoted to urban-density residential, commercial, industrial, governmental and institutional, recreational, mixed use, transportation and utility and communication uses, that are serviced by public infrastructure such as sewer, water and public transit.

"Commercial and/or Office Park" development is defined as land devoted to retail, office, service activities, general business activities, and/or research and development and related off-street parking.

"Governmental and Institutional" development is defined as areas for government and public and private institutional buildings, facilities and grounds such as schools, churches, libraries, cultural facilities, nonprofit charitable organizations, hospitals, and police and fire stations, that have a direct bearing on the quality of life and on public safety.

"Highway and Railway Rights-of-Way" are federal, state and county highways, railroad rights-of-way, and parking associated with transportation systems.

"Industrial" development is defined as land devoted to manufacturing, wholesaling, storage activities, attendant offices and related off-street parking and may include office uses or take the form of a business park.

"Mixed Use" development is defined as development that may contain residential and could contain a combination of public, institutional, office, retail, service, light industrial, research and development, and/or other commercial uses, including off street parking and may take the form of a business park.

"Recreational" land use is defined as area devoted to public and private general use recreation including golf, baseball, swimming, tennis, ice skating. In addition, recreational lands include natural resource-based education and self-actualized recreational activities such as hiking, camping, picnicking, skiing and horseback riding.

"Suburban Density" residential development is defined as residential development at a densities ranging from 1.5 to 4.9 acres of area per dwelling unit. Such development is neither truly urban nor rural in character. Development at these densities generally precludes the provision of centralized sewer and water supply service and other urban amenities. While such development occurs and accordingly must be accommodated in the land use plan, it is only recommended while maintaining an overall residential density of 5 acres in "rural development" areas. "Suburban I Density" is residential development at 1.5 to 2.9 acres per dwelling unit. "Suburban II Density" is residential development at 3.0 to 4.9 acres per dwelling unit.

"Transportation, Communication and Utilities" land uses include areas used for airports, and utility and communication facilities.

"Urban Density Residential Development" includes the following density ranges: "high density" (less than 6,000 square feet of area per dwelling unit); "medium-density" (6,000 – 19,999 square feet of area per dwelling unit); and "low-density" (20,000 square feet to 1.4 acres of area per dwelling unit). The term "urban service area" refers to areas that are intended to accommodate urban development insofar as they are served by basic urban services and facilities, including public sanitary sewer service, public water supply service and a local park, school, and shopping area.

Rural Land and Rural Development

For the purposes of the land use plan, "rural land" or "rural development" is defined as sparsely developed areas where land is used primarily for farming, resource extraction, landfills, very low density residential uses (no more than one dwelling unit per five acres), or other open spaces uses, and includes environmental corridors and isolated natural resource areas.

"Extractive" land use is defined as area devoted primarily to the extraction of sand, gravel and stone and related activities. Mineral extraction is recognized as an interim land use. Future land use following the extraction activity will be subject to future plan amendments consistent with the planning standards and objectives contained in Chapter 2 and adjoining land uses.

"Isolated Natural Resource Areas" are smaller pockets of natural resource elements that are isolated from primary and secondary environmental corridors, and have environmental value in the areas in which they are located and are more specifically defined in SEWRPC Technical Record Vol. 4, No. 2, March 1981.

"Landfill" development is area devoted to licensed waste disposal operations.

"Other Open Lands to be Preserved" are defined as lands usually adjacent to, but outside, identified primary and secondary environmental corridors and isolated natural resource areas, including lands within the 100-year recurrence interval floodplain, open lands within existing County or State park and open space sites, and other lands covered by soils with a high water table, poorly drained soils, or organic soils.

"Prime Agricultural" are lands in agricultural use, unused/open lands, and primary/secondary environmental corridor or isolated natural areas and are within a five (5) square mile contiguous area (including adjacent counties) that meet all of the following criteria: 1) is outside of any planned sewer service area boundary; 2) 75% is agricultural or open/unused land use; 3) 50% is Class I or Class II soils which meet Natural Resources Conservation Service standards; and 4) 75% consists of land ownership parcels of 35 acres or more. A description of the origin of this definition is presented in Chapter 2. Residential development can occur on prime agricultural lands at a density of no more than one dwelling unit per 35 acres.

"Primary Environmental Corridors" are areas of woodlands, wetlands, prairies, surface water, and wildlife habitat that represent a composite of the best remaining elements of the natural resource base and are more specifically defined in SEWRPC Technical Record Vol. 4, No. 2, March 1981.

"Rural Density and Other Agricultural Land" consist primarily of farm and related open lands which do not meet the criteria for classification as prime agricultural lands, but which are nonetheless proposed to be retained in rural land uses. Rural land uses include continuation of existing farming activity; creation of smaller farms, including hobby farms, horse farms, or other specialty farms; and rural density residential development. Rural density residential development occurs at a density of no more than one dwelling unit per five acres (5 to 34.9 acres of area per dwelling unit or equivalent density). When accommodated through conservation subdivision designs, only a fraction of the total site area is intensively developed as homesites, the balance being retained in permanent open space use, achieving the overall rural density.

"Secondary Environmental Corridors" are areas containing a variety of natural resource elements, often remnant resources from primary environmental corridors, which have been developed for intensive urban or agricultural purposes, creating these smaller, yet significant corridors and are more specifically defined in SEWRPC Technical Record Vol. 4, No. 2, March 1981.

Planned Land Use

The pattern of land use recommended under the Comprehensive Development Plan for Waukesha County is shown graphically on Map VII-2 and presented by municipality in Table VII-8. A description of the various urban and nonurban land uses in the County, as envisioned under the plan, follows.

Urban Land Use

The recommended land use plan envisions a substantial increase in urban land use within the County. Urban land uses, consisting of lands devoted to residential, commercial, industrial, governmental and institutional, recreational, landfill highway and railway rights-of-way and transportation, communication, and utility uses, encompassed about 130,425 acres and comprised about 35 percent of the total area of the County in 2000. Under the plan, the area devoted to urban uses would increase to about 190,978 acres, or about 51 percent of the County by the plan design year 2035. Table VII-7 presents the change in residential, commercial and industrial lands from the year 2000 to 2035, including the five (5) year increment.

Recreational Land

Under the recommended land use plan, recreational land use would increase from 8416 acres in 2000 to 15,548 acres by the year 2035.

Residential Land

Under the recommended land use plan, urban residential land use would increase by about 70 percent, from 76,075 acres in 2000 to about 129,346 acres by the year 2035. Under the plan, the proportion of the County devoted to urban residential use would increase from 21 percent to 35 percent.

Of the total planned urban residential land, about 44 percent (57,416 acres) would occur at low density (20,000 square feet to 1.4 acres of area per dwelling unit), 12 percent (14,918 acres) at suburban density I (1.5 to 2.9 acres per dwelling unit), and 13 percent (17,418 acres) at suburban density II (3.0 to 4.9 acres per dwelling unit). About 28 percent (36,275 acres) of the urban residential land would occur at medium density with 6,000 to 19,999 square feet of lot area per dwelling unit. The remaining three (3) percent (3,316 acres) of the additional urban residential land would occur at high density, with less than 6,000 square feet of lot area per dwelling unit.

Commercial, Industrial and Mixed Use

The recommended land use plan also envisions a substantial increase in economic activity areas, as represented by the commercial and industrial uses on Map VII-2. Under the plan, commercial business and office park land uses, which includes areas proposed to be utilized for retail, office, service activities, general business activities, and/or research and development and related off-street parking, individually or in various combinations would increase to about 8,897 acres by the year 2035 from 5,443 acres in 2000. The proportion of the total County area devoted to commercial and office park use would accordingly increase from 1.5 percent to 2.4 percent.

Under the plan, industrial land use would increase by from about 5,546 acres in 2000 to 13,038 by the year 2035. The proportion of the total County area devoted to industrial use would accordingly increase from 1.5 percent to 3.5 percent.

Under the plan, mixed use development, which may contain residential and could contain a combination of public, institutional, office, retail, service, light industrial, research and development, and/or other commercial uses, and may take the form of a business park would represent 1,962 acres, or less than 1 percent of the land

uses, by year 2035. Since this is a new land use category in this comprehensive development plan, no comparison can be made to year 2000 conditions.

Governmental and Institutional

Governmental and institutional lands represent areas for government and public and private institutional buildings, facilities and grounds such as schools, churches, libraries, cultural facilities, nonprofit charitable organizations, hospitals, and police and fire stations, that have a direct bearing on the quality of life and on public safety. The recommended land use plan identifies governmental and institutional lands would increase from 4,900 acres in year 2000 to 8,354 acres in year 2035.

Other Urban Land

Increases in other urban land uses, including governmental and institutional; recreational; highway and railway rights-of-way and transportation, communication, and utility lands, are also envisioned under the recommended land use plan.

Under the plan, the transportation, communication, and utility land use category, which includes areas used for airports, and utility and communication facilities, would represent 12,850 acres, or 3.5 percent of the county wide land use. Of this acreage, 11,754 acres are identified as highway right-of-ways. Map VII-2 depicts the highway right-of-ways separate from other transportation, communication and utility lands.

Table VII-7
INCREMENTAL LAND USE PROJECTIONS FOR SPECIFIC URBAN LAND USES: 2000-2035

Land Use Category	Existing Land Uses: 2000		Future Land Uses: 2035		Change 2000 - 2035		5-Year Increment (acres)
	Acres	Percent of County	Acres	Percent of County	Acres	Percent Change	
Residential	76,075	20.5	129,346	34.8	53,271	70	7,610
Commercial	5,443	1.5	8,897	2.4	3,454	63	493
Industrial	5,546	1.5	13,038	3.5	7,492	135	1,070

Nonurban Land Uses

Under the recommended land use plan, nonurban land uses, consisting of environmentally sensitive lands, other open lands to be preserved, landfills, extractive uses, prime agricultural lands and rural density residential and other agricultural lands, would comprise about 180,567 acres, or about 49 percent of the total area of the County. Owing to the amount of urban development envisioned under the plan, the area dedicated to nonurban land uses would decrease from about 241,112 acres in 2000 to the planned 180,567 acres by the year 2035.

Environmentally Sensitive Lands

The most important remaining elements of the natural resource base are concentrated within areas identified on the recommended land use plan map as primary environmental corridors, secondary environmental corridors, and isolated natural resource areas. The environmental corridor concept and the pattern of existing environmental corridors and isolated natural resource areas in the County are described in Chapter 3 of this Plan.

Primary environmental corridors are linear areas in the landscape that contain concentrations of high-value elements of the natural resource base, including almost all of the best remaining floodlands, woodlands, wetlands, and wildlife habitat areas. By definition, these corridors are at least 400 acres in area, two miles long, and 200 feet

in width. The plan proposes the preservation of all remaining primary environmental corridors in essentially natural, open uses. Under the plan, development within these corridors would be limited to that needed to accommodate required transportation and utility facilities, compatible outdoor recreation facilities, and, on a limited basis, carefully sited rural-density residential use. The plan further envisions that certain adjacent floodlands within planned sewer service areas that are currently in agricultural or other open uses will over time be allowed to revert to a natural condition, becoming part of the environmental corridor network as urbanization of abutting upland areas proceeds. Under the recommended land use plan, the primary environmental corridor area in the County would consist of about 73,024 acres, or about 19 percent of the total land area in the year 2035.

Secondary environmental corridors also contain a variety of resource elements, often being remnants of primary corridors that have been partially converted to intensive urban use or agricultural use. By definition, secondary environmental corridors are at least one mile long and 100 acres in area. The County land use plan recommends that secondary environmental corridors be considered for preservation in natural, open uses or incorporated as drainage ways or local parks within developing areas. Such areas may, at the discretion of local units of government, also accommodate intensive urban uses. Caution must be exercised when considering development within such areas, however, since Federal, State, or local natural resource protection regulations concerning wetlands, floodplains, shorelands, storm water management, and erosion control, among others, may effectively preclude development within lowland portions of such corridor areas. Under the recommended land use plan, the secondary environmental corridor area would consist of about 6,759 acres, or about 2 percent of the total land area in the year 2035.

Isolated natural resource areas consist of smaller pockets of wetlands, woodlands, or surface water that are isolated from the primary and secondary environmental corridors. By definition, isolated natural resource areas are at least five acres in size. The land use plan recommends that these areas be preserved in natural, open uses insofar as is practicable, recognizing that such areas are often well suited for use as public or private parks and open space reservation. Such areas may, at the discretion of local units of government, also accommodate intensive urban uses. Caution must be exercised when considering development within such areas, however, since Federal, State, or local natural resource protection regulations concerning wetlands, floodplains, shorelands, storm water management, and erosion control, among others, may effectively preclude development within lowland portions of isolated natural resource areas. Under the recommended land use plan, the isolated natural resource areas would consist of about 7,688 acres, or about 2 percent of the total land area in the year 2035.

As indicated in Chapter 3 of this Plan, the preservation of these environmentally sensitive areas, particularly the primary environmental corridors, is essential to the maintenance of the overall quality of the environment. Moreover, because these areas are typically unsuitable for urban development, their preservation in natural, open uses can help to prevent such new developmental problems as failing foundations for pavement and structures, wet basements, excessive clear water infiltration into sanitary sewerage systems, and poor drainage.

Extractive

As noted in Chapter 3, Waukesha County contains an abundance of nonmetallic mineral resources, the mining of which may be necessary to provide the sand, gravel, and dimensional stone needed in support of the continued development of the area. This recommended land use plan recognizes that while the County contains an abundance of such resources, efforts to extract sand and gravel or dimensional stone are increasingly constrained by the continued urbanization of the County. The plan seeks to preserve and protect lands for mineral extraction purposes before the lands are developed for urban use or effectively precluded from extractive use by further urban development of adjacent areas.

For this aspect of the plan, input from the Aggregate Producers of Waukesha County, an association of mineral extraction operators in the County was sought. Members of that association provided information regarding the extent of lands now owned or leased for mineral extraction purposes as well as adjacent lands having the potential for mining activity. The areas so identified are shown on the recommended County land use plan (Map VII-2). In incorporating these areas into the land use plan, adjustments were made as necessary to ensure that the proposed activity would not encroach upon environmental corridors or isolated natural resource areas.

The areas identified for extractive use under the recommended plan encompass about 1.3 percent of the total area of the County. It should be recognized in this respect that mineral extractive activity is an interim use, and further, that mining activity at any given site usually proceeds in phases, with early phases undergoing restoration while later phases are being mined. Accordingly, the total area of the County being actively mined at any point in time may be expected to be significantly less than 4,930 acres.

Landfill

The recommended land use plan envisions the continued operation of existing sanitary landfill sites in the Village of Menomonee Falls and City of Muskego with modest expansions of each of the sites. The sanitary landfill sites shown on the land use plan map together encompass about 1,091 acres or less than one (1) percent of the total area of the County.

Other Open Lands to Be Preserved

Other open lands to be preserved under the recommended land use plan are lands usually adjacent to, but outside, identified primary and secondary environmental corridors and isolated natural resource areas, including lands within the 100-year recurrence interval floodplain, open lands within existing County or State park and open space sites, small wetlands less than five acres in size, and other lands covered by soils with a high water table, poorly drained soils, or organic soils. Such lands, which should be considered unsuitable for development of any kind, amount to about 16,018 acres, or about 4.3 percent of the total area of the County under the year 2035 plan conditions.

Prime Agricultural

The recommended land use plan envisions, to the extent still practicable, the preservation of the best remaining prime agricultural lands in agricultural use. As shown on Map VII-2, prime agricultural lands envisioned under the recommended plan are located primarily in the northwest and southwest areas of the County. Under the plan, these areas would be developed at a minimum of a 35-acre density in order to preserve workable farm units and to prevent the intrusion of incompatible urban development. Structures would be limited to those consistent with agricultural use, with residences limited to homes for the farmer, farm laborers, or parents or children of the farmer.

Under the recommended land use plan, prime agricultural lands in the County would amount to about 10,341 acres, or about 2.8 percent of the total area of the County under year 2035 plan conditions. Anticipated losses in prime agricultural lands would occur as a result of planned additional urban development, primarily around expanding urban service areas, and as a result these prime agricultural lands have been reclassified to rural-density residential and other agricultural lands, or to other open lands to be preserved. Such areas would be reclassified because they no longer meet the criteria for designation as prime agricultural lands, owing to the intrusion of residential development that disrupts the extensive blocks of farmland, which once occurred throughout the County.

Rural Density and Other Agricultural Land

Areas shown in white on the recommended land use plan map consist primarily of farm and related open lands which do not meet the criteria for classification as prime agricultural lands, but which are nonetheless proposed to be retained in rural land uses. Rural land uses envisioned under the plan for these areas include continuation of existing farming activity; creation of smaller farms, including hobby farms, horse farms, or other specialty farms; and rural-density residential development.

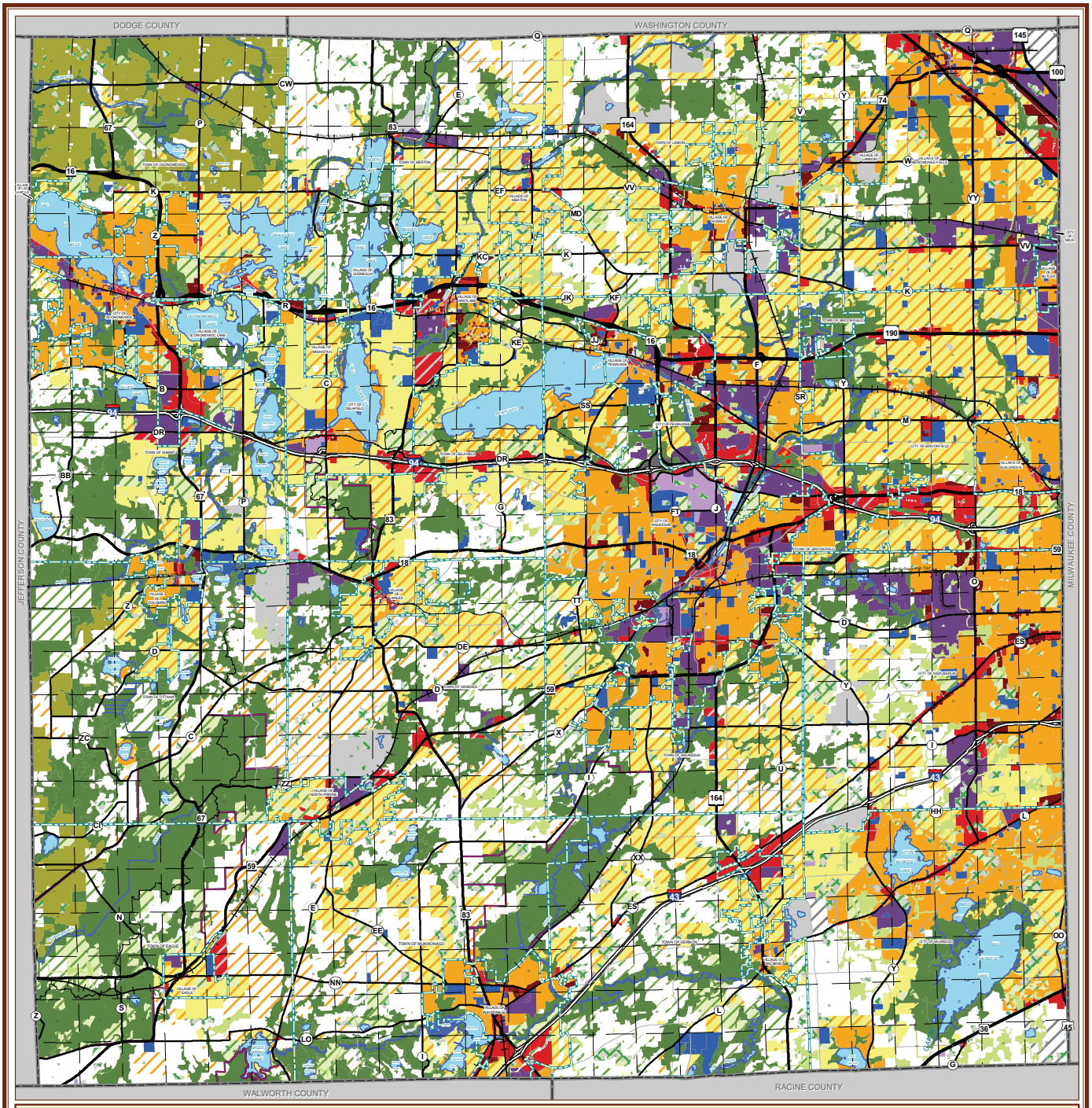
Rural-density residential development is defined for the purpose of the land use plan as residential development at a gross density of no more than one dwelling unit per five acres of land. It is envisioned that agricultural uses would be encouraged to continue in the rural-residential and other agricultural areas delineated on the plan map to the greatest extent possible, and that rural residential development be allowed to occur in those areas only at such

time as the agricultural uses are discontinued. The determination of permitted gross residential density in such areas could be calculated on an area wide basis and would include in the calculation rural-density residential and other agricultural lands, primary or secondary environmental corridors, isolated natural resource areas, and other open lands to be preserved and major public land holdings, as designated under the recommended plan, and excluding major lakes.

Rural-density residential development could take the form of large lots for single-family dwelling units, with each lot being five acres or more in area, or could use density transfer, planned unit development, or cluster development design techniques to achieve the recommended overall gross residential density. Dwelling units could be concentrated on carefully located groupings of smaller lots, possibly as small as one acre in size, on a portion of a site to be developed, while retaining the balance of the site in agricultural or other open uses. The clusters of residential lots should be sited to preserve the rural appearance of the landscape, to facilitate the provision of sewage disposal and water supply, and to avoid the creation of problems such as poor drainage and foundation failures. This development option could include transfer of development rights between parcels of land throughout the community or adjacent to each other, resulting in higher densities of dwelling units at the development site while maintaining large areas of the landscape in open uses. Many options exist with respect to the use and ownership of the preserved open areas of a rural development, as well as for the design of the portion of the site where dwelling units are to be clustered. These options and the manner in which they are implemented are considered later in this chapter.

Under the recommended land use plan, the rural-density residential and other agricultural land use category would amount to about 44,273 acres, or about 12 percent of the total area of the County under the year 2035 plan conditions. As shown on Map VII-2, lands in this category would be widely distributed in the outlying areas of the County.

Map VII-2
RECOMMENDED LAND USE PLAN FOR WAUKESHA COUNTY: 2035



Recommended Land Use Plan For Waukesha County - 2035

Land Use Plan Categories

- High Density Residential (Less than 6,000 square feet of area per dwelling unit)
- Medium Density Residential (6,000-19,999 square feet of area per dwelling unit)
- Low Density Residential (20,000 square feet to 1.4 acres of area per dwelling unit)
- Suburban I Density Residential (1.5 to 2.9 acres of area per dwelling unit)
- Suburban II Density Residential (3.0 to 4.9 acres of area per dwelling unit)
- Rural Density and Other Agricultural Land* (5.0 to 34.9 acres of area per dwelling unit or equivalent density)
- Prime Agricultural (35 acres of area per dwelling unit or greater)
- Other Open Lands to be Preserved
- Recreational
- Primary Environmental Corridor
- Secondary Environmental Corridor
- Isolated Natural Resource Area
- Surface Water
- Governmental & Institutional
- Commercial and Office Park
- Mixed Use
- Industrial
- Transportation, Communication & Utilities
- Highway and Railway Rights of Way
- Landfill
- Extractive
- Adopted Wisconsin Department Of Natural Resources Project Boundary
- Major Recreational Trails

1 inch = 3 miles

0 1 2 3 4 5 Miles

* Refer to Town of Ottawa and Town of Mukwonago Land Use Plans, and Town of Delafield Land Use Plan Unit Determination for permissible rural densities.

Environmental Corridor information from SEWRPC Environmental Corridor Inventory 2000
Prepared By The Waukesha County Department Of Parks And Land Use January 23, 2009.

Table VII-8
PLANNED LAND USE IN WAUKESHA COUNTY BY MUNICIPALITY: 2035

Community	Urban									
	Commercial and Office Park		Governmental and Institutional		Highway Rights of Way		Industrial		Landfill	
	Acres	Percent of Total	Acres	Percent of Total	Acres	Percent of Total	Acres	Percent of Total	Acres	Percent of Total
Cities (Subtotal)	4,695	4.3	3,945	3.7	0	0.0	7,040	6.5	629	0.6
Brookfield	1,243	7.0	793	4.5	0	0.0	504	2.9	0	0.0
Delafield	144	2.0	524	7.4	0	0.0	60	0.8	0	0.0
Milwaukee	0	0.0	0	0.0	0	0.0	37	72.5	0	0.0
Muskego	570	2.5	336	1.5	0	0.0	276	1.2	629	2.7
New Berlin	640	2.7	616	2.6	0	0.0	2,138	9.1	0	0.0
Oconomowoc	516	7.3	331	4.7	0	0.0	643	9.1	0	0.0
Pewaukee	623	4.6	273	2.0	0	0.0	1,439	10.6	0	0.0
Waukesha	958	6.0	1,072	6.7	0	0.0	1,943	12.1	0	0.0
Villages (Subtotal)	2,754	4.8	2,203	3.9	0	0.0	3,919	6.9	462	0.8
Big Bend	351	21.2	24	1.5	0	0.0	133	8.0	0	0.0
Butler	13	2.6	6	1.2	0	0.0	251	49.3	0	0.0
Chenequa	0	0.0	5	0.2	0	0.0	0	0.0	0	0.0
Dousman	31	1.9	94	5.8	0	0.0	134	8.3	0	0.0
Eagle	41	4.6	71	8.0	0	0.0	65	7.3	0	0.0
Elm Grove	78	3.7	130	6.2	0	0.0	25	1.2	0	0.0
Hartland	54	1.6	240	7.2	0	0.0	441	5.5	0	0.0
Lac La Belle	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Lannon	76	4.8	36	2.3	0	0.0	161	10.1	0	0.0
Menomonee Falls	878	4.1	797	3.7	0	0.0	1,724	8.1	462	2.2
Merton	14	0.7	54	2.8	0	0.0	32	1.6	0	0.0
Mukwonago	515	12.9	146	3.7	0	0.0	285	7.1	0	0.0
Nashotah	28	2.7	16	1.5	0	0.0	15	1.4	0	0.0
North Prairie	44	2.5	22	1.2	0	0.0	176	10.0	0	0.0
Oconomowoc Lake	35	1.7	51	2.5	0	0.0	5	0.2	0	0.0
Pewaukee	266	9.2	298	10.3	0	0.0	198	6.8	0	0.0
Sussex	226	4.8	106	2.2	0	0.0	524	11.1	0	0.0
Wales	104	5.1	107	5.2	0	0.0	10	0.5	0	0.0
Towns (Subtotal)	1,427	0.7	2,215	1.1	0	0.0	1,800	0.9	0	0.0
Brookfield	340	10.2	74	2.2	0	0.0	98	2.9	0	0.0
Delafield	163	1.2	221	1.7	0	0.0	0	0.0	0	0.0
Eagle	11	0.0	52	0.2	0	0.0	124	0.6	0	0.0
Genesee	181	0.9	100	0.5	0	0.0	504	2.6	0	0.0
Lisbon	170	0.9	247	1.4	0	0.0	318	1.8	0	0.0
Merton	58	0.3	269	1.5	0	0.0	140	0.8	0	0.0
Mukwonago	63	0.3	52	0.3	0	0.0	2	0.0	0	0.0
Oconomowoc	137	0.7	148	0.7	0	0.0	92	0.5	0	0.0
Ottawa	11	0.1	193	0.9	0	0.0	6	0.0	0	0.0
Summit	4	0.0	273	1.7	0	0.0	231	1.4	0	0.0
Vernon	127	0.6	421	2.1	0	0.0	126	0.6	0	0.0
Waukesha	162	1.2	165	1.2	0	0.0	159	1.2	0	0.0
Waukesha County	8,876	2.4	8,351	2.2	0	0.0	12,759	3.4	1,091	0.3

Table VII-8 (Continued)
PLANNED LAND USE IN WAUKESHA COUNTY BY MUNICIPALITY: 2035

Community	Urban									
	Mixed Use		Recreational		Residential		Transportation, Communication and Utilities		Subtotal	
	Acres	Percent of Total	Acres	Percent of Total	Acres	Percent of Total	Acres	Percent of Total	Acres	Percent of Total
Cities (Subtotal)	490	0.5	4,480	4.1	48,803	45.2	5,123	4.7	75,206	69.6
Brookfield	105	0.6	590	3.3	10,276	58.2	818	4.6	14,329	81.2
Delafield	358	5.1	484	6.8	3,886	54.9	419	5.9	5,875	83.1
Milwaukee	0	0.0	0	0.0	0	0.0	0	0.0	37	72.5
Muskego	0	0.0	807	3.5	8,533	37.1	421	1.8	11,573	50.3
New Berlin	0	0.0	1,056	4.5	9,080	38.5	924	3.9	14,454	61.3
Oconomowoc	27	0.4	438	6.2	3,440	48.9	217	3.1	5,613	79.8
Pewaukee	0	0.0	446	3.3	5,609	41.2	1,017	7.5	9,407	69.1
Waukesha	0	0.0	659	4.1	7,979	49.8	1,307	8.2	13,919	86.8
Villages (Subtotal)	719	1.3	2,878	5.1	25,440	44.7	2,336	4.1	40,711	71.5
Big Bend	19	1.1	9	0.5	851	51.4	102	6.2	1,489	90.0
Butler	0	0.0	12	2.4	159	31.2	24	4.7	465	91.4
Chenequa	0	0.0	84	2.8	57	1.9	96	3.2	242	8.1
Dousman	0	0.0	23	1.4	956	59.4	31	1.9	1,269	78.9
Eagle	0	0.0	33	3.7	624	70.1	45	5.1	879	98.8
Elm Grove	10	0.5	62	2.9	1,624	77.1	80	3.8	2,009	95.3
Hartland	348	10.5	225	6.8	1,418	42.7	207	6.2	2,673	80.5
Lac La Belle	0	0.0	108	25.5	201	47.5	0	0.0	309	73.0
Lannon	0	0.0	82	5.1	627	39.3	57	3.6	1,039	65.2
Menomonee Falls	144	0.7	952	4.5	9,133	42.8	769	3.6	14,859	69.7
Merton	48	2.5	106	5.4	1,410	72.3	39	2.0	1,703	87.3
Mukwonago	0	0.0	179	4.5	1,782	44.6	262	6.6	3,169	79.4
Nashotah	4	0.4	40	3.8	622	59.4	98	9.4	823	78.6
North Prairie	105	6.0	263	14.9	984	55.8	49	2.8	1,643	93.2
Oconomowoc Lake	0	0.0	0	0.0	415	20.2	29	1.4	535	26.0
Pewaukee	0	0.0	53	1.8	1,102	38.1	188	6.5	2,105	72.7
Sussex	0	0.0	401	8.5	2,265	47.8	217	4.6	3,739	78.9
Wales	41	2.0	246	12.0	1,210	58.9	43	2.1	1,761	85.7
Towns (Subtotal)	1,082	0.5	8,190	4.0	55,110	26.7	5,391	2.6	75,215	36.4
Brookfield	116	3.5	64	1.9	1,316	39.4	231	6.9	2,239	67.1
Delafield	67	0.5	646	4.9	5,151	38.8	430	3.2	6,678	50.3
Eagle	196	0.9	1,792	8.0	3,349	15.0	471	2.1	5,995	26.9
Genesee	159	0.8	298	1.5	6,672	33.8	475	2.4	8,389	42.5
Lisbon	0	0.0	647	3.6	6,023	33.5	475	2.6	7,880	43.9
Merton	65	0.4	639	3.6	5,892	33.6	384	2.2	7,447	42.4
Mukwonago	21	0.1	918	4.6	5,396	27.1	314	1.6	6,766	33.9
Oconomowoc	29	0.1	556	2.7	3,404	16.8	708	3.5	5,074	25.0
Ottawa	0	0.0	862	4.0	3,129	14.4	290	1.3	4,491	20.6
Summit	187	1.1	363	2.2	4,664	28.6	549	3.4	6,271	38.4
Vernon	151	0.7	909	4.5	4,173	20.5	602	3.0	6,509	32.0
Waukesha	96	0.7	496	3.6	5,941	43.1	462	3.3	7,481	54.2
Waukesha County	2,291	0.6	15,548	4.2	129,353	34.8	12,850	3.5	191,132	51.4

Table VII-8 (Continued)
PLANNED LAND USE IN WAUKESHA COUNTY BY MUNICIPALITY: 2035

Community	Non-Urban							
	Extractive		Other Open Lands to be Preserved		Primary and Secondary Environmental Corridor and Isolated Natural Resource Areas		Prime Agricultural	
	Acres	Percent of Total	Acres	Percent of Total	Acres	Percent of Total	Acres	Percent of Total
Cities (Subtotal)	1,019	0.9	1,445	1.3	16,609	15.4	0	0.0
Brookfield	0	0.0	226	1.3	2,736	15.5	0	0.0
Delafield	0	0.0	17	0.2	152	2.1	0	0.0
Milwaukee	0	0.0	0	0.0	11	21.6	0	0.0
Muskego	319	1.4	0	0.0	4,448	19.3	0	0.0
New Berlin	700	3.0	583	2.5	3,993	16.9	0	0.0
Oconomowoc	0	0.0	0	0.0	809	11.5	0	0.0
Pewaukee	0	0.0	434	3.2	2,655	19.5	0	0.0
Waukesha	0	0.0	185	1.2	1,805	11.3	0	0.0
Villages (Subtotal)	452	0.8	697	1.2	9,097	16.0	0	0.0
Big Bend	0	0.0	8	0.5	137	8.3	0	0.0
Butler	0	0.0	0	0.0	42	8.3	0	0.0
Chenequa	0	0.0	0	0.0	967	32.4	0	0.0
Dousman	0	0.0	0	0.0	289	18.0	0	0.0
Eagle	0	0.0	0	0.0	9	1.0	0	0.0
Elm Grove	0	0.0	0	0.0	91	4.3	0	0.0
Hartland	0	0.0	199	6.0	347	10.5	0	0.0
Lac La Belle	0	0.0	0	0.0	112	26.5	0	0.0
Lannon	268	16.8	0	0.0	282	17.7	0	0.0
Menomonee Falls	0	0.0	85	0.4	4,071	19.1	0	0.0
Merton	0	0.0	0	0.0	212	10.9	0	0.0
Mukwonago	0	0.0	1,102	5.5	582	14.6	0	0.0
Nashotah	0	0.0	46	4.4	139	13.3	0	0.0
North Prairie	0	0.0	0	0.0	103	5.8	0	0.0
Oconomowoc Lake	0	0.0	0	0.0	402	19.6	0	0.0
Pewaukee	0	0.0	119	4.1	468	16.2	0	0.0
Sussex	184	3.9	25	0.5	611	12.9	0	0.0
Wales	0	0.0	59	2.9	233	11.3	0	0.0
Towns (Subtotal)	3,459	1.7	13,758	6.7	61,737	29.9	10,341	5.0
Brookfield	0	0.0	118	3.5	954	28.6	0	0.0
Delafield	0	0.0	95	0.7	3,251	24.5	0	0.0
Eagle	0	0.0	788	3.5	9,475	42.5	1,445	6.5
Genesee	898	4.5	2,276	11.5	5,651	28.6	0	0.0
Lisbon	1,611	9.0	1,766	9.8	3,659	20.4	0	0.0
Merton	150	0.9	612	3.5	3,428	19.5	0	0.0
Mukwonago	0	0.0	1,097	5.5	6,470	32.5	0	0.0
Oconomowoc	0	0.0	205	1.0	3,670	18.1	7,778	38.4
Ottawa	720	3.3	1,836	8.4	9,939	45.6	1,118	5.1
Summit	80	0.5	1,044	6.4	4,896	30.0	0	0.0
Vernon	0	0.0	2,727	13.4	6,181	30.4	0	0.0
Waukesha	0	0.0	1,194	8.7	4,163	30.2	0	0.0
Waukesha County	4,930	1.3	15,900	4.3	87,443	23.5	10,341	2.8

Table VII-8 (Continued)
PLANNED LAND USE IN WAUKESHA COUNTY BY MUNICIPALITY: 2035

Community	Non-Urban							
	Rural Density and Other Agricultural Land		Surface Water		Subtotal		Total Area	
	Acres	Percent of Total	Acres	Percent of Total	Acres	Percent of Total	Acres	Percent of Total
Cities (Subtotal)	7,871	7.3	5,927	5.5	32,871	30.4	108,077	100.0
Brookfield	0	0.0	363	2.1	3,325	18.8	17,654	100.0
Delafield	0	0.0	1,029	14.5	1,198	16.9	7,073	100.0
Milwaukee	0	0.0	3	5.9	14	27.5	51	100.0
Muskego	3,879	16.8	2,802	12.2	11,448	49.7	23,021	100.0
New Berlin	3,783	16.0	82	0.3	9,141	38.7	23,595	100.0
Oconomowoc	209	3.0	405	5.8	1,423	20.2	7,036	100.0
Pewaukee	0	0.0	1,118	8.2	4,207	30.9	13,614	100.0
Waukesha	0	0.0	125	0.8	2,115	13.2	16,034	100.0
Villages (Subtotal)	3,691	6.5	2,262	4.0	16,190	28.5	56,910	100.0
Big Bend	0	0.0	21	1.3	166	10.0	1,655	100.0
Butler	0	0.0	2	0.4	44	8.6	509	100.0
Chenequa	1,032	34.6	741	24.8	2,740	91.9	2,982	100.0
Dousman	0	0.0	51	3.2	340	21.1	1,609	100.0
Eagle	0	0.0	2	0.2	11	1.2	890	100.0
Elm Grove	0	0.0	7	0.3	98	4.7	2,107	100.0
Hartland	0	0.0	100	3.0	646	19.5	3,319	100.0
Lac La Belle	0	0.0	2	0.5	114	27.0	423	100.0
Lannon	0	0.0	5	0.3	555	34.8	1,594	100.0
Menomonee Falls	2,180	10.2	131	0.6	6,467	30.3	21,326	100.0
Merton	0	0.0	35	1.8	247	12.7	1,950	100.0
Mukwonago	0	0.0	86	2.2	824	20.6	3,993	100.0
Nashotah	21	2.0	18	1.7	224	21.4	1,047	100.0
North Prairie	0	0.0	17	1.0	120	6.8	1,763	100.0
Oconomowoc Lake	295	14.4	822	40.0	1,519	74.0	2,054	100.0
Pewaukee	0	0.0	204	7.0	791	27.3	2,896	100.0
Sussex	163	3.4	17	0.4	1,000	21.1	4,739	100.0
Wales	0	0.0	1	0.0	293	14.3	2,054	100.0
Towns (Subtotal)	32,696	15.8	9,347	4.5	131,338	63.6	206,553	100.0
Brookfield	0	0.0	26	0.8	1,098	32.9	3,337	100.0
Delafield	1,853	14.0	1,387	10.5	6,586	49.7	13,264	100.0
Eagle	4,269	19.2	315	1.4	16,292	73.1	22,287	100.0
Genesee	2,407	12.2	119	0.6	11,351	57.5	19,740	100.0
Lisbon	2,992	16.7	60	0.3	10,088	56.1	17,968	100.0
Merton	4,306	24.5	1,615	9.2	10,111	57.6	17,558	100.0
Mukwonago	4,889	24.6	690	3.5	13,146	66.1	19,913	100.0
Oconomowoc	1,219	6.0	2,327	11.5	15,199	75.0	20,273	100.0
Ottawa	3,211	14.7	482	2.2	17,306	79.4	21,797	100.0
Summit	2,099	12.9	1,925	11.8	10,044	61.6	16,315	100.0
Vernon	4,572	22.5	325	1.6	13,805	68.0	20,314	100.0
Waukesha	879	6.4	76	0.6	6,312	45.8	13,793	100.0
Waukesha County	44,258	11.9	17,536	4.7	180,408	48.6	371,540	100.0

Source: SEWRPC, Waukesha County and municipalities

IMPLEMENTATION RECOMMENDATIONS

The recommended land use plan presented in this chapter provides a design for the attainment of the urban and rural development and open space preservation objectives contained in the comprehensive development plan. The implementation recommendations pertaining to the urban development areas, rural development areas, environmentally sensitive areas and other land use plan implementation measures are summarized below.

Implementation Recommendations for Urban Development Areas

One of the initial steps recommended for implementation of the County land use plan as it pertains to the proposed urban development areas is the preparation of detailed development and redevelopment plans for the residential neighborhoods and special-purpose districts which comprise the proposed urban service areas.

Within the context of community-level plans, detailed neighborhood development plans should be prepared for each residential neighborhood or special district where significant growth is expected. While such plans may also vary in format and level of detail, they should generally do the following:

- Designate future collector and land access street locations and alignments, pedestrian paths and bicycle ways, and, as appropriate, the configuration of individual blocks and lots.
- Further classify residential areas as to structure type and density, with the mix of housing structure types and lot sizes resulting in an overall density for the neighborhood consistent with that recommended in the community-level and county plan.
- Identify specific sites for neighborhood parks, schools, and retail and service centers which are recommended on a general-site-location basis in the community-level plan.
- Identify environmentally significant areas to be preserved consistent with the community-level plan and county and regional plans.
- Indicate areas to be reserved for storm water management and utility easements.
- The neighborhood planning process should make full use of the many design concepts that can enhance the living environment and increase efficiency in the provision of urban services and facilities and in travel patterns. Among these design concepts are the following:

1. *Mixed-Used Development*: Residential development in mixed-use settings can provide a desirable environment for a variety of household types seeking the benefits of proximity to places of employment as well as civic, cultural, commercial, and other urban amenities. Examples of mixed-use settings include dwellings above the ground floor of commercial uses and residential structures intermixed with, or located adjacent to, compatible commercial, institutional, or other civic uses.
2. *Traditional Neighborhood Development*: The term “traditional neighborhood development” refers to very compact, pedestrian-oriented, mixed-use neighborhoods typically characterized by a grid like street system and street-oriented setbacks and building designs. The overall design, including the layout of streets and sidewalks, encourages walking and bicycling as alternatives to automobile transportation within the neighborhood.
3. *Transit-Oriented Development*: The term “transit-oriented development” refers to compact, mixed-use development whose internal design is intended to maximize access to a transit stop located within or adjacent to the development. Within the development, commercial uses and higher-density residential uses are located near the transit stop. The layout of streets and sidewalks provides convenient walking and bicycling access to the transit stop.
4. *Residential Cluster Development:* A residential development pattern characterized by a unified site design for a number of housing units, clustering buildings and providing common open space, potential density increases, and a mix of building types. It permits the planning of a project and the calculation of densities over the entire development, rather than on an individual lot-by-lot basis.

In addition to plans for developing neighborhoods, detailed plans should also be prepared for mature neighborhoods or special-purpose districts showing signs of land use instability or deterioration. Such plans

should identify areas recommended for redevelopment to a different use, areas recommended for rehabilitation, any local street realignments or improvements, and other public utility and facility improvements. Special consideration should be given in such planning to overcoming contamination problems at, and reuse of, brownfields. Redevelopment plans should seek to preserve those historic, cultural, and natural features and features of the urban landscape which provide for neighborhood identity within the larger urban complex. Such plans should maximize opportunities for the provision of living arrangements and amenities that are unique to older cities in the County, such as "downtown" housing development.

Although "suburban density" development, as described previously in this chapter, is not consistent with many of the planning standards and objectives, it is recognized that a community may desire infill between existing subdivision plats consistent with adjacent developments and, also, in growth areas adjacent to incorporated municipalities, where services may be available in the future, without utilizing the cluster design concept, which may not be compatible with adjacent existing developments. In addition, for municipalities to maintain an overall residential density of no more than one dwelling unit per five (5) acres in "rural development" areas, suburban densities may be planned.

In addition, in order to support open space or conservation design developments and to preserve rural character, it would be appropriate to permit lands in the Rural Density and Other Agricultural Land category to develop at an overall density of 3.5 acres per dwelling unit, rather than no more than five (5) acres per dwelling unit, if said lands will be developed as Planned Unit Developments (PUD) or conservation design developments utilizing conservation design standards. The standard density bonus option is not applicable in the Towns of Mukwonago and Delafield, as both Towns achieve five-acre rural density using local PUD provisions. The Town of Mukwonago Land Use Plan and the Town of Delafield Land Use Plan Unit Determination Chart are referenced accordingly by Table VII-10 and Figure VII-2. The idea is that a slight increase in density in otherwise rural areas is a reasonable trade-off in order to achieve more sustainable development design that conserves natural features, creates more open space within developments, protects the rural atmosphere and causes less need for infrastructure, such as roads and storm water management facilities. In order for a development to qualify for the 3.5 acre Rural Density option, the following criteria must be met.

1. The development plan for a given site must incorporate an absolute minimum of 40 percent of the site in open space owned by the property owners or recreational use or public open space. In calculating open space, not more than 20 percent of the required open areas may be floodplain or wetland (80 percent of open space must be upland).
2. The community in which the development is located must create and map an Upland Environmental Corridor District for all upland primary and secondary environmental corridors, which allows for development at a density not greater than one unit per five acres. It is recommended that communities also include isolated natural resource areas within the Upland Environmental Corridor District.
3. Individual development projects must be developed as Planned Unit Developments or conservation design developments, which allows the community an opportunity to properly analyze project design. Communities must adopt Planned Unit Development standards within their zoning and subdivision ordinances.
4. Primary environmental corridors, secondary environmental corridors, isolated natural resource areas, wetlands and floodplains must be protected to the greatest extent possible and shall be incorporated into protected open space. If any portion of the above resources will be located on a private lot, said resource must be protected with a protective covenant or restriction. Sites that do not contain significant natural features may be conducive to prairie or wetland restorations or may be enhanced with the establishment of landscaped open spaces.
5. Where open space is mentioned as part of a conservation design residential planned unit development, said open space shall be protected as green or natural open space and no more than five (5) percent of said open space area shall be allowed to have impervious surfaces.

Conservation design development can be equally valuable within any of the residential land use categories. As detailed above, the Rural Density and Other Agricultural Land category allows for a 30 percent increase (3.5 acres per dwelling unit vs. five (5) acres per dwelling unit) in density if certain conservation design criteria are met. In order to promote conservation design in the urban and suburban residential categories, it is recommended that a 30 percent density bonus also be made available to development projects that conform with development standards #1-4 above. The following list details the resultant maximum densities that could be offered when utilizing a 30 percent density bonus for conservation designs:

Suburban II Density	2.1 acres per dwelling unit (DU)	(3.0-4.9 conventional)
Suburban I Density	1.05 acres per DU	(1.5-2.9 conventional)
Low-Density Residential	14,000 sq. ft. per DU	(20,000 s.f.-1.4 acres conventional)
Medium-Density Residential	4,200 sq. ft. per DU	(6,000-19,999 s.f. conventional)
High-Density Residential	< 4,200 sq. ft. per DU	(<6,000 s.f. conventional)

Zoning regulations should be reviewed and adjusted, as necessary, to ensure the proper staging of development over time. In this respect, the application of urban zoning districts should proceed incrementally. The **premature zoning of lands for urban use should be avoided** so as to prevent inefficient use of public infrastructures, the creation of additional isolated urban enclaves and incomplete neighborhoods. Accordingly, the **areas concerned should be placed in zoning districts consistent with their existing use and should be rezoned into appropriate urban districts only when development has been proposed and approved and essential facilities and services can be efficiently readily provided.**

Implementation Recommendations for Rural Development Areas

As defined previously in this Chapter, rural development areas are *sparsely developed areas where land is used primarily for farming, resource extraction, landfills, very low density residential uses (one unit per five acres or less), or other open spaces uses, and includes environmental corridors and isolated natural resource areas*. Rural development areas exist in several cities, villages and towns in Waukesha County. Planning and Zoning should be carried out in such a manner as to preserve rural character. First, new residential development should be limited to an overall density of no more than one dwelling unit per five acres of open land within the planning area unless a density bonus is allowed as a result of utilizing the open space or cluster design concept as discussed earlier. This density is intended to provide a basis for determining the maximum number of additional dwelling units, which could be accommodated. Table VII-9 presents a methodology for calculating the overall density within rural development areas. The overall density is calculated by dividing by five the total acreage within the rural development area currently in open use, including primary and secondary environmental corridors, isolated natural resource areas, and other open lands to be preserved and major public land holdings, but excluding major water bodies 50 acres or more in size. Table VII-10 presents the overall density within rural development areas using the aforementioned methodology for year 1996 and year 2000 conditions.

Second, to the maximum extent possible, the dwelling units, which may be accommodated in accordance with the overall five-acre density, should be developed by using residential cluster designs, in which dwelling units are grouped together on a relatively small portion of the site. The residential clusters should be limited in size, surrounded by open space, and, as may be necessary, contain open space. The clustered lots should be no larger than necessary to accommodate the residential structures, driveways, and desired yards, including, as necessary, space for an onsite soil-absorption sewage-disposal system and replacement system area. This can usually be accomplished on lots no greater than one acre in size.

Third, to the extent possible, residential clusters should be located in areas which are visually screened from public roadways, so that existing rural vistas are maintained; should be carefully adjusted to topographic and other natural features, taking full advantage of the settings provided by those features without causing undue disturbance; and should be buffered from nearby agricultural and mineral extraction lands, as appropriate, so as to minimize conflicts between farming or mining and residential uses.

Fourth, other intensive land uses should be limited to uses which are consistent with the rural character of the area or otherwise essential to the area, including, among others, animal hospitals and veterinary clinics, riding stables, and plant nurseries. In general, office, commercial, industrial, and storage uses and the types of retail and service uses that are provided as a matter of convenience and necessity in urban residential neighborhoods should not be considered appropriate within rural development areas.

Fifth, lands within the rural development areas, which are not designated for residential or other compatible intensive use, should be retained in general agricultural and other open space use. Potential agricultural uses include traditional farming, hobby farms, and community supported agriculture. Land not used for farming should be kept free of development, except for recreational trail facilities and access facilities for the benefit of those who own an interest in the land.

It should be noted that, in many cases, it will be necessary to revise zoning and subdivision control ordinances to accommodate the recommended residential cluster development designs. Clustering may be accommodated in rural areas through a variety of zoning approaches. Clustering may be permitted by conditional use or by right in a basic district or through an overlay district. In addition, when the concept of the transfer of development rights is used, residential clustering principles can be used on a community wide basis to achieve better site designs and preserve open space. Subdivision regulations regarding street improvement standards, sewer and water facilities, storm water management, landscaping, and open space preservation may also need revision to adequately promote and regulate cluster development. Residential cluster zoning provisions should require the use of legal restrictions to ensure the preservation of lands, which are to be permanently preserved in agricultural or other open space use.

Because density bonus' are increasing densities from 3.5 to 5 residential acres per unit, the density increase may outpace projected population and projected housing needs in the municipality. Therefore, the municipalities should consider additional growth management tools, such as an allotment system.

Implementation Recommendations for Environmentally Sensitive Lands

Areas identified as primary environmental corridors, secondary environmental corridors, and isolated natural resource areas occur within both urban and rural development areas and within prime agricultural areas. Environmental corridors and isolated natural resource areas should be placed in one of several zoning districts, depending upon the type and character of the natural resource features to be preserved and protected. All lakes, rivers, streams, and wetlands should be placed in lowland conservancy or floodplain protection districts. Undeveloped floodplains and shorelands should be protected in accordance the shoreland and floodplain zoning ordinances. Upland woodlands and areas of steep slopes should generally be placed in appropriate upland conservancy, rural-density residential, or park and recreation districts. Through proper zoning, residential development should be confined to upland portions of environmental corridors, excluding areas of steep slopes, and should be limited to a density of no more than one dwelling unit per five acres, with provisions made as may be appropriate for clustering. Zoning applied to the environmental corridors should, however, accommodate necessary public facilities, such as crossings by streets and highways, utility lines, and engineered flood control facilities, but should require that the location, design, and development of the facilities concerned be sensitive to the protection of the existing resource features, and require that, to the extent possible following construction, disturbed areas be restored to preconstruction conditions.

Table VII-9

METHODOLOGY FOR CALCULATING THE NUMBER OF DWELLING UNITS ALLOWED IN RURAL DEVELOPMENT AREAS

Target for Rural Development Area 5 Acre Density Standard	Total Rural Development Area (acres)	minus	Water Bodies Exceeding 50 Acres in Size	minus	Existing and Planned Urban Development (Evaluate Border Agreements containing a land use component and Sewer Service Areas)	equals	Area Used to Determine Number of Dwelling Units (acres)	divided by five	equals	Number of Dwelling Units Allowed Under the County Development Plan (not counting any zoning)		
Planned Conditions	Total Rural Development Area (acres)	minus	Water Bodies Exceeding 50 Acres in Size	minus	Existing and Planned Urban Development (Evaluate Border Agreements containing a land use component and Sewer Service Areas)	equals	Area Used to Determine Number of Dwelling Units (acres)	divided	by	Planned 2035 land use categories (See note per assumptions)	equals	Number of Dwelling Units To Be Accommodated at Planned 2035 land use categories

How Actual Density of 2035 Town Land Use Categories is Determined

Acres of Rural Development Area Under 2035 County Development Plan	divided by	Number of Dwelling Units Allowed Under Proposed Land Use Categories (need to consider impact of offering density bonuses)	Equals	Density of Proposed Land Use Categories

Assumptions

1. Lot sizes are calculated under current zoning where conventional subdivisions are permitted. When calculating land use categories, public road right-of-ways were taken into account (1.23 acre for 1 acre zoning, 3.6 acres for 3 acre zoning, 5.7 acres for 5 acre zoning, and 10 acres at 10 acre zoning).
2. The "Total Rural Development Area" includes primary and secondary environmental corridors, isolated natural resource areas, and other open lands to be preserved and major public land holdings.
3. For the Town of Oconomowoc, the majority is in Ag Preservation or Urban Land Use categories.
4. Where development is only allowed as conservation design or planned unit development/open space development, the density allowed under the development plan was used.
5. For Suburban Density I (1.4-2.9 AC/DU), a 2.5 AC density shall be used. For Suburban Density II (3-4.9 AC/DU), a 3.6 AC density shall be used.

Table VII-10

EVALUATION OF RURAL DEVELOPMENT AREA WITH AN OVERALL 5-ACRE DENSITY STANDARD

Rural Development Area	Area Including Public Lands, Rural Density Lands and Environmental Corridors (Acres)	Year 1996 County Development Plan Density (Acres/Dwelling Unit)[a]	Year 2000 Conditions Density (Acres/Dwelling Unit)	Year 2035 Maximum Permissible New Rural Area Lots
Delafield[b]	4,435	4.8	4.5	887
Eagle	16,289	5.6	7.0	2,964
Genesee	10,740	6.9	5.1	1,865
Lisbon	9,066	2.2	1.3	1,439
Merton	9,099	3.4	2.9	1,566
Mukwonago[c]	7,476	4.8	4.5	1,931
Oconomowoc[d]				
Ottawa	16,089	6.8	11.2	2,939
Summit	8,777	5.7	3.8	1,493
Vernon	14,375	11.3	8.9	2,526
Waukesha	6,751	13.1	6.6	1,185
Total	103,097	6.5	5.6	18,741

Source: Waukesha County

[a] Based on Zoning in effect at the time.
[b] Town of Delafield Rural Area calculations include lands in Sections 25-36 only.
[c] Town of Mukwonago calculations derived from Town of Mukwonago Land Use Plan.
[d] The majority of the Town of Oconomowoc is in the Agricultural Preservation or Urban Use categories.

Implementation Measures for Other Open Lands to be Preserved

Areas which have been identified in the Other Open Lands to be Preserved category are being mapped in both Urban and Rural areas. Lands identified in this category are mapped in part due to severe to very severe limitations for development of structures from high seasonal groundwater conditions, unstable soils, hydric or organic soil conditions or are generally poorly drained. For planning purposes, soil data available through the Soil Survey of Milwaukee and Waukesha Counties from the United States Department of Agriculture – Natural Resources Conservation Service was used.

Since the soil survey data is generalized, additional site-specific soil data analysis is necessary for individual development project review. It is recommended that the County and municipalities, through regulatory processes, provide a procedure to allow infield detailed investigation and soils analysis using the COMM 85 procedures, established in the Wisconsin Administrative Code, to assist in determining actual on-site soil conditions. Such procedures should identify and document whether or not seasonal high groundwater, soil instability, hydric or organic conditions exist. Where site-specific soil analysis indicates that soil conditions are suitable to accommodate development, an adjustment to the land use category or associated development density may be warranted and would not require a formal amendment request to an adjacent upland development land use category through the annual amendment process outlined in Chapter 9. The land use category which should be used for adjustment from the Other Lands to be Preserved category should be the adjacent upland land use category mapped on the Proposed Land Use Plan. For example, the land being adjusted from the Other Open Lands to be Preserved category are surrounded by lands in the Suburban I category and are found to be acceptable for development, not having the hydric soil conditions and high groundwater table conditions, the subject Open Lands category could be modified to the Suburban I category. There would, however, have to be a recognition and documentation of such change and the information used to justify the change so that appropriate measures are taken to incorporate the changes on the land use maps being maintained by the County and the affected municipality. A record of the documentation and information used to justify the change shall be filed with the County and the community, and an appropriate notation or identification on the Land Use Plan maps made with a reference to the location of the documentation shown on the map should be provided. It should also be noted that the new land use category, which has been modified, from the Other Lands to be Preserved category, can utilize similar densities as used for this new category as if the land were originally all designated in the new land use category.

Lands with soil conditions determined to be unsuitable for development, consistent with the planning standards detailed in Chapter 2 of this Plan, should be retained in open space uses, but can be included within lot boundaries. In addition, these lands may also be included in calculation for density standards as set forth in the Planned Unit Development or Cluster Development standards identified above. It is recommended that the County and municipalities establish, through regulatory processes, a density credit for retaining these lands in open space use. For years, the County used 20 percent of the acreage of lands in this category when calculating densities for proposed developments in the attached or adjoining upland areas. It would be appropriate that a range of 20 percent to 40 percent be used for these lands, subject to specific local community regulations. Further, it may be appropriate to grant a density of one (1) unit per five (5) acres for those lands in the Other Open Lands to be Preserved category.

Regulatory Implementation Measures

Land use regulatory ordinances are an important tool available to county and local units of government to shape growth and development in accordance with adopted land use objectives. Under the State comprehensive planning law (S.66.1001 of the Wisconsin Statutes), “beginning on January 1, 2010, if a local governmental unit engages in official mapping, subdivision regulation, zoning ordinance enacted or amended and zoning of shorelands or wetlands in shorelands, those actions shall be consistent with that local governmental unit's comprehensive plan”. Accordingly, upon adoption of their comprehensive plans, the county, cities, villages, and towns should review the text of their ordinances and adjust as necessary to carry out the various implementation recommendations contained in this Plan. Such changes should include rezoning to use districts consistent with present uses so as

not to prezone, consider allotment system to evaluate and grade proposed developments which carry out the recommendations in this Plan and review of proposed developments for consistency with the recommendations of this Plan.

Zoning in Urban Areas

Zoning in urban areas should be administered in accordance with county and local comprehensive plans which refine the urban-area recommendations of the regional land use plan. The application of zoning districts that accommodate residential, commercial, industrial, and other urban development should be done in a manner that is consistent with any recommendations in the local comprehensive plan regarding the staging of development over the course of the plan period. Where the local comprehensive plan includes staging provisions, the application of zoning districts that accommodate the planned urban uses should be done incrementally in accordance with the timeframe set forth in the comprehensive plan. Lands should be placed in zoning districts consistent with their existing use, or, alternatively, placed in an urban land holding district or transition district. This approach allows municipalities to determine whether the proposed development is consistent with the Comprehensive Development Plan for Waukesha County or its goals, standards and objectives at the time a project is proposed. Specifically, a development plan needs to be periodically amended to adjust to changing conditions and updated data such as population and economic projections. Prezoning lands to match a particular land use plan, can limit a municipality's ability to respond to changing conditions and should be avoided wherever possible. Evaluations of new project developments should be reviewed and recommended on the basis of the recommendations contained in this and the local communities plan and allow development to occur where it is consistent with the recommendations contained herein.

Zoning in Rural Areas

Zoning in rural areas should be administered in accordance with county and local comprehensive plans which refine the rural-area recommendations of this Comprehensive Development Plan for Waukesha County. The following is recommended:

- Prime agricultural lands identified in county and local comprehensive plans should be placed into an exclusive agricultural zoning district, which essentially permits only agricultural and agriculture-related uses. Such a district should provide for a residential density of no more than one dwelling unit per 35 acres and should prohibit incompatible urban development.

- Other areas identified for continued agricultural use in county and local comprehensive plans should be placed into exclusive agricultural districts as defined above or into general agricultural districts with smaller minimum parcel sizes as may be appropriate for smaller agricultural operations, such as hobby farms or other specialty farms.

- Areas recommended in county and local comprehensive plans for rural residential development should be placed into a rural residential zoning district that limits development to no more than one dwelling unit per five acres and that encourages, or even requires, the use of conservation subdivision designs to accommodate the permitted development.

- Non-farmed wetlands should be placed in a lowland conservancy or shoreland-wetland zoning district, as appropriate. Farmed wetlands should remain in an agricultural zoning district as long as the parcel remains in agricultural use; with consideration given to placing a conservancy overlay zone on the wetland. Wetlands identified as farmed wetlands should be placed in a lowland conservancy district at the time farming activities on the wetland parcel cease and an application for residential or other urban development of the upland portion of the parcel is approved by the unit of government having zoning authority. Floodplains should be placed in the appropriate floodplain zoning district (floodway, floodfringe, flood storage, or general floodplain). Primary environmental corridors should be placed, and other natural resource areas, including secondary environmental corridors and isolated natural resource areas, may be placed, in a conservancy or other appropriate zoning district (such as a park or rural residential zoning district).

Official Mapping

Adoption of local official maps can contribute significantly to the implementation of the recommended County land use plan. Local units of government should prepare and adopt local official maps pursuant to Section 62.23(6) of the Wisconsin Statutes, showing thereon lands needed for future public use as streets, highways, transit ways, parkways, drainage ways, parks and playgrounds. The official map should be amended from time to time to incorporate the additional street and other public land requirements identified in detailed neighborhood unit development plans or rural area development plans, as those plans are prepared over time.

Land Division Ordinances

Land division ordinances should be adopted by the County and local units of government as a basis for the review and approval of subdivision plats and certified survey maps. Any proposed departure from adopted land use plans should be carefully considered and approved only if such departures are found to be in the public interest and the land use plan map is amended to a category that would allow the proposed subdivision. It should be noted that the existing Waukesha County subdivision control ordinance applies only to the statutory shorelands within the unincorporated areas of the County.

In 1999, Waukesha County created a Land Development Workgroup to analyze and address issues created by land division and development processes being used at that time. The Workgroup recommended:

1. The County should modify existing county transportation related ordinances to require pre-review of potential access points prior to recording of certified survey maps and subdivision plats.

2. Municipalities and the County should uniformly apply a development review checklist prepared by the Workgroup. The intent of the checklist is to set forth consistent standards for the review of development proposals by county municipalities, and to clearly express to development sponsors what should be contained in a proper development proposal. The Workgroup further recommended that each municipality in the County amend appropriate local codes incorporating and adhering to the checklist or a more stringent version in development reviews.

3. Another issue raised by the Workgroup was the variety of subdivision definitions used by Waukesha County municipalities. The variety in definitions has led to larger scale residential developments proceeding as certified surveys as opposed to a platted subdivision.

   To address this issue, the Workgroup developed a minimum definition of a subdivision to be applied in Waukesha County. The definition reads "A subdivision is the division of land by the owner, subdivider, or his successor in title, for the purpose of transfer of ownership or building development where the division creates more than four (4) residential lots less than 1.5 acres in five (5) years or where the division creates more than six (6) residential parcels or building sites of any size within five (5) years." A remnant parcel in excess of 10 acres in size may be excluded from the plat by action of the municipality upon application by the owner. Upon receipt of an application, the municipality will notify the County.

4. County staff should continue to host training workshops on land use planning and development review topics for local officials.

5. The County should define a Development Review Team process to enhance communication between the County, Towns, Cities, Villages and developers regarding land development projects and issues.

6. The County should evaluate the existing County Storm Water Management Ordinance and Program to identify opportunities for addressing watershed based storm water issues.

7. The County should engage in a process to comprehensively update the Street and Highway Width Map and Jurisdictional System Plan.

This Plan recommends that municipalities and the County continue to follow the recommendations made by the Land Development Workgroup.

Regulation of Public Sanitary Sewerage Systems

In Wisconsin, the comprehensive water quality management planning program has led to the development of State regulations which have the effect of requiring the preparation of sanitary sewer service area plans for each public sewage treatment plant. In the Region, these plans are prepared cooperatively by the concerned local unit of government and the Regional Planning Commission, with ultimate approval authority resting with the Wisconsin Department of Natural Resources. Sewer service area plans have now been prepared for nearly all of the public sanitary sewerage systems in the Region. These plans define sewer service limits and delineate environmentally sensitive lands within those service limits to which service should not be provided. Chapter NR 110 and Chapter Comm 82 of the *Wisconsin Administrative Code* require that the Wisconsin Department of Natural Resources, with respect to public sanitary sewers, and the Wisconsin Department of Commerce, with respect to private sanitary sewers, make a finding that all proposed sanitary sewer extensions are in conformance with adopted area wide water quality management plans and the sanitary sewer service areas identified in such plans before approving such extensions.

Under Chapter NR 121, sewer service areas must be sized in a manner that is consistent with long-range population projections. As a practical matter, this requirement is considered to be met if the buildout population of the sewer service area—that is, the population that could be accommodated if the sewer service area were completely developed at locally planned residential densities—is within the projection range envisioned under the regional land use plan. In sizing their sewer service areas, many communities choose to plan for the high end of the projected population range in order to retain flexibility in terms of the location of future urban growth.

Historically, communities in the Region, with the assistance of SEWRPC, have amended their sewer service area plans from time to time in response to changing needs and conditions. This may be expected to continue in the years ahead, particularly as communities complete their required local comprehensive plans.

As noted above, sanitary sewer service area plans are an important part of the basis for State agency review and approval of proposed sewer extensions. Policies adhered to by the Wisconsin Department of Natural Resources and Department of Commerce prohibit or otherwise limit the extension of sanitary sewers to serve development in certain environmentally significant lands identified in local sewer service area plans. The following restrictions were in effect in 2007:

- The extension of sanitary sewers to serve new development in primary environmental corridors is confined to limited recreational and institutional uses and rural-density residential development (maximum of one dwelling unit per five acres) in areas other than wetlands, floodplain, shorelands, and steep slope (12 percent or greater).

- The extension of sanitary sewers to serve development in portions of secondary environmental corridors and isolated natural resource areas comprised of wetlands, floodplains, shorelands, or steep slopes is not permitted.

Park and Open Space Plan Implementation

Achievement of the outdoor park and recreation and open space preservation objectives of the land use plan requires continued public interest acquisition of land for outdoor recreation and open space uses. The county park and open space plan recommends public interest acquisition (that is, acquisition by local, county, State and Federal government and by private conservancy interests) of land for recreation and resource protection purposes. The regional natural areas and critical species habitat protection and management plan also includes recommendations for public interest acquisition for most of the natural areas and critical species habitat sites identified in that plan. Moreover, cities, villages, and towns may acquire other lands for park and open space purposes as recommended in local comprehensive or park and open space plans. Each of the concerned units and

agencies of government should continue or begin land acquisition programs in accordance with such plans. Private conservancy organizations are encouraged to supplement public open space acquisition efforts, as appropriate, to ensure the preservation of important natural areas. The detailed County Park and Open Space Plan is presented in Appendix A of this Plan.

Transfer of Development Rights

Under transfer-of-development-rights programs, or "TDR" programs, the right to develop a specified number of dwelling units under existing zoning may be transferred from one parcel, which would be maintained in open space use, to a different parcel, where the number of dwelling units permitted would be correspondingly increased. When the parcels are held by the same owner, the development rights are, in effect, simply transferred from one parcel to the other by the owner; when the parcels are held by different landowners, the transfer of development rights involves a sale of rights from one owner to another, at fair market value. In either case, the result is a shift in density away from areas proposed to be maintained in farming or other open use toward areas recommended for development. The transfer of development rights may be permanent or may be for a specific period of time or set of conditions.

The transfer of development rights may be implemented only if authorized under county or local zoning. To enable the transfer of development rights, the zoning ordinance must establish procedures by which the TDR technique will be administered, including the formula for calculating the number of residential dwelling units which may be transferred from the "sending" area to the "receiving" area. The zoning district map must identify the sending and receiving areas, or at least identify the districts within which development rights can be transferred from one parcel to another. As of 2007, the Waukesha County Zoning Code contains provisions for the transfer of development rights.

Municipal Boundary and Utility Extension Agreements

The recommendations of the land use plan concerning the location and density of new urban development are formulated without regard to the location of city, village, and town boundaries. Rather, those plan recommendations are based upon a consideration of such factors as the location of existing utility infrastructure, including public sanitary sewer and water supply systems; the location of environmentally sensitive lands; and the availability of lands considered to be suitable for urban development. Where cities and villages own and operate essential public utilities not provided by adjacent towns, the plan assumes that cities and villages will either annex unincorporated territory recommended in the plan for urban development and provide extensions of essential utility services to serve such development, or that the cities and villages will reach agreement with adjacent unincorporated towns on the extension of those essential services without the need for annexation and municipal boundary change.

The *Wisconsin Statutes* establish a number of arrangements for cooperation among communities with regard to sharing of municipal services and cooperatively determining community boundaries, as indicated below:

- Section 66.0301: This section of the Statutes provides broad authority for intergovernmental cooperation among local units of government with respect to the provision and receipt of services and the joint exercise of their powers and duties.

- Section 66.0307: This section of the Statutes allows any combination of cities, villages, and towns to determine the boundary lines between themselves under a cooperative plan, subject to oversight by the Wisconsin Department of Administration. Section 66.0307 envisions the cooperative preparation of a comprehensive plan for the affected area by the concerned local units of government and prescribes in detail the contents of the cooperative plan. Importantly, the cooperative plan must identify any boundary change and any existing boundary that may not be changed during the planning period; identify any conditions that must be met before a boundary change may occur; include a schedule of the period during which a boundary change shall or may occur; and specify arrangements for the provision of urban services to the territory covered by the plan.

- Section 66.0225: This section of the Statutes allows two abutting communities that are parties to a court action regarding an annexation, incorporation, consolidation, or detachment, to enter into a written stipulation compromising and settling the litigation and determining a common boundary between the communities.

Cooperative approaches to the identification of future corporate limits and the extension of urban services can contribute significantly to attainment of the compact, centralized urban growth recommended in the land use plan. Conversely, failure of neighboring civil divisions to reach agreement on boundary and service extension matters may result in development at variance with the plan—for example, by causing new development to leap past logical urban growth areas where corporate limits are contested, to outlying areas where sewer and water supply service are not available. Accordingly, it is recommended that neighboring incorporated and unincorporated communities cooperatively plan for future land use, civil division boundaries, and the provision of urban services, as provided for under the *Wisconsin Statutes*, within the framework of the land use plan.

Municipal Revenue Sharing

Additional opportunity for intergovernmental cooperation is provided under Section 66.0305 of the *Wisconsin Statutes*, entitled "Municipal Revenue Sharing." Under this statute, two or more cities, villages, and towns may enter into revenue sharing agreements, providing for the sharing of revenues derived from taxes and special charges. The agreements may address matters other than revenue sharing, including municipal services and municipal boundaries. Municipal revenue sharing can provide for a more equitable distribution of the property tax revenue generated from new commercial and industrial development within urban areas and help reduce tax-base competition among communities, competition that can work against the best interests of the area as a whole.

A good example of municipal revenue sharing under this statute is the revenue sharing agreement included in the Racine Area Intergovernmental Sanitary Sewer Service, Revenue Sharing, Cooperation and Settlement Agreement entered into by the City of Racine and neighboring communities in 2002. Under this agreement, the City of Racine receives shared revenue payments from neighboring communities for use in renovating older residential areas, redeveloping brownfield sites, and supporting regional facilities like the City zoo, fine arts museum, and library. In return, the City of Racine agreed to support the incorporation of the adjacent Towns of Caledonia and Mt. Pleasant; refrain from annexations without the consent of the Towns; refrain from using extraterritorial zoning and plat review powers; and move ahead with sewerage system improvements that will accommodate growth in the Towns. It should be noted that the Towns of Mt. Pleasant and Caledonia were incorporated as villages in 2003 and 2005, respectively.

Brownfield Redevelopment

Factors contributing to the abandonment or underutilization of older commercial and industrial sites vary from site to site, but often include structures which are obsolete in terms of accommodating current manufacturing, warehousing, and office needs; inadequate site access to the freeway system; and insufficient site area for horizontally-oriented structures, contemporary parking and loading requirements, and possible future plant expansion needs.

Once abandoned, the re-use of former commercial and industrial sites is frequently constrained by contamination problems created by past industrial and commercial activities, giving rise to the term "brownfields"—sites which are underutilized or abandoned due to known or suspected environmental contamination. While brownfields tend to be concentrated in older areas, they also occur in outlying areas. Redevelopment of brownfields is often hindered by high cleanup costs, and, even where contamination is only suspected, the potential for high cleanup costs tends to dampen private-sector interest in redevelopment.

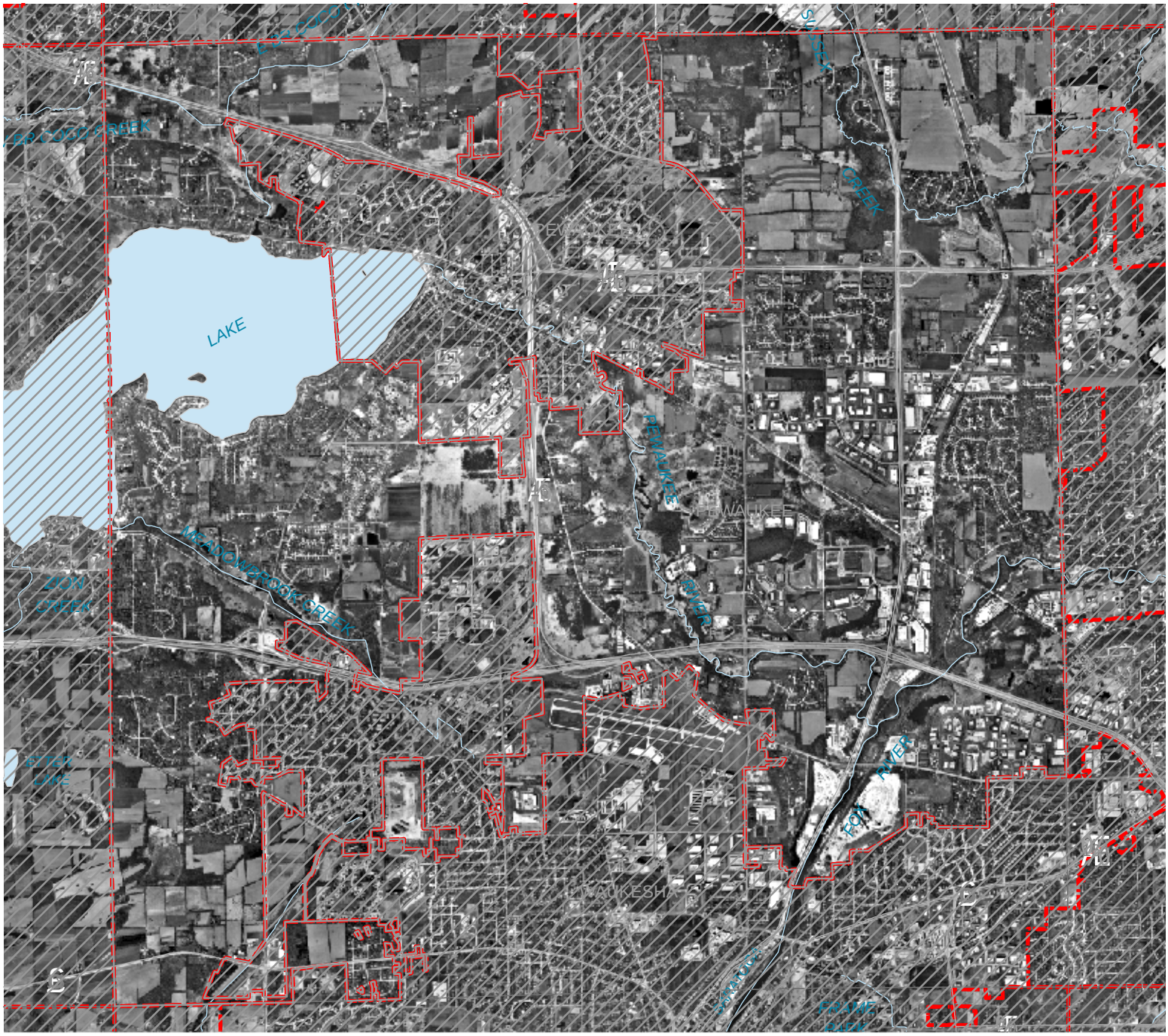
In order to maintain the viability of existing urban areas, special efforts to promote the reuse of brownfields are required. Local units of government should include the cleanup and re-use of brownfields as a key element in their planning for the revitalization of urban areas and promote such re-use through such tools as tax-incremental financing. Limited State and Federal financial assistance has been made available in support of the cleanup and re-use of contaminated sites. Local units of government should make full use of, and assist private developers in securing, available State and Federal financial assistance.

The re-use of brownfield sites need not be limited to industrial use, but may include a mix of residential, commercial, recreational, and other development, in accordance with local development objectives. Properly carried out, the cleanup and re-use of brownfields has many potential benefits in addition to the underlying environmental benefits: elimination of blight, increase in the property-tax base, expansion of the housing stock, provision of jobs in close proximity to concentrations of the labor force, and increased use of existing public infrastructure.

Storm Water System Planning

Storm water runoff pollution performance standards for new development, existing urban areas, and transportation facilities are set forth in Chapters NR 151 and NR 216 of the *Wisconsin Administrative Code*. The County should coordinate with municipalities to develop a storm water management plan to coordinate the management of storm water within defined watersheds which often transcend municipal boundaries. Storm water management practices appropriate for each urban area can best be developed through the preparation of a system management plan. These practices should be developed in a manner that integrates development needs and environmental protection, including integrated water resources protection. Such practices should reflect both storm water runoff quantity and quality considerations, as well as groundwater quantity and quality protection. Practices that are designed to maintain the natural hydrology should be encouraged.

Base Map



CITY OF PEWAUKEE

Legend

Civil Divisions

Area outside municipality

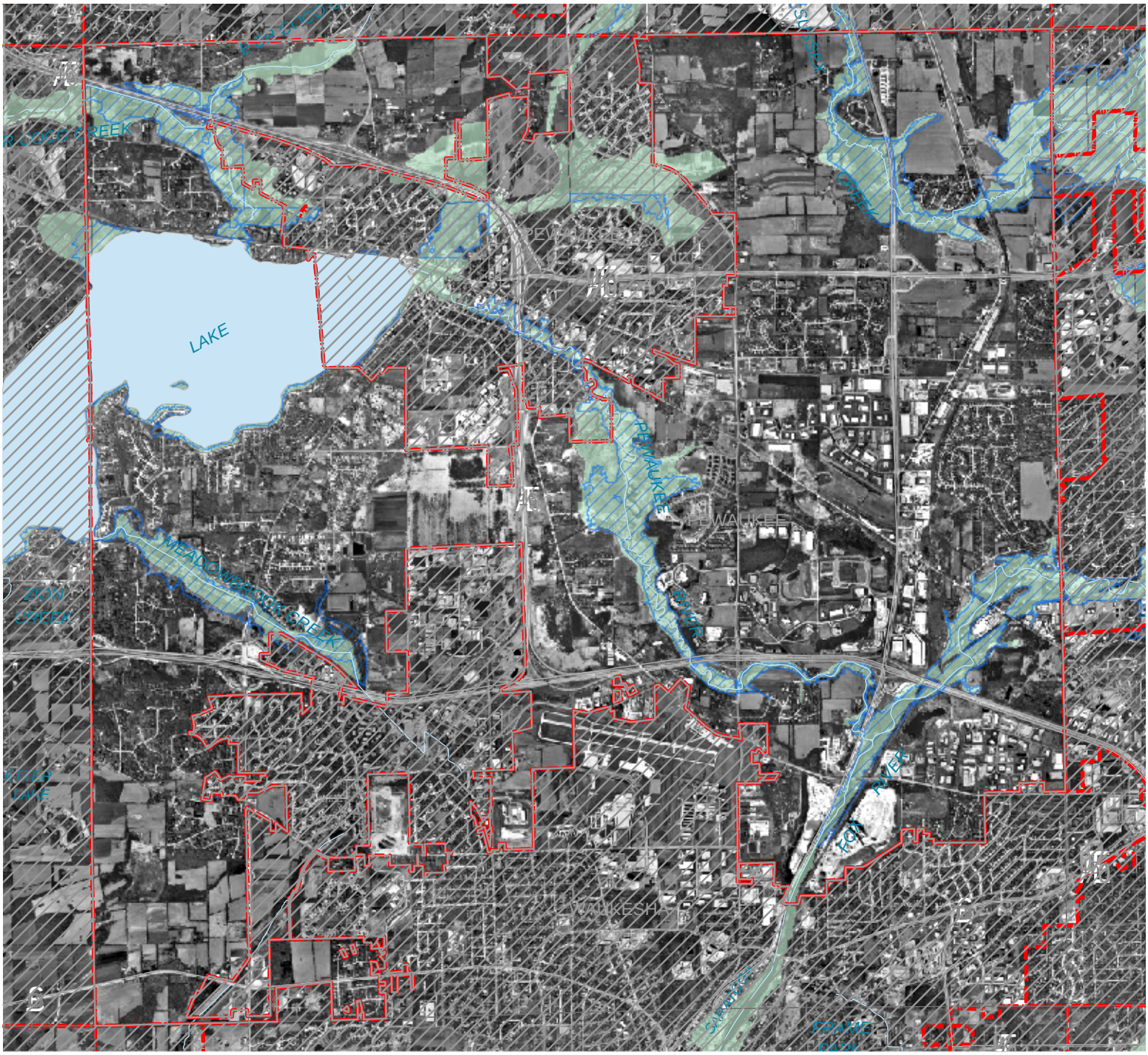
3

0 2,000 Feet

0 0.25 Miles

Source: Waukesha County

General Floodplains



CITY OF PEWAUKEE

3

Legend

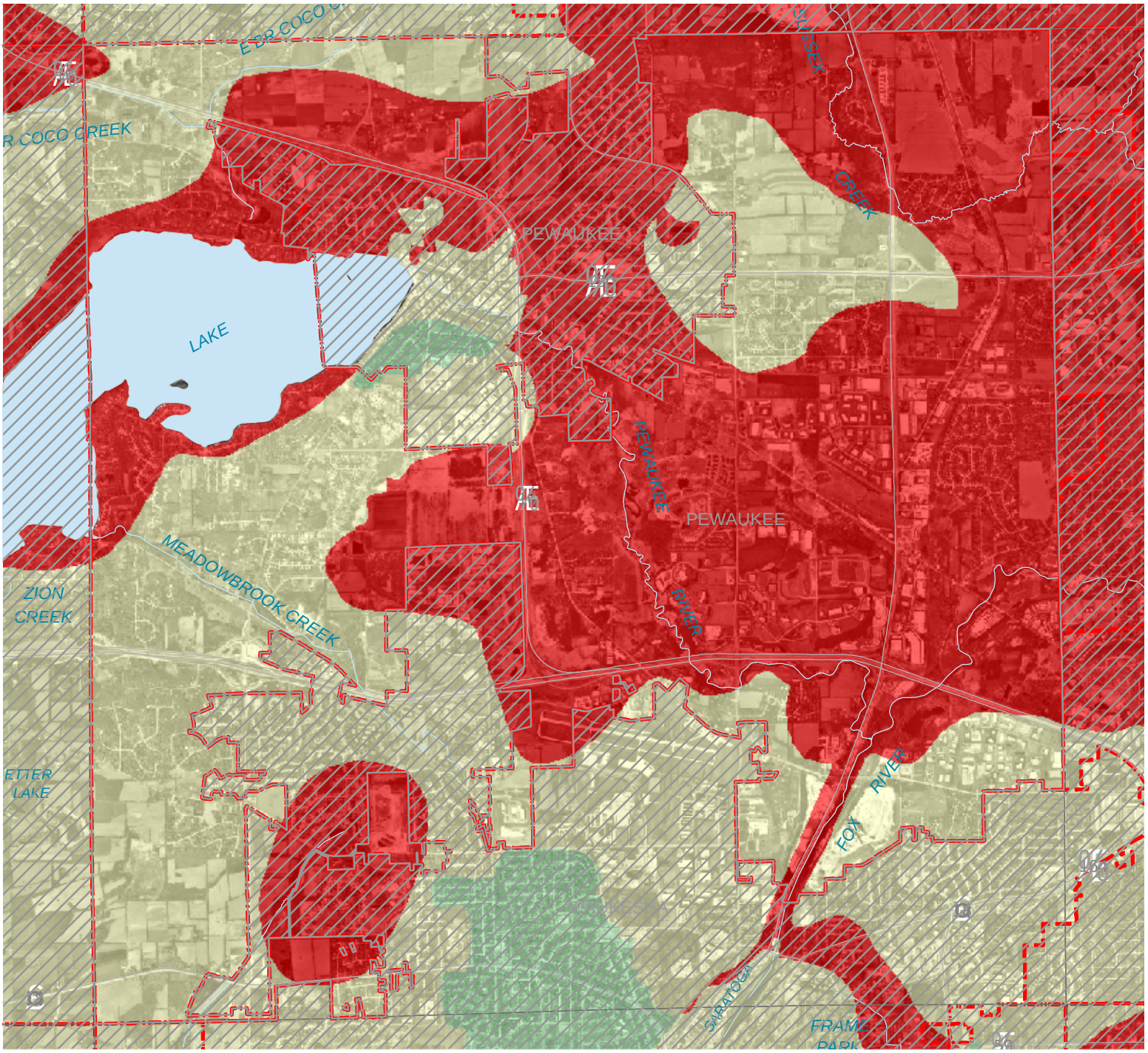
- SEWRPC Floodplain
- FEMA Special Flood Hazard Areas
- Area outside municipality

0 2,000 Feet

0 0.25 Miles

Source: FEMA, SEWRPC & Waukesha County

Groundwater Contamination Potential



CITY OF PEWAUKEE

Legend

- High Contamination Potential
- Medium Contamination Potential
- Low Contamination Potential
- Area outside municipality

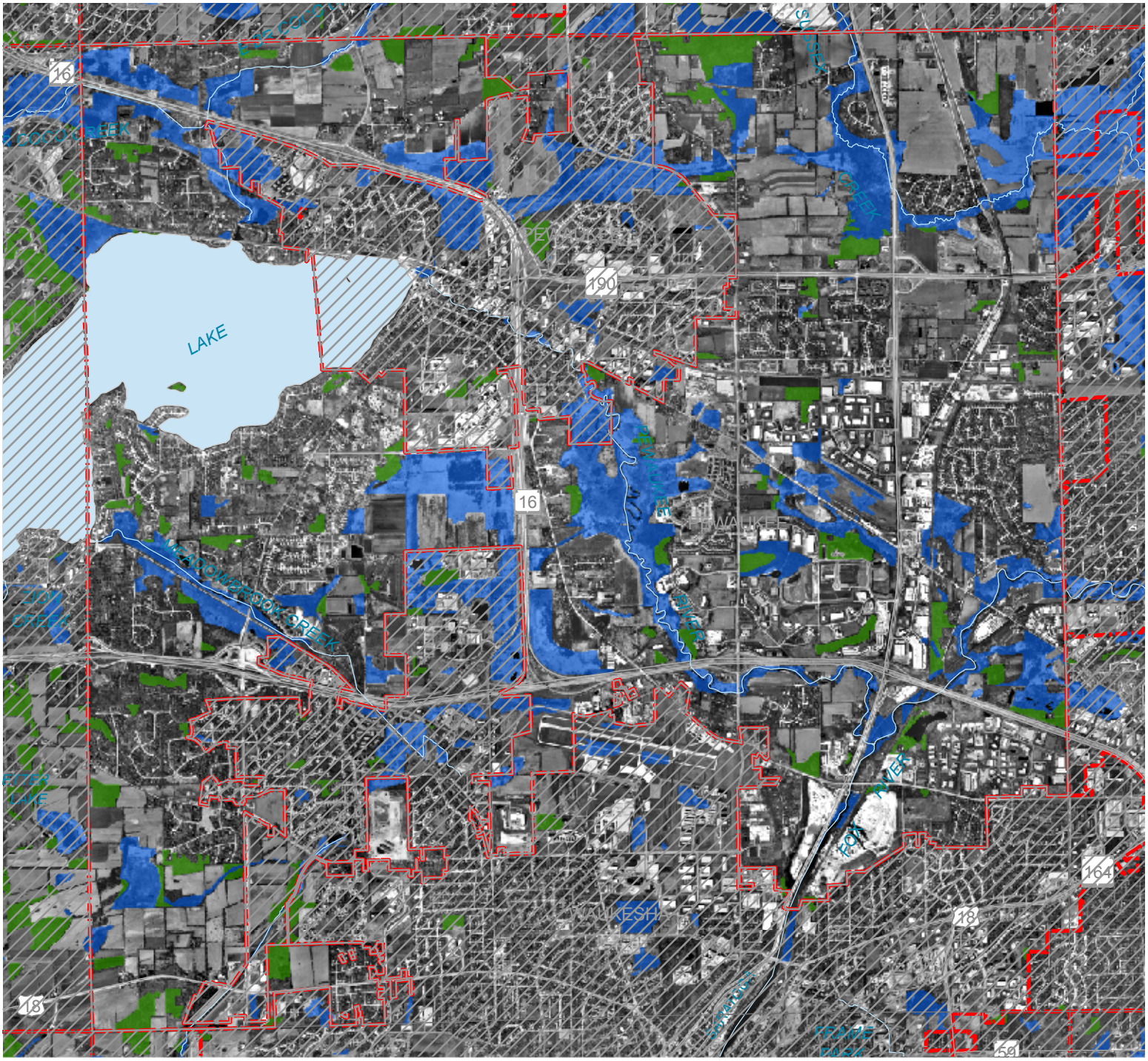
3

0 2,000 Feet

0 0.25 Miles

Source: SEWRPC, WGNHS & Waukesha County

Major Wetlands & Woodlands



CITY OF PEWAUKEE

Legend

- Wetlands
- Woodlands
- Area outside municipality

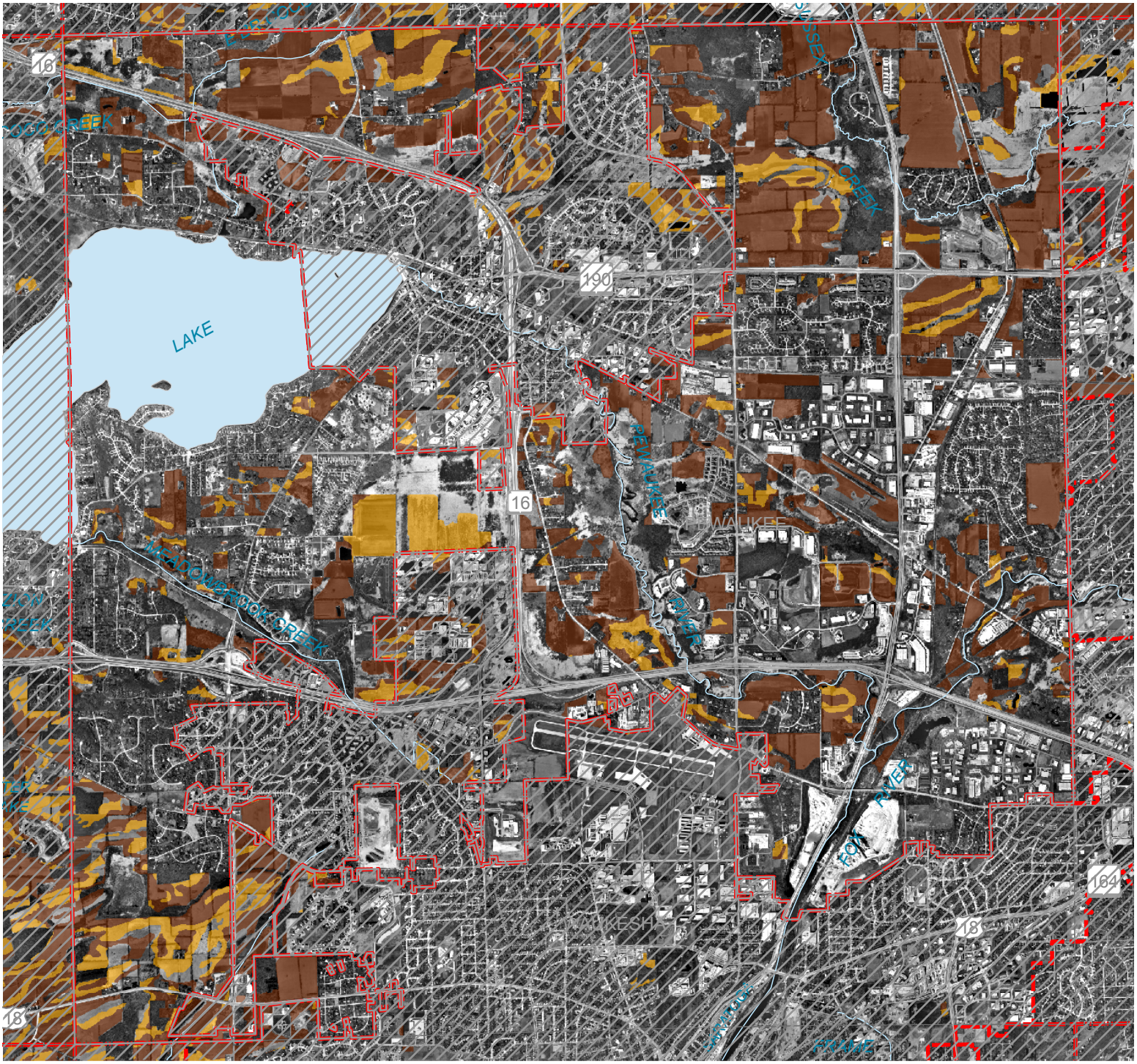
N

0 2,000 Feet

0 0.25 Miles

Source: SEWRPC & Waukesha County

Agricultural Soils



CITY OF PEWAUKEE

Legend

- Class I & II Soils
- Class III Soils
- Area outside municipality

N

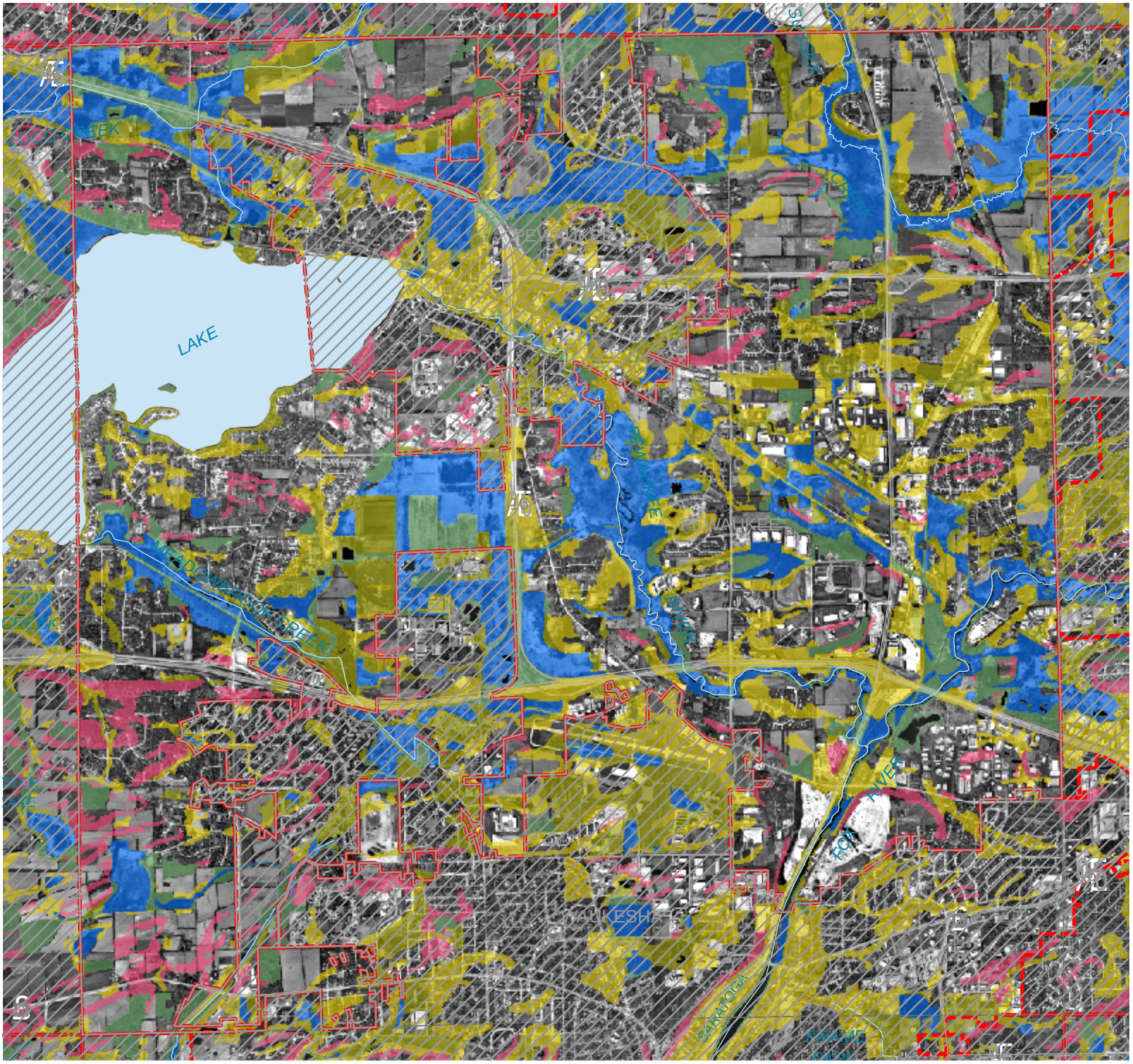
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0 0.25 Miles

Note: Agricultural land use data from 2000 SEWRPC inventory. All subdivisions and condominium plats recorded up to March 2005 have been removed.

Source: NRCS, SEWRPC & Waukesha County

Natural Resource Limitations for Development



Legend

- Wetlands
- Environmental Corridor
- Hydric Soils
- Poorly Drained Soils
- Slopes > 12%
- Area outside municipality

CITY OF PEWAUKEE

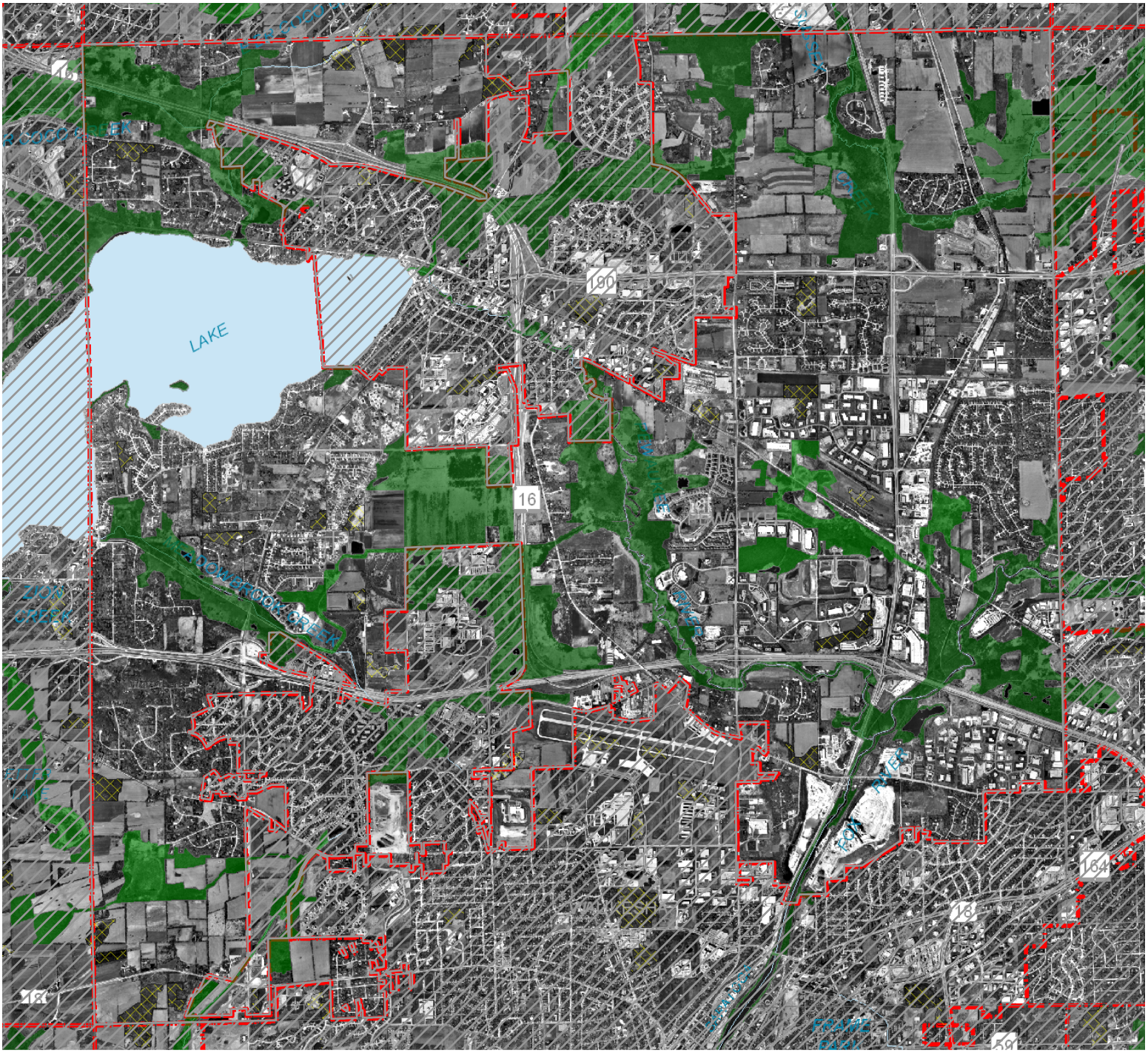
3

0 2,000 Feet

0 0.25 Miles

Source: NRCS, SEWRPC & Waukesha County

Planned Environmental Corridors and Isolated Natural Resource Areas: 2000



CITY OF PEWAUKEE

Legend

Environmental Corridors

- Primary Environmental Corridor
- Secondary Environmental Corridor
- Isolated Natural Resource Area
- Area outside municipality

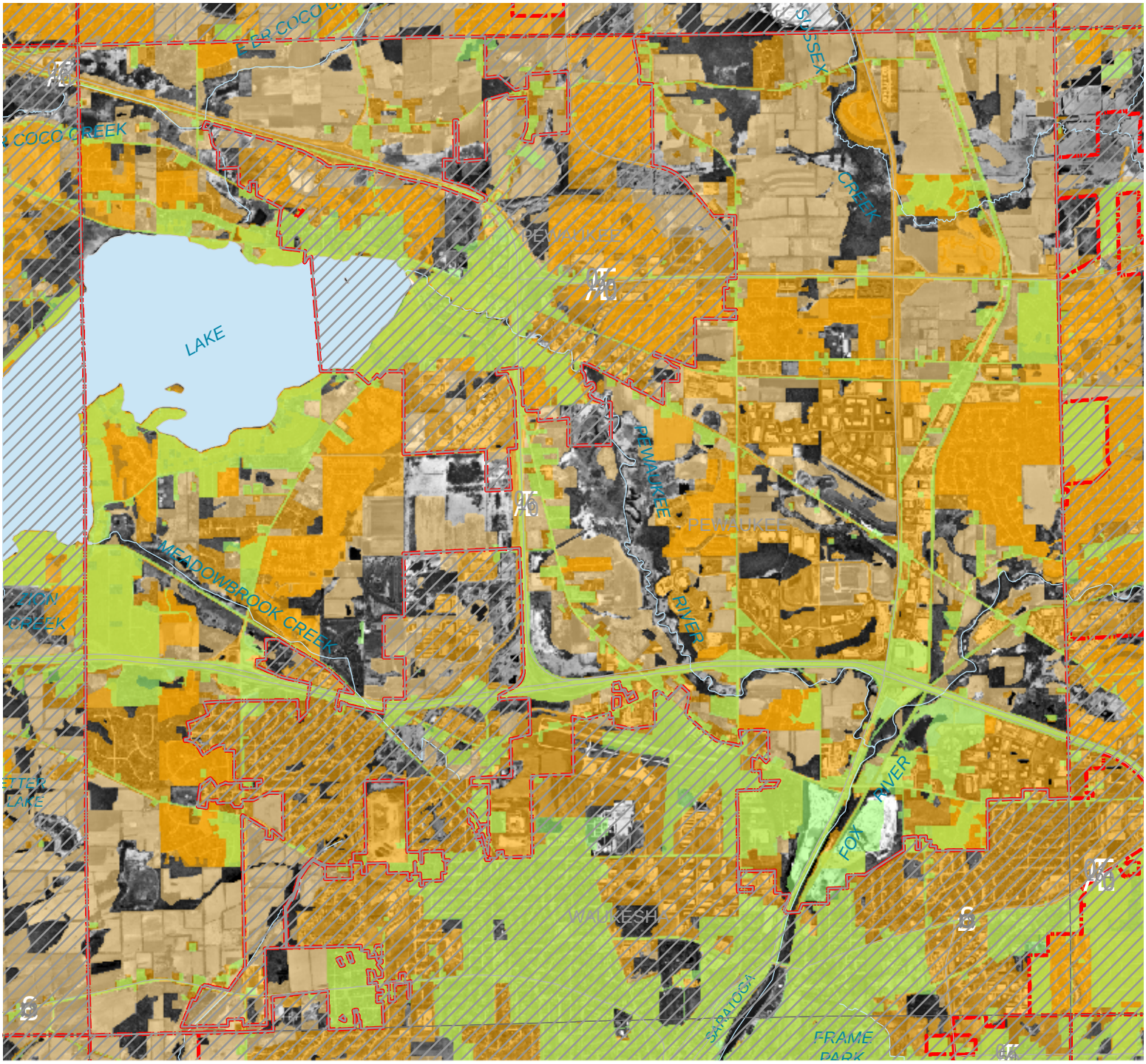
N

0 2,000 Feet

0 0.25 Miles

Source: SEWRPC and Waukesha County

Agricultural Land Conversion 1963-2005



CITY OF PEWAUKEE

Legend

- 1963 Urban Land Uses
- Land Converted from Agriculture to Urban Uses 1963-2005
- 2005 Agricultural Land Uses
- Area outside municipality

3

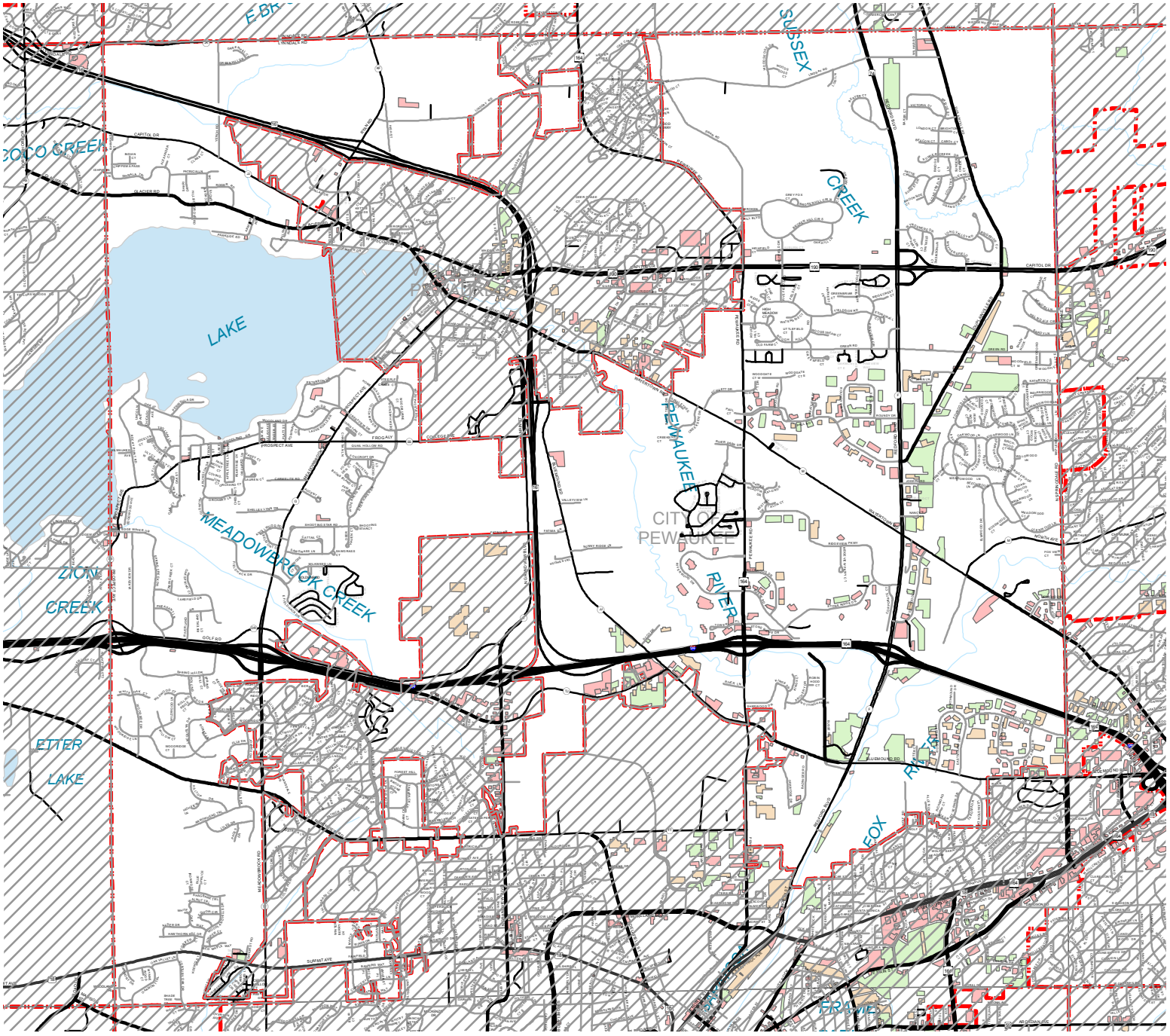
0 2,000 Feet

0 0.25 Miles

Note: Agricultural land use data from 2000 SEWRPC inventory. All Subdivisions and condominium plats recorded up to March 2005 have been removed.

Source: NRCS, SEWRPC & Waukesha County

Existing Commercial and Industrial Uses: 2000



CITY OF PEWAUKEE

N

Legend

- Commercial (210, 220)
- Manufacturing (310)
- Wholesaling and Storage (340)
- Industrial Land Under Development (399)
- Area outside municipality

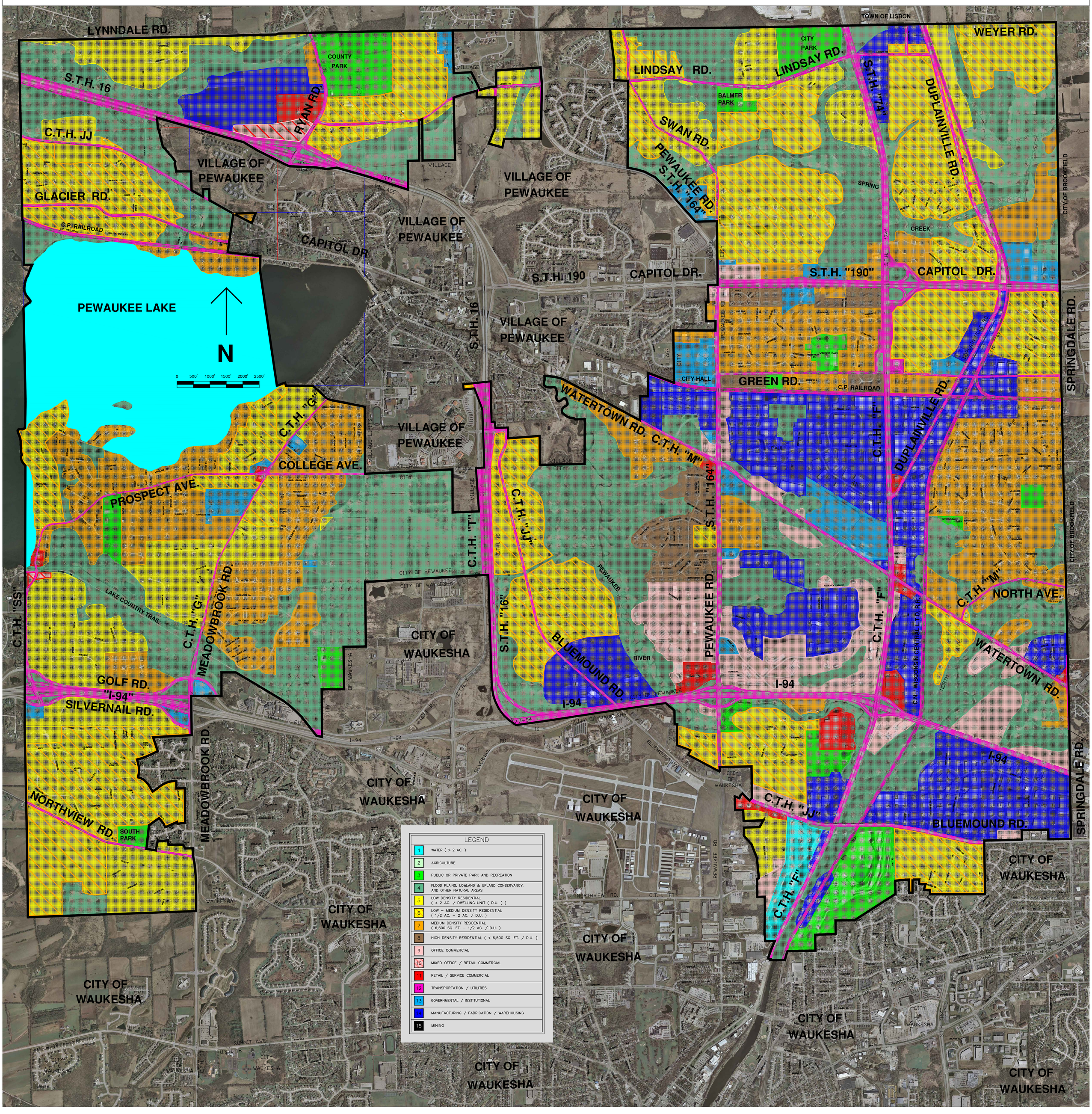
0 2,000 Feet

0 0.25 Miles

Source: SEWRPC 2000 Land Use, & Waukesha County

CITY OF PEWAUKEE

YEAR 2035 LAND USE PLAN



LEGEND	
1	WATER (> 2 AC.)
2	AGRICULTURE
3	PUBLIC OR PRIVATE PARK AND RECREATION
4	FLOOD PLAINS, LOWLAND & UPLAND CONSERVANCY, AND OTHER NATURAL AREAS
5	LOW DENSITY RESIDENTIAL (> 2 AC. / DWELLING UNIT (D.U.))
6	LOW – MEDIUM DENSITY RESIDENTIAL (1/2 AC. – 2 AC. / D.U.)
7	MEDIUM DENSITY RESIDENTIAL (6,500 SQ. FT. – 1/2 AC. / D.U.)
8	HIGH DENSITY RESIDENTIAL (< 6,500 SQ. FT. / D.U.)
9	OFFICE COMMERCIAL
10	MIXED OFFICE / RETAIL COMMERCIAL
11	RETAIL / SERVICE COMMERCIAL
12	TRANSPORTATION / UTILITIES
13	GOVERNMENTAL / INSTITUTIONAL
14	MANUFACTURING / FABRICATION / WAREHOUSING
15	MINING

Chapter 8

TRANSPORTATION FACILITIES ELEMENT

INTRODUCTION

The transportation system of Waukesha County benefits all county residents by providing for the movement of goods and people into, out of, through, and within the County. An efficient, durable, cost-effective transportation system is essential to the sound social, community, and economic development of the County and of the Region of which the County is an integral part. An understanding of the existing transportation system and future improvements to that system is fundamental to the preparation of a comprehensive plan for Waukesha County.

The term transportation system describes several different aspects including:

- Transportation options used to move people and products
- Levels of jurisdictional authority
- Facilities that a user might access to begin, change, or switch, and end a trip.

When people hear the term transportation system they often think only of roads. While roads account for the majority of the transportation system, they are not the only component. A transportation system includes: roads, transit services, rail services, bicycle lanes, paths, trails, and accommodations, airports, pedestrian accommodations, ports, and harbors.

STRENGTHS, CONCERNS, AND WEAKNESSES

The Waukesha County Comprehensive Development Plan Land Use, Housing and Transportation Subcommittee expressed the following transportation strengths, concerns, and weaknesses.

Transportation Strengths

- Easy access to the Interstate Highway System
- Advanced planning and implementation of highway facility improvements
- An established County Trunk Highway System that is effective
- Provides appropriate access to roadways
- Availability of other modes of transportation (ie. airports, trails)
- An increase in official mapping being completed by municipalities for improved inter-connectivity to roadway systems
- A continued commitment to funding County road improvements through a capital improvements program.

Transportation Concerns and Weaknesses

- A lack of a dedicated regional institutional structure for a high level inter-county transit system. The County and Region has a mass transit plan in place, but there is a lack of a comprehensive regional mass transit institutional structure and a dedicated source to fund it.
- Municipalities and the County over-rely on State and Federal funding for local transportation initiatives. A lack of a dedicated funding source exists for transit at the municipal or county level of government.
- A tendency for municipalities and the County to upgrade highways after volume or impact is realized instead of doing a more effective analysis of projecting these changes.
- A lack of county-wide or regional understanding of the impact of road construction (ie. bypass or road widening).

- A lack of continued re-education and endorsement of long-range comprehensive planning and the impact of not planning long-range or failure to implement these plans.
- A lack of grade separation between competing transportation uses such as road and railroad crossings.
- Road improvements are not being made because of current jurisdictional control and conflicting plans.
- Excessive local street road pavement widths.

TRANSPORTATION FACILITIES AND SERVICES

This section presents inventories of the existing transportation system in Waukesha County. Much of this inventory is derived from the regional transportation system plan developed by SEWRPC.

Streets and Highways

Waukesha County has over 2,917 miles of federal, state, county, and local roads and over 373,000 registered automobiles, trucks, semi-trailers, and motorcycles (Table VIII-1 and Table VIII-2). Four freeways, Interstate Highway 43, Interstate Highway 94, State Highway 16, and U.S. Highway 41/45 serve Waukesha County. In addition, the County is served by highways such as 18, 36, 59, 67, 74, 83, 100, 145, 164, 175, and 190. The County Trunk System includes over 391 miles of roads. Over 78 percent of road miles in Waukesha County are local village, town, or city roads. The street and highway system within the County serves several important functions; including providing movement of vehicular traffic; providing access for vehicular traffic to abutting land uses; providing for the movement of pedestrians and bicycles; and serving as a location for utilities and storm water drainage facilities. Streets and highways fall into a three-category hierarchy that, includes arterial, collector, and land access streets. This hierarchy of streets and highways provides for the safe, efficient, and convenient movement of goods and people by auto transport throughout Waukesha County and the Region.

Table VIII-1

ROAD MILEAGE IN WAUKESHA COUNTY: 2005

	State Trunk System (freeways, U.S., STH)	County Trunk System	Local Roads (City, Village, Town)	Total
Waukesha County	232.18	391.78	2,291.90	2,917.43

Source: Wisconsin Department of Transportation

Table VIII-2

REGISTERED VEHICLES IN WAUKESHA COUNTY: JULY 2007

	Automobiles	Trucks	Semi-Trailers	Motorcycles	Total
Waukesha County	175,209	156,026	20,268	21,742	373,245

Source: Wisconsin Department of Transportation

Arterial Streets

An arterial street is a high-volume street that functions to conduct traffic between communities and activity centers and to connect communities to interstate highways. Arterial streets are defined by SEWRPC as streets and highways which are principally intended to provide a high degree of travel mobility, serving the through movement of traffic, and providing transportation service between major sub-areas of an urban area or through an area. In a rural area, an arterial street is a high-volume street that functions to conduct traffic between communities and activity centers and to connect communities to interstate highways. Together, arterial streets should form an integrated, area wide system. The most heavily traveled arterial streets and highways in the County are Interstate Highway 94, Bluemound (US Highway 18), Capitol Drive (State Trunk Highway 190), Moorland Road (County Trunk Highway O), Cleveland Avenue (County Highway D), Interstate Highway 43, State Highway 164, U.S. Highway 41/45, State Highway 16, State Highway 59, County Highway F, County J (Pewaukee Road) and State Highway 74.

In addition to their functional classification, arterial streets and highways are also classified by the unit of government that has the responsibility, or jurisdiction, over the facility. The Wisconsin Department of Transportation (WisDOT) has jurisdiction over the State trunk highway system, Waukesha County has jurisdiction over the County trunk highway system, and each local government unit has jurisdiction over local arterial streets within their community.

The State trunk highway system, which includes Interstate Highways, U.S. – numbered highways, and State highways, generally carry the highest traffic volumes, provide the highest traffic speeds, have the highest degree of access control, and serve land uses of statewide or regional significance. State trunk highways serve the longest trips, principally carrying traffic traveling through Waukesha County and between Waukesha County and surrounding counties. County trunk highways should form an integrated system together with the state trunk highways and principally serve traffic between communities in the County and land uses of countywide importance. Local arterial streets and highways would serve the shortest trips, serve locally-oriented land uses, carry the lightest traffic volumes on the arterial system, carry traffic at lower speeds, have the least amount of access control, and predominately serve traffic within a community.

Collector Streets
Collector streets are defined as streets which are intended to serve primarily as connections between the arterial system and the land access street system. They may include frontage roads that parallel freeways within the County. In addition to collecting traffic from, and distributing traffic to, the land access streets, the collector streets provide a secondary function of providing access to abutting properties. As a result, collector and land access streets are also referred to as nonarterial, or local streets.

Land Access Streets
The function of land access streets is to provide access to abutting property. As the lowest-order street in the hierarchy the access street is designed to conduct traffic between dwelling units and higher order streets. Land access streets are sometimes referred to as minor streets and may include frontage roads that parallel freeways.

County and Local Street Inventory
The Wisconsin Department of Transportation (WisDOT) maintains a detailed database of county and local street information in the “Wisconsin Information System for Local Roads” (WISLR). Physical attributes such as right-of-way and pavement width, number of traffic lanes, type of surface and pavement rating, the presence and type of shoulders or curbs, and the presence of sidewalks are available through a database that can be accessed through the WisDOT website by registered users. Administrative information, including the functional classification and owner of street, can also be obtained. The information in the database is provided by county and local governments, and is intended to assist in the reporting of roadway pavement conditions. Under Section 86.302 of the Wisconsin Statutes, pavement ratings must be submitted to WisDOT by each county and local government every other year. The PASER method (pavement surface evaluation and rating) is the most commonly used method in Wisconsin.

County Traffic Counts
WisDOT conducts average daily traffic counts for county trunk highways, state trunk highways, and U.S. Highways in Waukesha County every three years. Traffic counts are reported as the number of vehicles expected to pass a given location on an average day of the year. This value is called the "annual average daily traffic" or AADT and the values are represented on traffic count or traffic volume maps. The AADT is based on a short-term traffic count, usually 48 hours, taken at the location. This count is then adjusted for the variation in traffic volume throughout the year and the average number of axles per vehicle. The short-term counts are collected over a three-year cycle at nearly 26,000 rural and urban locations throughout the state. County data from 2000, 2003, and 2006 can be found at http://www.dot.wisconsin.gov/travel/counts/waukesha.htm.

Public Transportation
Public transportation is the transportation of people by publicly operated vehicles between trip origins and destinations, and may be divided into service provided for the general public and service provided to special population groups. Examples of special group public transportation include yellow school bus service funded by

local school districts, and fixed route bus service provided by counties or municipalities. Public transportation service provided to the general public in Waukesha County may further be divided into the following three categories:

- Intercity or interregional public transportation, which provides service across regional boundaries and includes Amtrak railway passenger service, interregional bus service, and commercial air travel.
- Urban public transportation, commonly referred to as public transit, which is open to the general public and provides service within and between large urban areas. The fixed-route bus transit system provided by Waukesha Metro falls into this category.
- Rural and small urban community public transportation, which is open to the general public and provides service in and between small urban communities and rural areas, and may provide connections to urban areas.

Public transit is essential in any metropolitan area to meet the travel needs of persons unable to use personal automobile transportation; to provide an alternative mode of travel, particularly in heavily traveled corridors within and between urban areas and in densely developed urban communities and activity centers; to provide choice in transportation modes as an enhancement of quality of life; and to support and enhance the economy.

Interregional Public Transportation

Air, rail, bus and ferry carriers provide Waukesha County residents with public transportation service between the Southeastern Wisconsin Region and a number of cities and regions across the Country.

Air Service

Air services provide people, businesses, and goods with direct access to regional, national and international destinations. The primary commercial airport serving Waukesha County and the SE Wisconsin region with scheduled air carrier service is General Mitchell International Airport, owned and operated by Milwaukee County. Located within the City of Milwaukee, Mitchell International is the largest airport in Wisconsin and is served by 13 airlines offering approximately 235 departures and arrivals every day. Approximately 90 cities are served by nonstop or direct flights from Mitchell International.

Two principal airport facilities in Waukesha County provide general aviation services, those being Waukesha County-Crites Field and Capitol Airport. Crites Field, owned and operated by Waukesha County, is the larger of the two airports and can accommodate all types of general aviation aircraft up to and including business and corporate jets. It is equipped for full instrument landing system approaches and in 2006, handled about 60,000 aircraft operations. Capitol Airport is a private airport open to public use and provides an important facility for smaller business, personal, and recreational aircraft. Both Crites Field and Capitol Airport are reliever facilities for General Mitchell International Airport. Capitol Airport has more limitations on the size of aircrafts being served than Crites Field, it is generally limited to smaller aircrafts. The City of Brookfield does not support retaining the Capitol Airport as designated in the Regional Year 2035 Land Use Plan as noted in the City's Resolution 7655-06. The City of Pewaukee has also recently indicated they do not support retention of Capitol Airport.

Ferry Service

In the SE Wisconsin region, high speed cross-Lake Michigan ferry service is provided between Milwaukee and Muskegon, Michigan by Lake Express. This ferry service operates from April to October each year and handles automobiles, small trucks, and passengers.

Rail Passenger Service

Intercity passenger rail service in the Region is provided by Amtrak with stops at the downtown Milwaukee Amtrak depot, Mitchell International Airport, and Sturtevant but currently provides no stops in Waukesha County. Amtrak operates two passenger train services in Wisconsin: the long-distance Empire Builder operating from Chicago to Seattle and Portland, with six Wisconsin stops including Milwaukee; and the Hiawatha Service that carries nearly 600,000 people each year in the Chicago-Milwaukee rail corridor. Amtrak's Hiawatha Service runs weekday roundtrips daily between Chicago and Milwaukee. In a quick 90 minute trip, a passenger can be in the

middle of either city. Hiawatha Service is funded in part through funds made available by the Illinois and Wisconsin Departments of Transportation. In addition, the Empire Builder runs once a day in each direction between Chicago, Milwaukee, St.Paul-Minneapolis, and Seattle. Commuter rail service to southeastern Wisconsin is provided between Kenosha and Chicago by Metra with intermediate stops between Kenosha and downtown Chicago in the northeastern Illinois north shore suburbs.

Bus Service

Badger Coaches, Greyhound, Coach USA, and Lamers Bus Lines provide intercity bus service within the Region. Badger Coaches provides daily round trips between Madison, downtown Milwaukee, and Mitchell International Airport. Greyhound has a regional hub in Milwaukee that provides passengers with the opportunity to transfer between buses. Greyhound operates a daily route between Milwaukee and Green Bay with stops in Manitowoc and Oshkosh. Lamers Bus Lines provides a daily roundtrip service between Milwaukee and Wausau. Coach USA provides service between Goerke's Corners in Waukesha County and Chicago O'Hare International Airport, with stops in downtown Milwaukee and at General Mitchell International Airport. Other employee related bus services are also provided by various employers in Waukesha County to serve their private needs and meet their needs for employees from outside of Waukesha County.

Urban Public Transportation

Waukesha County Bus Transit

Waukesha Metro Transit oversees the operation of eighteen bus routes that travel throughout Waukesha County and parts of Milwaukee County. Waukesha Metro Transit directly operates ten routes to provide bus service within the City of Waukesha and its environs. Waukesha Metro Transit also administers for Waukesha County the County's service contracts with the Milwaukee County Transit System and Wisconsin Coach Lines, Inc. for eight bus routes comprising the Waukesha County Transit System. Wisconsin Coach Lines and the Milwaukee County Transit System operate these 10 routes for Waukesha Metro Transit. In 2006, sixty-three percent of riders were employed full-time or part-time. Over 2,500 trips were taken each weekday on the Waukesha Metro. In 2006, a total of 656,900 revenue passengers were carried on the City of Waukesha bus routes and about 720,100 trips were carried on Waukesha County bus routes. Only 27 percent of riders on city routes had access to an automobile and 79 percent of riders had household incomes under $35,000. In addition, about 21,100 passengers were carried on the paratransit service for people with disabilities by the City of Waukesha transit system, and 11,600 revenue passengers were carried on the paratransit service for disabled persons provided by the Waukesha County Transit System. Paratransit service is provided to disabled individuals that cannot use fixed route service in accordance with the Federal Americans with Disabilities Act (ADA) of 1990. All transit vehicles that provide conventional fixed-route transit service must be accessible to persons with disabilities, including those persons using wheelchairs.

Employer Supported Transit Service

Several employers within the area provide bus or van transportation to bring workers who live in surrounding counties to Waukesha County. Wisconsin Coach Lines operates a bus route that picks up school bus drivers for work at their facility in Waukesha. JNA, a temporary help service company, operates a bus route from West Bend in Washington County that brings workers to Waukesha County businesses. Milwaukee Careers Cooperative receives funding from the Wisconsin Employment Transportation Assistance Program to operate a van service that brings workers from Milwaukee to the River West Nursing Home in Pewaukee, Waukesha Technical College, Ameritech, Target and MTE Inc.

Specialized Transportation

Rideline is a program subsidized by the Aging and Disability Resource Center of (ADRC) Waukesha County. It provides lift-equipped vans for disabled and older persons. Non-driving Waukesha County residents age 65 and older and individuals under age 65 who use a cane, walker, crutches, wheelchair or scooter, or are legally blind are eligible for this program. RideLine does provide transportation between communities for an additional fee. In 2007, RideLine provided a total of 21,789 one-way trips serving a total of 464 unduplicated passengers. The average mileage per trip was 17.0. Over 80.2 percent of these trips were for medical purposes, 8.4 percent were for education, 5.0 percent for employment, 3.3 percent for social/recreational opportunities, 2.1 percent for shopping, and 1.2 per cent or nutrition.

The shared-fare taxi program, a program also subsidized by the ADRC of Waukesha County , provides reduced fares to taxi service in the communities of Oconomowoc, New Berlin, Waukesha, Elm Grove, Brookfield, Butler, Hartland, Nashotah, Delafield, Mukwonago, Merton, and Muskego.. Waukesha County residents age 65 or older or Waukesha County residents, non-drivers, ages 18 to 64 who receive SSI or SSDI, are eligible. In 2007, 45,675 trips were made with shared-fare taxi. Over 28.9 percent of these trips were for personal business, 21.8 percent for employment/training, 12.5 percent for social/recreational activities, 20.3 percent for medical, and 16.5 percent for nutrition. Operators of the shared-fare taxi program include Best Cab of Waukesha, All Day Taxi, Elmbrook Senior Taxi, Ann Marie Ryan's Transportation Services, Lake Country Cares Cab, Oconomowoc Silver Streak, New Berlin Senior Taxi, Seniors on the Go of Mukwonago, and Muskego Senior Taxi.

A third program, the shuttle program, serves ambulatory residents age 60 and over in Sussex and Lisbon. In Menomonee Falls, they also serve disabled individuals 18 and over. In 2007, the Sussex Senior Shuttle had 635 trips, and the Menomonee Falls bus provided 1,834 trips.

During 2007, Interfaith Senior Programs provided ambulatory specialized transportation services to Waukesha County seniors and adults with disabilities. Utilizing volunteer drivers, Interfaith provided 194 demand-responsive one-way trips and 606 out-of-county medical one-way trips to 289 unduplicated passengers.

Community based agencies received limited funding from the ADRC to provide group non-medical trips. Eight different agencies made 36 group trips (2536 one-way trips).

In an effort to create a better awareness of the bus systems in the City of Waukesha, the ADRC has partnered with the City of Waukesha Parks, Recreation, and Forestry, and Waukesha Metro Transit. The program is for seniors 55+ years and disabled individuals to learn how to ride the bus system and increase usage for both the Metro and Metro Lift systems. This project began in 2008 and will continue.

Bicycle and Pedestrian Facilities

Bikeways

A "bikeway" is a general term that includes any road, path, or way that may legally be used for bicycle travel. Types of bikeways include "bike paths" which are physically separated from motor vehicle travel, "bike lanes" which are portions of roadways that are designated by striping, signing, and pavement markings for the exclusive use of bicycles; and "shared roadways" which are roadways that do not have designated bicycle lanes, but may be legally used for bicycle travel. A "bike route" is a bikeway designated with directional and information markers, and may consist of a combination of bike paths, bike lanes, and shared roadways. Bikeways are also classified as either "on-street or "off-street" bikeways. On-street bikeways include bikeways located in a street right-of-way, which include bike lanes, shared roadways signed as bike routes, and bike paths separated from motor vehicle lanes but within the street right-of-way. "Off-street" bikeways are bike paths not located in a street right-of-way. Off-street bikeways are typically located in utility rights-of-way, on former railroad rights-of-way, or along rivers or streams, and may serve as short connectors between residential areas and commercial or public facilities.

The bicycle and pedestrian facilities element in the 2035 Regional Transportation System Plan for Southeastern Wisconsin is intended to promote safe accommodation of bicycle and pedestrian travel, and encourage bicycle and pedestrian travel as an alternative to personal vehicle travel. The regional plan recommends that as the surface arterial street system of about 2,900 miles in the Region is resurfaced and reconstructed, accommodations for bicycle travel should be implemented, if feasible, through bicycle lanes, widened outside travel lanes, widened and paved shoulders, or separate bicycle paths. This recommendation would result in an additional 161 miles of off-street bicycle mileage on state, county, and local roads within Waukesha County.

Recommended bikeways in Waukesha County are shown on Map VIII-1. The longest current bikeway is the Glacial Drumlin Trail that is owned and managed by the Wisconsin Department of Natural Resources. Developed on a former railroad bed, it extends 51 miles from Waukesha to Cottage Grove in Dane County. Daily or annual State Trail Pass for ages 16 and over are required, except on the City of Waukesha trail segment from the Fox River Sanctuary to McArthur Rd. The Wisconsin Department of Transportation has published a map of bicycling conditions for Waukesha County. This map shows bicycle touring trails, urban escape routes, best roads for biking, and mountain bike trails (See Map VIII-2).

Waukesha County currently owns and manages three bikeways within the County. The Bugline Recreation Trail is a 12.2-mile trail located on the former Chicago, Milwaukee, St. Paul, and Pacific Railroad right-of-way. It stretches between Appleton Ave (State Trunk Highway 175) in Menomonee Falls and Main Street (County Trunk Highway VV) in the Village of Merton. A separate 4 foot wide bridle trail adjacent to the original 8 foot wide recreation trail extends 2.5 miles from The Ranch in Menomonee Falls to Menomonee Park where it joins the Parks bridle trails.

The Lake Country Recreation Trail is located on the former Milwaukee-Watertown Interurban Railway. The railway was popular in the late 1800's as a direct link between Waukesha and the Oconomowoc lake country. This 8-mile recreation trail now utilizes the Wisconsin Electric Power Company right-of-way. It stretches between the Landsberg Center trailhead (just north of Interstate Highway 94 on Golf Road, west of County Trunk Highway T) and Cushing Park in the City of Delafield. The Waukesha County Development Plan recommends that this trail be extended seven (7) miles west to Oconomowoc. Jefferson County has identified the segment of the Wisconsin Electric Company right-of-way between Oconomowoc and Watertown as a high priority for conversion to a multi-use trail in their County bike plan.

The New Berlin Recreation Trail is a seven (7)-mile lineal recreation trail located on the Wisconsin Electric Power Company right-of-way in the City of New Berlin. It extends from South 124th Street just south of Greenfield Ave. (State Highway 59) at the Milwaukee/Waukesha County Line to Springdale Road at the City of New Berlin/Town of Waukesha border. The New Berlin Trail connects in an easterly direction to the Milwaukee Oak Leaf Bike Trail in Greenfield Park. A westerly connection from the New Berlin Recreation Trail to the State DNR Glacial Drumlin Trail is possible by using city streets through Waukesha. In an effort to provide continuity of trails into neighboring counties, where available, references to those adjacent plans will be noted on Map VIII-1. Specifically, Dodge County, in their 2003 Bicycle and Pedestrian Plan, recommended bike lane development along County Trunk Highway P extending to the Waukesha County line.

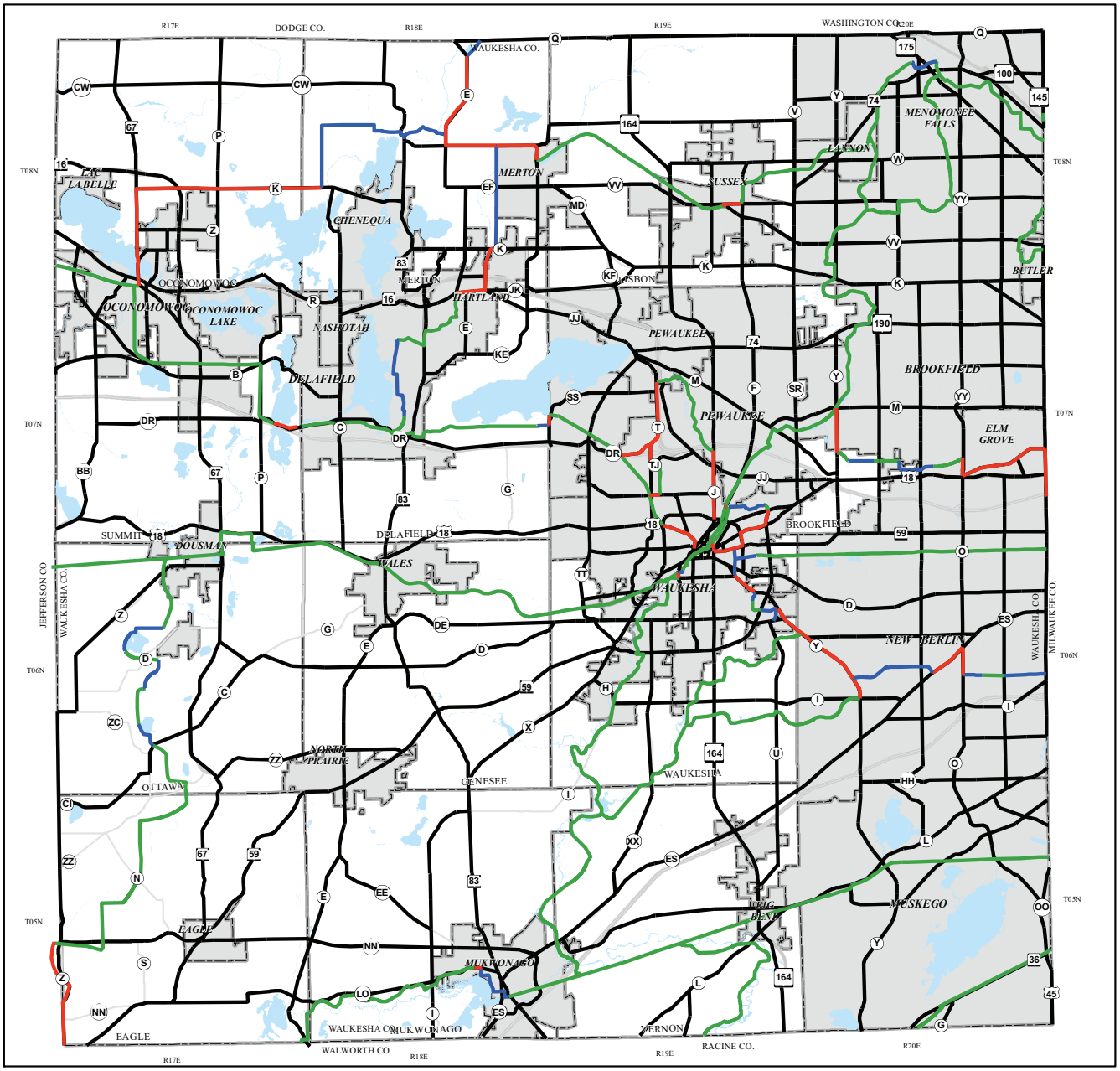
Local municipalities within Waukesha County have incorporated bicycle and pedestrian components into recreational facility and park and open space plans. These are discussed further in Chapter 3.

Pedestrian Facilities

A comprehensive inventory of pedestrian facilities, such as sidewalks, has not been completed for communities in Waukesha County. However, SEWRPC developed a pedestrian facilities policy, which applies to Waukesha County, as documented in the bicycle and pedestrian systems element of the 2035 Regional Transportation System Plan. It recommends that the various units and agencies of government responsible for the construction and maintenance of pedestrian facilities in the Region adopt and follow certain recommended policies and guidelines with regard to the development of those facilities. These policies and guidelines are designed to facilitate safe and efficient pedestrian travel within the Region and are documented in Appendix B of the Regional Transportation System Plan. Recommendations for provisions of sidewalks in areas of existing or planned urban development are summarized in Table VIII-3.

Map VIII-1

WAUKESHA COUNTY PROPOSED BICYCLE PLAN UNDER 2035 REGIONAL TRANSPORTATION SYSTEM PLAN



Legend

- Off-street bicycle way in utility or natural resource corridor
- Non-arterial street connection to off- street bicycle way system
- Surface arterial street connection to off-street bicycle way system
- Surface arterial streets and highways where bicycle accomodations should be considered when facilities are resurfaced or reconstructed
- Major Water Body
- Town
- City or Village

N

0 1 2 4 Miles

Source: SEWRPC

Civil Divisions as of 07/30/07
Prepared by Waukesha Co. Dept. of Parks and Land Use

Map VIII-2
BICYCLING CONDITIONS IN WAUKESHA COUNTY

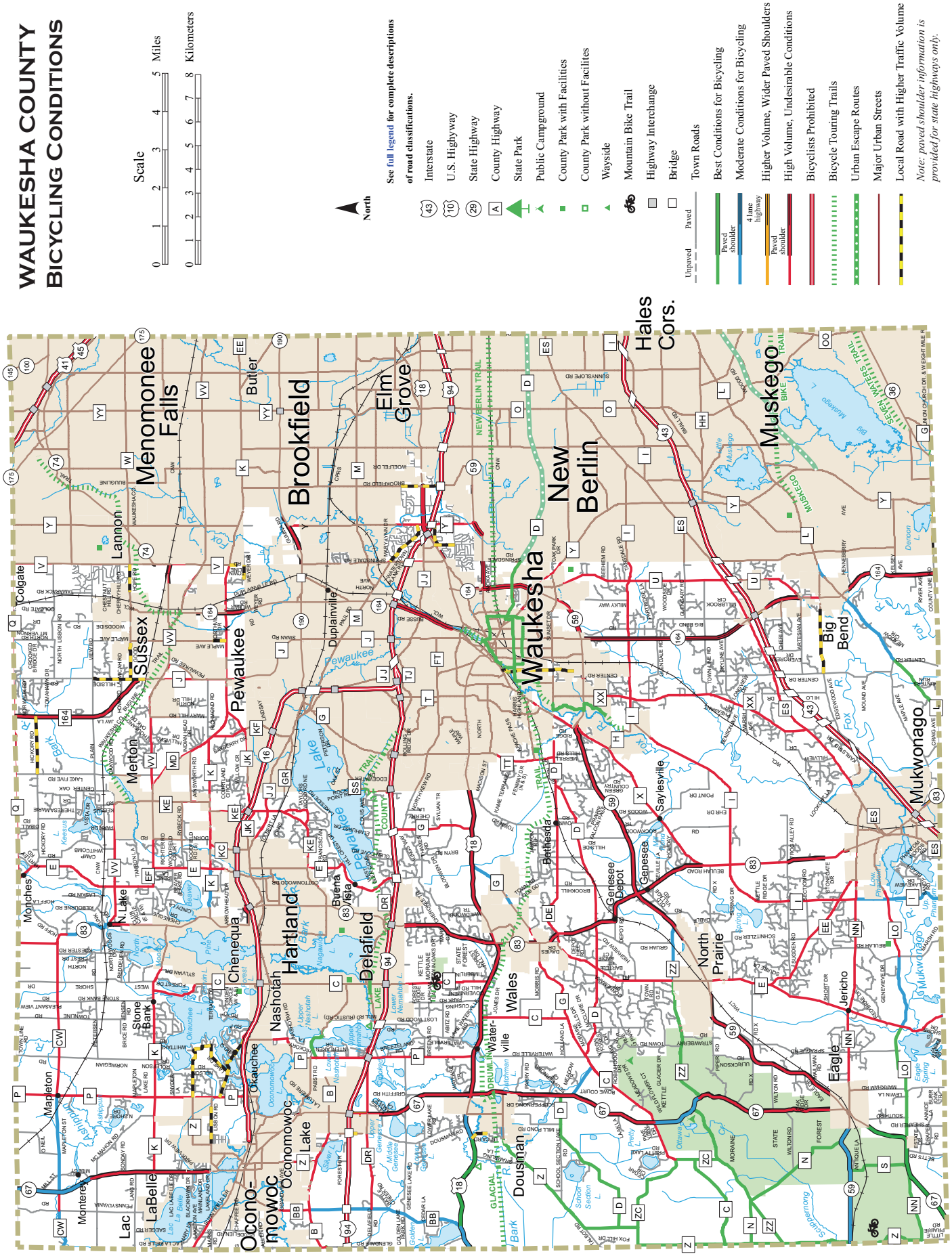

WAUKESHA COUNTY
BICYCLING CONDITIONS
Scale
0 1 2 3 4 5 Miles
0 1 2 3 4 5 6 7 8 Kilometers
North
See full legend for complete descriptions of road classifications.
Interstate
U.S. Highway
State Highway
County Highway
State Park
Public Campground
County Park with Facilities
County Park without Facilities
Wayside
Mountain Bike Trail
Highway Interchange
Bridge
Town Roads
Unpaved
Paved
Best Conditions for Bicycling
Paved shoulder
Moderate Conditions for Bicycling
4 lane highway
Higher Volume, Wider Paved Shoulders
Paved shoulder
High Volume, Undesirable Conditions
Bicyclists Prohibited
Bicycle Touring Trails
Urban Escape Routes
Major Urban Streets
Local Road with Higher Traffic Volume
Note: paved shoulder information is provided for state highways only.
Menomonee Falls
Brookfield
Elm Grove
New Berlin
Hales Cors.
Muskego
Butler
Lannon
Colgate
Sussex
Pewaukee
Waukesha
Big Bend
Merton
Mukwonago
Monches
N. Lake
Chenequa
Hartland
Delafield
Nashotah
Genesee
Genesee Depot
Saylesville
Bethesda
Buena Vista
Wales
North Prairie
Jericho
Eagle
Stone Bank
Mapleton
Okauchee
Oconomowoc
Lake
Dousman
LaBelle
Lac La Belle
Monterey
Oconomowoc
Duplainville
Swan Rd
Pewaukee
Fox
Bark
Nemahbin L.
Lower Nemahbin L.
Upper Nemahbin L.
Okauchee L.
Oconomowoc L.
Upper Genesee L.
Middle Genesee L.
Lower Genesee L.
Golden L.
Silver L.
Pine L.
Beaver L.
Keesus
Merton
Moraine
Kettle
Glacial
Drumlin
Ice Age Trail
Glacial Drumlin Trail
New Berlin Trail
Seven Waters Trail
Muskego Bike Trail
Fox River Trail
Lake Country Trail
Mukwonago River Trail
Mukwonago Bike Trail
Phantom Lake Trail
Lake Five Trail
Lake Five Connector Trail
Lake Country Connector Trail
Lake Country

Table VIII-3

RECOMMENDATIONS FOR PROVISION OF SIDEWALKS IN AREAS OF EXISTING OR PLANNED URBAN DEVELOPMENT

Roadway Functional Classification	Land Use	New Streets[a]	Existing Streets[a]
Arterial Streets[b]	Industrial	Both Sides	Both Sides
	Commercial	Both Sides	Both Sides
	Residential	Both Sides	Both Sides
Collector Streets	Industrial	Both Sides	Both Sides
	Commercial	Both Sides	Both Sides
	Residential	Both Sides	At least One Side
Land Access Streets[c]	Industrial	Both Sides	Both Sides
	Commercial	Both Sides	Both Sides
	Residential (medium and high-density)	Both Sides	At least One Side
	Residential (low-density)[d]	At least One Side	At least One Side

[a]Sidewalks may be omitted on one side of streets where there are no existing or anticipated uses that would generate pedestrian trips on that side.
[b]Where there are marginal access control or service roads, the sidewalk along the main road may be eliminated and replaced by a sidewalk along the service road on the side away from the main road.
[c]Sidewalks need not be provided along courts and cul-de-sac streets less than 600 feet in length, unless such streets serve multi-family development; or along streets served by parallel off-street walkways.
[d]In low-density residential cluster developments, sidewalks could be replaced by perimeter and interior pathway systems.

Source: SEWRPC.

Other Transportation Facilities and Services

Rail Freight Services

Railway freight service is provided by four railroad companies in Waukesha County (Map VIII-3). These include the Union Pacific Railroad, Canadian National Railroad, Canadian Pacific Railway, and Wisconsin & Southern Railroad Company. All four railroads provide rail freight transportation to Metropolitan Chicago. About one-third of the rail traffic in the United States (including much of Wisconsin's rail freight) originates, terminates, or passes through Metropolitan Chicago.

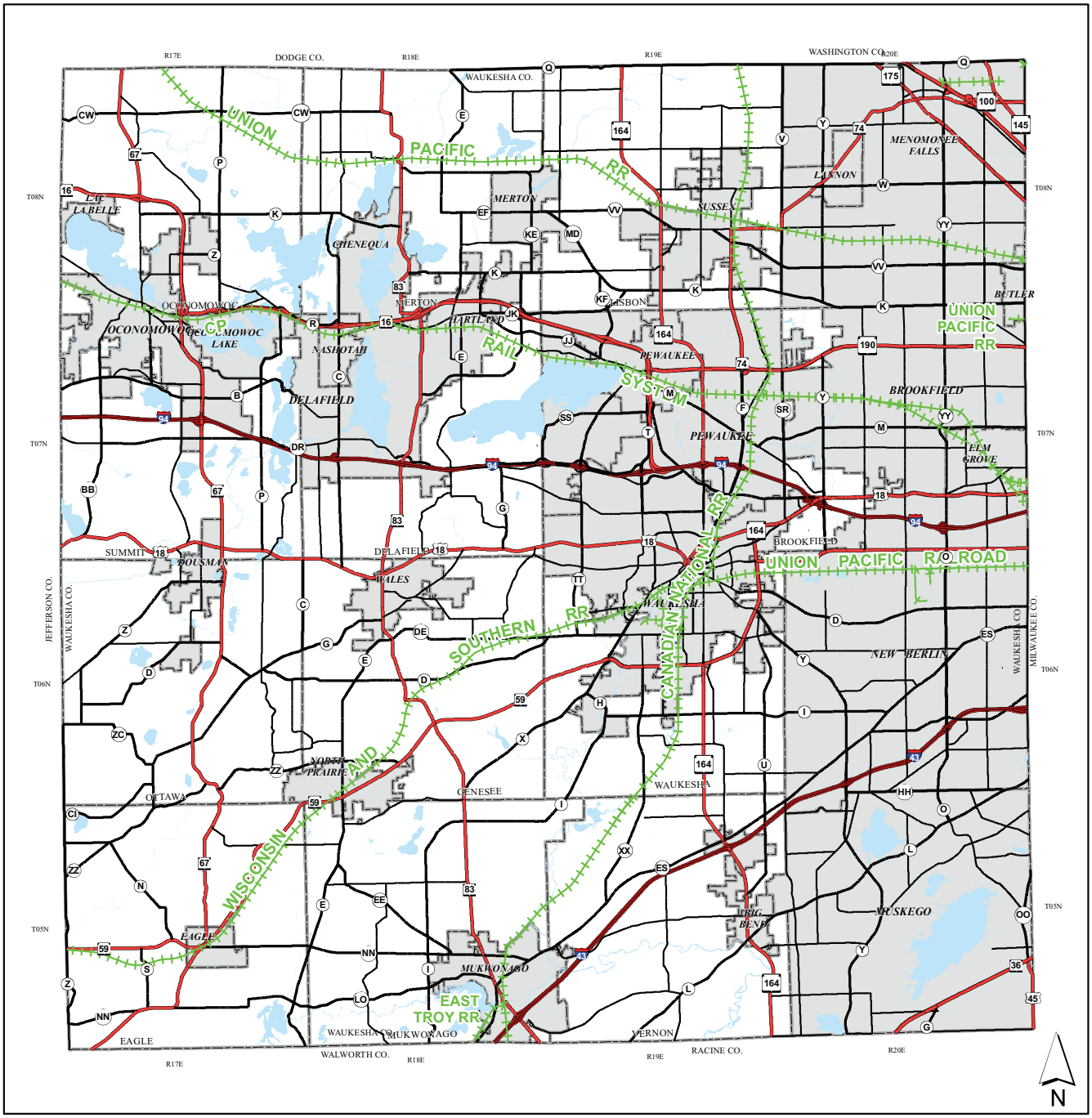
Union Pacific, with headquarters in Omaha, Nebraska, is the largest railroad in North America, operating in the western two-thirds of the United States. The railroad serves 23 states, linking every major West Coast and Gulf Coast port, and provides service to the east through its four major gateways in Chicago, St. Louis, Memphis and New Orleans. Additionally, Union Pacific operates key north/south corridors and is the only railroad to serve all six major gateways to Mexico. The railroad is the nation's largest hauler of chemicals, much of which originates along the Gulf Coast near Houston, Texas. Union Pacific is also one of the largest intermodal carriers – that is the transport of truck trailers and containers.

The Canadian Pacific Railway is a transcontinental railroad stretching from Vancouver to Montreal, and also serves major cities in the United States such as Minneapolis, Chicago, and New York. Its headquarters are in Calgary, Alberta. In 1992, the Canadian Pacific Railway purchased the Soo Line Railroad. Over one-half of the Canadian Pacific Railway's freight traffic is in coal, grain, and intermodal freight, and the vast majority of its profits are made in western Canada. It also ships automotive parts and assembled automobiles, sulfur, fertilizers, other chemicals, forest products, and other types of commodities. The busiest part of its railway network is along its main line between Calgary and Vancouver.

Canadian National Railroad, a transcontinental railroad headquartered in Montreal, Quebec, serves ports on the Atlantic, Pacific, and Gulf coasts. It links customers in the United States, Canada, and Mexico. Canadian National derives revenues from the movement of petroleum and chemicals, grain, fertilizers, coal, metals, minerals, forest products, intermodal, and automotive. In 2001, Canadian National Railroad purchased Wisconsin Central Ltd.

Map VIII-3

EXISTING RAILROAD ROUTES IN WAUKESHA COUNTY: 2007



Legend

- Interstate
- US
- State
- County
- Local Major
- Major Water Body
- Town
- City or Village
- Railroads

0 1 2 4 Miles

Source: Waukesha Co. Parks and Land Use

Civil Divisions as of 04/30/07
Prepared by Waukesha Co.
Dept. of Parks and Land Use

Wisconsin & Southern Railroad Co. (WSOR) is a regional railroad with headquarters in Milwaukee, and operates 700 miles of track (600 owned or leased and 100 in trackage rights) throughout south central Wisconsin and northeastern Illinois. It serves Waukesha, Genesee Depot, North Prairie, and Eagle in Waukesha County. The mission of WSOR is to provide rail freight service to rural communities in southern Wisconsin. In Waukesha County, WSOR operates over publicly owned railroad lines owned by the Wisconsin Department of Transportation and the Wisconsin River Rail Transit Commission.

Between 1990 and 2004, rail freight traffic nearly doubled in Wisconsin exceeding 27.4 billion ton-miles and resulting in over $713 million in revenue. The increase in rail freight traffic has resulted in a need to consider additional grade crossing separations at busy intersections and quiet zones where railroad locomotives are prohibited from sounding horns.

Other Rail Services

The East Troy Electric Railroad is a 7 mile stretch of track from East Troy in Walworth County to Mukwonago. The line dates back to 1907 when it was part of the Milwaukee Electric Railway and Light Company line from East Troy to Milwaukee. The East Troy-Mukwonago segment of the railway was transferred to the Village of East Troy in 1939 and the remainder of the railway line to Milwaukee was abandoned. Between 1995 and 2000 the Friends of the East Troy Railroad Museum purchased the rail line and it operates it as a tourist destination offering rail rides on a weekly basis during the spring through fall season.

Rail Intermodal Facilities

Intermodal facilities are locations where bulk or containerized commodities are transferred from one mode of transportation to another. Intermodal transportation seeks to take advantage of the most cost-effective elements of each individual mode and maximize overall transportation efficiency. In 2004, The Port of Milwaukee was the only truck-rail intermodal facility operating in Southeastern Wisconsin. The 2020 Wisconsin Department of Transportation forecast indicates that six Wisconsin counties have concentrations of the types of commodities that generally indicate the potential for truck-rail intermodal movement (Brown, Dane, Outagamie, Milwaukee, Waukesha, and Winnebago). Nearly two-thirds of this estimate was identified as coming from, or to, Milwaukee and Waukesha counties. Currently, many shipments or destinations in Wisconsin are currently trucked to/from intermodal facilities located in Metropolitan Chicago or the Minneapolis/St. Paul metropolitan area.

Ports and Harbors

There are no harbors within Waukesha County. Water freight and transportation facilities are provided to the region by the Port of Milwaukee, which is located approximately 20 miles east of Waukesha County in the City of Milwaukee. In 2006, the Port of Milwaukee handled over 3.5 million tons of Wisconsin commodities.

Airports

As described earlier in this chapter, Waukesha County is served by two public-use airports. Waukesha County-Crites Field in Waukesha provides chartered air service and air freight services. Capitol Airport provides airport facilities for general aviation aircraft. Commercial airline service is provided by General Mitchell International Airport, located in Milwaukee County.

Crites Field, owned by Waukesha County, serves all single-engine aircraft, virtually all twin-engine piston and turboprop aircraft, and most business and corporate jets. Crites Field also serves as a heliport for “Flight for Life”. Crites Field has two paved runways. The primary runway is 5,850 feet in length and the secondary runway is 3,600 feet in length. Airport facilities include a terminal building, hangars, and a wide variety of fixed-base operator services. Ground transportation access is provided directly by two adjacent county trunk highways, Blue Mound Road (CTH JJ) and Pewaukee Road (CTH J). In addition, Interstate Highway 94 and State Trunk Highway 16 are about one-half mile north of the airport.

Capitol Airport is privately owned and serves small single-engine aircraft and many small twin-engine general aviation aircraft. Capitol Airport has one paved (north-south) and two turf runways. The turf runways are closed during the winter. The paved runway is 3,500 feet long, and the two turf runways are 3,400 feet long and 1,600 feet long. Airport facilities include a small administration building and minor services. Ground access is provided

by Gumina Rd. just off Capitol Drive, which is adjacent to the airport. As mentioned previously, the City of Brookfield does not support retaining the Capitol Airport as designated in the Regional Year 2035 Land Use Plan unless the City of Brookfield determines that redevelopment of the airport is consistent with the goals and objectives of the City of Brookfield master plan. The City of Pewaukee has also expressed similar concerns regarding Capitol Airport.

STATE TRANSPORTATION PROGRAMS

WisDOT maintains 11,753 miles out of 112,262 miles of the public roads in the State. The State highway system includes 750 miles of interstate freeways and 11,010 miles of state and US-marked highways. Although the state highway system represents only 10.5% of all of the public road mileage in Wisconsin, the State highways carry about 60% of the highway travel or about 35 billion vehicle miles of travel a year. The following programs provide state and federal funds to assist local governments with maintenance and improvements to their transportation system.

Corridors 2020

Corridors 2020 is a part of WisDOT's long-range highway improvement plan designed to provide essential links to key employment and population centers throughout the State. As part of the planning process, Wisconsin's highways were classified based on operational and economic factors. Gaps in the system were identified and improvements scheduled. Since the plan was created in the late 1980's, about 900 miles of new highways have been built to accommodate network needs.

The plan's goal is to complete all backbone improvements, which will connect all communities with a population of 5,000 or more to the State highway system. To date, the majority of the improvements have been completed on schedule. US Highway 18 (Bluemound Road) serves as a major east-west arterial route through southern Wisconsin connecting the City of Milwaukee to the City of Prairie du Chien. US Highway 18 is classified as a backbone route or a connecting route in the Corridors 2020 plan. WisDOT is in the process of updating the 2020 Corridors plan to project the state's needs through 2030.

Airport Improvement Program

The Airport Improvement Program, administered by WisDOT's Bureau of Aeronautics, combines federal, state and local resources to help fund improvements for nearly 100 public-use airports throughout the state.

WisDOT is responsible for assisting in the development of a coordinated system of airports in Wisconsin. To do this, WisDOT guides airport development through a process that begins with broad policy planning and includes progressively more detailed elements of system planning, airport master planning, programming, and finally individual airport development. Through an agency agreement with the airport owner, WisDOT oversees project planning, coordination, design, land acquisition and construction, as well as financial transactions for an airport project.

Freight Rail Infrastructure Improvement Program

Freight Rail Infrastructure Improvement Program (FRIIP) loans are awarded to private industries, railroads, and local governments to improve rail infrastructure and to construct new rail-service facilities. The overall goal is to boost economic development and jobs, and increase the use of rail service.

FRIIP provides funding for the following types of railroad projects:

- Connect an industry to the national railroad system. Examples include construction of industrial spur tracks to various industries, and a pipeline from an ethanol plant to a nearby railhead.
- Make improvements to enhance transportation efficiency, safety and intermodal freight movement. Recent projects include grain and fertilizer storage/handling facilities, warehousing facilities to provide rail access and improved loading and delivery of products, and transloading facilities.

- Accomplish line rehabilitation. FRIIP funds have been used to fund rehabilitation projects on privately owned rail lines and rail facilities, and projects that are needed to provide increased efficiencies and benefits that are beyond the basic level of service.
- Complete rail-related projects in a timeframe that would not otherwise be possible.

Freight Rail Preservation Program
The Freight Rail Preservation Program (FRPP) provides grants to local units of government, industries and railroads for the purpose of preserving essential rail lines and rehabilitating them following purchase.

FRPP provides grant assistance for the following types of projects:
- Acquisition of trackage needed to preserve rail service that would otherwise be lost. WisDOT, in cooperation with various rail transit commissions, owns approximate 450 miles of operating rail line in Wisconsin.
- Rehabilitate acquired trackage to allow a reasonable level of service. Recent projects include rehabilitation of the Horicon to Cambria line to maintain service to the Didion Milling facility in Cambria, an upgrade of the Janesville to Monroe line to handle the traffic generated by the Badger State Ethanol plant in Monroe, and improvements to the Janesville to Milton Jct. line, which is currently underway.
- Preserve railroad corridors for future rail service. WisDOT has worked closely with the Wisconsin Department of Natural Resources and other entities to preserve rail corridors under the National Trail Systems Act (Rails to Trails). These corridors are held for future rail use while being used on an interim basis for a recreation trail or other transportation or recreational use.
- Construct connections to reduce the cost of replacing lost rail service.

Midwest Regional Rail Initiative
The Midwest Regional Rail Initiative (MWRRI) is a joint venture between nine state transportation departments (Illinois, Indiana, Iowa, Michigan, Minnesota, Missouri, Nebraska, Wisconsin, and Ohio), the Amtrak rail system and the Federal Railroad Administration. This 3,000 mile rail system with Chicago as its hub would connect the cities of Cleveland, Cincinnati, Detroit, Milwaukee, Minneapolis, St. Louis and Omaha at speeds of up to 110 miles per hour. A key requirement for the success of the MWRRI is Congressional passage of a federal passenger rail funding program. Discussion has recently occurred regarding inter-city rail service along the Madison-Milwaukee corridor with local rail station stops including Brookfield, Hartland, and Oconomowoc, however, without dedicated funding sources and the political will to provide such services, the program cannot more forward.

Transportation Economic Assistance Program
The Transportation Economic Assistance (TEA) Program is a rapid response grant program designed to create new employment, retain existing employment, and encourage private investment in Wisconsin. Communities can apply for TEA funds to encourage new businesses or business expansions in their region by building such transportation improvements as access roads, highway improvements, or rail spurs. The program covers up to 50% of the total cost of eligible projects.

Congestion Mitigation and Air Quality Improvement Program
The Congestion Mitigation and Air Quality Improvement program (CMAQ) is a federally funded initiative to encourage transportation alternatives that improve air quality. It includes efforts to enhance public transit, bicycle/pedestrian facilities, ridesharing programs and facilities, and technologies that improve traffic flow and vehicle emissions. CMAQ funds have been invested in a wide variety of beneficial projects that provide air quality benefits while providing alternatives to added capacity on the road network. The $11.6 million in annual funding is available only for projects in ten southeastern counties that form Wisconsin's ozone non-attainment and maintenance areas. The Cities of Waukesha and Pewaukee, Waukesha County, and the Waukesha County Technical College have received funding from this program for bike paths, new bus routes, Sunday transit service, and training.

Disadvantaged Business Enterprise Program
The Disadvantaged Business Enterprise (DBE) Program's goal is to increase participation of firms owned by disadvantaged individuals in all federal aid and state transportation facility contracts. The DBE program strives to ensure a level playing field and foster equal opportunity for firms owned and operated by disadvantaged individuals on USDOT-assisted contracts and procurements.

The program started with the Surface Transportation Assistance Act of 1982. The Act set a national goal of placing at least 10% of federal highway and transit funds with persons who qualify as disadvantaged small business operators. A subsequent act in 1987 included women.

WisDOT invests between $600 and $700 million annually in federal and state dollars for highway, airport and transit projects. These funds translate into millions of dollars in transportation-related contracts and project work for DBE firms.

Wisconsin Highway Improvement Program
The Wisconsin Highway Improvement Program currently invests over $750 million each year in Wisconsin's highways, resulting in over 565 miles of roads improved and rehabilitated annually. The program addresses deficiencies in the highway and bridge system and incorporates needed improvements to increase the safety and mobility of the system. The program is divided into two subprograms (major highway projects and the state highway rehabilitation program). By State statute, a "Major highway project" denotes a project that has a total cost of over $5 million and involves any of the following:

- Constructing a new highway 2.5 miles or more in length.
- Reconstructing or reconditioning an existing highway by any of the following:
    1. Relocating 2.5 miles or more of the existing highway.
    2. Adding one or more lanes five miles or more in length to the existing highway.
    3. Improving to freeway standards 10 miles or more of existing divided highway having two or more lanes in either direction.

The State Highway Rehabilitation (SHR) Subprogram involves three components:
- Existing highways
- State bridges
- Backbone rehabilitation

In This Together Program
"In This Together" is a WisDOT program that targets statewide businesses facing road construction in their community. The program's goal is to help businesses maintain business while construction is underway.

WisDOT recognizes that businesses located in work zones have special needs. It is critical that customers have access and continue to patronize the businesses, in spite of any roadwork inconvenience. Early in the project development process, business owners receive a workbook, case studies, and video that contain successful marketing and promotion ideas used by other businesses facing the same situation.

Local Transportation Enhancements Program
The U.S. Congress created the Transportation Enhancements (TE) Program in 1991 to address growing concerns about air quality, open space, and traffic congestion. This program is the first Federal initiative to focus on enhancing the travel experience and fostering the quality of life in American communities.

The TE program fosters more choices for travel by providing funding for sidewalks, bike lanes, and the conversion of abandoned railroad corridors into trails. Communities may also use the program to revitalize local and regional economies by restoring eligible historic buildings, renovating streetscapes, or providing transportation museums and visitor centers. Many communities use the program to acquire, restore and preserve scenic or historic sites.

WisDOT administers the local Transportation Enhancements Program to fund multi-modal transportation alternatives and projects that enhance communities and the environment. Currently $6.25 million is available in annual funding. Federal funds administered through this program provide up to 80% of costs for a wide variety of projects such as bicycle or pedestrian facilities, landscaping or streetscaping and the preservation of historic transportation structures.

Rustic Roads Program
The Rustic Roads Program was created in 1973 by the State Legislature to preserve what remains of Wisconsin's scenic, lightly traveled back roads for the enjoyment of motorists, hikers and bicyclists. Wisconsin is unique in its efforts to preserve these low volume, low function rural roads and since the designation of the first Rustic Road in 1975, the statewide system has grown to include 101 Rustic Roads in 54 counties with a total mileage of 562 miles. Waukesha County has two roads designated in the Wisconsin Rustic Roads Program. The first road is a paved 2.5 mile curving trail on the narrow isthmus between Upper and Lower Nashotah Lakes and runs south past Upper Nemahbin Lake. It includes portions of County Trunk Highway B and Mill Road. The second rustic road within the County includes portions of Waterville Road and Piper Road, from US Highway 18 to Wisconsin State Trunk Highway 59. It is a 7 mile paved road that provides scenic views of the Southern Unit of the Kettle Moraine State Forest and access to the Ice Age Trail. In addition, several local municipalities within the County maintain roads as rustic within their communities.

Scenic Byways Program
The purpose of the national scenic byways program is to recognize and promote some of America's memorable roads for the enjoyment of the traveling public. The goal of the Wisconsin Scenic Byways program is to identify, designate, promote and preserve a system of State Trunk Highways recognized for their outstanding scenic views and ability to offer travelers an exceptional travel experience. These byway corridors highlight the best scenic resources along with the natural, historic, archeological, cultural and recreational opportunities available in Wisconsin. It is anticipated that this program will promote tourism and economic development by encouraging people to visit the route and spend money at local motels, restaurants and tourist attractions.

Tourist Oriented Directional Sign Program
The Tourist Oriented Directional Sign (TODS) Program provides signs with directional information for qualifying tourist-related businesses, services or activities. TODS supports the tourism industry's effort to promote businesses and economic development in Wisconsin.

To qualify for a special blue and white sign, the major source of income for a business must come from visitors who do not live in the immediate area. The business also must be located within five miles of a State or US highway, but cannot have direct access to a State or US highway. TODS are prohibited on freeways and expressways and in most urban areas.

Businesses that qualify for TODS fall into five categories:

- Gasoline - Open at least 12 hours per day, seven days a week and provide restrooms, drinking water and a public telephone.
- Food - Open five days a week from at least 10 a.m. to 7 p.m. and have at least 50% of gross receipts from food and non-alcoholic beverages.
- Lodging - Includes hotels, motels, resorts, boarding houses and bed and breakfast establishments with parking accommodations.
- Camping - Provides restrooms, drinking water and a public telephone.
- Tourist attraction - Open at least eight hours a day, five days a week for at least three consecutive months and provides restrooms and drinking water. The attraction must also be of significant interest to the traveling public.

Transit Assistance Programs
The purpose of the State's public transit programs is to financially support the 26 urban bus and 43 shared-ride taxi operating systems located throughout Wisconsin. In 2005, state support for local transit systems totaled $98.6 million, among the highest in the nation. State funding provides a significant percentage of the total revenue for

transit systems; 41% of operating costs of the state's largest transit system in Milwaukee County, 33.3% of the operating costs of bus systems in other urbanized areas, and 32.5% of the operating costs of smaller bus and shared-ride taxi systems.

TRANSPORTATION IMPROVEMENT RECOMMENDATIONS, 2035 REGIONAL TRANSPORTATION PLAN

The 2035 Regional Transportation System Plan for Southeastern Wisconsin is multi-modal in nature, dealing with public transit, bicycle and pedestrian, travel demand management, transportation systems management, and arterial streets and highways. The plan is designed to serve, and be consistent with, the Year 2035 Regional Land Use Plan drafted by the SEWRPC. The process for the development of the recommended multi-modal program began with consideration and development of the travel demand management, transportation systems management, bicycle and pedestrian, and public transit elements of the plan. Arterial street and highway improvement and expansion was then considered only to address the residual high traffic volumes and attendant traffic congestion, which may not be expected to be alleviated by travel demand management, transportation systems management, bicycle and pedestrian facilities, and public transit.

The recommendations set forth below are based upon inventory data, adopted recommendations, a regional public participation survey, and the transportation development objectives, principles, and standards in Chapter 2.

Arterial Street and Highway System Functional Improvements

The 2035 Regional Transportation System Plan for Southeastern Wisconsin identifies recommended functional improvements to the arterial street and highway system in Waukesha County (Map VIII-4). These recommendations are divided into three categories: system preservation – the proposed resurfacing, reconstruction, and modernization as needed of arterials to largely the same capacity as exists today; system improvement - the proposed widening of existing arterials to carry additional traffic lanes; and system expansion – the proposed construction of new arterial facilities (Table VIII-4).

Table VIII-4

ARTERIAL STREET AND HIGHWAY PRESERVATION, IMPROVEMENT, AND EXPANSION BY ARTERIAL FACILITY TYPE IN WAUKESHA COUNTY: YEAR 2035 REGIONAL TRANSPORTATION SYSTEM PLAN

	System Preservation (Miles)	System Improvement (Miles)	System Expansion (Miles)	Total Miles
Freeway	32.2	26.5	0.0	58.7
Standard Arterial	617.9	100.1	10.6	728.6
Total	650.1	126.6	10.6	787.3

Source: SEWRPC

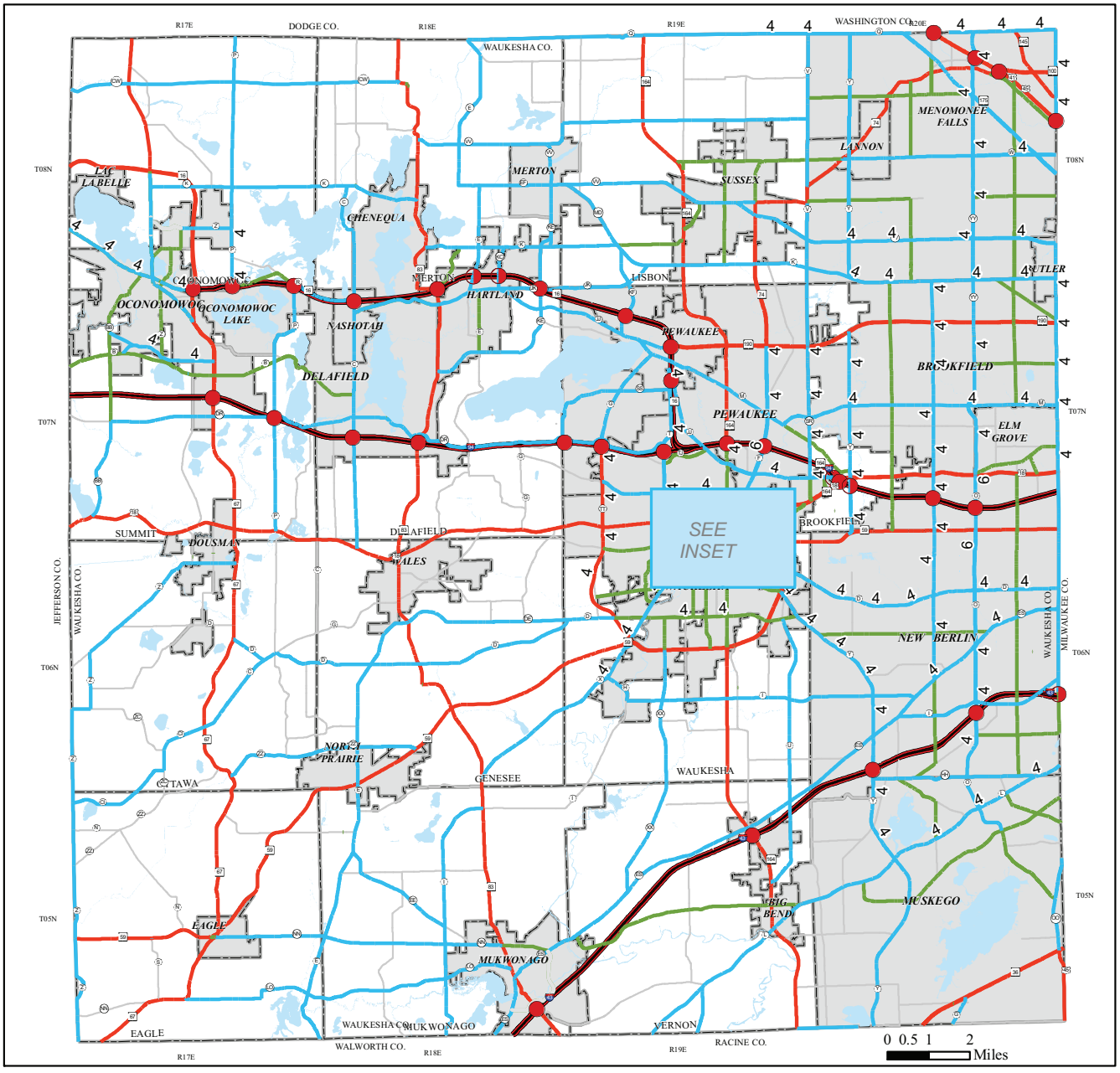
Jurisdictional Recommendations

Jurisdictional classification establishes which level of government – state, county, or local – has or should have, responsibility for the design, construction, maintenance, and operation of each segment of the total street and highway system. Jurisdictional classification is intended to group all streets and highways logically into subsystems under the jurisdiction of the established level of government.

Upon completion of the initial regional transportation system plan in 1966, detailed county jurisdictional highway system plans were prepared. These plans were extended in design year and updated as part of the year 2000 Regional Transportation System Plan completed in 1978, and the year 2010 plan completed in 1994, which was adopted in 1995 by the Waukesha County Board of Supervisors. The recommended Waukesha County jurisdictional arterial street and highway system for the year 2035, based upon the extension of the year 2020 plan to the year 2035 with refinements by the Waukesha County Department of Public Works in 2007, is shown on Map VIII-5.

Map VIII-4

WAUKESHA COUNTY RECOMMENDED FUNCTIONAL IMPROVEMENTS TO THE ARTERIAL STREET & HIGHWAY SYSTEM: UNDER THE 2035 REGIONAL TRANSPORTATION SYSTEM PLAN



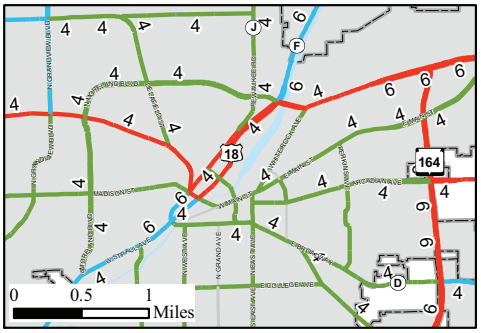
Legend

- Major Water Body
- Town
- City or Village
- Interchange
- Half Interchange
- 4 Number of Traffic Lanes (2 Where Unnumbered)
- Other Major Roads
- County Trunk Highway
- Local Trunk Highway
- State Trunk Highway - Freeway
- State Trunk Highway - Standard

Source: SEWRPC

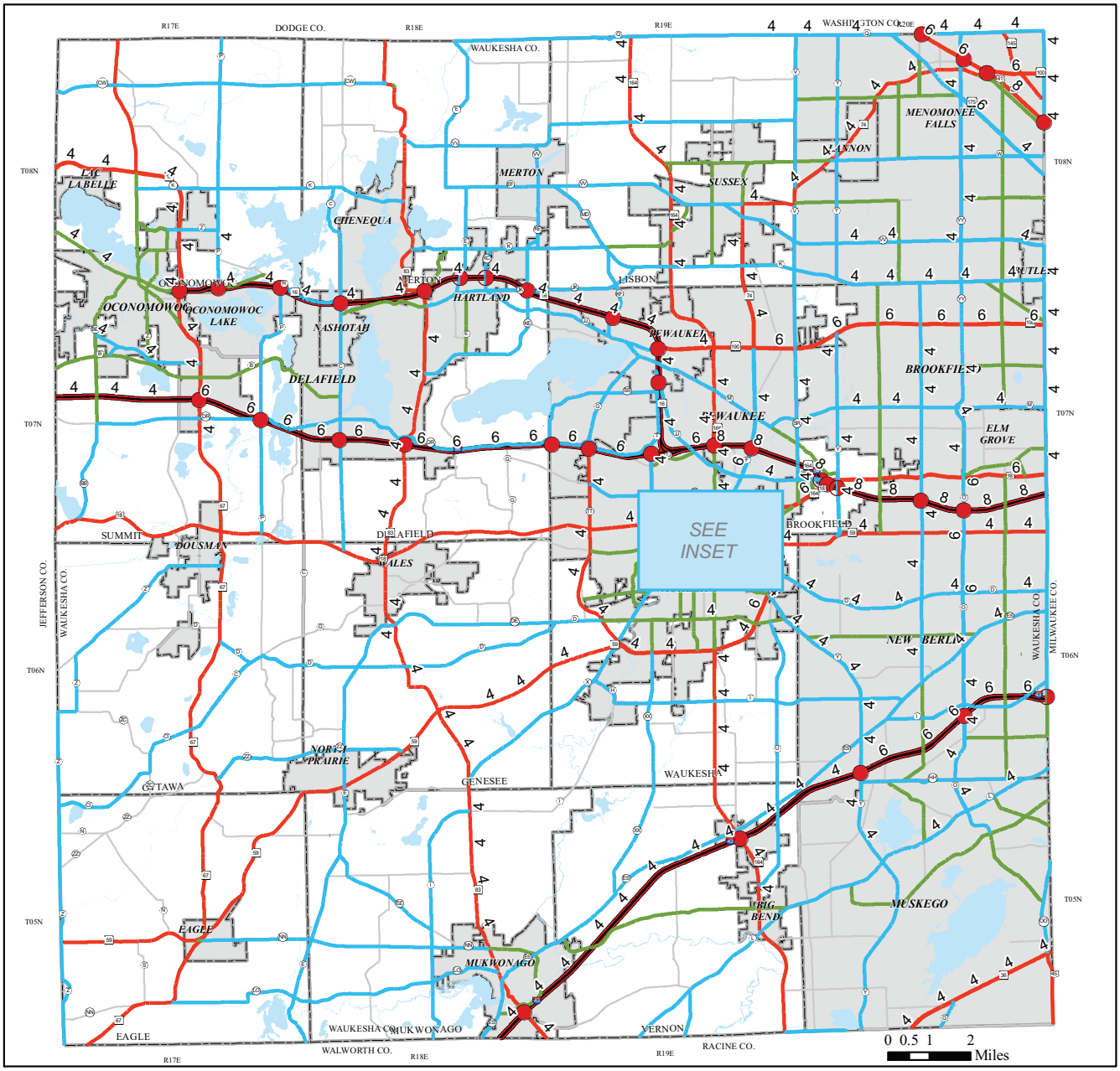
Civil Divisions as of 12/31/07
Prepared by Waukesha Co. Dept. of Parks and Land Use

INSET



Map VIII-5

WAUKESHA COUNTY RECOMMENDED JURISDICTIONAL HIGHWAY SYSTEM PLAN: 2035



Legend

- Major Water Body
- Town
- City or Village
- Interchange
- Half Interchange

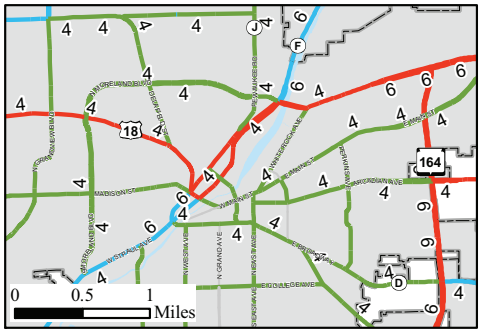
4 Number of Traffic Lanes (2 Where Unnumbered)

- <all other values>
- County Trunk Highway
- Local Trunk Highway
- State Trunk Highway - Freeway
- State Trunk Highway - Standard

Source: SEWRPC

Civil Divisions as of 08/30/07
Prepared by Waukesha Co.
Dept. of Parks and Land Use

INSET



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Over the next two years, SEWRPC staff will be working with the county jurisdictional highway system planning committees in each county in the region, subsequent to Commission adoption of the year 2035 regional plan, to conduct a major review and reevaluation of the jurisdictional transfer recommendations in the year 2035 regional transportation system plan. This will be an extensive effort that will involve the review and redefinition of the functional criteria used for jurisdictional classification of arterial streets and highways, and the application of those criteria to the arterial street and highway system. This effort may change the jurisdictional recommendations of the year 2035 regional transportation system plan. Upon completion, public review, and subsequent adoption of the jurisdictional highway system plans by the Commission, the year 2035 Regional Transportation System Plan would then be amended to reflect the recommendations made in each county jurisdictional highway system plan.

Public Transit

The public transit element of the final recommended regional transportation plan envisions significant improvement and expansion of public transit in southeastern Wisconsin, including development within the Region of a rapid transit and express transit system, improvement of existing local bus service, and the integration of local bus service with the proposed rapid and express transit services. Map VIII-6 displays the transit system proposals for each of the three transit system components.

The proposed expansion of public transit is essential in southeastern Wisconsin and Waukesha County for many reasons:

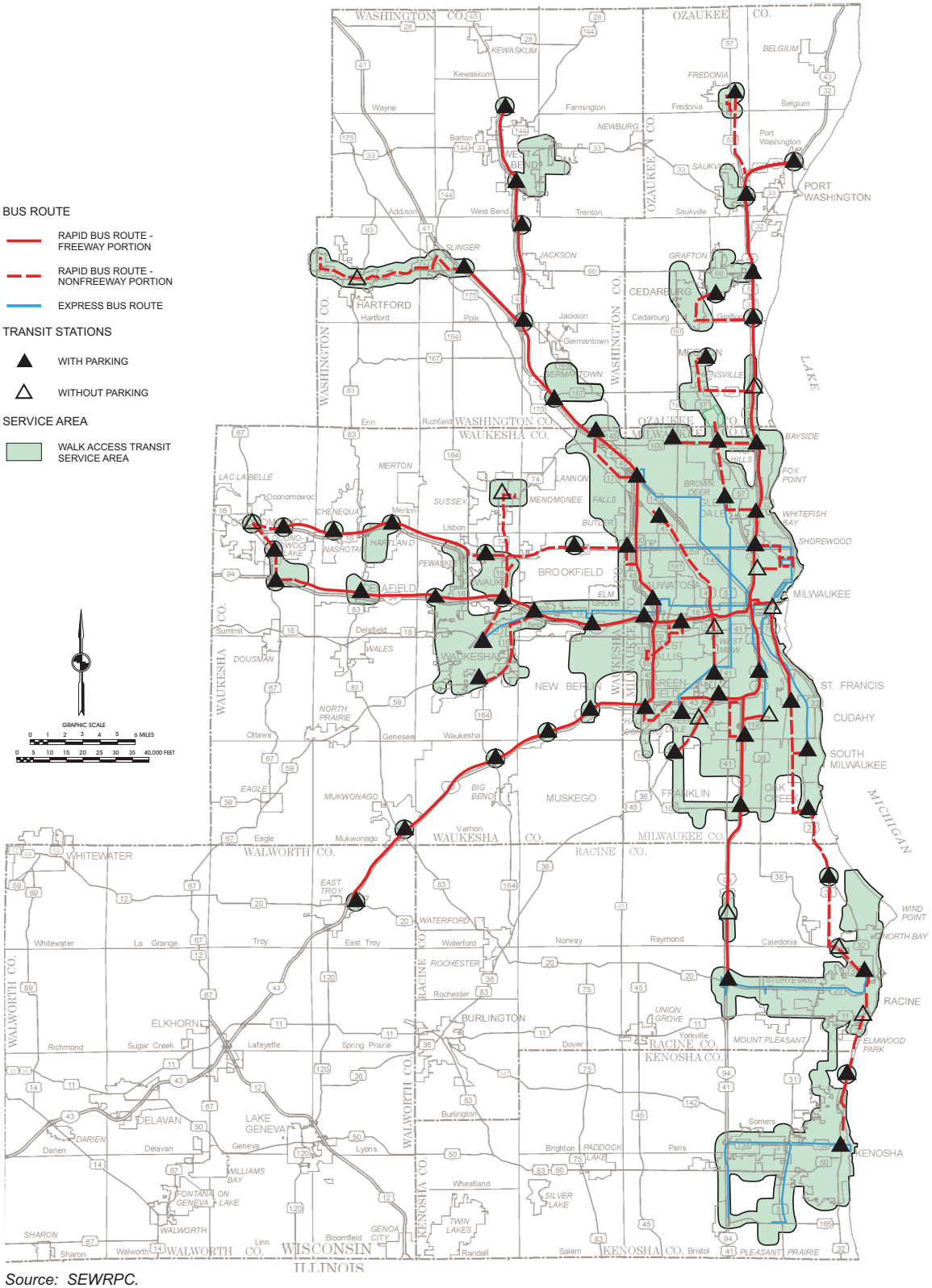
- Public transit is essential to provide an alternative mode of travel in heavily traveled corridors within and between the Region's urban areas, and in the Region's densely developed urban communities and activity centers. It is not desirable, and not possible, in the most heavily traveled corridors, dense urban areas, or the largest and densest activity centers of the Region, to accommodate all travel by automobile with respect to both demand for street traffic carrying capacity and parking. To attract users to public transit, service must be available throughout the day and evening at convenient service frequencies, and at competitive and attractive travel speeds.
- Public transit also supports and encourages higher development density and in-fill land use development, which results in efficiencies for the overall transportation system and other public infrastructure and services.
- Public transit also contributes to efficiency in the transportation system, including reduced air pollution and energy consumption.
- Public transit permits choice in transportation, enhancing the Region's quality of life and economy. A portion of the Region's population and businesses would prefer to have public transit alternatives available and to travel by public transit.
- Public transit is essential in the Region to meet the travel needs of persons unable to use personal automobile transportation. In the year 2000, approximately 80,000 households, or 11 percent of the Region's households and approximately 5,700 Waukesha County households or four (4) percent of the County's households did not have a personal vehicle available and were dependent on public transit for travel. The accessibility of this portion of the Region's population to the metropolitan area jobs, health care, shopping and education is almost entirely dependent upon the extent to which public transit is available, and whether or not it is reasonably fast, convenient, and affordable.
- Waukesha County projections show that the population of people aged 65 and over will more than double in size increasing from 26,763 people in 2000 to 56,678 people in 2035.
- Waukesha County projections show that the labor force of age 65 and over will nearly double from 6,550 in 2000 to 12,572 in 2020.

Upgrading to Rail Transit or Bus Guideways

The regional transportation plan also proposes that consideration be given to upgrading the recommended rapid and express bus transit services to commuter rail for rapid transit service and light rail or bus guideways for express transit service. The regional transportation plan suggests four future commuter lines and six light rail lines within the Region as shown on Map VIII-7. In Waukesha County, the plan identifies a potential commuter rail

Map VIII-6

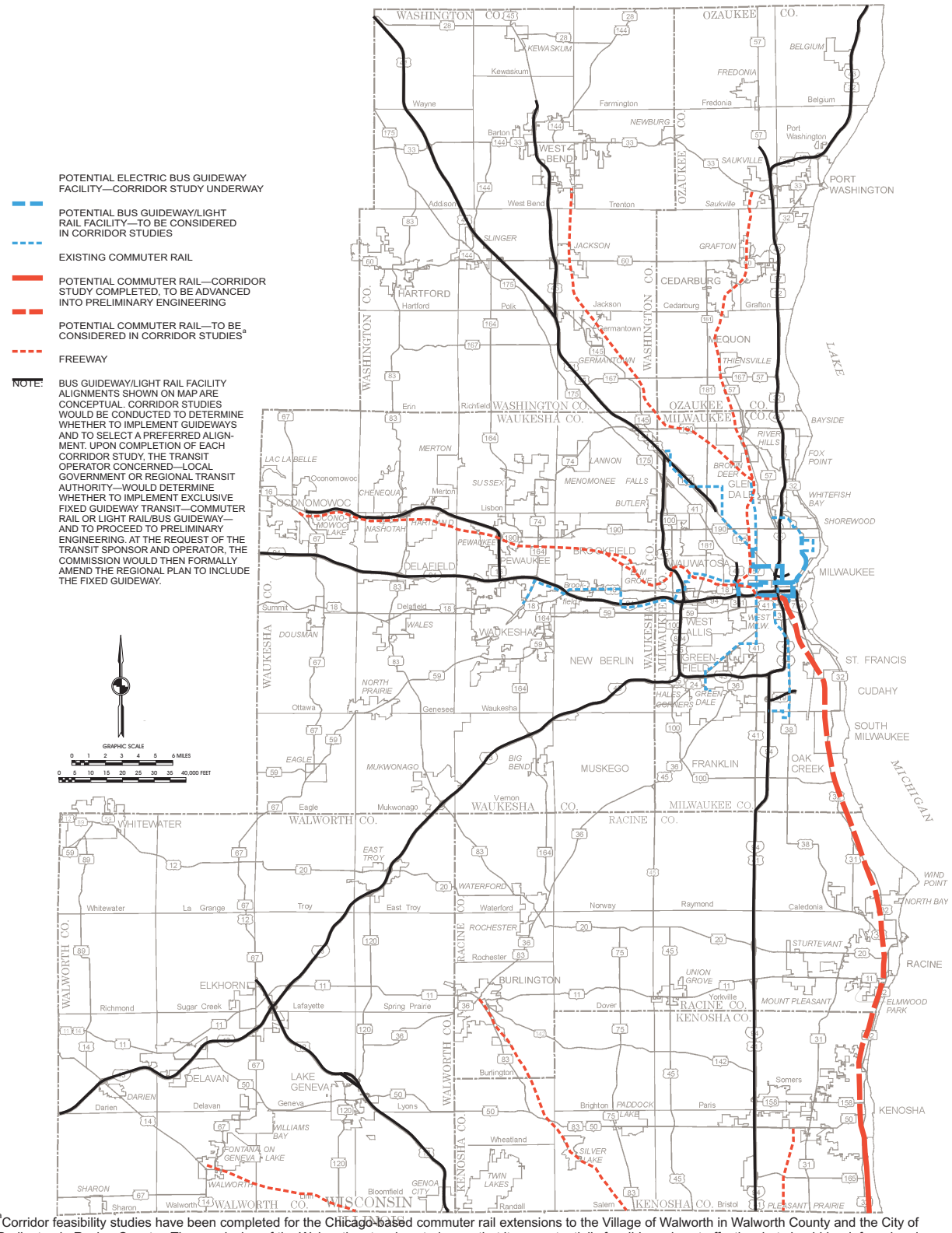
WAUKESHA COUNTY RECOMMENDED PUBLIC TRANSIT ELEMENT OF THE 2035 REGIONAL TRANSPORTATION SYSTEM PLAN



Source: SEWRPC.

Map VIII-7

POTENTIAL RAPID TRANSIT COMMUTER RAIL AND EXPRESS TRANSIT BUS GUIDEWAY/LIGHT RAIL LINES UNDER THE 2035 REGIONAL TRANSPORTATION SYSTEM PLAN



[a]Corridor feasibility studies have been completed for the Chicago-based commuter rail extensions to the Village of Walworth in Walworth County and the City of Burlington in Racine County. The conclusion of the Walworth extension study was that it was potentially feasible and cost-effective, but should be deferred and considered again when a Metra extension from its current terminus in Fox Lake, Illinois is considered to Richmond, Illinois near the Wisconsin-Illinois Stateline. The conclusion of the Burlington extension study was that it was not feasible or cost-effective at that time, but could be considered again in the fut

Source: SEWRPC.

corridor and a potential light rail corridor that would connect Waukesha County communities with Central Milwaukee County and UW-Milwaukee. Special corridor studies would need to be conducted to determine whether or not to implement fixed guide way transit in these corridors and refine the alignments shown in the Regional plan.

The regional transportation plan recommends that local governments, which are the sponsors and operators of transit systems, determine whether or not to upgrade to commuter rail or light rail by conducting a detailed corridor transit analysis study. These studies are a requirement of the U.S. Department of Transportation, Federal Transit Administration in order to be eligible for federal funding.

The Midwest Regional Rail Initiative (MWRRI) is a joint venture between nine state transportation departments (Illinois, Indiana, Iowa, Michigan, Minnesota, Missouri, Nebraska, Wisconsin, and Ohio), the Amtrak rail system and the Federal Railroad Administration. This 3,000 mile rail system with Chicago as its hub would connect the Cities of Cleveland, Cincinnati, Detroit, Milwaukee, Minneapolis, St. Louis and Omaha at speeds of up to 110 miles per hour. A key requirement for the success of the MWRRI is Congressional passage of a federal passenger rail funding program. Local rail station stops on the proposed Milwaukee to Madison corridor include Brookfield, Hartland, and Oconomowoc.

Bicycle and Pedestrian Facilities

The bicycle and pedestrian facilities element in the 2035 Regional Transportation System Plan for Southeastern Wisconsin is intended to promote safe accommodation of bicycle and pedestrian travel, and encourage bicycle and pedestrian travel as an alternative to personal vehicle travel. The regional plan recommends that as the surface arterial street system of about 2,900 miles in the Region is resurfaced and reconstructed, the accommodations for bicycle travel should be implemented, if feasible, through bicycle lanes, widened outside travel lanes, widened and paved shoulders, or separate bicycle paths. This recommendation would result in an additional 161 miles of off-street bicycle mileage on state, county, and local roads within Waukesha County as shown on Maps VIII-8 and VIII-9.

Community Bicycle and Pedestrian Plans

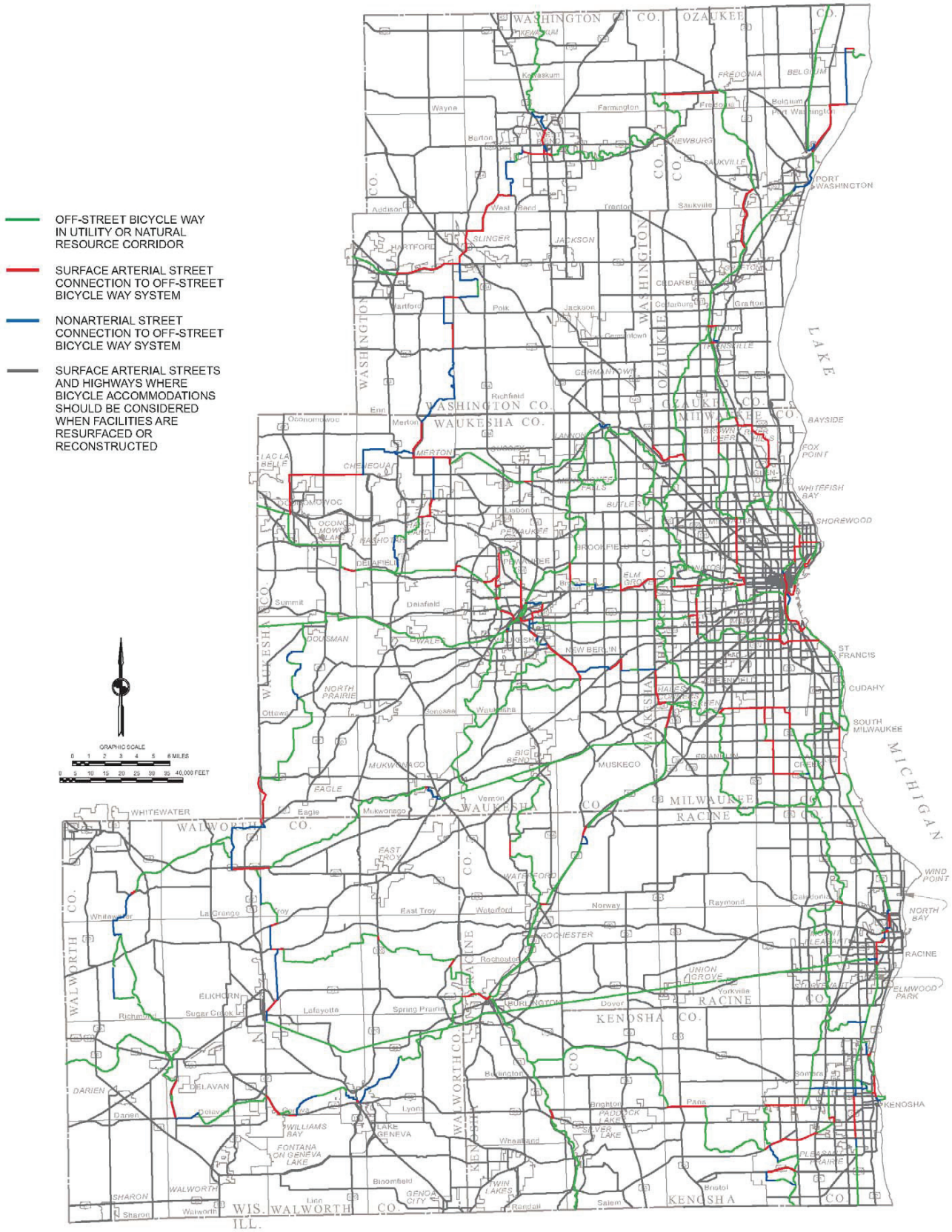
SEWRPC recommends that local units of government prepare community bicycle and pedestrian plans to supplement the regional plan. The local plans should provide for facilities to accommodate bicycle and pedestrian travel within neighborhoods, providing for convenient travel between residential areas and shopping centers, schools, parks, and transit stops within or adjacent to the neighborhood. The standards, guidelines, and system plans set forth in the regional plan should be the basis for the preparation of community and neighborhood plans. It is also recommended that local units of government consider the preparation and implementation of land use plans that encourage more compact and dense development patterns, in order to facilitate pedestrian and bicycle travel. Local municipalities within Waukesha County as well as adjacent counties may also have numerous park and recreation plans that incorporate bicycle and pedestrian pathways, and several have already developed bicycle and pedestrian plans. These plans should also recognize what jurisdiction is responsible for said trails. These are discussed further in Chapter 3. Since many trails cross municipal boundaries, Waukesha County should work with the municipalities and adjoining counties to coordinate trail planning.

Transportation Systems Management

The transportation systems management element of the final recommended year 2035 regional transportation plan includes measures intended to manage and operate existing transportation facilities to their maximum carrying capacity and travel efficiency, including: freeway traffic management, surface arterial street and highway traffic management, and major activity center parking management and guidance. In addition, improving the overall operation of the regional transportation system requires regional cooperation and coordination between government agencies and operators.

Map VIII-8

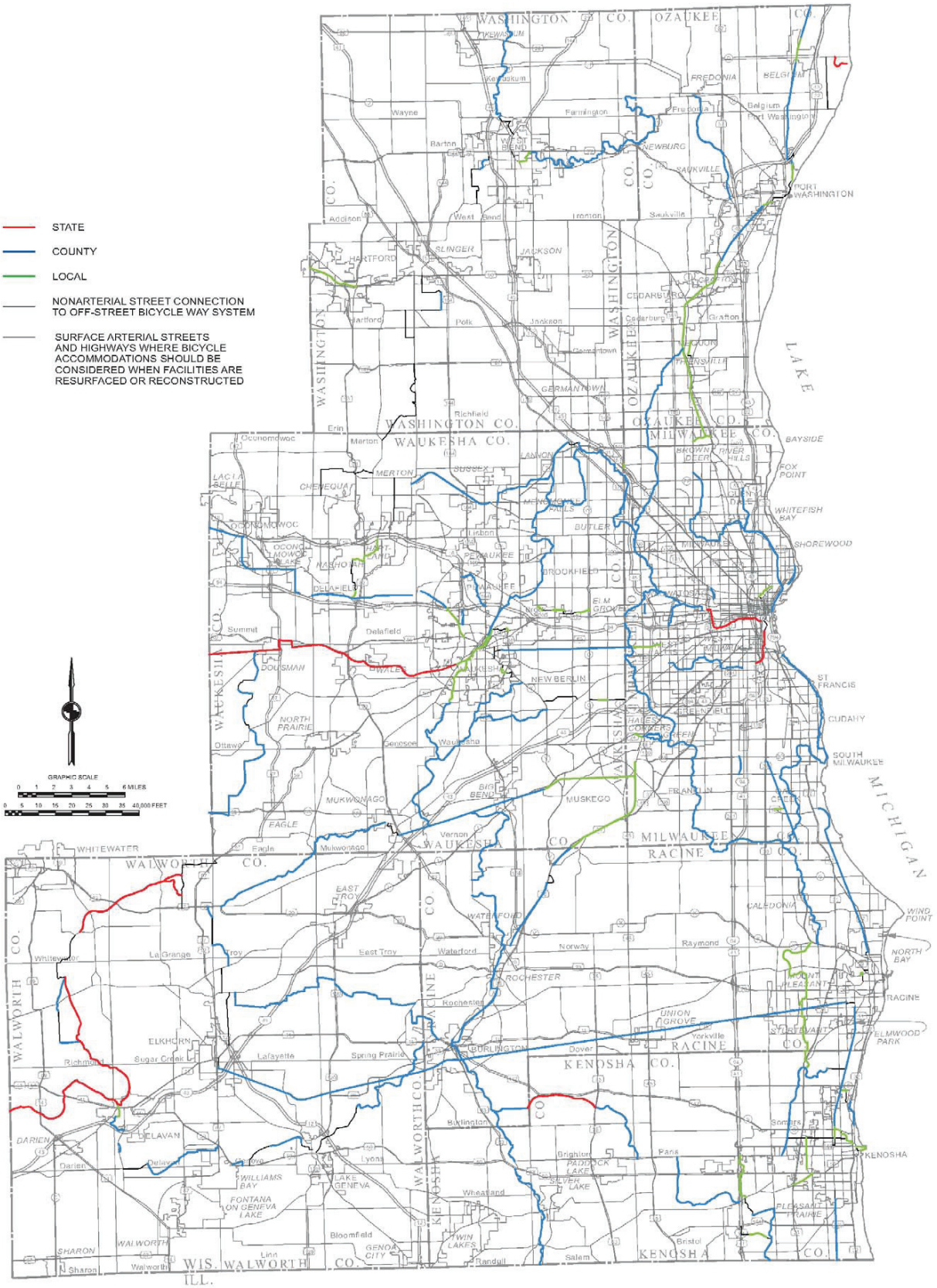
WAUKESHA COUNTY BICYCLE PATHS & SURFACE ARTERIAL STREET & HIGHWAY SYSTEM BICYCLE ACCOMMODATIONS UNDER THE RECOMMENDED YEAR 2035 REGIONAL TRANSPORTATION PLAN



Source: SEWRPC.

Map VIII-9

WAUKESHA COUNTY RECOMMENDED OFF-STREET BICYCLE FACILITY JURISDICTION UNDER THE 2035 REGIONAL TRANSPORTATION SYSTEM PLAN



Source: SEWRPC.

Travel Demand Management

The travel demand management measures included in the final recommended year 2035 regional transportation plan include measures intended to reduce personal and vehicular travel or to shift such travel to alternative times and routes, allowing for more efficient use of the existing capacity of the transportation system. These measures are in addition to the public transit and pedestrian and bicycle plan elements previously discussed.

Seven categories of travel demand management measures are recommended in the year 2035 Regional Transportation Plan: high-occupancy vehicle preferential treatment, park-ride lots, transit pricing, personal vehicle pricing, travel demand management promotion, transit information and marketing, and detailed site specific neighborhood and activity center land use plans. For more information on these categories see pages 384 to 387 in the SEWRPC Planning Report No. 49, A Regional Transportation System Plan For Southeastern Wisconsin: 2035.

OTHER IMPLEMENTATION RECOMMENDATIONS

1. Waukesha County should work with the Southeastern Wisconsin Regional Planning Commission (SEWRPC) to conduct a major review and reevaluation of the jurisdictional transfer recommendations in the year 2035 Regional Transportation System Plan.
2. Waukesha County should refine the proposed system of off street bicycle paths and surface arterial streets and highway system accommodation of bicycles contained in the 2035 Regional Transportation System Plan. In addition, the County should integrate bikeway accommodations into planning for upgrades and modifications to the county trunk highway system consistent with the refined county transportation plan and facilitate communication with local municipalities and bordering counties to address bikeway linkages and connectivity.
3. Discuss with Jefferson County opportunities to expand the Lake Country Recreation Trail from Oconomowoc to Watertown in Jefferson County.
4. The County and municipalities should implement the transportation system development planning objectives, principles and standards contained in Chapter 2.
5. The County and municipalities should evaluate dedicated funding sources for county wide shared taxi service to meet the needs of a growing elderly population in all 37 municipalities.
6. As a consequence of increasing rail freight traffic, the County should establish additional rail quiet zones and invest in railroad grade separations as a safety priority at county trunk highway crossings.
7. The County should work with local municipalities and the Wisconsin Department of Transportation's Bureau of Aeronautics to determine if maintaining Capitol Airport as an aviation facility is consistent with future transportation and land use plans.
8. Evaluate the public transit recommendations contained in the 2035 Regional Transportation System Plan for Southeastern Wisconsin such as car pool lanes, van pool and bus guideways.

Chapter 9

IMPLEMENTATION AND INTERGOVERNMENTAL COOPERATION

IMPLEMENTATION RECOMMENDATIONS OVERVIEW

The recommended plan provides a design for the attainment of the specific development objectives set forth in Chapter 2. In a practical sense, however, the plan is not complete until the steps required to implement the plan—that is, to convert the plan into action policies and initiatives are specified. Accordingly, this chapter is presented as a guide for use in the implementation of the Comprehensive Development Plan for Waukesha County. More specifically, this chapter outlines the actions that should be taken by various agencies and units of government in efforts to implement the Comprehensive Development Plan for Waukesha County.

Through out the planning process, various subcommittees participated in a facilitated discussion to identify the strengths, concerns and weaknesses associated the various elements of a comprehensive plan such as the agricultural, natural and cultural resources; community facilities and utilities; economy; transportation; housing; and land use elements. The comments provided by the various subcommittees are presented in the applicable chapters.

In addition, each subcommittee was asked to develop a series of implementation recommendations. The recommendations were based upon the results of the public opinion survey, an analysis of the issues and consideration of the data presented in the chapters. The following is a list of the implementation recommendations contained in the various chapters of this Plan.

CONSISTENCY AMONG PLAN ELEMENTS

The comprehensive planning law requires that the implementation element "describe how each of the elements of the comprehensive plan shall be integrated and made consistent with the other elements of the plan." All elements of this comprehensive plan were prepared simultaneously by the same staff with great care given to ensure internal consistency among the various elements. All element chapters were reviewed by the Comprehensive Planning Advisory Committee. In addition, the Development Plan for Waukesha County simultaneously prepared the planning objectives and standards described in Chapter 2. It should be recognized that it is unlikely that the Plan can meet all of the standards completely. It should also be recognized that some objectives are complementary, with the achievement of one objective supporting the achievement of others. Conversely, some objectives may be conflicting, requiring reconciliation through consensus building and/or compromise.

AGRICULTURAL, NATURAL AND CULTURAL RESOURCES

Chapter 3 of this Plan presents an inventory and analysis of the agricultural, natural and cultural resource base of Waukesha County. Included is descriptive information pertaining to climate, air quality, physiography, bedrock geology, topography, soils, groundwater resources, surface water resources, wetlands, woodlands, natural areas and critical species habitat sites, park and open space sites, environmental corridors, historic and cultural resources and agricultural lands.

The Agricultural, Natural and Cultural Resources Element chapter presented the following implementation recommendations:

1. Following completion of the Regional Water Supply Plan or availability of sufficient data, the planning objectives and standards used to prepare this plan may need to be refined to address groundwater supply and recharge issues.

2. Amend land use categories to direct development away from areas with seasonally high groundwater one-foot or less from the surface and steep slopes (12% or greater) and to discourage development of below grade structures on soils with groundwater limitations less than three (3) feet from the surface. Amend applicable zoning and land division codes to establish a minimum of one foot separation between structures (including basements) and the seasonally high groundwater level.

3. Amend applicable zoning codes, land division and storm water management ordinances to more stringent site design and storm water management requirements necessary to address thermal and other runoff impacts detail to cold-water communities, outstanding water resources and exceptional water resources.

4. Provide to the municipalities in Waukesha County the lists of historical sites that are eligible for historic designation but have not been designated and the list of potentially eligible sites that need additional evaluation for inclusion as eligible sites.

5. Amend the planned land use map and appropriate zoning codes and maps to reflect lands identified as prime agricultural areas using the planning standards contained in Chapter 3.

6. To protect and encourage the preservation of high quality agricultural tillable lands, (U.S.D.A. Class I and II soils) contained in the Prime Agricultural and Rural Density and Other Agricultural Land plan categories, discourage residential development on agriculturally productive and environmentally sensitive areas, provide for some marketability of such lands, and encourage more economical use of lands suited to limited and controlled residential development by permitting more intensive use of such lands without changing overall rural character, it is recommended land use tools such as residential density transfer opportunities be provided. Within land use regulatory codes these opportunities, with the following components, should be provided:

    a. Through development design techniques, including but not limited to Planned Unit Developments and conservation design developments, high quality agricultural tillable lands can be preserved.
    b. The density transfer technique would permit variable lot sizes in the utilization of the most desirable terrain for housing sites while encouraging preservation of high quality agricultural tillable lands worthy of such preservation.
    c. To transfer residential density opportunities to promote the preservation of the rural character of the County by encouraging farm fields, pastures, orchards, and natural open spaces to be retained either as common open spaces, or as part of a farm operation. The transfer of residential development rights from one area of a parcel to another, from one tract of land to another, and from the Prime Agricultural and Rural Density and Other Agricultural Land plan categories is recommended, thereby allowing the increase in density of development on suitable lands for development in exchange for establishing the preservation of more desirable agriculturally productive lands.
    d. In order to preserve the rural character as well as the efficiency and safety of existing road systems, the inappropriate development of lots strung out along such roads with individual driveway accesses from each lot should be minimized. The goal of this objective is to encourage grouping of lots on an interior street, which will then access the existing road system.
    e. Any land claimed in addition to the actual described residential lots, for credit toward meeting the density factor requirement, would have its status established, and guaranteed, either by dedication to the public, or by appropriate covenants running with the lands, through the conveyance of agricultural easements. Such covenants and easements would be recorded in the office of the Register of Deeds and would restrict the property against any development or use except as is

consistent with its preservation as high quality agricultural tillable land or as a form of common open space unless the zoning of the property is changed in accordance with an update to the Comprehensive Development Plan for Waukesha County. The preserved land status of any parcel would be indicated on official zoning maps.

7. To protect and encourage the preservation of primary and secondary environmental corridors and isolated natural resource areas, discourage residential development in environmentally sensitive areas, provide for some marketability of such lands, encourage more economical use of lands suited to limited and controlled residential development by permitting more intensive use of such lands without impacting the environmentally sensitive areas, it is recommended residential density transfer opportunities be provided. Within land use regulatory codes, these opportunities, with the following components, should be provided:

    a. Through development design techniques, including but not limited to Planned Unit Developments and conservation design developments, primary and secondary environmental corridors and isolated natural resource areas should be preserved.
    b. The density transfer technique would permit variable lot sizes while encouraging preservation of primary and secondary environmental corridors and isolated natural resource areas.
    c. To transfer residential density opportunities to promote the preservation of the rural character of the County by preserving primary and secondary environmental corridors and isolated natural resource areas to be retained as common open spaces.

8. In an effort to prevent land use conflicts with nonmetallic mining operations in the County, the Waukesha County Mineral Extraction Advisory Committee developed a series of recommendations. They are:

    a. Within appropriate land use regulatory codes, create a Mineral Extraction Notification Overlay District that extends beyond the property lines of nonmetallic mining operations. Creation of the Overlay District would require notifications to appear on recorded documents associated with land divisions within the District denoting the parcel's proximity to an active or planned mining operation. Loudoun County, Virginia is an example of the use of overlay districts.
    b. Within appropriate land use regulatory codes, a minimum setback from nonmetallic mining operations and adjoining properties should be established. Landscape berms and vegetative screening could be provided in the setback area.
    c. New wells placed on properties immediately adjacent to nonmetallic mining operations should be constructed to minimize the impacts from mining operations.

COMMUNITY FACILITIES AND UTILITIES

Chapter 4 of this Plan presents a discussion of the major community facilities and utilities within the county including telecommunications infrastructure, public and private utilities, school districts, libraries, cemeteries, healthcare facilities, childcare facilities, and public safety. The Community Facilities and Utilities chapter presented the following implementation recommendations facilities:

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.

HOUSING

Chapter 5 of this Plan presents an analysis of the age, structural condition, value, and occupancy characteristics of existing housing stock in the County and local governments that participated in this planning process. In addition, the chapter provided a description of government programs which facilitate the provision of housing, including affordable housing and information on community policies established for the percentage distribution of single-family, two-family, and multi-family units. The Housing chapter presented the following implementation recommendations:

Housing Supply

1. Each community within the County should identify a projected number of additional housing units to meet housing demand through year 2035. Land needed to accommodate additional housing units should be included on the planned land use map based on the population trend information presented in Chapter 2 of this Plan.
2. Community comprehensive plans should address the need for adequate consumer housing choices that allow for a full range of housing structure types and sizes including single-family, two-family, and, in sewer service areas, multi-family.
3. Promote construction design concepts such as Universal Design[1] and Visitability. Visitability is a movement to change home construction practices so that all new homes, not just custom built homes, offer a few specific features that make the home easier for people with mobility impairment to live in at least one zero-step entrance approached by an accessible route on a firm surface no steeper than a 1:12 grade from a driveway or public sidewalk.

[1] Accessibility for the disabled can be increased by providing homes with wider doors and hallways, level surfaces, and other features, often referred to as "Universal Design."

Housing Mix

1. Communities that seek to attract jobs, as reflected in the accommodation of new commercial and industrial development, should ensure that a broad range of housing styles, types and price ranges are provided to provide opportunities to minimize geographic imbalances between job and residence locations.
2. Communities should establish policies concerning housing mix to provide a full range of housing choices. Comparing housing types and affordability to existing and projected jobs and wages will be beneficial to establishing effective housing mix policies.
3. Communities should analyze the population trend information presented in Chapter 2 and the employment projection information presented in Chapter 6 to ensure that a range of housing stock to meet the needs of an aging population. This analysis should be repeated annually to determine the effectiveness of the housing mix policy.
4. Communities should analyze existing housing stock to establish baseline conditions for the existing affordable housing. As part of this planning project, Waukesha County worked with the Town of Mukwonago to develop a sample methodology to analyze the value of existing housing stock. The following criteria were used to provide more accurate data on the actual housing stock within the municipality.

    a. Equalized improved value of the property was greater or equal to $40,000 based on tax and assessment information.
    b. Equalized total value (land plus improvements) was less than or equal to $208,700.
    c. Land area was less than 10 acres to exclude large farms.
    d. Special attention was given to removing parcels with partial assessments, parcels with only larger accessory structures, and parcels that had multiple living units or multi-family units.

Housing Affordability and Housing Costs

1. Households should not have to pay more than 30 percent of their adjusted gross income in order to secure decent, safe, and sanitary housing, including, in addition to the contract rent payment or the payment of the principal, interest, and taxes, the necessary insurance, utility, and other attendant costs.
2. Chapter 6 (Economic Development) of this Plan discusses the use of Tax Incremental Financing. Municipalities should consider using Tax Incremental Financing for the redevelopment of properties to higher density residential uses to meet affordable housing needs.
3. Communities within the County should consider and explore the creation of incentives for the development of affordable housing units. Options to consider include density bonuses and waiver of fees.
4. The County should work with municipalities to study the feasibility of an affordable housing trust fund to assist in meeting the projected employment housing needs.
5. Encourage mixed income housing development to avoid concentrating affordable units in a limited number of areas.
6. Encourage the adoption and use of "flexible zoning district" regulations such as Traditional Neighborhood Development, Transit-Oriented Development, and Planned Unit Development regulations.
7. Develop or encourage the development of rent-to-own programs through public-private partnerships and entrepreneurship to give low-to moderate-income families a chance at homeownership.[2]
8. Study the potential to integrate other types of specialty housing, where applicable, such as "cooperative housing" (sometimes called "coop-housing or co-habiting housing"),[3] "cohousing"[4] and university or

[2] An example of a rent-to-own development is Metcalfe Park in the City of Milwaukee. A private developer, in partnership with the Milwaukee Urban League and using affordable housing tax credits, is developing 30 homes that will be leased to families that qualify for below-market rents of $675 and $825 per month. In 15 years, the homes will be available for purchase at discounted prices.

[3] A multi-family dwelling owned and maintained by the residents. The entire structure and real property is under common ownership as contrasted with a condominium dwelling where individual units are under separate ownership. Apartments and dwellings may include shared common areas such as kitchen, dining, and/or living rooms, and services, such as housekeeping, organized social and recreational activities, including seniors and persons with disabilities capable of living

campus-related housing for seniors,[5] which may also socially support and help seniors and/or persons with disabilities be self-sufficient.

9. Support the inclusion of accessory units and "live-work-units"[6] (sometimes called "flex units"), where suitable, to help provide affordable housing as well as affordable office or work space for entrepreneurs (i.e. small businesses and home-based businesses).

Household Size

The average household size in the County in 1960 was 3.66 persons per household. The projected 2035 household size is 2.48. County projections show that the population of people aged 65 and over will more than double in size increasing from 26,763 people in 2000 to 56,678 in 2035. A higher percentage of smaller housing units, multi-family, independent and assisted living units may be required to better meet the housing needs of smaller households, including the increase in one- and two-person empty nester and elderly households and persons with disabilities.

Transition from Renter to Home Owner Occupied Housing

Utilize existing local, state, and federal programs to educate young adults and families in the County to transition from renter to home owner. About 20 percent of housing units in Waukesha County are renter occupied and 80 percent are owner occupied. However, in several communities within the County renter occupied units are over 40 percent of total housing units.

Housing Vacancy

The supply of vacant and available housing units should be sufficient to maintain and facilitate ready housing consumer turnover. Rental and homeowner vacancy rates at the county level should be maintained at a minimum of four (4) percent and a maximum of six (6) percent for rental units and a minimum of one (1) percent and a maximum of two (2) percent for homeowner units over a full range of housing types, sizes, and costs.

"independently" (usually requiring no or minimal medical-care or "Stay at Home" related services). More information on cooperative housing in Wisconsin can be accessed from the University of Wisconsin-Extension Center for Cooperatives at http://www.uwcc.wisc.edu/info/uwcc_pubs/coopHouse02.pdf

[4] Cohousing communities are communities or "villages" that generally consist of privately-owned individual homes and community-owned areas and buildings. Households participate in social activities centered in a community-owned building, and help to design and manage their "village" consisting of small groups of homes concentrated around a community building which acts as the social center of the "village". Residents own their private dwellings, usually condos or attached single-family homes, but share common areas, such as dining areas, kitchen, lounges, meeting rooms, a recreational facility, a workshop, children's spaces and the like. Group meals are regularly shared where residents manage the property. Other types of cohousing include elderly cohousing which is generally designed for adults 55 or older. Elder cohousing promotes universal design concepts that support active lifestyles and can accommodate accessibility needs.

[5] Senior housing, rental or homeownership, linked to universities and colleges where services offered to seniors include auditing classes, library and computer privileges, access to healthcare, use of fitness facilities, discount event tickets, and/or reduced meal prices. The universities or colleges may or may not be involved with the development and operation of the retirement community, while providing such services to residents.

[6] Live-work units contain work space that usually occupies more floor area, up to 50 percent of the total floor area of the unit, than a conventional house containing a home occupation, in which the home-based business typically occupies between 10 to 25 percent of the total floor area. Live-work units may contain more types of business activities than a traditional home occupation, such as more parking, traffic, employees, and/or customer visits. Such units may be detached buildings or attached units (especially townhouses) functioning as potential small business incubators. Units may be rented or owned, including as condominiums, thereby allowing owners to accumulate equity.

Land Use Regulation

1. The County and municipalities should examine regulatory codes to identify the extent to which they permit or exclude relatively lower cost housing, and make appropriate changes to facilitate the provision of such housing. This review should primarily focus on the structure types permitted (single-family, two-family, multi-family); development densities; minimum lot area requirements; and minimum dwelling unit floor area requirements.

2. The County should research, study, promote, and educate the use of energy efficient homes and green housing development design concepts.

ECONOMIC DEVELOPMENT

Chapter 6 of this Plan provides an overview of the methodology and assumptions that underlie the economic and employment projections of southeastern Wisconsin and Waukesha County. Included is descriptive information pertaining to measures of economic activity and employment projections. The Economic Development chapter presented the following implementation recommendations:

1. In order to enhance the viability of existing industrial, office and retail centers, the following standards shall be included in the Land Use Chapter of this Plan (Chapter 7), to guide the placement of new industrial, retail and office uses, such as:
    a. Access to available adequate water supply, sanitary sewer service, storm water drainage facilities, and power supply.
    b. Ready access to the arterial street and highway system.
    c. Adequate on-street and off-street parking and loading areas.
    d. Provision for properly located points of ingress and egress appropriately controlled to prevent congestion on adjacent arterial streets.
    e. Site design emphasizing integrated nodes or centers, rather than linear strips.
    f. Site design appropriately integrating the site with adjacent land uses.
    g. Served by a transit service. (This standard applies to industrial, retail, and office uses located within, or in proximity to, medium- and high-density areas).

2. To address cyclical overdevelopment of commercial space or buildings, in particular office space, municipalities should avoid pre-zoning lands. For example, communities should not create zoning patterns within a community that are not justifiable in the marketplace or for which the above standards have not been met.
3. Promote the use of other comprehensive land development tools and techniques in advising communities regarding planning and zoning actions and decisions.
4. Officials in the County should annually review the capital improvement plans or programs of local governments in an effort to coordinate transportation and other improvements that aid in the delivery of goods, services, and employment.
5. Officials in the County should coordinate access to state and federal resources to assist in funding County and local transportation improvements.

Tax Increment Financing

1. The conservation and renewal of viable urban areas can enhance their viability.
2. Tax Incremental Financing should be used for brownfield and other redevelopment projects.
3. To encourage viable urban centers, increase the use of Tax Incremental Financing in cities and villages.
4. To discourage public subsidizing of development that can occur with lower development costs that cannot be justified. Discourage use of Tax Incremental Financing for development of agricultural lands.

Housing Development

1. In anticipation of projected employment sector growth, promote and provide an adequate supply of new housing of sufficient quantity and density within reasonable proximity to new and existing employment centers (Refer to Chapter 5).

Education, Jobs and Business Growth

1. In response to existing and projected skilled workforce needs, Waukesha County, in cooperation with appropriate business and community organizations, should work with the University of Wisconsin and other higher education systems to provide greater access to bachelor degree programs in Waukesha County.
2. To enhance higher paying jobs, support initiatives to increase development of the bioscience manufacturing industry, especially in the area of medical equipment.
3. Create partnerships between local economic development organizations and colleges and universities to promote entrepreneurial programs, industry collaborations, technology transfer and seed capital.
4. Collaborate with the Milwaukee 7, the Waukesha County Economic Development Corporation, Waukesha County Technical College and UW-Extension to conduct a labor market analysis for Waukesha County and the Region that assesses the existing and anticipated supply and demand for labor as well as employer and employee training needs.
5. To add to the livability of the County and enhance an employer's ability to attract workforce, update the County Park and Open Space Plan in cooperation with municipalities in the County to provide sufficient recreational facilities, including comprehensive trail system, to the resident population.

Government Services and Taxes

1. In an effort to reduce property taxes in Waukesha County, consider consolidations, mergers, shared services or legislative measures to reduce the number of governmental jurisdictions.

LAND USE

The recommended land use plan presented in Chapter 7 provides a design for the attainment of the urban and rural development and open space preservation objectives contained in this comprehensive development plan. The implementation recommendations pertaining to the urban development areas, rural development areas, environmentally sensitive areas and other land use plan implementation measures are summarized below:

Implementation for Urban Development Areas

One of the initial steps recommended for implementation of the County land use plan as it pertains to the proposed urban development areas is the preparation of detailed development and redevelopment plans for the residential neighborhoods and special-purpose districts which comprise the proposed urban service areas.

Within the context of community-level plans, detailed neighborhood development plans should be prepared for each residential neighborhood or special district where significant growth is expected. While such plans may also vary in format and level of detail, they should generally do the following:

- Designate future collector and land access street locations and alignments, pedestrian paths and bicycle ways, and, as appropriate, the configuration of individual blocks and lots.
- Further classify residential areas as to structure type and density, with the mix of housing structure types and lot sizes resulting in an overall density for the neighborhood consistent with that recommended in the community-level and county plan.
- Identify specific sites for neighborhood parks, schools, and retail and service centers, which are recommended on a general-site-location basis in the community-level plan.
- Identify environmentally significant areas to be preserved consistent with the community-level plan and county and regional plans.
- Indicate areas to be reserved for storm water management and utility easements.

- The neighborhood planning process should make full use of the many design concepts that can enhance the living environment and increase efficiency in the provision of urban services and facilities and in travel patterns. Among these design concepts are the following:

1. Mixed-Used Development: Residential development in mixed-use settings can provide a desirable environment for a variety of household types seeking the benefits of proximity to places of employment as well as civic, cultural, commercial, and other urban amenities. Examples of mixed-use settings include dwellings above the ground floor of commercial uses and residential structures intermixed with, or located adjacent to, compatible commercial, institutional, or other civic uses.

2. Traditional Neighborhood Development: The term "traditional neighborhood development" refers to very compact, pedestrian-oriented, mixed-use neighborhoods typically characterized by a grid like street system and street-oriented setbacks and building designs. The overall design, including the layout of streets and sidewalks, encourages walking and bicycling as alternatives to automobile transportation within the neighborhood.

3. Transit-Oriented Development: The term "transit-oriented development" refers to compact, mixed-use development whose internal design is intended to maximize access to a transit stop located within or adjacent to the development. Within the development, commercial uses and higher-density residential uses are located near the transit stop. The layout of streets and sidewalks provides convenient walking and bicycling access to the transit stop.

4. Residential Cluster Development: A residential development pattern characterized by a unified site design for a number of housing units, clustering buildings and providing common open space, potential density increases, and a mix of building types. It permits the planning of a project and the calculation of densities over the entire development, rather than on an individual lot-by-lot basis.

In addition to plans for developing neighborhoods, detailed plans should also be prepared for mature neighborhoods or special-purpose districts showing signs of land use instability or deterioration. Such plans should identify areas recommended for redevelopment to a different use, areas recommended for rehabilitation, any local street realignments or improvements, and other public utility and facility improvements. Special consideration should be given in such planning to overcoming contamination problems at, and reuse of, brownfields. Redevelopment plans should seek to preserve those historic, cultural, and natural features and features of the urban landscape, which provide for neighborhood identity within the larger urban complex. Such plans should maximize opportunities for the provision of living arrangements and amenities that are unique to older cities in the County, such as "downtown" housing development.

Although "suburban density" development, as described previously in this chapter, is not consistent with many of the planning standards and objectives, it is recognized that a community may desire infill between existing subdivision plats consistent with adjacent developments and, also, in growth areas adjacent to incorporated municipalities, where services may be available in the future, without the necessity of going through a cluster concept, which may not be compatible with adjacent existing developments. In addition for municipalities to maintain an overall residential density of 5 acres in "rural development" areas suburban densities may be planned.

In addition, in order to support open space or conservation design developments and to preserve rural character, it would be appropriate to permit lands in the Rural Density and Other Agricultural Land category to develop at an overall density of 3.5 acres per dwelling unit, rather than five (5) acres per dwelling unit, if said lands will be developed as Planned Unit Developments (PUD) or conservation design developments utilizing conservation design standards. The standard density bonus option is not applicable in the Towns of Mukwonago and Delafield, as both Towns achieve five-acre rural density using local PUD provisions. The Town of Mukwonago Land Use Plan and the Town of Delafield Land Use Plan Unit Determination Chart are referenced accordingly by Table VII-10 and Figure VII-2. The idea is that a slight increase in density in otherwise rural areas is a reasonable trade-off in order to achieve more sustainable development design that conserves natural features, creates more open space within developments, protects the rural atmosphere and causes less need for infrastructure, such as roads

and storm water management facilities. In order for a development to qualify for the 3.5 acre Rural Density option, the following criteria must be met.

1. The development plan for a given site must incorporate an absolute minimum of 40 percent of the site in open space owned by the property owners or recreational use or public open space. In calculating open space, not more than 20 percent of the required open areas may be floodplain or wetland (80 percent if open space must be upland).
2. The community in which the development is located must create and map an Upland Environmental Corridor District for all Upland Primary and Secondary Environmental Corridors, which allows for development at a density not greater than one unit per five acres. It is recommended that communities also include Isolated Natural Resource Areas within the Upland Environmental Corridor District.
3. Individual development projects must be developed as Planned Unit Developments or conservation design developments, which allow the community an opportunity to fully analyze project design. Communities must adopt Planned Unit Development standards within their zoning and subdivision ordinances to achieve this end.
4. Primary Environmental Corridors, Secondary Environmental Corridors, Isolated Natural Resource Areas, wetlands and floodplains must be protected to the greatest extent possible and shall be incorporated into protected open space. If any portion of the above resources will be located on a private lot, said resource must be protected with a protective covenant or restriction. Sites that do not contain significant natural features may be conducive to prairie or wetland restorations or may be enhanced with the establishment of landscaped open spaces.
5. Where open space is mentioned as part of a conservation design residential planned unit development, said open space shall be protected as green or natural open space and no more than five (5) percent of said open space area shall be allowed to have impervious surfaces.

Conservation design development can be equally valuable within any of the residential land use categories. As detailed above, the Rural Density and Other Agricultural Land category allows for a 30 percent increase (3.5 acres per dwelling unit vs. 5 acres per dwelling unit) in density if certain conservation design criteria are met. In order to promote conservation design in the urban and suburban residential categories, it is recommended that a 30 percent density bonus also be made available to development projects that conform with development standards #1-4 above. The following list details the resultant maximum densities that could be offered when utilizing a 30 percent density bonus for conservation design:

Suburban II Density	2.1 acres per dwelling unit (DU)	(3.0-4.9 conventional)
Suburban I Density	1.05 acres per DU	(1.5-2.9 conventional)
Low-Density Residential	14,000 sq. ft. per DU	(20,000 s.f.-1.4 acres conventional)
Medium-Density Residential	4,200 sq. ft. per DU	(6,000-19,999 s.f. conventional)
High-Density Residential	< 4,200 sq. ft. per DU	(<6,000 s.f. conventional)

Zoning regulations should be reviewed and adjusted, as necessary, to ensure the proper staging of development over time. In this respect, the application of urban zoning districts should proceed incrementally. The **premature zoning of lands for urban use should be avoided** so as to prevent the creation of additional isolated urban enclaves and incomplete neighborhoods. Accordingly, the **areas concerned should be placed in zoning districts consistent with their existing use and should be rezoned into appropriate urban districts only when development has been proposed and approved and essential facilities and services can be readily provided.**

Implementation for Rural Development Areas

As defined in Chapter 7, rural development areas are *sparsely developed areas where land is used primarily for farming, resource extraction, landfills, very low density residential uses (one unit per five acres or less), or other open spaces uses, and includes corridors and isolated natural resource areas*. Rural development areas exist in several cities, villages and towns in Waukesha County. Planning and Zoning should be carried out in such a manner as to preserve rural character. First, new residential development should be limited to an overall density of

no more than one dwelling unit per five acres of open land within the planning area unless a density bonus is allowed as a result of utilizing the open space or cluster design concept discussed in Chapter 7. This density is intended to provide a basis for determining the maximum number of additional dwelling units, which should be accommodated. Within the implementation recommendations, Chapter 7 presents the methodology for calculating the overall density within rural development areas and the status of the five (5) acre density standard at various planning stages.

Second, to the maximum extent possible, the dwelling units, which may be accommodated in accordance with the overall five-acre density, should be developed by using residential cluster designs, in which dwelling units are grouped together on a relatively small portion of the site. The residential clusters should be limited in size, surrounded by open space, and, as may be necessary, contain open space. The clustered lots should be no larger than necessary to accommodate the residential structures, driveways, and desired yards, including, as necessary, space for an onsite soil-absorption sewage-disposal system and replacement system area. This can usually be accomplished on lots no greater than one acre in size.

Third, to the extent possible, residential clusters should be located in areas which are visually screened from public roadways, so that existing rural vistas are maintained; should be carefully adjusted to topographic and other natural features, taking full advantage of the settings provided by those features without causing undue disturbance; and should be buffered from nearby agricultural and mineral extraction lands, as appropriate, so as to minimize conflicts between farming or mining and residential uses.

Fourth, other intensive land uses should be limited to uses which are consistent with the rural character of the area or otherwise essential to the area, including, among others, animal hospitals and veterinary clinics, riding stables, and garden shops. In general, office, commercial, industrial, and storage uses and the types of retail and service uses that are provided as a matter of convenience and necessity in urban residential neighborhoods should not be considered appropriate within rural development areas.

Fifth, lands within the rural development areas, which are not designated for residential or other compatible intensive use, should be retained in general agricultural and other open space use. Potential agricultural uses include traditional farming, hobby farms, and community supported agriculture. Land not used for farming should be kept free of development, except for recreational trail facilities and access facilities for the benefit of those who own an interest in the land.

Finally, where open space is mentioned as part of a conservation design residential planned unit development, said open space shall be protected as green or natural open space and no more than five (5) percent of said open space area shall be allowed to have impervious surfaces.

It should be noted that, in many cases, it will be necessary to revise zoning and subdivision control ordinances to accommodate the recommended residential cluster development designs. Clustering may be accommodated in rural areas through a variety of zoning approaches. Clustering may be permitted by conditional use or by right in a basic district or through an overlay district. In addition, when the concept of the transfer of development rights is used, residential clustering principles can be used on a community wide basis to achieve better site designs and preserve open space. Subdivision regulations regarding street improvement standards, sewer and water facilities, storm water management, landscaping, and open space preservation may also need revision to adequately promote and regulate cluster development. Residential cluster zoning provisions should require the use of legal restrictions to ensure the preservation of lands, which are to be permanently preserved in agricultural or other open space use.

Because density bonus' are increasing densities from 3.5 to 5 residential acres per unit, the density increase may outpace projected population and projected housing needs in the municipality. Therefore, the municipalities should consider additional growth management tools, such as an allotment system.

Implementation for Environmentally Sensitive Lands

Areas which have been identified as primary environmental corridors, secondary environmental corridors, and isolated natural resource areas occur within both urban and rural development areas and within prime agricultural areas. Environmental corridors and isolated natural resource areas should be placed in one of several zoning districts, depending upon the type and character of the natural resource features to be preserved and protected. All lakes, rivers, streams, wetlands, and associated undeveloped floodlands and shorelands should be placed in lowland conservancy or floodplain protection districts. Upland woodlands and areas of steep slopes should generally be placed in appropriate upland conservancy, rural-density residential, or park and recreation districts. Through proper zoning, residential development should be confined to upland portions of environmental corridors, excluding areas of steep slopes, and should be limited to a density of no more than one dwelling unit per five acres, with provisions made as may be appropriate for clustering. Zoning applied to the environmental corridors should, however, accommodate necessary public facilities, such as crossings by streets and highways, utility lines, and engineered flood control facilities, but should require that the location, design, and development of the facilities concerned be sensitive to the protection of the existing resource features, and require that, to the extent possible following construction, disturbed areas be restored to preconstruction conditions.

Implementation Measures for Other Open Lands to be Preserved

Areas which have been identified in the Other Open Lands to be Preserved category are being mapped in both Urban and Rural areas. Lands identified in this category are mapped in part due to severe to very severe limitations for development of structures from high seasonal groundwater conditions, unstable soils, hydric or organic soil conditions or are generally poorly drained. For planning purposes, soil data available through the Soil Survey of Milwaukee and Waukesha Counties from the United States Department of Agriculture – Natural Resources Conservation Service was used.

Since the soil survey data is generalized, additional site-specific soil data analysis is necessary for individual development project review. It is recommended that the County and municipalities, through regulatory processes, provide a procedure to allow infield detailed investigation and soils analysis using the COMM 85 procedures, established in the Wisconsin Administrative Code, to assist in determining actual on-site soil conditions. Such procedures should identify and document whether or not seasonal high groundwater, soil instability, hydric or organic conditions exist. Where site-specific soil analysis indicates that soil conditions are suitable to accommodate development, an adjustment to the land use category or associated development density may be warranted and would not require a formal amendment request to an adjacent upland development land use category through the annual amendment process outlined in Chapter 9. The land use category which should be used for adjustment from the Other Lands to be Preserved category should be the adjacent upland land use category mapped on the Proposed Land Use Plan. For example, the land being adjusted from the Other Open Lands to be Preserved category are surrounded by lands in the Suburban I category and are found to be acceptable for development, not having the hydric soil conditions and high groundwater table conditions, the subject Open Lands category could be modified to the Suburban I category. There would, however, have to be a recognition and documentation of such change and the information used to justify the change so that appropriate measures are taken to incorporate the changes on the land use maps being maintained by the County and the affected municipality. A record of the documentation and information used to justify the change shall be filed with the County and the community, and an appropriate notation or identification on the Land Use Plan maps made with a reference to the location of the documentation shown on the map should be provided. It should also be noted that the new land use category, which has been modified, from the Other Lands to be Preserved category, can utilize similar densities as used for this new category as if the land were originally all designated in the new land use category.

Lands with soil conditions determined to be unsuitable for development, consistent with the planning standards detailed in Chapter 2 of this Plan, should be retained in open space uses, but can be included within lot boundaries. In addition, these lands may also be included in calculation for density standards as set forth in the Planned Unit Development or Cluster Development standards identified above. It is recommended that the

County and municipalities establish, through regulatory processes, a density credit for retaining these lands in open space use. For years, the County used 20 percent of the acreage of lands in this category when calculating densities for proposed developments in the attached or adjoining upland areas. It would be appropriate that a range of 20 percent to 40 percent be used for these lands, subject to specific local community regulations. Further, it may be appropriate to grant a density of one (1) unit per five (5) acres for those lands in the Other Open Lands to be Preserved category.

Regulatory Implementation

Land use regulatory ordinances are an important tool available to county and local units of government to shape growth and development in accordance with adopted land use objectives. Under the State comprehensive planning law (S.66.1001 of the Wisconsin Statutes), "beginning on January 1, 2010, if a local governmental unit engages in official mapping, subdivision regulation, zoning ordinance enacted or amended and zoning of shorelands or wetlands in shorelands, those actions shall be consistent with that local governmental unit's comprehensive plan". Accordingly, upon adoption of their comprehensive plans, the county, cities, villages, and towns should review the text of their ordinances and adjust as necessary to carry out the various implementation recommendations contained in this Plan. Such changes should include rezoning to use districts consistent with present uses so as not to prezone, consider allotment system to evaluate and grade proposed developments, which carry out the recommendations in this Plan and review of developments for consistency with the recommendations of this Plan.

Zoning in Urban Areas

Zoning in urban areas should be administered in accordance with county and local comprehensive plans, which refine the urban-area recommendations of the regional land use plan. The application of zoning districts that accommodate residential, commercial, industrial, and other urban development should be done in a manner that is consistent with any recommendations in the local comprehensive plan regarding the staging of development over the course of the plan period. Where the local comprehensive plan includes staging provisions, the application of zoning districts that accommodate the planned urban uses should be done incrementally in accordance with the timeframe set forth in the comprehensive plan. Lands should be placed in zoning districts consistent with their existing use, or, alternatively, placed in an urban land holding district or transition district. This approach allows municipalities to determine whether the proposed development is consistent with the Comprehensive Development Plan for Waukesha County or its goals, standards and objectives at the time a project is proposed. Specifically, a development plan needs to be periodically amended to adjust to changing conditions and updated data such as population and economic projections. Prezoning lands to match a particular land use plan, can limit a municipality's ability to respond to changing conditions and should be avoided wherever possible. Evaluations of new project developments should be reviewed and recommended on the basis of the recommendations contained in this and the local communities plan and allow development to occur where it is consistent with the recommendations contained herein.

Zoning in Rural Areas

Zoning in rural areas should be administered in accordance with county and local comprehensive plans, which refine the rural-area recommendations of this Comprehensive Development Plan. The following is recommended:

- Prime agricultural lands identified in county and local comprehensive plans should be placed into an exclusive agricultural zoning district, which essentially permits only agricultural and agriculture-related uses. Such a district should provide for a residential density of no more than one dwelling unit per 35 acres and should prohibit incompatible urban development.

- Other areas identified for continued agricultural use in county and local comprehensive plans should be placed into exclusive agricultural districts as defined above or into general agricultural districts with smaller minimum parcel sizes as may be appropriate for smaller agricultural operations, such as hobby farms or other specialty farms.

- Areas recommended in county and local comprehensive plans for rural residential development should be placed into a rural residential zoning district that limits development to no more than one dwelling unit per five acres and that encourages, or even requires, the use of conservation subdivision designs to accommodate the permitted development.

- Non-farmed wetlands should be placed in a lowland conservancy or shoreland-wetland zoning district, as appropriate. Farmed wetlands should remain in an agricultural zoning district as long as the parcel remains in agricultural use; with consideration given to placing a conservancy overlay zone on the wetland. Wetlands identified as farmed wetlands should be placed in a lowland conservancy district at the time farming activities on the wetland parcel cease and an application for residential or other urban development of the upland portion of the parcel is approved by the unit of government having zoning authority. Floodplains should be placed in the appropriate floodplain zoning district (floodway, floodfringe, flood storage, or general floodplain). Primary environmental corridors should be placed, and other natural resource areas, including secondary environmental corridors and isolated natural resource areas, may be placed, in a conservancy or other appropriate zoning district (such as a park or rural residential zoning district).

Official Mapping

Adoption of local official maps can contribute significantly to the implementation of the recommended County land use plan. Local units of government should prepare and adopt local official maps pursuant to Section 62.23(6) of the Wisconsin Statutes, showing thereon lands needed for future public use as streets, highways, transit ways, parkways, drainage ways, parks and playgrounds. The official map should be amended from time to time to incorporate the additional street and other public land requirements identified in detailed neighborhood unit development plans or rural area development plans, as those plans are prepared over time.

Land Division Ordinances

Land division ordinances should be adopted by the County and local units of government as a basis for the review and approval of subdivision plats and certified survey maps. Any proposed departure from adopted land use plans should be carefully considered and approved only if such departures are found to be in the public interest and the land use plan map is amended to a category that would allow the proposed subdivision. It should be noted that the existing Waukesha County subdivision control ordinance applies only to the statutory shorelands within the unincorporated areas of the County.

In 1999, Waukesha County created a Land Development Workgroup to analyze and address issues created by land division and development processes being used at that time. The Workgroup recommended:

1. The County should modify existing county transportation related ordinances to require pre-review of potential access points prior to recording of certified survey maps and subdivision plats.
2. Municipalities and the County should uniformly apply a development review checklist prepared by the Workgroup. The intent of the checklist is to set forth consistent standards for the review of development proposals by county municipalities, and to clearly express to development sponsors what should be contained in a proper development proposal. The Workgroup further recommended that each municipality in the County amend appropriate local codes incorporating and adhering to the checklist or a more stringent version in development reviews.
3. Another issue raised by the Workgroup was the variety of subdivision definitions used by Waukesha County municipalities. The variety in definitions has led to larger scale residential developments proceeding as certified surveys as opposed to a platted subdivision.

   To address this issue, the Workgroup developed a minimum definition of a subdivision to be applied in Waukesha County. The definition reads "A subdivision is the division of land by the owner, subdivider, or his successor in title, for the purpose of transfer of ownership or building development where the division creates more than four (4) residential lots less than 1.5 acres in

five (5) years or where the division creates more than six (6) residential parcels or building sites of any size within five (5) years." A remnant parcel in excess of 10 acres in size may be excluded from the plat by action of the municipality upon application by the owner. Upon receipt of an application, the municipality will notify the County.

4. County staff should continue to host training workshops on land use planning and development review topics for local officials.
5. The County should define a Development Review Team process to enhance communication between the county, towns, cities, villages and developers regarding land development projects and issues.
6. The County should evaluate the existing County Storm Water Management Ordinance and Program to identify opportunities for addressing watershed based storm water issues.
7. The County should engage in a process to comprehensively update the Street and Highway Width Map and Jurisdictional System Plan.

This Plan recommends that municipalities and the County continue to follow the recommendations made by the Land Development Workgroup.

Regulation of Public Sanitary Sewerage Systems

In Wisconsin, the comprehensive water quality management planning program has led to the development of State regulations which have the effect of requiring the preparation of sanitary sewer service area plans for each public sewage treatment plant. In the Region, these plans are prepared cooperatively by the concerned local unit of government and the Regional Planning Commission, with ultimate approval authority resting with the Wisconsin Department of Natural Resources. Sewer service area plans have now been prepared for nearly all of the public sanitary sewerage systems in the Region. These plans define sewer service limits and delineate environmentally sensitive lands within those service limits to which service should not be provided. Chapter NR 110 and Chapter Comm 82 of the *Wisconsin Administrative Code* require that the Wisconsin Department of Natural Resources, with respect to public sanitary sewers, and the Wisconsin Department of Commerce, with respect to private sanitary sewers, make a finding that all proposed sanitary sewer extensions are in conformance with adopted area wide water quality management plans and the sanitary sewer service areas identified in such plans before approving such extensions.

Under Chapter NR 121, sewer service areas must be sized in a manner that is consistent with long-range population projections. As a practical matter, this requirement is considered to be met if the buildout population of the sewer service area—that is, the population that could be accommodated if the sewer service area were completely developed at locally planned residential densities—is within the projection range envisioned under the regional land use plan. In sizing their sewer service areas, many communities choose to plan for the high end of the projected population range in order to retain flexibility in terms of the location of future urban growth.

Historically, communities in the Region, with the assistance of SEWRPC, have amended their sewer service area plans from time to time in response to changing needs and conditions. This may be expected to continue in the years ahead, particularly as communities complete their required local comprehensive plans.

As noted above, sanitary sewer service area plans are an important part of the basis for State agency review and approval of proposed sewer extensions. Policies adhered to by the Wisconsin Department of Natural Resources and Department of Commerce prohibit or otherwise limit the extension of sanitary sewers to serve development in certain environmentally significant lands identified in local sewer service area plans. The following restrictions were in effect in 2007:

- The extension of sanitary sewers to serve new development in primary environmental corridors is confined to limited recreational and institutional uses and rural-density residential development (maximum of one dwelling unit per five acres) in areas other than wetlands, floodplain, shorelands, and steep slope (12 percent or greater).

- The extension of sanitary sewers to serve development in portions of secondary environmental corridors and isolated natural resource areas comprised of wetlands, floodplains, shorelands, or steep slopes is not permitted.

Park and Open Space Plan Implementation

Achievement of the outdoor park and recreation and open space preservation objectives of the land use plan requires continued public interest acquisition of land for outdoor recreation and open space uses. The county park and open space plan, as a refinement of the regional park and open space plan, recommends public interest acquisition (that is, acquisition by local, county, State and Federal government and by private conservancy interests) of land for recreation and resource protection purposes. The regional natural areas and critical species habitat protection and management plan also includes recommendations for public interest acquisition for most of the natural areas and critical species habitat sites identified in that plan. Moreover, cities, villages, and towns may acquire other lands for park and open space purposes as recommended in local comprehensive or park and open space plans. Each of the concerned units and agencies of government should continue or begin land acquisition programs in accordance with such plans. Private conservancy organizations are encouraged to supplement public open space acquisition efforts, as appropriate, to ensure the preservation of important natural areas. The detailed County Park and Open Space Plan is presented in Appendix A of this Plan.

Transfer of Development Rights

Under transfer-of-development-rights programs, or "TDR" programs, the right to develop a specified number of dwelling units under existing zoning may be transferred from one parcel, which would be maintained in open space use, to a different parcel, where the number of dwelling units permitted would be correspondingly increased. When the parcels are held by the same owner, the development rights are, in effect, simply transferred from one parcel to the other by the owner; when the parcels are held by different landowners, the transfer of development rights involves a sale of rights from one owner to another, at fair market value. In either case, the result is a shift in density away from areas proposed to be maintained in farming or other open use toward areas recommended for development. The transfer of development rights may be permanent or may be for a specific period of time or set of conditions.

The transfer of development rights may be implemented only if authorized under county or local zoning. To enable the transfer of development rights, the zoning ordinance must establish procedures by which the TDR technique will be administered, including the formula for calculating the number of residential dwelling units, which may be transferred from the "sending" area to the "receiving" area. The zoning district map must identify the sending and receiving areas, or at least identify the districts within which development rights can be transferred from one parcel to another. As of 2007, the Waukesha County Zoning Code contains provisions for the transfer of development rights.

Municipal Boundary and Utility Extension Agreements

The recommendations of the land use plan concerning the location and density of new urban development are formulated without regard to the location of city, village, and town boundaries. Rather, those plan recommendations are based upon a consideration of such factors as the location of existing utility infrastructure, including public sanitary sewer and water supply systems; the location of environmentally sensitive lands; and the availability of lands considered to be suitable for urban development. Where cities and villages own and operate essential public utilities not provided by adjacent towns, the plan assumes that cities and villages will either annex unincorporated territory recommended in the plan for urban development and provide extensions of essential utility services to serve such development, or that the cities and villages will reach agreement with adjacent unincorporated towns on the extension of those essential services without the need for annexation and municipal boundary change.

The *Wisconsin Statutes* establish a number of arrangements for cooperation among communities with regard to sharing of municipal services and cooperatively determining community boundaries, as indicated below:

- Section 66.0301: This section of the Statutes provides broad authority for intergovernmental cooperation among local units of government with respect to the provision and receipt of services and the joint exercise of their powers and duties.
- Section 66.0307: This section of the Statutes allows any combination of cities, villages, and towns to determine the boundary lines between themselves under a cooperative plan, subject to oversight by the Wisconsin Department of Administration. Section 66.0307 envisions the cooperative preparation of a comprehensive plan for the affected area by the concerned local units of government and prescribes in detail the contents of the cooperative plan. Importantly, the cooperative plan must identify any boundary change and any existing boundary that may not be changed during the planning period; identify any conditions that must be met before a boundary change may occur; include a schedule of the period during which a boundary change shall or may occur; and specify arrangements for the provision of urban services to the territory covered by the plan.

- Section 66.0225: This section of the Statutes allows two abutting communities that are parties to a court action regarding an annexation, incorporation, consolidation, or detachment, to enter into a written stipulation compromising and settling the litigation and determining a common boundary between the communities.

Cooperative approaches to the identification of future corporate limits and the extension of urban services can contribute significantly to attainment of the compact, centralized urban growth recommended in the land use plan. Conversely, failure of neighboring civil divisions to reach agreement on boundary and service extension matters may result in development at variance with the plan—for example, by causing new development to leap past logical urban growth areas where corporate limits are contested, to outlying areas where sewer and water supply service are not available. Accordingly, it is recommended that neighboring incorporated and unincorporated communities cooperatively plan for future land use, civil division boundaries, and the provision of urban services, as provided for under the *Wisconsin Statutes*, within the framework of the land use plan.

Municipal Revenue Sharing

Additional opportunity for intergovernmental cooperation is provided under Section 66.0305 of the *Wisconsin Statutes*, entitled "Municipal Revenue Sharing." Under this statute, two or more cities, villages, and towns may enter into revenue sharing agreements, providing for the sharing of revenues derived from taxes and special charges. The agreements may address matters other than revenue sharing, including municipal services and municipal boundaries. Municipal revenue sharing can provide for a more equitable distribution of the property tax revenue generated from new commercial and industrial development within urban areas and help reduce tax-base competition among communities, competition that can work against the best interests of the urban area as a whole.

A good example of municipal revenue sharing under this statute is the revenue sharing agreement included in the Racine Area Intergovernmental Sanitary Sewer Service, Revenue Sharing, Cooperation and Settlement Agreement entered into by the City of Racine and neighboring communities in 2002. Under this agreement, the City of Racine receives shared revenue payments from neighboring communities for use in renovating older residential areas, redeveloping brownfield sites, and supporting regional facilities like the City zoo, fine arts museum, and library. In return, the City of Racine agreed to support the incorporation of the adjacent Towns of Caledonia and Mt. Pleasant; refrain from annexations without the consent of the Towns; refrain from using extraterritorial zoning and plat review powers; and move ahead with sewerage system improvements that will accommodate growth in the Towns. It should be noted that the Towns of Mt. Pleasant and Caledonia were incorporated as villages in 2003 and 2005, respectively.

Brownfield Redevelopment

Factors contributing to the abandonment or underutilization of older commercial and industrial sites vary from site to site, but often include structures which are obsolete in terms of accommodating current manufacturing, warehousing, and office needs; inadequate site access to the freeway system; and insufficient site area for horizontally-oriented structures, contemporary parking and loading requirements, and possible future plant expansion needs.

Once abandoned, the re-use of former commercial and industrial sites is frequently constrained by contamination problems created by past industrial and commercial activities, giving rise to the term "brownfields"—sites, which are underutilized or abandoned due to known or suspected environmental contamination. While brownfields tend to be concentrated in older areas, they also occur in outlying areas. Redevelopment of brownfields is often hindered by high cleanup costs, and, even where contamination is only suspected, the potential for high cleanup costs tends to dampen private-sector interest in redevelopment.

In order to maintain the viability of existing urban areas, special efforts to promote the reuse of brownfields are required. Local units of government should include the cleanup and re-use of brownfields as a key element in their planning for the revitalization of urban areas and promote such re-use through such tools as tax-incremental financing. Limited State and Federal financial assistance has been made available in support of the cleanup and re-use of contaminated sites. Local units of government should make full use of, and assist private developers in securing, available State and Federal financial assistance.

The re-use of brownfield sites need not be limited to industrial use, but may include a mix of residential, commercial, recreational, and other development, in accordance with local development objectives. Properly carried out, the cleanup and re-use of brownfields has many potential benefits in addition to the underlying environmental benefits: elimination of blight, increase in the property-tax base, expansion of the housing stock, provision of jobs in close proximity to concentrations of the labor force, and increased use of existing public infrastructure.

Storm water System Planning

Storm water runoff pollution performance standards for new development, existing urban areas, and transportation facilities are set forth in Chapters NR 151 and NR 216 of the *Wisconsin Administrative Code*. The County should coordinate with municipalities to develop a storm water management plan to coordinate the management of storm water within defined watersheds, which often transcend municipal boundaries. Storm water management practices appropriate for each urban area can best be developed through the preparation of a system management plan. These practices should be developed in a manner that integrates development needs and environmental protection, including integrated water resources protection. Such practices should reflect both storm water runoff quantity and quality considerations, as well as groundwater quantity and quality protection. Practices that are designed to maintain the natural hydrology should be encouraged.

TRANSPORTATION

The 2035 Regional Transportation System Plan for Southeastern Wisconsin is multi-modal in nature, dealing with public transit, bicycle and pedestrian, travel demand management, transportation systems management, and arterial streets and highways. The plan is designed to serve, and be consistent with, the Year 2035 Regional Land Use Plan drafted by the SEWRPC. The process for the development of the recommended multi-modal program began with consideration and development of the travel demand management, transportation systems management, bicycle and pedestrian, and public transit elements of the plan. Arterial street and highway improvement and expansion was then considered only to address the residual high traffic volumes and attendant traffic congestion, which may not be expected to be alleviated by travel demand management, transportation systems management, bicycle and pedestrian facilities, and public transit.

Chapter 8 of this Plan contains a series of recommendations set forth in the Year 2035 Regional Transportation System Plan for Southeastern Wisconsin.

The following additional recommendations were developed based upon inventory data, a public opinion survey, and transportation development objectives, principles, and standards presented in Chapter 2:

1. Waukesha County should work with the Southeastern Wisconsin Regional Planning Commission (SEWRPC) to conduct a major review and reevaluation of the jurisdictional transfer recommendations in the year 2035 Regional Transportation System Plan.
2. Waukesha County should refine the proposed system of off street bicycle paths and surface arterial streets and highway system accommodation of bicycles contained in the 2035 Regional Transportation System Plan. In addition, the County should integrate bikeway accommodations into planning for upgrades and modifications to the county trunk highway system consistent with the refined county transportation plan and facilitate communication with local municipalities and bordering counties to address bikeway linkages and connectivity.
3. Discuss with Jefferson County opportunities to expand the Lake Country Recreation Trail from Oconomowoc to Watertown in Jefferson County.
4. The County and municipalities should implement the transportation system development planning objectives, principles and standards contained in Chapter 2.
5. The County and municipalities should evaluate dedicated funding sources for county wide shared taxi service to meet the needs of a growing elderly population in all 37 municipalities.
6. As a consequence of increasing rail freight traffic, the County should establish additional rail quiet zones and invest in railroad grade separations as a safety priority at county trunk highway crossings.
7. The County should work with local municipalities and the Wisconsin Department of Transportation's Bureau of Aeronautics to determine if maintaining Capitol Airport as an aviation facility is consistent with future transportation and land use plans.
8. Evaluate for implementation the public transit recommendations contained in the 2035 Regional Transportation System Plan for Southeastern Wisconsin such as car pool lanes, van pool and bus guide ways..

PLAN ADOPTION

Upon initiation of the cooperative planning process used to prepare this Comprehensive Development Plan for Waukesha County, several municipalities inquired as to whether individual municipal plans would have to be prepared or if a municipality could adopt this Plan to satisfy the provisions of Chapter 66.1001 Wisconsin Statutes. In August 7, 2002 correspondence to Waukesha County, staff from the Wisconsin Department of Administration – Office of Land Information Services opined: "If a municipality chooses to plan with Waukesha County two different outcomes will ensue as part of the planning process. First, a municipality may choose to adopt the plan document developed by the county as its own comprehensive plan provided it has sufficient local detail. Second, some municipalities may require additional information to address in greater detail the land use issues of that particular municipality. The plan document adopted by this municipality would include additional addenda."

As presented in Chapter 1, the Wisconsin comprehensive planning law, set forth in Section 66.1001 of the Wisconsin Statutes, requires that comprehensive plans be completed and adopted by local governing bodies by January 1, 2010 in order for a county, city, village, or town to enforce its zoning, subdivision, or official mapping ordinances. According to this law, a comprehensive plan means:

1. For a county, a development plan that is prepared or amended under s.59.69 (2) or (3).
2. For a city or a village, or for a town that exercises village powers under s. 60.22 (3),or a master plan that is adopted or amended under s. 62.23 (2) or (3).

It is the intent of this Plan to satisfy the comprehensive planning requirements contained in s.66.1001 of the Wisconsin Statutes.

MONITORING AND UPDATING THE PLAN

Annual Plan Amendment

Amendments will be made to the Comprehensive Development Plan for Waukesha County on an annual basis. The Department of Parks and Land Use will make available a plan amendment request form for property owners and towns wishing to propose a change to the Plan. The deadline for plan amendment request forms will be the end of the workday on January 15th. If that date falls on a weekend, the submittal deadline will be extended to the end of the workday on the following Monday. All applications for plan amendments will be scheduled for a public hearing and advertised according to statutory procedures. As with proposed zoning changes, property owners within a minimum of 300 feet of the property subject to the plan amendment will be notified in writing by regular mail. A review and recommendation for each request will be prepared and submitted to the Park and Planning Commission, Land Use, Parks and Environment Committee and County Board for consideration. Under special circumstances, the Waukesha County Park and Planning Commission may authorize plan amendments to be processed in addition to the schedule outlined herein.

Regional or Countywide Plan Refinements

Due to the complexity of comprehensive planning, it is very difficult to complete all detailed planning initiatives in advance of comprehensive amendments to a Development Plan for Waukesha County. As identified in the implementation recommendations, it is anticipated that the Regional Water Supply Plan, Jurisdictional Highway System Plan and Bicycle and Pedestrian Facilities System Plan will be updated or completed following the adoption of this Plan. The products of those regional or countywide planning initiatives will be evaluated and appropriate amendments to this comprehensive development plan will be proposed.

Amendments by Cities and Villages

When cities and villages amend land use plans, the adopted plan amendments will be forwarded digitally to the Department of Parks and Land Use in a timely manner to provide for updating of the planned land use map on the Waukesha County Land Information System.

Comprehensive Amendment

The Comprehensive Development Plan for Waukesha County should be updated no less than once every 10 years. In anticipation of the continued development of the County, it is recommended a comprehensive reevaluation, update, and revision, as appropriate, of this Plan be conducted following the availability of the Year 2020 Census data. Initiating a comprehensive plan review using Year 2020 data will allow for the evaluation of planning projections made as part of the Year 2020 Regional Land Use Plan adopted in 1997 and the first generation Waukesha County Development Plan adopted in 1996, as well as this Plan. It is further recommended that the comprehensive reevaluation use a similar intermunicipal cooperative approach used in the preparation of this Plan.

Land Development Plan Monitoring

On an annual basis, the staff of the Waukesha County Department of Parks and Land Use will evaluate plan amendment requests for consistency with the planning objectives and standards contained in Chapter 2 of the Plan. Staff recommendations to the County Park and Planning Commission and County Board will be consistent with the planning standards. On an on-going basis, the staff will evaluate rezoning requests for their consistency with Plan. For rezoning requests inconsistent with the Plan, the applicant will be advised of the inconsistency and recommended to request a plan amendment. Plan amendments and data associated with the Plan will be made available through the County's website.