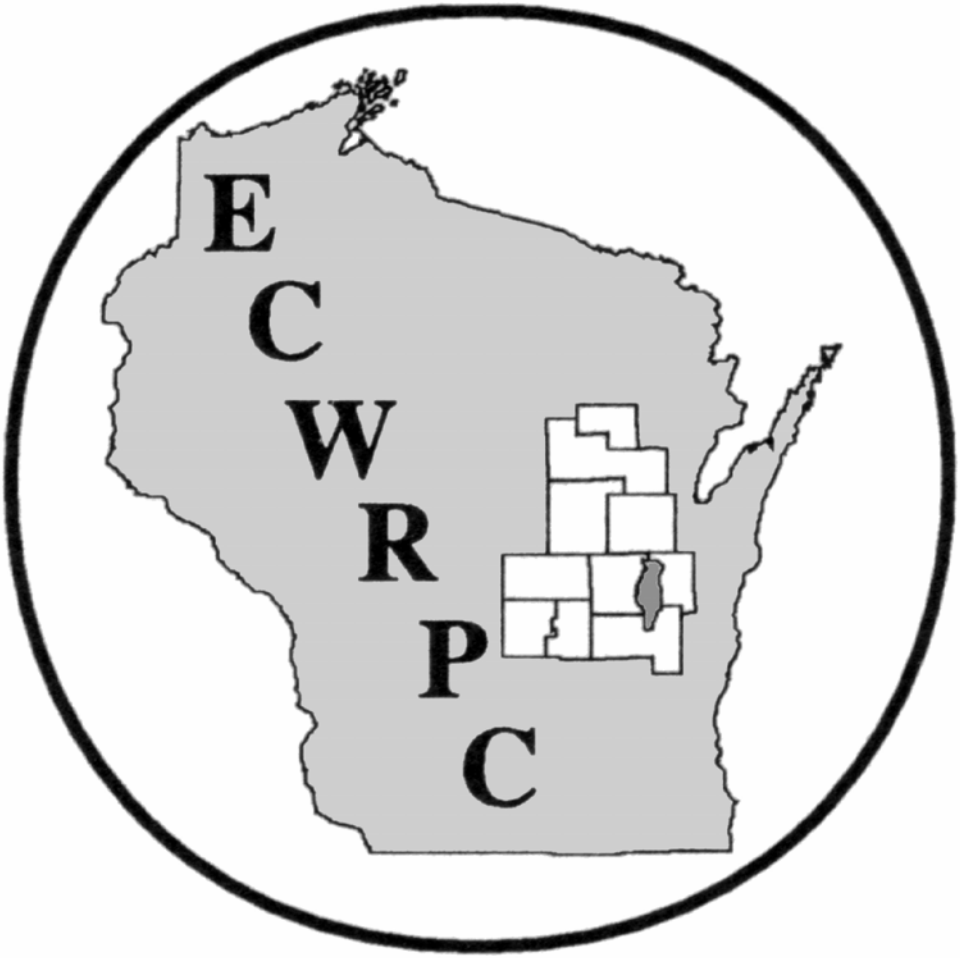
Milestone Report #1

State of the Region

East Central Wisconsin Regional Comprehensive Plan 2030



April 2003

EAST CENTRAL WISCONSIN REGIONAL PLANNING COMMISSION

MILESTONE REPORT # 1
STATE OF THE REGION

EAST CENTRAL WISCONSIN REGIONAL COMPREHENSIVE PLAN 2030
Shaping our Future in the 21st Century

SUBMITTED FOR ADOPTION
APRIL 25, 2003

SERVING THE TEN COUNTIES OF CALUMET, FOND DU LAC, GREEN LAKE, MARQUETTE, MENOMINEE, OUTAGAMIE, SHAWANO, WAUPACA, WAUSHARA, AND WINNEBAGO.

ABSTRACT

TITLE: Milestone Report # 1: State of the Region

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SUBJECT: Background information for the East Central regional comprehensive plan as required by s. 66.1001 (2) (a-h), Stats. Data are presented on the following: issues and opportunities, economic development, housing, transportation, utilities and community facilities, agricultural, natural and cultural resources, land use, intergovernmental cooperation, and implementation.

DATE: April 2003

PLANNING AGENCY: East Central Wisconsin Regional Planning Commission

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This report presents background information for the nine comprehensive planning elements as defined in the Wisconsin comprehensive planning legislation signed into law, by Governor Tommy Thompson, in 1999. Its main purpose is to provide an information baseline, which will serve as the foundation as East Central works, cooperatively with citizens, local governments and interest groups, to develop a policy framework for the future of the region. The preparation of this report was financed in part by a grant from the Wisconsin Department of Administration, Office of Land Information Services (OLIS).

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CHAPTER 1: INTRODUCTION

Introduction

In November 2001, the East Central Wisconsin Regional Planning Commission (East Central) submitted an application for a state planning grant to help fund the preparation of a regional comprehensive plan. In January 2002, a grant of $175,000 was awarded to East Central. These funds will assist with the project, which will result in the adoption of a regional comprehensive plan document for a 10-county area (Exhibit I-1).

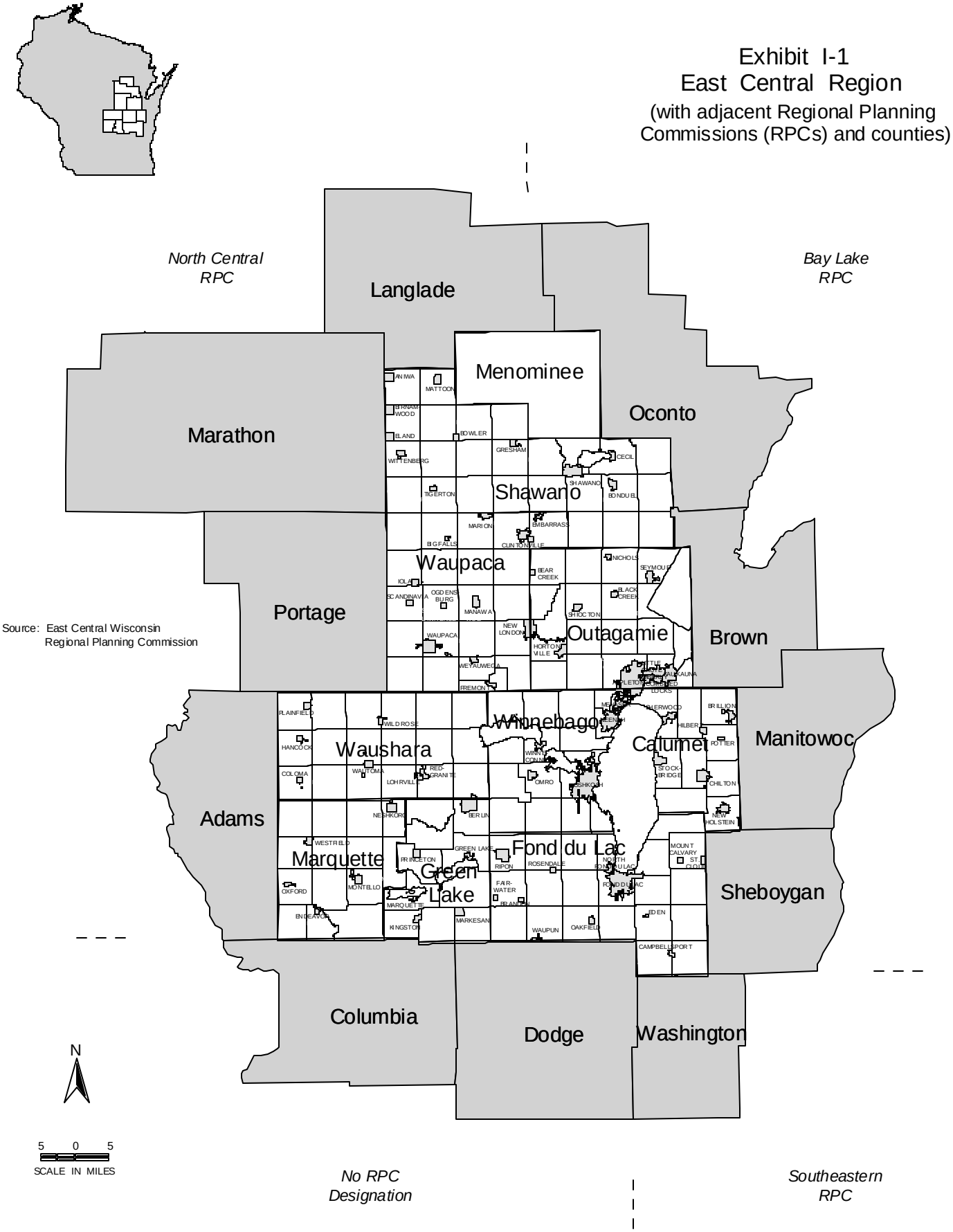
Working together with citizens, local governments and interest groups, East Central's objective is to develop a comprehensive vision for the future of the area through 2030, as well as to provide guidance to help that vision become reality. The focus is on better planning, helping communities to be smarter about addressing growth management issues in both urban and rural counties, as well as balancing individual property rights with community interests and goals.

To make the planning process more manageable, East Central has divided the planning process into a number of stages, which will be reported upon as they are completed. This report, the State of the Region, is the first in a series of four milestone reports that East Central will prepare and adopt between now and 2005. The State of the Region report will be followed by Milestone Report 2: Issues, Opportunities and a Regional Vision (October 2003), Milestone Report 3: Goals and Strategies for Action (October 2004), and Milestone Report 4: A Plan for Implementation (January 2005). The final regional plan products will include a review of current policy, the four milestone reports, a report on the public participation process, and a regional poster plan.

Fig. I-1 Major Phases of the Regional Comprehensive Planning Process

The purpose of this first milestone report is to provide a broad description of the current state of the region. Before we begin to plan for the future, we need a benchmark of where we are at the moment. Background information and data are provided on issues and opportunities, economic development, housing, transportation, utilities and community facilities, agricultural,

Exhibit I-1
East Central Region
(with adjacent Regional Planning Commissions (RPCs) and counties)



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natural, and cultural resources, land use, intergovernmental cooperation and implementation. The data collection schedule has incorporated the 2000 census release timetable. Regional aerial photography was completed in the spring of 2000 to coincide with the census statistics. The data used to produce this report appear in interactive format (Microsoft excel) at the East Central Data Center at www.eastcentralrpc.org/data_center.

This chapter describes the region, the East Central Regional Planning Commission, and current policy. It discusses, briefly, the 1999 comprehensive planning legislation, outlines the regional planning process, and explains the structure of the remainder of this report.

The Region

The region, which consists of 10-counties: Calumet, Fond du Lac, Green Lake, Marquette, Menominee, Outagamie, Shawano, Waupaca, Waushara, and Winnebago counties, encompasses approximately 5,900 square miles and has a population of over 600,000. As of 2000, 60.5% of the region's population was classified as urban.

The region contains two distinct geographical areas. Portions of the four eastern counties (Calumet, Outagamie, Winnebago, and Fond du Lac) form an urbanized area around Lake Winnebago and support a well-developed industrial base. Three of these counties (Calumet, Outagamie, and Winnebago) comprise the Appleton-Oshkosh-Neenah Metropolitan Statistical Area (MSA), the third largest metropolitan area in Wisconsin, with a 2001 population of approximately 361,591. This is a major manufacturing center for Wisconsin and the Midwest, focusing on paper products and machine manufacturing.

The four urban counties surrounding Lake Winnebago accounted for approximately 75% (459,518) of the region's population in 2001. The area along the Lower Fox River between Lake Winnebago and Green Bay contains the largest concentration of urban development, including the Fox Cities. The latter is comprised of seven contiguous, incorporated municipalities and adjoining urbanizing towns and has a combined 2001 population of about 202,097. Appleton, with a 2001 population of 70,623, is the largest of the Fox Cities and the largest city in the region. Other major urban centers include Oshkosh on the west shore of Lake Winnebago and Fond du Lac on the south shore.

The outlying portions of the four urban counties surrounding Lake Winnebago are more rural in character and, therefore, share many similarities with the six rural counties to the north and west: Menominee, Shawano, Waupaca, Waushara Marquette, and Green Lake. The northern and western counties contain many lakes and forested areas providing recreational and tourism activities. Shawano, Waupaca, and Waushara counties have a number of motor vehicle body and part manufacturing firms. The two largest cities outside of the urban area include the City of Shawano, in Shawano County and the City of Ripon, located in western Fond du Lac County.

The Fox-Wolf River Basin serves as a common orientation for both the rural and urban counties. Each of the ten counties in the region are wholly or partially within the 6,400 square mile drainage area, which includes the Winnebago pool lakes, the largest inland water body in the state of Wisconsin.

In the 20 years, between 1981 and 2001, the 10-county area has changed considerably.

- 83,000 new jobs have been created;
- an area larger than the entire area of Winnebago County has been taken out of agricultural production;
- 60,000 new homes have been built, that is 8 new homes everyday; and
- as of 1997, the price of many of these homes was out of reach of one-third of workers in the region who earn low-level wages.

East Central Regional Planning Commission

In May 2002, East Central celebrated 30 years as a regional planning agency. The East Central mission continues to be the preparation of a regional plan and the provision of advisory services to member governments.

East Central has had a regional planning approach since the early 1970s. Since its adoption in 1978, the regional plan has been expanded and refined through the adoption of a series of project specific plans. These include the Fox Cities Long-Range Transportation and Land Use Plan for the Fox Cities, Oshkosh, and Fond du Lac urban areas.

East Central has promoted and implemented its regional plan by providing assistance and advice consistent with the plan to local government units, as they develop local plans for their respective areas. Providing planning assistance to local governments in respect of land use, housing, transportation, open space, economic development and environmental management has been and, remains a core function of East Central.

The benefits of adopting a regional approach have long been recognized in Wisconsin. Indeed, the regional planing commissions, established throughout the state in the early 1970s, were created in order to promote and facilitate greater intergovernmental cooperation in dealing with issues spanning individual jurisdictions. Regionalism continues to grow in relevance as we come to terms with the global economy and the need to ensure better value for tax dollars. The challenges that we face today, such as, economic development, transportation, environmental quality, and social inclusion, stretch across traditional political boundaries and jurisdictions. It is therefore important that these types of issues are examined on a regional level, where economic, environmental and social issues come together.

In the absence of specific performance indicators, East Central's success has been judged on the basis of major work efforts that resulted in implemented projects of area wide significance and area wide program recommendations that have been implemented by local government.

The most significant accomplishments leading to the development of areawide projects include the following. The construction of STH 441 (Tri-County Expressway) and CTH CB (Westside Arterial) in the Fox Cities; inclusion of Winnebago County service from the Wisconsin Southern (shortline) Railroad; construction of the Grand Chute-Menasha West Sewerage Treatment Facility; transfer of the Fox River locks from Corps to state authority; and acquisition and development of the Tigerton Dells ATV Park.

Area-wide program recommendations include the regional outdoor recreation plan; sewer service area plans; Fox River Heritage Tourism program; Economic Disaster Plan; local bridge

replacement priorities; multi-jurisdictional pavement management system; major highway corridor plans; and non-metallic mining program administration.

Intergovernmental cooperation continues to be the basis for the organization and structure of East Central. The region consists of 10 counties, 27 cities, 29 villages and 156 towns. In addition to the local units of government there are, within the region, 60 school districts (elementary & secondary schools), 6 institutions of higher education, 7 vocational technical and adult education districts, and 66 sanitary districts. In terms of neighboring jurisdictions, the region is bordered by 3 regional planning commissions, North Central; Bay Lakes; and South Eastern, and by 11 counties: Langlade; Oconto; Brown; Manitowoc; Sheboygan; Washington; Dodge; Columbia; Adams; Portage; and Marathon.

East Central works cooperatively with a wide range of federal, state, regional and local organizations. East Central staff work routinely with federal agencies such as the US Department of Commerce, Economic Development Administration and the US Department of Transportation: the Federal Highway Administration and the Federal Transit Administration. Staff also work closely with state agencies such as the Departments of Commerce, Natural Resources, Transportation and Administration. Specific memoranda of agreement have been entered into with various area-wide and state agencies for cooperative planning efforts. These include four manpower planning districts, an area agency on aging, two rural conservation and development districts, three community action programs, the Wisconsin Rural Housing Cooperative, and the State Clearing House.

East Central has various planning responsibilities that are multi-jurisdictional and address area-wide issues. East Central is a designated Metropolitan Planning Organization (MPO) for the Appleton and Oshkosh Urban Areas. East Central is also a designated Economic Development District (EDD). As such, it prepares a Comprehensive Economic Development Strategy (CEDS) that addresses economic issues and qualifies the region for federal assistance. In addition, East Central prepares, by agreement with the Wisconsin Department of Natural Resources, sewer service area plans that delineate future growth areas for major urban areas throughout the region. Finally, East Central is also a designated regional clearinghouse (E.O 12372) for various federal and state grant programs and reviews approximately 500 applications a year for consistency with the regional and local plans.

Over 80% of the East Central commissioners are elected officials. All county executives and county board chairs are commissioners. Towns and cities are also represented. One commissioner from each county is appointed by the Governor to represent state interests.

Policy Context

The basic goals, objectives and policies developed in the late 1970s by East Central have not changed dramatically over the last 30 years, rather they have evolved to address federal and state guidelines as well as local development trends and concerns. There have been two major policy initiatives in the history of East Central.

The process of developing goals and objectives began in the early 1970s. The initial goals, *Goals for East Central Wisconsin (1976)*, were revisited in 1978 when they were linked with a detailed study of land use patterns and their impacts on the east central area. This plan, *New*

Directions for Growth and Development (1978), became the basis for East Central's comprehensive regional land-use planning program – the means by which the adopted goals and objectives were to be implemented. The plan included functional planning programs for housing, economic development, environment, open space, and transportation. Urban service area delineations, which were regarded as the main planning tool for achieving more compact growth in the region, were developed.

Since 1978 various minor refinements to land use policies have been undertaken. Perhaps the most significant policy effort took place during the 1990s. Prompted by the requirements of the Inter-modal Surface Transportation Efficiency Act 1991 (ISTEA), East Central initiated a comprehensive course of action in 1993 to revise its policies for urban land use planning. A set of updated goals, objectives, and policies, *The Long-Range Transportation / Land Use Plan: Goals, Objectives and Policies (1995)*, intended to serve as yardsticks by which progress toward plan implementation could be measured, was adopted.

It is important to highlight that these policies related specifically to the metropolitan planning area consisting of the Fox Cities, Oshkosh, and Fond du Lac urban areas. *The Long Range Transportation / Land Use Plan Addendum* was produced in 1996 and revised in 2000 to address some of the more complex land use issues. Specifically, it refined and supplemented the growth management and urban service delivery policies adopted by East Central in 1995. In addition, it included rural development policies, for rural areas within the defined urban boundary, and comprehensive plan guidelines.

The goals, policies and objectives adopted in 1995 and amended in 1996 and 2000 provide the context within which various functional plans produced by East Central are updated. These include sewer service area plan updates every 5 years, the annual updates of the comprehensive economic development strategy; and the production every five years of the long-range transportation/land use plan for the Fox Cities and Oshkosh urbanized areas.

East Central's current goals in respect of its five functional planning programs are outlined below.

- Economic Development – to expand employment and income opportunities, develop and maintain public facilities and infrastructure, and build and retain a skilled labor force while ensuring prudent use of natural resources.

- Housing – to establish a process of identifying and meeting the housing needs of the current and future residents of the region. Specifically to encourage adequate housing suitable to the needs and within the means of all residents of the region and to promote convenient, safe, and aesthetic living environments.

- Environment – to provide a safe, healthy, and enjoyable environment for present and future residents of the region. In particular, to manage, preserve, and protect the natural environment, including agricultural and forested lands, while encouraging efficient land use and development patterns in both urban and rural areas.

- Open Space – to protect, conserve and enhance the natural, historic, cultural and economic resources of the area while designating land and encouraging the provision of facilities to meet the existing and future needs for active and passive recreational activities.

- Transportation – to achieve a safe, efficient and environmentally sound transportation system that provides personal mobility for all segments of the population and supports the economy of the region.

For a more in depth description of current goals, policies, implementation, and preliminary policy analysis please refer to *East Central Policy (2003)*, available online at www.eastcentralrpc.org. The policy paper compiles the existing goals and policies of East Central, currently found in over 120 publications, into one document. Consequently, it is an important starting point for the revision of the regional comprehensive plan.

Comprehensive Planning Legislation

While East Central has had a regional plan since the early 1970's, recent legislation, s. 66.1001 and s. 16.965 Wis. Stats. have established new comprehensive and smart growth standards that will require a major regional plan revision and update. This report represents the first step in meeting the new requirements.

Governor Tommy Thompson signed Wisconsin's new Smart Growth initiative into law in 1999. The new law includes a list of nine elements that make up a comprehensive plan:

- issues and opportunities
- economic development
- housing
- transportation
- community and public facilities
- agricultural, natural and cultural resources
- intergovernmental cooperation
- land use
- implementation

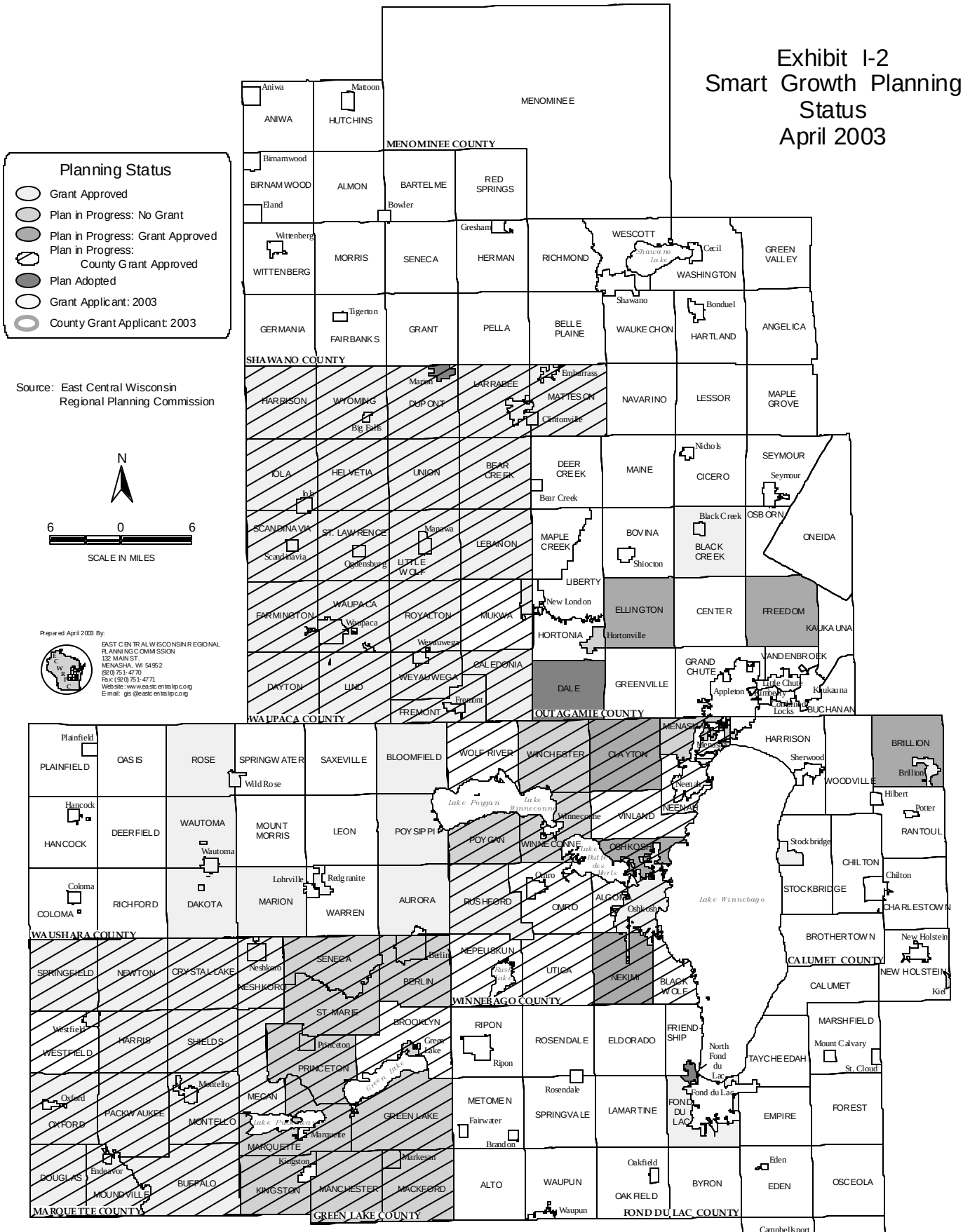
The law requires that beginning January 1, 2010, any program or action of a local government unit (county, city, village, town or regional planning commission) that effects land use must be consistent with an adopted comprehensive plan. The current comprehensive planning status for the communities within the region is illustrated in Exhibit I-2.

The new legislation emphasizes the importance of intergovernmental cooperation and promotes smart growth. The latter is defined as development and redevelopment of land with existing infrastructure and municipal, state and utility services, as well as new development located contiguous to existing development at densities which have relatively low municipal, state governmental and utility costs.

The legislation also provides a set of 14 local comprehensive planning goals which communities must consider when preparing a comprehensive plan with state aid.

- 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 neighborhood designs that support a range of transportation choices.

Exhibit I-2
Smart Growth Planning Status
April 2003



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- Protection of natural areas, including wetlands, wildlife habitats, lakes, woodlands, open spaces and ground water resources.
- Protection of economically productive areas, including farmland and forests.
- Encouragement of land uses, densities and regulations that promote efficient development patterns and relatively low municipal, state governmental and utility costs.
- Preservation of cultural, historic and archaeological sites.
- Encouragement of coordination and cooperation among nearby units of government.
- Building of community identity by revitalizing main streets and enforcing design standards.
- Providing 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.
- Promoting the expansion or stabilization of the current economic base and the creation of a range of employment opportunities at the state, regional and local levels.
- Balancing individual property rights with community interests and goals.
- Planning and development of land uses that create or preserve varied and unique urban and rural communities.
- Providing an integrated, efficient and economical transportation system that affords mobility, convenience and safety and that meets the needs of all citizens, including transit-dependent and disabled citizens.

East Central's primary goal, as it prepares its new regional comprehensive plan, is to ensure that all local government units, interest groups, and citizens have the opportunity to be involved in deciding how to deal effectively with the growth management issues that will face the region. Working cooperatively, East Central's objective is to develop a policy framework for planning issues. This framework, addressing issues such as regional transportation, energy production and distribution, and coordination of land use and public services, will provide the regional infrastructure upon which local governments may build local land use policies to promote consistent and cost effective land use decision within the region. It is anticipated that county and local governments will benefit from the regional planning effort with savings in the cost of data collection, public participation, and broad policy development.

The East Central Regional Comprehensive Plan 2030

Purpose

Working together with citizens, local governments and interest groups, East Central's objective is to determine a comprehensive vision for the development of the region over the next 20 years: taking into account the economy, the environment, and the community. And to provide the strategic policy guidance that will help to make that vision a reality. The main objectives are to:

- promote informed, consistent and cost efficient land use decisions throughout the region, as well as with neighboring jurisdictions;

- provide the mechanism by which the state and local comprehensive planning goals are interpreted and applied at the regional and local levels;

- provide a coordinating regional framework for local comprehensive planning efforts as well as for planning by special districts, such as sanitary districts, school districts etc;

- identify potential conflict areas between state, regional and local plans, and work cooperatively towards resolution;

- identify smart growth areas; and

- facilitate public participation in the planning process.

Guiding Principles

A number of principles underpin the decisions that East Central has made in relation to the proposed scope and process for producing the region's comprehensive plan.

- Public Participation: A major concern of East Central is to put in place arrangements that ensure openness as well as increase regional ownership of both the issues and of the policies that are adopted for their resolution. To facilitate this, a public participation plan has been developed which aims to involve interest groups, citizens, and local governments throughout the planning process.

- Intergovernmental Cooperation: East Central recognizes that unless there is coordination between the different levels and departments of government, the process of preparing plans is likely to lead to considerable duplication, conflicting priorities, consultation fatigue and a loss of credibility with the public. East Central is, therefore, committed to adopting a planning process that emphasizes intergovernmental cooperation by fostering frequent and open communication.

- Framework Policy Plan: There is no desire to over plan or force a top-down approach. Rather, East Central takes the view that it is crucial, given that comprehensive plans will be produced by the majority of local government units, to give careful consideration to the most appropriate level for dealing with particular issues and priorities. East Central has concluded that the objective of the regional comprehensive planning process is the preparation of an integrated, strategic policy framework plan.

- Consistency: The regional comprehensive framework plan will provide the policy foundation on which other planning efforts in the community may build. East Central will work to identify potential conflict areas between state, regional, and local plans and to provide a forum in which those differences can be articulated, mediated, and, where possible, resolved. As new local plans are developed, East Central will work to ensure that the local comprehensive goals and recommendations of the regional comprehensive plan are incorporated within those local planning efforts. Education, communication and negotiation will be key. East Central takes the view that existing and ongoing plans should be reviewed to ensure consistency. The process for ensuring consistency is yet to be determined, current thinking suggests that it could involve East Central in a role similar to the clearing-house review process.

- Precedence: As comprehensive plans are to be produced at the regional, county, and local levels, it seems almost inevitable that there will be occasional inconsistencies. This in turn may mean that zoning ordinances at the county and local levels may be inconsistent. The process for determining precedence is yet to be determined.

- Advisory: It is important to note that the new comprehensive planning law supplements the planning requirements of prior municipal planning law, it does not change planning authority. East Central does not have implementing authority.

Process

During 2000 and 2001, East Central staff produced a draft study design and a draft public participation plan for the regional comprehensive plan. As the regional comprehensive plan will help to guide the future shape of the region it was considered appropriate to submit East Central's proposed planning approach to a peer review. Comments were received over a three-month period from June 1st to August 31st 2001. A number of amendments were made to the planning approach on the basis of comments received. The regional planning process and schedule, as well as the public participation process are shown in Fig. I-1 and Fig. I-2 respectively.

Fig. I-2. Regional Comprehensive Planning Process

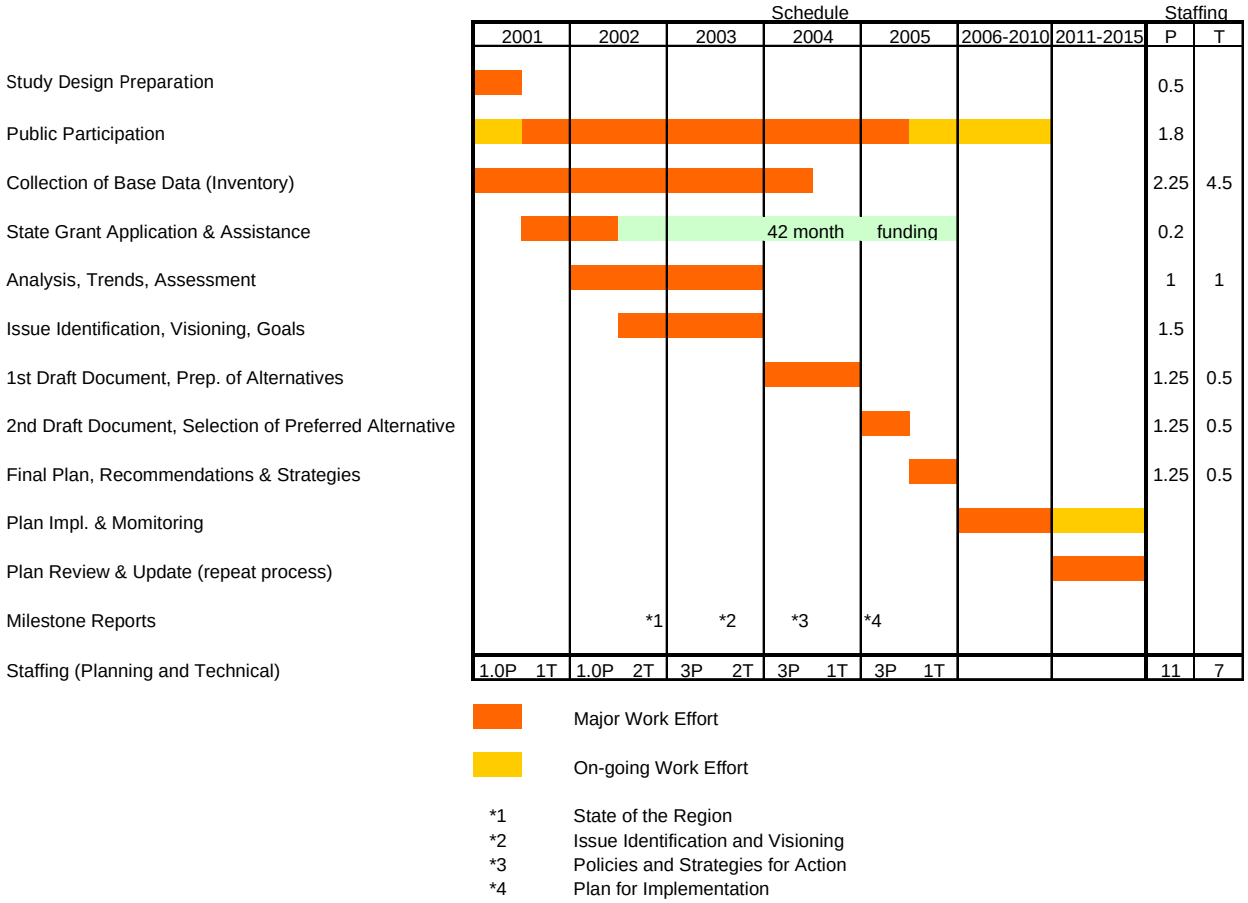
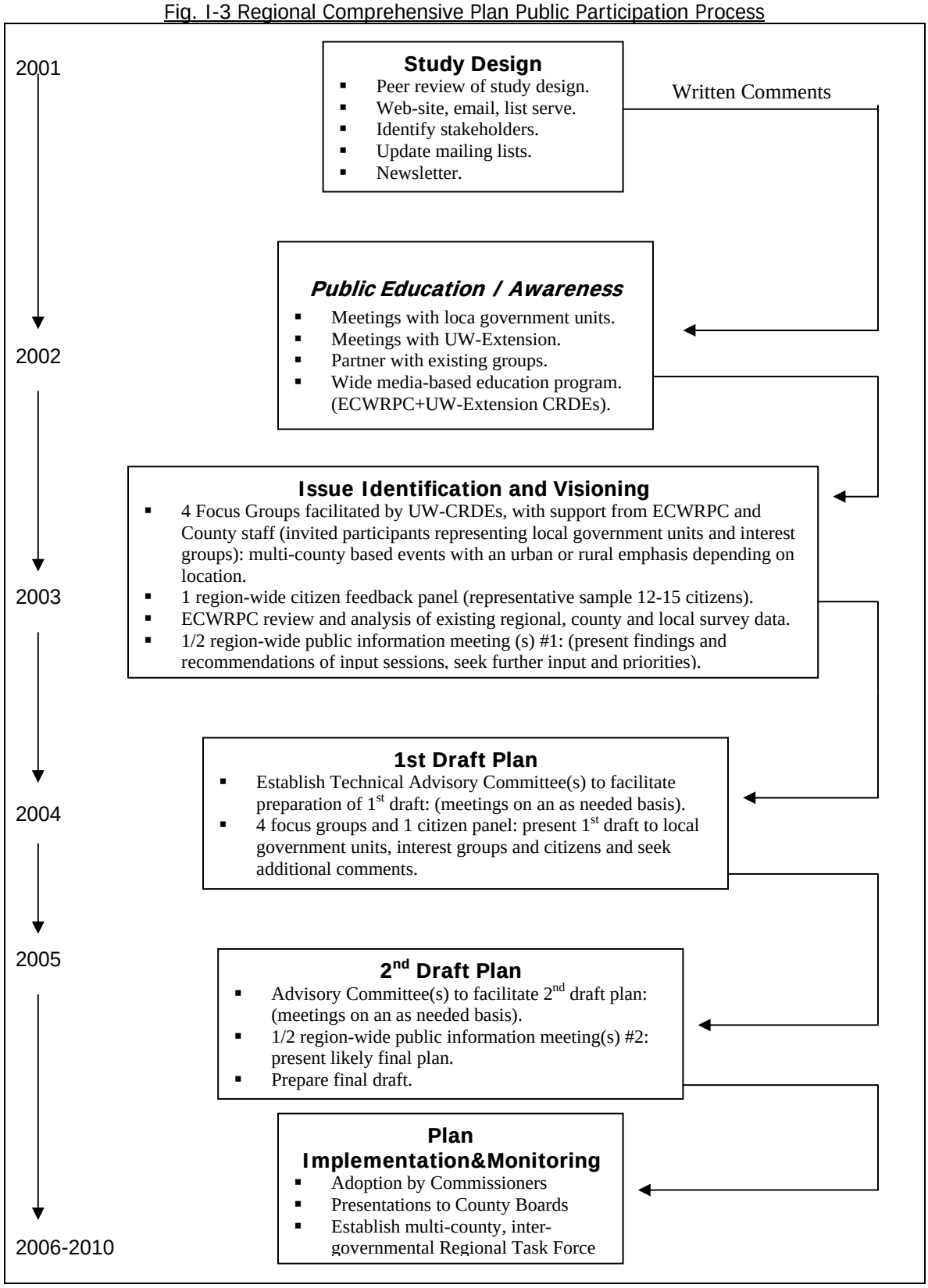


Fig. I-3 Regional Comprehensive Plan Public Participation Process



Structure of Report

The State of the Region report is intended to provide the baseline information that will enable Commissioners, staff, advisory committee members, interest groups, and citizens to understand the basic make-up of the region. This report will provide the foundation on which we will begin to plan for the future.

The report provides background information on the following: issues and opportunities (demographic trends and socio-economic conditions), economic development, housing, transportation, utilities and community facilities, agricultural, natural, and cultural resources, and land use.

A chapter is devoted to each of the topics listed above. Each chapter is divided into five main sections. After a brief introduction, each chapter describes the broad policy context for that particular area, and presents a statement on current intergovernmental cooperation. The presentation of background information, the assessment of current and future conditions, is the main focus. Each chapter concludes by summarizing current and future trends and presents a preliminary identification of the issues and opportunities, which the data analysis and public participation process indicate will need to be addressed in the regional plan.

The data inventory along with the public participation process are considered to be crucial in providing the input necessary to identify the key issues and opportunities facing the region. These issues and opportunities will be addressed in much greater detail in Milestone Report 2: Issues, Opportunities, and a Regional Vision, which is scheduled for adoption in October 2003.

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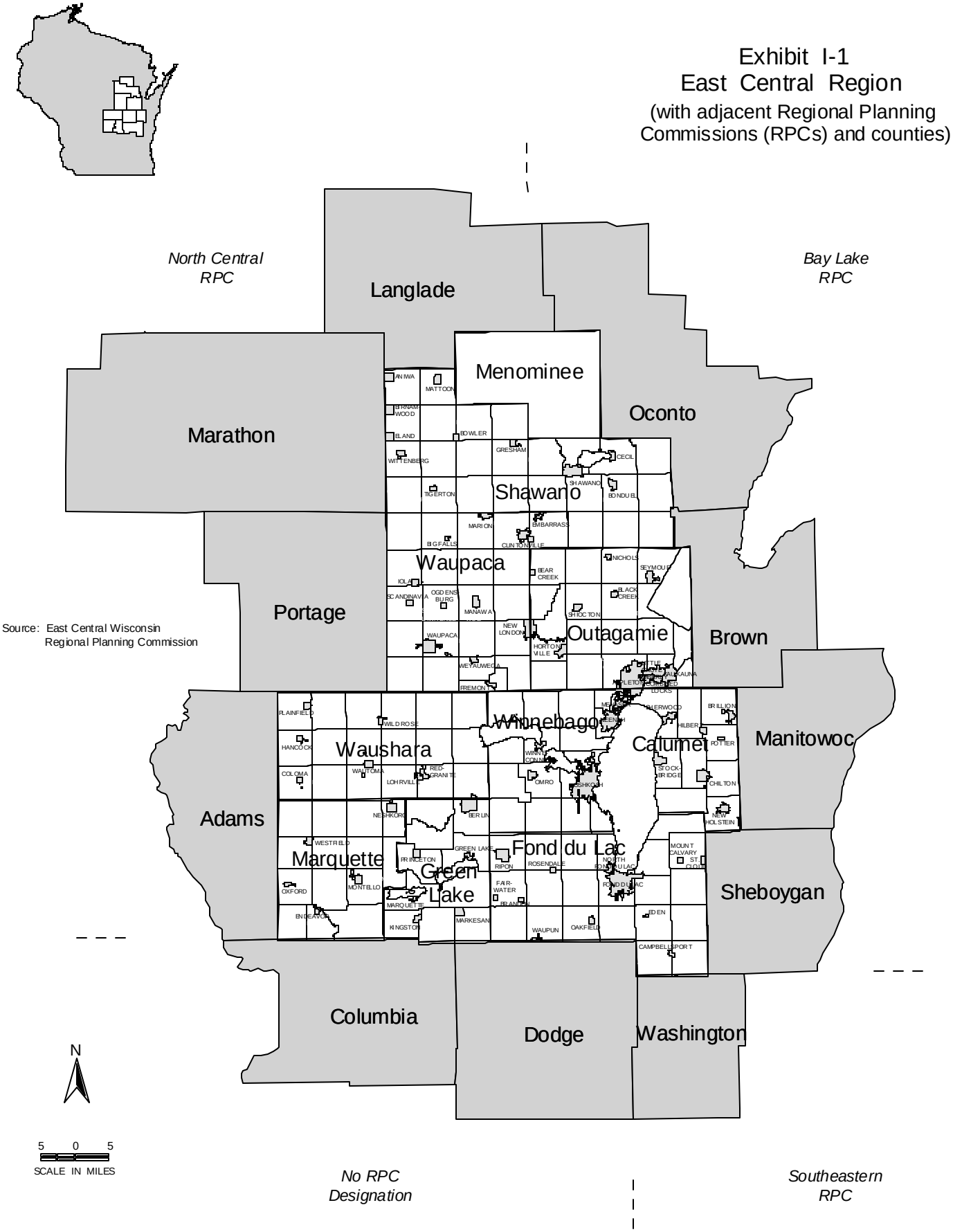
Exhibit I-1
East Central Region
(with adjacent Regional Planning Commissions (RPCs) and counties)



Source: East Central Wisconsin Regional Planning Commission

Prepared December 2002 By:

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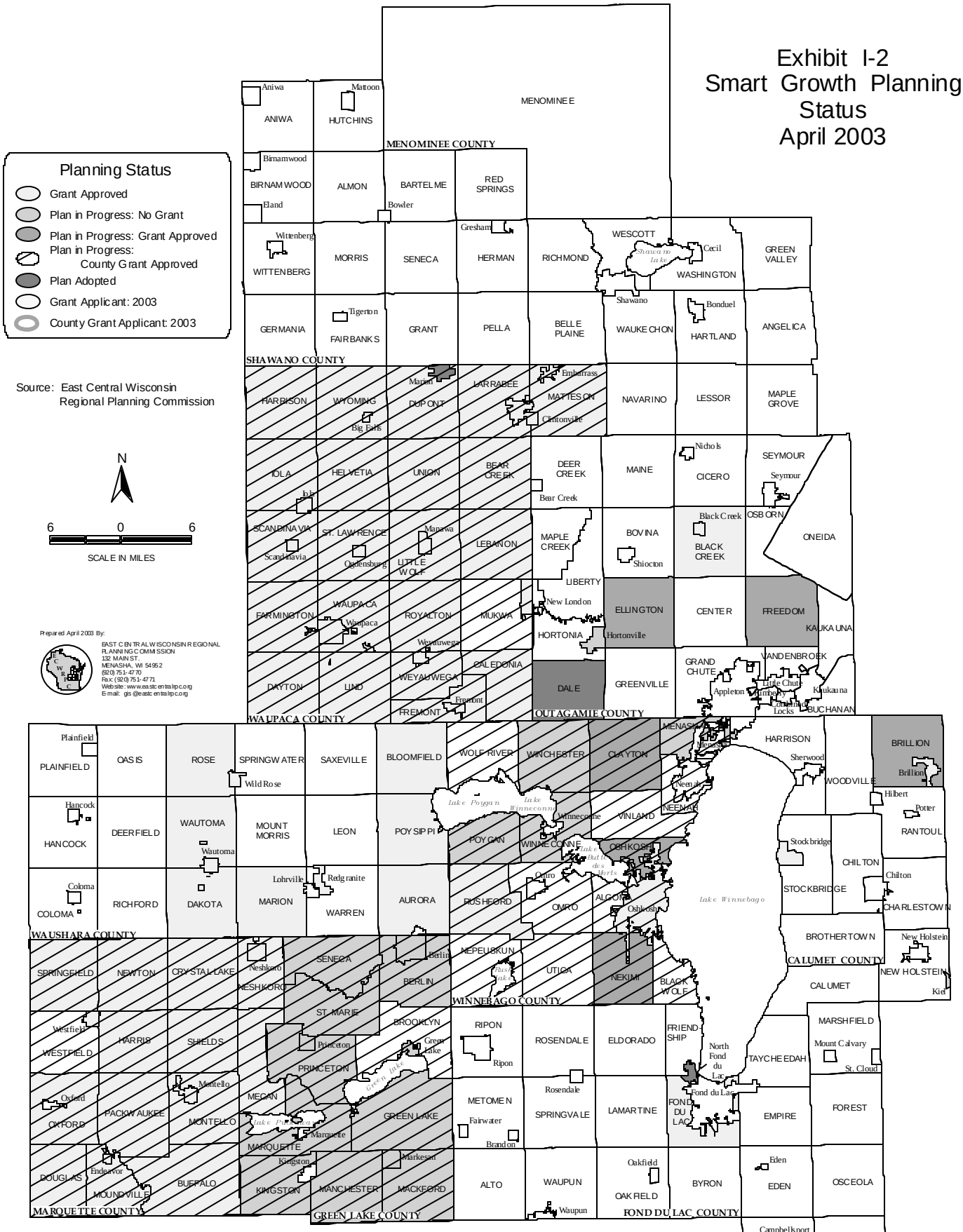
Exhibit I-2
Smart Growth Planning Status
April 2003



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CHAPTER 2: ISSUES AND OPPORTUNITIES

Introduction

Socioeconomic conditions and growth patterns have implications for the future health and vitality of the region. They help define existing problems and identify available socioeconomic resources. They also represent the current and future demands for services and resources. Changes in population and households combined with existing development patterns and policy choices will determine how well the region will be able to meet the future needs of its residents.

This chapter provides a summary of historic population growth, followed by more detailed information regarding current population and household characteristics of the region. Population and socioeconomic trends are identified and potential future growth and development patterns are discussed. Characteristics examined include age, race, Hispanic ethnic origin, educational attainment, income, and household types. Current and potential population and socioeconomic issues are noted. Their potential impacts and policy implications will be discussed in the following chapters. The remainder of this chapter will describe the policy context, discuss the need for intergovernmental cooperation, assess current and future trends and begin to identify issues that should be addressed in the regional comprehensive plan.

Policy Context

Growth and development patterns do not occur in a vacuum. Over time, federal, state and local policies have directed the amount and location of development. Federal immigration policies determine the flow of immigrants into the United States, both in terms of numbers and countries of origin. Concepts such as Manifest Destiny combined with expansive federal housing, land and transportation legislation, policies and subsidies such as the Homestead and Railroad Acts, the interstate highway system and IRS codes, etc. have heavily influenced settlement patterns. Additional federal legislation such as the Civil Rights Act, Americans with Disabilities Act (ADA) and Affirmative Action legislation have increased access and opportunities for persons of color and persons with disabilities. Wisconsin has broadened federal Civil Rights and Affirmative Action laws to include additional protected classes. State transportation policies and state land use legislation such as sewer service area planning, farmland preservation, natural resource protection and real estate tax codes have influenced growth and settlement. Local attitudes towards growth and accompanying zoning legislation, transportation and utility investments, and tax and land subsidies also influence the type and amount of growth and development which occurs in each community.

Policies, which impact growth and development, have been developed over time by different agencies and different levels of government with different missions and different objectives. The resulting mishmash is sometimes complementary and sometimes contradictory. It is the interaction of these various policies along with market influences that determine actual growth patterns. Although many current federal and state policies and subsidies still encourage expansion, the federal ISTEA legislation requires that communities examine the relationship between transportation and land use, and consider alternative land use patterns that would promote multi-modal transportation opportunities. The 14 local land use goals, recently

developed by the state and listed in Chapter 1, also encourage communities to accommodate growth in perhaps a more efficient manner than they have in the past.

Intergovernmental Cooperation

East Central has long recognized that competition for growth and lack of communication between communities are two major factors that have contributed to sprawl, inefficient development patterns and duplication of services within the region. As a result, East Central has worked hard to facilitate communication and coordination between communities and overlapping districts, particularly in regards to transportation and sewer service area planning. While some progress has been made, many opportunities for increasing intergovernmental cooperation and efficiencies still exist. As a result, East Central will continue to work to foster continued cooperation and communication within the region.

Many urban communities in the region have experience with developing and implementing land use plans, but have not always considered the impact of their decisions on neighboring communities. Many small rural communities in the region have no experience with developing and implementing land use plans. Many of these communities will be going through the planning process for the very first time as they develop their local comprehensive plans. It is East Central's intent to develop a broad policy framework plan that will provide guidance to all communities in the region to facilitate their planning process.

Background Information

This section examines demographic trends including long term historic growth patterns and more recent changes in population, as well as socioeconomic conditions, such as current educational attainment and income levels. Potential population and household changes will also be forecast.

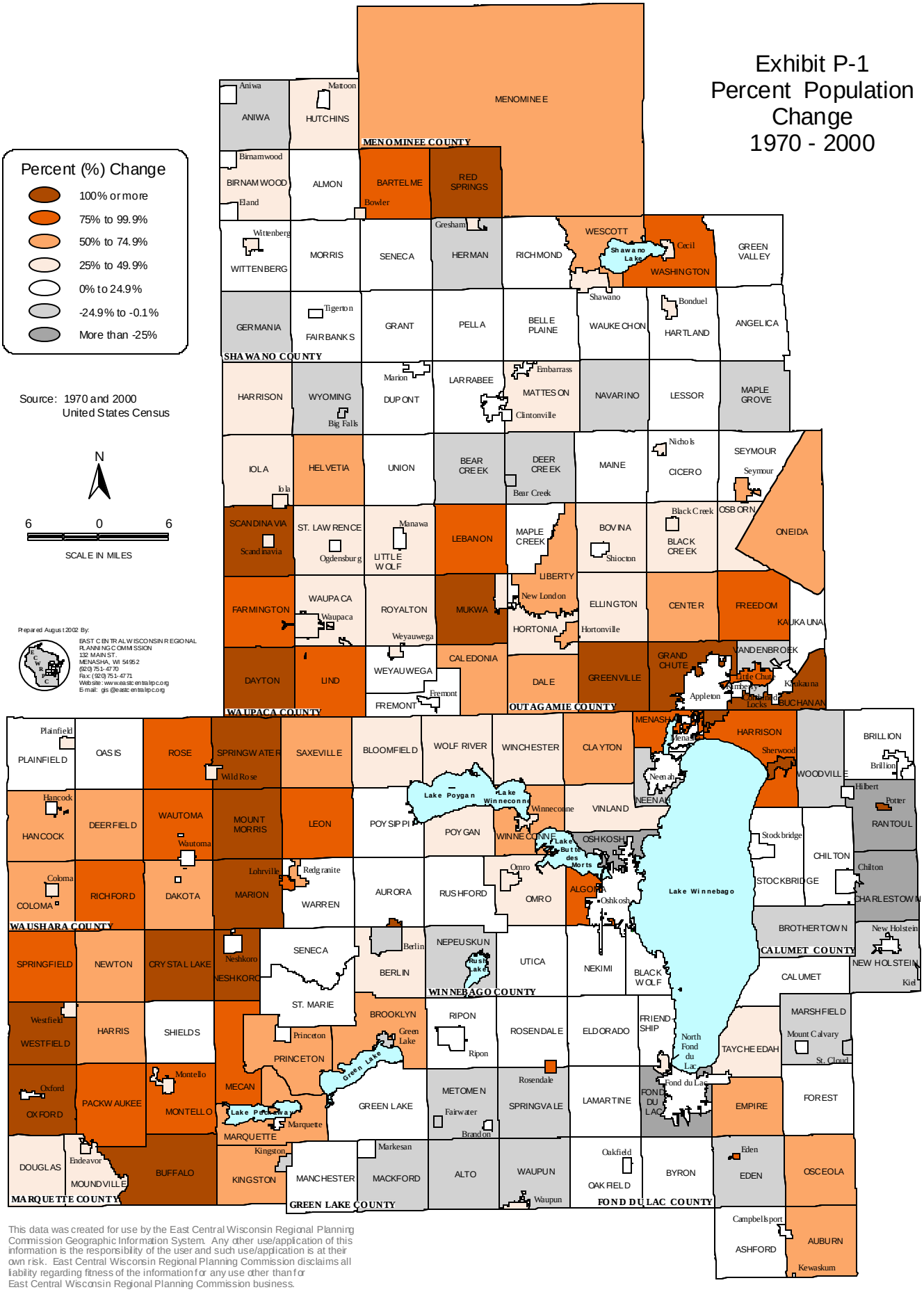
Demographic Trends

Historic Population

Over the past fifty years, the region has experienced significant population growth, growing from 366,887 persons in 1950 to 609,438 persons in 2000 (Table P-1). The majority of this growth was concentrated in the four urban counties. The fastest growing county, Calumet County, grew by 116% during this time period, largely in response to the expansion of the Appleton-Neenah urbanized area. Outagamie, Winnebago and Fond du Lac grew by 98%, 72%, and 43% respectively. Growth in the remainder of counties varied from 66% in Waushara County to 25% in Shawano County.

Exhibit P-1 shows the population change between 1970 and 2000 for the cities, villages and towns in the region. Population increases of 100% or more occurred primarily in urban communities, such as Greenville, Grand Chute, Combined Locks, Buchanan and Sherwood, as well as in 8 rural communities in the recreation areas of Waupaca, Waushara and Marquette counties. Population losses occurred in a number of scattered rural towns, particularly in Calumet and Fond du Lac counties. Communities such as Rantoul, Charlestown and Fond du Lac, for example, lost more than a quarter of their populations during the last 30 years. This

Exhibit P-1
Percent Population Change
1970 - 2000



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was due in large part to an aging farm population and out migration of 20 – 24 year olds. The Town of Oshkosh also lost a quarter of its population, due in large part to annexations.

Population growth in the region, 66%, outpaced growth for the state, 56%, between 1950 and 2000. In 1950, the region comprised 10.7% of the total state population. By 2000, that percentage had increased to 11.36%. This trend is continuing into the 2000's. The region's population is estimated to have reached 622,920 in January 2002, a 2.2% population increase since April 2000 (WI DOA, 2002). In that same time period, the state experienced a 1.7% growth rate. By 2002, the region's population had increased to 11.42% of the state's population. Urban counties continued to grow faster than their rural counterparts. By 2002, the four urban counties accounted for almost 75% of the region's population.

Table P-1. Total Population, 1950 to 2002

Jurisdiction	Census 1950	Census 1960	Census 1970	Census 1980	Census 1990	Census 2000	DOA 2001	DOA 2002
Wisconsin[a]	3,434,575	3,951,777	4,417,821	4,705,642	4,891,769	5,363,701	5,400,004	5,453,896
Region[a]	366,887	413,397	475,090	511,033	542,712	609,438	614,297	622,920
Urban	259,094	306,275	361,515	380,333	405,204	455,661	459,518	465,817
Rural[a]	107,793	107,122	113,575	130,700	137,508	153,777	154,779	157,103
Calumet	18,840	22,268	27,604	30,867	34,291	40,631	41,475	42,497
Fond du Lac	67,829	75,085	84,567	88,964	90,083	97,296	97,927	98,589
Green Lake	14,749	15,418	16,878	18,370	18,651	19,105	19,164	19,282
Marquette	8,839	8,516	8,865	11,672	12,321	14,555	14,663	14,771
Menominee	2,653	2,345	2,607	3,373	3,890	4,562	4,591	4,595
Outagamie	81,322	101,794	119,398	128,730	140,510	160,971	162,833	165,570
Shawano	32,576	32,006	32,650	35,928	37,157	40,664	40,944	41,273
Waupaca[a]	35,056	35,340	37,780	42,831	46,104	51,825	52,052	52,622
Waushara[a]	13,920	13,497	14,795	18,526	19,385	23,066	23,365	24,560
Winnebago	91,103	107,128	129,946	131,772	140,320	156,763	157,283	159,161

[a] 2000 Census numbers have been adjusted through the Count Question Resolution Program (CQR) 8/30/02.

Source: U. S. Census, 1950, 1960, 1970, 1980, 1990, 2000; WI DOA, 2001, 2002.

Components of Population Change

The two components of population change are natural increase[1] and net migration[2]. Historically, natural increase has played a larger role in population growth in the region than migration. The highest rates of natural increase tended to be in the urban counties, with the exception of Menominee County. The rate of natural increase has, however, declined over time, and is expected to continue to decline into the near future. As a result, during the planning period, migration is expected to become more important in determining population

[1] Natural increase is calculated by subtracting deaths from births during a specific time period.

[2] Net migration is, in theory, the number of people leaving an area (out-migrants) subtracted from the number of people coming into an area (in-migrants). However, since no convenient way of determining the movement of people on a regular basis exists, net migration must be estimated. Net migration can be estimated based on survey data, information from census questions, IRS data or calculated by subtracting natural increase from total population change. Net migration estimates may vary depending on the methodology used.

growth patterns within the region, particularly in the rural counties, which have lower natural increase rates than urban counties.

A number of factors influence net migration rates. These factors include, but are not limited to, housing availability and choice, economic opportunities, environmental constraints, quality of infrastructure, quality of services, social networks, amenities and perceived quality of life. During the 1990's, many larger metropolitan areas lost population as people migrated from larger urban centers to small urban centers of 250,000 or less. The Fox Cities and Oshkosh Urban Areas benefited from this nationwide trend. The strongest growth areas within the state during this time period were metropolitan counties and recreational counties (WI DOA, 1999). The region experienced similar trends. Urban counties in the region benefited from strong economic growth rates coupled with very low unemployment rates. Amenity factors in recreational counties in the region attracted new residents to these areas, and encouraged many former seasonal residents to become year round residents.

Net migration rates have varied throughout the region, over time, by county, and by age. Migration rates for the region ranged from –3.4% in the 1950's to 8.2% in the 1990's (Table P-2 and Table P-3). At the state level, net migration rates are estimated to have varied from a low of –1.4% in the 1950's to a high of 4.7% in the 1990's (Gibson, Fuguitt and Voss, 1996; WI DOA, 2001). In the 1950's, the net out-migration rate for the region was higher than that for the state, indicating that many residents in the region moved to other parts of Wisconsin (Table P-2). Since 1960, net migration estimates for the region have been higher than for the state, indicating that the region is attracting migrants from other parts of Wisconsin.

Table P-2. Net Migration, 1950 to 1990

	1950 to 1960	1960 to 1970	1970 to 1980	1980 to 1990
Calumet	-1.15%	5.30%	0.64%	1.20%
Fond du Lac	-3.65%	1.88%	-2.59%	-4.04%
Green Lake	-4.56%	3.27%	4.46%	-0.72%
Marquette	-9.81%	2.83%	22.06%	4.08%
Menominee	-14.16%	-5.07%	5.87%	-5.23%
Outagamie	-0.52%	-0.89%	-2.74%	-0.14%
Shawano	-14.16%	-5.07%	5.87%	-5.23%
Waupaca	-8.12%	2.20%	8.54%	1.95%
Waushara	-8.62%	6.37%	17.66%	7.27%
Winnebago	1.38%	7.00%	-5.15%	2.63%
Region	-3.39%	2.38%	-0.29%	0.10%
Wisconsin	-1.44%	0.16%	0.23%	2.68%

Source: "Net Migration by Age for Wisconsin Counties, 1950-1990", UWEX Applied Population Laboratory.

Between 1950 and 2000, individual counties experienced a greater range in net migration rates than the region, with the largest variations occurring in smaller rural counties. Between 1950 and 2000, migration rates for individual counties ranged from a low of -14.2% in Menominee and Shawano Counties to a high in Marquette County of 22%, according to Applied Population

Lab estimates (Table P-2), or 30.6% according to Department of Administration estimates (Table P-3).

For the most part, net migration trends have been positive. In the 1950's, all counties in the region, but Winnebago, lost population to net out-migration. Since 1960, every county has experienced net in-migration in at least one decade. The 1990's were unique, in that all counties in the region experienced net in-migration. The 1990's is also the only decade in the last 50 years where regional in-migration rates exceeded 3%.

A detailed examination of the demographic trends during the 1970's, 1980's and 1990's follows. In the 1970's, the region's population expanded by 7.6% (Table P-3). Just over 6% of the increase was due to natural increase. Less than 2% of the overall change was due to net migration (WI DOA, 2001). Factors influencing population change in this decade, however, varied considerably between urban and rural counties. On average, rural counties experienced a 12% in-migration rate, while urban counties lost 2% of their population to out-migration. With the exception of Menominee County, which had the highest rate of natural increase, 18.6%, natural increase rates were considerably higher in urban counties than rural counties. Less than 3% of rural population growth could be attributed to natural increase during the 1970s, while over 7% of the urban population growth resulted from natural increase.

During the 1980's population growth slowed to 6%. During this decade, the region gained 31,679 new residents. Again, most of the growth was due to natural increase. The region experienced a natural increase rate of 6.5%, which was slightly higher than the rate of natural increase in the 1970's. Menominee County, again, had the highest rate of natural increase, 24.5%. With the exception of Menominee County, urban counties continued to experience higher natural increase rates, 7.9%, than rural counties in the region, which averaged 2.7%. The region lost 1,770 persons to net out-migration during the 1980's, for an average net out-migration rate of –0.35%. Although the region experienced net out-migration, six counties, Calumet, Marquette, Shawano, Waupaca, Waushara and Winnebago, experienced net in-migration during this time period. Rural counties, on average, experienced a 2.5% net in-migration rate, which was significantly less than the in-migration rate during the 1970's. Urban counties, on average, lost –1.3% of their population to out-migration during the 1980's.

In the 1990's, the region gained 68,000 persons. The rate of natural increase dropped considerably from the 1970's and 1980's. In the 1990's, the region had a natural increase rate of 4.4%. This change resulted from a continued decrease in the number of births, accompanied by an increase in the number of deaths. Urban counties continued to have higher rates of natural increase than rural counties. Menominee County, however, continued to have the highest rate of natural increase, 14%. Four counties in the region, Green Lake, Marquette, Shawano and Waupaca, experienced negative growth in the rate of natural increase.

Unlike the previous 40 years, during the 1990's, every county in the region experienced net in-migration. As a result, the region experienced a net in-migration rate of 8.2% between 1990 and 2000. Rural counties continued to have higher net migration rates than urban counties. Net in-migration rates varied from a high of 13.3% in Marquette County to a low of 4.1% in Fond du Lac County (WI DOA, 1999).

Table P-3. Components of Population Change, 1970 to 2000

1970-1980	Numeric Change			Percent Change		
	Natural Increase	Net Migration	Total Change	Natural Increase	Net Migration	Total Change
Calumet	2,703	560	3,263	9.79%	2.03%	11.82%
Fond du Lac	5,523	-1,126	4,397	6.53%	-1.33%	5.20%
Green Lake	404	1,088	1,492	2.39%	6.45%	8.84%
Marquette	91	2,716	2,807	1.03%	30.63%	31.66%
Menominee	486	280	766	18.64%	10.74%	29.38%
Outagamie	11,343	-2,011	9,332	9.50%	-1.68%	7.82%
Shawano	1,016	2,262	3,278	3.11%	6.93%	10.04%
Waupaca	796	4,255	5,051	2.11%	11.26%	13.37%
Waushara	215	3,516	3,731	1.46%	23.76%	25.22%
Winnebago	6,794	-4,968	1,826	5.23%	-3.82%	1.41%
Urban	26,363	-7,545	18,818	7.29%	-2.08%	5.21%
Rural	3,008	14,117	17,125	2.72%	12.36%	15.08%
Region	29,371	6,572	35,943	6.20%	1.37%	7.57%
Wisconsin	277,693	10,128	287,821	6.29%	0.22%	6.51%
1980-1990	Numeric Change			Percent Change		
	Natural Increase	Net Migration	Total Change	Natural Increase	Net Migration	Total Change
Calumet	3,218	206	3,424	10.43%	0.67%	11.09%
Fond du Lac	5,363	-4,244	1,119	6.03%	-4.77%	1.26%
Green Lake	513	-232	281	2.79%	-1.26%	1.53%
Marquette	221	428	649	1.89%	3.67%	5.56%
Menominee	828	-311	517	24.55%	-9.22%	15.33%
Outagamie	13,055	-1,275	11,780	10.14%	-0.99%	9.15%
Shawano	1,165	64	1,229	3.24%	0.18%	3.42%
Waupaca	356	2,917	3,273	0.83%	6.81%	7.64%
Waushara	448	411	859	2.42%	2.22%	4.64%
Winnebago	8,282	266	8,548	6.29%	0.20%	6.49%
Urban	29,918	-5,047	24,871	7.87%	-1.33%	6.54%
Rural	3,531	3,277	6,808	2.70%	2.51%	5.21%
Region	33,449	-1,770	31,679	6.55%	-0.35%	6.20%
Wisconsin	313,123	-126,996	186,127	6.65%	-2.70%	3.96%
1990-2000	Numeric Change			Percent Change		
	Natural Increase	Net Migration	Total Change	Natural Increase	Net Migration	Total Change
Calumet	2,452	3,889	6,341	7.15%	11.34%	18.49%
Fond du Lac	3,242	3,971	7,213	3.60%	4.41%	8.01%
Green Lake	-181	635	454	-0.97%	3.40%	2.43%
Marquette	-87	3,598	3,511	-0.71%	29.20%	28.50%
Menominee	614	59	672	15.78%	1.49%	17.28%
Outagamie	11,013	9,449	20,462	7.84%	6.72%	14.56%
Shawano	329	3,178	3,507	0.89%	8.55%	9.44%
Waupaca	-182	5,809	5,627	-0.39%	12.60%	12.21%
Waushara	-23	3,792	3,769	-0.12%	19.56%	19.44%
Winnebago	6,416	10,027	16,443	4.57%	7.15%	11.72%
Urban	23,123	27,336	50,459	5.71%	6.75%	12.45%
Rural	470	17,071	17,541	0.34%	12.41%	12.76%
Region	23,593	44,407	68,000	4.35%	8.18%	12.53%
Wisconsin	243,687	228,219	471,906	4.98%	4.67%	9.65%

Source: Population Trends in Wisconsin: 1970-2000, WI DOA, 2001.

Migration by Age

Migration patterns in the region vary by age. These different migration patterns will not only impact community population growth, but will also influence service sector demands, infrastructure needs and housing options. The largest potential pool of migrants falls within the "baby boom" age cohort, which is the largest generation in the region and the nation. These Individuals, who are currently age 35 to 54, will reach retirement age during the planning period. The sheer size of this generation will result in a large increase in the elderly population. Identifying housing and amenity preferences and potential service needs for these individuals will be key in identifying growth patterns and determining the quality of life within our region.

Between 1990 and 2000, the region lost population in the 20 to 30 year old cohort, as individuals graduated from high school and left the area. The largest losses occurred in rural counties. Winnebago County was the only county in the region to see an increase in the 20 to 24 year age cohort. The positive net migration for this age cohort into Winnebago County was likely due to the presence of the University of Wisconsin-Oshkosh. Outagamie and Winnebago Counties both experienced a small net in-migration of individuals age 25 to 29. This may reflect the presence of affordable rental housing and better job opportunities.

During this same time period, the region experienced a net in-migration of persons age 30 and older. Within the region, urban counties gained migrants in the 30 to 59 year old cohort and the 70 to 99 year old cohort, but lost individuals age 60 to 69 and age 100 and older to out-migration. Rural counties experienced a net in-migration of persons age 30 and older in all 5-year age cohorts, indicating that rural counties not only were able to attract young families during the 1990s, they were the preferred retirement destinations within the region.

Some individual county variations occurred. Winnebago County was the only county in the region to experience out-migration of individuals age 30 to 34. Since these individuals were age 20 to 24 in 1990, it is likely that these out-migrants were students who completed their degrees during the 1990s and moved back home or moved elsewhere in response to job opportunities in their field or for additional education opportunities outside of the region. Fond du Lac County was the only urban county to experience net in-migration of individuals age 65 to 74, indicating that they had a comparative advantage over other urban counties in attracting young retirees. While all rural counties experienced net in-migration of individuals age 30 to 74, once individuals reached the age of 75, a variation in migration patterns occurred. Waupaca County was the only rural county to experience net in-migration of individuals age 75 and older for all age cohorts. Outagamie County was the only urban county to experience net in-migration of individuals age 75 and older for all age cohorts. All other counties in the region experienced net in-migration for some 5 year ago cohorts over age 75 and out-migration for others. Variations in migration patterns for individuals age 75 and older, likely represent availability of appropriate housing and ease of access to healthcare and other services.

Population Density

Population density reflects the degree of urbanization and impacts the demand and cost effectiveness of urban service provision. Over time, urban growth and urban services within the region have expanded and settlement patterns have increased in density. By 2000, only 27 out

of 235 communities in the region had population densities less than twenty persons per square mile. The number of communities with population densities of one hundred or more persons per square mile had risen to 94.

The lowest densities, areas with less than 20 persons per square mile, are generally along the western and northern edges of the region. Densities increase as you move east toward the urban counties. Densities of 40 to 59 persons per square mile generally fall in the eastern part of the region. Areas with these densities surround some of the smaller incorporated areas, such as Green Lake, Manawa, Omro, Ripon and Waupun. Densities of 40 to 59 persons per square mile are also found near the Cities of Shawano and Seymour and in recreational towns, such as Royalton and Springwater. The highest densities generally border the largest urban centers and Lake Winnebago to the north, west and south. Unincorporated areas that are exceptions to this pattern can be found in the Shawano Lake area, Waupaca Chain O'Lakes area, New London area and Winneconne (Exhibit P-2).

Cities and villages in the region have population densities of 100 persons per square mile or greater. The lowest densities are generally found in the smaller communities, with the highest densities found in the incorporated communities in the Appleton-Neenah-Oshkosh MSA and the City of Fond du Lac. Sixteen towns within the region also have population densities greater than 100 persons per square mile. All of these towns except for Farmington, Freedom, Greenville and Wescott are adjacent to existing urbanized areas.

Age Distribution

The age structure of a population impacts the service, housing and transportation needs of a community. Communities with growing school age populations may need to expand school facilities. Communities with growing elderly populations may need to expand health care, housing options and transportation services. Currently, the largest age cohort within the region and the state is the “baby-boom” generation. These individuals have had, and will continue to have, a significant impact on service and infrastructure needs within the region.

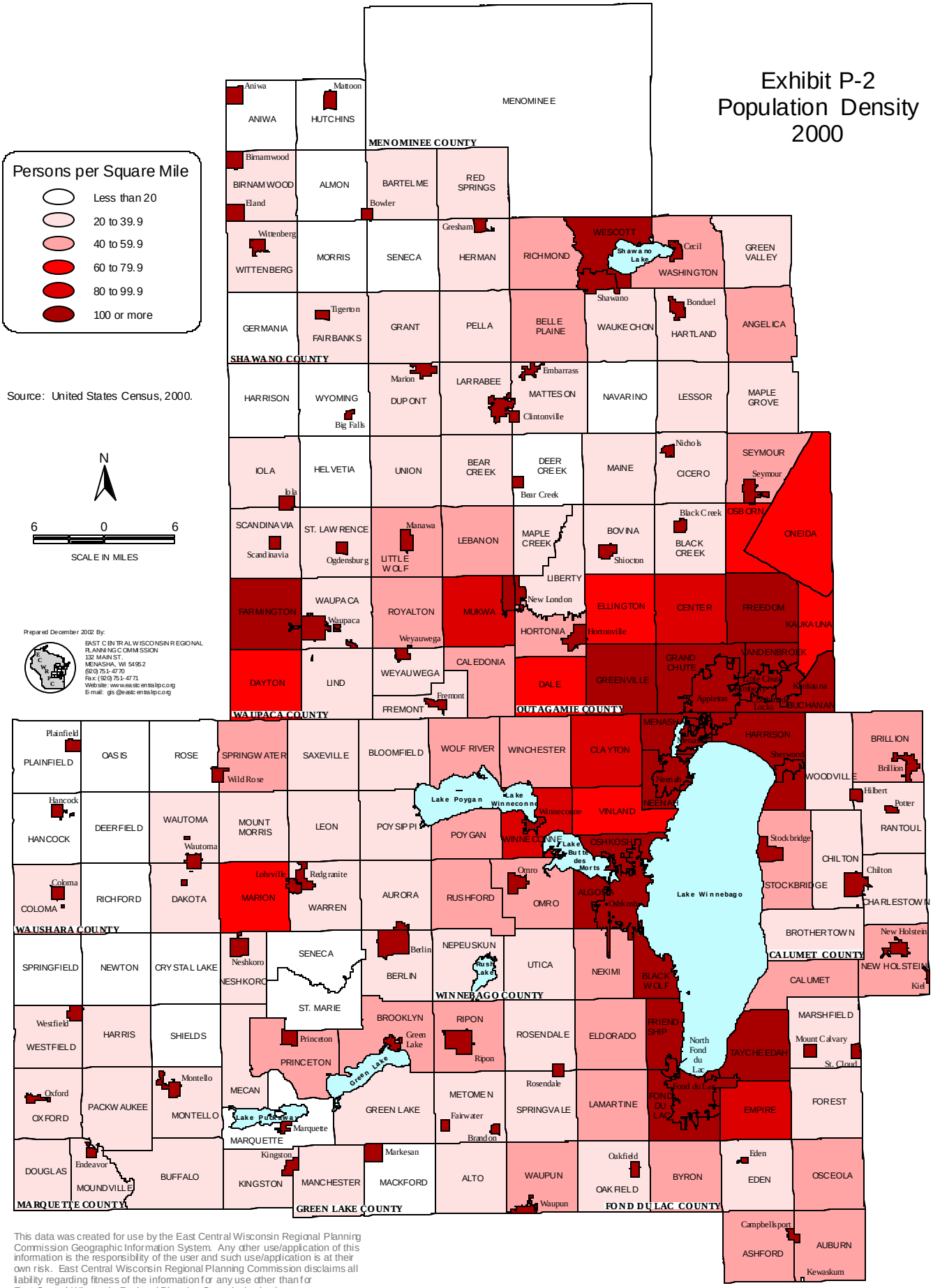
The region’s population is aging. While some local variation existed, in general, the number of preschool and school age children declined between 1970 and 2000, while the number of working age and elderly individuals increased. The same trends are reflected at the state level.

The decline in population under age 20 can be attributed to smaller average family sizes, the fact that most baby boomers have moved beyond the child bearing years and their children, the “echo boom”, have not yet reached their prime child bearing years. The increase in the number of working age and elderly individuals can be attributed to in-migration of individuals in these age cohorts and the aging of the baby boomers and World War II generation[3].

Persons under age 20 comprise a smaller percentage of the region’s population than they do of the state’s population. The region has a slightly higher percentage of elderly residents than the state average. Within the region, persons under age 20 comprise a larger percentage of the population in urban areas and Menominee County. Persons age 65 and older comprise a larger percentage of the population in rural areas. Factors contributing to this distribution include

[3] The World War II generation includes those individuals born between 1919 and 1935.

Exhibit P-2
Population Density 2000



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higher fertility rates in urban areas and Menominee County, and an aging farm population in rural areas coupled with the comparative advantage certain rural areas have in attracting retirees.

The rural counties, which include Green Lake, Marquette, Menominee, Shawano, Waupaca and Waushara, tended to have much older populations than the urban counties and the state between 1970 and 2000. Menominee County is the one exception. Menominee County had the lowest median age[4] during each decade.

A detailed examination of age distribution trends during the 1970's, 1980's, 1990's and into 2000 follows. In 1970, almost one third of the region's population was school age, 5 to 19 years old. Approximately half was working age, 20 to 64 years old, and 11.2% of the population was comprised of individuals age 65 years and over. The state had a slightly higher percentage of its population in the working age cohort, 49.6%, and slightly smaller shares of its population in the three remaining categories. Most of the counties in the region had comparable shares of school age children. The exceptions were Calumet, Menominee and Outagamie Counties. Forty-two percent of Menominee County's population and approximately 35% of Calumet and Outagamie County's population was comprised of school age children.

In 1970, the median age for the rural counties, excluding Menominee, ranged between 31.7 years in Shawano County to 37.5 years in Marquette County. Urban counties had median ages ranging from 23.3 years in Calumet County to 26.7 years in Fond du Lac County (Table P-4). The state's median age in 1970 was 27.2 years.

Between 1970 and 1980, the region and state experienced growth in the proportion of population that fell in the working age and elderly cohorts, which reflects the aging of the "baby boomers" and the World War II generation. The share of population under 20 years old declined, as family size decreased. All counties in the region experienced similar changes in the age distribution of their populations during this time period.

This trend continued from 1980 to 1990. During the 1980's, the share of the region's population and state's population less than 20 years of age continued to decline. At the same time, the proportion of population age 20 and older increased slightly. Most of the counties experienced comparable changes in the age structure of their population. Menominee and Winnebago Counties differed slightly, in that they were the only two counties in the region, during this time period, to experience an increase in the share of preschool age children, age 5 and under. The increase, however, was insignificant. Between 1980 and 1990, the share of preschool age population increased from 12.2% to 12.6% in Menominee County and from 6.7% to 7% in Winnebago County. At the state level, the share of preschool age population remained stable at 7.4% for both time periods.

By 2000, the median age of the state and all counties had increased. With the exception of Menominee County, rural counties had higher median ages than urban counties and the state.

[4] Median age divides the age distribution of the population in half. One half of the population is younger than the median age. The other half of the population is older than the median age.

Table P-4. Population by Age Group, 1970 to 2000

County	Year	Age Group					Median Age
		Under 5	5 - 19	20 - 64	65+	Total	
Calumet	1970	2,992	9,690	12,525	2,397	27,604	23.2
	1980	2,601	9,096	16,183	2,987	30,867	27.1
	1990	2,837	8,522	19,160	3,772	34,291	31.3
	2000	2,846	9,773	23,642	4,370	40,631	35.2
Fond du Lac	1970	7,511	26,927	40,450	9,679	84,567	26.7
	1980	6,951	23,327	47,655	11,031	88,964	29.3
	1990	6,355	20,904	50,166	12,658	90,083	33.4
	2000	5,851	21,748	55,755	13,942	97,296	36.9
Green Lake	1970	1,401	4,570	8,402	2,505	16,878	33.3
	1980	1,290	4,409	9,408	3,263	18,370	33.7
	1990	1,191	4,089	9,792	3,579	18,651	36.8
	2000	1,078	3,989	10,444	3,594	19,105	40.9
Marquette	1970	589	2,495	4,104	1,677	8,865	37.5
	1980	800	2,725	5,985	2,162	11,672	36.1
	1990	721	2,542	6,545	2,513	12,321	39.1
	2000	765	2,891	8,458	2,889	15,003	40.9
Menominee	1970	360	1,095	1,006	146	2,607	16.6
	1980	410	1,210	1,516	237	3,373	21.1
	1990	489	1,224	1,849	328	3,890	24.5
	2000	434	1,471	2,271	386	4,562	27.7
Outagamie	1970	11,620	41,232	56,366	10,138	119,356	23.8
	1980	10,795	35,826	69,323	12,786	128,730	27.4
	1990	11,455	32,375	81,025	15,655	140,510	31.4
	2000	11,124	37,880	94,382	17,585	160,971	34.4
Shawano	1970	2,692	9,863	15,488	4,607	32,650	31.7
	1980	2,625	9,406	18,186	5,710	35,927	32.5
	1990	2,615	8,208	19,662	6,672	37,157	35.3
	2000	2,500	8,863	22,454	6,847	40,664	38.5
Waupaca	1970	2,930	10,638	17,674	6,538	37,780	34.1
	1980	3,230	10,453	21,699	7,449	42,831	32.6
	1990	3,212	10,295	24,444	8,153	46,104	35.0
	2000	3,119	11,450	28,536	8,626	51,731	38.5
Waushara	1970	1,128	4,118	7,018	2,531	14,795	34.8
	1980	1,290	4,356	9,502	3,378	18,526	34.9
	1990	1,239	3,960	10,426	3,760	19,385	38.6
	2000	1,162	4,793	12,744	4,455	23,154	42.1
Winnebago	1970	10,648	40,376	65,961	12,946	129,931	25.9
	1980	8,803	33,128	74,547	15,294	131,772	29.1
	1990	9,815	29,093	83,389	18,023	140,320	32.5
	2000	9,364	33,590	94,146	19,663	156,763	35.4
Region	1970	41,872	151,004	228,994	53,164	475,034	-
	1980	38,796	133,936	274,005	64,297	511,034	-
	1990	39,929	121,212	306,458	75,113	542,712	-
	2000	38,243	136,448	352,832	82,357	609,880	-
Wisconsin	1970	381,924	1,373,661	2,189,386	472,760	4,417,731	27.2
	1980	346,940	1,203,663	2,590,967	564,197	4,705,767	29.4
	1990	360,730	1,077,179	2,802,639	651,221	4,891,769	32.9
	2000	342,340	1,189,753	3,129,029	702,553	5,363,675	36.0

Source: U. S. Census, 1970, 1980, 1990 and 2000.

Waushara County had the highest median age in the region, 42.1 years, and Menominee County had the lowest median age in the region, 27.7 years. Wisconsin's median age was 36.0 years. The share of population in the region under age 20 had declined to 28.6%, while the share of population age 20 to 64 had increased to 57.8%. The share of population age 65 and older had peaked in 1990 at 13.8%, then declined slightly to 13.5% in 2000, as the number of deaths among the World War II generation increased and the region gained additional population in other age groups due to natural increase and in migration. The state experienced similar trends. The share of the state population under age 20, 28.6%, was slightly lower than that of the region. The state had a higher percentage of population age 20 to 64, 58.3%, and a slightly lower share of the population age 65 and older. In 1990, persons age 65 and older comprised 13.3% of the state's population. By 2000, that share had declined to 13.1%.

In 2000, within the region the share of population in the preschool age cohort ranged from a high of 9.5% in Menominee County to a low of 5.0% in Waushara County. On average, preschool age children comprised 6.3% of the region's population and 6.4% of the state's population. School age children comprised 22.4% of the region's population and 22.2% of the state's population. The proportion of school age population within the region ranged from a high of 32.2% in Menominee County to a low of 19.3% in Marquette County. Working age individuals comprised a smaller percentage of the region's population, 57.8%, than the state's population, 58.3%. Variation in the share of population for the working age population within the region ranged from a high of 60.0% in Winnebago County to a low of 49.8% in Menominee County.

The region had a slightly larger share of population age 65 and older than the state. In 2000, persons age 65 and older comprised 13.5% of the region's population and 13.1% of the state's population. The variation in the share of elderly population within the region, however, was the largest for any age group. In every instance but Menominee County, rural counties had a higher portion of their population in this age group than urban counties. The share of elderly population in the remaining rural counties ranged from a high of 19.3% in Marquette County to a low of 16.7% in Waupaca County. The share of elderly population in urban counties ranged from a high of 14.3% in Fond du Lac County to a low of 10.8% in Calumet County. In Menominee County, the elderly comprised 8.5% of the county's population. Factors contributing to this distribution include an aging farm population, in-migration of retirees to rural counties and higher fertility rates in urban areas and Menominee County.

Household Structure

Household size and changes in household structure help define the demand for different types and sizes of housing units. The composition of a household coupled with the level of education, training and age also impact the income potential for that household, plus help define the need for services such as childcare, transportation and other personal services. Decreases in household size create a need for additional housing units and accompanying infrastructure, even if no increase in population occurs.

Household size for the state and within the region has been decreasing steadily since 1970. Historically, the region has had a higher average household size than the state. Within the region, excluding Menominee County, urban counties have had higher average household size than rural counties. Urban counties have also experienced the highest declines in average

household size. The decrease in average household size has largely resulted from a large increase in the number of 1 and 2 person households, and decline in the number of households with 5 or more persons per household.

A detailed examination of the changes in household structure between 1970 and 2000 is presented below. Between 1970 and 2000, the region's average persons per household declined from 3.32 to 2.52 persons per household (Table P-5). Average household size in urban counties declined from 3.39 in 1970 to 2.53 in 2000. In rural counties, average household size declined from 3.12 in 1970 to 2.50 in 2000. At the county level, the largest decline in household size occurred in Menominee County, where average household size declined from 5.10 in 1970 to 3.35 in 2000. Marquette County experienced the smallest decline in household size, decreasing from 2.96 in 1970 to 2.41 in 2000. At the state level, average household size dropped from 3.22 in 1970 to 2.50 in 2000.

The share of one and two person households increased throughout the region and at the state level. By 2000, one-person households comprised 25% of all households in the region and 27% of all households in the state compared with 18% and 17% respectively in 1970. Two person households comprised 35% of households at the regional and state level, compared with 30% in 1970. Within the region, the share of one-person households increased at a faster rate in urban counties than rural counties. As a result, by 2000, 25% of all households in urban and rural counties were comprised of one-person households. Rural counties, however, continued to have a higher share of two person households, 37%, than urban counties, 35%.

In 2000, the share of one-person households in the region ranged from 28% in Winnebago County to 17% in Menominee County. The share of two person households ranged from 42% in Waushara County to 26% in Menominee County.

Little change occurred in the region and state's percentage of 3 and 4 person households between 1970 and 2000. Three person households comprised 16% of all households in the region and in the state in 1970 and 15% of all households in 2000. In 1970 and 2000, 4 person households comprised 15% of the region's households. At the state level, 4 person households comprised 15% of all households in 1970 and 14% of all households in 2000.

Within the region, little variation also occurred in these households at the county level. Menominee was the only county to see a real change in the share of 3 and 4 person households. In Menominee County, the share of 3 person households increased from 11% of all households in 1970 to 16% of all households in 2000. The share of 4 person households in Menominee County increased from 10% in 1970 to 15% in 2000.

By 2000, the share of 5 or more person households had decreased from 25% to 9% of all households in the region and the state. The largest decline occurred in the 6 or more person households. The share of 6 or more person households declined from 14% of the region's households in 1970 to just under 3% of the region's households in 2000. At the state level, 6 or more person households declined from 13% to 3% of the state's households. Within the region, the share of 5 or more persons per household declined at a faster rate in urban counties than rural counties.

Table P-5. Household Size, 1970 to 2000

Jurisdiction	Year	Number of Persons in Household						Total Households	Average Household Size
		1 Person	2 Person	3 Person	4 Person	5 Person	6+ Person		
Wisconsin	1970	225,209	392,205	212,841	194,584	134,949	169,016	1,328,804	3.22
	1980	371,266	517,243	272,275	259,584	136,095	95,798	1,652,261	2.77
	1990	443,673	596,883	302,563	284,151	129,821	65,027	1,822,118	2.61
	2000	558,010	721,480	320,997	290,459	130,011	63,587	2,084,544	2.50
Region	1970	21,334	41,064	21,966	20,075	14,353	19,591	138,383	3.32
	1980	36,689	54,917	28,784	28,243	15,324	11,346	175,303	2.84
	1990	45,930	66,816	32,630	32,156	14,964	7,190	199,686	2.63
	2000	58,949	82,831	35,829	34,051	15,139	6,777	233,576	2.52
Calumet	1970	905	1,892	1,157	1,088	841	1,459	7,342	3.70
	1980	1,552	2,739	1,639	1,786	1,047	931	9,694	3.15
	1990	2,093	3,645	2,078	2,196	1,179	581	11,772	2.89
	2000	3,036	5,133	2,462	2,585	1,188	506	14,910	2.70
Fond du Lac	1970	3,858	7,019	3,949	3,549	2,575	3,458	24,408	3.30
	1980	6,136	8,981	5,072	4,997	2,675	2,009	29,870	2.88
	1990	7,609	10,487	5,342	5,363	2,532	1,311	32,644	2.67
	2000	9,375	12,990	5,772	5,309	2,450	1,035	36,931	2.52
Green Lake	1970	934	1,884	858	713	508	584	5,481	3.10
	1980	1,492	2,371	1,053	930	541	347	6,734	2.69
	1990	1,788	2,536	1,064	1,043	517	241	7,189	2.56
	2000	2,069	2,894	1,104	992	423	221	7,703	2.43
Marquette	1970	535	1,112	435	325	223	326	2,956	2.90
	1980	964	1,627	636	587	326	221	4,361	2.65
	1990	1,132	1,897	679	634	323	166	4,831	2.52
	2000	1,514	2,432	851	703	334	152	5,986	2.41
Menominee	1970	55	96	57	52	64	195	519	5.10
	1980	86	166	106	141	85	215	799	4.22
	1990	136	273	175	159	144	192	1,079	3.57
	2000	225	356	214	200	161	189	1,345	3.35
Outagamie	1970	4,478	8,713	5,161	4,912	3,776	5,767	32,807	3.60
	1980	8,390	12,530	7,103	7,235	4,270	3,227	42,755	2.96
	1990	10,797	16,307	8,454	8,779	4,224	1,966	50,527	2.73
	2000	14,640	20,392	9,374	9,819	4,362	1,943	60,530	2.60
Shawano	1970	1,535	3,238	1,433	1,398	992	1,331	9,927	3.20
	1980	2,542	4,058	1,923	1,842	1,025	957	12,347	2.88
	1990	3,179	4,735	2,198	2,085	996	582	13,775	2.64
	2000	3,937	5,815	2,395	2,187	985	496	15,815	2.51
Waupaca	1970	2,072	4,031	1,803	1,532	1,004	1,342	11,784	3.10
	1980	3,297	4,958	2,337	2,212	1,247	903	14,954	2.76
	1990	4,061	5,768	2,672	2,570	1,374	592	17,037	2.62
	2000	5,000	7,102	3,041	2,886	1,295	539	19,863	2.51
Waushara	1970	877	1,754	714	626	421	518	4,910	3.00
	1980	1,559	2,501	1,078	896	489	381	6,904	2.65
	1990	1,784	2,940	1,139	1,034	478	241	7,616	2.52
	2000	2,326	3,897	1,252	1,047	509	305	9,336	2.43
Winnebago	1970	6,085	11,325	6,399	5,880	3,949	4,611	38,249	3.20
	1980	10,671	14,986	7,837	7,617	3,619	2,155	46,885	2.71
	1990	13,351	18,228	8,829	8,293	3,197	1,318	53,216	2.52
	2000	16,827	21,820	9,364	8,323	3,432	1,391	61,157	2.43

Source: U. S. Census, 1970, 1980, 1990, 2000.

Menominee County had the highest share of 5 person households (12%) and 6 or more persons per household (14%). Waushara County had the lowest share of 5 person households, 5%. Winnebago County had the smallest share of 6 or more persons per household, 2%.

Race and Ethnic Origin

Racial Distribution

Population by race and ethnic origin provides information regarding the social and cultural characteristics of an area. It also provides information regarding population dynamics. Access to education and economic opportunities differ by race and ethnic origin. Differences also exist in age structure, language barriers and risks for various diseases and health conditions. Some ethnic groups are also more mobile than others. Since new immigrants are more likely to settle in areas with existing populations from their countries of origin, race and ethnicity also influence migration patterns.

The region experienced a large increase in its nonwhite population in the past 30 years. By 2000, 32,915 persons of color lived in the region. In spite of the increase, whites continued to comprise an overwhelming majority of the population in every county except for Menominee County[5]. Native Americans, who comprise 1.74% of the region's population, make up the largest nonwhite racial group in the region. This may be explained by the three reservations located in the region. The Menominee Reservation encompasses all of Menominee County and a portion of Shawano County. The Stockbridge-Munsee Reservation is located in Shawano County, and the Ho-Chunk Nation also has trust land within Shawano County. A portion of the Oneida Reservation lies within Outagamie County. Persons of African Descent comprise the smallest nonwhite racial group in the region, accounting for 0.65% of the region's population. The more diverse counties in the region are urban counties and rural counties with trust lands.

The region's population is less diverse than the state's population. In 2000, whites comprised 94.6% of the region's population and 88.9% of the state's population. Persons of African Descent are the largest nonwhite racial group in the state, and comprise 5.7% of the state's population. The smallest nonwhite racial group in the state is the Native American population, which comprises 0.8% of the state's population. As the region and the state's population continue to grow, it is expected that the minority proportion of the population will continue to grow also.

A detailed examination of racial distribution trends between 1970 and 2000 follows. Between 1970 and 2000, the minority population has grown, nevertheless, whites continue to comprise the overwhelming majority of the population for all counties, with the exception of Menominee County (Table P-6). In Menominee County, which encompasses most of the Menominee Reservation, whites comprise less than 12% of the population and Native Americans comprise 87% of the population. Persons of African, Asian, Pacific Islander and other descent comprise less than 2% of Menominee County's population.

[5] Menominee County is unique in that it is the only county in the region where the entire county falls within reservation boundaries.

Table P-6. Population by Race, 1970 to 2000

County	Year	White	African American	Native American	Asian/Pacific Islander	Other Races	Two or More Races
Wisconsin	1970	4,258,959	128,224	18,924	6,557	5,067	n.a.
	1980	4,446,088	183,169	30,788	22,043	23,679	n.a.
	1990	4,512,523	244,539	39,387	53,583	41,737	n.a.
	2000	4,769,857	304,460	47,228	90,393	84,842	66,895
Region	1970	469,038	360	4,971	373	291	n.a.
	1980	500,866	640	6,949	1,668	910	n.a.
	1990	526,551	1,334	8,610	4,579	1,638	n.a.
	2000	576,517	3,942	10,612	8,584	4,365	5,412
Calumet	1970	27,514	2	60	18	10	n.a.
	1980	30,675	4	74	93	21	n.a.
	1990	33,910	29	146	173	33	n.a.
	2000	39,282	124	139	632	154	300
Fond du Lac	1970	84,195	132	131	78	31	n.a.
	1980	88,192	115	130	248	279	n.a.
	1990	88,760	257	297	448	321	n.a.
	2000	93,562	876	371	873	814	800
Green Lake	1970	16,856	7	4	3	8	n.a.
	1980	18,307	3	24	6	30	n.a.
	1990	18,386	21	42	103	99	n.a.
	2000	18,687	29	38	66	170	115
Marquette*	1970	8,842	2	8	5	8	n.a.
	1980	11,540	43	35	30	24	n.a.
	1990	12,174	31	49	18	49	n.a.
	2000	14,238	47	52	50	58	110
Menominee	1970	292	1	2,306	0	8	n.a.
	1980	356	0	3,014	0	3	n.a.
	1990	416	0	3,469	0	5	n.a.
	2000	528	3	3,981	1	15	34
Outagamie	1970	118,035	58	1,064	123	76	n.a.
	1980	126,314	91	1,573	687	134	n.a.
	1990	136,043	206	1,965	1,904	392	n.a.
	2000	151,101	867	2,471	3,651	1,311	1,570
Shawano	1970	31,644	2	981	8	15	n.a.
	1980	34,512	2	1,371	25	18	n.a.
	1990	35,251	42	1,762	70	32	n.a.
	2000	37,251	91	2,545	154	128	495
Waupaca	1970	37,642	2	95	18	23	n.a.
	1980	42,572	8	95	65	91	n.a.
	1990	45,695	22	125	92	170	n.a.
	2000	50,660	87	217	146	280	341
Waushara	1970	14,752	8	12	5	18	n.a.
	1980	18,293	6	36	31	160	n.a.
	1990	19,094	29	70	43	149	n.a.
	2000	22,413	62	72	87	314	206
Winnebago	1970	129,266	146	310	115	94	n.a.
	1980	130,105	368	597	483	150	n.a.
	1990	136,822	697	685	1,728	388	n.a.
	2000	148,795	1,756	726	2,924	1,121	1,441

* Marquette County population by race for 2000 adjusted for geocoding errors.

Source: U. S. Census, 1970, 1980, 1990, 2000.

In 1970, the region was almost 99% white. Outside of Menominee County, little variation existed in the share of white persons throughout the region. Whites comprised a slightly smaller percentage of the population in the remaining rural counties, 98.9%, than in the urban counties, 99.3%, indicating that rural county populations on average were more diverse in 1970. Rural counties also had the largest variation in the share of white persons. Green Lake County had the highest percentage of whites in the region, 99.9%, and Shawano County had the lowest, 96.9%.

By 2000, the percentage of whites had declined to 94.6% of the region's population. Urban county populations on average had become more diverse than rural county populations. Whites comprised 95% of the population in urban counties, and 96% of the population in rural counties, excluding Menominee County. Rural counties, however, continued to show the largest variation in the share of white persons throughout the region. Outside of Menominee County, the share of white persons varied from a high of 98% in Waupaca County to a low of 92% in Shawano County. In Menominee County, whites comprised 11.6% of the population. Shawano County experienced the largest decrease in the share of white persons. The share of whites in Shawano County dropped from 97% in 1970 to 92% in 2000, as the share of persons of African, Native American, Asian, Pacific Islander and other descent increased. The largest increase in the nonwhite population in Shawano County occurred in the Native American population, which more than doubled between 1970 and 2000.

Between 1970 and 2000, non-white racial groups grew in absolute numbers and as a percentage of the total population in all counties, except for Menominee. In Menominee County, the number of Native Americans increased between 1970 and 2000; but Native Americans declined as a percentage of total population. In 1970, Native Americans comprised 88.5% of Menominee County's population. By 2000, Native Americans as a share of total population had declined to 87.2%. The decline in the Native American share of Menominee's population can be contributed to the increase in the white population, which increased from 292 residents to 528 residents during this time period. While whites are scattered throughout Menominee County, the largest concentration of whites occurs in the Legend Lake area.

Within the non-white racial groups, the greatest growth in absolute numbers between 1970 and 2000 occurred in the Asian/Pacific Islander population. The region experienced an increase of 8,211 persons in this racial group. Over half of that increase occurred in Outagamie and Winnebago Counties. In Outagamie County, the Asian/Pacific Islander population increased from 123 persons or 0.10% of the population in 1970 to 3,651 or 2.3% of the population in 2000. In Winnebago County, the number of Asian/Pacific Islanders grew from 115 or 0.09% of the population in 1970 to 2,924 or 1.9% of the population in 2000. In spite of the relatively large gains in population, Asian/Pacific Islanders still comprise less than 1% of the population in rural counties and less than 2% of the population in urban counties.

In 2000, the two largest subgroups within the Asian/Pacific Islander population in the region were Hmong and Asian Indians. Some regional variation existed. Although Hmong is the dominant Asian/Pacific Islander subgroup in both urban and rural counties, Hmong comprise 54% of the Asian/Pacific Islander population in urban counties and only 19% of the Asian/Pacific Islander population in rural counties. In urban counties, the next two largest Asian/Pacific Islander subgroups are Asian Indian and Korean, which comprise 11% and 7% of the Asian/Pacific Islander population, respectively. In rural counties, the next two largest

Asian/Pacific Islander subgroups are Korean and Filipino, which both comprised around 18% of the Asian/Pacific Islander population in rural counties in the region.

Population growth among the other non-white racial groups, ranged from a high of 5,641 for Native Americans to a low of 3,582 for persons of African descent. Counties that experienced the largest increase in Native Americans tended to be those with tribal trust lands; Menominee, Outagamie, and Shawano. The Native American population grew by 1,675 persons in Menominee County and 1,564 persons in Shawano County.

Winnebago and Outagamie Counties experienced the largest growth in the number of persons of African descent. The number of persons of African descent increased by 1,610 persons in Winnebago County and 809 in Outagamie County. Estimates in the growth of persons of African descent varied in the remainder of the counties from 774 persons in Fond du Lac County to 2 persons in Menominee County.

The number of persons who identified themselves as belonging to some other race[6] increased significantly from 291 in 1970 to 4,074 in 2000 for the region. Again, Outagamie and Winnebago Counties experienced the largest increases in the number of persons in the other race category. The number of persons identified as other increased by 1,235 persons in Outagamie County and 1,027 in Winnebago County during this time period.

The 2000 Census was the first Census that allowed persons of mixed race to declare two or more races. Less than 2% of state residents and less than one percent of residents in the region identified themselves as belonging to two or more races. Some variation did exist within the region. Urban residents were more likely to identify themselves as belonging to more than one race than rural residents. The largest variation, however, occurred between the rural counties in the region. Shawano County had the largest percentage of residents in the region identify themselves as belonging to two or more races, 1.2%. Green Lake County had the smallest percentage of residents which identified themselves as belonging to two or more races, 0.6%.

Hispanic Origin

According to the 2000 Census, Hispanics, who can be of any race, are the fastest growing population in the United States. They also tend to be a relatively young population. In 2000, the median age for Hispanics was 25.8 years, compared to the nation's median age of 35.3 years. As a result, over time, they will constitute a larger share of our nation's labor force.

Hispanics comprise a very small segment of the region and state's population, 1.9% and 3.6% respectively (Table P-7). If the region is going to continue to grow through migration, it is likely that the number and percentage of Hispanics in the region will also increase. Although Hispanics have lived and worked in the region for over 30 years, fluctuations in the population during that time indicate that they do not have strong social and cultural ties to the area, or even to certain counties within the region. The Hispanic influence in the region does appear to be growing, as evidenced by the number of new Latino grocery stores, the introduction of

[6] Other race includes those individuals who were unwilling to identify themselves as white, African American/Black, Native American, Alaskan Native, Asian or Pacific Islander.

Spanish mass in churches within the region and limited Spanish programming on National Public Radio (NPR). However, at this time, it is unclear whether those ties are strong enough to slow out-migration of Hispanics in times of economic downturns. Without those strong cultural ties, the region could find itself at a comparative disadvantage during times of high labor force demand.

Detailed trends for the 1970's, 1980', 1990's and into 2000 are presented below. In 1970, 1.3% of the region's population was of Hispanic origin. With the exceptions of Shawano and Waushara Counties, urban counties tended to have a higher percentage of persons of Hispanic origin than rural counties. Variations in the share of the population of Hispanic origin ranged from 2% in Calumet County to 0% in Menominee County.

Between 1970 and 1980, the absolute number of Hispanics in the region declined dramatically, falling from 6,124 persons in 1970 to 3,233 persons in 1980. The decline in the population of Hispanic origin was most notable in the urban counties, where the number of Hispanics declined from 5,001 to 2,256. The number of Hispanics increased in all rural counties, except Shawano County. In Shawano County, the number of Hispanics declined from 596 to 86. The increase in Hispanics in the remaining rural counties was not large enough to offset the huge decrease in the number of Hispanics in urban areas. As a result, the Hispanic share of the population for the region declined from 1.3% in 1970, to 0.6% in 1980. It is not clear why this decline occurred. A possible explanation is that Hispanics did not have strong social ties to the region and better economic opportunities existed elsewhere.

Table P-7. Population by Hispanic Origin, 1970 to 2000

	1970		1980		1990		2000	
County	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Wisconsin	62,875	1.42%	62,972	1.34%	93,194	1.91%	192,921	3.60%
Region	6,124	1.29%	3,233	0.63%	4,527	0.83%	11,393	1.87%
Urban	5,001	1.38%	2,256	0.59%	3,217	0.79%	8,694	1.91%
Rural	1,123	0.99%	977	0.75%	1,310	0.95%	2,699	1.74%
Calumet	546	1.98%	105	0.34%	149	0.43%	435	1.07%
Fond du Lac	1,183	1.40%	752	0.85%	937	1.04%	1,987	2.04%
Green Lake	135	0.80%	194	1.06%	192	1.03%	393	2.06%
Marquette	24	0.27%	98	0.84%	149	1.21%	215	1.36%
Menominee	0	0.00%	57	1.69%	55	1.41%	122	2.67%
Outagamie	1,832	1.53%	680	0.53%	987	0.70%	3,207	1.99%
Shawano	596	1.83%	86	0.24%	129	0.35%	407	1.00%
Waupaca	207	0.55%	246	0.57%	406	0.88%	714	1.38%
Waushara	161	1.09%	296	1.60%	379	1.96%	848	3.66%
Winnebago	1,440	1.11%	719	0.55%	1,144	0.82%	3,065	1.96%

Source: U. S. Census, 1970, 1980, 1990, 2000adj.

Within the region, the balance shifted. In 1980, Hispanics comprised a higher percentage of the population in rural counties than in urban counties. Rural counties also experienced the

largest variation in the share of population of Hispanic origin. In 1980, the share of population of Hispanic origin ranged from 1.7% in Menominee County to 0.2% in Shawano County.

The 1980's saw an increase in the total number of Hispanics in the region. Between 1980 and 1990, the number of Hispanics in the region increased from 3,233 persons in 1980, to 4,527 persons in 1990. While the largest increases were in urban counties, the number of Hispanics increased in rural counties also. In two counties, Green Lake County and Menominee, the number of persons of Hispanic origin remained almost static.

Hispanics continued to comprise a larger share of the population in rural counties than in urban counties. Rural counties also continued to experience the largest variation in the population of Hispanic origin. By 1990, Hispanics as a share of the population ranged from 2% in Waushara County to 0.4% in Shawano County. In spite of the growth in the number of persons of Hispanic origin, the Hispanic population within the region remained smaller numerically and as a percentage of the total population in 1990, than it had been in 1970.

The population of Hispanic origin continued to grow in the region through the 1990's, increasing from 4,527 persons in 1990 to 11,393 persons in 2000. Every county in the region experienced an increase in the number and percentage of persons of Hispanic origin during this time period. Outagamie County experienced the largest increase, 2,220 persons. The smallest growth occurred in Marquette County, where the number of Hispanics is estimated to have increased by 66 persons between 1990 and 2000.

In 2000, the balance again shifted, and persons of Hispanic origin comprised a higher percentage of the population in urban counties than in rural counties. The largest variation in the share of population of Hispanic origin continued to occur in rural counties. The share of Hispanics in the region ranged from 3.7% in Waushara County to 1% in Shawano County.

With the continued growth in the Hispanic population, Hispanics achieved and, in most counties, surpassed the number of Hispanics present in the region in 1970. The two exceptions were Calumet and Shawano County. Both counties had a greater number of Hispanics in 1970 than they did in 2000. In 1970, Hispanics also comprised a larger share of the population in Calumet and Shawano County than they did in 2000.

Education Levels

Over time, the accepted level of formal educational attainment[7] has risen. Educational attainment expectations also differ by ethnicity, access to higher education, employer expectations and socioeconomic status. Educational attainment impacts an individual's access to full-time year-round employment; and, as a result, impacts a person's earning power. For example, according to the 2000 U. S. Census, on average, a full-time, year-round worker with a bachelor's degree earned 1.8 times the amount earned by a full-time, year-round worker with a high school degree. Individuals with the highest earnings tended to be individuals with professional degrees, such as doctors, lawyers and pharmacists.

[7] Educational attainment is the highest degree or level of school completed.

In 2000, the high school graduation rate for the region, 85.1% was the same as for the state and higher than for the nation, 80.4%. Fewer east central residents had obtained formal education beyond high school than at the state or national levels. In 2000, 50.5% of state residents age 25 and older reported that they had obtained some form of post-secondary education, and 22.4% of state residents had four or more years of college education. In the region, 45.3% of residents had obtained post-secondary[8] education and only 19.1% of residents had four or more years of college education.

Educational attainment varied substantially throughout the region. On average, urban counties had a higher high school graduation rate, 86.6%, than rural counties, 81.1%. Urban residents were also more likely to have obtained education beyond high school. Forty-eight percent of urban county residents had obtained some form of post secondary education, compared to 37.5% of rural county residents. On average, 21.2% of urban county residents had obtained four or more years of college education, compared to 13.2% of rural county residents.

At the county level, high school graduation rates in the region varied from 88.1% in Outagamie County to 78.2% in Menominee County. The share of residents with four or more years of college varied from 22.8% in Winnebago County, where the University of Wisconsin at Oshkosh is located, to 10.1% in Marquette County. At the local level, 31.2% percent of Minor Civil Divisions (MCD) within the region had high school graduation rates above those of the state average. High school graduation rates at the local level varied from 96.1% in the Town of Buchanan to 63.9% in the Village of Aniwa. The distribution of east central residents with four or more years of college was even more concentrated. Only 9% of MCDs in the region had a larger share of residents with four or more years of college than the state. The share of residents with four or more years of college varied from 35.6% of residents in the Village of Sherwood to 1.1% of residents in the Village of Aniwa.

Income Levels

Income includes both earned[9] and unearned[10] income. Traditionally, earned income is geographically dependent. That is to say it is dependent on the presence of local jobs. The quality of those jobs determines the earning potential and quality of life for local residents dependent on earned income. Unearned income is not geographically dependent. A retirement pension, for example, may come from a company, which is located, several states away. As a result, one's quality of life is not as dependent on the health of the local economy and quality of jobs in the area.

All counties in the region experienced an increase in median household and median family incomes between 1989 and 1999. Urban counties not only maintained higher median household and median family incomes than rural counties in both time periods, the gap in median family household incomes increased between urban and rural counties between 1989 and 1999.

[8] Post-secondary education is education attained beyond completion of a high school degree.
[9] Earned income includes money earned through wages, salaries and net self-employment income.
[10] Unearned income includes money from interest, dividends, rent, social security, retirement income, disability income and welfare payments.

A detailed examination of income trends between 1989 and 1999 is presented below (Table P-8). In 1989, urban counties in the region had higher county median[11] household incomes[12] than the state. Three of those counties, Calumet, Outagamie and Winnebago, had higher median family incomes[13] than the state. Rural counties had lower incomes by both income measures than the state. The range of values differed by income type. Some geographic variation also existed, although Menominee County had the lowest median household and median family incomes in the region. Median household income for urban counties ranged from $34,050 in Fond du Lac County to $30,007 in Winnebago County, while median household income in rural counties ranged from $26,083 in Waupaca County to $14,122 in Menominee County. Median family income in urban counties ranged from $38,286 in Outagamie County to $34,257 in Fond du Lac County, while median family income in rural counties ranged from $31,644 in Waupaca County to $14,801 in Menominee County.

Between 1989 and 1999, median household and family incomes increased at the state and county level. Calumet County experienced the largest change in both income measures. In Calumet County, median household income increased by $18,519 and median family income increased by $21,099. As a result, by 1999, Calumet County had the highest median household and median family income in the region. Fond du Lac County experienced the smallest change in median household income, $11,321. In spite of that fact, the median household income for Fond du Lac County still remained above the state median household income. Menominee County experienced the smallest change in median family income, $13,584. As a result, Menominee County continued to be the poorest county in the region. Wisconsin median household income increased by $14,349 between 1989 and 1999. The state also experienced a $17,829 increase in median family income.

In 1999, urban counties continued to have higher median household and median family incomes than the state, while rural county median household and family incomes continued to fall below the state average. Urban county median household incomes ranged from $52,569 in Calumet County to $44,445 in Winnebago County, while rural county median household incomes ranged from $40,910 in Waupaca County to $29,440 in Menominee County. Among urban counties, median family income ranged from $58,654 in Calumet County to $53,352 in Fond du Lac County, while rural median family incomes ranged from $48,837 in Waupaca County to $28,385 in Menominee County.

Variations in median household income growth between 1989 and 1999 resulted in a decreased disparity between urban and rural county median household incomes within the region, as rural county median household incomes, on average, grew faster than urban county median household incomes. Menominee County experienced the largest percentage gain in median

[11] Median income divides the income distribution into two equal parts, with one-half of incomes falling below the median number and one-half above the median. For households and families, the median income is based on the distribution of the total number of households or families, including those with no income.

[12] Household income includes income of the householder and all other individuals 15+ years old in the household, whether they are related to the householder or not. Since many households consist of only one person, average household income is usually less than average family income.

[13] Family income is calculated by adding together the income of all family members age 15 and older and treating it as a single amount.

household income, 108.5%. Fond du Lac County experienced the smallest percentage gain in median household income, 33.1%. Wisconsin experienced a 48.7% increase in median household income.

Table P-8. Comparative Income Characteristics

Jurisdiction	Median Household Income		Median Family Income	
	1989	1999	1989	1999
Wisconsin	$29,442	$43,791	$35,082	$52,911
Calumet	$34,050	$52,569	$37,555	$58,654
Fond du Lac	$34,257	$45,578	$34,257	$53,325
Green Lake	$25,708	$39,462	$30,280	$46,969
Marquette	$22,234	$35,746	$26,640	$40,916
Menominee	$14,122	$29,440	$14,801	$28,385
Outagamie	$33,770	$49,613	$38,286	$57,464
Shawano	$23,841	$38,069	$28,748	$43,940
Waupaca	$26,083	$40,910	$31,644	$48,837
Waushara	$21,888	$37,000	$26,042	$42,416
Winnebago	$30,007	$44,445	$35,821	$53,932

Source: U. S. Census, 1990 and 2000.

In 1989, the income gap between the county with the highest median household income and the county with the lowest median household income was $20,135. By 1999, that gap had narrowed to $16,138. Household income disparities between counties in the region and the state's median household income varied, with the income gap between Fond du Lac, Menominee, Waupaca and Waushara county median incomes and the state's median income decreasing, and the gap between the state's median income and the remaining counties increasing.

Variations in median family income growth, however, resulted in an increase in disparity between urban and rural counties within the region. Although rural county median family incomes, on average, also grew faster than urban county median family incomes the difference in the amount of growth was not as great. As a result, urban county median family incomes continued to pull ahead of rural county median family incomes. Menominee County experienced the largest percentage gain in median family incomes, 91.8%. Outagamie County experienced the smallest percentage gain in median family incomes, 50.09%. Wisconsin experienced a 50.8% increase in median family income.

In 1989, the income gap between the county with the highest median family income and the county with the lowest median family income was $23,485. By 1999, that gap had increased to $30,269. The disparities in median family income increased between all counties in the region and the state, except for Fond du Lac County. The income gap between Fond du Lac County's median family income and the state's median family income decreased from $825 in 1989 to $414 in 1999.

At the community level, the gap between the highest and lowest income measures increased for each income type between 1989 and 1999. In all cases the gap between the highest and lowest income measure was greater at the Minor Civil Division (MCD) level than at the county level for both years for both measures. Between 1989 and 1999, the gap between the highest MCD median household income and the lowest MCD median household income increased from $32,733 in 1989 to $46,514 in 1999. The gap between the highest MCD median family income and the lowest MCD median family income increased from $35,859 in 1989 to $46,299 in 1999. In all cases, the community with the highest income level was located in an urban county and the community with the lowest income level was located in a rural county.

Poverty Status

The poverty level is determined by the U.S. Census Bureau, and based on current cost of living estimates, as adjusted for household size. In 1990, the poverty threshold for a family of four with two children was a household income of $12,674. By 2000, the poverty threshold for a family of four with two children had risen to $17,463.

Between 1989 and 1999, both the number and share of persons living below the poverty threshold declined both for the region and for the state. Children were more likely to live below the poverty level than elderly residents during both time periods. Not only were children more likely to live below poverty, a greater number of them lived below poverty as well. In 1999, 11,329 children in the region lived below poverty, compared to 5,806 persons age 65 and older. The ratio of children to elderly below poverty was even greater at the state level, where 150,166 children lived below poverty, compared to 49,245 persons age 65 and older.

A detailed examination of poverty status trends between 1989 and 1999 follows. According to the 1990 Census, 44,268 persons, or 8.4% of all residents in the region lived below the poverty line in 1989, compared to 10.7% for the state (Table P-9). Rural residents were more likely to live below poverty than urban residents. However, almost two-thirds of all persons below poverty in the region lived in the urban counties. Poverty rates for individuals in the region ranged from 48.7% in Menominee County to 4.9% in Calumet County.

The region also had a smaller share of families living below poverty than the state. In 1989, 5.9% of the region's families lived below poverty, compared to 7.6% for the state. Rural families were more likely to live below poverty than urban families. However, the majority of families living below poverty resided in urban counties. Poverty rates for families in the region ranged from 41.3% in Menominee County to 4.1% in Calumet County.

Poverty status by age showed similar patterns, with the largest number of children and elderly living in poverty residing in urban counties, while rural counties had a larger share of children and elderly living in poverty. On average, children were more likely to live in poverty than elderly residents. In 1989, 11% of children in the region lived in poverty, compared to 9% of persons age 65 and older. Calumet and Waupaca Counties were unique, in that elderly residents in these two counties were more likely to live below poverty than children.

The highest poverty rates for children and the elderly occurred in Menominee County, where 64.3% of children and 18.3% of persons age 65 and older lived below poverty. Calumet

County had the smallest share of children living below poverty, 6.2%. Winnebago County had the smallest share of elderly residents living below poverty, 6.9%.

Table P-9. Poverty Status, 1989 and 1999

Jurisdiction	Total Persons		Total Persons Below Poverty		Total Families		Total Families Below Poverty	
	1989	1999	1989	1999	1989	1999	1989	1999
Wisconsin	4,754,103	5,211,603	508,545	451,538	1,284,297	1,395,037	97,466	78,188
Region	526,918	590,675	44,268	36,557	145,162	161,473	8,630	6,245
Urban Counties	392,601	440,526	28,641	24,237	107,339	119,206	5,408	3,920
Rural Counties	134,317	150,149	15,627	12,320	37,823	42,267	3,222	2,325
Calumet	33,952	40,219	1,654	1,409	9,326	11,268	386	288
Fond du Lac	87,203	93,630	6,666	5,471	23,929	25,661	1,348	900
Green Lake	18,351	18,936	1,830	1,317	5,187	5,316	382	204
Marquette	12,182	14,370	1,414	1,110	3,545	4,145	297	201
Menominee	3,820	4,489	1,860	1,293	923	1,060	381	263
Outagamie	137,496	157,981	8,528	7,417	37,454	42,489	1,715	1,215
Shawano	36,389	39,700	4,111	3,150	10,194	11,188	863	651
Waupaca	44,412	49,821	3,770	3,366	12,413	13,994	735	660
Waushara	19,163	22,833	2,642	2,084	5,561	6,564	564	346
Winnebago	133,950	148,696	11,793	9,940	36,630	39,788	1,959	1,517

Source: U. S. Census, 1990 and 2000.

Between 1989 and 1999, the number of total persons and families below the poverty level declined for each county in the region and for the state. On average, rural counties in the region experienced a 21.2% decline in the total number of persons below poverty, compared to urban counties, which experienced a 15.4% decline in the number of persons below poverty.

According to the 2000 Census, by 1999, the number of east central residents living below poverty had declined to 36,557. The region continued to have a smaller share of its population living below poverty, 6.2%, than the state, where 8.7% of the population lived below poverty. Although rural county residents were more likely to live below poverty than urban county residents, two-thirds of individuals below poverty lived in the three urban counties. Winnebago County had the largest number of residents below poverty for both time periods, while Marquette County had the lowest number of residents living below poverty. In 2000, poverty rates for rural counties ranged from 28.8% in Menominee County to 6.8% in Waupaca County, while poverty rates for urban counties ranged from 6.7% in Winnebago County to 3.5% in Calumet County.

Poverty status by age showed similar patterns, with the largest number of children and elderly living below poverty residing in urban counties, while rural counties had a larger share of children and elderly living below poverty (Table P-10.). The number of children living below poverty varied from 2,578 in Winnebago County to 294 in Marquette County. The number of elderly residents living below the poverty line varied from 1,253 in Winnebago County to 56 in Menominee County. Poverty rates for children in rural counties ranged from 39.9% in Menominee County to 8.1% in Waupaca County. Poverty rates for children in urban counties ranged from 7.1% in Winnebago County to 4.6% in Calumet County. Poverty rates for the elderly in rural counties ranged from 13.4% in Menominee County to 8.4% in Shawano County,

while poverty rates for the elderly in urban counties ranged from 8.2% in Fond du Lac County to 4.8% in Calumet County.

Table P–10. Poverty Status by Age, 1989 and 1999

Jurisdiction	Persons Under 18				Persons Age 65 and Older			
	Total Persons		Below Poverty		Total Persons		Below Poverty	
	1989	1999	1989	1999	1989	1999	1989	1999
Wisconsin	1,271,165	1,342,950	188,863	150,166	604,812	662,813	54,806	49,245
Region	143,829	154,008	15,656	11,329	69,385	77,216	6,269	5,806
Urban Counties	107,805	116,104	9,899	7,214	46,605	52,498	3,596	3,525
Rural Counties	36,024	37,904	5,757	4,115	22,780	24,718	2,673	2,281
Calumet	10,437	11,534	650	527	3,540	4,150	268	201
Fond du Lac	24,246	24,083	2,451	1,598	11,404	12,973	1,022	1,069
Green Lake	4,848	4,538	656	418	3,325	3,506	354	310
Marquette	2,947	3,244	461	294	2,444	2,790	299	276
Menominee	1,569	1,743	1,009	696	328	419	60	56
Outagamie	39,644	43,914	3,252	2,511	14,572	16,524	1,128	1,002
Shawano	9,744	10,123	1,455	1,079	6,147	6,418	791	540
Waupaca	12,183	12,889	1,227	1,044	6,921	7,288	729	637
Waushara	4,733	5,367	949	584	3,615	4,297	440	462
Winnebago	33,478	36,573	3,546	2,578	17,089	18,851	1,178	1,253

Source: U. S. Census, 1990 and 2000.

A greater number of children than elderly residents lived below poverty in every county in the region. Throughout the region, 11,329 children lived below poverty, compared to 5,806 persons age 65 and older. The ratio of children to elderly living below poverty was even greater at the state level. In 1999, 150,166 children in Wisconsin lived below poverty, compared to 49,245 persons age 65 and older.

Children in rural counties within the region were more likely to live below poverty than the elderly. In 1999, 10.9% of children under the age of eighteen lived below poverty in rural counties, compared to 9.2% of persons age 65 and older. In urban counties, the share of elderly persons living below poverty was slightly higher than that of children living below poverty. In urban counties, 6.2% of children lived below poverty, compared to 6.7% of individuals age 65 and older.

Population Forecasts

Population projections can provide extremely valuable information for community planning; but by nature, projections have limitations, which must be recognized. First, population projections are not predictions. Population projections are typically based on historical growth patterns and the composition of the current population base. Their reliability depends to a large extent on the continuation of those past growth trends. Second, population projections for small communities are especially difficult and subject to more error, as even minor changes in birth, death or migration rates can significantly impact community growth rates. Third, population growth is also difficult to predict in areas which are heavily depended on migration, as migration rates may vary considerably based on various “push” and “pull” factors both within and outside of the area.

If the region can continue to hold its comparative advantage in attracting migrants, its population could very well increase by almost 9% between 2000 and 2020. Urban counties are expected to grow faster than rural counties. Urban counties have a higher fertility rate than rural counties in the region, because they have a larger segment of their population in child bearing years. Urban counties also have greater job and educational opportunities and better access to rental housing. As a result, they are attracting individuals age 20 to 29 from both outside and within the region.

Rural counties have demonstrated a stronger ability to attract retirees than urban counties in the region. Their amenities and recreational opportunities, coupled with a larger number of seasonal units which can be converted to year round residents will likely result in continued in-migration of retirees not only from outside of the region, but also from urban counties within the region.

The in-migration of elderly residents coupled with an aging baby boom population could result in a doubling of the elderly population during the planning period. Given current age cohort structures and migration trends, it is possible that the region will see a widening age gap between urban and rural counties. Further information is needed before a more accurate assessment can be made of the likely future age structure of the region's population.

Table P-11 presents population estimates for the region through the year 2020. These population projections are based on a combination of average growth trends over the last four decades, anticipated growth patterns developed by the Wisconsin Department of Administration and anticipated impacts from the new Redgranite Correctional Facility.

Table P-11. Population Estimates, 2000 to 2020

	Census 1990	DOA est. 1995	Census 2000	ECWRPC 2005	ECWRPC 2010	ECWRPC 2015	ECWRPC 2020
Wisconsin	4,891,769	5,101,581	5,363,701	5,531,025	5,700,303	5,878,871	6,056,186
Region	542,712	570,832	609,438	641,979	650,636	657,542	661,640
Urban Counties	405,204	428,379	455,661	479,453	487,474	494,670	500,295
Rural Counties	137,508	142,453	153,777	162,527	163,162	162,872	161,345
Calumet	34,291	36,824	40,631	43,590	44,389	45,169	45,657
Fond du Lac	90,083	93,388	97,296	100,662	101,501	101,947	101,810
Green Lake	18,651	18,976	19,105	19,363	19,425	19,388	19,160
Marquette	12,321	12,994	14,555	15,598	15,765	15,767	15,534
Menominee	3,890	4,147	4,562	4,876	5,351	5,878	6,434
Outagamie	140,510	150,048	160,971	170,764	174,844	178,934	182,799
Shawano	37,157	37,815	40,664	42,301	42,085	41,729	41,208
Waupaca	46,104	48,428	51,825	54,495	54,586	54,297	53,614
Waushara	19,385	20,093	23,066	25,895	25,951	25,813	25,395
Winnebago	140,320	148,119	156,763	164,436	166,739	168,620	170,029

Source: U. S. Census, 1990, 2000; DOA, 1996; ECWRPC.

Based on estimated growth patterns and anticipated higher net migration rates, it is estimated that population in the region may increase by 8.6% between 2000 and 2020. It is assumed,

however, that the largest population gains will occur during the first decade, and that growth for the region will taper off during the second decade. As the population ages and the rate of natural increase declines, it is expected that most counties and communities will actually see their population peak prior to 2020.

On average, urban counties are anticipated to grow faster than rural counties. However, Menominee County is expected to experience the largest population increase, 41%. Estimated change in population for urban counties between 2000 and 2020 is expected to vary from 13.6% in Outagamie County to 4.6% in Fond du Lac County. Estimated change in population for the remaining rural counties is expected to vary from 10.1% in Waushara County to 0.29% in Green Lake County.

The unusually high rate of anticipated population growth for Menominee County is due to several factors. While the rate of natural increase is declining in Menominee County, it is still considerably higher than the rest of the region and state. The Menominee Casino has had a substantial impact on the county's economy, providing employment and income, which has allowed many Menominee to return to the reservation. Since Menominee County has a small population, small changes result in large percentage increases and decreases in population.

Marquette and Waushara Counties also have relatively high anticipated growth rates, 6.7% and 10.1%, respectively. Both counties experienced high migration rates in the 1990's due to elderly in-migration and recreational amenities. Those trends are anticipated to continue, albeit at a slower rate. Marquette County is also experiencing growth pressures from Dane County; and the new correctional facility in Redgranite will have a substantial impact on Waushara County population totals.

Projected Population by Age

Population growth is not expected to occur uniformly in all age groups due to fluctuations in fertility rates and differences in migration patterns by age. These variations in growth rates, coupled with the aging of the baby boom population, will likely cause a marked shift in the age distribution of the region and the state between 2000 and 2020. The largest shift in the population will occur in the population age 65 and older (Table P-12).

Preliminary state level population projections by age cohort indicate that the state will see a 12% to 13% increase in the preschool and working age cohorts, a 3% to 4% decrease in school age children and a 45% increase in the elderly population. As a result of these changes, by 2020, preschool age children are expected to comprise 6.4% of the state's population. School age children are expected to comprise 18.9% of Wisconsin's population. Working age individuals are expected to comprise 57.9% of the population, and the elderly is expected to comprise 16.8% of the state's population.

County level age cohort projections are not yet available. As a result, East Central has created rough age cohort estimates for the region based on past trends and current Census data. Based on those estimates, the number of preschool and school age children in the region is anticipated to decline between 2000 and 2020. However, variation in growth rates is expected to result in the number of preschool age children fluctuating throughout the projection period.

The working age population is expected to increase slightly. As with the state, the largest increase in population is expected to occur in the elderly population.

Table P-12. Preliminary Population by Age Cohort, 2000 to 2020

		Age Group				
		Under 5	5 - 19	20 - 64	65+	Total
Wisconsin	2000	342,340	1,189,753	3,129,029	702,553	5,363,675
	2005	348,590	1,156,144	3,309,752	716,539	5,531,025
	2010	361,288	1,119,932	3,457,767	761,316	5,700,303
	2015	377,410	1,109,915	3,524,224	867,322	5,878,871
	2020	385,130	1,147,322	3,508,774	1,014,960	6,056,186
Region	2000	38,243	136,448	353,236	82,280	610,207
	2005	38,324	134,014	379,449	90,191	641,979
	2010	38,033	127,369	388,902	96,332	650,636
	2015	38,322	121,668	389,831	107,721	657,542
	2020	37,870	119,454	379,106	125,210	661,640

Source: U. S. Census, 2000; WI DOA, 2002; ECWRPC.

The region's population is currently slightly older than the state's population. Census information also indicates that the some of the counties within the region are retirement destination counties. As a result, it is estimated that the number of persons in the region age 65 and older may double over the projection period. This increase in the elderly population could have a significant impact on changing demands in the housing market and service sector needs.

Household Forecasts

The Wisconsin Department of Administration published their last set of official projections in 1993 (WI, DOA, 1993). Unexpected variations in population and household growth rates have resulted in 2000 Census numbers that are, in many cases, substantially different than anticipated. A revised set of projections will not be available until 2003 or later. As a result, state level household projections are not yet available. For planning purposes, East Central has modified local area household projections to reflect current growth trends.

Based on anticipated growth patterns, the region's population is expected to grow by 9% between 2000 and 2020. The number of households in the region is expected to increase by 23% during the same time period. The relatively large anticipated increase in households is expected to result from a continued decrease in household size. Between 2000 and 2020, it is expected that average household size in the region will decrease from the current 2.52 persons per household to 2.22 persons per household (Table P-13).

The decline in household size is expected to be more pronounced in urban counties, which currently have higher average persons per households than most rural counties. One major factor contributing to the decrease in household size will be the aging of the echo-boom

generation. These children of the "baby-boomers" are expected to move out of their parent's home and form their own household during this time period.

Table P-13. Household Forecasts, 2000 to 2020

	2000		2005		2010		2015		2020	
	No. HH	Persons per HH	No. HH	Persons per HH	No. HH	Persons per HH	No. HH	Persons per HH	No. HH	Persons per HH
Region	233,576	2.52	253,140	2.45	264,341	2.38	275,916	2.30	287,358	2.22
Urban Counties	173,528	2.53	188,675	2.45	198,323	2.37	208,425	2.29	218,591	2.20
Rural Counties	60,048	2.50	64,465	2.45	66,018	2.40	67,491	2.34	68,767	2.27
Calumet	14,910	2.70	16,668	2.59	17,708	2.48	18,834	2.38	19,940	2.27
Fond du Lac	36,931	2.52	39,665	2.43	41,570	2.34	43,457	2.25	45,234	2.15
Green Lake	7,703	2.43	8,026	2.37	8,262	2.31	8,468	2.24	8,598	2.18
Marquette	5,986	2.41	6,578	2.35	6,819	2.29	6,998	2.23	7,078	2.17
Menominee	1,345	3.35	1,666	3.13	1,964	2.92	2,332	2.70	2,777	2.48
Outagamie	60,530	2.61	66,359	2.52	70,210	2.44	74,456	2.35	78,932	2.26
Shawano	15,815	2.51	16,677	2.48	16,794	2.44	16,857	2.41	16,851	2.38
Waupaca	19,863	2.51	21,093	2.49	21,491	2.44	21,961	2.37	22,515	2.28
Waushara	9,336	2.43	10,426	2.34	10,687	2.28	10,876	2.23	10,947	2.17
Winnebago	61,157	2.43	65,983	2.36	68,836	2.29	71,678	2.22	74,486	2.15

Source: U. S. Census, 2000; ECWRPC.

Between 2000 and 2020, the region is expected to gain over 53,000 new households. The majority of household growth is expected to occur in the urban counties. The number of households in urban counties is expected to increase by 26%, while the number of households in rural counties is expected to increase by 15%. At the county level, Menominee County, which has the smallest number of households and the largest household size, is expected to see its number of households double over the projection period. In the remaining counties, the increase in the number of households is expected to range from 34% in Calumet County to 7% in Shawano County.

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Issues and Opportunities: Key Findings

Current Trends

Population Size and Geographic Distribution

- The region's population grew by more than 240,000 people between 1950 and 2000 (an increase of 66%).
- The majority of that growth occurred in the four urban counties of the region.
- There has been a significant increase in the population of some rural communities in the recreation areas of western counties between 1990 and 2000.
- During the 1990's, every county in the region experienced net in migration.

Age

- The region's population is aging.
- The rural counties tended to have much older populations than the urban counties and the state between 1970 and 2000.
- Between 1990 and 2000, the region lost population as people in the 20-30 year old age range left the region. The largest losses occurred in rural areas.

Race and Hispanic Origin

- The region experienced a large increase in its non-white population from just fewer than 6,000 in 1970 to just under 33,000 in 2000.
- Nevertheless, whites comprised 94.6% of the region's population in 2000.
- Native Americans, 1.74%, comprise the largest nonwhite racial group: there are three reservations located in the region.
- The Hispanic-origin population, which may be of any race, comprised 1.9% of the region's population in 2000.

Household

- Household size within the region has been decreasing steadily since 1970.
- One and two person households have increased from 45% of all households in 1970 to 60% in 2000.
- All counties in the region experienced an increase in median household and median family income between 1989 and 1999. However, the gap between urban and rural counties for both measures increased.
- Between 1989 and 1990, both the number and proportion of persons living below the poverty threshold declined.

Future Trends

- The region's population is expected to increase throughout the planning period by approximately 9%.
- The number of households in the region is expected to rise by 23%.

- The average household size will continue to decrease.
- As the number of individuals in the prime child bearing years is relatively small, migration may very well play a larger role in population change at the regional level.
- Since minority groups have a larger share of their population in the prime child bearing years than the white population, it is likely that the region's population will become more diverse.
- Due to the aging of the baby boom generation and the region's ability to attract retirees, it is anticipated that the elderly population may double during the planning period. This could have a significant impact on housing and service sector needs.

Identification of Issues

- How do we plan for continued population growth, which will result in an increase in demand for services and land consumption in the region?
- How do we promote recognition of the relationship between the density of settlement and amount and location of land consumed for housing, commercial and industrial uses and the costs of services?
- How do we ensure the economic vitality of the agricultural and forestry sectors in the context of a decrease in the amount of open space?
- How do we address the conflicts that will arise given that the majority of future growth is expected to occur in the urban counties, which is where most of the region's more productive farmland is located, specifically, how will we address the impact on the farm economy?
- How do we ensure that an increase in urbanization has a positive impact on rural communities?
- Urban counties in the region currently have greater social and economic capital, more government support due to a larger tax base and greater access to nonprofit services than rural counties. Current trends show the educational and income gap between urban counties and rural counties widening. How do we plan to decrease this gap and promote a healthy, vibrant economy and quality of life for all residents throughout the region?

Exhibit P-1
Percent Population Change
1970 - 2000

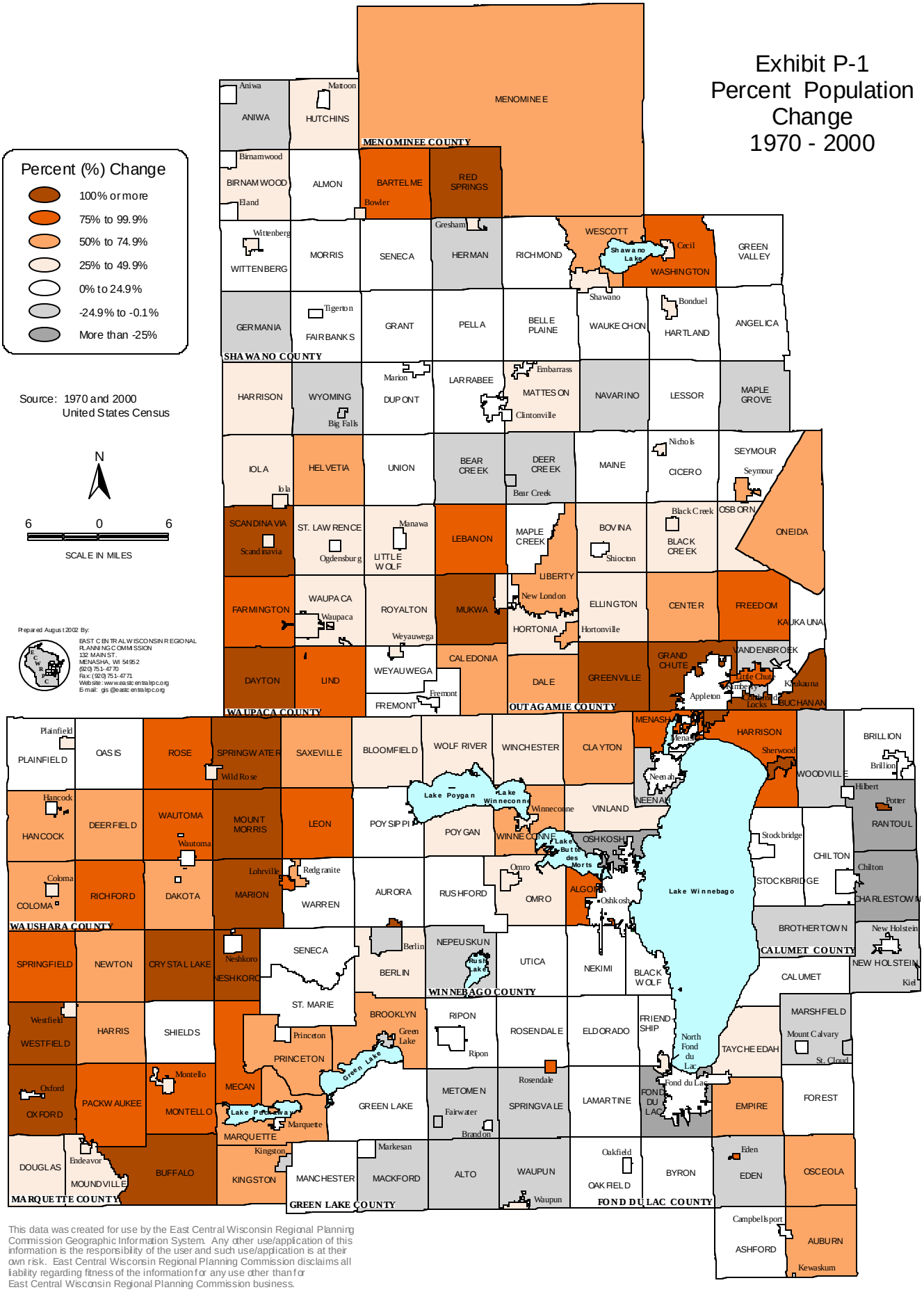

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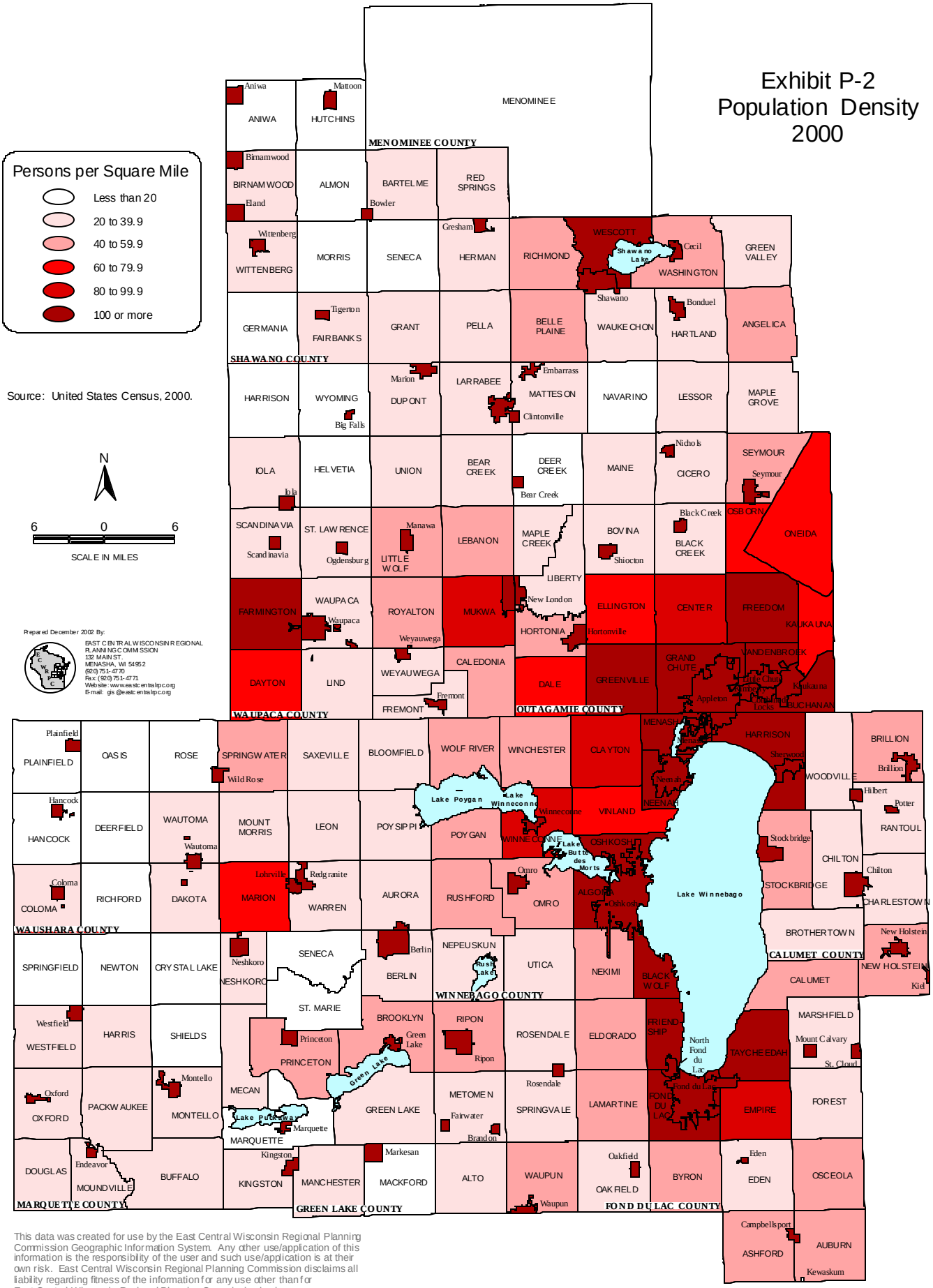
Exhibit P-2
Population Density 2000



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CHAPTER 3: ECONOMIC DEVELOPMENT

Introduction

Economic development is an area of planning that can address many issues ranging from enhancing a community's competitiveness, a means of establishing industrial policy, a way of encouraging sustainable development, and a tool to create jobs, increase wages and enhance worker training. All of these issues affect residents within the region and will be addressed directly or indirectly in this comprehensive planning effort.

This chapter begins with an overview of major policy initiatives at the federal, state and regional level that have shaped the direction of economic development planning within the region. Historic and current economic information for the region is provided. The data and related analysis addresses the region's labor force, employment, and income levels. Industrial parks and resources for brownfield redevelopment are also discussed briefly. The chapter concludes by summarizing current and future trends and by identifying the economic development issues that should be addressed in the regional comprehensive plan.

In terms of the 14 local comprehensive planning goals listed in Chapter 1, East Central takes the view that those listed below relate specifically to planning for economic development.

- 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 governmental and utility costs.
- Encouragement of coordination and cooperation among nearby units of government.
- Building of community identity by revitalizing main streets and enforcing design standards.
- Providing 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.
- Promoting the expansion or stabilization of the current economic base and the creation of a range of employment opportunities at the state, regional and local levels.

Policy Context

<u>Federal</u>

The major impetus for much of East Central's work in the field of economic development began in the early 1980s. In August of 1984, East Central was designated an Economic Development District (EDD) by the U.S. Department of Commerce, Economic Development Administration (EDA). This formalized relationship at the federal level was possible under the provisions of Title IV of the Public Works and Economic Development Act of 1965, as amended. The designation occurred with EDA's approval of East Central's Overall Economic Development Program (OEDP). Continued eligibility for the EDD, up until 1999, was contingent upon East Central submitting a comprehensive annual update to the original 1981 OEDP document. Since

the Economic Development Reform Act of 1998, the OEDP document has been replaced by the Comprehensive Economic Development Strategy (CEDS). The most recent CEDS, adopted and published by East Central in July, 2002, continues to provide an update of the economic statistics in the region. In addition, it examines needs, resources, and local projects designed to meet stated goals and strategies within the document.

EDA related economic development initiatives are guided by the agency's mission, which is to generate and retain jobs, stimulate industrial, technological, and commercial growth in economically distressed areas. To fulfill this mission, EDA works in partnership with state and local government, regional economic development districts, non-profits, and Indian tribes to help distressed communities identify and address problems associated with long-term economic distress, sudden and severe economic dislocations, changing trade patterns and the depletion of natural resources.

State

The Wisconsin Department of Commerce offers a broad range of financial assistance programs to help communities undertake economic development. These programs include assistance with public facilities for economic development, community-based economic development, and blight elimination/brownfield redevelopment. In many cases these programs, like the EDA programs, target communities with higher levels of unemployment and low per capita incomes. A list of state financial assistance programs is provided in Appendix A:1.

In addition to these standing state programs, there is a strategic planning initiative, introduced during Governor McCallum's tenure, called "Build Wisconsin". Build Wisconsin advocates regional approaches to encourage the development of industries with high growth potential. The program operates with the recognition that income levels within Wisconsin are not reaching national levels, and that the state can improve its economic condition by diversifying industries while also building on existing strengths like manufacturing, agriculture and tourism.

Regional

The regional approach emphasis is based on the observation that industries tend to grow in clusters. Typically, industrial clusters develop in regions, rather than in one location, and often provide a competitive advantage over regions without clusters. A specific regional cluster program is the Technology Zone program, introduced in the 2001-2003 governor's budget. It is designed to help generate technology development in Wisconsin communities. The program provides a tax credit incentive to businesses certified by the Wisconsin Department of Commerce. The Technology Zone program focuses primarily on businesses engaged in research, development, or manufacture of advanced products. However, zones can recommend certification of businesses that are identified as part of a cluster and knowledge-based business that utilize advanced technology production processes in more traditional manufacturing operations. Fifteen counties, including seven of the region's counties, and one Indian Nation, the Menominee, joined together to apply and receive technology zone status, forming the Northeast Wisconsin Regional Economic Partnership (NEWREP).

East Central has published many planning documents over the years that contain policies for economic development. *East Central Policy (2003)* compiles the current policies, for all policy

areas, into one document. Generally, regional economic development policies are reflective of federal and state initiatives discussed previously and, in short, include the following: expanding employment and income opportunities, developing and maintaining public facilities/infrastructure, judicious use of natural resources and developing and maintaining a skilled workforce.

Intergovernmental Cooperation

East Central has served as a facilitator for joint planning efforts throughout the region and continues to look for opportunities to serve in that capacity. The NEWREP Technology Zone is one example of a cooperative effort both in the region and with adjoining communities in northeast Wisconsin. The members of NEWREP intend to expand the program from its impetus, the technology zone, to a regional economic development entity to contribute to the economic growth of this area in Wisconsin. Another example of intergovernmental cooperation is the Fox Cities Economic Development Partnership, which is a business attraction organization comprised of the municipalities, organizations and utilities interested in the economic growth of the Fox Cities area. Its mission, along with that of the Fox Cities Chamber of Commerce and Industry, is to foster the Fox Cities' economic development by creating and implementing marketing programs that promote the area as an attractive location for business and industry.

Background Information

This section examines the economic base of the region by evaluating labor force information, industry specific employment, employment forecasts, and wages and income information. For most of the data included in this section, the years 1990 and 2000 serve as baseline years and subsequent data is the most recent available depending upon the source.

Labor Force

Labor force information is an indicator of regional economic performance[1]. It shows how quickly the labor force is growing, the extent to which people are able to find jobs and an idea of people unable, or not wanting, to find work. Table Series ED-1 shows labor force data by county for persons 16 and older for the years 1990, 2000, 2001, and 2002 (Appendix A:2)[2]

In 1990, the region's labor force totaled 306,678. During this time the averaged unemployment rate was 5.8% for the region. This rate reflects some of the higher unemployment rates that occurred in rural counties during 1990. Outagamie and Winnebago counties' rates were both lower than the state's 4.4% rate, but all of the other counties in the region were above the state's rate.

By 2000 the region's labor force grew by 15% to 354,107. Unemployment rates for the region and all individual counties were lower than 1990 rates. The region's averaged rate was 4.3%. County unemployment rates included a low of 2.5% in Winnebago County and 3.6% and 4.6%

[1] The labor force is composed of those with a job, the employed, and those without a job and actively looking for one, the unemployed. Persons without a job and those not looking for one are not considered in the labor force.

[2] Table Series ED-1 is also available in interactive format (microsoft excel) at the East Central Data Center at www.eastcentralrpc.org/data_center/economic.htm.

in Waupaca, and Waushara counties respectively. The state's 2000 averaged unemployment rate was 3.5%.

Average annual labor force figures for the region reached 362,827 in 2001 an increase of 9,405 workers from 2000. The state also experienced an increase in its labor force during this time frame. The regional increase was 2.7%, while the state's was slightly less at 1.9%.

By September 2002, the labor force increased to 370,903, a 2.2% increase from the 2001 figure. Examination of September 2002 unemployment rates for the state, the region and in each county, indicates that rates in September were lower than they were for the averaged rates in 2001. The gradual decrease in unemployment rates show that the state and regional economy is in a rebounding process from the national economic downturn that began in the second quarter of 2001. In terms of the speed of this recovery, the Wisconsin Economic Outlook Report, August, 2002, published by the Wisconsin Department of Revenue, suggests that "lingering uncertainties associated with profitability and the slow recovery of demand" have demonstrated that this recovery is a more modest one than anticipated. Unemployment levels may remain near these current 2002 levels for several months as labor markets slowly add jobs. Looking at industry specific employment will show where modest growth in the region has occurred.

Employment by Industry

Non-Farm Employment

The Wisconsin Department of Workforce Development provides current industry specific employment levels in its Non-Farm Wage and Salary Employment information. These figures are available for individual counties within the region with the exception of the region's urban counties. Calumet, Outagamie, and Winnebago counties are grouped together into the Appleton-Oshkosh-Neenah Metropolitan Statistical Area (MSA).

The region's total non-farm employment figures in September of 2002 were 311,724. This is an increase of 3,184 employees, or 1%, from the averaged total non-farm employment in 2001. Table Series ED-2 provides Non-Farm Wage and Salary Employment information for 2001 and monthly figures for 2002 by county (Appendix A:3)[3]. These data provide the basis for the following review of non-farm employment sectors in the region.

The goods producing industrial sectors, manufacturing, and construction/mining, provide the first and fifth largest employment sectors, respectively, in the region. Manufacturing, in particular, paper and allied products, non-electrical machinery, food and kindred products, printing and publishing, and electronics machinery manufacturing provide the largest share of employment.

September, 2002 data indicates that manufacturing accounts for approximately 25.4% of total non-farm employment. This share of manufacturing employment is down from the 2001 regional employment share by 1.6%. Manufacturing employment levels have fluctuated somewhat but have primarily suffered losses during 2002. Losses occurred between the

[3] Table Series ED-2 is also available in interactive format (microsoft excel) at the East Central Data Center at www.eastcentralrpc.org/data_center/economic.htm.

months of January and February, March through May, and from June through September. The total number of manufacturing sector employees in September of 2002 was 79,109. This figure for 2001 was 83,234 reflecting the losses sustained in this sector during 2002.

Information from the Wisconsin Department of Workforce Development plant closing database shows that through November of 2002, the Appleton-Oshkosh-Neenah MSA has experienced five manufacturing plant closings and four rounds of layoffs from a total of nine different companies. Five of the plant closings and/or lay-offs occurred in paper and printing related companies. The other reductions occurred at an electronics equipment manufacturer, rock crushing, compressors manufacturing company, and woodworking machine manufacturing. Waupaca County experienced one plant closing in the field of rock crushing. Waushara County had one plant closing of an exhaust stack systems manufacturer and Calumet County had farm machinery and equipment manufacturer lay-offs.

The August, 2002 Wisconsin Economic Outlook Report states that the forecast for manufacturing employment is continued weakness. It further states that factory jobs will continue to decline, but perhaps at a slower rate. The report does suggest that manufacturing employment will likely begin to grow again in 2004.

Evaluation of the other component of the goods producing sector, the construction/mining industries indicates that this sector ranks fifth in total employment for the region. This sector, unlike manufacturing, has grown from employing 17,958 in 2001 to 20,347 in September, 2002. This is an increase of 2,389 workers or 13.3%. Despite some cut backs in non-residential construction, this industrial sector has seen growth during 2002. However, construction employment will contract during the winter months of the year.

The retail and wholesale trade industries, transportation, communications and public utilities sectors, finance, insurance and real estate, service and government sectors all compose the service producing industries in the region. The service industry sector is the second largest employer in the region.

The service industry sector has grown since the 2001 averaged information was released. In 2001 service sector employment was 72,032. By September, 2002 employment reached 75,366, an increase of 3,334 workers, or a 4.6% increase. The service sector employment share in the region increased from 23.3% to 24.2%, a 1.2% increase. Monthly figures for the service sector show only one small dip in employment between June and July of 2002, otherwise, steady increases occurred in the total regional figures each month.

Again reviewing plant closing information, there was only one service related business that reported lay-offs through September of 2002 within the region. A computer/programming service center in Appleton laid off employees in April. In June of 2001, a packaging-business services establishment in Oshkosh closed.

The retail trade sector is the third largest non-farm employment sector in the region. In 2001, it accounted for 17.8% of total employment. Retail trade employment was reduced by one-tenth of a percent to 17.7% of total employment in September, 2002. Retail employment losses during 2002 occurred between June and July and again between August and September. The plant closing information confirms a retail establishment closing in Fond du Lac County. In

2001 there were three closings, two of which were restaurants, one in Appleton and one in Oshkosh, and one department store closing in Appleton.

The August, 2002 Wisconsin Economic Outlook Report states that employment growth prospects are best for broad-based service industries. Service industry jobs are expected to grow by 1.9% for 2002, which has already been exceeded in the region and by 2.6% in 2003. For both trade industries, retail and wholesale, growth will remain weak projected at 0.2% and 0.3%, respectively, for 2002. It is anticipated that retail jobs will remain weak into 2003.

The remaining service producing industrial sectors have had stable levels of employment. Government employment decreases slightly by 0.2%. Local, state, and federal government employs approximately 13.1% of non-farm employees in the region. The transportation, communications, and public utilities sector and the finance, insurance, and real estate sector are the smallest non-farm employment sectors. The transportation, communications, and public utilities employment increased 4.4%, employing 14,408 workers in September, 2002. The financial, insurance, and real estate sector employed an additional 384 workers from 2001, a 3.0% increase, employing 4.2% of all workers in the region.

The financial, insurance, and real estate sector was identified by the Wisconsin Department of Revenue as a good prospect for growth citing that finance jobs will grow by 1.6%, a figure that the region has already surpassed, and will continue to grow 2.2% in 2003. The transportation, communications, and public utilities sector is expected to recover from 2002 declines and grow 2.5% in 2003.

County Summary

Turning the focus to the individual counties, the following summary tracks private, non-farm employment activity between 1990 and 2001. Generally, for most of the counties manufacturing is the largest employer followed by services and retail trade; therefore, the highlights will mention significant changes among industries and not restate the top three employers in each in county:

Calumet: Within the largest employment sector, manufacturing, the highest number of employees is concentrated in the machinery, except electrical industries. There were employment gains of 11% between 1990 and 2000, but there was a 17% reduction by 2001. Another loss occurred in the printing, publishing, and allied industries between 1990 and 2000. Employment gains occurred in the transportation, communications, and public utilities sector, 70%, and in wholesale trade, 44%, between 1990 and 2000.

Fond du Lac: The greatest share of employees is concentrated in the machinery, except electrical industries. There were employment gains of 30% between 1990 and 2000, but there was a 9% reduction by 2001. There were gains of 80% in the stone, clay, glass, and concrete industry groups between 1990 and 2000. Services experienced the largest gain between 1990 and 2000 and the transportation, communications, and public utilities sector experienced the greatest employment share gains between 2000 and 2001

Green Lake: The greatest share of employees is employed in the primary metal industries. This industry experienced setbacks of 19% between 1990 and 2000 and 8% between 2000 and

2001. Service sector employment increased 59% and the financial, insurance, and real estate sector experienced increases of 20% by 2000 and 25% by 2001.

Marquette: The greatest share of employees is concentrated in the machinery, except electrical industries. Lumber and wood products except furniture experienced increases of 86% and then experienced losses of 19% between 2000 and 2001. Retail trade and services increased 39% and 36%, respectively.

Menominee: In 1990 and 2000 the service sector is the largest employer. Between 1990 and 2000 employment more than doubled, however, by 2001 significant losses occurred. In 2000, 73 people were employed in the finance, insurance and real estate industry group.

Outagamie: The greatest share of employees is concentrated in the machinery, except electrical industries in 1990, 2000 and 2001. This industry experienced slight losses of 1% between 1990 and 2000 and 2% by 2001. Fabricated metal products and electrical and electronic machinery and equipment employ a small share of workers, but were the only two manufacturing industries that experienced employment growth through 2001. Through 2001 the retail trade sector grew by 41%, the services sector by 47% and the transportation, communications, and public utilities sector grew 39%.

Shawano: The greatest share of employees is concentrated in the lumber and wood products, except furniture industry, which experienced setbacks between 1990 and 2000. Food and kindred products expanded through 2000 and then experienced a 7% employment decline by 2001. Services, retail trade, and transportation, communications, and public utilities all experienced growth between 1990 and 2000 and losses between 2000 and 2001.

Waupaca: Printing, publishing, and allied industries experienced significant growth of 62% through 2001. Fabricated metal products also experienced growth through 2001. The transportation, communications, and public utilities and services industries both grew through 2001.

Waushara: Food and kindred products experienced growth through 2001. The lumber and wood products, except furniture industry groups experienced losses between 2000 and 2001. The transportation, communications, and public utilities, financial, insurance, and real estate, retail trade, and services experienced growth through 2001.

Winnebago: The greatest share of employees is concentrated in the paper and allied products, which experienced 21% growth through 2001. Printing, publishing, and allied, electrical and electronic machine equipment, and rubber and miscellaneous plastic products all experienced growth through 2001. The financial, insurance, and real estate sector experienced a 17% growth rate through 2001.

Agriculture and Agriculture-Related Industry Employment

The Wisconsin Department of Workforce Development provides employment and wages by industry at a more detailed level most currently for the year 2000. This information will allow for a review of agriculture and agricultural-related employment and establishments in each

county of the region[4]. Table Series ED-3 provides Annual Employment for Agriculture Industries for the years 1990 and 2000 (Appendix A:4)[5]. These data, however, are unavailable in some cases. If there is less than three establishments or if one establishment represents 80 percent or more of the employment for an industry or county than the data are not available.

Agriculture and agriculture-related industries employ a small share of workers in the region[6]. These industries provided less than 1% of all employment in the region in 1990 and in 2000 that figure rose to 1.4%. Employment in the mining industry is the only sector that employs fewer people in the East Central region.

In 1990, the landscape and horticultural services industry employed the highest number of employees in agriculture-related industries. There were 78 establishments employing an average of 351 people. As mentioned previously, the suppression of data will not allow for an exact number of employees or establishments so the numbers referenced in the text and in the Table Series ED-3 is a calculation of available data only. The second largest agriculture-related industry employer was veterinary services in 1990. There were 40 establishments that employed an average of 292 people.

In review of actual crop production, vegetable and melon crops provided the third highest share of agriculture employment in 1990 with 20 establishments and an average of 333 employees. There were also field crop establishments, cash grains, and fruit and tree nut production in the region. Livestock operations, including dairy farms, and poultry and egg establishments were also present in the region.

By 2000, the biggest increase in the number of establishment and employees occurred in the landscape and horticultural services and dairy farms. Landscape and horticultural services increased to approximately 56 establishments employing an average of 509 workers in the region. The number of dairy farms increased from 5 in 1990 to 70 in 2000, employing an average of 603.

Overall, in the region, seven agriculture and agriculture-related industries experienced increases in the number of establishments and employees between 1990 and 2000. Only two industries, vegetable and melon crop production and general farms, primarily crop, experienced decreases. Nine industries continued to have unavailable data during this time. Agriculture and agricultural services are not diminishing within the region, but rather the numbers indicate that in some cases these industries are experiencing small levels of growth. The increase in dairy farming most likely is taking place in the form of “mega-farms” with hundreds of animal units located at one site.

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[4] An establishment is defined as a single, physical location at which economic activity occurs.

[5] Table Series ED-3 is also available in interactive format (microsoft excel) at the East Central Data Center at www.eastcentralrpc.org/data_center/economic.htm.

[6] These include: cash grains, field crops except cash grains, vegetables and melons, fruits and tree nuts, horticultural specialties, general farms primarily crop, livestock except dairy and poultry, dairy farms, poultry and eggs, animal specialties, soil preparation services, crop services, veterinary services, animal services except veterinary, farm labor and management services, landscape/horticultural services, timber tracts, and hunting, trapping, and game propagation.

County Summary

Turning the focus to the individual counties, the following summary tracks agriculture and agriculture-related industry employment between 1990 and 2000:

Calumet: Between 1990 and 2000 the number of dairy farms increased from 5 to 13. There were also increases in veterinary services and landscape and horticultural services. Fruit and tree nut production and soil preparation services were not present in 1990 but were in 2000.

Fond du Lac: Animal specialties, general farms, primarily animal, soil preparation services, timber tracts and hunting trapping, and game preparation industries were all agricultural industries added to the county after 1990. Dairy farms increased in number to 22 employing an average of 180 employees in 2000. Vegetable and melon crop production and horticultural specialty establishments were present in 1990, but not in 2000.

Green Lake: Dairy farms increased in the number of establishments to 6, employing an average of 12 employees in 2000. There was also an increase in landscape and horticultural services. There was a loss of horticultural specialties and livestock, except dairy and poultry establishments between 1990 and 2000.

Marquette: There was an increase in veterinary services during this time. The county also gained landscape and horticultural services and four timber tract establishments. There was a loss of vegetable and melon crop production, horticultural specialties and general farms, primarily animals between 1990 and 2000.

Menominee: The county gained landscape and horticultural services during this time.

Outagamie: There were no dairy farms reported in 1990, however, by 2000 there were 18 establishments employing an average of 165 workers. Landscape and horticultural services, animal services and veterinary services also increased in number. There was a loss of timber tract establishments between 1990 and 2000.

Shawano: There were several new industries present in 2000 that were not in 1990 including cash grains, vegetable and melon production, livestock, except poultry and dairy, dairy farms, and crop services. There was a loss of animal specialties between 1990 and 2000.

Waupaca: The county gained livestock production, except dairy and poultry, and animal services, except veterinary. Waupaca also experienced increases in veterinary services and landscape and horticultural services during this time. There was a loss of vegetable and melon production specialties between 1990 and 2000.

Waushara: The county gained livestock production, except dairy and poultry, animal specialties animal services, except veterinary, and landscape and horticultural services. There were also increases in field crops, vegetable and melon production, landscape and horticultural services, and timber tracts. There was a loss of cash grains and poultry and egg production between 1990 and 2000.

Winnebago: Cash grain crops and vegetable and melon production were new to the county by 2000. The county also experienced an increase in dairy farms, up to 11 establishments employing an average of 110 employees. Veterinary services, animal services, and landscape and horticultural services also increased in the number of establishments. There was a loss of poultry and egg producers between 1990 and 2000.

Employment Forecasts for Wisconsin Metropolitan Statistical Areas

The Wisconsin Department of Revenue annually develops projections of employment for Wisconsin MSAs. The most recent publication of these projections is included in the Metropolitan Area Outlook Report, August 30, 2002. The Wisconsin Department of Revenue has been using the national forecast developed by Global Insight (formerly DRI-WEFA) to drive the Wisconsin forecast, which is prepared by the Wisconsin Division of Research and Policy. The national forecast assumes there are no additional negative developments, such as war in the Middle East that could lead to another and possibly deeper economic contraction.

The report states that all MSAs in Wisconsin are expected to see an increase in employment in 2006. Employment forecasts for 2001-2006, however, are expected to be lower in most MSAs when compared to growth over the last five years. The impact of the 2001 economic downturn and the weaker labor market are expected to lower future employment growth compared to the most recent growth in all MSAs. Metropolitan areas that depend heavily on manufacturing have been more affected by the current economic employment slowdown. While a slowdown has occurred in the Appleton-Neenah-Oshkosh MSA because of its manufacturing employment, other areas of the state, such as Milwaukee and Racine, have suffered greater setbacks.

The Metropolitan Area Outlook Report states that manufacturing employment especially employment in primary metals and industrial machinery, is expected to decline in 2002 and 2003. For the time period of 2001 to 2006, it is anticipated a 5.1% employment growth will occur. The strongest growth is expected in the finance, insurance, and real estate sector and in the services sector.

Table ED-4 presents actual and forecasted growth for the MSAs throughout the state as completed by the Wisconsin Department of Revenue[7]. The actual employment growth figures indicate that the Appleton-Neenah-Oshkosh MSA has grown from 189,100 in 1996 to 206,500 in 2000, a 9.2% increase. This growth is expected to continue, albeit at a slower pace for the 2001 to 2006 time period. The projections show a 5.1% employment growth increase resulting in 217,100 employees in the Appleton-Neenah-Oshkosh MSA. This growth rate exceeds the state total projected growth rate of 4.2% for the 2001 to 2006 time period.

The Wisconsin Department of Revenue forecasts include a recovery in the manufacturing sector which is good news for the Appleton-Neenah-Oshkosh MSA and other areas within the region as manufacturing industries are also located in surrounding counties. Additional good news is the expectation that the printing and publishing industries will recover after sizable losses in 2001 and 2002. In terms of non-manufacturing sectors, both the finance and services sectors have experienced very little setback during this economic downturn and are expected to continue growing in the short and longer term of the 2002 to 2006 time frame.

[7] Table Series ED-4 is also available in interactive format (microsoft excel) at the East Central Data Center at www.eastcentralrpc.org/data_center/economic.htm.

Table Series ED-4: Wisconsin Metropolitan Statistical Areas Employment Growth, 1996-2001 and Forecast, 2002-2006.
(in thousands)

MSAs	Actual			Forecast	
	1996	2001	% Change 1996-2001	2006	% Change 2001-2006
Appleton-Neenah-Oshkosh	189.1	206.5	9.2	217.1	5.1
Eau Claire	68.9	76.4	11	80.1	4.8
Green Bay	130.9	146.8	12.1	158.7	8.2
Janesville-Beloit	67.4	69.5	3	73	5
Kenosha	49.1	54.7	11.5	57.3	4.7
La Crosse	67.2	72.8	8.4	78.7	8.1
Madison	261.4	294.7	12.7	311.9	5.8
Milwaukee-Waukesha	812.9	860.9	5.9	862.7	0.2
Racine	79.4	81.1	2.2	84.1	3.7
Sheboygan	57.7	63	9.2	64.5	2.4
Wausau	61.8	69.7	12.8	74.8	7.2
Balance of State	759.6	836.2	10.1	890	6.4
State Total*	2600.6	2827.3	8.7	2947.4	4.2

Source: Wisconsin Department of Revenue, Division of Research and Policy, Metropolitan Area Outlook Report, August 30, 2002.

*Sum of MSAs and the Balance of State exceed the state total because La Crosse MSA includes Houston County, Minnesota.

Wages and Income

Average Weekly Wages

Reviewing wage information allows for some insight into industry specific rates of pay at the county and state level. Average weekly wage information is presented in Table Series ED-5 for all industries by county and for the state (A:5)[8]. According to wage information provided by the Wisconsin's Department of Workforce Development, all counties within the district experienced increases in their average weekly wages for all industries between 1990 and 2000. Increases ranged from a high in Shawano County of 52.1% and 51.5% in Winnebago County to 38% in Calumet County and 42.3% in Outagamie County. The state's average weekly wage grew by 48.1% during this time.

In 2001, Winnebago County's average weekly wage of $689.58 is the highest in the region, also exceeding the state's average weekly wage. Outagamie and Fond du Lac Counties wages were also higher than the state's in 2001. Waushara County, one of the lesser populated counties in the region, has the lowest average weekly wage of $391.80.

The greatest concentration of higher paying industries falls within the manufacturing sector in the production of durable and non-durable products. In the urban counties of Winnebago and

[8] Table Series ED-5 is also available in interactive format (microsoft excel) at the East Central Data Center at www.eastcentralrpc.org/data_center/economic.htm.

Outagamie, this is particularly true in the manufacturing of paper and allied products and chemical and allied products. Average weekly wages in these industries and counties are among the highest in the region and range from $1,290.86 in paper and allied products in Winnebago County to $824.62 in chemical and allied products in Outagamie County. Machinery, except electrical is also a high paying manufacturing industry and is present in several counties: Calumet, Fond du Lac, Green Lake, Marquette, Outagamie, Shawano, Waupaca, and Winnebago. Generally, because there are more manufacturing companies in the urbanized area of the region the wages are reflective of the higher pay associated with these jobs. This is true for Winnebago and Outagamie Counties and, to a lesser extent, Calumet and Fond du Lac Counties. This is due, in part, to areas of more intense industrialization and a higher demand for a variety of needed skill jobs.

Non-manufacturing sectors that tend to pay wages at a higher level, comparatively, are the finance, insurance and real estate sector, wholesale trade, and the government sector. Lower paying industries include the retail trade sector, agriculture, forestry and fishing, and services sector. These lower paying industries, specifically retail trade wages, range from a $298.44 average weekly wage in Outagamie County to $193.11 in Marquette County. In both of these examples the retail wages were the lowest in each of these counties which is also the case for retail wages in every county of the region. A Wisconsin Department of Revenue study that evaluated industry wage rates as a component of per capita income will shed some light on the issue of wages. It is discussed in further detail in the next section.

Personal Per Capita

Personal income per capita[9] is widely used as an indicator of economic well being of residents in an area. Changes in these figures provide evidence that regions and states are becoming more or less wealthy as compared to a region or national benchmark. The usefulness of per capita income as a measure for formulating policy proposals has been recognized nationally and in Wisconsin. Historically per capita income levels in Wisconsin have been lower than national figures. Table Series ED-6 presented below illustrates the state, region, and county per capita incomes and where these income levels rate as a percentage of US per capita income in 1990, 1999, and 2000[10].

Regional income figures increased each year, but still lag behind state and national income levels. The region's averaged per capita income grew from $15,592 to $23,522 between 1990 and 2000, a 50.9% increase, compared to the state's 54.8% increase to $28,100 during this time period.

Within the region, Outagamie County residents had the highest per capita personal income in 2000, $29,541 followed by Winnebago County with $27,819 and Fond du Lac County, with $27,443. Menominee County residents had the lowest, with $15,782 followed by Marquette County, with $18,284, and Waushara County, with $18,986.

[9] Per capita income is calculated by dividing the total income of a particular group by the total population of that particular group, including all men, women and children in the group.
[10] Table Series ED-6 is also available in interactive format (microsoft excel) at the East Central Data Center at www.eastcentralrpc.org/data_center/economic.htm.

Between 1990 and 2000, Waupaca County experienced the largest increase in per capita income, a 62.1% gain. Outagamie County showed the second largest increase of 61.1%, followed by Menominee County, a 59.1% increase. Between 1999 and 2000, the biggest increases occurred in Menominee, a 7.5% increase and Outagamie, a 7.2% increase. Shawano County experienced the smallest increase in per capita income between 1999 and 2000, 2.6%.

Table Series ED-6: East Central Wisconsin Per Capita Personal Income
and Percent of US Average by State, Region and County, 1990, 1999, 2000.

	1990	1999	2000	% Change 1990-2000	% Change 1999-2000
Wisconsin					
Per Capita Income (dollars)	18,152	26,869	28,100	54.80%	4.58%
Per Capita Income Percent of US Average	92.7%	96.5%	95.40%	2.91%	-1.14%
EC District					
Per Capita Income (dollars) Average	15,592	22,524	23,522	50.86%	4.43%
Per Capita Income Percent of US Average	79.7%	80.6%	79.8%	0.21%	-0.93%
Calumet					
Per Capita Income (dollars)	16,518	24,569	25,511	54.44%	3.83%
Per Capita Income Percent of US Average	84.4%	89.8%	86.6%	2.61%	-3.56%
Fond du Lac					
Per Capita Income (dollars)	18,234	26,445	27,443	50.50%	3.77%
Per Capita Income Percent of US Average	93.2%	95.0%	93.1%	-0.11%	-2.00%
Green Lake					
Per Capita Income (dollars)	16,792	24,924	25,933	54.44%	4.05%
Per Capita Income Percent of US Average	85.7%	86.2%	88.0%	2.68%	2.09%
Marquette					
Per Capita Income (dollars)	14,279	17,590	18,284	28.05%	3.95%
Per Capita Income Percent of US Average	73.0%	63.6%	62.0%	-15.07%	-2.52%
Menominee					
Per Capita Income (dollars)	9,920	14,688	15,782	59.09%	7.45%
Per Capita Income Percent of US Average	50.5%	48.3%	53.6%	6.14%	10.97%
Outagamie					
Per Capita Income (dollars)	18,335	27,558	29,541	61.12%	7.20%
Per Capita Income Percent of US Average	93.6%	98.4%	100.2%	7.05%	1.83%
Shawano					
Per Capita Income (dollars)	13,266	19,840	20,354	53.43%	2.59%
Per Capita Income Percent of US Average	67.8%	72.2%	69.1%	1.92%	-4.29%
Waupaca					
Per Capita Income (dollars)	15,776	24,524	25,568	62.07%	4.26%
Per Capita Income Percent of US Average	80.6%	87.4%	86.8%	7.69%	-0.69%
Waushara					
Per Capita Income (dollars)	14,295	18,353	18,986	32.82%	3.45%
Per Capita Income Percent of US Average	73.1%	67.6%	64.4%	-11.90%	-4.73%
Winnebago					
Per Capita Income (dollars)	18,507	26,749	27,819	50.32%	4.00%
Per Capita Income Percent of US Average	94.6%	97.2%	94.4%	-0.21%	-2.88%

Source: Wisconsin Department of Revenue, Economic Outlook Appendices, August, 2002.

How these income levels compare to national figures is relevant to the state's, and region's ability to attract the necessary labor pool to fill jobs and to provide a quality of life that will encourage residents of working-age to remain in Wisconsin. The only county that exceeds the per capita income level for the nation is Outagamie. In 2000, the county's per capita income was 100.2% of the national per capita income figure, which was $29,469. An objective of the Build Wisconsin initiative is to raise per capita income levels for the state in order to improve the economic well being of residents. The regional figures indicate that while progress is being made year to year, in many cases the per capita income as a percent of the national average is declining. For example, in Winnebago County the 1999 per capita income figure was 97.2% of the national per capita income which was $27,519 in 2000, this decreased to 94.4% of the national figure. For Winnebago and for the counties of Calumet, Fond du Lac, Marquette, Shawano, Waupaca, and Waushara the 2000 percent of US per capita income figure decreased showing that income increases in these counties are not keeping up with national increases.

An in-depth analysis of per capita income trends in Wisconsin was completed by the Wisconsin Department of Revenue and compiled into four special reports issued with the Wisconsin Economic Outlook Reports in February, May, and December of 2001 and February of 2002. The study analyzed long term trends of Wisconsin's personal per capita income and compares it to national and regional trends. The results of this four part study are summarized below to provide a general understanding of the income issues raised in our regional planning process.

The first part of the study reviewed historical income information and found that between 1929 and 1999, with the exception of 1950-1953 and 1978-1982, Wisconsin per capita income has remained below the U.S. average. This shows that lower per capita income is not a newly discovered problem in our region or the state. The second part of the study looked at the components of income and found that there has been a cyclical pattern in per capita wage and salary income and a downward trend in proprietors' income per capita[11]. The analysis further revealed that one major reason for a lower per capita income relative to the U.S. has been a decline in the relative average wage per job in Wisconsin. This decline has been mitigated somewhat by an increased ratio of jobs per person, meaning that people are taking on additional work, and there are more people entering the labor force.

The third part of the study found that declining wages is not limited to a few particular industries but rather has occurred in all major industry groups. The report identified that the decline was most dramatic after 1978. The analysis focused on two base industries in Wisconsin: manufacturing and the financial, insurance, and real estate industry groups. In manufacturing, the decline in relative wages is occurring in the electrical machinery, instruments, and industrial machinery industries. At the same time there has been faster growth in lower-paying industries such as lumber, furniture, printing, and plastics, which also contributes to declines in the relative wages. A second factor relating to the manufacturing industry is the higher number of production workers which receive, on average, lower wages than supervisory workers. Additionally, the supervisory workers receive below national average wages. A low concentration of corporate headquarters in Wisconsin can possibly explain the less than national average supervisory wage rates.

[11] Proprietor income is the income of sole proprietorships, partnerships, and tax-exempt cooperatives. This type of income, for example, may represent a payment for the labor of business owners, a return to capital invested by the business owner or a combination of the two.

In reviewing the financial, insurance, and real estate industry groups it was found that these wages have declined significantly in Wisconsin. However, when compared to other states this decline was not atypical but rather common among these other states with the exception of a select few with very large metropolitan areas, such as New York, where there is a high concentration of depository institutions and security brokers.

The fourth and final part of the study looked at the differences between metropolitan and non-metropolitan per capita income to see if there is a distinction between them. Many variables were analyzed resulting in a complex set of conclusions on the issue of non-metro versus metro per capita income patterns. When the study evaluated income based on geography, it found that Wisconsin has experienced a trend of growing non-metro population concurrently with a trend of increasing non-metro share of wage and salary employment. While the non-metro share of wage rates has been increasing, the wage rates in metro areas have not. The increases in the non-metro areas is not enough to counter the continued downward trend in metropolitan wage rates in Wisconsin which contributes to Wisconsin income being below the U.S. average. Furthermore, per capita income is strongly associated with population size and Wisconsin's metro areas are mostly small in population size, and that fact also explains a significant part of the Wisconsin – U.S. per capita income gap.

Each of the variables analyzed above explain in part why the region's per capita income levels are not reaching state or national levels. While the Appleton-Neenah-Oshkosh urban area is large relative to the East Central Region, it is not when compared to metro areas in other states. The smaller metro size may indicate the difficulties in attracting company headquarters to the region. The financial, insurance, and real estate industry groups employment figures do show growth occurring within most of the counties in the region, but perhaps not the level of growth accompanied by higher paying positions within this industry. All of these factors represent the challenges toward achieving long term increases in per capita income levels.

Industrial Parks

Industrial parks tend to be clustered in urban areas where transportation linkages, municipal services, labor, supplies and other economic forces are concentrated. However, there are smaller communities whose economic base is developed to support such facilities. East Central has distributed questionnaires to local municipalities to gather information about industrial parks throughout the region. The most recent results available are from the year 2001[12].

In short, the region supports 77 industrial parks. These are located in all of the region's ten counties. These facilities occupy 8,100 acres, or approximately 12.5 square miles. Outagamie County holds the greatest concentration of these facilities with 21 parks, followed by Winnebago County, with 14 industrial parks. Outagamie County also leads the region in total acreage of industrial parks, with 2,720 acres, followed by Winnebago County, with 2,435 acres.

The rural counties have various numbers of industrial parks, ranging from eight in Waupaca County to one in Menominee County. Of the more rural counties, Waupaca County has the

[12] The individual park information can be accessed via East Central's website at: www.eastcentralrpc.org. For specific information about the Fox Cities area, access the Fox Cities Economic development Partnership website at: www.foxcities-marketing.org/.

most acreage of industrial parks at this time, 879 acres, followed by Shawano County, with 419 acres.

Brownfield Development

For commercial and industrial uses, communities within the region can compile an inventory of areas identified as brownfield properties. Cleanup and redevelopment of these abandoned properties will put these properties back onto tax rolls and to productive uses and ultimately create jobs. Economic development grants for rehabilitation and other incentives should be utilized to fund projects in these areas.

Redevelopment opportunities can be combined with the Wisconsin Department of Commerce's Main Street program to assist in downtown revitalization efforts. For example, the City of Ripon, in Fond du Lac County, one of the three Main Street Communities in the region, took advantage of an historic, architecturally significant structure, the Pratt Building which is located in the downtown area. Ripon's Main Street, Inc. purchased the building and renovated the interior and exterior of the structure. There are apartments located on the second floor and a commercial use is in place on the street level. Ripon has capitalized on historic preservation and redevelopment opportunities to create a destination for shopping, festivals and other musical events.

The Wisconsin Department of Natural Resources and other state and federal agencies maintain several on-line resources to make available information about contaminated properties[13].

[13] They include the Bureau for Remediation and Redevelopment Tracking System (BRRTS) website at www.dnr.state.wi.us/org/aw/rr/brrts/index.htm. For groundwater contamination issues there is the Geographic Information System Registry of Closed Remediation Sites at gomapout.dnr.state.wi.is/org/at/et/geo/gwur/index.htm. For solid or hazardous waste site information access: www.dnr.state.wi.us/org/aw/rr/archives/pubs/RR108.pdf. The Department of Commerce provides information for under ground storage tanks at: comapp1.commerce.state.wi.us:8080/ers/ER-EN-TankSearch.htm.

Economic Development: Key Findings

Current Trends

- The region's labor force continues to increase reaching 370,903 by September of 2002, which is a 2.2% increase from 2001.
- Examination of 2002 unemployment rates for the state, the region and in each county indicates that rates in September were lower than they were for the averaged rates in 2001. This suggests that the state and regional economy is rebounding from the national economic downturn that began in March of 2001.
- September, 2002 data indicates that manufacturing, which accounts for approximately 25.4% of total non-farm employment, provides the largest share of employment in the region.
- The service industry sector is the second largest employer in the region. By September, 2002 employment reached 75,366, an increase of 3,334 workers, or a 4.6% increase from 2001.
- The retail trade sector is the third largest non-farm employment sector in the region, accounting for 17.7% of total employment in September, 2002.
- Agriculture and agriculture-related industries employ a very small share of workers in the region, 1.4% as of 2000.
- All counties within the region experienced increases in their average weekly wages for all industries between 1990 and 2000.
- The greatest concentration of higher paying industries falls within the manufacturing sector in the production of durable and non-durable products. The lowest paying jobs are in the retail trade and services sectors.
- Regional income figures increased each year, but still lag behind state and national income levels. A state initiated study of per capita income levels revealed several factors that are keeping Wisconsin incomes lower than national figures.
  - Between 1929 and 1999, with the exception of 1950-1953 and 1978-1982, Wisconsin per capita income has remained below the U.S. average.
  - The lower per capita income is due in part to a decline in the relative average wage per job in Wisconsin. This decline has been mitigated somewhat by an increased ratio of jobs per person: meaning that people are taking on additional work.
  - The decline in wages is not limited to a few particular industries but rather has occurred in all major industry groups.
  - And in addition, the study discovered that per capita income is strongly associated with population size and Wisconsin's metro areas are mostly small in population size, and that fact also explains a significant part of the Wisconsin – U.S. per capita income gap.
- Industrial park information from the year 2001 indicates that there are 77 industrial parks. These are located throughout the region's ten counties, with the greatest concentration of industrial park acreage in Outagamie and Winnebago counties.

Future Trends

- The current economic recovery may be more modest than originally anticipated. Unemployment levels may remain near these current 2002 levels for several months as labor markets slowly add jobs.

- According to the Wisconsin Department of Revenue, employment growth for the Metropolitan Statistical Areas is expected to continue, albeit at a slower pace from the last five years' growth levels, for the 2001 to 2006 time period. The projections show a 5.1% employment growth increase resulting in 217,100 employees in the Appleton-Neenah-Oshkosh MSA. This growth rate exceeds the state total projected growth rate of 4.2% for the 2001 to 2006 time period.
- The August, 2002 Wisconsin Economic Outlook Report states that the forecast for manufacturing employment is continued weakness. It further states that factory jobs will continue to decline, but perhaps at a slower rate. Specifically, manufacturing employment in primary metals and industrial machinery is expected to decline in 2002 and 2003. Some good news is the expectation that the printing and publishing industries will recover after sizable losses in 2001 and 2002. The report does suggest that overall manufacturing employment will likely begin to grow again in 2004.
- The strongest growth is expected in the finance, insurance, and real estate sector and in the services sector. Service industry jobs are expected to grow by 1.9% for 2002, which has already been exceeded in the region, and by 2.6% in 2003.
- For both trade industries, retail and wholesale, growth will remain weak projected at 0.2% and 0.3%, respectively, for 2002. It is anticipated that retail jobs will remain weak into 2003.
- Agriculture and agricultural-related services industries are not diminishing within the region, but rather the numbers indicate that in some cases these industries are experiencing small levels of growth. The increases in dairy farm operations could indicate the presence of mega-farm operations.

Identification of Issues

- How can we address the impact of the global economy, specifically mergers and takeovers, which have resulted in the closing down and the exporting of local businesses: in turn leading to a decline in the manufacturing base in the Fox Valley?
- How can we retain, preserve, and attract industry and businesses that will create good quality jobs that pay a living wage?
- How can we address the conflicts that exist between economic development and environmental preservation, especially in the rural areas of the region, where citizens are concerned about retaining the rural character of their communities while ensuring economic vitality?
- How can we address the "brain drain" from the counties, region and state? Young people are leaving because there are limited good quality career and job opportunities. In addition, wages are low when compared with other parts of the state and region.
- How can we prepare for potential labor shortages, given the demographic trends outlined in Chapter 2?
- How can we address the consequences of current farm economics, whereby the farm wage is insufficient to support a household and farmers are selling off their land for development to secure their retirements?
- How can we assess the real costs and benefits of commercial development, including utilities and services, outside the urban area?
- How can we ensure that communities take full advantage of opportunities to work together and share services to benefit the region as a whole?

- How can we resolve the conflicts that exist between the desire for good public services and the aspiration for lower taxes?

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CHAPTER 4: HOUSING

Introduction

Previous chapters in this document discuss population, household and economic characteristics and trends within the region. This chapter briefly summarizes current housing conditions within the region, and identifies current and future housing needs and issues.

Well designed, decent, safe, affordable housing is important to healthy communities. It helps define a sense of place, lends character to communities and creates a sense of connection and ownership between residents and their neighborhood and community. Increasingly, planners and economic development specialists are realizing that affordable housing is also an integral part of a comprehensive economic development strategy. Companies are reluctant to locate in communities without affordable housing for their workers. Communities in which wages are incompatible with the cost of housing find that they are unable to attract an adequate labor force. A recent study by the Hudson Institute and the Wisconsin Housing Partnership found that the most important factor for determining the success of W-2 clients was their ability to find decent, stable affordable housing[1].

Various studies, indicators and focus group sessions have indicated that housing, particularly affordable housing for low and very low income households, has become an issue in many of our communities. In order to meet these needs, cooperation and coordination needs to occur between various government sectors, non-profits and the private sector. To meet the housing needs of all our residents, an adequate supply of reasonably priced land with the appropriate infrastructure, utilities and services, coupled with community designs which allow for transportation choices will be necessary.

The remainder of this chapter will briefly describe the policy context, discuss the need for intergovernmental cooperation, coordination between government and non-government sectors, assess current and future trends and identify issues that need to be addressed.

Most of the 14 local comprehensive planning goals listed in Chapter 1 will have an indirect impact on the provision of an adequate supply of affordable housing for the region. East Central takes the view that those listed below specifically relate to planning for housing.

- 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 neighborhood designs that support a range of transportation choices.
- Providing an adequate supply of affordable housing for individuals of all income levels throughout each community.
- Providing 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.

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[1] *Making Housing Work for Working Families: Building Bridges between the Labor Market and the Housing Market*. Rebecca V Swartz, Brian Miller, Joanna Balsamo-Lilien, and Hilary Murrish (July 2001).

- Balancing individual property rights with community interests and goals.

Policy Context

Federal

Initial federal housing policies, such as the Homestead Act (1862-1986), the Federal Home Loan Bank Act (1932) and the National Housing Act (1934), were designed to expand settlement and improve and increase housing supply and affordability. The National Housing Act, which created the Federal Housing Administration, was the first federal legislation to establish minimum standards for construction, design and location through requirements for loan guarantees. Additional legislation passed in the 1940's and 1950's provided funding for construction, additional loan guarantees, and additional housing support. The Housing and Urban Development Act of 1965, which created the Department of Housing and Urban Development (HUD), elevated housing policy to the cabinet level. In response to the Civil Rights Movement, the Fair Housing Act (1968) was passed to increase access to decent, safe, affordable housing to individuals whose access to such housing was denied or limited because of their race, color or national origin. Numerous acts and executive orders passed since 1968 have expanded protected classes to include religion, sex, familial status and persons with disabilities.

While the federal government continues to provide funds for loan guarantees, construction, housing assistance, and housing related programs, those funds have become a much smaller share of the total federal budget. Demand has risen faster than government outlays. As a result, competition for many of these funds is quite stiff.

Additional federal housing assistance has been written into the tax code. Housing related tax expenditures include homeowner deductions for mortgage interest, property taxes, capital gains on the sale of a home where the tax is exempted or deferred and deductions for energy conservation or first-time purchase. They also include investor deductions for tax-exempt housing bonds, accelerated depreciation, passive losses and the low income housing tax credit. Since the 1970's, these housing related tax expenditures have become a much more significant portion of the federal budget than actual government outlays.

State

In Wisconsin, the Bureau of Housing within the Department of Administration is responsible for setting state housing policy. However, state statutes and policies, which impact housing, are scattered throughout several state agencies. The Bureau of Housing provides housing information and technical assistance, administers federal housing funds and a variety of other programs. They also provide state housing funds, which are distributed through local housing organizations, and coordinate housing assistance programs with those of other state and local housing agencies. Plat reviews, land use legislation, and municipal boundary reviews are administered by other divisions within the Department of Administration. State building codes and plumbing codes are administered by the Department of Commerce. Sewer extensions, waste treatment facilities, federal and state erosion control and stormwater ordinances are administered by the Department of Natural Resources. Real estate laws, transfers and assessment regulations are administered through the Department of Revenue. The Wisconsin

Housing and Economic Development Authority (WHEDA), is a state sponsored independent agency, which works other organizations to stimulate and preserve affordable housing, small business and agribusiness.

Fair housing laws are administered by two agencies within the State of Wisconsin, the Equal Rights Division of the Wisconsin Department of Workforce Development and by the U. S. Department of HUD. These agencies are not only to provide protection for individuals who fall under the protected classes identified in the federal fair housing laws, but also the additional protected classes listed in Wisconsin's Open Housing Laws. Wisconsin's Open Housing Laws also prohibit discrimination based on a person's ancestry, marital status, lawful source of income, sexual orientation and age.

Regional

East Central has published five main documents over the years that contain policies for housing. *East Central Policy (2003)* compiles the current policies, for all policy areas, into one document. Generally, regional housing policies are reflective of the federal and state initiatives discussed previously. East Central helps member communities and counties identify and meet the housing needs of residents within the region. The Commission encourages communities and counties to provide adequate housing suitable to the needs and within the means of all residents in the region and to promote convenient, safe, and aesthetic living environments. There are five specific policy areas, which focus on choice, preservation and rehabilitation, cooperation between the private and public sector, coordination among local governments and meeting the needs of low and moderate income households.

County and Local Government

Counties can have a significant impact on housing availability, choice and supply in unincorporated areas. In Wisconsin, counties have the authority to establish zoning ordinances, subdivision ordinances, minimum lot sizes and set backs, maximum height restrictions, density regulations and mobile home, duplex and multi-family restrictions. Counties also have the opportunity and authority to apply for and administer grants to fund housing construction, rehabilitation of existing units and additional housing related programs within the county. Counties and local governments also have jurisdiction to create fair housing ordinances, which expand the protected classes beyond those identified by the federal and state government.

Cities, villages and some towns within the region also have the authority to establish zoning and subdivision ordinances; minimum lot sizes, set backs and square footage; maximum height restrictions; density regulations; and mobile home, duplex and multi-family restrictions. Some cities and villages also have extraterritorial jurisdiction, which allows them to review proposed developments up to 3 miles outside of their legal boundaries.

While counties and communities have the ability to establish ordinances that encourage the development of affordable housing, public opposition to affordable housing, multi-family housing and mobile homes has led many communities and some counties to set standards for minimum lot size and minimum home size, etc, which discourage the provision of affordable housing. Also, higher property taxes are linked to higher value property. As a result, local

governments tend to favor higher end housing projects and commercial and industrial uses over low-income housing projects.

Counties and communities also need to balance private property rights with community interests and goals, and the common good. Counties often find themselves attempting to balance competing interests of preserving farmland, forest, open space and "rural character", yet providing adequate building sites to meet demand for residential and recreational housing. Governments at all levels make decisions to expand existing facilities and locate new government and transportation facilities and utilities. Often the cheapest land and sites, which generate the least public opposition, are in low income neighborhoods. Expanding or building facilities in these locations often displace low income residents.

Other

Within our legal context, policy and provisions effecting housing are not only set by the government, but also by the private and nonprofit sectors. While government heavily influences the geographic distribution of government funds and directs what those funds can be used for, private and nonprofit housing providers may obtain resources from other sources and direct those resources to achieve their own goals. Private developers and homeowner and condominium associations also have the ability expand housing affordability through more efficient, cost-effective designs or restrict housing affordability through exclusionary designs, covenants and fee structures.

Access to Resources

Larger urban communities have greater access to resources than small rural communities. Three cities within the region, Appleton, Neenah and Oshkosh are entitlement communities, which means that they are automatically granted Community Development Block Grant (CDBG) dollars which can be used to facilitate the provision of affordable housing. These communities, along with other cities and villages within the region, also have the opportunity to apply for additional funds to help meet housing needs of low income and special needs residents within the region.

Government programs and resources that make housing affordable are limited, particularly for the extremely low income. Since funding for projects is limited, some grant programs are extremely competitive and difficult to obtain. Some programs and resources are directly available to developers or individuals. Other programs require the grant or funding application to be sponsored by a local government unit. For some programs, the paperwork, complexity and processing time to obtain and administer these resources may be considered onerous. As a result, potential applicants may be unwilling to apply, particularly for the more competitive programs.

Larger urban communities not only have paid staff, who may be more knowledgeable about existing programs and funding sources, a greater number of nonprofit agencies also work in urban rather than rural counties. Government staff and officials in small rural communities may not be aware of all existing programs and funding sources. They also may not have the knowledge and paid staff necessary to apply for and administer these funds.

Intergovernmental Cooperation

As indicated in the previous section, all levels of government influence housing supply, availability, location, choice and access. Interaction between government, non-profit and private sectors can facilitate or discourage housing affordability, choice and access. In order to increase the effectiveness of housing programs and lower costs and duplication of services increased cooperation and coordination is needed between all three sectors.

East Central is currently working with three housing groups in the region to assess the housing needs for low and very low income residents and identify ways to meet those needs. These groups, the Fox Cities Housing Coalition, Winnebagoland Housing Focus Group and Shawano County Housing Resource Partnership (formerly the Shawano County Housing Task Force), foster intergovernmental cooperation and coordination between the government and non-government sectors. Each organization includes local housing authorities, non-profit and for profit housing providers, local, county and state government representatives, UWEX staff, private citizens and service providers such as mortgage loan officers, financial counselors, employers and legal service representatives in their organizations. The Shawano County Housing Resource Partnership also includes representatives from the United States Department of Agriculture Rural Development.

East Central is also actively participating on the Public/Private Role in Affordable Housing Development Committee. This committee was established to clearly define the Fox Cities public and private role in developing affordable rental, owner, and life cycle housing and develop strategies that adequately address the affordable housing needs in those communities.

Background Information

This section examines long term historic growth patterns and takes a closer look at more recent changes in households by type and housing affordability. Current housing stock and occupancy characteristics will be assessed, and deficiencies in the current housing supply will be outlined. Housing market trends will be discussed and future housing needs will be identified.

Age of Occupied Dwelling Units

The age of occupied dwelling units reflect the historic demand for additional or replacement housing units, thereby providing historic information regarding household formation rates, migration trends and natural disaster impacts.

Almost one third of the existing housing stock in the state and region was built prior to 1950, indicating that most communities have experienced considerable growth since 1950. Within the region, 36% of the housing stock in rural counties and 30% of the housing stock in urban counties was built prior to 1950 (Table H-1). Green Lake County had the highest share of older units, 42%, which indicated that much of Green Lake County's household growth occurred prior to 1950. Only 12% of Menominee County's dwelling units were built prior to 1950, indicating that Menominee County has experienced a substantial change in dwelling units since 1950.

Table H-1. Year Occupied Unit was Built, 2000

Jurisdiction	Built 1990 to March 2000	Built 1980 to 1989	Built 1970 to 1979	Built 1960 to 1969	Built 1950 to 1959	Built 1949 or earlier	Total Units
Wisconsin	341,272	222,167	355,484	247,765	265,565	652,291	2,084,544
Region	43,708	27,933	39,006	25,047	24,038	74,114	233,576
Urban	32,965	20,627	28,537	19,771	19,583	52,315	173,528
Rural	10,743	7,306	10,469	5,276	4,455	21,799	60,048
Calumet	3,723	2,173	2,561	1,656	963	3,834	14,910
Fond du Lac	6,000	3,304	5,888	3,791	4284	13,664	36,931
Green Lake	1,082	804	1,155	742	697	3,223	7,703
Marquette	1,222	887	1,272	489	319	1,797	5,986
Menominee	284	393	338	114	49	167	1,345
Outagamie	12,561	8,345	10,247	6,605	6,976	15,796	60,530
Shawano	2,674	1,592	2,553	1,564	1,366	6,066	15,815
Waupaca	3,605	2,366	3,310	1,622	1,442	7,518	19,863
Waushara	1,876	1,264	1,841	745	582	3,028	9,336
Winnebago	10,681	6,805	9,841	7,719	7,360	18,751	61,157

Source: U. S. Census, STF3A, 2000.

Additional units were added in each decade throughout the region. However, building rates varied over time. The two decades, which experienced the highest building rates, were the 1970s and the 1990s. Seventeen percent of the state's and region's units were added in the 1970's, which is the decade where baby-boomers entered the housing market. The 1990's also experienced substantial growth in new housing due to lower interest rates, significant in-migration and an increase in household formation rates as the children of baby-boomers began entering the housing market. Sixteen percent of the state's units and 19% of the region's units were added in the 1990's.

Regional variations exist in housing unit growth. Green Lake and Marquette Counties experienced their highest building rates during the 1970's. Menominee County experienced its highest building rate in the 1980's, as changes in their economy allowed many Menominee to return to the reservation. The remainder of counties in the region experienced their highest building rates in the 1990's. Calumet County, in particular, experienced a large increase in new units in the 1990's, as growth from the Fox Cities communities spilled over into the northwest part of the county.

Change in Structural Type

Residential units by structural type is one indication of the degree of choice in the housing market. Availability of units by type is indicative not only of market demand preferences, but also of zoning laws, developer preferences and access to public services. Current state

sponsored local planning goals encourage communities to provide a wide range of choice in housing types.

Historically, single family units have comprised the majority of housing units throughout the region and at the state level. In 1970, single family homes comprised 81% of the region's housing stock and 71% of Wisconsin's housing stock. Although the number of single family units increased by 61% in the region and the state, their share of the total housing stock declined. By 2000, single family units had declined to 75% of the region's housing stock and 69% of the state's housing stock (Table H-2), indicating growth in other housing options.

The decrease in the share of single family units resulted from a large increase in multi-family and mobile homes, trailers and other units[2]. Multi-family units, which comprised 6% of the region's housing stock in 1970, rose to 13% of the region's housing stock in 2000. At the state level, the share of multi-family units increased from 13% of the state's housing stock in 1970 to 18% of the state's housing stock in 2000. Mobile home, trailer and other units increased from 2% of the region's housing stock in 1970 to 7% in 1990, then declined to 5% in 2000. At the state level, mobile homes, trailers and other units increased from 2% of the state's housing stock to 6% of the housing stock in 1990, then declined to 4% in 2000.

Duplexes experienced the smallest rate of growth between 1970 and 2000. In the region, the number of duplexes peaked at 18,344 in 1990, then declined to 18,180 in 2000. At the state level, the number of duplexes declined every decade during the time period. As a result, duplexes were the only type of dwelling unit to decline as a share of total units over time. In 1970, duplexes comprised 11% of the region's housing stock and 15% of the state's housing stock. By 2000, that share had declined to 7% in the region and 8% in the state.

Within the region, urban counties had a larger share of duplexes and multi-family units than rural counties. A greater share of the housing stock in rural counties was comprised of single family homes and mobile homes, trailers and other units. In 1970, the share of single family homes ranged from 95% in Menominee County to 76% in Winnebago County. Winnebago County had the largest share of duplexes,15%, and multi-family units, 8%, and the smallest share of mobile homes, trailers and other units, 1%. Menominee had the smallest share of duplex, 1%, and multi-family, 0.5%, units. Marquette County had the largest share of mobile homes, trailers and other units, 4%.

Between 1970 and 2000, both urban and rural counties experienced a decrease in the share of single family and duplex units and an increase in multi-family and mobile homes, trailers and other units. In urban counties, the share of single family homes declined from 78% of the housing stock in 1970 to 73% of the housing stock in 2000, and duplexes declined from 13% of the housing stock to 8%. The share of multi-family units increased in urban counties from 7% of the housing stock to 16%. Mobile homes, trailers and other units increased from 2% in 1970 to 4% in 1990, then fell to 3% of units in 2000. In rural counties, the share of single family homes declined from 88% of the housing stock in 1970 to 80% in 2000, and the share of duplexes dropped from 6% of the housing stock to 4%. The share of multi-family units increased from 3% of the housing stock to 7%. Mobile homes, trailers and other units increased from 3% in 1970 to 12% in 1990, then fell to 10% of units in 2000.

[2] Other units are comprised of boats, cars, tents, vans or any other nontraditional form of housing.

Table H-2. Units in Structure, 1970 to 2000

	Year	One Unit	Two Units	3 and 4 Units	5 or more Units	Mobile home, Trailer or Other	Total Units
Calumet	1970	6,343	773	155	123	236	7,630
	1980	7,965	894	173	600	410	10,042
	1990	9,678	887	203	934	763	12,465
	2000	12,467	998	243	1,368	682	15,758
Fond du Lac	1970	20,012	2,835	694	1,043	731	25,315
	1980	23,549	2,805	1,024	2,500	1,140	31,018
	1990	25,130	2,785	1,042	3,458	2,133	34,548
	2000	28,543	2,841	1,209	4,674	2,004	39,271
Green Lake	1970	5,618	395	141	135	158	6,447
	1980	6,121	456	202	273	280	7,332
	1990	7,368	461	184	403	786	9,202
	2000	8,053	414	187	612	565	9,831
Marquette	1970	3,337	118	27	29	140	3,651
	1980	4,405	195	71	108	687	5,466
	1990	5,986	140	79	106	1,724	8,035
	2000	6,832	157	97	182	1,396	8,664
Menominee	1970	540	6	3	-	18	567
	1980	1,029	8	19	13	162	1,231
	1990	1,412	2	15	29	284	1,742
	2000	1,747	16	18	52	265	2,098
Outagamie	1970	26,392	4,287	1,086	1,106	708	33,579
	1980	33,699	4,588	1,229	3,443	924	43,883
	1990	37,892	5,518	1,388	5,172	1,953	51,923
	2000	46,548	5,397	1,459	7,990	1,220	62,614
Shawano	1970	9,607	804	163	185	338	11,097
	1980	11,047	800	254	627	707	13,435
	1990	13,076	730	253	713	1,965	16,737
	2000	14,591	779	302	1,003	1,642	18,317
Waupaca	1970	11,393	941	264	356	250	13,204
	1980	13,126	1,102	294	878	788	16,188
	1990	15,682	1,055	377	1,126	1,901	20,141
	2000	17,389	1,221	493	1,832	1,573	22,508
Waushara	1970	6,225	174	32	25	244	6,700
	1980	7,386	299	52	143	815	8,695
	1990	9,866	253	86	214	1,827	12,246
	2000	11,288	234	69	296	1,780	13,667
Winnebago	1970	29,828	5,802	1,330	1,942	458	39,360
	1980	35,388	6,003	1,676	4,579	883	48,529
	1990	38,920	6,513	2,335	6,593	1,762	56,123
	2000	45,026	6,123	2,609	9,553	1,410	64,721
Region	1970	119,295	16,135	3,895	4,944	3,281	147,550
	1980	143,715	17,150	4,994	13,164	6,796	185,819
	1990	165,010	18,344	5,962	18,748	15,098	223,162
	2000	192,484	18,180	6,686	27,562	12,537	257,449
Wisconsin	1970	998,092	207,184	63,954	118,723	28,474	1,416,427
	1980	1,214,499	198,353	71,451	216,472	55,536	1,756,311
	1990	1,392,610	197,659	79,562	256,616	129,327	2,055,774
	2000	1,609,407	190,889	91,047	325,633	104,168	2,321,144

Source: U.S. Census, 1970, 1980, 1990 and 2000.

By 2000, the share of single family homes ranged from 83% in Menominee County to 70% in Winnebago County. Winnebago County continued to have the largest share of duplex (9%) and multi-family (19%) units, and Menominee County continued to have the smallest share of duplex units, 1%. Marquette County had the smallest share of multi-family units, 3%. The share of mobile homes, trailers and other units ranged from 16% in Marquette County to 2% in Outagamie County.

Occupancy Status

Occupancy status reflects the utilization of available housing stock. The total number of housing units include renter-occupied, owner-occupied and various classes of vacant units, including those which are available for sale or rent and those which are seasonal, migrant, held for occasional use or other units not regularly occupied on a year-round basis.

Since 1970, the total occupancy rate for the state and region has remained pretty stable, varying only between 89% and 90% for the 30 year period. Within the region, urban counties had the highest occupancy rate, 95%, and the most stable occupancy rate. Even at the individual county level, the total occupancy rate for urban counties has remained stable over time. Outagamie County had the highest total occupancy rate, 97%, for urban counties and the region as a whole. Calumet County had the lowest total occupancy rate and the greatest fluctuation in total occupancy rates of all urban counties. In 1970, Calumet County had a total occupancy rate of 93%. By 2000, Calumet County's occupancy rate has increased to 95% (Table H-3).

The occupancy rate for rural counties has fluctuated slightly between 1970 and 2000. In 1970, the total occupancy rate for rural counties was 77%. This rate dropped to 75% in 1980, rose to 76% in 1990, then to 80% in 2000. In 1970, total occupancy rates for rural counties ranged from 85% in Waupaca County to 61% in Waushara County. In 2000, the total occupancy rate in rural counties ranged from 88% in Waupaca County to 64% in Menominee County.

The change in total occupancy rates for rural counties has been directly impacted by the amount of vacation property within these counties. As seasonal unit growth outpaced year-round housing growth, occupancy rates declined. In some areas, seasonal property owners are retiring to these areas and converting these units to year-round residences. In areas where conversion rates and year-round construction rates are higher than the increase in new seasonal units, occupancy rates have increased. In most instances, rural counties had higher total occupancy rates in 2000 than in 1970. Menominee County is the one exception. In Menominee County, seasonal unit growth continued to outpace growth in year-round residences. As a result Menominee County's total occupancy decreased from 74% in 1970 to 64% in 2000.

Table H-3. Occupancy Status, 1970 to 2000

	Year	Total Occupied	Owner-Occupied	Renter-Occupied	Vacant Units	Total Housing Units	Occupancy Rate
Calumet	1970	7,342	5,830	1,512	542	7,884	93.13%
	1980	9,694	7,700	1,994	734	10,428	92.96%
	1990	11,772	9,258	2,514	693	12,465	94.44%
	2000	14,910	11,994	2,916	848	15,758	94.62%
Fond du Lac	1970	24,408	18,426	5,982	1,466	25,874	94.33%
	1980	29,870	22,384	7,486	1,869	31,739	94.11%
	1990	32,644	23,427	9,217	1,904	34,548	94.49%
	2000	36,931	26,940	9,991	2,340	39,271	94.04%
Green Lake	1970	5,481	4,277	1,204	1,378	6,859	79.91%
	1980	6,734	5,215	1,519	1,585	8,319	80.95%
	1990	7,189	5,399	1,790	2,013	9,202	78.12%
	2000	7,703	5,950	1,753	2,128	9,831	78.35%
Marquette	1970	2,956	2,435	521	1,719	4,675	63.23%
	1980	4,361	3,510	851	2,767	7,128	61.18%
	1990	4,831	3,893	938	3,204	8,035	60.12%
	2000	5,986	4,925	1,061	2,678	8,664	69.09%
Menominee	1970	519	385	134	185	704	73.72%
	1980	799	582	217	528	1,327	60.21%
	1990	1,079	695	384	663	1,742	61.94%
	2000	1,345	992	353	753	2,098	64.11%
Outagamie	1970	32,807	25,103	7,704	806	33,613	97.60%
	1980	42,755	31,792	10,963	1,175	43,930	97.33%
	1990	50,527	36,507	14,020	1,396	51,923	97.31%
	2000	60,530	43,830	16,700	2,084	62,614	96.67%
Shawano	1970	9,927	8,142	1,785	2,161	12,088	82.12%
	1980	12,347	9,834	2,513	2,899	15,246	80.99%
	1990	13,775	10,614	3,161	2,962	16,737	82.30%
	2000	15,815	12,370	3,445	2,502	18,317	86.34%
Waupaca	1970	11,754	9,363	2,391	2,190	13,944	84.29%
	1980	14,954	11,706	3,248	3,188	18,142	82.43%
	1990	17,037	12,961	4,076	3,104	20,141	84.59%
	2000	19,863	15,287	4,576	2,645	22,508	88.25%
Waushara	1970	4,910	4,148	762	3,127	8,037	61.09%
	1980	6,904	5,653	1,251	4,338	11,242	61.41%
	1990	7,616	6,116	1,500	4,630	12,246	62.19%
	2000	9,336	7,798	1,538	4,331	13,667	68.31%
Winnebago	1970	38,249	27,870	10,379	1,882	40,131	95.31%
	1980	46,885	32,552	14,333	2,829	49,714	94.31%
	1990	53,216	35,423	17,793	2,907	56,123	94.82%
	2000	61,157	41,571	19,586	3,564	64,721	94.49%
Region	1970	138,353	105,979	32,374	15,456	153,809	89.95%
	1980	175,303	130,928	44,375	21,912	197,215	88.89%
	1990	199,686	144,293	55,393	23,476	223,162	89.48%
	2000	233,576	171,657	61,919	23,873	257,449	90.73%
Wisconsin	1970	1,328,804	918,153	410,651	143,519	1,472,323	90.25%
	1980	1,652,261	1,127,367	524,894	211,636	1,863,897	88.65%
	1990	1,822,118	1,215,350	606,768	233,656	2,055,774	88.63%
	2000	2,084,544	1,426,361	658,183	236,600	2,321,144	89.81%

Source: U.S. Census, 1970, 1980, 1990 and 2000.

Tenure

The majority of occupied units in the state and the region are owner-occupied units, 68% and 73% respectively. Over time, the region has maintained higher owner-occupancy rates than the state. However, owner-occupied units as a percentage of total occupied units have decreased over time at both the regional and state level. At the state level, owner-occupied units as a percentage of total occupied units decreased from 69% in 1970 to 67% in 1990, then rose to 68% in 2000. At the regional level, owner-occupied units as a percentage of total occupied units decreased from 77% of all occupied units in 1970 to 73% of all occupied units in 2000.

Within the region, urban counties had lower owner-occupied rates than rural counties. In 1970, owner-occupied units comprised 75% of all occupied units in urban counties and 81% of all occupied units in rural counties. Between 1970 and 2000, the share of owner-occupied units in urban counties declined from 75% to 72%. During the same time period, owner-occupied units in rural counties declined from 81% of occupied units in 1970 to 77% of occupied units in 1990, then increased to 79% of occupied units in 2000.

The decline in the share of owner-occupied units resulted from higher growth in the rental housing market. Between 1970 and 2000, the number of owner-occupied units in the region increased by 62%, while the number of rental-occupied units increased by 91%. Urban counties experienced the strongest growth in rental-occupied units and the weakest growth in owner-occupied units. The number of rental-occupied units increased by 92% in urban counties, while the number of owner-occupied units increased by 61%. In rural counties, the number of rental-occupied units increased by 87%, while the number of owner-occupied units increased by 65%. As a result, the percentage of rental units in urban counties increased from 25% of occupied units in 1970 to 28% of all occupied units in 2000. In rural counties, the share of rental-occupied units increased from 19% in 1970 to 21% of occupied units in 2000.

The state experienced the smallest percentage growth in owner-occupied and rental-occupied units during this time period. Between 1970 and 2000 the number of owner-occupied units in Wisconsin increased by 55%, while the number of rental-occupied units increased by 60%.

Vacancy Status

Vacant housing units are units that are livable, but not currently occupied. Between 1970 and 2000, the state experienced stronger growth in the number of vacant units than the region. During this time period, the number of vacant units increased by 65% in the state and 54% in the region. At both levels, however, vacant units as a percentage of total units remained fairly stable, fluctuating between 9% and 11% during this time period.

Within the region, urban counties experienced higher growth in vacant units than rural counties. The number of vacant units increased by 88% in urban counties, compared to 40% in rural counties. Although urban counties experienced strong growth in the number of vacant units, vacant units as a percentage of total units remained relatively constant throughout the time period. In 1970, vacant units comprised 4% of all units in urban counties. By 2000, their share increased to almost 5%.

The vacancy status of units available for purchase or rent is considered to be a strong indicator of housing availability. Generally, when vacancy rates are below 1.5% for owner-occupied units and 5% for renter-occupied units, housing is considered to be in short supply.

Owner-Occupied Housing

In 1970, homeowner vacancy rates for the region and the state were 0.85% and 0.98%, indicating that owner-occupied units were in short supply at the state and regional level. Within the region, urban counties had very tight owner-occupied housing markets. Homeowner vacancy rates for urban counties ranged from 0.43% in Outagamie County to 0.84% in Calumet County (Table H-4). Rural counties as a whole had an adequate supply of owner-occupied units for sale in 1970; however, variation existed at the county level. Green Lake, Menominee, Shawano and Waupaca Counties had homeowner vacancy rates below standard, indicating tight housing markets, while Marquette and Waushara Counties had homeowner vacancy rates well above standard, indicating an oversupply in the owner-occupied housing markets in these two counties.

Between 1970 and 2000, homeowner vacancy rates varied slightly. At the state level, homeowner vacancy rates peaked at 1.36% in 1980, then declined to 1.20% in 2000, indicating that the state as a whole maintained homeowner vacancy rates below standard for the entire time period. At the regional level, homeowner vacancy rates improved over time, rising from 0.85% in 1970 to 1.30% in 2000; but again, at the regional level the owner-occupied housing market remained tight.

Within the region, urban owner-occupied housing markets remained tighter than rural owner-occupied housing markets. Between 1970 and 2000, homeowner vacancy rates in urban counties rose from 0.58% in 1970 to 1.17% in 2000, indicating that owner-occupied housing was in short supply in urban counties throughout the time period. In rural counties, homeowner vacancy rates peaked at 1.95% in 1980, then declined to 1.64% in 2000, indicating that, on average, rural counties had an adequate supply of owner-occupied housing throughout the time period.

In 2000, homeowner vacancy rates in urban counties ranged from 0.95% in Outagamie County to 1.37% in Calumet County, indicating that all urban counties had tight housing markets. While rural counties, on average, had an adequate supply of owner-occupied units in 2000, two rural counties, Menominee and Shawano, had homeowner vacancy rates below standard, indicating tight housing markets in those two counties. The remaining rural counties had homeowner vacancy rates at or above standard, indicating an adequate supply of owner-occupied housing exists in those counties. In 2000, homeowner vacancy rates in rural counties ranged from 1.01% in Menominee County to 2.27% in Green Lake County.

Rental Housing

In 1970, vacancy rates indicate that the state and region as a whole had an adequate number of rental units. Although the region as a whole had an adequate number of units for rent in 1970, regional variation resulted in many rural counties having an oversupply of rental units, while some urban counties had tight rental markets. Rental vacancy rates for urban counties ranged from 3.29% in Fond du Lac County to 4.88% in Outagamie County, while rental vacancy

rates in rural counties ranged from 6.72% in Menominee County to 12.73% in Waushara County.

At the state level, rental vacancy rates remained relatively stable between 1970 and 2000. Rental vacancy rates in Wisconsin increased from 5.15% in 1970 to 5.26% in 1980, declined to 4.91% in 1990, then rose to 5.88% in 2000, indicating that the state as a whole had an adequate supply of rental units throughout the time period. At the regional level, rental vacancy rates declined from 5.28% in 1970 to 4.03% in 1990, then rose to 6.71% in 2000. The slight oversupply of rental housing in 2000, was likely the market response to the tight rental housing market in 1990.

Within the region, urban counties continued to have tighter rental markets than rural counties. On average, rental vacancy rates for urban counties increased from 4.03% in 1970 to 4.29% in 1980, dropped to 3.50% in 1990, then rose above standard to 6.52% for the first time in 2000. Average rental vacancy rates for rural counties declined from 9.96% in 1970 to 6.00% in 1990, then rose to 7.43% in 2000, indicating that rural counties as a whole had an oversupply of rental units for the entire time period.

At the county level, rental vacancy rates fluctuated substantially in most counties between 1970 and 2000. Four counties in the region, Marquette, Shawano, Waupaca and Waushara, maintained rental vacancy rates at or above standard for the entire time period, indicating that these counties had an adequate number of units available for rent. The remaining counties saw their available rental housing markets expand above standard and contract below standard at different points between 1970 and 2000. 2000 was the only year every county in the region had an adequate supply of rental housing.

It should be noted here that rental housing is not distributed equitably throughout each county, while county totals indicate that an adequate supply of rental housing existed in every county in the region, several MCDs in the region had rental housing shortages.

Seasonal Units

Seasonal units are units intended for use only in certain seasons or for weekend or other occasional use throughout the year. They include properties held for summer or winter sports or recreation, such as summer cottages or hunting cabins. They also include time-share units, and may include housing for loggers.

Seasonal units comprised the largest share of vacant units at the state and regional level throughout the time period. In 1970, seasonal units comprised 41% of the region's vacant units and 64% of the state's vacant units. In Wisconsin seasonal units increased to 66% of the state's vacant units in 1980, then declined to 61% of the state's vacant units in 2000. At the regional level, seasonal units increased to 69% of the region's vacant units in 1980, then declined to 57% of vacant units within the region in 2000.

Within the region, seasonal units comprised a larger share of vacant units in rural counties than in urban counties. In 1970, seasonal units comprised 34% of vacant units in urban counties and 43% of vacant units in rural counties. In urban counties, seasonal units ranged from 4% of vacant units in Outagamie County to 47% of vacant units in Calumet County. In rural

Table H-4. Vacancy Status, 1970 to 2000

	Year	For Rent	For Sale	Seasonal Units	Other Units	Total Vacant Units	Vacancy Rates	
							Homeowner	Rental
Calumet	1970	60	49	254	179	542	0.84%	3.97%
	1980	129	87	406	112	734	1.13%	6.47%
	1990	79	106	312	196	693	1.14%	3.14%
	2000	253	164	287	144	848	1.37%	8.68%
Fond du Lac	1970	197	143	559	567	1,466	0.78%	3.29%
	1980	328	207	921	413	1,869	0.92%	4.38%
	1990	446	199	862	397	1,904	0.85%	4.84%
	2000	830	348	573	589	2,340	1.29%	8.31%
Green Lake	1970	140	58	412	768	1,378	1.36%	11.63%
	1980	52	130	1,208	195	1,585	2.49%	3.42%
	1990	66	120	1,537	290	2,013	2.22%	3.69%
	2000	185	135	1,422	386	2,128	2.27%	10.55%
Marquette	1970	41	57	1,024	597	1,719	2.34%	7.87%
	1980	83	85	2,419	180	2,767	2.42%	9.75%
	1990	49	114	2,785	256	3,204	2.93%	5.22%
	2000	70	108	2,268	232	2,678	2.19%	6.60%
Menominee	1970	9	4	137	35	185	1.04%	6.72%
	1980	3	17	482	26	528	2.92%	1.38%
	1990	20	7	528	108	663	1.01%	5.21%
	2000	20	10	686	37	753	1.01%	5.67%
Outagamie	1970	376	137	34	259	806	0.55%	4.88%
	1980	388	298	123	366	1,175	0.94%	3.54%
	1990	356	331	188	521	1,396	0.91%	2.54%
	2000	860	418	237	569	2,084	0.95%	5.15%
Shawano	1970	189	116	991	865	2,161	1.42%	10.59%
	1980	133	164	2,202	400	2,899	1.67%	5.29%
	1990	201	194	1,973	594	2,962	1.83%	6.36%
	2000	244	146	1,793	319	2,502	1.18%	7.08%
Waupaca	1970	201	125	770	1,094	2,190	1.34%	8.41%
	1980	300	181	2,248	459	3,188	1.55%	9.24%
	1990	247	162	2,261	434	3,104	1.25%	6.06%
	2000	322	232	1,681	410	2,645	1.52%	7.04%
Waushara	1970	97	94	1,337	1,599	3,127	2.27%	12.73%
	1980	65	135	3,913	225	4,338	2.39%	5.20%
	1990	128	153	3,892	457	4,630	2.50%	8.53%
	2000	104	147	3,693	387	4,331	1.89%	6.76%
Winnebago	1970	398	121	771	592	1,882	0.43%	3.83%
	1980	646	334	1,299	550	2,829	1.03%	4.51%
	1990	641	430	1,145	691	2,907	1.21%	3.60%
	2000	1,265	527	1,032	740	3,564	1.27%	6.46%
Region	1970	1,708	904	6,289	6,555	15,456	0.85%	5.28%
	1980	2,127	1,638	15,221	2,926	21,912	1.25%	4.79%
	1990	2,233	1,816	15,483	3,944	23,476	1.26%	4.03%
	2000	4,153	2,235	13,672	3,813	23,873	1.30%	6.71%
Wisconsin	1970	21,128	9,019	92,467	20,905	143,519	0.98%	5.15%
	1980	27,610	15,309	140,401	28,316	211,636	1.36%	5.26%
	1990	29,795	14,692	150,601	38,568	233,656	1.21%	4.91%
	2000	38,714	17,172	142,313	35,457	233,656	1.20%	5.88%

Source: U. S. Census, 1970, 1980, 1990, 2000.

counties, seasonal units ranged from 30% of vacant units in Green Lake County to 74% of vacant units in Menominee County.

Seasonal units not only comprised a larger share of vacant units in rural counties than in urban counties, but the gap between the two widened over time. Between 1970 and 2000, the share of seasonal units in urban counties peaked at 42% in 1980, then declined to 24% in 2000. In rural counties, the share of seasonal units peaked at 82% in 1980 and declined to 77% in 2000. In 2000, seasonal units in urban counties ranged from 11% of vacant units in Outagamie County to 34% of vacant units in Calumet County. In rural counties, seasonal units ranged from 64% of vacant units in Waupaca County to 91% of vacant units in Menominee County.

Other Vacant

Other vacant units include migrant housing, units rented or sold, but not yet occupied and all other vacant units not included in any of the above categories. In 1970, other vacant units comprised 42% of the region's vacant housing stock and 15% of the state's vacant housing stock. Within the region, other vacant units comprised 34% of the vacant housing stock in urban counties and 46% of the housing stock in rural counties. Other vacant units as a percentage of total vacant units ranged from 19% of the vacant housing stock in Menominee County to 56% of the housing stock in Green Lake County.

Between 1970 and 2000, other vacant units remained at 15% of the state's vacant housing stock, but declined from 42% of the region's vacant housing stock to 16% of the region's vacant housing stock. Within the region, the largest decline occurred in rural counties. Other vacant units declined from 46% of the vacant housing stock in rural counties in 1970 to 12% of the vacant housing stock in 2000. In urban counties, other vacant units declined from 34% of the vacant housing stock in 1970 to 23% of the vacant housing stock in 2000. By 2000, the share of other vacant units in the region ranged from 5% of the vacant housing stock in Menominee County to 27% of the vacant housing stock in Outagamie County.

Housing Stock Value

Median Housing Value Trends

In 1970, urban counties had higher median housing values than rural counties. Rural county median housing values in the region ranged from $5,700 in Menominee County to $14,100 in Green Lake County, while urban county median housing values ranged from $14,400 in Fond du Lac County to $17,600 in Outagamie County. Outagamie County was the only county in the region with a higher median housing value than the state (Table H-5).

Since 1970, housing values have risen substantially. The largest growth in median housing values occurred in the 1970's. Between 1970 and 1980, median housing prices more than doubled in response to inflationary pressures during the late 1970's and increased demand as baby-boomers entered the housing market. Housing prices continued to rise during the 1980's, but at a much slower rate. Housing prices again increased substantially in the 1990's. Lower interest rates allowed home buyers the opportunity to purchase a higher value home, and the

market responded by increasing the average home size for new construction[3]. The number of expected amenities in a home also increased. Communities responded to the demand to protect property values by increasing minimum lot sizes and minimum square footage. Children of babyboomers began entering the housing market during this decade, which put additional pressure on the housing market. The increased demand for starter homes and lack of supply drove the value of existing starter homes up substantially. By 2000, median housing values in the region ranged from $72,700 in Menominee County to $109,300 in Calumet County.

Table H-5. Median Housing Value for Specified Owner-Occupied Units

	1970	1980	1990	2000
Calumet	$16,300	$45,800	$62,200	$109,300
Fond du Lac	$14,400	$41,200	$55,700	$101,000
Green Lake	$14,100	$38,300	$48,400	$90,100
Marquette	$9,900	$34,300	$45,600	$87,000
Menominee	$5,700	$26,100	$46,700	$72,700
Outagamie	$17,600	$45,200	$63,900	$106,000
Shawano	$10,900	$35,600	$45,500	$84,000
Waupaca	$12,400	$37,800	$49,300	$89,300
Waushara	$10,600	$34,700	$45,600	$85,100
Winnebago	$16,500	$42,900	$59,700	$97,700
Wisconsin	$17,300	$48,600	$62,100	$112,200

Source: U. S. Census, 1970, 1980, 1990 and 2000.

Variations existed between urban and rural counties. Between 1970 and 2000, median housing values in rural counties increased at a higher rate than in urban counties; nevertheless, urban counties continued to have higher median housing values than rural counties. In 2000, median housing values for rural counties in the region ranged from $72,700 in Menominee County to $90,1000 in Green Lake County, while median housing values for urban counties in the region ranged from $97,700 in Winnebago County to $109,300 in Calumet County. Housing market changes and pressures in the housing markets elsewhere in the state raised the state's median housing value above all counties in the region. At the state level, the median housing value increased from $17,300 in 1970 to $112,200 in 2000.

Current Values by Price Range

Although 6 out of the 10 counties in the region had median housing values below $50,000 in 1990, by 2000 only five percent of the region's housing stock was valued at less than $50,000 (Table H-6). While the increase in housing values provides additional equity for homeowners, it has made it more difficult for non-homeowners to purchase their first home.

[3] In 1970, the average size of a new single family home was 1,500 sq. ft. By 2000, the average size of a new single family home was 2,266 sq. ft.

The share of housing stock valued at $50,000 or less is not distributed evenly throughout the region. Rural counties have a much higher percentage of housing valued at less than $50,000 (12%) than urban counties (3%). At the county level, even more variation exists. The share of owner-occupied housing stock in the region valued at less than $50,000 ranged from 26% in Menominee County to 2% in Outagamie County. Seven percent of the state's owner-occupied housing stock is valued at less than $50,000.

The largest share of housing stock for the state and all ten counties in the region falls within the $50,000 to $99,000 price range. Forty-seven percent of owner-occupied housing stock in the region is valued at $50,000 to $99,999, compared to 35% of the state's housing stock. Within the region, 51% of the housing stock in rural counties is valued at $50,000 to $99,999, compared to 45% in urban counties. Marquette County had the largest share of units in this range, 52%; Calumet County had the smallest, 39%.

Table H-6. Specified Owner-Occupied Housing Unit Values, 2000

Jursidiction	Less than $50,000	$50,000 to 99,999	$100,000 to 149,000	$150,000 to 199,999	$200,000 to 299,999	$300,000 or More	Total Units
Calumet	245	3,855	3,603	1,356	590	197	9,846
Fond du Lac	781	10,068	6,904	2,742	1,137	381	22,013
Green Lake	430	2,291	980	394	204	189	4,488
Marquette	323	1,498	714	226	81	30	2,872
Menominee	183	309	106	60	38	11	707
Outagamie	655	16,623	12,754	5,100	2,237	646	38,015
Shawano	1,199	4,294	1,680	635	362	103	8,273
Waupaca	1,040	5,593	2,693	962	445	185	10,918
Waushara	698	2,435	1,033	384	262	73	4,885
Winnebago	1,467	17,634	9,950	4,197	1,995	1,032	36,275
Urban Counties	3,148	48,180	33,211	13,395	5,959	2,256	106,149
Rural Counties	3,873	16,420	7,206	2,661	1,392	591	32,143
Region	7,021	64,600	40,417	16,056	7,351	2,847	138,292
Wisconsin	73,450	396,893	343,993	173,519	95,163	39,449	1,122,467

Source: U. S. Census, 2000.

The second most common price range for housing stock in the region is the $100,000 to $149,000 category. Twenty-nine percent of the region's housing stock falls in this category, compared to 31% for the state. Urban counties have a larger share of housing units in this price range, 31%, than rural counties, 22%. Variations among individual counties in the region range from 15% in Menominee County to 37% in Calumet County.

The remaining 19% of housing stock in the region is valued at $150,000 or more. Urban counties have a larger share of housing in this price range, 20%, than rural counties, 14%. Urban counties also have a larger share of homes in every category above $150,000 than rural counties. Variations amongst counties in the region range from 12% in Marquette County to 22% in Calumet County. The state has the highest share of units in this price range, 27%.

Housing Costs

The relationship between housing costs and household income is an indicator of housing affordability, which is gauged by the proportion of household income expended for rent or home ownership costs. Rental costs include contract rent, plus the estimated average monthly cost of utilities and fuel. Owner costs include payments for mortgages, real estate taxes, fire hazard and flood insurance on the property, utilities and fuels. In 1989, the standard for determining whether rent or home ownership costs comprised a disproportionate share of income was set at 30% of gross household income. Households spending more than 30% of their income for housing may be at risk of losing their housing should they be confronted with unexpected bills or unemployment of one or more workers per household.

Owner-Occupied Housing

In 1989, 15% of homeowners in the state and 12% of homeowners in the region were paying a disproportionate amount of their income for housing (Table H-7). Rural residents were more likely to pay a disproportionate amount of their income for housing than urban residents. Sixteen percent of rural homeowners spend more than 30% of their income on housing, compared to 11% of urban homeowners. In 1989, Waushara County appeared to be the least affordable county in the region. Winnebago County appeared to be the most affordable. Eighteen percent of Waushara County homeowners paid a disproportionate share of their income for housing, compared to 9% of Winnebago County homeowners.

Between 1989 and 1999, housing affordability became a larger issue for homeowners in the region and the state. The percentage of homeowners paying a disproportionate share of their income for housing in Wisconsin rose from 15% to 18% during this time period. In the region, the share of homeowners paying a disproportionate share of their income for housing rose from 12% to 15%. Within the region, the share of homeowners in urban counties paying a disproportionate share of their income for housing increased to 15%. In rural counties, the share of homeowners paying a disproportionate share of their income for housing decreased slightly to 15%. In 1999, the share of homeowners paying more than 30% of their income for housing ranged from 21% in Marquette County to 11% in Waupaca County.

An examination of data at the municipal level indicates that areas with the greatest owner-occupied affordability problems tend to be in counties that have lower median county incomes and significant recreation property (Exhibit H-1.). Marquette County, which has the highest percentage of homeowners paying a disproportionate amount of income for housing, has the second lowest median household income in the region[4]. Marquette County not only has real estate pressure from seasonal residents, Marquette County is also experiencing pressure from individuals who work in Dane County and have relocated to Marquette County, because they cannot afford to live in Dane County.

[4] In 1999, Menominee County had the lowest median household income.

Exhibit H-1
Percent Homeowners Without Affordable Housing 2000

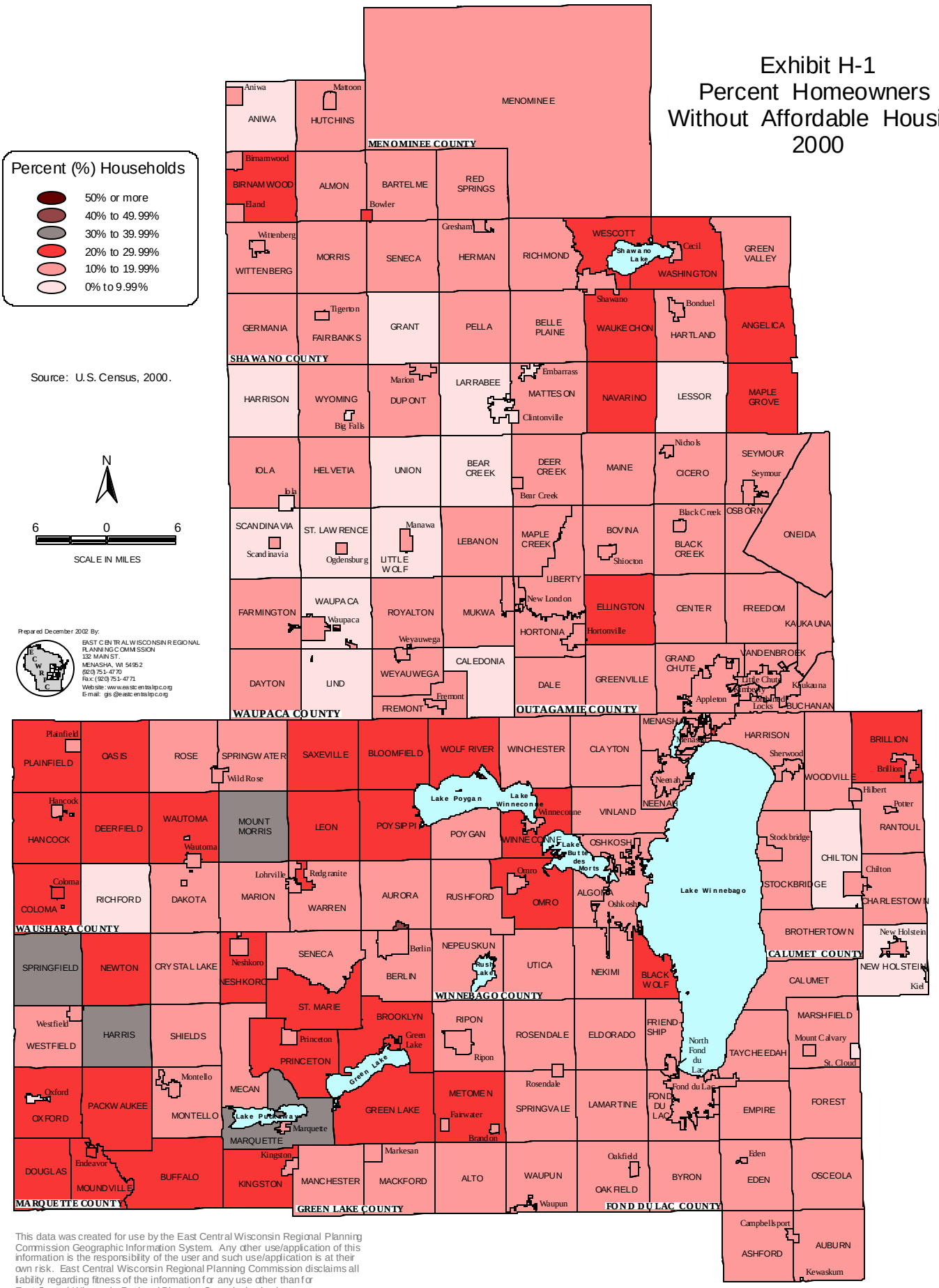

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Table H-7. Households Paying a Disproportionate Amount of Their Income for Housing, 1989 and 1999

	Households for which owner costs are not affordable				Households for which renter costs are not affordable			
	1989		1999		1989		1999	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Calumet	849	12.11%	1,304	13.24%	604	25.80%	516	18.33%
Fond du Lac	2,267	12.32%	3,371	15.31%	2,763	31.76%	2,902	29.75%
Green Lake	664	17.16%	819	18.25%	412	26.61%	417	25.79%
Marquette	356	16.08%	605	21.07%	205	27.01%	206	23.09%
Menominee	62	11.97%	117	16.55%	158	41.58%	98	28.57%
Outagamie	3,761	12.30%	5,787	15.22%	4,054	29.53%	4,203	25.45%
Shawano	1,081	15.97%	1,317	15.92%	779	28.34%	846	26.23%
Waupaca	1,421	15.85%	1,962	11.23%	1,016	27.23%	1,055	24.29%
Waushara	637	17.65%	963	19.71%	444	34.61%	324	23.38%
Winnebago	2,581	8.66%	5,665	15.62%	779	28.34%	5,484	28.23%
Urban	9,458	11.02%	16,127	15.19%	8,200	29.80%	13,105	27.02%
Rural	4,221	16.27%	5,783	14.95%	3,014	28.84%	2,946	24.95%
Region	13,679	12.24%	21,910	15.13%	11,214	29.54%	16,051	26.61%
Wisconsin	140,026	15.08%	199,967	17.81%	209,438	35.96%	207,242	32.30%

Source: U. S. Census, 1990 and 2000.

Renter-Occupied Housing

Census data indicates that renters throughout the region and the state had far greater difficulty finding affordable housing than homeowners. In 1989, 36% of renters in the state and 30% of renters in the region paid a disproportionate share of their income for housing, compared to 15% and 12% of homeowners, respectively.

On average, urban county residents had slightly more difficulty obtaining affordable rental housing than rural residents. In 1989, 30% of urban county renters paid a disproportionate share of their income for housing, compared to 29% of rural county renters. At the individual county level, however, the county with the highest share of renters paying more than 30% of their income for housing was a rural county, Menominee County. The county with the smallest share of renters paying more than 30% of their income for housing was an urban county, Calumet County. Forty-two percent of renters in Menominee County paid more than 30% of their income for housing in 1989, compared to 26% of renters in Calumet County.

Between 1989 and 1999, four jurisdictions saw the number of households paying a disproportionate share of their income for rental housing decrease, Calumet, Menominee and Waushara Counties and the State of Wisconsin. As a result of these decreases, the share of renters paying a disproportionate share of their income for housing decreased at the state and regional level during this time period.

By 1999, the share of renters paying more than 30% of their income for housing in the state had declined from 36% in 1989 to 32% in 1999. In the region, the share of renters paying more than 30% of their income for housing declined from 30% of renters in 1989 to 27% of

renters in 1999. Renters continued to have more difficulty finding affordable housing than homeowners; and renters in urban counties continued to have more difficulty finding affordable rental housing than rural county residents.

In 1999, 27% of urban county renters paid a disproportionate share of their income for housing, compared to 25% of rural county residents. Fond du Lac County has the largest share of renters paying a disproportionate amount of their income for housing, 30%. Calumet County had the smallest share of renters paying a disproportionate amount of their income for housing, 18%.

An examination of data at the municipal level shows that areas with the greatest renter affordability problems are scattered throughout the region (Exhibit H-2.). At this point in time, no clear, consistent pattern exists; so it is likely that affordability issues are linked to local conditions. Those local conditions, which vary by community, have resulted in a mismatch between rental costs and income levels for a significant share of renters in the region.

Housing Conditions

Census data generally used for determining housing conditions include units lacking complete plumbing facilities and overcrowding. Complete plumbing facilities include hot and cold piped water, flush toilet and a bathtub or shower. Housing units are classified as lacking complete plumbing facilities when any of the three facilities are not present. Overcrowding is defined as more than one person per room in a dwelling unit.

Plumbing

In 1990 and 2000, less than 1% of occupied units in the region and state were lacking complete plumbing facilities. The state had a slightly higher percentage of units lacking complete plumbing facilities than the region as a whole. The number of units lacking complete plumbing declined between 1990 and 2000 for both the region and the state (Table H-8).

Within the region, rural counties had a higher percentage of occupied units lacking complete plumbing facilities for both years than urban counties in the region. In 1990 and 2000, less than 1% of occupied units in urban counties were lacking complete plumbing facilities. In 1990, Green Lake County was the only rural county in which less than 1% of occupied units lacked complete plumbing facilities. In the remainder of rural counties, the percentage of occupied units lacking complete plumbing facilities ranged from 1.13% in Waupaca County to 2.50% in Menominee County.

Between 1990 and 2000, the number and percentage of occupied units lacking complete plumbing facilities declined in every county in the region, except Green Lake County. In Green Lake County, the number of occupied units lacking complete plumbing facilities rose from 33 units in 1990 to 45 units in 2000. The increase in occupied units lacking complete plumbing facilities was likely due to the conversion of seasonal units lacking in complete plumbing facilities to year-round residences. In spite of the increase, the percentage of occupied units lacking complete plumbing facilities in Green Lake County remained below 1%. By 2000, the percentage of occupied units lacking complete plumbing facilities was less than 1% for every county in the region.

Exhibit H-2
Percent Renters Without Affordable Housing 2000

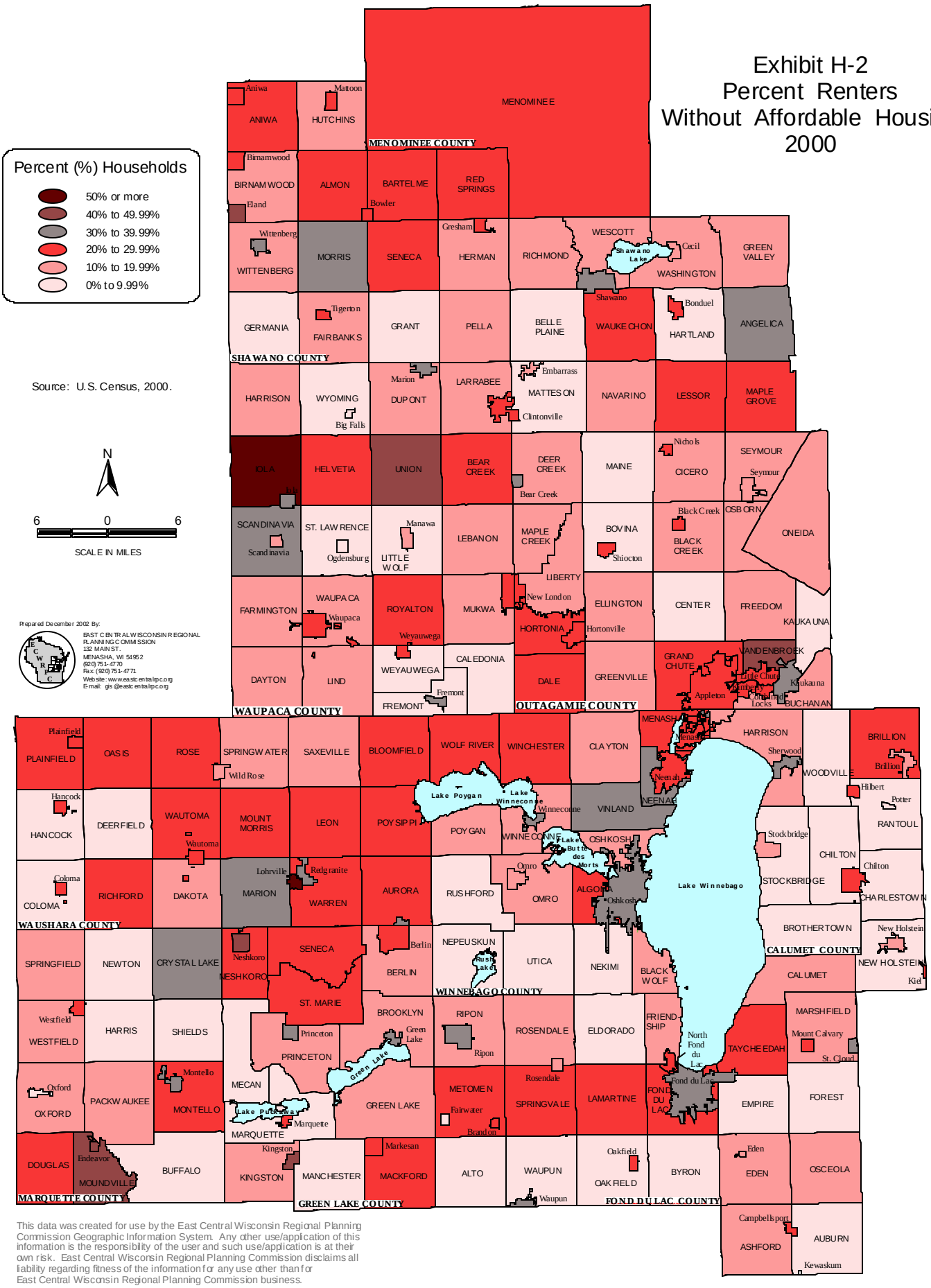

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Table H-8. Units Lacking Complete Plumbing Facilities, 1990 and 2000

	1990			2000		
	Units Lacking Complete Plumbing		Total Occupied Units	Units Lacking Complete Plumbing		Total Occupied Units
	Number	Percent		Number	Percent	
Calumet	60	0.51%	11,772	28	0.19%	14,910
Fond du Lac	124	0.38%	32,644	83	0.22%	36,931
Green Lake	33	0.46%	7,189	45	0.76%	5,950
Marquette	66	1.37%	4,831	44	0.89%	4,925
Menominee	27	2.50%	1,079	10	0.74%	1,345
Outagamie	107	0.21%	50,527	82	0.14%	60,530
Shawano	208	1.51%	13,775	105	0.66%	15,815
Waupaca	193	1.13%	17,037	111	0.56%	19,863
Waushara	103	1.35%	7,616	62	0.66%	9,336
Winnebago	196	0.38%	52,216	192	0.46%	41,571
Urban Counties	487	0.33%	147,159	385	0.25%	153,942
Rural Counties	630	1.22%	51,527	377	0.66%	57,234
Region	1,117	0.56%	198,686	762	0.36%	211,176
Wisconsin	11,780	0.65%	1,822,118	10,648	0.51%	2,084,544

Source: U. S. Census, 1990 and 2000.

Overcrowding

In 1990, the state had a higher share of units with more than one person per room than the region. Two percent of units in Wisconsin were overcrowded in 1990, compared to 1.6% in the region (Table H-9.). Within the region, rural counties had a larger share of overcrowded units than urban counties.

The largest share of overcrowded units by far could be found in Menominee County. Fifteen percent of units in Menominee County were overcrowded in 1990. For the remainder of counties in the region, the share of overcrowded units ranged from 2.03% in Shawano County to 1.17% in Winnebago County.

Between 1990 and 2000, the number of overcrowded units increased in the state and the region. By 2000, 2% of units in the region and almost 2.5% of units in the state were overcrowded.

Within the region, the number of overcrowded units increased for every county in the region, except for Menominee and Shawano Counties. In Menominee and Shawano Counties, the number of units with more than one person per room decreased slightly. Rural counties continued to have a higher share of overcrowded units than urban counties. Menominee County continued to have a far larger share of overcrowded units than the remaining counties in the region. In 2000, 12% of units in Menominee County were overcrowded. In the

remaining counties in the region, the share of overcrowded units ranged from 2.60% in Winnebago County to 1.42% in Fond du Lac County.

Table H-9. Overcrowding, 1990 and 2000

	1990			2000		
	Overcrowded Units		Total Occupied Units	Overcrowded Units		Total Occupied Units
	Number	Percent		Number	Percent	
Calumet	222	1.89%	11,772	265	1.78%	14,910
Fond du Lac	431	1.32%	32,644	524	1.42%	36,931
Green Lake	87	1.21%	7,189	137	2.30%	5,950
Marquette	75	1.55%	4,831	86	1.75%	4,925
Menominee	162	15.01%	1,079	161	11.97%	1,345
Outagamie	904	1.79%	50,527	1,107	1.83%	60,530
Shawano	279	2.03%	13,775	275	1.74%	15,815
Waupaca	274	1.61%	17,037	300	1.51%	19,863
Waushara	129	1.69%	7,616	192	2.06%	9,336
Winnebago	609	1.17%	52,216	1,082	2.60%	41,571
Urban Counties	2,166	1.47%	147,159	2,978	1.93%	153,942
Rural Counties	1,006	1.95%	51,527	1,151	2.01%	57,234
Region	3,172	1.60%	198,686	4,129	1.96%	211,176
Wisconsin	38,340	2.10%	1,822,118	50,351	2.42%	2,084,544

Source: U. S. Census, 1990 and 2000.

Households by Type

In 1990, the region had a higher percentage of family households[5], 72%, than the state, 70%. Almost 86% of family households in the region were married couples. Single parent households comprised 14% of family households and 10% of all households in the region. The state had a lower percentage of married couple families, 83% and a higher share of single parent households. In Wisconsin, single parent households comprised 18% of family households and 12% of all households in the state.

The remainder of households in the region and state were comprised of nonfamily households[6]. Thirty percent of the state's households were comprised of nonfamily households, compared to 28% for the region. The region, however, had a higher percentage of nonfamily households comprised of householders age 65 and older living alone, 39%, than the state, 35%.

Within the region, in 1990, rural counties had a higher percentage of family, 73%, and married couple family households, 63%, than urban counties, where family and married couple family households comprised 72% and 62% of households, respectively. Urban counties had a higher

[5] A family household is a household where individuals living in the household are related to the householder by birth, marriage, or adoption. Family households include married couple families and single parent families.

[6] Nonfamily households are households where individuals living in the household are not related by birth, marriage or adoption. Nonfamily households also include one-person households.

percentage of nonfamily households, 28%, than rural counties, 27%. However, nonfamily households in rural counties were more likely to be comprised of householders age 65 and older living alone. Both urban and rural counties had comparable shares of single parent family households, 10%.

Table H-10. Households by Type, 1990 and 2000

	Total Families		Married Couple Families		Single Parent Families		Nonfamily Households		Total Households	
	1990	2000	1990	2000	1990	2000	1990	2000	1990	2000
Wisconsin	1,275,172	1,386,815	1,048,010	1,108,597	227,162	278,218	546,946	697,729	1,822,118	2,084,544
Region	144,191	160,565	123,688	134,067	20,503	26,498	55,495	73,011	199,686	233,576
Urban Counties	106,458	118,397	91,268	99,054	15,190	19,343	41,701	55,131	148,159	173,528
Rural Counties	37,733	42,168	32,420	35,013	5,313	7,155	13,794	17,880	51,527	60,048
Calumet	9,269	11,164	8,163	9,689	1,106	1,475	2,503	3,746	11,772	14,910
Fond du Lac	23,665	25,467	20,239	21,321	3,426	4,146	8,979	11,464	32,644	36,931
Green Lake	5,176	5,322	4,476	4,510	700	812	2,013	2,381	7,189	7,703
Marquette	3,546	4,167	3,118	3,516	428	651	1,285	1,819	4,831	5,986
Menominee	905	1,065	472	572	433	493	174	280	1,079	1,345
Outagamie	37,232	42,219	32,212	35,622	5,020	6,597	13,295	18,311	50,527	60,530
Shawano	10,189	11,154	8,859	9,220	1,330	1,934	3,586	4,661	13,775	15,815
Waupaca	12,350	13,877	10,661	11,593	1,689	2,284	4,687	5,986	17,037	19,863
Waushara	5,567	6,583	4,834	5,602	733	981	2,049	2,753	7,616	9,336
Winnebago	36,292	39,547	30,654	32,422	5,638	7,125	16,924	21,610	53,216	61,157

Source: U. S. Census, 1990 and 2000.

At the county level, married couple families as a percent of total households ranged from 43% in Menominee County to 65% in Calumet County. Single parent family households ranged from 9% of all households in Marquette County to 40% of households in Menominee County.

Between 1990 and 2000, the number of family households increased at the regional and state level. However, the number of nonfamily households increased at a greater rate. As a result, by 2000, family households had declined to 69% of all households in the region and 67% of all households in the state. Single parent family households increased in number and as a percentage of total households. In 1990, single parent households comprised 10% of all households in the region and 12% of all households in the state. By 2000, 11% of all households in the region and 13% of all households in the state were comprised of single parent households.

In 2000, nonfamily households comprised 33% of households in the state and 31% of households in the region. Within the region, urban counties continued to have a higher share of nonfamily households, 32%, than rural counties, 30%. Nonfamily households as a percentage of total households ranged from 21% of households in Menominee County to 35% of households in Winnebago County.

Nonfamily households comprised of householders age 65 and living alone increased in the state and throughout the region between 1990 and 2000. However, their share of total nonfamily households decreased, as other nonfamily households increased at a faster rate. Between 1990 and 2000, the percentage of elderly one-person households in the state decreased from 35% to 30% of all nonfamily households. At the regional level, elderly one-person households decreased from 39% in 1990 to 32% in 2000. Within the region, the share of elderly one-person households decreased in urban counties from 35% of all nonfamily households to 29% of all nonfamily households during this time period. In rural counties, the share of elderly one-

person households decreased from 50% of all nonfamily households to 40% of all nonfamily households.

Table H-11. Nonfamily Households, 1990 and 2000

	Nonfamily Households		Householder Age 65+ Living Alone	
	1990	2000	1990	2000
Wisconsin	546,946	697,729	192,072	207,206
Region	55,495	73,011	21,630	23,453
Urban Counties	41,701	55,131	14,711	16,228
Rural Counties	13,794	17,880	6,919	7,225
Calumet	2,503	3,746	1,002	1,124
Fond du Lac	8,979	11,464	3,714	3,998
Green Lake	2,013	2,381	1,048	1,066
Marquette	1,285	1,819	712	739
Menominee	174	280	57	86
Outagamie	13,295	18,311	4,333	5,080
Shawano	3,586	4,661	1,809	1,908
Waupaca	4,687	5,986	2,244	2,317
Waushara	2,049	2,753	1,049	1,109
Winnebago	16,924	21,610	5,662	6,026

Source: U. S. Census, 1990 and 2000.

Housing Needs Analysis

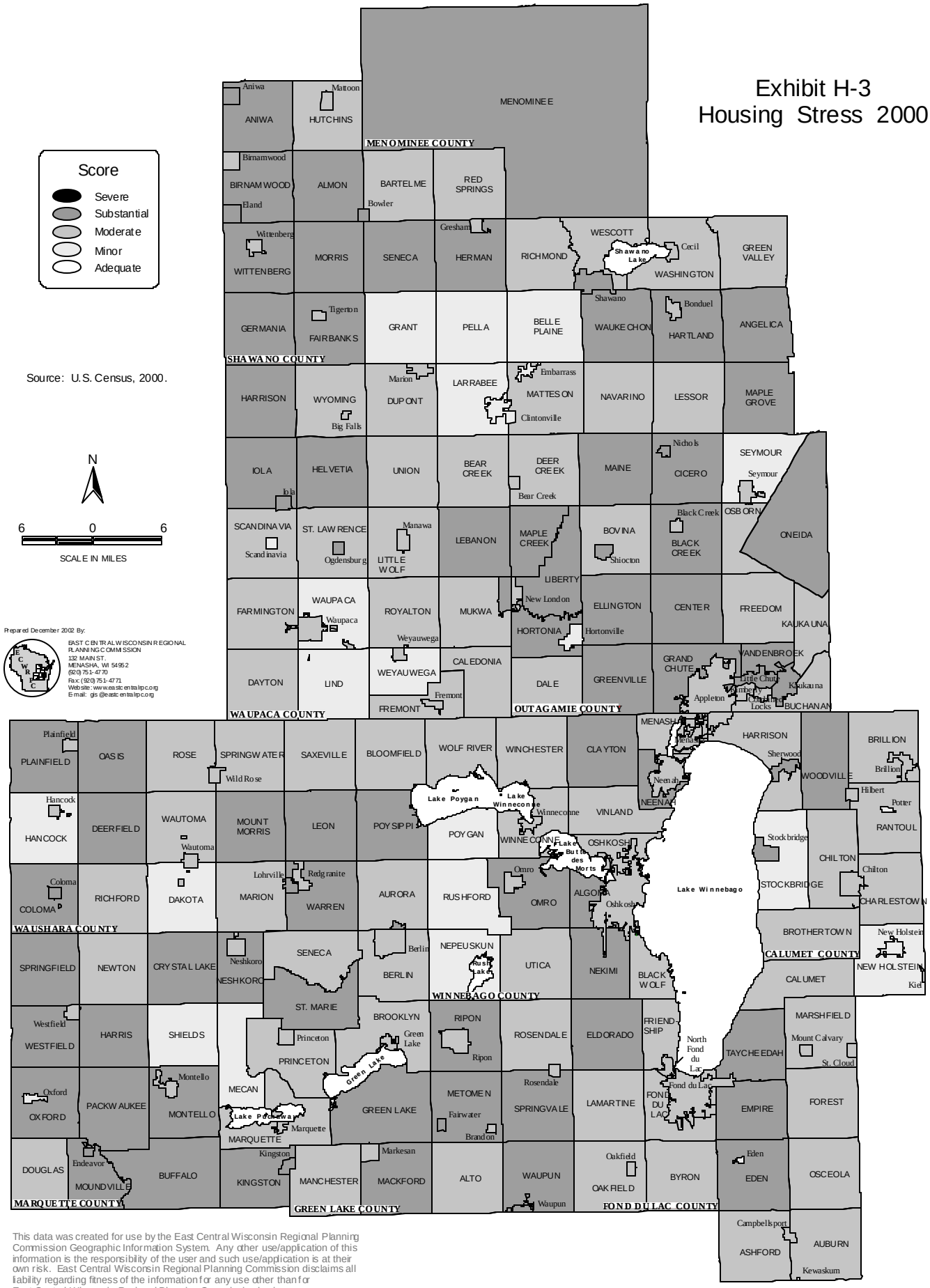
East Central has used census data to determine housing needs and the condition of housing stock throughout the region. Previous sections of this chapter have examined and discussed the age of occupied units, homeowner and rental vacancy rates, owner-occupied housing values, renter and owner-occupied housing affordability and housing conditions of occupied units in the region at the county level. Exhibit H-3 is a composite map, which indicates which minor civil divisions (MCDs) within those counties have the greatest housing needs based on a compilation of those ten variables. The matrix used to develop the housing stress index can be found at Appendix B:1

An analysis of this data indicates that every MCD in the region has one or more housing issues, which needs to be addressed. Some scattered rural communities have minor issues, which need to be addressed, but the majority of MCDs within the region have more than one issue to be addressed. MCDs that fall into the moderate and substantial housing stress categories are communities, which likely need to exert the largest effort to address housing concerns of their residents.

Housing Affordability

The largest and most common issue communities in the region face is housing affordability, particularly for renters. Exhibits H-1 and H-2 pages 87 and 90 show the degree to which this is

Exhibit H-3
Housing Stress 2000



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an issue for each community. Communities should also note that current trends indicate that housing within the region is becoming less affordable over time.

Housing Available for Rent or Sale

Low vacancy rates is the second most common issue communities face. Low vacancy rates may artificially inflate the cost of housing. They also make it difficult for potential residents to find housing. MCDs, which have been identified as having substantial housing stress, typically have owner- and renter-occupied affordability issues and low vacancy rates for both renter- and owner-occupied housing.

Age of Occupied Dwelling Units and Owner-occupied Housing Values

The region has many older, well-maintained homes. It also has some mansions that are valued over $300,000 and were built over 40 years ago. As a result, it is inappropriate to assume that because a unit was built over 40 years ago that it is in poor condition or part of the affordable housing stock. The region also has some small homes and newer mobile homes that are in good condition, but have lower property values. As a result, MCDs were assigned an index score based on the percentage of units within the MCD that were greater than 40 years old *and* the percentage of units that were valued at less than $50,000.

Twenty MCDs in the region had at least 25% of its occupied housing stock greater than 40 years of age *and* at least 25% of its owner-occupied housing stock valued at less than $50,000. The majority of these MCDs were located in rural counties. Half of them were located in Shawano County. Four counties in the region, Calumet, Fond du Lac, Menominee and Winnebago, did not have any MCDs which fit into this category.

Two MCDs in the region had at least 50% of their occupied housing units identified as greater than 40 years of age *and* at least 50% of their owner-occupied housing stock valued at less than $50,000. These two communities were the Village of Mattoon in Shawano County and the Village of Ogdensburg in Waupaca County.

Overcrowding

As noted earlier in this chapter, less than 2% of the region's housing stock was overcrowded. At the MCD level, seven communities in the region had overcrowding in 11% to 25% of their rental units. One, the Town of Kingston, had overcrowding in over 25% of their rental units. The Town of Kingston also had low vacancy rates and housing affordability issues in both owner and renter occupied units, which may be contributing factors to the overcrowding issue.

Plumbing

In 2000, 762 occupied units in the region were lacking complete plumbing facilities. These units were scattered throughout the region in such a way that no MCD in the region had more than 10% of its occupied units lacking complete plumbing facilities.

Subsidized and Special Needs Housing

Subsidized and special needs housing is needed for individuals, who because of financial difficulties, domestic violence situations, disabilities, age, alcohol and drug abuse problems, and/or insufficient life skills need housing assistance or housing designed to accommodate their needs. In some instances, extended family structures and finances may allow families or individuals to cope privately with special needs. Two such examples would be where a child cares for an elderly parent in their own home or where a parent cares for a disabled child in their own home. In most instances, however, some form of assistance is needed. The housing needs of these populations vary based on their circumstances, health, economic conditions and success of educational, training, treatment or counseling programs.

Several government, private and nonprofit agencies provide some form of housing assistance throughout the region[7]. The continuum of care ranges from emergency shelters or emergency assistance for short term needs, through transitional housing programs to long term care and assistance[8]. The region also contains a number of federally assisted rental housing units, which provide subsidized housing for qualifying elderly and disabled individuals and families (Table H-12). These units may be managed by one of the 16 housing authorities in the region, or by private or non-profit

Table H-12 Federally Assisted Rental Units, 1999

	Elderly Units	Family Units	Disabled Units	Total Units
Region	3,953	2,711	444	7,108
Urban	2,817	1,937	345	5,099
Rural	1,136	774	99	2,009
Calumet	182	58	23	263
Fond du Lac	791	720	189	1,700
Green Lake	163	77	19	259
Marquette	91	21	4	116
Menominee	42	267	0	309
Outagamie	814	459	30	1,303
Shawano	356	198	13	567
Waupaca	326	165	47	538
Waushara	158	46	16	220
Winnebago	1,030	700	103	1,833

Source: WHEDA website, 2000.

groups. Fifty-six percent of the units in the region are designated for elderly residents, 38% for families, and the remaining 6% of units are for disabled individuals. Over 70% of the units are located in urban counties in the region. Rural counties have a slightly higher share of elderly units, 57%, than urban counties, 55%. Urban counties have higher share of disabled units

[7] See *Guide to Housing Providers and Services within the East Central Region.*
[8] See Chapter 6 section for nursing home and mental hospital data.

(7%) than rural counties (5%). Family units comprise 38% of federally assisted rental units in both urban and rural counties.

At this point in time, no complete regionwide data set exists that evaluates the current service and housing needs for subsidized and special needs housing. Local data does exist in some communities. Data from gaps analyses and housing need studies conducted in this area indicate that more assistance is needed within the region.

Some demographic information can be used to help determine the needs of these populations. However, care must be taken in evaluating demographic trends to determine housing needs. In the case of elderly housing, for example, current demographic data indicates that as individuals retire they are moving from urban communities and counties to rural counties. This data may show a need for additional facilities in those areas, and little need for additional facilities in urban areas. However, a study, *Population Age 65 and Over in Wisconsin Counties* (1997) by the Wisconsin Department of Administration, indicated that while younger elderly were more likely to live in rural counties, once their health began failing, many of these individuals returned to urban counties for services and health care.

Housing: Key Findings

Current Trends

Some of the broad-scale changes in the region over the past thirty years include the following.

Age of Occupied Units

- Significant building trends in the region have typically occurred in response to demographic trends. Peak building occurred in the 1970's in response to the baby-boomers entering the housing market and in the 1990's in response to the "echo" boom generation entering the housing market and significant in-migration.

Housing by Structural Type

- The region's housing stock is dominated by single family housing.
- The share of multi-family housing and mobile homes is increasing.

Occupancy Status

- Total occupancy status is lower in rural counties, which have a significant amount of seasonal units.
- Traditionally, urban counties have maintained tight owner-occupied housing markets.
- Rental housing markets have fluctuated widely over time, particularly in rural counties.
- Rental housing is not distributed equitably throughout the region. The region as a whole had an adequate number of vacant rental units in 2000. However, many local communities had very tight rental markets.

Housing Values

- Owner-occupied housing values have increased significantly over the last 30 years.
- The largest increase in housing values occurred in the 1970's.
- Housing values also rose significantly in the 1990's.
- Urban counties have a larger share of high end housing than rural counties.

Housing Affordability

- Affordable housing is becoming a significant issue in our region.
- Rental households, in particular, have great difficulty finding affordable housing. In 2000, 27% of renters were paying a disproportionate share of their income for housing, compared to 15% of homeowners.
- Counties with the greatest homeowner affordability issues are rural, recreation counties.

Households by Type

- The majority of households in the region are family households.
- Nonfamily households are the fastest growing household by type in the region.
- Rural counties have a significant share of elderly one-person households.

Overcrowding

- Overcrowding is not an issue for most households in the region. However, the number and percentage of households living in overcrowded units in the region is increasing.

Future Trends

- The number of households in the region is expected to increase by 23%. The number of housing units in the region will need to increase to accommodate these new households.
- More choice in the housing market is needed.
- Demographic trends and economic conditions will likely result in the need for a greater share of rental units.
- New housing units by structural type and design should accommodate household life cycles and changes in household composition.
- Without interference in the housing market, it is likely that housing affordability problems will continue to grow.

Identification of Issues

- Based on the data and focus group sessions, it appears that housing affordability is one of the largest issues facing the region. How can we ensure adequate provision of affordable housing?
- How do we provide affordable housing for very low income households, which in particular, is in very short supply?
- How do we overcome the various barriers to affordable housing? These barriers include, but are not limited to: NIMBYism, the high cost of land, construction costs, rehab costs and exclusionary zoning.
- How do we redress the mismatch that exists between the economic development sector and the housing sector?
- How do we ensure housing choices are not limited? Most housing is geared toward the two parent, two child household, yet other types of households are growing far more rapidly in our region.
- How do we consider housing preferences for the growing minority population?
- How do we address the trend that as the rise in property values is placing many existing homes out of the reach of first time home buyers, fewer new starter homes are being constructed?
- How will we meet the housing needs and options for an aging population?
- How can we promote more cooperation between the governments, and between the government, private and nonprofit sectors?
- How do we ensure that the relationship between housing location, transportation and other land uses is examined more closely?
- How do we prevent inadequate funding and competition for scare resources from leading to turf wars between agencies and communities and counties?
- Rural areas seem to be at a competitive disadvantage due to insufficient knowledge, resources and staffing to meet housing needs in rural areas. How do we plan to meet the housing needs in our rural areas?

- Lack of data coupled with misperceptions and political gamesmanship has led to a mismatch between housing needs and housing programs/funding, how do we address this mismatch?
- How do we provide financial and life skills training for emerging households?
- Health and safety regulations such as lead abatement and asbestos removal has made it extremely costly to preserve historical features in older homes, how do we respond to this?
- Are we aware of all the direct and indirect impacts of policy decisions and their impact on housing choice, supply and affordability?

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Exhibit H-1
Percent Homeowners Without Affordable Housing 2000

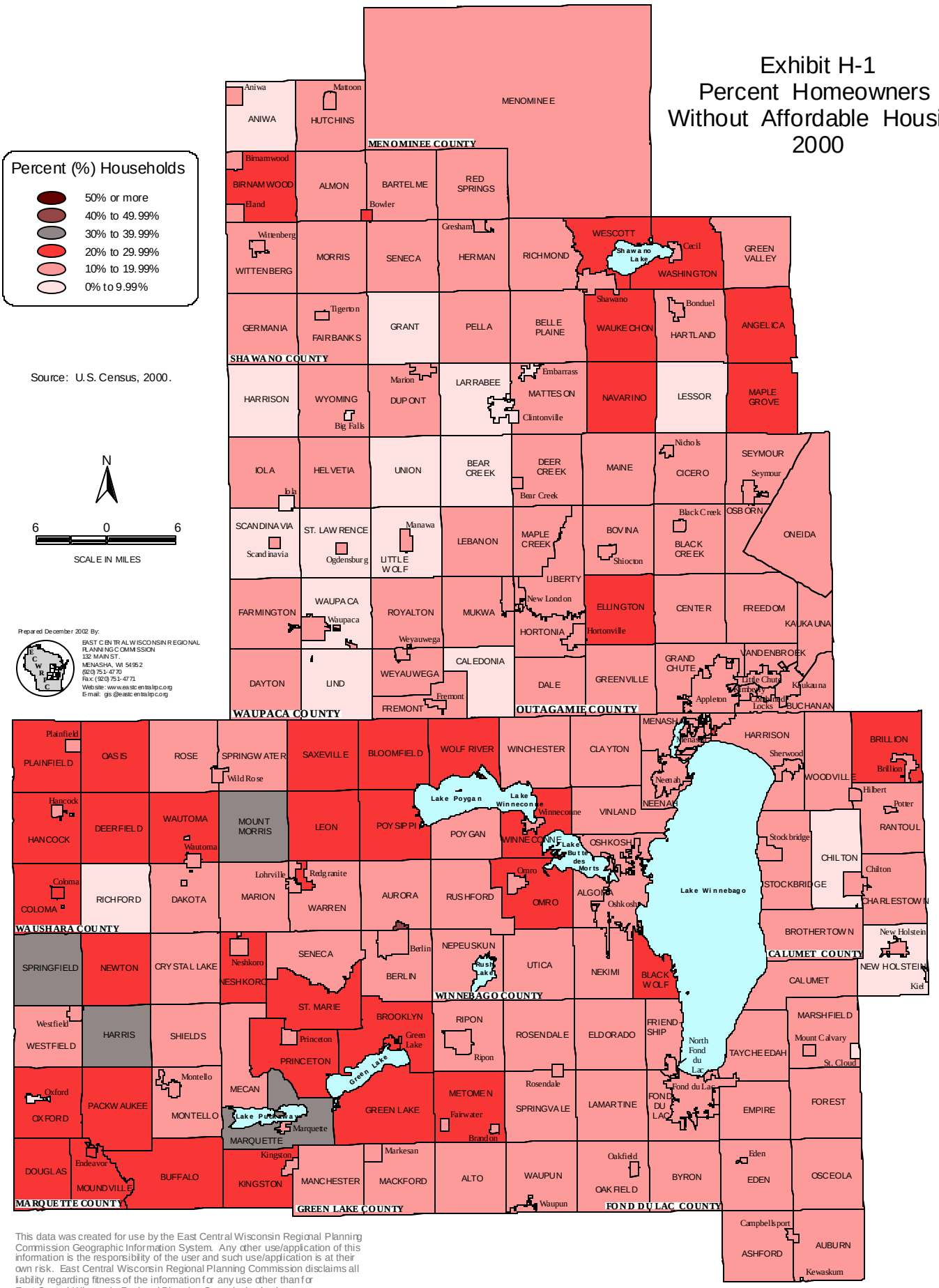

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Exhibit H-2
Percent Renters Without Affordable Housing 2000

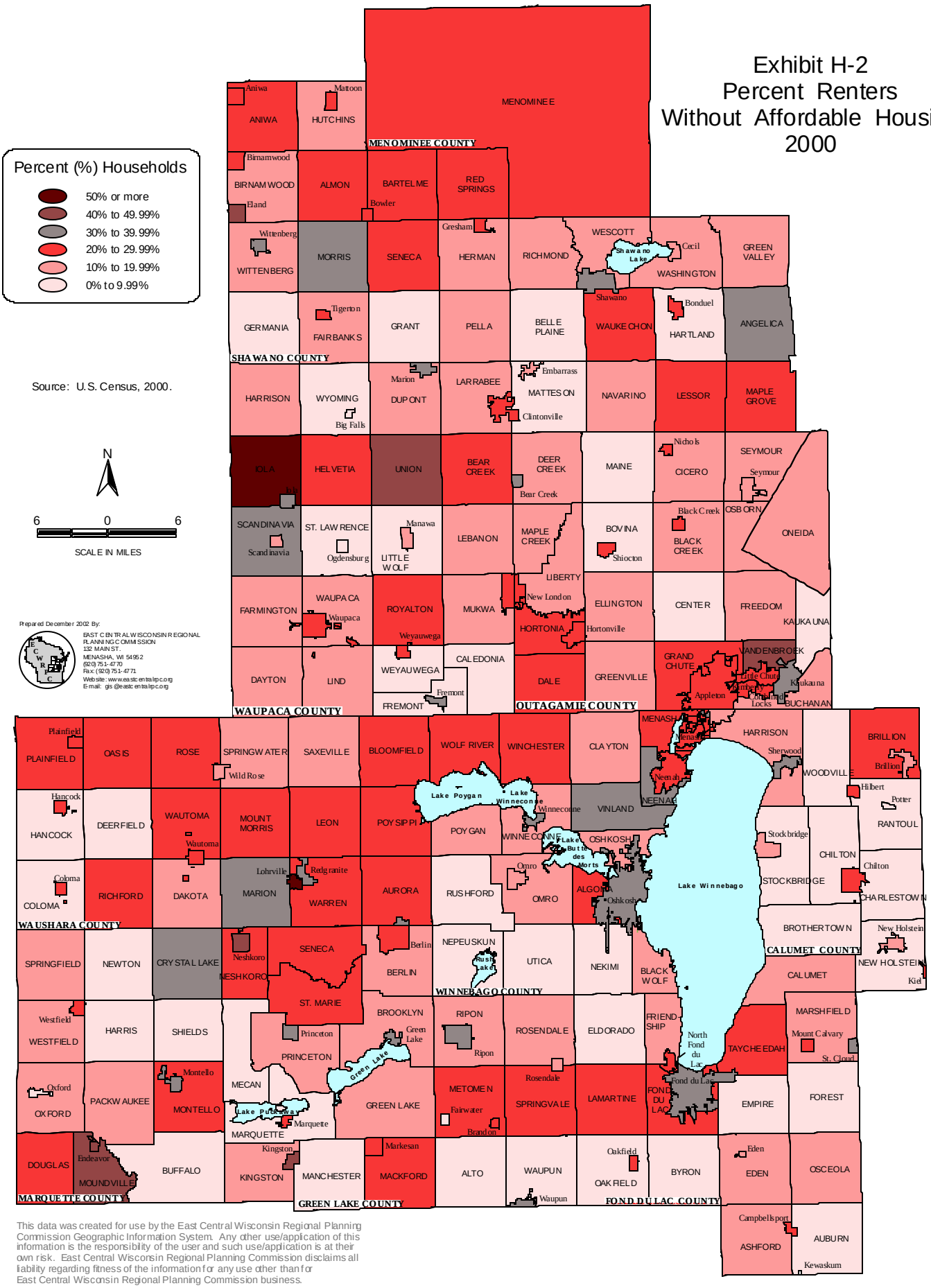

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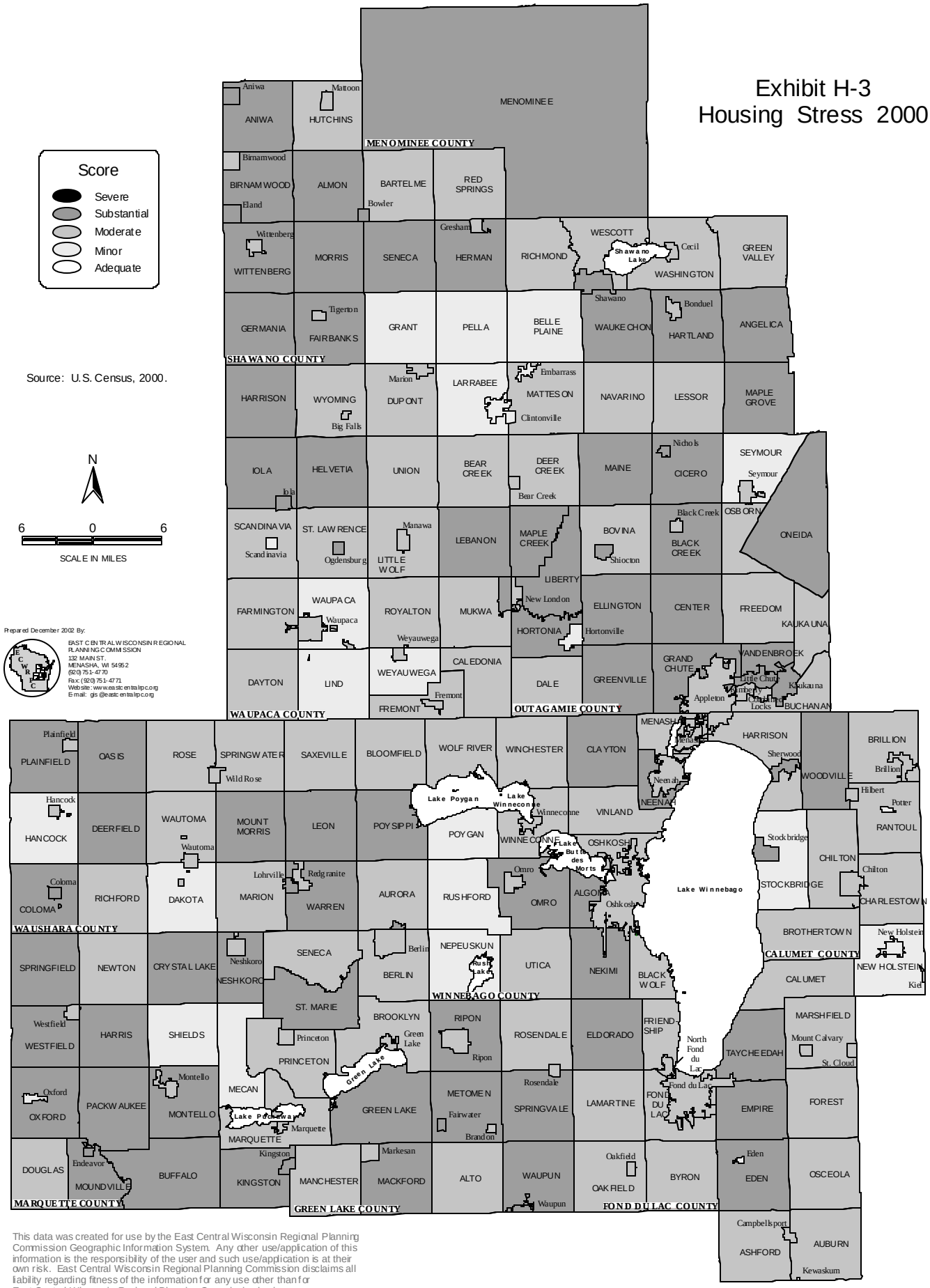
Exhibit H-3
Housing Stress 2000



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CHAPTER 5: TRANSPORTATION

Introduction

In most cases, the region is served by a well-developed transportation system. This system allows for the safe and efficient movement of people and goods within the region, as well as into and out of the region. Most of the transportation activity is, as might be expected, focused in the urbanized portions of the region, where population, industry, and commerce are concentrated. By comparison with urban area transportation systems, longer trips and lower volumes of traffic, or ridership characterize rural area transportation systems. The development of urban-type land uses, away from the urban centers and at lower densities, has blurred this distinction over the past 30 to 40 years. Traffic volumes on rural highways have increased, new highways have been built or expanded, and public transportation programs struggle to meet the increasing travel demand.

A strong transportation system is an integral element in the vitality of the region's economic strength. Industry requires easy access to highways, and sometimes rail, to bring in materials and to transport product to the larger hubs for distribution to a global market. As an example, the region relies heavily on trucking and rail for the delivery of raw materials for the paper industry, as well as to transport finished products, mostly through the Chicago hub for worldwide distribution. Our highways also accommodate a large number of work and shopping trips, opening those markets to more people from neighboring regions. Transit systems allow persons of low income, those with disabilities, and the elderly to access jobs, go shopping, attend social events, and to lead productive and meaningful lives, reducing their reliance on financial assistance programs.

This chapter first addresses the policy context in which transportation functions. Federal and state regulations that affect the planning, development, and operation of the transportation system, and other policies and plans, which will be taken into consideration in this planning process, are discussed. The data and related analysis is organized by transportation mode, and describes the existence and significance of each mode to the region. Highways make up the backbone of the transportation network and allow for auto, transit, and commercial trucking movements within and outside of the region. Transit systems and bicycle and pedestrian facilities throughout the region are also addressed in terms of their location, type, and importance to the region. Passenger rail and airport functions are also inventoried and discussed, while the movement of freight and its importance to the economic vitality of the region is presented.

In terms of the 14 local comprehensive planning goals listed in Chapter 1, East Central takes the view that those listed below relate specifically to planning for transportation.

- Encouragement of neighborhood designs that support a range of transportation choices.
- Encouragement of land uses, densities and regulations that promote efficient development patterns and relatively low municipal state governmental and utility costs.
- Encouragement of coordination and cooperation among nearby units of government.

- Providing 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.
- Providing an integrated, efficient and economical transportation system that affords mobility, convenience and safety and that meets the needs of all citizens, including transit dependent and disabled citizens.

Policy Context

Federal

A number of federal and state policies guide the planning, development, maintenance, and operation of the transportation network in the region. As tends to be the case with federal and state policies, their implementation is accomplished with the development of regulations, often with tight ties to funding. A few of the federal regulations appropriate to this element are: Title VI, Civil Rights Act, and specifically the Americans with Disabilities Act of 1990 (ADA) and the Executive Order concerning Environmental Justice; Clean Air Act; and planning requirements under the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA), and the subsequent Transportation Equity Act of 1998 (TEA-21). Historic preservation regulations also affect transportation planning, project development and construction.

The Transportation Equity Act for the 21st Century (TEA-21), largely reaffirming the tenets of the ISTEA, is the overriding legislation which sets out all federal transportation funding programs and the planning requirements of those programs. For instance, TEA-21 spells out the existence of the Transportation Enhancement program, the minimum level at which it will be funded, and the general principles and intentions of the program. Also, requirements for transportation/land use plans for each urbanized area, and some general description of the plans' contents, were also included in ISTEA and TEA-21. Administrative rules are used to flesh out the program requirements.

Civil Rights legislation, as it relates to transportation, generally protects underrepresented populations from detrimental effects of, or provides adequate benefit from, transportation projects and services. For instance, the ADA requires that all publicly funded transit systems provide paratransit services for those persons who are unable, due to a disability, to access the fixed route bus, light rail, or other general public transit system. Also, all buses must be equipped with a lift or ramp to allow access to those persons who need that type of assistance to access the fixed route system. Environmental Justice legislation protects low-income and minority populations from the detrimental effects of a transportation project, such as a new highway corridor that will create a barrier between a residential community of Amish persons and their chapel and market. Every level of planning needs to include an appropriate level of effort to locate and give such populations access to the planning process, create opportunities for providing input, and consider potential impacts. This is also true in terms of providing benefit of transportation services and projects to the protected populations.

Historic and archeological preservation legislation is intended to protect historically and culturally significant resources, such as burial sites, structures which are deemed architecturally significant to a particular period, or archeological findings of a past culture, from destruction, often in the process of building or expanding a highway. Careful study is necessary to weigh

the significance of the resource against the benefit and alternatives available in the project's development. Often compromises are met through mitigation of the detrimental effects and/or alterations to the project.

Many regulations exist at the federal level that are designed to protect our natural resources. Along with other threats to our air, water, forests, deserts, and mountains, transportation projects are required to meet a long list of environmental requirements. The National Environmental Policy Act (NEPA) sets out environmental review requirements for all Federal Highway Administration (FHWA) actions to consider environmental factors through a systemic interdisciplinary approach before committing to a course of action. The Clean Air Act ensures that transportation plans, programs, and projects conform to Wisconsin's air quality implementation plans. The Clean Air Act, along with Congestion Mitigation and Air Quality Improvement sections of ISTEA, apply to air quality non-attainment and maintenance areas. Currently, the region has air quality attainment status, and the requirements of these legislative actions do not apply. This could quickly change, however, as new air quality standards work their way through the federal court system.

State

State requirements largely echo or augment federal requirements. Transportation projects are held accountable to a large number of Wisconsin Department of Natural Resources (DNR) regulations, aimed at avoiding or mitigating the negative impacts of transportation projects on the natural environment. The Wisconsin Environmental Policy Act, just as the federal policy, requires the consideration of environmental factors by a systematic interdisciplinary approach. Some environmental regulations at the state level, are considerably more specific to Wisconsin's environmental needs and desires, such as the Shoreland-Wetland Protection program which requires cities and villages to adopt shoreland-wetland zoning ordinances and municipalities to establish flood plains based upon the 100 year storm by zoning. The Wisconsin Department of Transportation (WisDOT) is then required to determine whether a project is within a shoreland-wetland zoned area, and whether backwater will increase as a result of the project. Similarly, the requirement of an Agricultural Impact Statement for any projects acquiring land from farm operations seeks to identify impacts of the projects to farm operations. Other state regulations address the protection of historical and archeological sites from detrimental effects of non-federally funded projects.

WisDOT is in the process of updating the State Transportation Plan. Some modal elements of the plan are completed, while others are in some stage of development, as shown in Table T-1.

WisDOT has also begun to prepare its long-range transportation plan through the year 2030. Connections 2030 will set forth a broad vision as well as strategies and policies for all the state's transportation modes: highways, rail, air, water, pedestrian, bicycle, transit and local roads. The recommendations of these plans will be taken into account in the development of the transportation element of this regional comprehensive plan to insure compatibility and compliance where appropriate.

For a more complete listing of state and federal regulations affecting transportation please refer to Summary of Environmental Legislation Affecting Transportation (1998) available at www.fhwa.dot.gov/environment/env_sum.htm

Table T-1: Wisconsin State Modal Plans

Modal Plan	Adopted	Anticipated Completion
Airport System Plan 2020	2000	
Bicycle Trans-portation Plan	1998	
Pedestrian Policy Plan	2002	
Rail Plan		2003
Highway Plan	2000	
Translink 21:Multi Modal Transportation Plan	1995	

Regional

East Central Policy (2003) compiles current polices, for all policy areas, into one document. Generally, regional transportation policies are reflective of federal and state initiatives discussed previously. There are eight specific policy areas. These focus on integrated planning, effectiveness for all residents, efficient street and highway system, safety, minimum environmental disruption, relationship with land use planning, energy conservation, and multi-modal interaction.

Intergovernmental Cooperation

Because transportation has a primary purpose of providing a connection between activity centers, there tends to be a great deal of crossing jurisdictional boundaries in all modes of transportation. Intergovernmental coordination is, therefore, not new to the transportation field. Because of fluctuating funding levels and mounting mandates, new and innovative cooperation and coordination techniques continue to be implemented. This section will review three examples of intergovernmental cooperation and coordination that are currently in operation in the region.

Urban Highway Project Funding

The development of a Transportation Improvement Program (TIP) is required of every urbanized area in the country. The TIP lists all transportation projects receiving federal or state funding, as well as significant locally funded projects, for a five-year period. In addition to listing all of the projects under all funding programs, the development of the TIP involves the prioritization and selection of Surface Transportation Program – Urban (STP-U) projects. The STP-Urban program funnels federal dollars to each state, which in turn allocates funds to each urbanized area. The dollars cannot be sub-allocated to the various jurisdictions within the urbanized area, based on the understanding that an urbanized area functions as one unit, rather than individual municipalities. Therefore, each urbanized area is responsible for developing an acceptable prioritization process, acceptable to all the participants, to utilize the funds. In the Fox Cities urbanized area, there are three counties (Outagamie, Winnebago, and

Calumet), four cities (Appleton, Neenah, Menasha, and Kaukauna), three villages (Kimberly, Little Chute, and Combined Locks), and all or parts of six towns (Grand Chute, Menasha, Neenah, Clayton, Buchanan, and Harrison), which have road mileage within the urbanized area. With East Central serving as the Metropolitan Planning Organization (MPO), and a technical committee with representation from every involved community, a prioritization process was developed and adopted, and has been in use for over 10 years. The prioritization process weights the importance of each project to the urbanized area through consideration of each project's consistency with local and regional plans, role in preserving the existing system, volume/capacity rating, accommodation of multiple transportation modes, how many years the project has appeared in the TIP, and a funding availability rating. A detailed description of the STP-U prioritization process can be found in the annual TIP document. Over the years, this process has proven itself to distribute the funding fairly between jurisdictions, between new construction and reconstruction, and to encourage the accommodation of other modal needs.

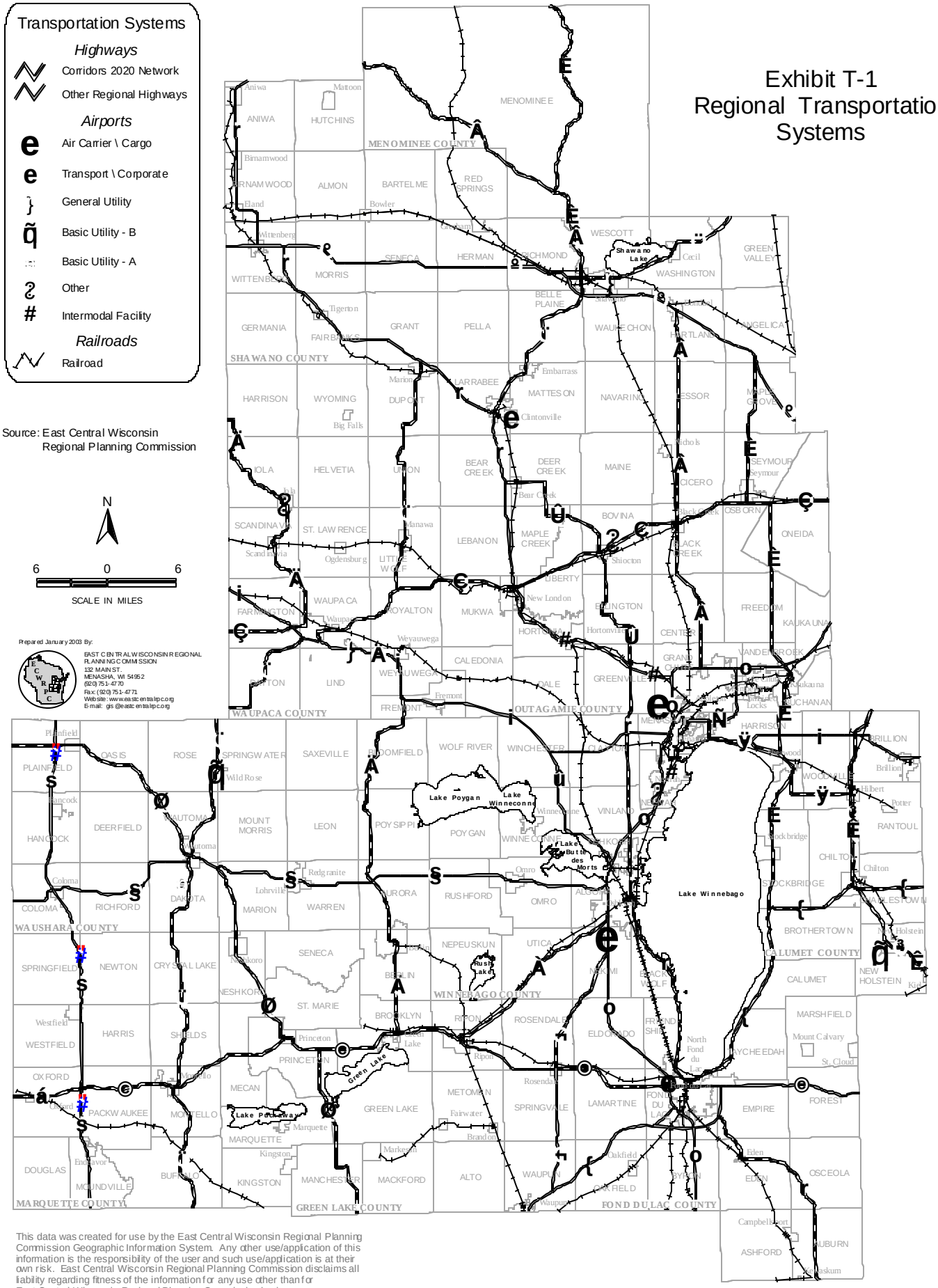
Corridor Planning

Corridor planning entails a comprehensive review and analysis of land uses and access conditions along an entire highway corridor. Again, this exercise crosses jurisdictional boundaries. East Central has worked with WisDOT and numerous communities on several corridor planning efforts. One example of this type of intergovernmental cooperation is the USH 45 corridor study that examined the partially realigned/relocated USH 45 corridor, from Oshkosh to New London. The study involved all jurisdictions adjacent to the highway, and utilized the public involvement process to develop a long-term vision for the corridor. Ultimately, resolutions were passed by Outagamie, Waupaca, and Winnebago counties, the cities of Oshkosh and New London, and the towns of Caledonia, Clayton, Dale, Hortonia, Mukwa, Oshkosh, Vinland, and Winchester, adopting the primary recommendations of the corridor plan.

Paratransit Coordination

Intergovernmental cooperation and service coordination has been key in making maximum use of funds for the delivery of paratransit services, both in the Fox Cities and Oshkosh urbanized areas. In the Fox Cities, a number of different programs, all serving a different eligible population, many for very specific trip types, existed until recently. The result was a disjointed system that was very confusing to the riders, and was very inefficient in the use of federal, state, and local funds. In various stages over the past 10, or so, years, many of these programs have come together under the funding umbrella of Valley Transit. These programs include Americans With Disabilities Act (ADA) paratransit services and Sunday paratransit services for the elderly and disabled in the Valley Transit service area; Outagamie County Elderly Transportation, Rural Transportation, fixed route service for the developmentally disabled residents of the County, and work transportation for low-income income individuals; Winnebago County Lakeside Packaging workshop transportation, and elderly nutrition program transportation; Neenah-Menasha Dial-a-Ride; and Town of Menasha elderly transportation program. Calumet County has recently joined in this coordinated effort, with the inclusion of the New Hope Center transportation programs, with more to come in future years. The coordination of these programs helps to leverage additional federal and state funds, and eliminates a number of duplicate trips through contract coordination.

Exhibit T-1
Regional Transportation Systems



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Background Information

Highways

Highways accommodate several transportation modes, and serve as the backbone of the regional transportation system. As the infrastructure that allows for the movement of goods and people by truck, private auto, or public transportation, throughout and beyond our region, highways warrant early discussion. The regional highway system is shown on Exhibit T-1.

These highways are included because of the regional role they play. Some of the highways are included in the state's Corridors 2020 Plan, as either backbone system highways or connector highways, based on their importance at the state level. The other highways included in the regional system were added due to their importance in commerce and travel at the regional level. Many local roads and lower priority highways also carry a great deal of the traffic in the region, but serve in a capacity of accessing land uses more than that of transporting passengers and goods throughout, and beyond the region.

Functional Classification

Functional Classification is a means by which highways are categorized, based on their level of traffic carrying capacity, access, and land uses served. As the planning process progresses, the discussion concerning the regional highway network will most certainly be divided between urban and rural highways. Separate functional classification systems are used to describe the two categories and, as fate would have it, both are in need of update. A likely product of this process will be proposals for the update of the rural and urban functional classification. The rural and urban functional classifications, and a general description of each follows:

Table T-2: Rural and Urban Functional Classifications

Rural Functional Categories	Description
Principal Arterial	Principal arterials serve corridor movements having trip length and travel density characteristics of an interstate or interregional nature. These routes generally serve all urban areas greater than 5,000 population. The rural principal arterials are further subdivided into (1) interstate highways and (2) other principal arterials.
Minor Arterial	Minor arterials, in conjunction with the principal arterials, serve cities, large communities, and other major traffic generators providing intraregional and interarea traffic movements.
Major Collector	Major collectors provide service to moderate sized communities, and other intra-area traffic generators, and link those generators to nearby larger population centers or higher function routes.
Minor Collector	Minor collectors provide service to all remaining smaller communities, link the locally important traffic generators with their rural hinterland, and are spaced consistent with population density so as to collect traffic from local roads and bring all developed areas within a reasonable distance of a collector road.

Local Roads	Local roads provide access to adjacent land and provide for travel over relatively short distances on an inter-township or intra-township basis. All roads not classified as arterials or collectors are local function roads.
Urban Functional Categories	
Principal Arterial	Principal arterials serve the major centers of activity of an urban area, the highest traffic volume corridors, and the longest trip desires, and carry a high proportion of the total urban area travel on a minimum of mileage. The urban principal arterials are connected to the system of rural principal and minor arterials. Within this category the urban principal arterials are subdivided into (1) interstate highways, (2) other freeways and expressways (connecting links of rural principal arterials, connecting links of rural minor arterials, and non-connecting links), and (3) other principal arterials (connecting links of rural principal arterials, connecting links of rural minor arterials, and non-connecting links).
Minor Arterial	Minor arterials provide intracommunity continuity and service to trips of moderate length, with more emphasis on land access than principal arterials. The minor arterial system interconnects with the urban arterial system and provides system connections to the rural collectors.
Collector	Collectors provide both land access service and traffic circulation within residential neighbor-hoods, commercial areas, and industrial areas. The collector system penetrates residential neighborhoods, distributing trips from the arterials through the area to the local streets. The collectors also collect traffic from the local streets in residential neighborhoods and channel it onto the arterial system. In the central business district, and in other areas of like development and traffic density, the collector system may include the street grid, which forms the basic unit for traffic circulation.
Local Streets	Local streets comprise all facilities not on one of the higher systems. They serve primarily to provide direct access to abutting land and access to the higher order systems. Local streets offer the lowest level of mobility, and service to through-traffic movement on this system is usually discouraged.

Highways are typically analyzed by comparing the volume of traffic they are carrying to their traffic carrying capacity. Congestion occurs as the volumes approach the highway's capacity, causing travel delay. An example of a highway segment that is currently congested, at least during portions of the day, is STH 15/45 from the Fox Cities to Hortonville. This segment typically carries over 15,000 vehicles per day, and has a capacity of approximately 13,000 vehicles per day. During peak hours, more than 2,000 vehicles per hour will pass through this segment of highway, which serves many large commercial and employment related land uses. Travel delays and reduced safety levels result. Similarly, rapid commercial and residential development of the area around the interchange of STH 441 and CTH KK, on the east side of Appleton, has increased volumes which cause vehicle exiting the highway to queue back into the travel lanes of the highway, creating a very dangerous situation.

The state's *Corridors 2020 Plan*, cites some significant portions of the regional highway system that are expected to be either severely or extremely congested, assuming no capacity expansion, by the year 2020. These include: USH 41, from Oshkosh through Appleton; portions of USH 10, west of Waupaca; and STH 15, between Appleton and New London. Small sections of STH 21, west of Oshkosh and at Wautoma, and USH 151, and STH 23 in and around Fond du

Lac, and STH 23 near Ripon, Princeton, and Montello. In these later cases, the congestion occurs where the state highway passes through small urban areas, mixing with local traffic, and slowed by traffic signals and local parking. Capacity expansion in these areas is often restricted by limited right of way, dense commercial and residential development, and local desire to maintain a pedestrian friendly environment.

Another factor affecting the carrying capacity of highways is access. The more access points that exist along a segment of highway, the more the carrying capacity is deteriorated. The degree of access provision on a highway needs to be balanced with its role of carrying through traffic. By definition, all highways on the regional network serve a fairly high through-traffic function, however, many also provide commercial, industrial, and residential access, particularly near villages and cities, adding to the small segment congestion problems, as described above.

Safety issues are also important in a discussion and analysis of highways. Safety can become an issue in a number of the situations already discussed. An increase in the number of access points directly onto a highway, without appropriate accommodation with merging lanes or signalization, will increase the possibility of conflicts and subsequent crashes. Also, sudden congestion, as can occur in the case of the STH 441/CTH KK interchange, can also cause a safety hazard. Highway geometrics, such as a tight curve in a highway, can also pose a safety hazard. An example of this occurs on the STH 441/USH 41 interchange on the north side of Appleton. The ramp serving movement from northbound STH 441 to southbound USH 41 is very tight, due to right of way limitations, and has caused a number of truck rollovers. Short of reconstruction, warning signs can, and have improved the safety of such an area.

Vehicle Ownership

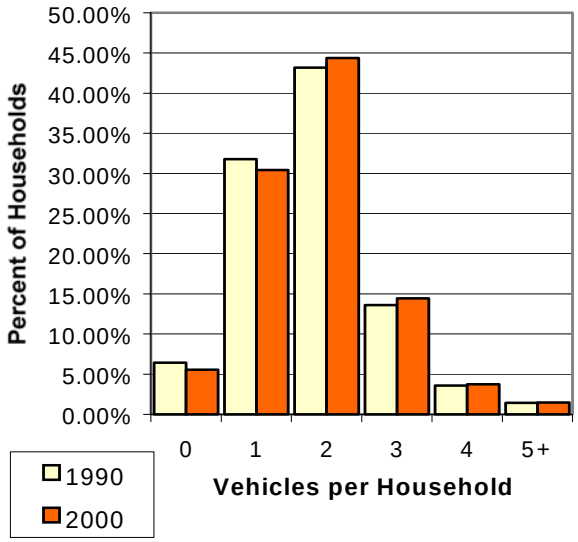
Over time, we have seen nationwide trends of increasing reliance on the private automobile.

Table T-3: Vehicle Ownership by County

County	Households with no vehicles available	Households with 1 vehicle available	Households with 2 vehicles available	Households with 3 vehicles available	Households with 4 vehicles available	Households with 5+ vehicles available
Calumet County	3.49%	26.45%	47.55%	16.23%	4.77%	1.51%
Fond du Lac County	6.15%	31.08%	43.17%	14.18%	3.81%	1.61%
Green Lake County	6.28%	30.14%	42.14%	14.94%	4.47%	2.03%
Marquette County	4.34%	29.59%	43.60%	16.07%	4.19%	2.21%
Menominee County	8.48%	38.88%	38.88%	9.14%	3.79%	0.82%
Outagamie County	5.30%	29.19%	46.31%	14.34%	3.55%	1.31%
Shawano County	6.09%	29.28%	41.85%	16.20%	4.58%	2.00%
Waupaca County	5.65%	28.97%	43.22%	15.98%	4.16%	2.01%
Waushara County	5.23%	28.70%	42.02%	16.65%	5.10%	2.31%
Winnebago County	5.80%	33.11%	44.30%	12.86%	2.97%	0.97%
Urban Counties	5.50%	30.74%	45.04%	13.95%	3.51%	1.27%
Rural Counties	5.72%	29.44%	42.47%	15.86%	4.45%	2.05%
2000 Region Total	**5.56%**	**30.41%**	**44.38%**	**14.44%**	**3.75%**	**1.47%**
State Total	7.87%	32.53%	41.52%	13.23%	3.52%	1.33%
National Total	10.30%	34.25%	38.36%	12.46%	3.37%	1.27%

Similar to growth in traffic counts and congestion on our highways, vehicle ownership continues to rise. Table T-3 shows the distribution of various levels of vehicle ownership by county in 2000. It is significant to note that there are still some households in the region, 5.56%, with no vehicle available. In addition, there is quite a range of no vehicle households, from a low of 3.49% in Calumet County, to a high of 8.48% in Menominee County.

Fig. T-1: Vehicle Ownership
1990 & 2000



Commuting Patterns

Another indicator of increasing traffic on our highway system is the change in travel time of work trip commutes from 1990 to 2000. The changes shown in Table T-4 are fairly dramatic. Every county in the region, without exception has experienced significant increase in work trip travel time, from a 4.3% increase in Menominee County, from 17.6 minutes to 18.4 minutes, to 34.7% increase in Green Lake County, from 16.6 minutes to 22.4 minutes. Two factors contribute to this increased travel time: longer trips, and slower speeds and more delays. Slower speeds and more delays are frequently caused by traffic congestion.

Another significant indicator shown in this table is the major shift taken by rural counties. In 1990 rural counties had work trip travel times higher than the urban counties, but a 20.7 % increase in mean travel times for rural counties over ten years has caused that spread to widen drastically, urban counties experienced a 13.2% increase. This is likely the result of a high rate of residential development in rural counties, with residents commuting to the urban counties for work.

The effects of commuter traffic on highway congestion have a great deal to do with the time of day that commuters are on the road. Sharp peaks in travel volumes, commonly known as “rush hour”, occur when many people are trying to arrive to work at approximately the same time. Figure T-2 shows these peaks for the region. This table is based on 2000 census data related to the time of day that persons living in the region leave home for their daily trip to work. It is

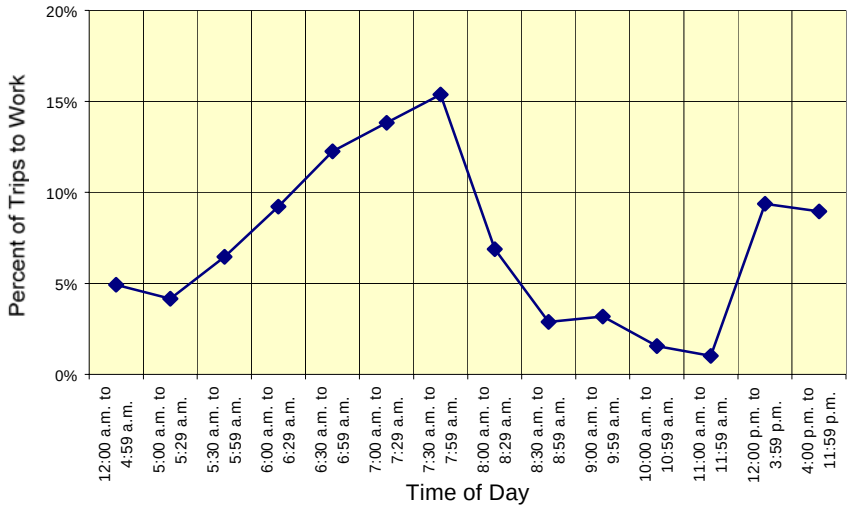
important to note that this is only half of the picture, as it does not include the trip home from work. In looking at the "to work" trip, we can see the relationship of the morning rush hour volumes, relative to the second shift (second to last data point) and third shift volumes (last data point). While the second and third shift peak is smaller than the morning peak, it is discernible and the second shift peak adds to a larger volume of those morning peak drivers, returning home from work between 3:00 and 5:00 p.m. While congestion may occur during these peaks, plenty of capacity exists on the existing highway system during the off peak times.

Table T-4: Work Trip Travel Time by County
1990 & 2000

County	1990 Mean Travel Time (in minutes)	2000 Mean Travel Time (in minutes)	Percent Change
Calumet County	16.90	19.27	14.02%
Fond du Lac County	16.70	18.68	11.83%
Green Lake County	16.60	22.36	34.71%
Marquette County	23.00	25.94	12.78%
Menominee County	17.60	18.36	4.32%
Outagamie County	16.30	18.07	10.85%
Shawano County	19.30	22.85	18.39%
Waupaca County	17.80	21.05	18.24%
Waushara County	21.80	27.09	24.26%
Winnebago County	15.30	17.79	16.30%
Urban Counties	16.09	18.21	13.16%
Rural Counties	19.02	22.95	20.67%

Source: U.S. Bureau of the Census, 1990 & 2000

Fig. T-2: Trips to Work by Time of Day



Public Transportation

Public transportation takes many forms throughout the region, striving to meet varied needs with funding sources that are often complicated with differing eligibility, trip purpose, or local match requirements. Public transportation is defined as any publicly funded transportation program, regardless of eligible clientele. Programs vary by service area, passenger eligibility, service levels, service type, and even trip purpose. Exhibit T-2 shows the distribution of systems throughout the region. More detailed information is shown in Table T-5, Appendix C:1.

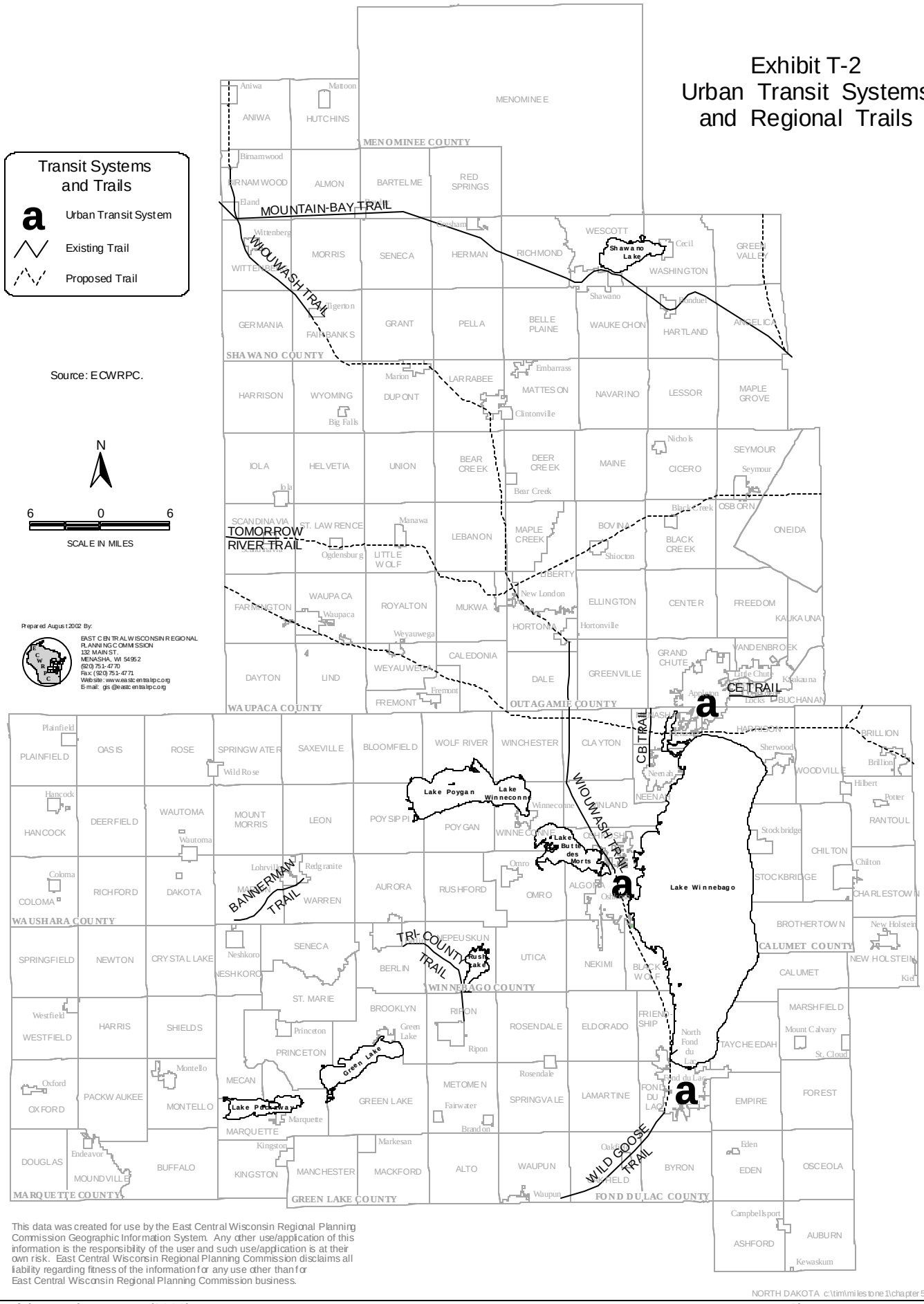
Funding Sources

There are various sources of funding used to provide public transportation services throughout the region. Each county is eligible for S 85.21 funding from the state to provide transportation services to the elderly and disabled residents of the county. It is distributed to the counties based on a formula, which considers the number of elderly and disabled residents in the county. This funding can be used for the operation of many different types of services, as deemed appropriate to meet the needs of each individual county. Several counties use the funding to operate volunteer driver programs. Drivers are recruited by the county and are reimbursed for use of their private automobile to drive elderly persons and/or persons with disabilities to medical appointments, shopping, and other trip purposes. This is clearly the most cost effective use of the state funding, but recruitment and retention of drivers is a constant challenge. Volunteer driver programs range in size from 462 trips per year in Marquette County, to Waupaca County's 11,000 trips per year. Section 85.21 funds are also used to operate shared-ride taxi programs for elderly and disabled persons, to assist in the transportation for developmentally disabled persons to sheltered workshop sites for training and employment opportunities. Some counties use the funding to run infrequent (such as, once weekly) flexible fixed route services with buses or minibuses, to give elderly and disabled persons in rural areas an opportunity to travel to larger communities for shopping, nutrition, or other appointments. One example of this type of flexible fixed route service is provided in Shawano County, picking up persons in a different area of the County one day each week, into the City of Shawano, and occasionally to larger shopping areas in Appleton or Green Bay. Some programs receiving 85.21 funds, also use Title III-B (Older American's Act) funding.

Urbanized areas over 50,000 population, Fox Cities, Oshkosh, and Fond du Lac (new urbanized area, as of 2000 Census), receive Federal Transit Administration Section 5307 funding for the operation of their urban transit systems. All three of the areas use this funding to provide fixed route bus service, in addition to paratransit service for those persons who, because of a disability, are not able to utilize the buses. All three systems operate the fixed route buses in-house; but Valley Transit (VT) and Oshkosh Transit System (OTS) contract out for paratransit services. Fond du Lac Area Transit (FDLAT) provides paratransit services in-house. VT and FDLAT provide demand response taxi service in some portion of their service area where land use densities and/or ridership volumes do not justify the use of a bus on a fixed schedule.

Small urban areas, such as the cities of Shawano, Berlin, Clintonville, Ripon and Waupaca receive federal funds under the Federal Transit Administration Section 5311 program to provide services for the general public, including the elderly and persons with disabilities, in and around their community. This is accomplished in these particular communities with demand response

Exhibit T-2
Urban Transit Systems and Regional Trails



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services, also referred to as shared-ride taxi services. Demand response refers to the fact that a potential rider must contact the transportation service to schedule a trip. The rider is then picked up at the trip origin and taken to their destination. "Shared-ride taxi" refers to the fact that one individual's trip could be combined with another rider's trip, for the sake of efficiency. Comparable and complementary van services are provided for persons who are unable, due to their disabilities, to use the taxis.

The cities of New London, in Outagamie and Waupaca counties, and Kiel, which straddles the Calumet/Manitowoc county line, both provide demand response service within their communities with the use of only local funds. This does give the community more freedom in how the service is provided, and may reduce federal and state reporting requirements. The biggest disadvantage of this local concentration is that the level of local funding limits the amount of service provided. The cities could alternatively use those local funds to leverage dollars from state and/or local sources to provide more trips, and serve a greater need.

Coordination of Transit Services

Coordination of transit services has been, and continues to be, a foundation of transit planning in the region. As federal and state funding for these services have fluctuated over the years, various levels of coordination have been used to run the services more efficiently, resulting in shared costs and service improvements. Both Valley Transit and Oshkosh Transit System have worked closely with county and agency-run services to reduce duplication of effort, and to provide access to federal funds for services previously funded only through state and local sources. All of the counties in the region have a transportation coordinating committee, which, at a minimum, approves the county's distribution of Section 5311 funds between programs in the county. Higher levels of coordination range from information sharing between services to collaboration of dispatching functions or full consolidation of all services into one entity.

Bicycle and Pedestrian

Regional Trails

There are approximately 115 miles of established regional trails and trail segments in the region. These trails are shown on the following map. Great strides have been made in recent years to use regional trails to make connections to a statewide trail system. The Wiouwash Trail, which is ultimately planned to extend from Fond du Lac northward through Langlade County, presently features two completed segments. These include a 22-mile segment from downtown Oshkosh to Hortonville and a 16-mile segment between Tigerton and Birnamwood. The Wiouwash Trail intersects the Mountain-Bay Trail, which links the Green Bay and Wausau areas, in Eland in western Shawano County. About 50 miles of the Mountain-Bay Trail's 80-mile length is located in Shawano County. Another potential opportunity is the Nicolet Trail, which would link with the Mountain-Bay Trail in Pulaski and extend northward from there through eastern Shawano County into Oconto County. Negotiations to re-acquire abandoned railroad right-of-way for this trail are ongoing between DNR and private property owners.

Efforts are also underway to extend the Fox River Trail, which currently links Green Bay and Greenleaf in Brown County, southward to Forest Junction in Calumet County, where it would intersect with the planned Friendship Trail. The Friendship Trail is planned to link Manitowoc with the Stevens Point area. Portions of this trail presently in place include short segments in

the City of Brillion, City of Menasha, and Town of Menasha. A cornerstone feature of the trail is expected to be an impressive half-mile bridge/causeway across Little Lake Butte des Morts in Menasha. Funding has been secured for the acquisition and conversion of the bridge, and negotiations between the railroad, WDNR, and local governments are in process. The trail will continue westward along USH 10, as a part of the new construction highway project, to the Fremont area, intersecting with the Wiouwash Trail along the way.

About 12 miles of the 32-mile Wild Goose Trail is located in Fond du Lac County. This trail, which skirts the western edge of the vast Horicon Marsh, extends from Fond du Lac to Clyman Junction.

Also, Fox Cities Greenways, Inc., a non-profit organization dedicated to the creation of greenways and trails in the area, is working closely with local communities to create a seamless system of linkages for bicyclists and pedestrians throughout the Fox Cities area. The organization is also working on a long-term goal of encircling Lake Winnebago with a trail, using a combination of off-road and on-road facilities.

While the main use of these trails is recreational, portions of the trails, usually near urban areas, carry higher volumes of commuter-type transportation uses. This includes children and adults traveling to parks for soccer games and practice, children riding bicycles or walking to school, people traveling to and from work, etc. In many cases, a local decision to connect a community to a nearby trail has enhanced these uses and provides an alternative mode choice to some shorter vehicular trips. Two examples of heavily used urban trails include the CB Trail on the west side of the Fox Cities and the CE Trail on the east side. The 5-mile CB Trail parallels a principal arterial (CTH CB) from CTH BB on the Outagamie-Winnebago County line south to CTH JJ, connecting with the Friendship Trail at the USH 10 interchange. The 6-mile CTH CE Trail parallels a principal arterial (CTH CE) between Appleton and Kaukauna. Since its completion, the CE Trail has spawned several connecting trails and extensions into communities along its route, including Appleton, Kimberly, Darboy, and Kaukauna. Again, local decisions to provide connections to the regional trails are critical in enhancing the regional trail transportation function.

Much of this trail system was established on abandoned railroad lines, either through the purchase of the land, or through the Rails-to-Trails program, which allows for the reversion of the right-of-way back to rail use as necessary. Since the passage of the ISTEA, and subsequently TEA-21, pedestrian and bicycle accommodations are encouraged in the design and construction of highway projects. Both of these federal transportation acts also require that states use at least 10% of their federal surface transportation funds in a special competitive funding program for enhancements to transportation facilities. While a wide variety of projects are eligible for these funds, one of the more common uses is the development of bicycle/pedestrian facilities.

Passenger Rail

There is currently no passenger rail service in the region. There are plans, developed by a nine-state collaborative effort, known as the Midwest Regional Rail System (MWRRS), to introduce service. The state departments of transportation participating in the effort include Illinois, Indiana, Iowa, Michigan, Minnesota, Missouri, Nebraska, Ohio, and Wisconsin. The

proposed system uses existing rails, many needing significant upgrade to handle the anticipated high speed (110 mph throughout most of the system) modern trainsets. As noted in the *Midwest Regional Rail System: A Transportation Network for the 21st Century, Executive Report (February 2000)*, "All MWRRS corridors are projected to generate operating revenues greater than operating costs by the year 2010, assuming that the entire system is fully operational and that the MWRRS operating and financial forecasts are essentially achieved."

The implementation plan for the MWRRS is phased over an 11-year period. The early phases involve segments of passenger rail service with highest ridership potential, such as corridors between Chicago and Detroit, Chicago and Cleveland, and Chicago and St. Louis, all in operation in year five. The route serving Wisconsin, from Chicago to the Twin Cities, is also phased, with the segment between Milwaukee and Madison scheduled for operation in year 5. More specific to the region, is the later implementation of the Milwaukee-Green Bay line projected for implementation in year nine. The operation of this line is expected to provide five round trips between Green Bay and Milwaukee, with intermediate stops possible in Appleton, Neenah, Oshkosh, Fond du Lac, and points south, at a fare of approximately $30 to $40.

Air

The airport classification scheme used in this planning effort is the same classification scheme used in the Wisconsin State Airport System Plan 2020. The airport classification scheme is defined as follows:

Air Carrier/Cargo (AC/C**)** airports are designated to accommodate virtually all aircraft up to and in some cases, including wide body jets and large military transports. Airports in this category are usually reference by the type of air carrier service being provided.

- Short-haul air carrier airports serve scheduled, nonstop, airline markets and routes of less than 500 miles. Short-haul air carriers typically use aircraft weighing less than 60,000 pounds. In Wisconsin, short-haul carrier airports normally have a primary runway length of 6,500 to 7,800 feet.
- Medium-haul air carrier airports serve scheduled, nonstop, airline markets and routes of between 500 and 1,500 miles. Medium-haul air carrier airports normally have a primary runway length of 7,800 to 8,800 feet.
- Long-haul air carrier airports serve scheduled, nonstop, airline markets and routes of over 1,500 miles. Long-haul air carriers typically use wide-bodied jet aircraft weighing more than 300,000 pounds. In Wisconsin, long-haul air carrier airports normally have a primary runway length of 8,800 to 9,800 feet.

Transport/Corporate (T/C) airports are intended to serve corporate jets, small passenger and cargo jet aircraft used in regional service and small airplanes (piston or turboprop) used in commuter air service. These aircraft generally have a gross takeoff weight of less than 60,000 pounds, with approach speeds below 141 knots and wingspans of less than 118 feet. In Wisconsin, airports in this category normally have a primary runway length of greater than 4,500 feet.

General Utility (GU) airports are intended to serve virtually all small general aviation single and twin-engine aircraft, both piston and turboprop, with a maximum takeoff weight of 12,500 pounds or less. These aircraft generally have approach speeds below 121 knots and wingspans

of less than 79 feet. Typically, these aircraft are used for business and charter flying and for personal reasons. In Wisconsin, airports in this category normally have a primary runway length of 3,700 to 4,100 feet.

Basic Utility (BU) airports are intended to serve all small single-engine piston aircraft and many of the smaller twin-engine piston aircraft with a gross takeoff weight of 12,500 pounds or less. These aircraft typically seat from two to six people and are commonly used for business and some charter flying as well as a wide variety of activities including recreational and sport flying, training, and crop dusting. In Wisconsin, airports in this category normally have a primary runway length of 2,700 to 3,000 feet.

- Basic Utility-B (BU-B) airports are designed to accommodate aircraft of less than 12,500 pounds gross weight, with approach speeds below 121 knots and wingspans of less than 49 feet. Such aircraft can be either single-engine or twin-engine piston.
- Basic Utility-A (BU-A) airports are designed to accommodate aircraft of less than 6,000 pounds gross weight, with approach speeds below 91 knots and wingspans of less than 49 feet. Such aircraft are typically single-engine piston.

The only difference between an airport classified as Transport/Corporate and an airport classified as Short-haul Carrier is the absence or presence of scheduled commercial passenger air service provided on a year-round basis. The aircraft used for transport/corporate purposes have virtually the same characteristics as those used for short-haul air carrier purposes.

The region is well served by two regional Air Carrier/Air Cargo airports, Outagamie County Airport, just west of the City of Appleton, and Wittman Field, in Oshkosh. A number of other airfields exist in the region, serving a number of important roles. Table T-6 lists the region's airports, their classification and role in the region.

Table T-6: Airport Activity

Airport	Classification	Annual Enplanements (2001)		General Aviation Operations*	Total Aviation Operations
		Passenger	Cargo (lbs.)		
within the region					
Outagamie County Airport	AC/C	261,395	7,005,579	59,000	77,640
Wittman Regional Airport	AC/C	2,376**	NA	78,300	83,970
Clintonville Municipal Airport	T/C	NA	NA	19,000	19,020
Fond du Lac County Airport	T/C	NA	NA	47,700	47,850
New Holstein Municipal Airport	T/C	NA	NA	9,200	9,400
Shawano Municipal Airport	GU	NA	NA	14,000	14,300
Waupaca Municipal Airport	GU	NA	NA	16,800	16,810
Wautoma Municipal Airport	BU-B	NA	NA	4,600	4,800
Wild Rose Idlewild Airport	BU-A	NA	NA	3,200	3,200
outside the region					
Austin Straubel International	AC/C	348,086	416,837	65,000	89,590
General Mitchell International	AC/C	2,811,954	206,203,531	49,700	215,000

Source: Wisconsin State Airport System Plan 2020, WisDOT, August 1999.

** - Denotes general aviation operations for year 2000, as forecast from 1994 base year data, WisDOT.

*- Passenger enplanements for Wittman Regional Airport do not include charter passengers, as reported to FAA.

Annual passenger enplanements, as shown in Table T-6, are the number of passengers that boarded a plane at each airport in 2001. Similarly, cargo enplanements are the pounds of cargo that are loaded onto planes for departure at each airport. Passenger and cargo enplanements are not reported for those airports that do not have commercial passenger or cargo carriers. "General Aviation", as shown in the table, includes a wide range of aviation activities and includes all segments of the aviation industry except air carrier (scheduled passenger and cargo operations) and military activity. General Aviation activities range from the training of new pilots through sport, recreational, including the Experimental Aircraft Association (EAA) fly-in and personal flying to a wide variety of business related to flying, such as corporate transportation, charter, and air taxi activities. General aviation also encompasses emergency shipments; aerial photography; medical services including "flight for life" operations; and crop dusting. "Total Aviation Operations" include all of the above operations, in addition to air carrier and military activity.

Also serving the area, but outside of the region, are Austin Straubel International Airport, in Green Bay, and General Mitchell International Airport, in Milwaukee.

Freight

The shipments of freight are a significant multi-modal transportation activity in the region. The primary modes of freight shipment are truck, rail and air. While waterborne freight movement via the Fox River Lock System was of historical significance within the region, commercial navigation on the river ceased in the late 1950s. Major freight activity is now concentrated in the Fox Cities urbanized portion of the region where major highways, railroads and airports convene.

To determine freight movements within the State, WisDOT prepared freight forecasts as part of the Translinks 21 multi-modal transportation plan. Extensive information on freight production and attraction has been assembled for current conditions (base year 1996) and forecast to the year 2020. This information has been isolated for the region on a county basis and can be compared to statewide and national origins and destinations of commodities. The current commodities produced in the region total 33,840,741 tons compared to the 2020 forecast of 61,465,215 tons. The 20 year increase is 82%. The current commodities attracted (terminating) to the region total 27,235,094 tons compared to 53,121,465 tons in 2020. The increased forecast is 95% can be seen there is a difference in inbound and outbound freight traffic for the region. Also, there is a significant increase in the forecast freight movement over the 20 year period. Commodity movements internal to the region are also estimated. The current tonnage movement is 7,513,936 compared to 13,724,076 in 2020. This is an 83% increase in freight tonnage. Table T-7 lists the current and forecast freight attractions and productions that are both external and internal to the region.

The WisDOT forecasts also addressed the modes of freight transportation. Truck movements account for 95% of all the region's freight flow. Rail freight movement equals over 4% with air freight accounting for less than one-tenth percent. Table T-7 also lists current and forecast freight tonnage by mode.

There is no current standardized survey of truck, rail or air traffic within the region. Estimates of average daily traffic can be interpolated from the total annual tonnage and applied to primary routes and modes. There are 1,500 semi-tractors and 11,127 semi-trailers currently registered in the region. These account for only a portion of the total truck movements. Based upon an average of 30 tons per truck, the annual current truck trips total 2,165,869. This equals almost 6,000 trips per day in 1996.

There are approximately 300 miles of active railway within the region. Of this amount, Canadian National, a Class 1 railroad accounts for 230 miles. Approximately 2000 rail cars per day flow through the region on Canadian National. Approximately 3,611,345 tons of freight is currently moved by rail annually within the region. This amount is projected to total 4,600,000 tons by 2020 accounting for a 27% increase.

There is one inter-modal facility within the region located in the City of Neenah. This facility is approximately five acres in size and can accommodate trailer-on-flat-car and containerized freight. Volume approximates one train movement per day. The amount of freight tonnage is unavailable.

The Outagamie County Airport accounts for the predominant air freight traffic. Federal Express is the major carrier. Annual air tonnage approximates 2368 increasing to 5400 tons in 2020 for a 128% increase.

Table T-7: Freight Attractions and Productions by Mode of Transportation

Commodity Tons Terminating in the East Central Region				
Mode	**1996**	**2020**	**Increase**	**% Increase**
Air	2,044	4,416	2,372	116%
Truck	32,597,680	58,912,294	26,314,614	81%
Rail	1,241,017	2,548,505	1,307,488	105%
Combined	33,840,741	61,465,215	27,624,474	82%
Commodity Tons Originating in the East Central Region				
Air	324	981	657	203%
Truck	24,980,934	49,102,090	24,121,156	97%
Rail	2,253,836	4,018,394	1,764,558	78%
Combined	27,235,094	53,121,465	25,886,371	95%
Commodity Tons Originating and Terminating within the East Central Region				
Air	---	---	---	----
Truck	7,397,444	13,488,102	6,090,658	82%
Rail	116,492	235,974	119,482	102%
Combined	7,513,936	13,724,076	6,210,140	83%
Commodity Tons Total Movement in the East Central Region				
Air	2,368	5,397	3,029	128%
Truck	64,976,058	121,502,486	56,526,428	87%
Rail	3,611,345	6,802,873	3,191,528	88%
Combined	68,589,771	128,310,756	59,720,985	83%

Source: WisDOT Construction & Forecast of Freight Traffic Data

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Transportation: Key Findings

Current Trends

Highway

- Work trips travel times continue to increase, along with trip length.
- Rural counties are outpacing urban counties in work trip travel time increases.
- Vehicle ownership continues to increase slightly, as fewer households are without a vehicle.
- Lower density development on the urban fringes and in rural areas has led to significant increases in the cost of both maintaining existing and developing new facilities.

Public Transportation

- Urban bus system ridership is on a very slight decline, remaining nearly level through the 1990s.
- Urban paratransit services for persons with disabilities has seen significantly increased demand, while the per-trip cost of providing the service has also been increasing at a significant rate.
- Lower density development on the urban fringes has sparked a difficult challenge for urban systems to provide service.
- Rural services for the elderly and disabled are more difficult to serve and continue to be in great demand.
- The coordination of services has allowed for increased efficiency and the provision of more trips, particularly for rural elderly and disabled services.

Bicycle and Pedestrian Travel

- Great strides have been made in the development of a regional trail system.
- Urban communities have begun to develop connections to the regional trail system.
- Sprawl development has presented difficulties, in the form of barriers, hazards, and trip length, to bicycle and pedestrian travel.
- Many lower density residential and commercial areas have been developed without facilities necessary for alternative mode travel.

Passenger Rail

- There is currently no passenger rail service available in the region.
- The Midwest Regional Rail System is through much of the planning process and is currently searching for funding to begin implementation.

Air Travel

- There are two regional airports, and a number of transport/corporate, general utility, and basic utility airports located within the region.
- Two international airports, outside of the region, Austin Straubel International in Green Bay, and General Mitchell International Airport in Milwaukee also serve the region.

- Wittman Field (Oshkosh) and Outagamie County Airport (Appleton) serve a strong economic development function in the east central region.

Freight Transportation

- The primary modes of freight shipment are truck, rail and air.
- There is a significant difference in inbound and outbound freight traffic for the region, with outbound outweighing inbound by 20%.
- Truck movements account for 95% of all the region's freight attractions and destinations. Rail freight movement equals 4% with air-freight accounting for less than one-tenth of a percent.

Future Trends

The future of our transportation system is effected by shifts in the economy, the demands of the population, development patterns, and efficiency of the modes to serve them.

- The availability of funding for transportation projects within the region may be substantially impacted by the fact that rebuilding the Marquette Interchange appears to be a top priority for the state. Given the new governor's promises not to increase fees or taxes, funds may have to be reallocated from other programs.
- Highway congestion will continue to increase as trips become longer and vehicle ownership increases.
- The demand for paratransit services will continue to increase as baby-boomers age and lose the ability to drive their own cars. The aging baby boomers may become strong advocates for improving transit services as well as for traditional neighborhood designs, which emphasize higher density and mixed use development.
- There will be a significant increase in the forecast freight movement over the next 20 year period, estimated at 3.6%.
- Cars and light trucks are oil dependent consequently changes in the price and availability of oil could have major impacts on transportation. If the energy costs of transportation go high enough, energy efficient transportation technologies may account for an increasing market share during the planning period. Specifically, fuel-electric hybrid technology. The 48 mpg Toyota Prius and the 64 mpg Honda Insight are proving reasonably popular.
- Computers and communications are increasingly central to the future of transportation. Many Intelligent Transportation Systems (ITS) are coming on-line. Advanced Traffic Management Systems (ATMS) provide for traffic signal coordination, changeable message signs, and route diversion systems. Advanced Public Transportation Systems provides for electronic payment of transit fares, and automatic vehicle location (AVL) technology to track buses, provide up-to-date information on transit schedules and arrival times, or reroute buses to avoid congestion.

Identification of Issues

- How can we rethink how we deal with transportation issues relating to sprawl development and congestion? Focus groups commented on the relationship between sprawl development and the resulting need to increase capacity. As residential

development occurs further from the urbanized areas, trip frequencies, as well as trip lengths, increase. Fewer trips are accomplished through alternative modes, walking or bicycling, because services, employment, and often schools, are a longer distance from home. More and longer trips create a need for road improvements or expansions. The issue can also be turned around, in that, once a road is improved or widened, or a new highway built, people can travel farther in the same amount of time, allowing them to move out farther still, spurring more sprawl development.

- How can we achieve a practical focus on the need for transportation modes other than the single occupant vehicle? It was felt that there needed to be more consideration given to encouraging development that would be pedestrian, bicycle and pedestrian friendly in urban areas. Transit services, bicycle and pedestrian accommodations, and their strength in reducing congestion needs to be considered. The establishment and maintenance of trails was also deemed as important, especially in areas of lower density development. It is clear from the review of existing conditions that there is an extensive regional trail system in the works, with some segments awaiting completion.
- How can we promote mobility for all persons? Also addressed as an issue in several focus group meetings, was the need for mobility for persons with special needs. There is a sizable portion of our population that is either unable to drive, or cannot afford to own and maintain a reliable vehicle. Without available transportation options, many persons with disabilities, elderly persons, and low-income individuals may be needlessly unable to obtain or hold a job, or to live a productive life. This can be the case in urbanized areas, in terms of the lack of public transportation services for second or third shift workers, but also in more rural areas where the provision of any transportation services is more of a challenge.
- How do we achieve a reasonable balance between transportation and environmental considerations? There were focus group concerns for the environment and the need to build, maintain, and repair roadways with attention to invasive and threatened species. Salt and other chemicals used in the construction and maintenance of roads can become toxic runoff and contaminate nearby waterbodies and groundwater resources. Many regulations exist to project our water and air from the construction and use of our transportation system. Are they effective?
- How do we define transportation projects of regional significance? Specific transportation projects may be needed to address the region's economic development, mobility, and/or congestion/safety issues. This plan will ultimately determine such areas of need, consider alternatives, and address recommendations to meet these needs.
- How do we ensure value for money in transportation planning, for both current and future generations and in terms of both, cost of maintaining existing and proposed facilities and services, in addition to initial costs in project construction or service initiation?
- How do we provide for greater transparency in transportation planning? Transportation agencies influence the allocation of large amounts of money. Their decisions have major impacts not just on mobility, but on shaping land use and urban development patterns, air pollution, infrastructure costs, access to housing and jobs for lower income people, as well as environmental quality. In other words transportation agencies deal with a topic that really matters to citizens, some of whom feel somewhat disenfranchised.

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Exhibit T-1
Regional Transportation Systems

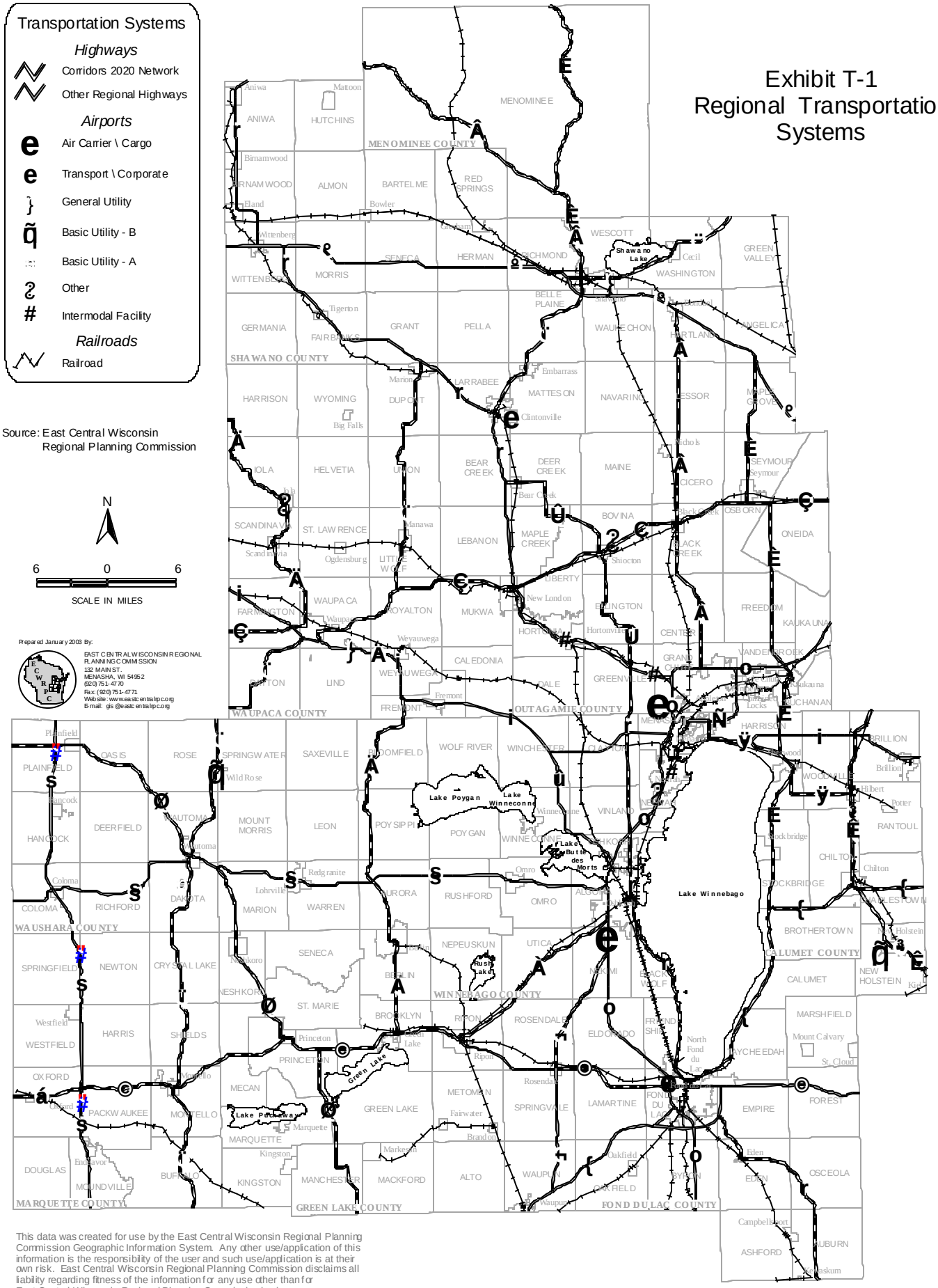

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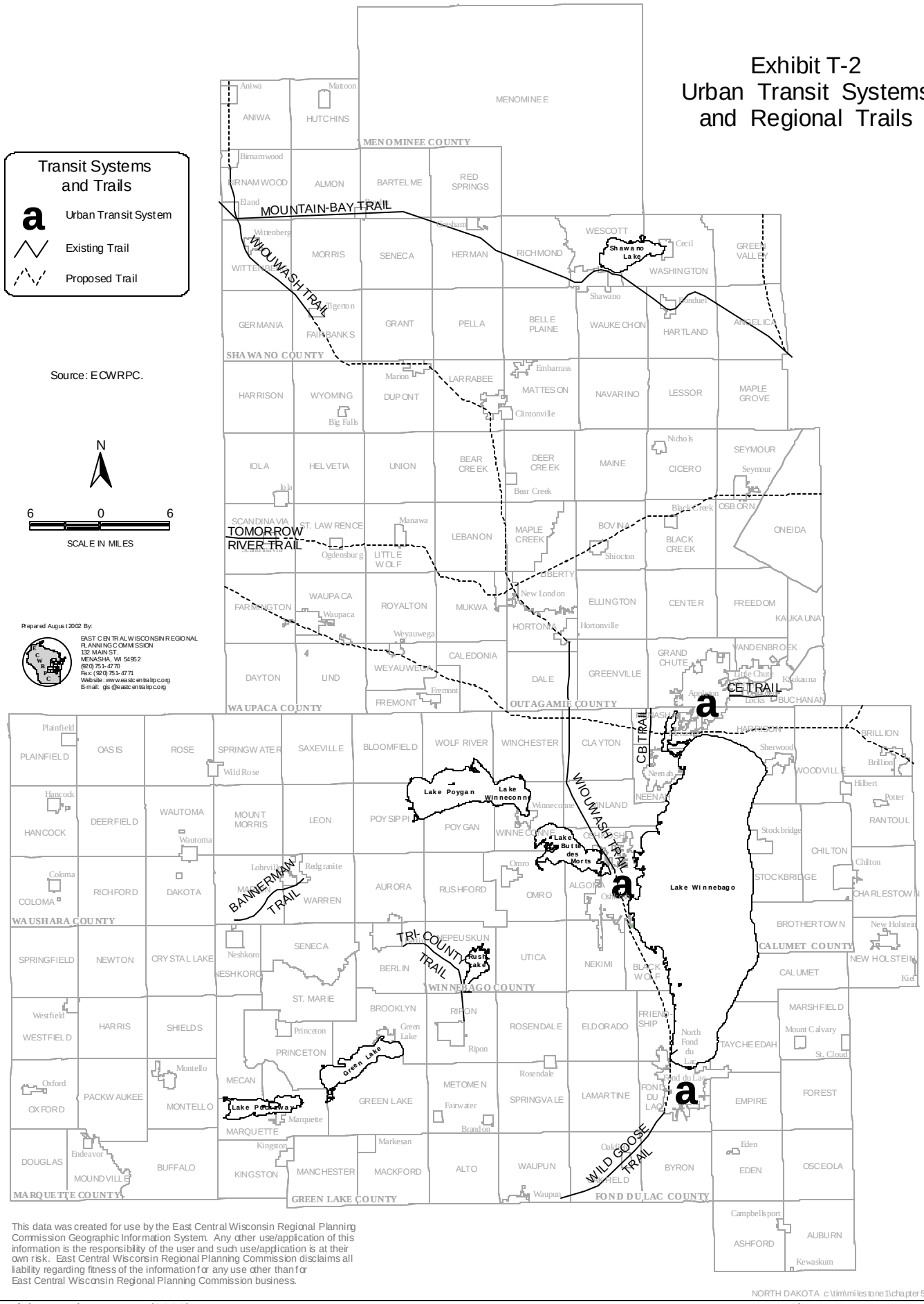
Exhibit T-2
Urban Transit Systems and Regional Trails



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CHAPTER 6: UTILITY AND COMMUNITY FACILITIES

Introduction

A highly developed infrastructure of community facilities is essential to economic development. Although economic activity encompasses many different types of commercial and industrial enterprises, they share a common need for basic services and facilities, such as water and sewer facilities, utilities and solid waste disposal sites. Support facilities and services, such as health and educational opportunities and police and fire protection, are also important to the functioning of economic activities. These facilities and services are important to an area's attractiveness as a place to live and work. In addition, the ability of local businesses and communities to obtain financing for upgrading and expanding facilities contributes significantly to an area's capacity for economic growth.

This chapter provides background information on the location, use and capacity of existing local, county, and regional public facilities that serve the region. The focus is on the regional context. A preliminary assessment of existing deficiencies and future needs and thresholds for public services is presented. Specific facilities examined include sanitary sewer and waste water treatment, storm water management, solid waste and recycling, water supply, recreation, telecommunications, and utilities, electric and gas. Consideration is also given to cemeteries, and health and child care facilities as well as to police, fire and rescue services, libraries and educational facilities. The chapter will also describe the policy context, outline the importance of intergovernmental cooperation and begin to identify the community facilities issues that should be addressed in the regional comprehensive plan.

In terms of the 14 local comprehensive planning goals listed in Chapter 1, East Central takes the view that those listed below relate specifically to planning for utilities and public facilities.

- Promotion of the redevelopment of lands with existing infrastructure and public services and the maintenance and rehabilitation of existing residential, commercial and industrial structures.
- Protection of natural areas, such as, wetlands, wildlife habitats, lakes, woodlands, open spaces and ground water resources.
- Encouragement of land uses, densities and regulations that promote efficient development patterns and relatively low municipal, state governmental and utility costs.
- Encouragement of coordination and cooperation among nearby units of government.
- Providing 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.

Policy Context

The provision of public and private utilities and community facilities is governed at many levels; federal, state, regional and local. Given the breadth of topics covered in this chapter the policy background is provided for those areas most relevant to East Central's work: sanitary sewer and waste water treatment, stormwater management, solid waste and recycling, water supply, telecommunications, utilities and education.

Sanitary Sewer and Waste Water Treatment

The Federal Water Pollution Control Act as amended in 1977, more commonly known as the Clean Water Act (1977), established the basic structure for regulating discharges of pollutants into the water of the United States. Many of the region's wastewater treatment plants were upgraded in conjunction with the passage of this act. In addition to establishing effluent discharge limits as secondary treatment levels for municipal treatment plants, the act also provided grants to communities to assist with planning and construction. Today, increasing levels of growth, or treatment requirements, have caused more recent expansions or improvements of these systems.

Areawide Water Quality Management Planning, Section 208 and the Facility Planning Grant Program, Section 201 evolved as a result of the Clean Water Act. This legislation is the primary policy base for sewer service area planning in conjunction with Wisconsin Administrative Code NR-121, concerning areawide waste treatment management planning and NR-110, which relates to facility planning and sewer extension reviews.

Most sewerage collection and treatment systems in Wisconsin are subject to the administrative rules of the Department of Natural Resources (WDNR). Decisions regarding the extension, or expansion, of the wastewater collection and treatment systems are made primarily at the local level.

Private, on-site wastewater treatment systems, or POTWS, are systems that receive domestic quality wastewater and either retain it in a holding tank, or treat it and discharge it into the soil, beneath the ground surface. The Department of Commerce has administrative rules, Comm 83, for building plumbing and non-municipal sewer lines, and for private on-site wastewater treatment systems. Any system with a final discharge exposing treated wastewater upon the ground surface, or discharging directly into surface waters of the state, is subject to DNR regulation. Additionally, certain POWTS are subject to both Department of Commerce and Department of Natural Resources review and regulation.

Wisconsin Administrative Code Comm 83 was revised during the 1990's to add provisions for new system technologies and land suitability criteria and, came into effect on July 1, 2000. Unlike the code it replaced, the new rules prescribe end results - the purity of groundwater discharged from the system - instead of the specific characteristics of the installation.

Stormwater Management

Mandated by Congress under the Clean Water Act, the National Pollutant Discharge Elimination System (NPDES) Storm Water program is a comprehensive two-phased national program for addressing the non-agricultural sources of storm water discharges, which adversely affect the quality of our nation's waters. The program uses the NPDES permitting mechanism to require the implementation of controls designed to prevent harmful pollutants from being washed by storm water runoff into local water bodies.

The WDNR administers the federal program through NR 216, which covers the Wisconsin Pollutant Discharge Elimination System (WPDES) Storm Water Discharge Permit Program. This program regulates storm water discharge from construction sites, industrial facilities and selected municipalities.

The WDNR's revisions to NR-216, based on the Clean Water Act, implement the Phase II requirements and are expected to be finalized in spring/summer of 2003 with rule promulgation following. The Phase II approach will require that six minimum control measures be addressed by communities including: public education, public participation, illicit discharges, construction site pollutant control (1+ acre in size), post construction site storm water management, and pollution prevention. Phase II affected communities within the region include those in the Appleton-Neenah, Oshkosh, and Fond du Lac MSAs. Additionally, administrative rules relaing to runoff control for agricultural uses (NR-151 and ATCP 50) will require a 20% decrease in total suspended solids (TSS) loadings by 2008, and 40% reduction by 2013, for existing development.

In addition to the rules and non-point source pollution programs outlined above, which are, or will be, developed for the major urban areas, other local and regional entities exist for the management of rural drainage. Nearly one third of Wisconsin's 79,000 farms use drains to remove excess water from the land, primarily through small-scale drains. These drains are organized into drainage districts. Primary responsibility for planning for and administering drainage districts resides with the county drainage board. Drainage districts are currently governed by authority established in Chapter 88, Wisconsin State Statutes, and by Department of Agriculture, Trade & Consumer Protection Administrative Rules, ATCP-48. Drainage Districts are overseen by a commission of appointed individuals and have considerable power under the current law.

Solid Waste and Recycling

The Wisconsin Solid Waste Management program whose major focus has been the regulation of existing solid waste landfills and assistance to local governments has been in existence for almost 30 years. In the early 1970's all operating solid waste facilities throughout the state were identified and licensed. At that time about 2000 land disposal sites, most of them town dumps existed in the state. Following this inventory, all the facilities that were located in environmentally sensitive areas, i.e. within a floodplain, too close to navigable surface waters or within a wetland or other critical habitat were ordered to close. Additionally, at all landfills around the state, the practice of open, burning dumps was stopped in favor of sanitary landfills. The remaining landfills, which posed the greatest environmental threat, were required to monitor groundwater and surface water. From this data it was determined that many of these unlined landfills were causing significant groundwater quality impacts and therefore these landfills were required to close.

In 1988, a revised set of solid waste rules was established based on data that was collected during the 1980's. These rules required that all landfills be designed with a 5-foot thick clay liner and a leachate collection system. In 1989, Wisconsin provided an incentive to municipalities to close their un-engineered landfills or dumps. Municipalities which closed their landfills between January 1, 1988 and October 1, 1992, were paid 50% of the cost of closure after deducting $10 per capita. In 1996, Wisconsin again revised it's solid waste rules to require all municipal landfills be designed with a composite liner and a composite final cover system.

In 1989, Wisconsin passed Act 335, the Recycling Law. The intent of this act was to divert recyclable materials and various household hazardous wastes from the state's landfills. This law

mandated recycling for all Wisconsin residents and businesses. In addition, the implementation of this act created a distinction between residential and business portions of municipal solid waste. Municipal governments became responsible for arranging residential recycling programs and the WDNR was made responsible for overseeing and supporting these efforts. According to Act 335, the following items were banned from disposal in landfills or incineration without energy recovery; beginning in 1991 lead acid batteries, major appliances and waste oil; beginning in 1993, yard waste and brush; and finally, in 1995, aluminum and tin cans, glass bottles and jars, number 1 and 2 plastic containers, newspapers, magazines, office paper, corrugated and non-corrugated cardboard and waste tires.

Water Supply

Drinking water standards are set by the U.S. Environmental Protection Agency (USEPA) to control the level of contaminants in the nation's drinking water. The Safe Drinking Water Act (SDWA) requires USEPA to set these standards, which public water systems in the U.S. are required to meet. USEPA has set standards for 90 chemical, microbiological, radiological, and physical contaminants in drinking water.

USEPA also sets Secondary Drinking Water Regulations, which are non-enforceable guidelines for contaminants that may cause cosmetic effects, such as taste or odor. Water systems are not required by USEPA to adopt these secondary standards, but states may choose to adopt and enforce them.

Drinking water standards apply to public water systems, which provide water to at least 15 connections or 25 persons at least 60 days out of the year (most cities and towns, schools, businesses, campgrounds, and shopping malls are served by public water systems). Private wells (individual wells serving fewer than 25 persons) are not required to be protected by these federal standards. People with private wells are responsible for making sure that their own drinking water is safe.

In Wisconsin, under NR 809 the Department of Natural Resources regulates design, construction and proper operation of public water systems. DNR also assures that public water systems monitor their water for regulated contaminants.

Telecommunications

Federal regulation of telecommunications, radio and television towers is currently regulated by the Federal Communications Commission (FCC), the Federal Aviation Administration (FAA), and the Occupational Safety and Health Administration (OSHA). The FCC issues licenses for new telecommunication facilities; determining need, coordination frequencies, and requiring that towers be located at the most central point at the highest elevation available. The FAA regulates tower height, coloring and lighting to ensure aircraft safety. OSHA regulates the occupational exposure to non-ionizing electromagnetic radiation emitted from radio, microwave, television and radar facilities.

Utilities

Public utilities in Wisconsin are regulated by the Public Service Commission (PSC) an independent regulatory agency. The PSC sets utility rates and determines levels for adequate

and safe service. More than 1,400 utilities are under the agency's jurisdiction. Most of these must obtain PSC approval before instituting new rates, issuing stocks or bonds, or undertaking major construction projects such as power plants, water wells, and transmission lines.

The PSC evolved from the Railroad Commission, which was created from Chapter 362, Laws of 1905. Chapter 499, Laws of 1907, extended the powers of the Railroad Commission to include all public utilities. Laws passed in 1985 provided for a partial deregulation of public utility holding companies.

The 1997 Wisconsin Act 204 allowed merchant plant developers to build capacity in Wisconsin. A merchant plant is a class of non-utility generation where all or a portion of the electrical output from a power plant is sold into a competitive market and is not dependent upon long-term sales contracts with electric utilities.

The 1997 Wisconsin Act 204 (Wis. Stat. 196.377(2)(b)) also required the eastern Wisconsin utilities to construct or procure a total of 50 MW of new electric capacity from renewable energy sources by December 31, 2000. Wis. Stat. 196.378(2), required retail electric providers to provide a minimum portion of their total retail sales from renewable resources. The requirement started at 0.5% by December 1, 2001 and increases to a maximum of 22% by December 31, 2011. As a result of these mandates there are nearly 53 MW of wind power capacity in service; 660 kilowatts are located within the region in the Town of Byron. However, the largest category of non-hydro renewable resources is biomass, which includes wood, wood and paper waste, herbaceous plants, plant products, and biogas from landfills, wastewater treatment, and on-farm anaerobic digestion of manure. The Minergy LLC facility in Neenah has 6.5 MW of biomass capacity.

Our region is a part of the Mid-America Interconnected Network (MAIN), a regional reliability council that was formed by the utilities to provide electric power reliability across large regions. This council includes the eastern part of Wisconsin, part of Missouri, Iowa, Minnesota, Michigan and all of Illinois. In response to the 1999 Wisconsin Act 9, the American Transmission Company (ATC) was formed and commenced operation in January 2001. ATC replaced the transmission service of the Wisconsin electric utilities (WP&L, MGE, WEPCO[1], South Beloit Water, Gas & Electric Company, Upper Peninsula Power Company and Edison Sault Electric Company) that are members of MAIN. ATC is responsible for delivering power to local utility companies; they own and operate the transmission system. The local utility companies then deliver the power to their customers.

Education

The Wisconsin Constitution as it was adopted in 1848 provided for the establishment of district schools that would be free to all children between the ages of 4 and 20. In Chapter 287, Laws of 1885, the legislature levied a one-mill state property tax to be collected by the state and distributed to counties for school support. The constitution also provided for a state university near the seat of the state government. Subsequent laws provided for administration of the university, funding and additional state colleges. Laws of 1907 permitted cities to operate trade schools for persons 16 years or older as part of the public school system and allowed them to establish technical schools and colleges.

[1] Now We energies.

East Central Policy

East Central has published many planning documents over the years that contain policies for the provision of utility and community facilities. *East Central Policy (2003*) compiles the current goals, objectives, and policies, for all policy areas into one document. Generally, regional utility and community facilities policies have evolved to address federal and state guidelines as well as local trends. To date, East Central's policies in this area have been geared almost exclusively to the Fox Cities, Oshkosh and Fond du Lac urban areas and include promoting the provision of government services in an efficient, environmentally sound, and socially responsible manner. The focus is on promoting economical public facilities, fostering cooperation and coordination, and promoting equity in delivery of services.

Intergovernmental Cooperation

Many of the region's utilities and community facilities are regional in nature due to existing intergovernmental agreements. Typically, regional facilities are more cost-effective and have greater opportunities for expansion. Many municipalities have begun to recognize the cost savings benefits of intergovernmental agreements. As a result, many communities have drafted boundary agreements with their neighbors. Other intergovernmental agreements have been developed specifically for community services or resources. Recognizing that landfill space is limited and competition with the private sector is great, Outagamie, Winnebago and Brown counties recently entered into an agreement for solid waste disposal and recycling in their respective counties. Shawano, Portage and Marathon counties are also looking at consolidating solid waste disposal in their counties. Cooperation between communities for their emergency services has always existed, but typically the respective departments have remained separate. In 1995, the villages of Kimberly and Little Chute signed an agreement to combine their police departments. In 2002, the cities of Neenah and Menasha made the decision to combine their respective fire departments. In both these agreements the departments have made the decision to operate under the combined leadership of one captain or chief. A number of regional efforts have been made to control and manage stormwater runoff resulting from urbanization. Two examples include the Garner's Creek Stormwater Utility and the Neenah Slough Watershed Stormwater Plan

Background Information

This section provides data on a wide range of community and public facilities. In addition to providing information on the current levels of provision, where possible, initial assessments are made regarding future needs and the adequacy of capacity.

Sanitary Sewer and Wastewater Treatment

Public and private wastewater treatment facilities (WWTFs) support a majority of the region's development, and are directly linked to the protection of the region's surface and groundwater quality. The ability to treat wastewater and plan for its infrastructure needs are of key importance to both the future development of the region and the protection of its resources. Additionally, the provision of, or access to, public sanitary sewer is a major factor in the location and timing of urban growth and therefore, needs to be recognized as either a constraint or opportunity to accommodate new development. Wastewater treatment is also a major expense

for a community, or individual homeowners for that matter, and must be seriously considered at all levels of planning. A "sewerage system" is the collection of all structures, conduits and pipes, by which sewage is collected, treated, and disposed of, with the exception of building plumbing and the service pipes from buildings to municipally owned sewers. Private Onsite Wastewater Treatment Systems ("POWTS") are also excluded from the definition of sewerage system and regulated, for the most part, by the Wisconsin Department of Commerce.

Public Wastewater Treatment Facilities (WWTF)

As illustrated in Exhibit CF-1 a total of 79 public and 5 private wastewater treatment facilities (WWTFs) are in operation within the region. Details of design flows, types of treatment, sewer extension limits, system needs and reported sanitary sewer overflows are provided in Table CF-1, Appendix D:1.

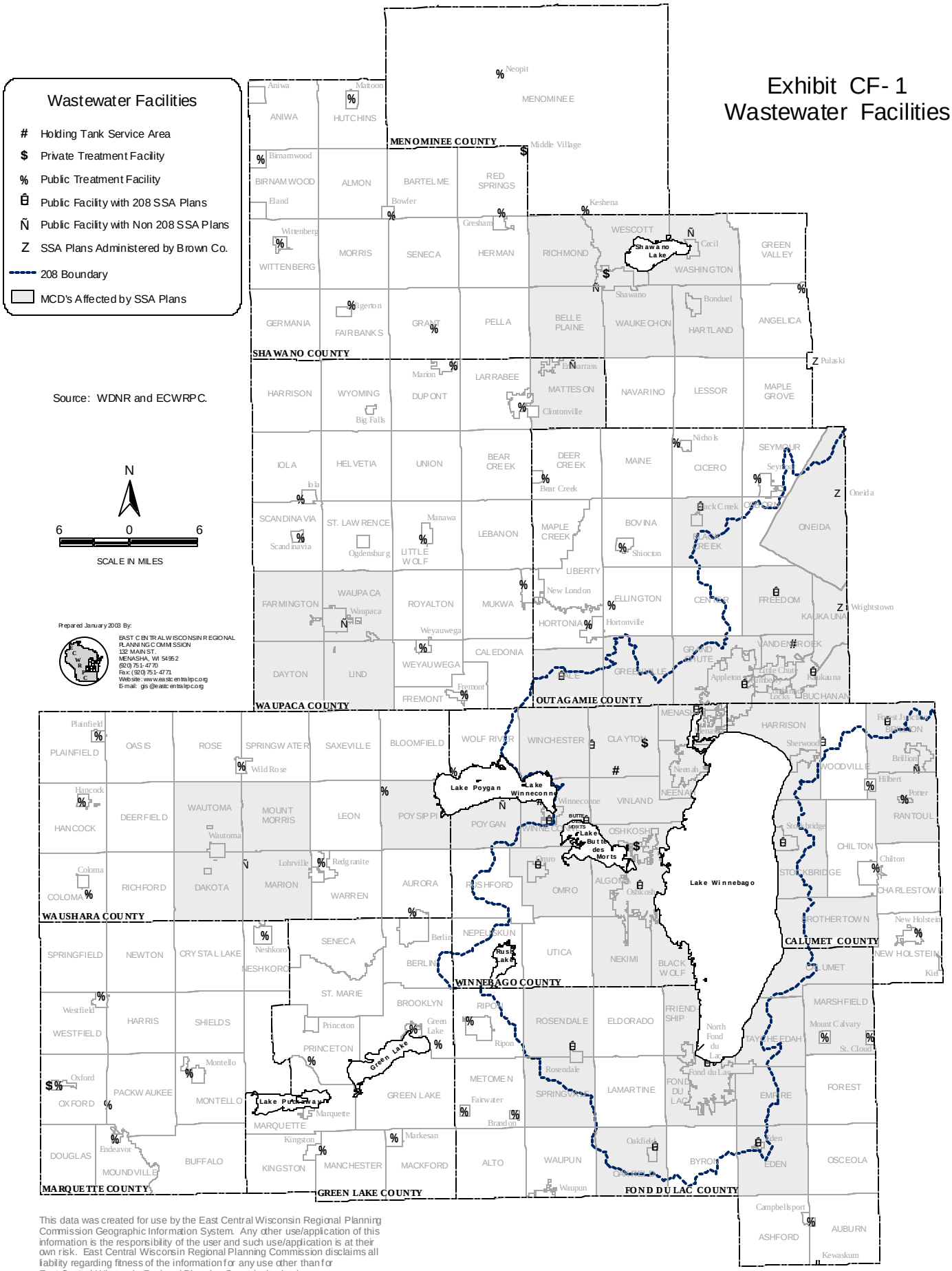
Public WWTFs can operate as a single municipality's system, a regional system (i.e. for multiple communities and/or sanitary districts[2]) or, as a metropolitan sewerage district (MSD)[3]. The region has 66 separate sanitary districts that are in various stages of activity or management for wastewater collection or treatment. Many of these sanitary districts are located in rural or urban lakeshore areas and may also provide public water. Only one MSD exists within the region, the Heart of the Valley Metropolitan Sewerage District, located in the eastern portion of the Fox Cities.

Of the 84 WWTFs in the region, 21 or approximately 25%, have some type of concern regarding the plants' capacity, or other ability to treat wastewater. Some WWTFs will be severely limited in providing treatment for new growth unless a financial decision is made to expand these systems. A majority of the region's WWTFs function adequately in terms of effluent quality and either meet or exceed their permitted limits. About one-half of the systems employ an activated sludge process which involves the mechanical aeration of wastewater to speed bacterial consumption of waste material. In larger systems, this treatment method often incorporates sophisticated process controls and is capable of producing a high quality effluent. Because of these attributes, and because large land areas are not required, activated sludge systems are used by all of the larger communities, most of the medium sized communities, and larger sanitary districts. Many of the region's WWTFs were upgraded in conjunction with the passage of the Federal Water Pollution Control Act in 1972 (Clean Water Act).

In 1976, the WDNR instituted a sewer ban program which is triggered by significant violation of the Wisconsin Pollutant Discharge Elimination System (WPDES) discharge effluent limits by WWTFs, or by excessive bypassing of untreated or partially treated wastewater out of the sewerage system. According to the WDNR, only 1% to 2% of all municipalities in Wisconsin are under a sewer ban at any point in time. The bans are applicable to extensions of new sewer (not repair or replacement of existing sewers) and are intended to restrict the amount of wastewater that is discharged to over-loaded or inadequate wastewater treatment facilities. This reduces the potential for waterborne disease outbreaks due to bypassing of untreated wastewater and influences municipalities to take corrective actions regarding their wastewater treatment systems. Also, according to a report issued by the WDNR in March, 2001 a total of

[2] As formed under Wis. Stats. 60.70.
[3] As formed under Wis. Stats. 66.20.

Exhibit CF- 1
Wastewater Facilities



482 sanitary sewer overflow (SSO)/bypass occurrences have been documented within the state between 1996 and 2000. Of these, 162 were attributed to excess clearwater inflow and infiltration. Twenty-seven of these SSO occurrences happened at locations within the region.

The majority of decisions regarding the extension, or expansion, of WWTFs are made at the local level. However, more detailed long-range plans have been prepared for some facilities in order to address growth and water quality issues. Sewer Service Area (SSA) Plans, are in place for 26 of the 84 WWTFs within the region and are developed and administered by East Central through an agreement with the Wisconsin Department of Natural Resources. East Central also acts in an advisory capacity to WDNR and provides recommendations on various plan updates, amendments, facilities plans, and sewer extensions.

Detailed wastewater facility planning studies/plans are required for all 'reviewable' projects involving new or modified sewerage systems owned by municipal or other non-industrial entities. The basic purpose of facility planning is to assess the condition of a sewerage system, establish a need for improvement, evaluate options to address system needs, and to identify the cost-effective alternative. The cost-effective alternative is that which results in the expenditure of the minimum total resources costs over the planning period. The total resources costs include monetary costs, environmental and social considerations, and other non-monetary factors. A proposed municipal project demonstrated to be necessary and cost-effective might then be eligible to receive financial assistance from the state Clean Water Fund loan program.

On a regional basis, WWTF capacity does not seem to pose a significant constraint on economic growth. However, some areas of the region may have temporary or long-term limitations to accommodate growth until such time as conscious decisions regarding growth, development, and municipal expenditures are made to either expand or improve their respective system's capabilities.

Private On-Site Wastewater Treatment Systems (POWTS)

Private on-site wastewater treatment systems, or POTWs, service a majority of the development within the region's rural areas. Typically, individual systems are designed for each household based on the site's soil characteristics and capabilities, however, in some cases, a community, or 'cluster' system, may be used which services more than one household. In rare cases, some existing development may have only a privy or no system at all. On-site systems, depending on the type and maintenance frequency, can function for anywhere from 15 to 30 or more years and can cost-effectively treat wastes in rural areas not serviced by public sewers. Table CF-2 (Appendix D:2) shows the number of sanitary permits issued by county between 2000 and 2002.

Several counties, including Calumet and Waushara, do not allow holding tanks systems for new construction, although they are considered to be an option for replacement situations. The new Comm 83 rules do allow the use of holding tanks for new construction, however, individual counties and municipalities can continue to enforce such a ban at their discretion.

The allowance of private on-site treatment systems will certainly be needed to accommodate new and existing development within the rural portions of the region, however, many issues regarding the effectiveness and impact of the rules with respect to environmental protection and urban sprawl will continue to be debated. The Commission has no formal regional policy

regarding on-site systems at this time but may want to consider addressing this issue in more detail as the regional plan develops.

Stormwater Management

Stormwater runoff and management have recently gained more attention as an environmental concern due to flooding and surface water quality issues. When one considers its impacts from a regional, or watershed, perspective the potential for damage is tremendous. For example, as little as one-half inch of rain across just the Fox-Wolf River Basin (6,400 square miles) equates to over 55 billion gallons of water that must either infiltrate into the ground or flow over the land to local streams and lakes. Although an individual new home or business may not seem to have a significant effect on the drainage system, the cumulative impacts of urbanization can influence natural system functions. According to studies by the Center for Watershed Protection, as little as 10% impervious cover (streets, roofs, parking lots, driveways, etc.) within a watershed can negatively impact fish habitat, while 25% impervious cover overloads the natural functions of the watershed and can permanently degrade stream quality.

A number of regional efforts have been made within the region to control and manage stormwater runoff resulting from urbanization. Two such examples include the Garner's Creek Stormwater Utility and the Neenah Slough Watershed Stormwater Plan. Additional county level, ordinance modifications or proposals have been initiated in Winnebago County and Outagamie County to address concerns in the rural portions of these counties.

Drainage Districts

In addition to the rules and non-point source pollution programs, which are, or will be, developed for the major urban areas, other local and regional entities exist for the management of rural drainage. Twenty-five counties within the state currently have drainage boards, with jurisdiction over about 160 drainage districts. Drainage districts are overseen by a commission of appointed individuals and have considerable power under the current law. Once the district is created, the Board is responsible for:

- Planning, operating, and maintaining district drains and dams, including the purchase (or condemnation) of lands;
- Levying assessments against landowners who benefit from drainage;
- Awarding damages, as appropriate, to landowners injured by the construction of drains;
- Making or recommending modifications to a drainage district boundaries;
- Resolving drainage disputes, subject to applicable law.

Some of the basic requirements within drainage districts include a required 20-foot corridor on each side of any ditch which is to be used as a maintenance corridor, and no row cropping is permitted (and vegetation is required) within any of the corridors. These requirements are coordinated with soil and water conservation plans required under the Farmland Preservation program. In addition, the county drainage boards are authorized to assess a single landowner for the costs of correction when he or she is the source of adverse impacts on downstream water quality. Landowners must receive drainage board approval before taking any action, which could potentially affect a drainage system[4].

[4] Ohm, Brian, *Guide to Community Planning in Wisconsin*.

Forty-six drainage districts currently exist within the region as illustrated in Table CF-3 (Appendix D:3). Most of these districts are considered to be active and are well established. Others have recently reactivated themselves based on new state requirements for mapping and planning for the district. Many districts have begun to raise issues regarding the impacts of rural, scattered, development and the cumulative impacts on water quantity flowing to, or through, their legal drains. Communities and counties will need to incorporate these districts into their smart growth planning process to ensure that impacts from development can be accommodated.

Solid Waste and Recycling Facilities

According to the WDNR, there are twelve active landfills within the region (Exhibit CF-2). Three counties within the region own and operate landfills within their counties; the remaining nine landfills are operated by private business. Of the nine private landfills, two are used primarily for municipal waste, and seven are used for the disposal of manufacturing waste (Table CF-4, Appendix D: 4). According to the WDNR, there is enough landfill space remaining to meet the future needs of the region. However, further consideration may need to be given to the impact of accepting waste from outside the region and the state: tipping fees continue to be lower in Wisconsin than in any of the surrounding states.

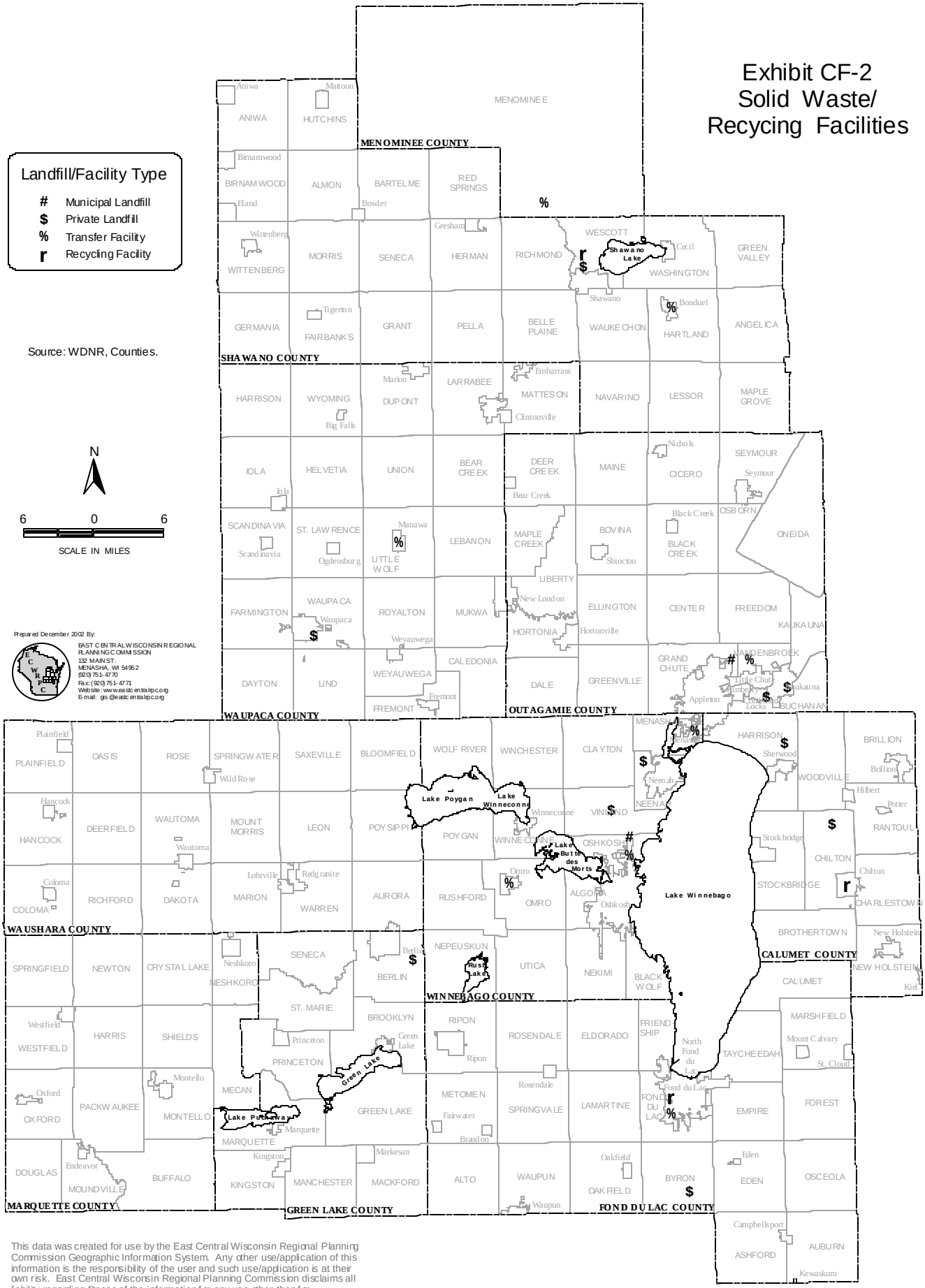
The level of county involvement in the solid waste and recycling programs varies widely from county to county. Four counties; Calumet, Fond du Lac, Green Lake and Marquette have no involvement in solid waste collection and disposal and place the sole burden of this on the individual communities. Two counties, Waushara and Menominee as well as the Menominee Nation, contract with private haulers to dispose of waste within their respective counties. Waupaca County, while it has limited involvement in the solid waste program, does own and operate a transfer facility in the county. The remaining three counties, Shawano, Winnebago and Outagamie own and operate active landfills.

At a transfer facility, the waste is usually compacted and hauled to a landfill. Recyclables may be sorted by type. A drop off site is usually utilized by residents to dispose of their waste and or recyclables. Waste may be collected in compactors and compressed for transport. There are eight transfer facilities used for solid waste and or recycling. Two of these, Outagamie and Winnebago, are new or currently under construction.

Three counties, Calumet, Fond du Lac and Green Lake, have no involvement in recycling within their respective counties. Two additional counties, Winnebago and Shawano, while involved in recycling are not the “Responsible Unit”. The five remaining counties, Menominee, Waupaca, Outagamie, Waushara and Marquette are considered “Responsible Units” and are active in recycling. There are four recycling facilities located within the region.

Winnebago, Outagamie and Brown counties have recently entered into a 25-year agreement to handle the disposal of solid waste and recycling within their respective counties. Consolidation of the recycling efforts began in 2002, while combining their landfill resources will start in 2003. In addition, Shawano County is exploring the possibility of entering into an agreement with Marathon and Portage counties to handle their solid waste. The county is planning on continuing to run the county recycling program.

Exhibit CF-2
Solid Waste/ Recycling Facilities



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Due to rigorous recycling efforts, Wisconsin residents recycled about 36% of the total waste in 1995[5]. This is more than double the rate of 17% of the waste that was recycled in 1990. Currently, every resident has access to a community recycling program and about 98% of Wisconsin household participate. Recycling efforts are currently under pressure as a result of funding considerations. In addition, the large number of mobile phones and computers that need to be disposed of is also cause for concern

Public Water Supply

There are 73 municipal water systems in the region, which pump and average of 59.7 MGD (Exhibit CF-3). These systems serve 64 incorporated communities, seven sanitary districts, one water utility, one private water commission and six settlements in Menominee County (Table CF-5, Appendix D:5).

Collectively, 157,137 customers, comprised of residential, commercial and industrial users, are served by these systems. About 343,000 people, or 55% of the region's population, have municipal water service. With the exception of the cities of Appleton, Menasha, Neenah and Oshkosh, who utilize surface water, all of the municipal water systems rely on groundwater as their source of supply.

Water systems consist of four main components; supply, treatment, storage and distribution. Supply consists of either groundwater or surface water. Water supplies should be of adequate quantity to meet the most severe public demands and be of good quality.

Treatment of raw water is necessary to remove objectionable constituents such as bacteria, suspended solids and high concentrations of dissolved solids. These steps are undertaken to ensure a safe water supply as well as improve the taste, color and clarity of drinking water, or to make water suitable for use in industrial processes. Treatment capacity should be adequate to meet service requirements.

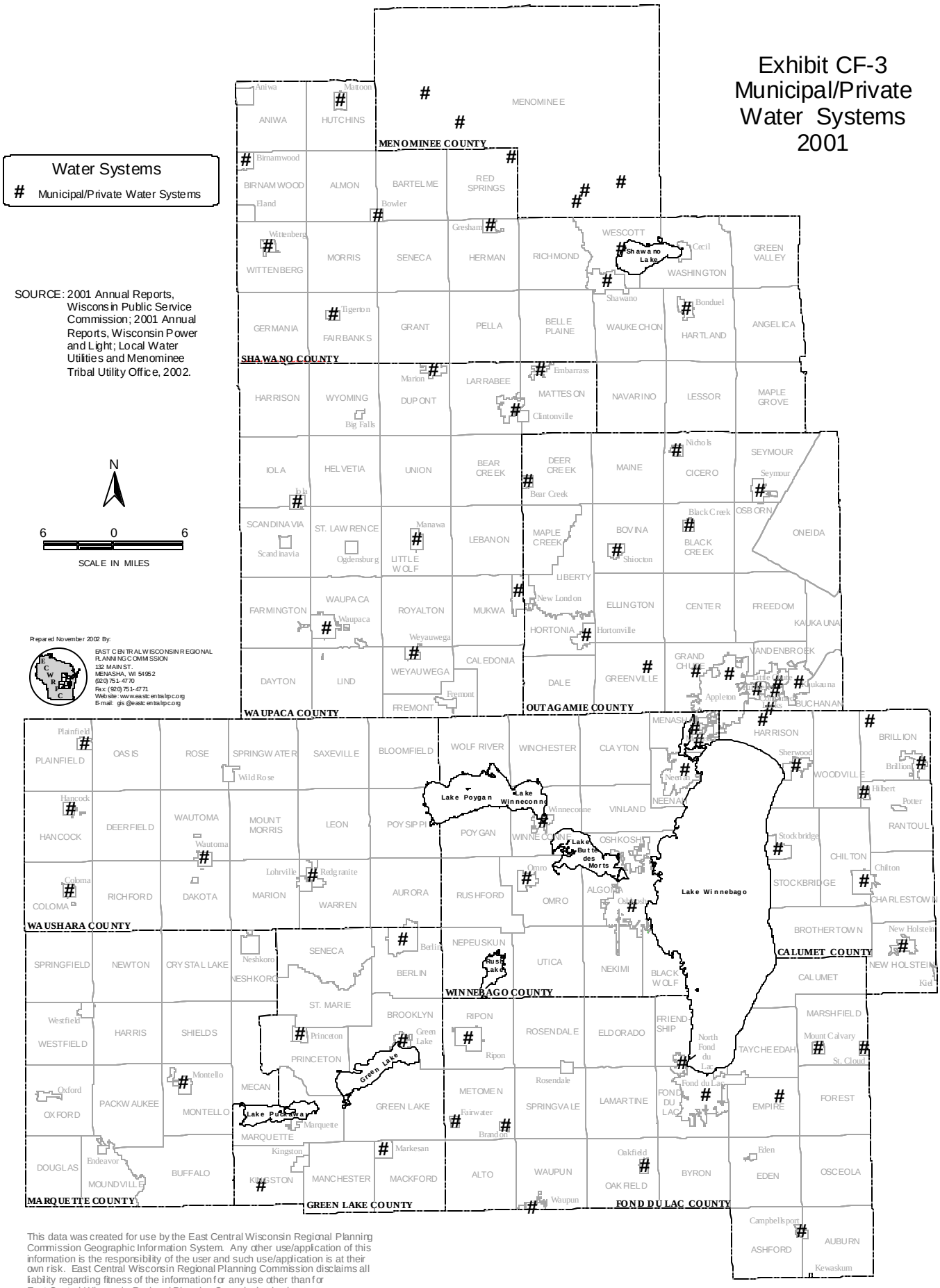
Since water pumpage capacity is fixed, often at a level below peak demand, storage capacity is needed to assure adequate flow. This is particularly important during high demand periods, such as in fighting fires. Storage also provides a short-term buffer to repair equipment failures or correct processing problems.

The distribution system brings water from the point of supply to the customer. Distribution piping must be adequately sized to provide for normal customer demands as well as meet periodic demands for high volumes for fire protection purposes. Distribution systems should also be "looped" with interconnections to assure supply in the event of main breakage as well as to provide good circulation of water within the distribution system.

Potential water system deficiencies can be assessed by applying generally accepted engineering standards relating to water supply and storage capabilities. Because of possible well malfunctions such as plugged screens, contamination, or broken well shafts, it is suggested that communities have at least two fully developed water supply sources. Nine of the region's smaller systems do not meet this standard. While larger communities usually have several

[5] Franklin Associates, LTD *The Wisconsin Waste Characterization and Management Study Update.*

Exhibit CF-3
Municipal/Private Water Systems
2001



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water sources, many smaller communities have only one well and are therefore vulnerable to shortages. Maintaining multiple water sources provides the flexibility to sustain water distribution in the event of a malfunction.

Water storage is also an important component of the total water supply chain. It is a general standard that the water storage of a community be equal to the average daily pumped. In the event of a general power loss or equipment malfunction, it is important to have water stored to provide continuous service. Almost 30% of the region's systems do not meet this standard.

Recreation Facilities

Local Parks

Local parks and recreational facilities are intended to provide primarily short-term active recreational opportunities. Virtually every incorporated community as well as a number of unincorporated communities in the region has at least one park where its residents can participate in a range of recreational activities. As a rule, the number of park sites and the diversity of available recreational facilities they provide correspond with the size of the community. According to Table CF-6, as of 1993 there were about 8,500 acres of park and recreation land located within the municipalities (cities, villages and towns). Sixty-six percent of the total land was located within three counties, Fond du Lac, Outagamie, and Winnebago.

One traditional barometer of the overall adequacy of a local park system is that it should contain at least 10 acres of land per 1,000 residents. Experience has shown that this ratio needs to be higher in smaller communities if they want to accommodate even a basic range of recreational facilities. Another factor that can distort this ratio is the recent trend of maintaining sizable tracts of parkland as relatively undeveloped open space, as this acreage does not contribute to addressing the need for active recreational activities such as sports fields and picnicking.

Citizen input can often provide the best measure of need and is a legitimate impetus for developing and expanding the range of recreational facilities in a community. Although standards have been developed to provide an indication of need, a community with an active adult softball program or extensive youth soccer program will need more facilities to accommodate these activities than these standards would indicate.

Communities also need to be wary of changing trends in participation. In recent years the demand for tennis has waned but activities such as disk golf and skateboarding have become more popular. With financial resources at a premium, it has become increasingly important for communities to understand these trends before they target expenditures for specific park development projects. One way to stretch dollars is by working with the local school district on joint projects, such as school-parks, where facilities can be developed that meet both school and community needs.

The cost of park maintenance is also an ongoing concern. Larger communities with staffed park personnel are finding ways to create maintenance efficiencies that minimize the cost of keeping their parks attractive, but for many smaller communities, keeping costs in line often means less time spent on grounds and facility maintenance. Since the appearance of its parks

is recognized as a major component of a community's image, inadequate or poorly maintained parks and park facilities reflect poorly. This is particularly true for intensively landscaped areas and other "people places" that are intended to serve as gateways or urban spaces.

Table CF-6 Municipal and School District, Park and Recreation Land, 1993[6]

County	Number	Acres
Region	698	8,500
Calumet[2]	44	495
Fond du La	116	1,553
Green Lake	39	283
Marquette	32	603
Menominee	3	29
Outagamie[2]	136	2,453
Shawano	86	675
Waupaca	85	791
Winnebago[1]	157	1,619

[1]School district totals included in municipal.

[2]City of Appleton updated to 2002

Source:ECWRPC

Specialized Regional Recreational Facilities

The region contains a number of specialized recreational facilities that attract visitors from throughout and beyond the region. Fox Cities Stadium in the Town of Grand Chute is home to the Wisconsin Timber Rattlers baseball team, a Class A farm club of the Seattle Mariners. Annual attendance for the team's seventy game home schedule has averaged over 200,000 since the stadium opened several years ago. Calder Stadium in Menasha, in addition to hosting high school events, has served as the home field for the Wisconsin Rebels, a developmental team of the Milwaukee Rampage professional soccer team, for the past several years.

Another specialized facility is the Wisconsin International Raceway (WIR) in Kaukauna, a paved half-mile race track and drag strip that attracts racers from throughout the Midwest. For major events, crowds are often in excess of 5,000. In addition to WIR, weekly stock car races are held at county fairgounds in Oshkosh, Chilton, Seymour, and Shawano.

The recent completion of the Performing Arts Center in Appleton provides the region with a venue for attracting nationally known entertainers and performances. Other major auditoriums in the region include Pickard Auditorium in Neenah, the Grand Opera House in Oshkosh, and the Lawrence Memorial Chapel in Appleton. The Mielke Theater near Shawano accommodates performances by primarily local groups.

[6] East Central is currently working to update this table.

Two major gaming facilities are located within the region. These include the Menominee Casino and Bingo Hall in Keshena and the North Star Casino near Bowler. These and other casinos within an easy drive provide recreational opportunities for many residents.

The region has 49 golf courses offering nearly 800 holes of golf that are open for public play. Three courses operated by governmental entities include Reid Municipal in Appleton, Lakeshore in Oshkosh, and Rolling Meadows in Fond du Lac County. The publicly operated courses have found it increasingly difficult to break even and there has been pressure to lease the operation to a private vendor.

Nordic Mountain near Mount Morris in Waushara County is the only remaining private ski hill. A small ski hill is maintained in Calumet County Park near Stockbridge and a small ski jump and hill is maintained by a local club near Iola. Local governmental entities and volunteers maintain groomed cross-country ski trails in a variety of locations throughout the region. There are over a thousand miles of state-funded groomed snowmobile trail in the region and a similar amount of unfunded club trails. Other winter-oriented facilities include indoor ice arenas in Appleton, Town of Menasha, Fond du Lac, and Waupaca. The Appleton Curling Club maintains a "sheet" in the Town of Grand Chute.

Among the major events occurring in the region are the annual EAA convention in Oshkosh, which attracts about 800,000 annual visitors; Walleye Weekend in Fond du Lac and other national fishing tournaments; Country USA at the Winnebago County fairgrounds; and the Iola Car Show. Other smaller music festivals and car shows as well as locally sponsored events and festivals such as Oktoberfest in Appleton, Sawdust Daze in Oshkosh, Kermis Festival in Little Chute, St. Patrick's Day in New London, and a host of other local celebrations; numerous local arts and crafts shows; and weekly flea markets such as those in Princeton and Shawano also attract visitors from outside their immediate area.

Telecommunications

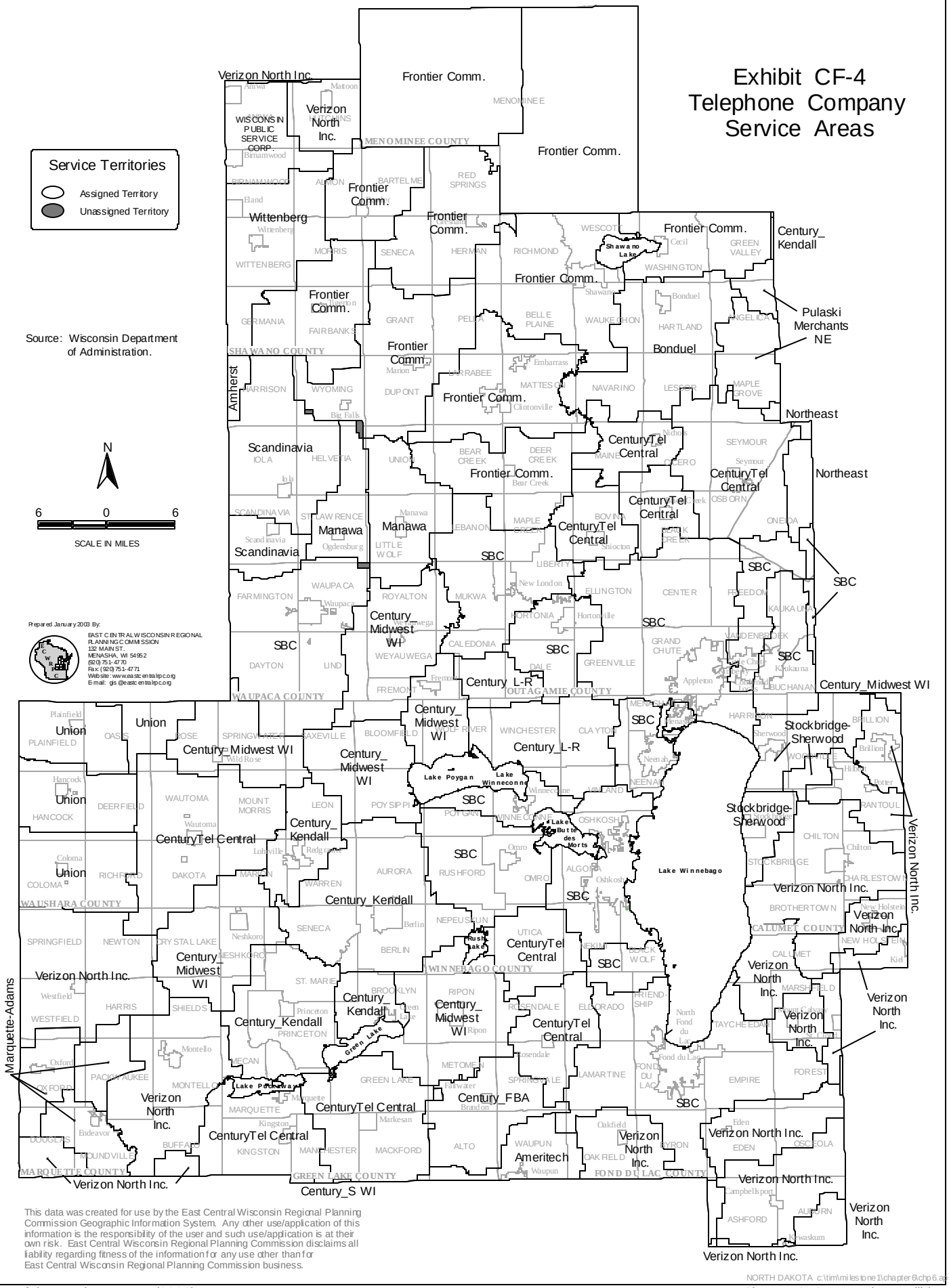
Telephone Companies

Telecommunications facilities are located throughout the region. Major types of facilities for consideration under this section include broadcasting, two-way radio, fixed point microwave, commercial satellite, and cellular radio (cell towers).

Five telephone companies; Frontier Communications, Verizon North, Inc., Century, Ameritech (SBC), and Century Tel primarily provide local telephone service in the region. A number of smaller companies also have a presence in the region. Exhibit CF-4 shows their approximate service areas.

Frontier provides service to Menominee County, the majority of Shawano County, the northeast corner of Waupaca, and the northwest corner of Outagamie County. Verizon North, Inc. has scattered service areas; the northwest corner of Shawano County, the majority of Calumet and Marquette counties and the eastern and southern portions of Fond du Lac County. Century provides service to the southeast corner of Waupaca County, a very small portion of Outagamie County in the southwest corner, the eastern half of Waushara County, the northeast corner of Marquette County, and the northern and southwest corner of Winnebago County. Ameritech

Exhibit CF-4
Telephone Company Service Areas



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(SBC) provides service to southern Outagamie County, central Fond du Lac County, a small portion of the northwest corner of Calumet County, and the majority of Winnebago County. Century Tel provides service to northern Outagamie County, a small portion of southern Winnebago and Shawano Counties, a small part of north central Fond du Lac County, southern Green Lake County, central Waushara County and the southeast corner of Marquette County.

The 10 remaining companies have considerably smaller service areas. In Shawano County; Wittenberg serves the Wittenberg and Eland areas including parts of the towns of Germania, Birnamwood, Morris and Almon; Bonduel serves the Bonduel area including a part of the towns of Navarino, Lessor, Matteson, Waukechon, Washington, Green Valley, Angelica, Wescott and Maple Grove; Pulaski Merchants NE services part of the towns of Angelica, Green Valley and Maple Grove. In Waupaca County; Amherst serves part of the Town of Harrison; Scandinavia serves the Iola and Scandinavia area and part of the towns of Harrison, Wyoming, Helvetia, Farmington and St. Lawrence; Manawa serves the Manawa and Ogdensburg areas as well as part of the towns of Union, Helvetia, Royalton, Lebanon and Bear Creek; Bonduel serves a small portion of the Town of Matteson. In Outagamie County; Northeast serves part of the towns of Seymour and Oneida. In Waushara County, Union serves the western portion of the county including the Plainfield, Hancock and Coloma areas and includes apart of the towns of Oasis, Rose, Deerfield and Richford. In Calumet County; Stockbridge-Sherwood serves the Sherwood and Stockbridge areas including the towns of Harrison, Woodville, and Brillion. In Marquette County; Marquette-Adams serves the Oxford and Endeavor areas including the towns of Westfield, Packwaukee and Douglas.

Cellular and Digital

Trends regarding the use of cellular telephones and other cellular and digital communications devices show a continued demand for these types of facilities, now and in the future. Many local concerns exist when such facilities are proposed. These include establishment of need, engineering, health, residential interference, property value impacts and aesthetics. In addition there are beginning to be concerns about how to dispose of used cell phones

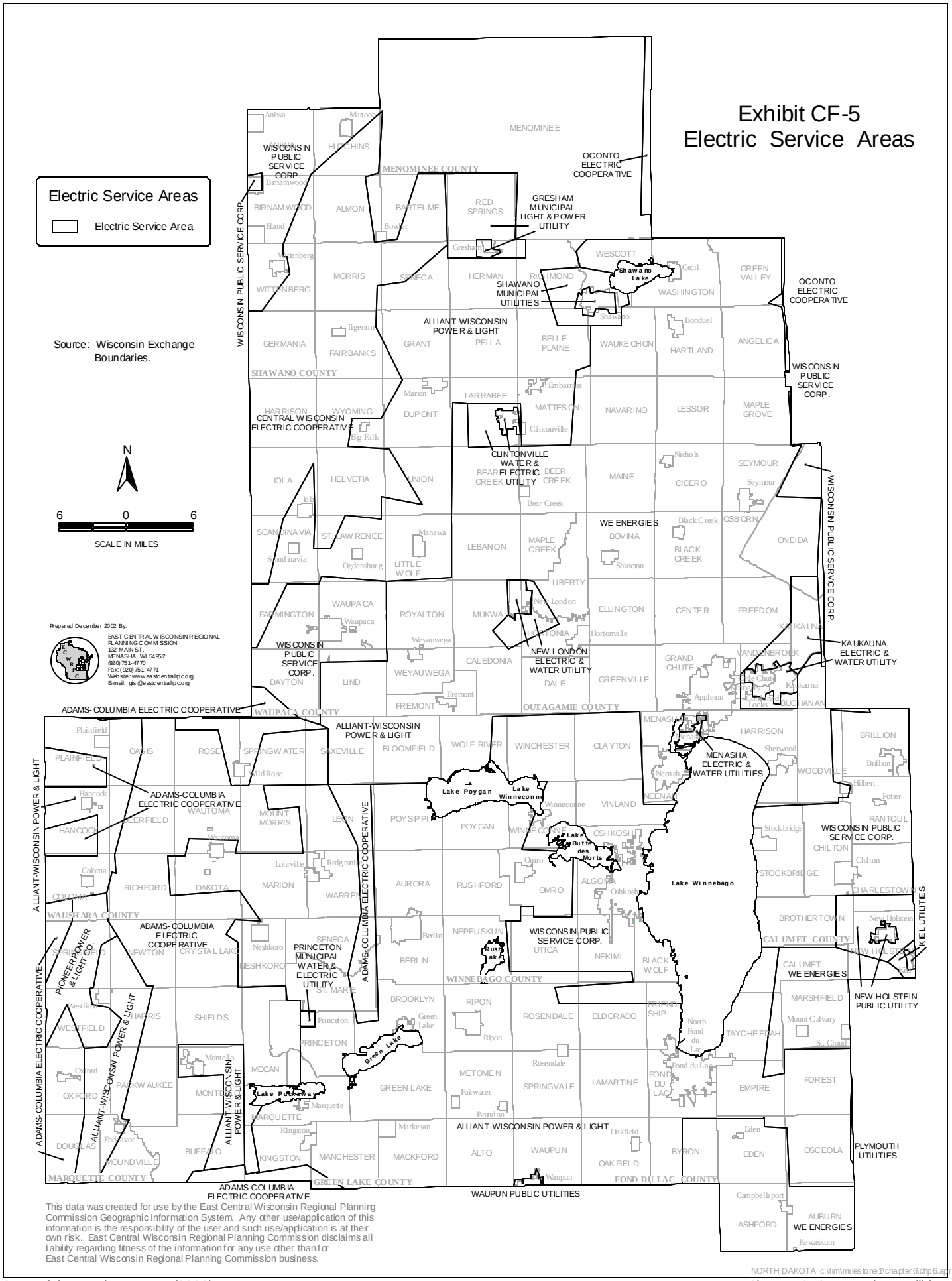
Utilities

Private, municipal and cooperative utility companies provide electric power in the region. Exhibit CF–5 shows their approximate service areas. Four private utilities provide service to the region: Alliant-Wisconsin Power and Light, Pioneer Power and Light (Westfield Electric), We Energies and Wisconsin Public Service Corporation. These private companies generate most of the power consumed in the region.

Three cooperative utility companies provide electric power in the region: Adams-Columbia Electric Cooperative, Central Wisconsin Electric Cooperative and Oconto Electric Cooperative. These cooperatives serve the more rural areas in the northern and western part of the region. The Central Wisconsin Co-op services part of Shawano and Waupaca Counties, while the Adams-Columbia Electric Co-op provides electric power to areas in Waupaca, Waushara, Marquette and Green Lake Counties. The Oconto Electric Co-op serves a small portion in eastern Menominee and Shawano Counties.

There are 10 municipal utilities in the region: Gresham Municipal Light and Power Utility and Shawano Municipal Utilities in Shawano County; Clintonville Water and Electric Utility and New

Exhibit CF-5
Electric Service Areas



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London Water and Electric Utility in Waupaca County; Kaukauna Electric and Water Utility in Outagamie County; Menasha Electric and Water Utility in Winnebago County; Kiel Utilities and New Holstein Public Utility in Calumet County; Waupun Public Utilities in Fond du Lac County; and Princeton Municipal Water and Electric Utility in Green Lake County. The utilities are members of the Municipal Electric Utilities of Wisconsin.

Existing and Approved Power Generating Sites

There are 29 existing and two approved generating sites in the region. This includes seven fossil fuel, 22 hydroelectric and two renewable energy sites (Table CF-7, Appendix D: 6). Approximately 77% of the power in the region is generated by the five existing fossil fuel (oil, gas and coal) sites, while the 22 hydroelectric sites generate about 21% of total generating capacity. In comparison, within the state, 85% of the power generated in the state is by fossil fuels. The remaining 1.5% of the total power that is generated in the region is from other sources; wind and biomass.

The 1997 Wisconsin Act 204 allowed merchant plant developers to build capacity in Wisconsin[7]. During the summer of 1999, the first merchant plant in the region was put into operation in the Town of Neenah. Current plans include the addition of one additional merchant plant in the region. Fox Energy received approval in the fall of 2002 to build a 635 MW natural gas-fired combined cycle power plant in the Town of Kaukauna. A second plant, not merchant, was also approved in the fall of 2002 for a 55 MW natural gas-fired plant in the City of Kaukauna. This plant will replace the city's three existing diesel generators and will be owned by Wisconsin Public Power, Inc and maintained by the City of Kaukauna.

As a result of state mandates there are nearly 53 MW of wind power capacity in service; 660 kilowatts are located within the region in the Town of Byron[8]. However, the largest category of non-hydro renewable resources is biomass, which includes wood, wood and paper waste, herbaceous plants, plant products, and biogas from landfills, wastewater treatment, and on-farm anaerobic digestion of manure. The Minergy LLC facility in Neenah has 6.5 MW of biomass capacity.

Electric Transmission Lines

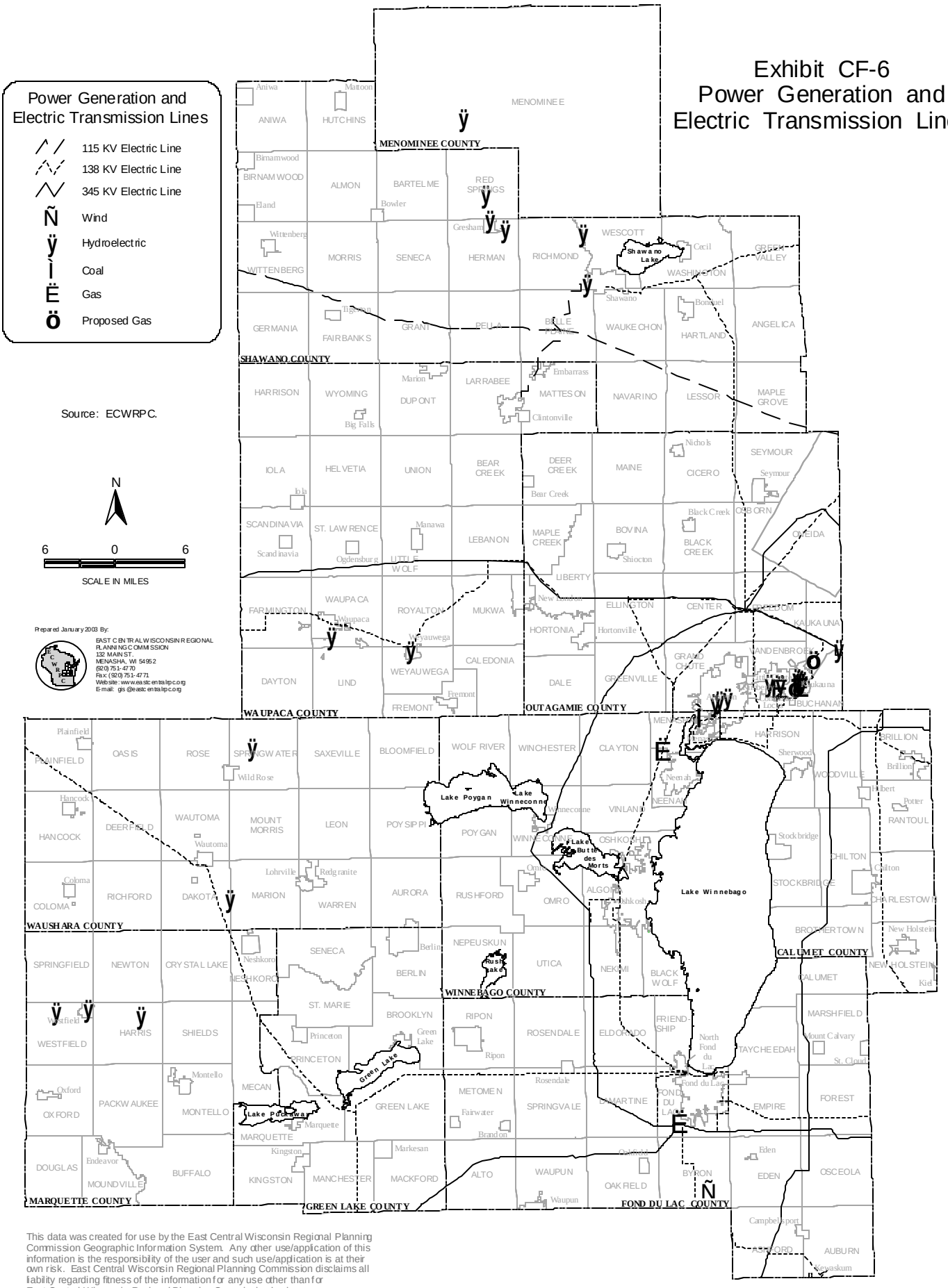
The region's high voltage electric transmission systems are shown on Exhibit CF-6. The American Transmission Company ATC divided the state and Upper Peninsula into 5 zones to track energy issues. Our region is part of zone 1 and 4.

The major transmission lines within the region include: three 345 kV lines from the Kewaunee and Point Beach nuclear units (two of these lines deliver power to the Fox Cities; the North Appleton-Arpin-Rocky Run continues west to Minnesota and the North Appleton-South Fond du Lac runs south along the west side of Lake Winnebago), one 345 kV line from the Edgewater Power Plant near Sheboygan (runs west from Edgewater to S. Fond du Lac, then southwest to Columbia). There are also many smaller transmission lines (115kV to 161kV) that run between

[7] A merchant plant is a class of non-utility generation where all or a portion of the electrical output from a power plant is sold into a competitive market and is not dependent upon long-term sales contracts with electric utilities.

[8] The 1997 Wisconsin Act 204 (Wis.Stat. 196.377(2) (b) required eastern Wisconsin utilities to construct or procure a total of 50MW of new electric capacity from renewable energy by December 31st, 2000.

Exhibit CF-6
Power Generation and Electric Transmission Lines



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the Fox Cities and the Green Bay areas; Green Bay area west to Shawano County; Fox Cities area west towards Waupaca and Portage Counties; Fox Cities area south towards Fond du Lac; and Fox Cities area south through Calumet and Sheboygan counties; south from Shawano County, through Waupaca County and Waushara County to Columbia; and from Wautoma to Wood County, Green Lake County and Adams County.

Natural Gas Pipelines

Four major pipeline corridors, owned by ANR run through the region. The first intersects the region in Marquette County and continues on a northeastern route through Waushara, Waupaca, Shawano, Oconto and Marinette counties to Menominee, Michigan. The second pipeline connects Green Bay to Washington County, located on the west-side of Lake Winnebago; it passes through Outagamie, Winnebago and Fond du Lac counties. The third pipeline enters the region in Fond du Lac County and travels north to the Wisconsin-Michigan border. Finally, the fourth pipeline connects to the second pipeline in Appleton and continues northwest through Outagamie, Waupaca and Portage counties.

Generally ANR pipelines transport the natural gas supply through the region. Smaller feeder lines from these pipelines supply natural gas to the various natural gas companies. Generally within the region these natural gas companies include: Wisconsin Public Service, We Energies and Alliant Energy.

Capacity Assessment

Summer peak demand and supply conditions ordinarily determine the need for either new electric generating stations or new transmission facilities. For summer peak demand, Wisconsin does not have enough generation within the state to meet its demand and must rely on transmission lines to meet the required demand and to achieve the desired reserve margin.

Currently, within the state, most generating capacity is utility owned, with only four merchant plants operating at the end of 2001. While utility owned electric generating facilities have provided a relatively stable capacity, non-utility generation has been the supply area in which significant power plant construction has taken place and may in the future. It is predicted that merchant plant production could make up nearly 17% of the generating capacity used to meet electricity demand in the state by the end of 2004. If all capacity purchases without reserves come from merchant plants, this percentage could increase to 26%[9]

Following national trends, natural gas usage is expected to increase dramatically over the next few years, as new generation plants will be fueled almost exclusively by natural gas. In the eastern part of the state sufficient capacity exists in the system to supply future demands. However, the ANR pipeline that runs south from the Fox Cities on the west-side of Lake Winnebago is currently constrained, while the pipeline on the east side of Lake Winnebago has sufficient capacity for further needs.

The function of the transmission system is to provide the ability to deliver power reliably to local substations and to provide the ability to import power from, or export power to, other regions. When evaluating a transmission system, the demand for energy, the available generation and

[9] *Strategic Energy Assessment Draft Report*, July 2002.

the cost of generation in different locations must be taken into account. Generally the higher a line's voltage, the stronger a connection it forms and the more power it can carry, therefore higher voltage transmission lines are important in delivering large amounts of power on a regional basis. Lower voltage lines primarily serve to deliver power over a more limited area.

The experience of recent summers has highlighted constraints on the movement of power between western and eastern Wisconsin and between Illinois and eastern Wisconsin. ATC recently published its *10 Year Transmission System Assessment Report dated August 2002* in which transmission limitations were identified. It should be noted that the transmission network is interconnected; therefore a problem in one area could affect another area. According to the report, in Zone 1, which includes the counties of Waupaca, Waushara, Marquette, Green Lake and part of Shawano, the Eau Claire-North Appleton line was identified as a service limiter, overloaded facilities and low voltages were experienced in Shawano, Waushara and Green Lake Counties. The area most affected by low voltages and overloads was the Rhinelander Loop which is north of our region. Zone 4, which includes Outagamie, Menominee, Winnebago, Calumet, Fond du Lac and part of Shawano counties, also identified the Eau Claire-North Appleton line as a service limiter, in addition the line between North Appleton and White Clay in Shawano County also acted as a limiter. Overloaded facilities were also noted between Lost Dauphin (east of Appleton) and Green Bay, Point Beach and Forest Junction and Kaukauna and Menasha. The areas most affected by overloads included the Fox River Valley, Green Bay and Sheboygan. Low voltages affected areas between Appleton and Oshkosh. Heavy flows affected limiting import/export capabilities between Wisconsin and the Upper Peninsula.

The following transmission projects have been approved by PSC; 138 kV line between Forest Junction and Highway V in Brown County, add circuit & rebuild existing structures between Forest Junction and Lost Dauphin (east of Appleton).

As part of the planning process it is important to plan for future utility corridors and infrastructure. In future reports this item will need to be addressed.

Cemeteries

According to the United States Geologic Survey (USGS) there are 433 public and private cemeteries within the region. Cemetery data along with other data is gathered by the USGS and included on the quad maps that they publish. Smaller cemeteries, which are more difficult to identify, may not be included in this inventory. Per the USGS, Fond du Lac County has the greatest number of cemeteries (82) while Menominee County has the least (4). While some cemeteries are closed to new burials, generally lack of cemetery space is not an issue in the region.

Health Care Facilities and Services

The availability of adequate health care facilities and services is becoming an increasingly important yardstick for measuring the attractiveness of a community in which to live and work. Today, health services are seen by most as a right, similar to the right to education, and residents want to be assured that most of their health needs can be taken care of within a reasonable distance.

Hospitals

Twelve general hospitals are located in the region ranging in size from 25 beds in Waupaca to 214 beds at Theda Clark Medical Center in Neenah (Exhibit CF-7). In general hospitals in the outlying communities have less than 100 beds each, while those in the urbanized are have more than 100.

In 2000, the number of hospital beds in the region totaled 1,046, of which 159 were in the rural counties (Table CF-8, Appendix D:7). The region has one bed for every 583 people. This is less than the state as a whole, which has one bed for every 413 people. Within the region, there is a sharp distinction in the ratio of beds to population between the four urban counties and the six rural counties. The urban counties have one bed per 514 persons, while the rural counties have one bed per 967 persons. The ratios for both the urban rural counties in the region are below the state level.

In 2000, the region's occupancy rate was 51%, slightly less than the state's occupancy rate of 54%. Overall the urban counties had higher occupancy rates than the rural counties, 55.5% in the urban counties versus 31.6% in the rural counties. Lower occupancy rates in rural areas may indicate that rural residents are traveling to larger hospitals in the urban areas for specialized care unavailable in the smaller rural hospitals.

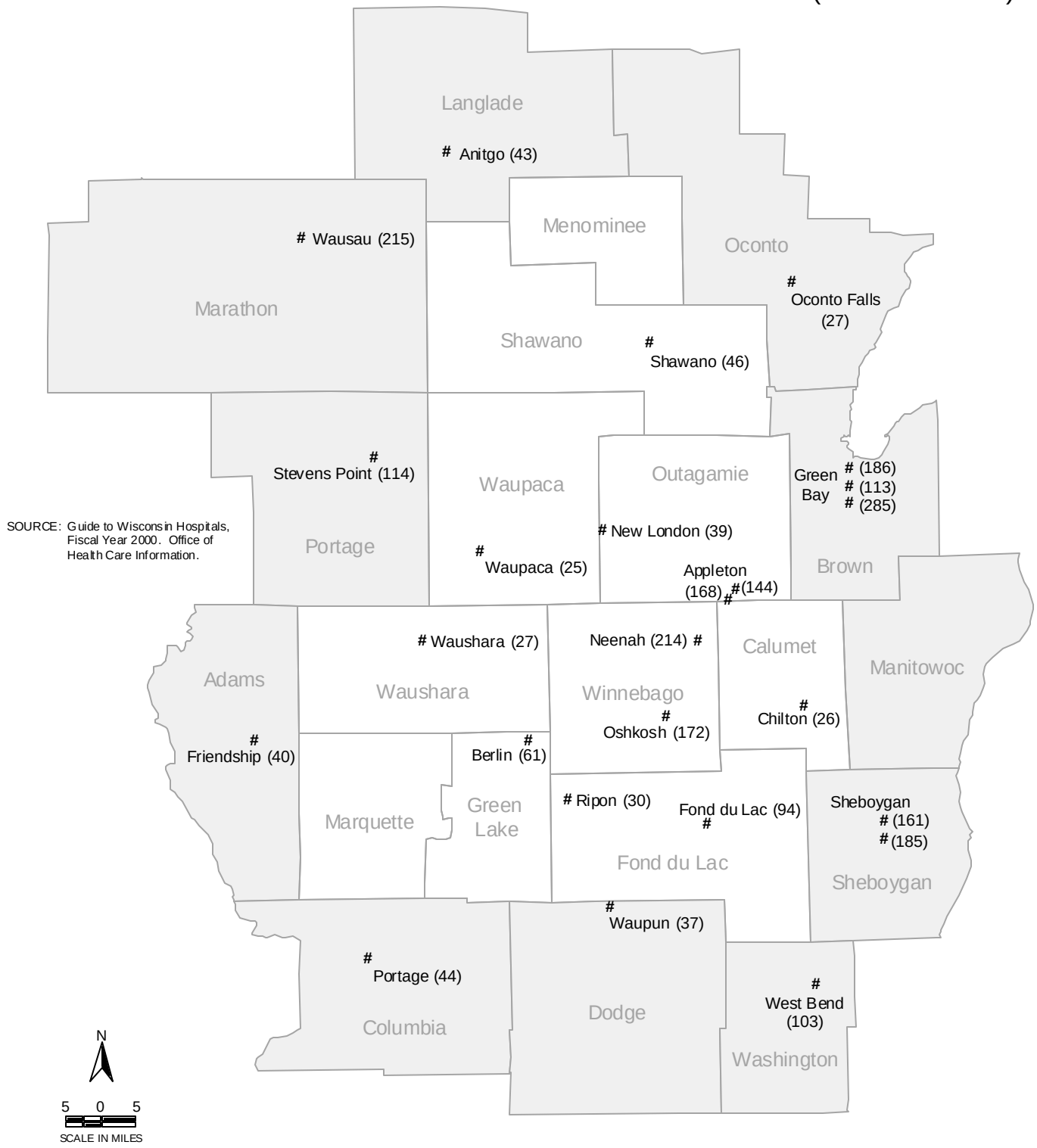
There is one county owned psychiatric hospital in the region. The Fond du Lac County Health Center is located in the City of Fond du Lac has a total of 25 beds and an occupancy rate of 63.4%. In addition there is one state owned mental health hospital in Winnebago County. The Winnebago Mental Health Institute is located in Winnebago and has a total of 299 beds with an occupancy rate of 91.5%.

Nursing Homes

In 2001, there were 411 licensed nursing homes in the state and 53 nursing homes in the region (Table CF-9). Within the region, ten or 18.5% of these were government owned (state, county, tribal), 35% (19) were non-profit and 46% (25) were proprietary owned. This mirrors state trends in which 15% were government owned, 38% were non-profit and 48% were proprietary owned. Seventy-five percent of the nursing homes were located in one of four counties within the region; Fond du Lac, Outagamie, Winnebago and Waupaca counties.

There were 5,783 licensed beds on December 31, 2001 in the region compared with 44,319 in the state. Eighty-one percent of the licensed beds were located within the same four counties listed above. At the state level, the percent occupancy has decreased from 90.45 in 1996 to 84.6% in 2001. While this data is not available at the regional level for 1996, in 2001, the occupancy rate for the region was slightly above the state average. Three counties; Marquette (85.3%), Outagamie (89.3%), Waupaca (92.9%) and Winnebago (89.8%) were above the state average, while Calumet County had the lowest percent occupancy at 78.3%.

Exhibit CF-7
General Hospitals
(Number of Beds)



SOURCE: Guide to Wisconsin Hospitals, Fiscal Year 2000. Office of Health Care Information.

Prepared December 2002 By:

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Table CF-9. Nursing Homes, 2001

	No. of Facilities[1]	Licensed Beds[1]	Ave. Daily Census	Percent Capacity	Ownership					
					State	County	Tribal	Non-profit	Corp.	Other
State	411	44,319	37,816	84.6%						
Region	53	5,783	5,077	87.8%	1	8	1	19	23	2
Calumet	3	248	196	78.3%	0	1	0	0	2	0
Fond du Lac	10	1,006	831	82.4%	0	2	0	6	3	0
Green Lake	3	233	194	82.7%	0	0	0	2	0	1
Marquette	1	46	40	85.3%	0	0	0	1	0	0
Menominee	0									
Outagamie	10	1,057	946	89.3%	0	1	1	1	6	1
Shawano	5	504	415	82.1%	0	1	0	1	3	0
Waupaca	10	1,457	1,354	92.9%	1	1	0	3	5	0
Waushara	1	78	64	82.1%	0	0	0	1	0	0
Winnebago	10	1,154	1,037	89.8%	0	2	0	4	4	0

Note: Licensed beds means beds that are licensed, regardless of whether they are available for occupancy.

Percent occupancy is the average daily census divided by the number of licensed beds, multiplied by 100.

[1]on 12/21/01

Number of nursing homes for Fond du Lac County does not match between data sources.

Source: *Wisconsin Nursing Homes and Residents, 2001* , Bureau of Health Information.

Wisconsin Department of Health & Family Services, www.dhfs.state.wi.us

Emergency Services

Since all hospitals in the region provide emergency medical care, most residents in the region are within 30 minutes of an emergency room. In 2002, all counties in the region had at least one emergency medical service provider located within the county (Table CF-10). Overall, there are 45 operators in the region. Many of the operators serve more than one county. All areas of the region are covered by an ambulance service provider (Exhibit CF-8). In two counties, one ambulance service provider was responsible for all medical emergencies. Menominee and Waushara counties provide county-wide emergency medical service. Gold Cross provides service to many areas in Outagamie, Winnebago and Calumet counties. In the remaining counties, emergency medical service is provided at the community level. In many cases, their service areas extend into another county. For example, the City of Clintonville's service area extends into the Town of Navarino in Shawano County.

Exhibit CF-8
Emergency Medical Service Areas

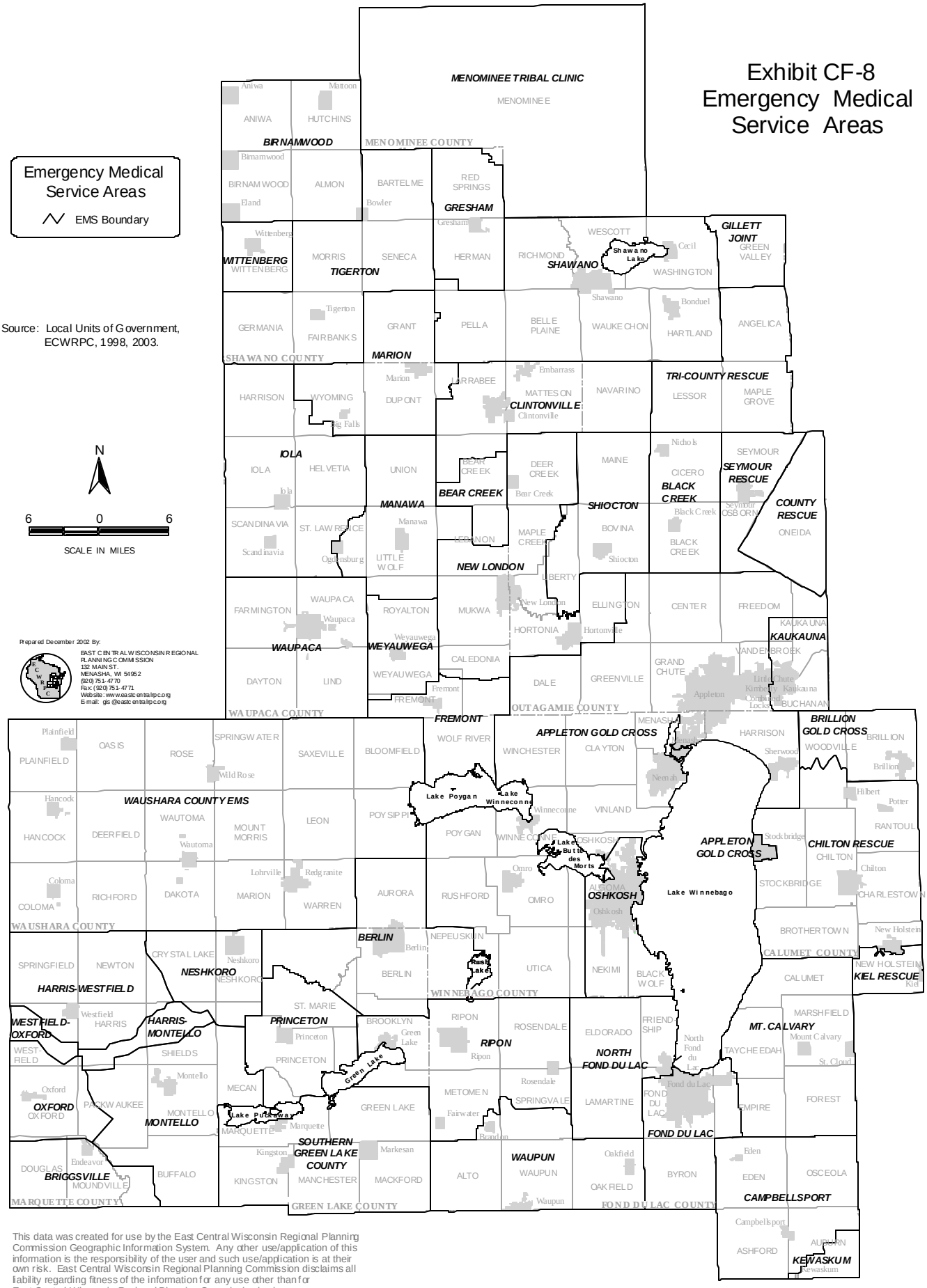

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Table CF-10. Emergency Medical Services, 2002

County	Number of Providers
Calumet	4
Fond du Lac	7
Green Lake	4
Marquette	7
Menominee	1
Outagamie	7
Shawano	10
Waupaca	9
Waushara	2
Winnebago	4

Source: ECWRP, Counties.

Medical Personnel

Table CF-11 lists the number of licensed medical doctors in the state and in the individual counties. Some doctors practice in more than one county and are therefore included in the totals for more than one county.

There were 18,573 licensed medical doctors in the State of Wisconsin or one doctor for every 289 persons. Within our region, the ratio varied from 488 persons per doctor in Winnebago County to 1,819 persons per doctor in Marquette County. Besides Marquette County three other counties (Calumet, Menominee and Winnebago) had ratios below 1,000 persons per doctor.

Table CF-11. Medical Doctors, 2000

County	2000 Population	Number of Medical Doctors	Persons Per Doctor
State	5,363,701	18,573	289
Calumet	40,631	27	1,505
Fond du Lac	97,296	159	612
Green Lake	19,105	35	546
Marquette	14,555	8	1,819
Menominee	4,562	3	1,521
Outagamie	160,971	289	557
Shawano	40,664	42	968
Waupaca	51,825	61	850
Waushara	23,066	14	1,648
Winnebago	156,763	321	488

Source: Wisconsin Department of Health and Family Services.
Note: Information was reported by physicians in response to 2000 Physcians Workforce Study conducted by the Bureau of Heath Information. 90% of licensed doctors in the state responded to this survey. Information on State MD's from the Wisconsin Department of Regulation and Licensing.

Childcare Facilities

Public involvement at the state level in the role of childcare falls largely under the supervision of the Wisconsin Department of Workforce Development's, Office of Childcare (OCC). One of the areas the OCC has primary responsibility of is the oversight of the Wisconsin Shares program, which is a childcare subsidy program.

The Wisconsin Shares program is administered by local counties, tribes and Wisconsin Works (W-2) agencies. The program assists families whose incomes are less than 200% of poverty to pay for childcare services. Parents choose the type of care and share the cost through a co-payment. In order to be eligible for reimbursement, childcare providers must be licensed by the state, certified by county or tribal government, or operated by a public school. A study by the Wisconsin Childcare Research Partnership found the following characteristics of families participating in this program for child care[10].

- Over 90% of families using the subsidy are single parent families, and over two-thirds earn less than $1,500 per month.
- Subsidized childcare comprises approximately 23% of regulated childcare slots statewide.
- Subsidy payments may have a significant impact on the financial status of childcare programs. Out of 10,500 regulated providers, about 6,000 receive payments each month, and over 8,000 different providers receive payments during the year.
- Although half of subsidized children live in Milwaukee, the program services every county in the state. Of the 16 counties where 25% capacity is subsidized, 14 are rural.

The research indicates that financially public dollars play a large role in the provision of childcare in the state and in the urban and rural counties of the East Central region. Table CF-12 identifies available information by county of the number of regulated childcare providers and their capacity for the region. These figures are for licensed childcare providers only[11]. The information does not, however, show how close to capacity these facilities/providers are.

Childcare Resource and Referral agencies work with counties and the state in monitoring child care provision and have reported that the highest demand for care is for full-time, first shift (6 A.M. to 6 P.M.) hours. In 2002, there was an increase in requests for second shift and weekend care.

[10] *Alternative Policy Options for Child Care Subsidy Programs, Executive Summary #1*, (January, 2003).
[11] A license is required for those who provide care for four or more children under the age of 7 at any one time.

Table CF-12. Licensed/Regulated Childcare Providers in the East Central Region

	Co. Regulated		State Licensed		Nursery/Presch.		School-Age Prog.		Drop-In		Head Start	
	No.	Cap.	No.	Cap.	No.	Cap.	No.	Cap.	No.	Cap.	No.	Cap.
Region	232	1,197	322	10,021	46	837	43	1,474	166	65	17	628
Calumet	18	93	20	548	3	53	3	124	0	0	0	0
Fond du Lac	31	176	45	1,880	6	108	4	68	36	na	2	96
Green Lake	14	84	14	284	1	20	1	16	19	na	1	36
Marquette												
Menominee[1]	7	na	1	na	3	na	0	0	0	0	0	0
Outagamie	40	236	104	3,829	8	211	18	667	1	65	7	255
Shawano[2]	15	na	17	na	6	na	1	na	0	0	0	0
Waupaca	11	66	28	623	5	103	3	110	0	0	2	60
Waushara												
Winnebago	96	542	93	2,857	14	342	13	489	110	na	5	181

Source: Child Care Resource &Referral, Inc. 2003

Note: County Licensed includes both Provisional Homes and Certified Homes.

State Licensed includes both Licensed Homes and Licensed Group Centers.

[1]Individual provider capacities are not available, total county capacity,including Menominee Tribe is 438. Nursery/ Preschool and Head Start Program are listed under Nursery/Preschool.

[2]Individual provider capacities are not available, total county capacity is 853. Nursery and Head Start Programs are listed under Nursery/ Preschool.

Police and Fire

Police Protection

The region has 59 communities with police departments, in addition to a sheriff's office in each county (Exhibit CF-9). The Menominee Tribal Council and the University of Wisconsin-Oshkosh also have their own police departments. In 1999, there were more than 1,000 sworn officers employed in the region (Table CF-13). In addition to local police and county sheriff departments, the State Patrol also provides law enforcement in the region. Outagamie, Winnebago, Calumet and Fond du Lac counties are part of District 3 of the Wisconsin Division of State Patrol, while the remaining counties are part of District 4. The headquarters of District 3 is located in Fond du Lac near USH 41.

Jails/Prisons

There are 71 county jails within the state. Nine of the ten counties within the region have county jails; Menominee County being the only exception. The jails have a combined capacity of 1,567 beds and employed 293 full time employees in 2000 (Table CF-14).

According to the Wisconsin Adult Jail Report, 2000, total adult admissions to state jails increased by 688% during the past forty-one years. In more recent history, between 1999 and 2000, admissions increased 2.5% at the state level and 7.5% at the region level.

Exhibit CF-9
Law Enforcement Agencies

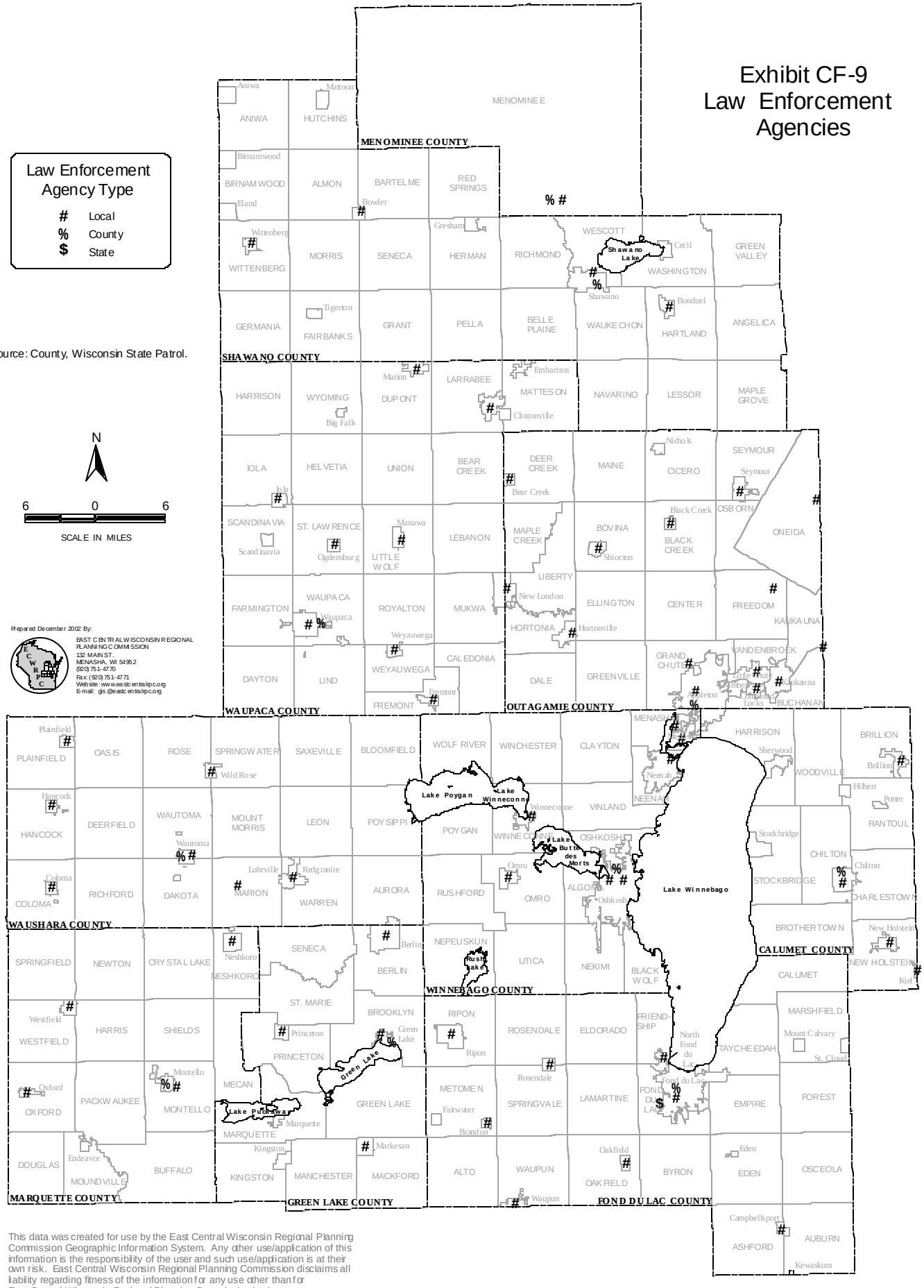

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Table CF-13. Ratio of Law Enforcement Officers to Population and Crime Rates by County, 1999

County	Jurisdictional Population	Full-Time Officers	Per 1,000 Population			
			Full-Time Officers	Violent Crimes	Property Crimes	Total Crimes
Wisconsin	5,274,827	12,483	2.4	2.4	30.4	32.8
Region	598,534	1,018	1.7	2.8	26.0	28.8
Calumet[1]	27,664	41	1.5	0.8	10.5	11.3
Fond du Lac	93,554	139	1.5	0.5	24.1	24.6
Green Lake	19,681	40	2.0	0.8	21.8	22.6
Marquette	13,847	35	2.5	0.9	20.4	21.2
Menominee	4,655	27	5.8	20.6	61.0	81.6
Outagamie[1]	173,063	268	1.5	1.0	21.3	22.3
Shawano	39,046	55	1.4	0.6	27.3	27.9
Waupaca	51,584	88	1.7	0.6	24.7	25.3
Waushara	21,032	24	1.1	0.8	24.1	24.9
Winnebago[1]	154,408	301	1.9	1.4	24.6	26.0

[1]Data for the City of Appleton Police Department is only included in Outagamie County.
Source: *Crime and Arrests in Wisconsin, Office of Justice Assistance, Statistical Center*.

Table CF-14. County Jails, 1999-2000

County	Admission		Average Daily Population (ADP)			Capacity 2000	ADP/ Capacity	Staff 2000
	1999	2000	1999	2000	% Change 1999 - 2000			
State	242,051	247,996	12,528	12,907	3.0%	13,525	95.4%	3,506
Region	23,830	25,620	1,373	1,465	6.7%	1,567	93.5%	293
Calumet	1,005	1,065	44	47	6.8%	54	87.0%	11
Fond du Lac	2,751	2,621	144	142	-1.4%	149	95.3%	39
Green Lake	792	678	30	35	16.7%	37	94.6%	9
Marquette	865	994	41	41	0.0%	58	70.7%	16
Outagamie	6,596	7,098	496	480	-3.2%	504	95.2%	100
Shawano	4,199	4,345	248	259	4.4%	299	86.6%	45
Waupaca	1,773	1,822	89	98	10.1%	79	124.1%	13
Waushara	975	1,735	41	105	156.1%	118	89.0%	20
Winnebago	4,874	5,262	240	258	7.5%	269	95.9%	40

Source: *Jail Report, 2000*, Office of Justice Assistance, Statistical Analysis Center.

The average daily population (ADP) or average number of inmates held each day during one year is based upon a combination of admissions and the average length of stay. Generally when ADP is more than 80% as expressed as a percentage of jail capacity then a jail is considered overcrowded. Eight out of nine jails in the region are overcrowded. However, since

these statistics were released, Waupaca County opened a new jail. Waushara County's new jail was opened in January 2000. Other counties, recognizing their space needs are either in the process of building new jails or looking at alternatives.

There are three state prisons in the region. The Redgranite Correctional Institution in Redgranite opened in January 2001 and is the newest facility in the region. The Taycheedah Correctional Institution in Fond du Lac opened in 1921 and houses only female inmates. The third facility, Oshkosh Correctional Institution is located in Oshkosh and opened in 1986. All three have populations above their operating capacities.

Fire Departments

Fire protection in Wisconsin is a major responsibility of local governments. There are 88 fire departments or districts within the region. Some of the fire departments are combined but listed separately, such as Dalton, Marquette and Kingston in Green Lake County. Other departments are included under one fire district such as the Town of Menominee that has one fire commissioner and four separate fire chiefs (Exhibit CF-10).

Municipal and rural fire departments are classified according to their relative quality of protection by the Insurance Services Office (ISO), a private rating company. The ratings are used to determine fire insurance premiums on residential, commercial and other non-residential property.

Table CF-15 (Appendix D:8) lists the locations, ratings and coverage areas of all fire departments in the region. There are 10 classifications ranging from Class 1, the best, to Class 10, unprotected. The ratings are based on among other things, the distance from the fire station, distance from a hydrant, if municipal water is available, what type of equipment is available and if the station is manned full-time. Therefore, the ISO rating can vary greatly within a community.

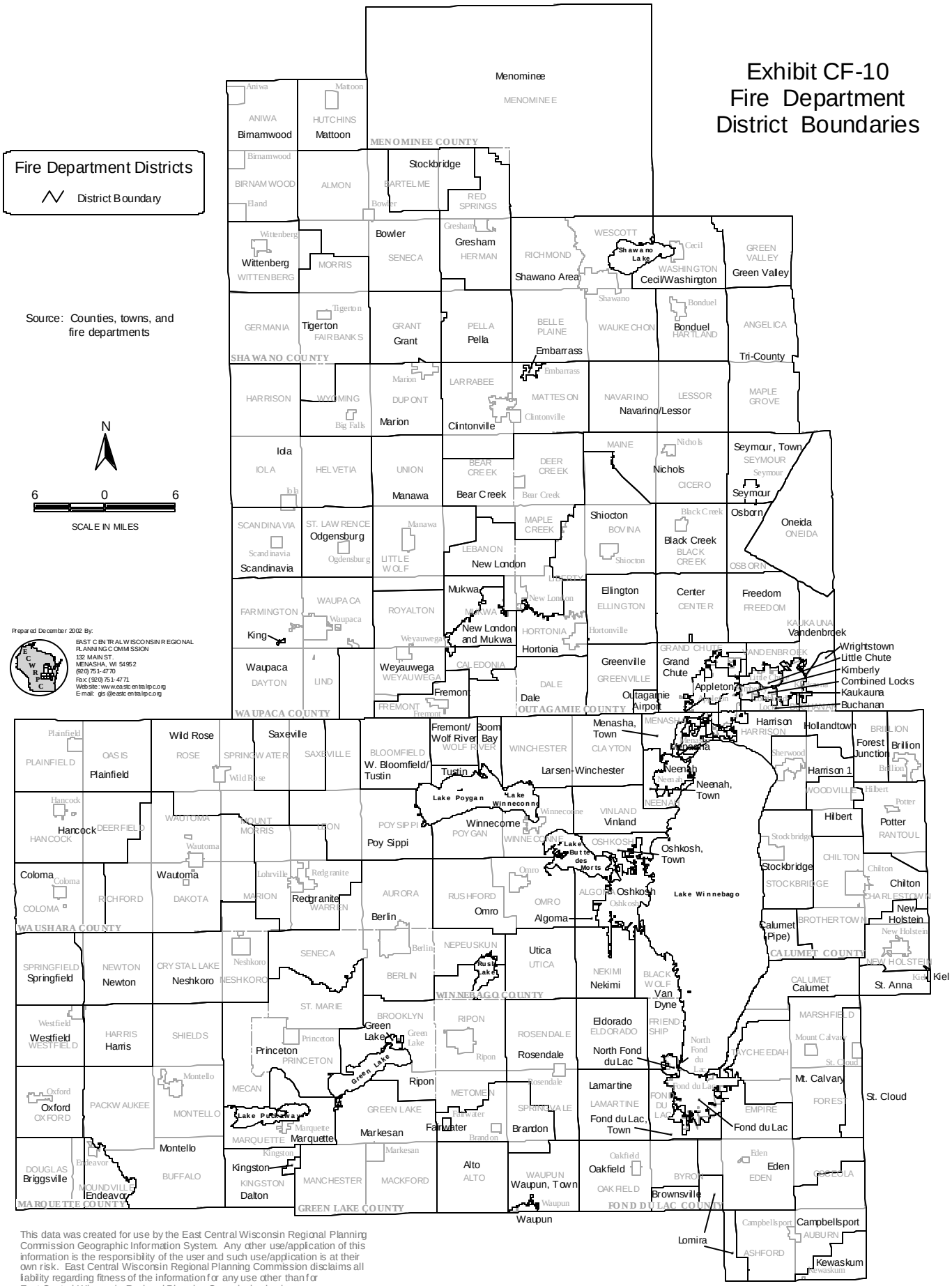
According to the National Fire and Police Association, fire protection should meet the standards in Table CF-16. High density residential development is defined as residential development with 3 or more units per acre, medium density development with 1 to 2.99 units per acre and low density development having less than one unit per acre.

Table CF-16. Fire Protection Standards

High Density	Medium Density	Low Density
Full time staff and chief Ave. response time: 4min.	Partly on call staff Ave. response time: 6 min.	All on call staff/no full time Ave. response time: 8 min.

Source: NFPA

Exhibit CF-10
Fire Department District Boundaries



Libraries

There are 57 public, 9 academic and 23 special libraries within the region. The public libraries are distributed throughout the entire region, while academic and special libraries are more likely to be located in the urban counties of Fond du Lac, Outagamie and Winnebago (Exhibit CF-11).

All the counties participate in the federated library system, which is designed to provide expanded library services to more people without making additional large expenditures. Calumet County is part of the Manitowoc-Calumet Library System. Fond du Lac, Waushara, Marquette and Green Lake counties are part of the Winnefox Library System. Shawano and Menominee counties are part of the Nicolet Federated Library System. Finally, Outagamie and Waupaca counties are part of the Outagamie-Waupaca Library System.

Table CF-17 (Appendix D:9) shows the location and type of library by county and community. In addition, for public libraries, the table indicates the number of volumes in the library and the ratio of volumes per person. The number of holdings in a library generally serves as an indicator of library services. The region as a whole compares favorably with the state, with about 3.60 volumes per person in the region compared to 3.51 in the state. However, deficiencies exist in Menominee (2.06), Outagamie (2.99) and Shawano (3.14) counties.

Education

Because of the state's long-standing concern for investment in education, educational facilities throughout Wisconsin are well above average for the nation as a whole. Industries considering expansion or relocation in the state are generally assured that a wide range of quality educational opportunities will be available. On the primary and secondary levels, school consolidation, state aids and shared school services have broadened the resources of all school districts. The Wisconsin Charter program was established in 1993 and has grown steadily in the region within the last four years. Strong state support for a system of higher education, continuing expansion of community colleges, and establishment of statewide districts for vocational education have also contributed to increasing general educational opportunities throughout the state. Exhibit CF-12.

Primary and Secondary Education

Regionally, total public and private school enrollment in the 2001 -2002 school year was 141,706. This number includes schools in all school districts, which contain a part of the region (Table CF-18, Appendix D:10). Public school enrollment accounted for 82% of the total enrollment, while private enrollment accounted for 18%. It is generally recommended that a district contain a minimum of 1,200 students for operational efficiencies. District enrollments indicate that about half the districts still have enrollments below this level. Enrollment at the public schools, within the region, has remained relatively constant since 1996. However, enrollments within the counties have fluctuated from an increase of 14% in Outagamie County to a decrease of about 9% in Green Lake County. Within the individual counties, the largest increases in public school enrollment were found within districts that have also experienced the largest amount of new single family development. These districts include Kimberly (Darboy), Hortonville (Greenville) and Wrightstown, all of which had more than a 20% increase in enrollment.

Exhibit CF-11
Public Libraries and Federated Library Systems

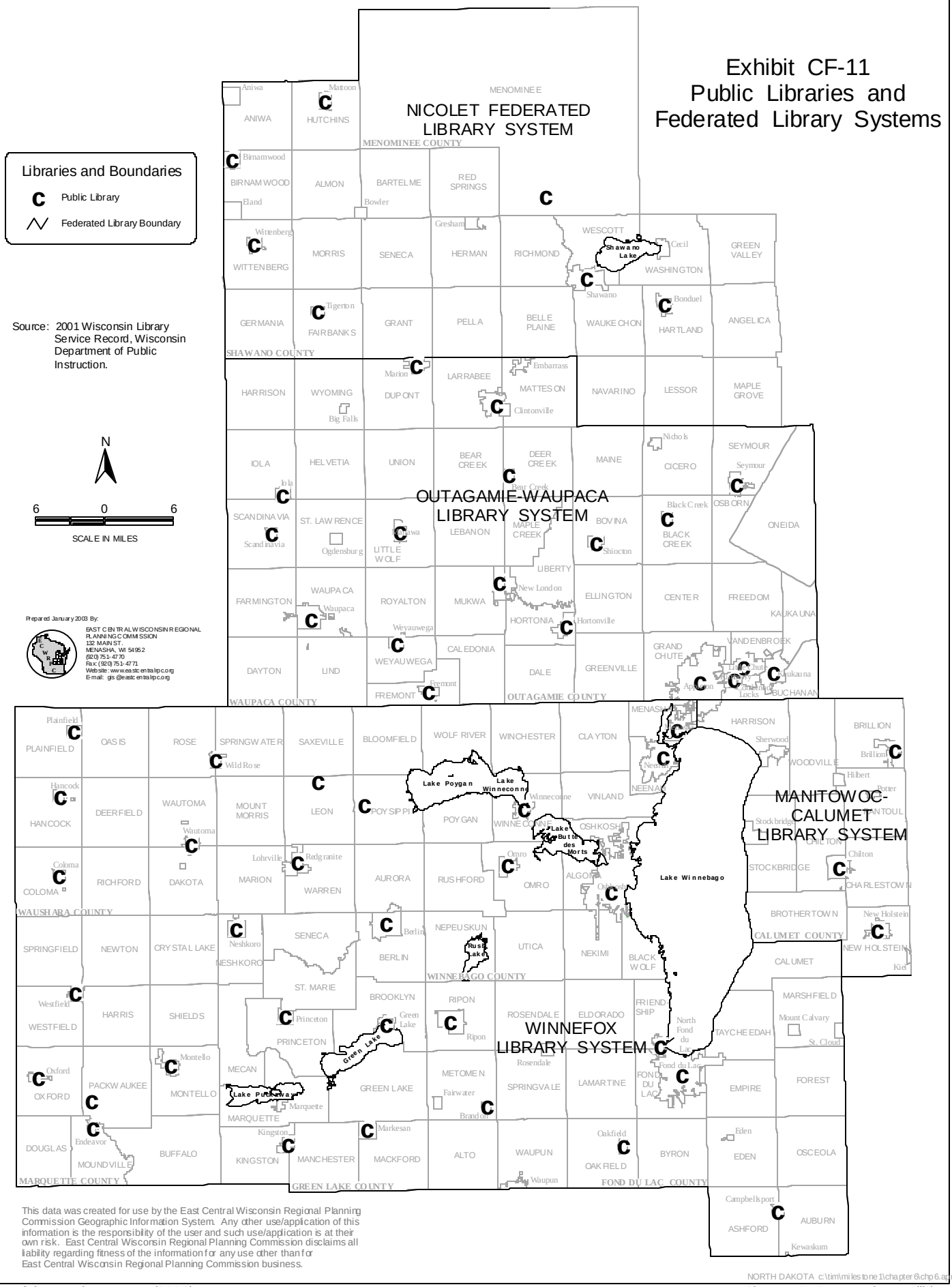
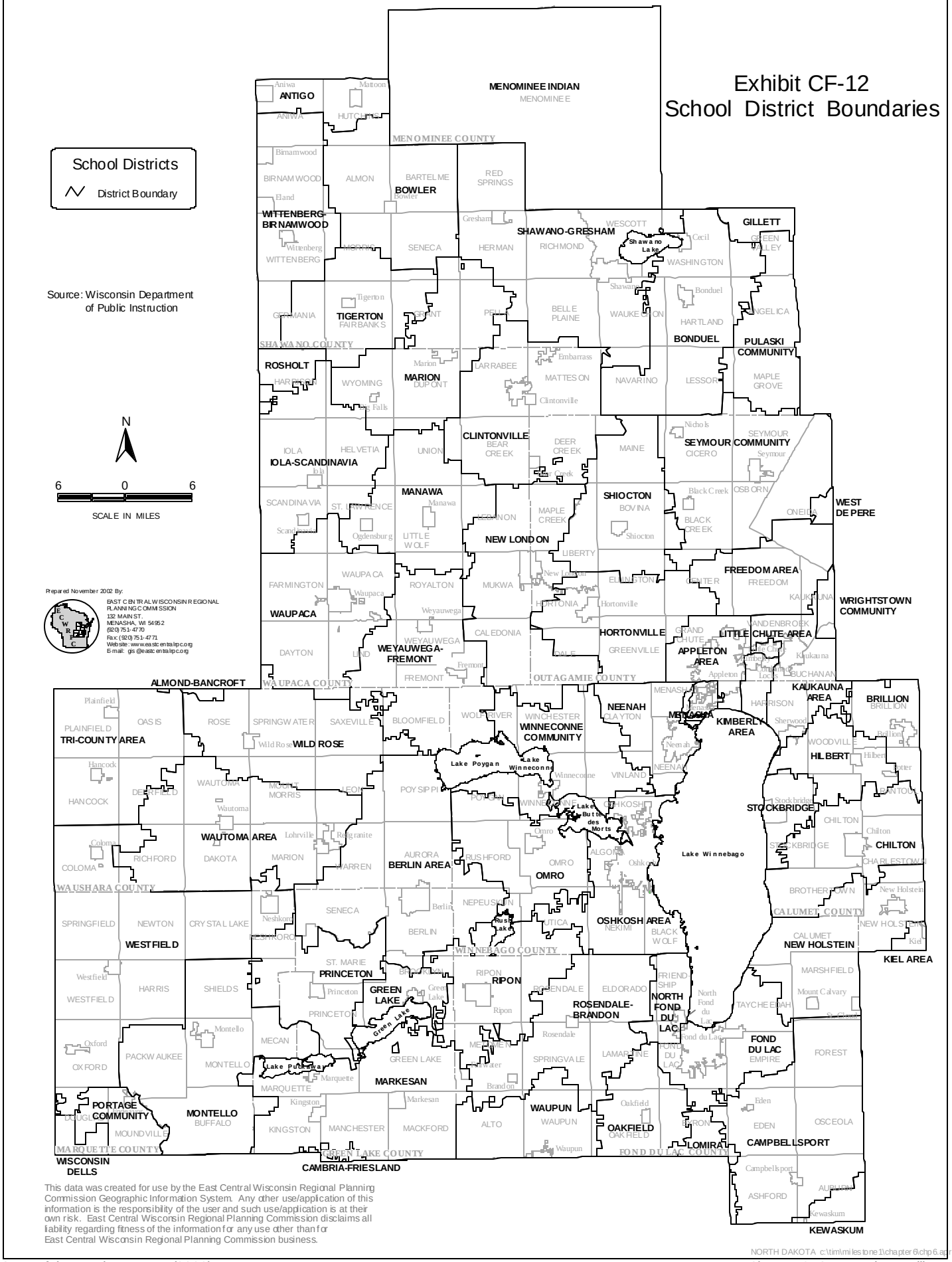


Exhibit CF-12
School District Boundaries



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Charter Schools

Charter schools, which are public, nonsectarian school, are created through a contract or "charter" between the operators and the sponsoring school board or other chartering authority. 1,049 students are enrolled in charter schools within the region (Table CF-19, Appendix D:11). The majority of charter schools within the region focus on students who are at-risk. The Appleton Area School district has used charter schools to focus on a wider range of interests from at-risk to gifted, from arts to engineering, and from providing online classes to pick up an extra course to the providing internet schooling to home schooled students.

Institutions of Higher Education

The region's six institutions of higher education (one state university, two two-year community colleges and three liberal arts colleges) had a total enrollment of 17,686 students during the 2000 –2001 school year (Table CF-20). Overall this indicated a slight increase since 1995. The six institutions and 2000-2001 enrollments are; University of Wisconsin-Oshkosh in Oshkosh with an enrollment of 10,777; the University of Wisconsin Center–Fox Valley in Menasha with an enrollment of 1,678; the University of Wisconsin Center–Fond du Lac with an enrollment of 570; Lawrence University in Appleton with an enrollment of 1,285; Marion College in Fond du Lac with an enrollment of 2,514 and Ripon College in Ripon with an enrollment of 862.

Table CF-20. Public and Private College and University Enrollment, 1995-2001

Institution	1995-96	1996-97	1997-98	1998-99	1999-00	2000-01
Wisconsin	196,636	195,945	197,411	199,711	203,618	206,090
Region	16,748	16,488	16,710	16,710	17,230	17,686
UW-Oshkosh	10,453	10,359	10,960	10,769	10,783	10,777
UW Center -Fond du Lac	565	503	501	485	558	570
UW Center - Fox Valley	1,274	1,253	1,239	1,326	1,510	1,678
Lawrence University	1,198	1,210	1,179	1,235	1,246	1,285
Marion College	2,490	2,432	2,164	2,245	2,387	2,514
Ripon College	768	731	667	650	746	862

[1]First semester enrollments of part-time and full-time students.

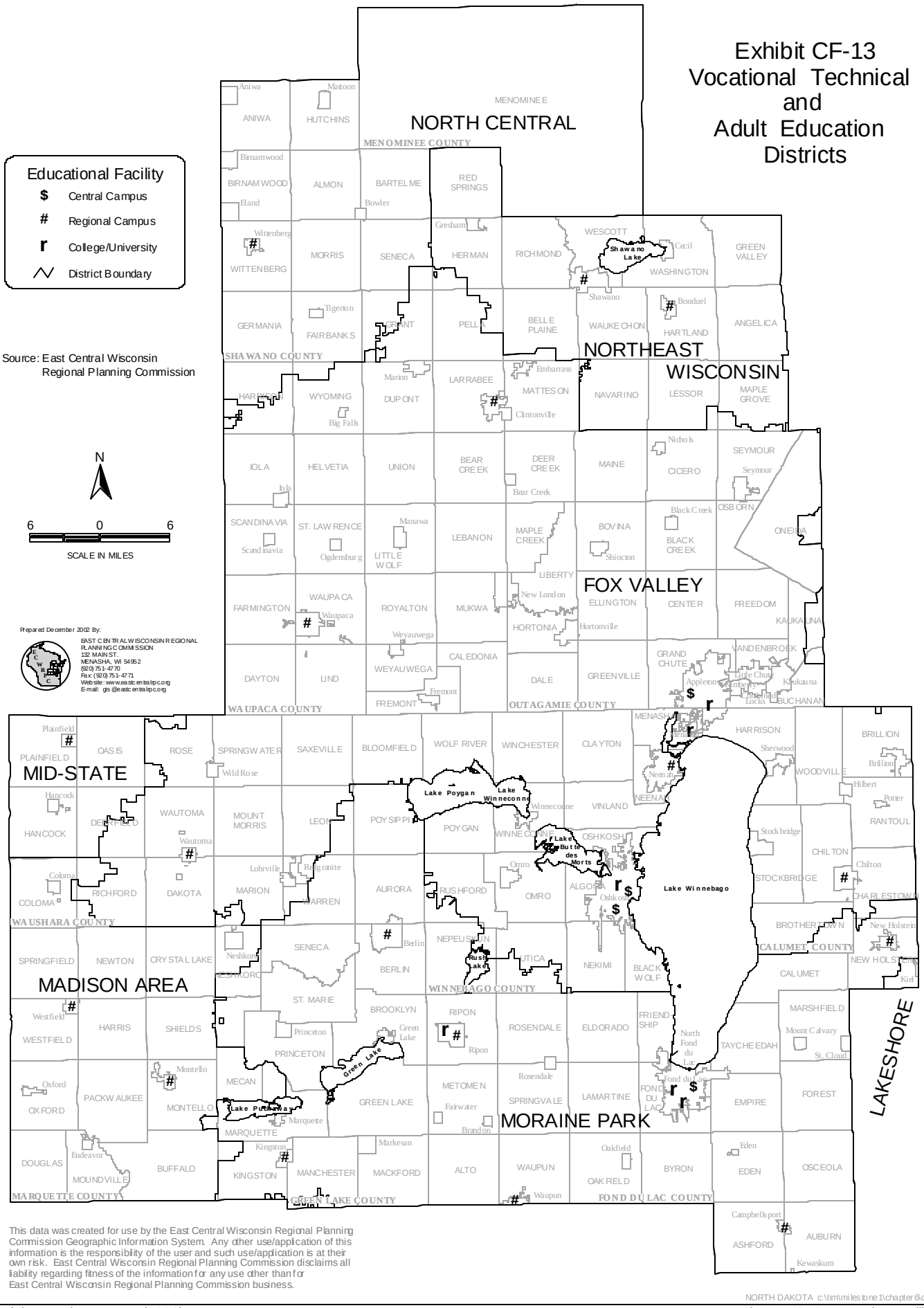
Source: *Wisconsin Blue Book, 1999-00, 2001-02.*

Vocational Technical Colleges

The state is covered by 16 multi-county vocational technical and adult education districts, which are organized on a regional basis and financed primarily by local property taxes. These districts tend to follow school district boundaries rather than county lines (Exhibit CF-13).

Counties in the region are divided among seven districts. Two of these districts, Fox Valley and Moraine Park, have their main campuses located in the region. The Fox Valley District is almost wholly contained in the region and includes portions of Calumet, Outagamie, Shawano, Waupaca, Waushara and Winnebago counties. The Moraine Park District includes Green Lake

Exhibit CF-13
Vocational Technical and Adult Education Districts



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and Fond du Lac counties as well as small portions of Calumet, Marquette, Waushara and Winnebago counties.

Curriculums in the region's technical schools are usually geared toward an area's particular needs. Typically a student may choose from among a two-year highly technical associate degree program, a two-year vocational program, a one-year vocational program and a short-term program. In the fall of 1999, the total enrollment at the technical schools within the region was 219,222 (Table CF-21). Since technical school boundaries extend beyond the region, this includes students who attend a school outside the regional boundaries.

Table CF-21. Vocational Technical College Enrollment, 1995-2000

Institution	1995-96	1997-98	1999-00
Wisconsin	431,405	439,068	453,668
Region	205,183	208,435	219,222
Fox Valley	43,101	46,918	49,432
Lakeshore	19,388	17,267	19,519
Madison Area	50,389	50,053	50,800
Mid-State	14,099	14,093	14,755
Moraine Park	20,406	21,284	23,645
Northcentral	17,108	17,362	17,846
Northeast	40,692	41,458	43,225

[1]First semester enrollments of part-time and full-time students.

Source: *Wisconsin Blue Book, 1997-98,1999-00, 2001-02.*

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Community Facilities: Key Findings

Sanitary Sewer and Wastewater Treatment

- There are 84 Wastewater Treatment Facilities (WWTF) in the region.
- 25% (21) of the WWTF's have some type of concern regarding the plants' capacity, or other ability to treat wastewater.

Stormwater Management

- A number of regional efforts have been made within the region to control and manage stormwater runoff resulting from urbanization.
- Many districts have begun to raise issues regarding the impacts of rural, scattered development and the cumulative impacts on water quality flowing to, or through, their legal drains.

Solid Waste and Recycling Facilities

- There are 12 active landfills within the region.
- Tipping fees continue to be lower in Wisconsin than in any of the surrounding states.
- Wisconsinites recycled about 36% of the total waste in 1995.
- Recycling efforts are currently under pressure as a result of funding considerations.
- Winnebago, Outagamie and Brown counties have recently entered into a 25-year agreement to handle the disposal of solid waste and recycling in their respective counties.

Public Water Supply

- There are 73 municipal water systems in the region, which pumped an average of 59.7 MGD.
- Nine of the region's smaller systems do not have two fully developed water supply systems (one for backup).
- 30% of the region's systems do not have sufficient storage capacity to provide continuous service in the event of a general power loss or equipment malfunction.

Utilities

- There are 29 existing and two approved power generating sites in the region.
- The five existing fossil fuel sites generate 77% of the power in the region, while the 22 hydroelectric sites provide about 21% of the total generating capacity. The remaining 1.5% of the total power that is generated in the region is from other sources; wind and biomass.
- The major transmission lines within the region include: four 345 kV and multiple 115kV to 161kV lines.
- Summer peak demand and supply conditions ordinarily determine the need for either new electric generating stations or new transmission facilities. For summer peak demand, Wisconsin does not have enough generation within the state to meet its

demand and must rely on transmission lines to meet the required demand and to achieve the desired reserve margin.

- In the eastern part of the state sufficient capacity exists in the natural gas system to supply future demands. However, the ANR pipeline that runs south from the Fox Cities on the west-side of Lake Winnebago is currently constrained, while the pipeline on the east-side of Lake Winnebago has sufficient capacity for future needs.
- The experience of recent summers has highlighted constraints on the movement of power between western and eastern Wisconsin and between Illinois and eastern Wisconsin.
- The electric transmission network is interconnected; therefore a problem in one area could affect another area.
- Within the region, the areas most affected by overloads include the Fox River Valley, Green Bay and Sheboygan. Low voltages were experienced between the Appleton and Oshkosh areas. Heavy flows affected limiting import/export capabilities between Wisconsin and the Upper Peninsula of Michigan.

Health Care Facilities and Services

- There are 12 general hospitals located within the region.
- In 2000, the number of hospital beds in the region totaled 1,046, of which 159 were in rural counties.
- The region has one hospital bed for every 583 persons, which is less than the state average of one bed for every 413 persons.
- Most residents within the region are within 30 minutes of an emergency room.
- All areas within the region are covered by an ambulance provider.

Police and Fire

- There are 59 communities with police departments, in addition to a sheriff's office in each county.
- Nine out of the ten counties within the region have a county jail.
- There are 88 fire departments or districts within the region.

Libraries

- There are 57 public libraries, 9 academic and 23 special libraries within the region.

Education

- There are 60 public school districts, 7 vocational technical and adult education districts and 6 institutions of higher education in the region.
- Public school enrollment within the region has remained relatively constant since 1996. At the same time, enrollments within the individual counties have fluctuated from an increase of 14% in Outagamie County to a decrease of about 9% in Green Lake County.
- The largest increases in public school enrollment were found within districts that have experienced the largest amount of new single family development

Future Trends

Sanitary Sewer and Wastewater Treatment

- Some of the WWTFs will be severely limited in providing treatment for new growth unless a financial decision is made to expand these systems.

Solid Waste and Recycling Facilities

- There is enough landfill space remaining to meet the future needs of the region. However, further consideration may need to be given to the impacts of accepting waste from outside the region or state.
- The large number of mobile phones and computers that need to be disposed of is a cause for concern.
- Consolidation of solid waste and recycling facilities will continue to be a viable option for counties to consider.

Local Parks and Recreation Facilities

- Communities should work with local school districts on joint projects, such as school-parks, as a way to stretch local dollars.

Telecommunications

- Trends show that there will be a continued demand for cellular telephones and other cellular and digital communications devices in the future.

Utilities

- Following national trends, gas usage is expected to increase dramatically over the next few years, as new generation plants will be fueled almost exclusively by natural gas.

Identification of Issues

- How do we ensure availability of safe drinking water, especially as it relates to arsenic, nitrates and protection of the deep aquifers?
- How do we address the complexities of facility planning and siting, in particular utility and highway corridors, landfill and waste water treatment facilities, and public-private partnerships?
- How do we plan for natural disasters and terrorist activities?
- How do we deal with the demand and costs of utility and community facilities generally and specifically in rural areas as a result of increased residential development and urbanization?
- How can we promote on-line alternative energy sources?
- How can we promote the benefits of shared facilities and services, especially among entities involved in sewer service planning?

- How can we promote communication and cooperative planning between municipalities and public and private organizations in relation to schools, churches, recreation facilities, garages, and community centers, utility corridors and public facilities?
- How can we provide for adequate waste disposal and recycling facilities?
- How can we ensure access to social services (public transportation, health care facilities, childcare, eldercare, family resources, financial advisory services, multi-cultural facilities for migrant workers, especially in the rural western counties, and youth services) and affordable health care?
- What is the potential for non-profit organizations and faith based groups to increase their impact and work co-operatively with communities?
- How can we address the impacts of Comm83 on regional development patterns?
- How do we ensure that the impacts to existing facilities of future development proposals are fully taken into account?

Exhibit CF- 1
Wastewater Facilities

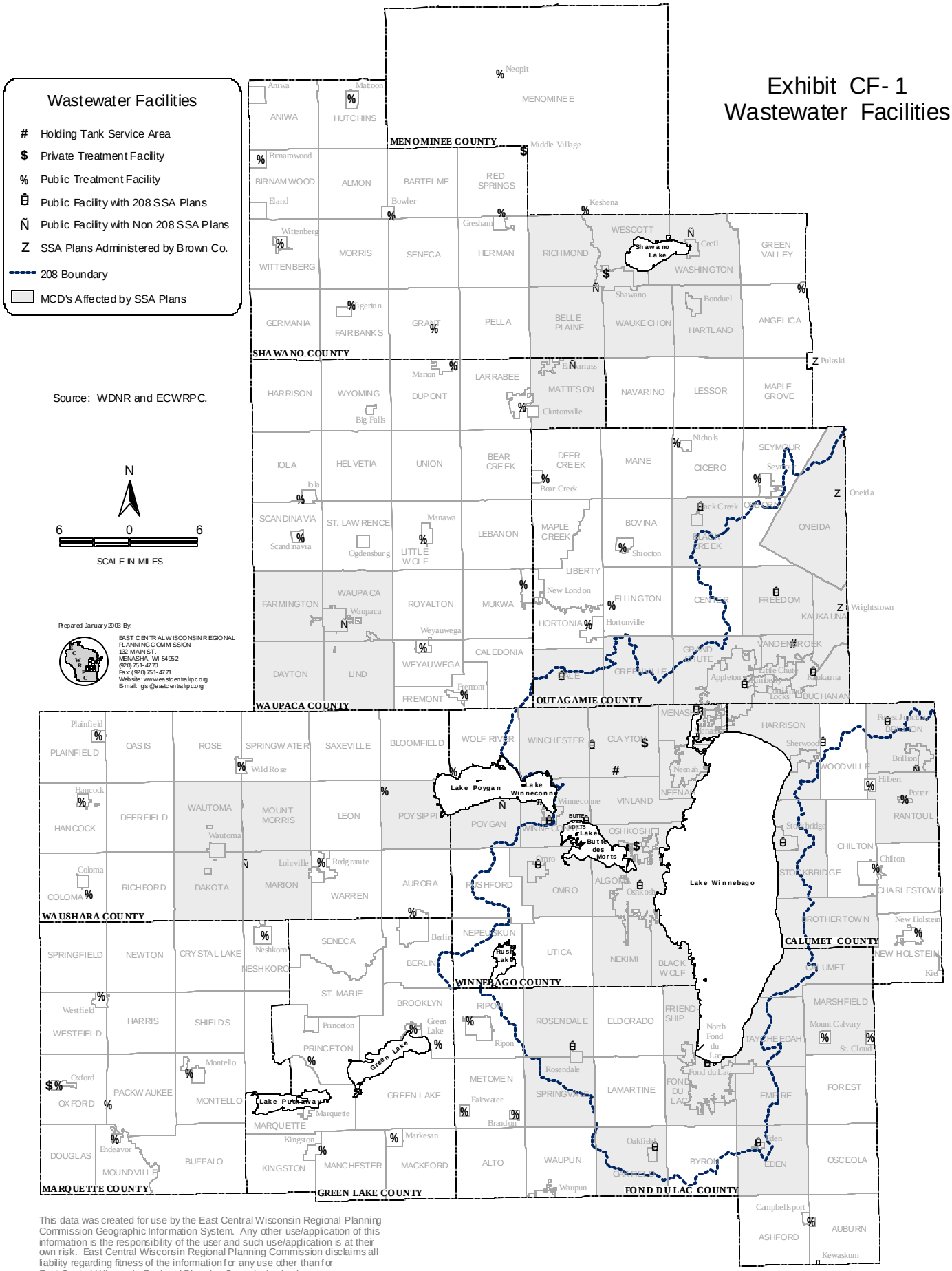

Exhibit CF-10
Fire Department District Boundaries

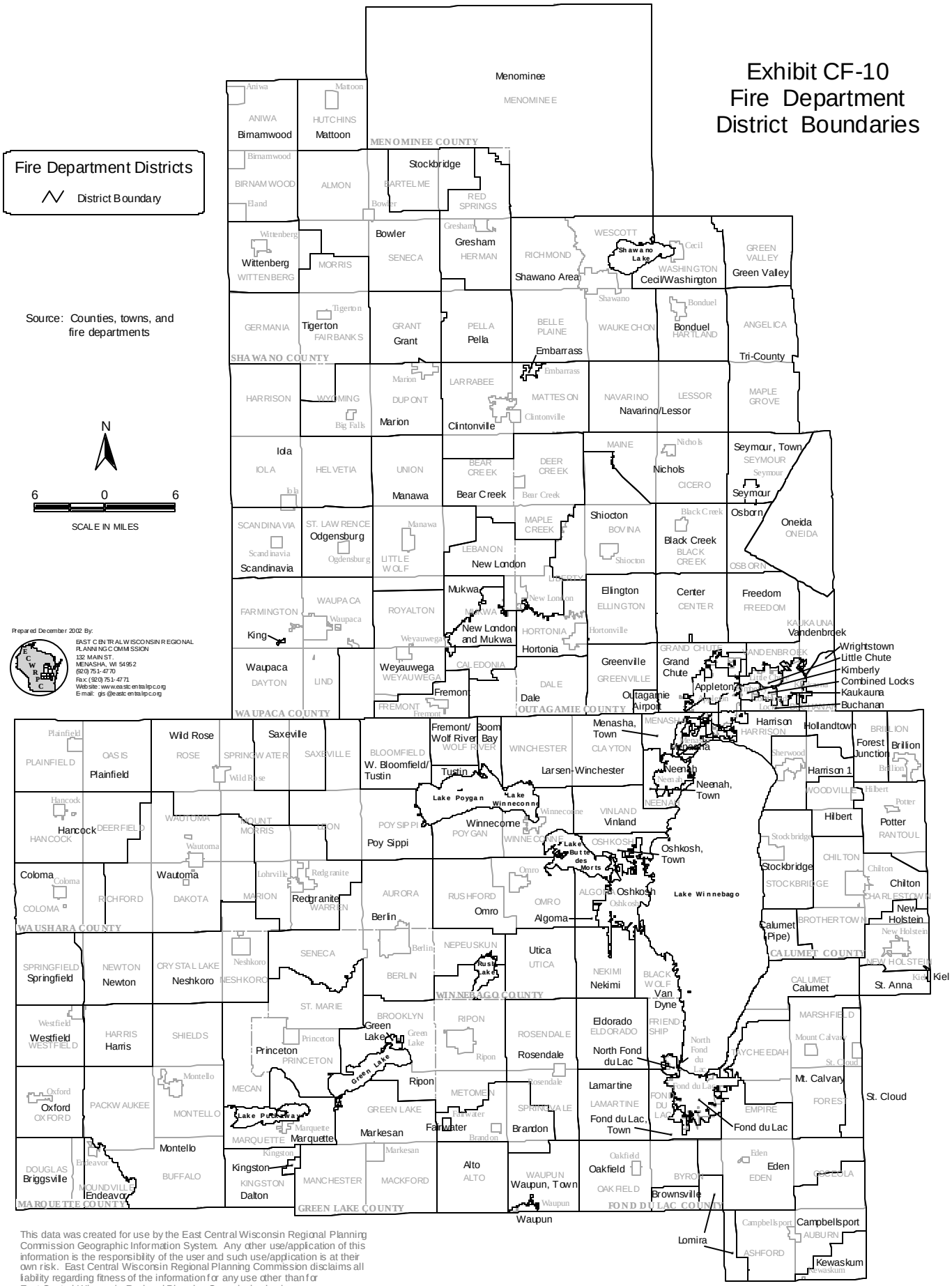

Exhibit CF-11
Public Libraries and Federated Library Systems

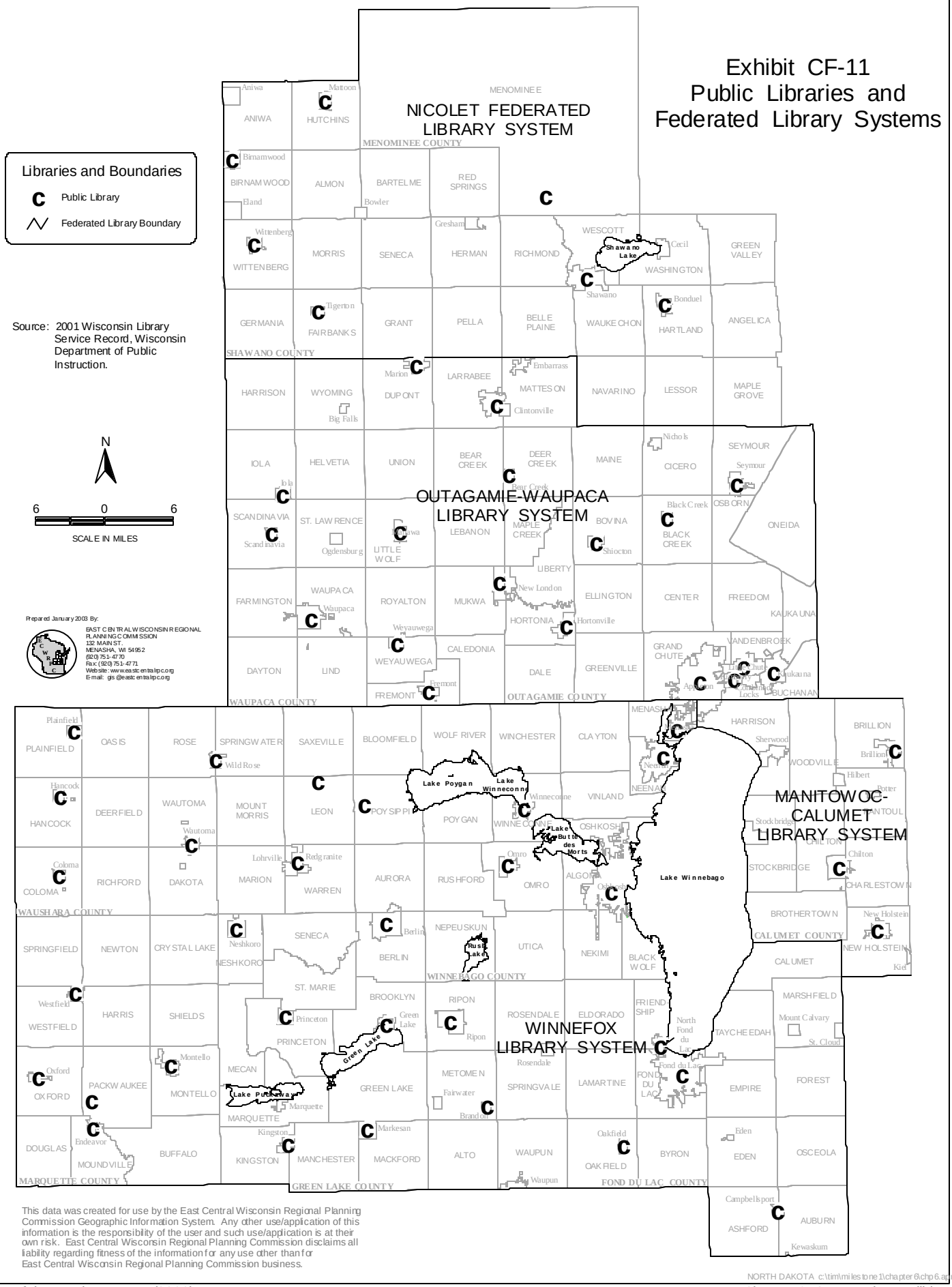

Exhibit CF-12
School District Boundaries

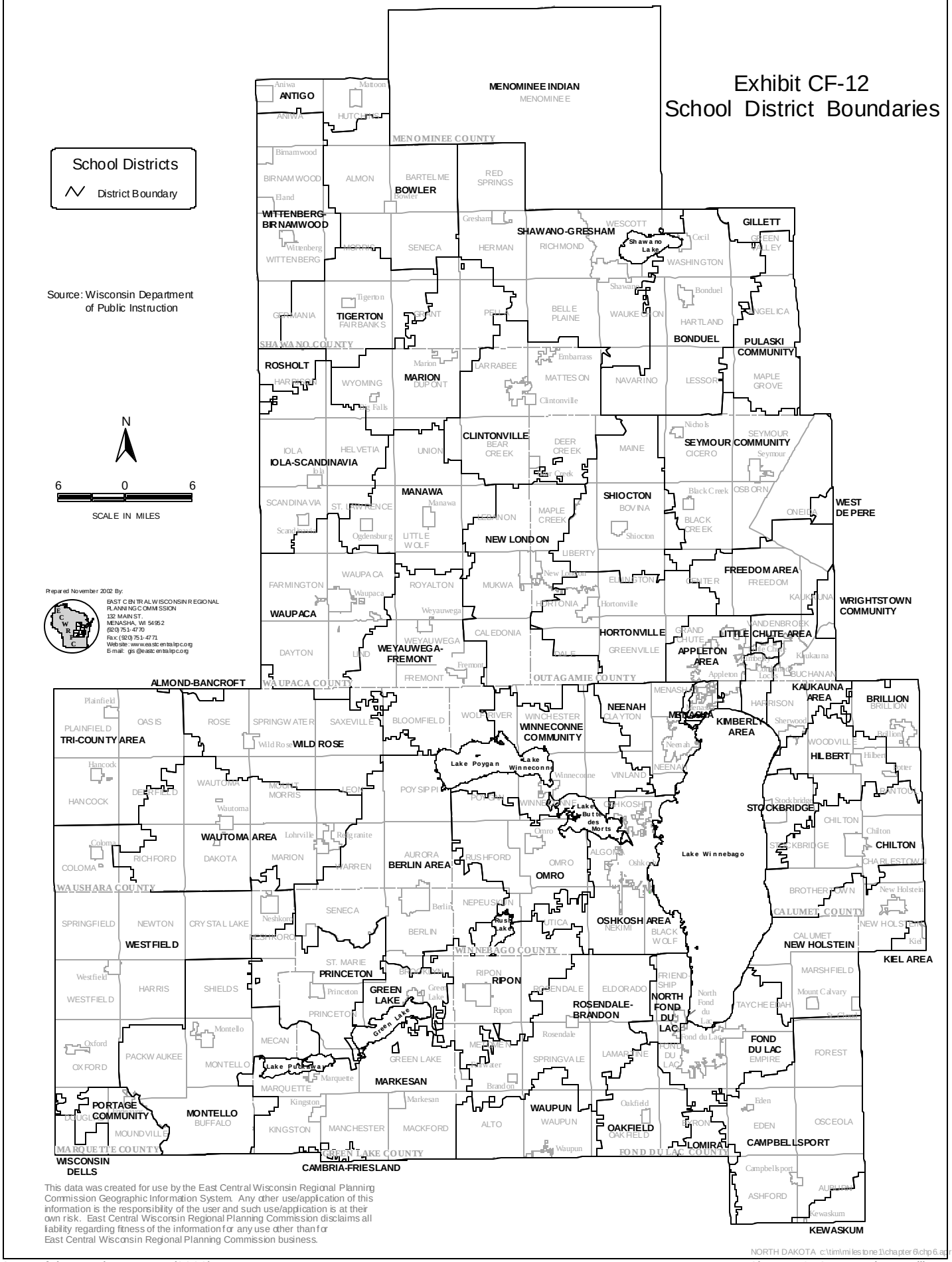

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Exhibit CF-13
Vocational Technical and Adult Education Districts

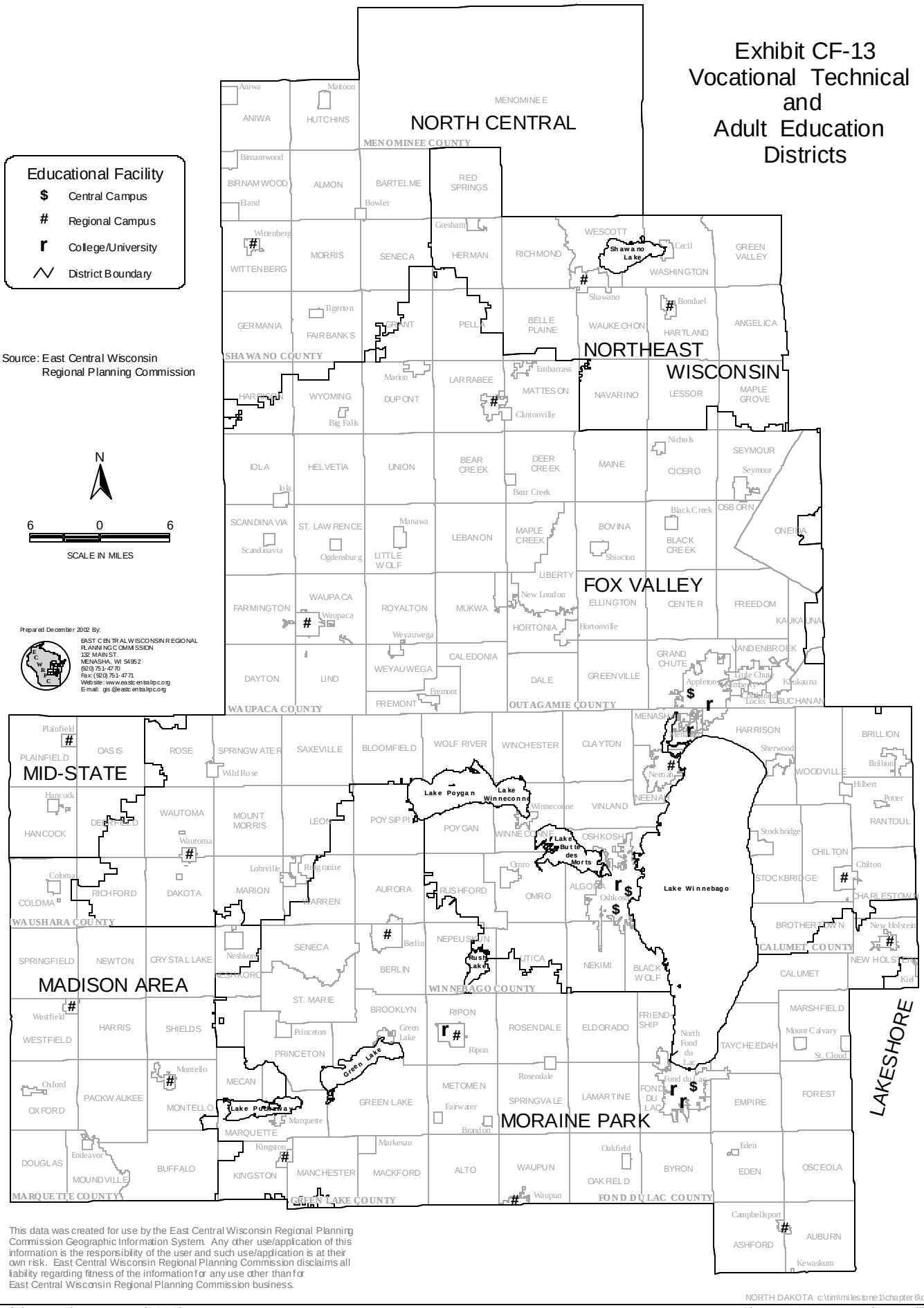

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Exhibit CF-2
Solid Waste/ Recycling Facilities

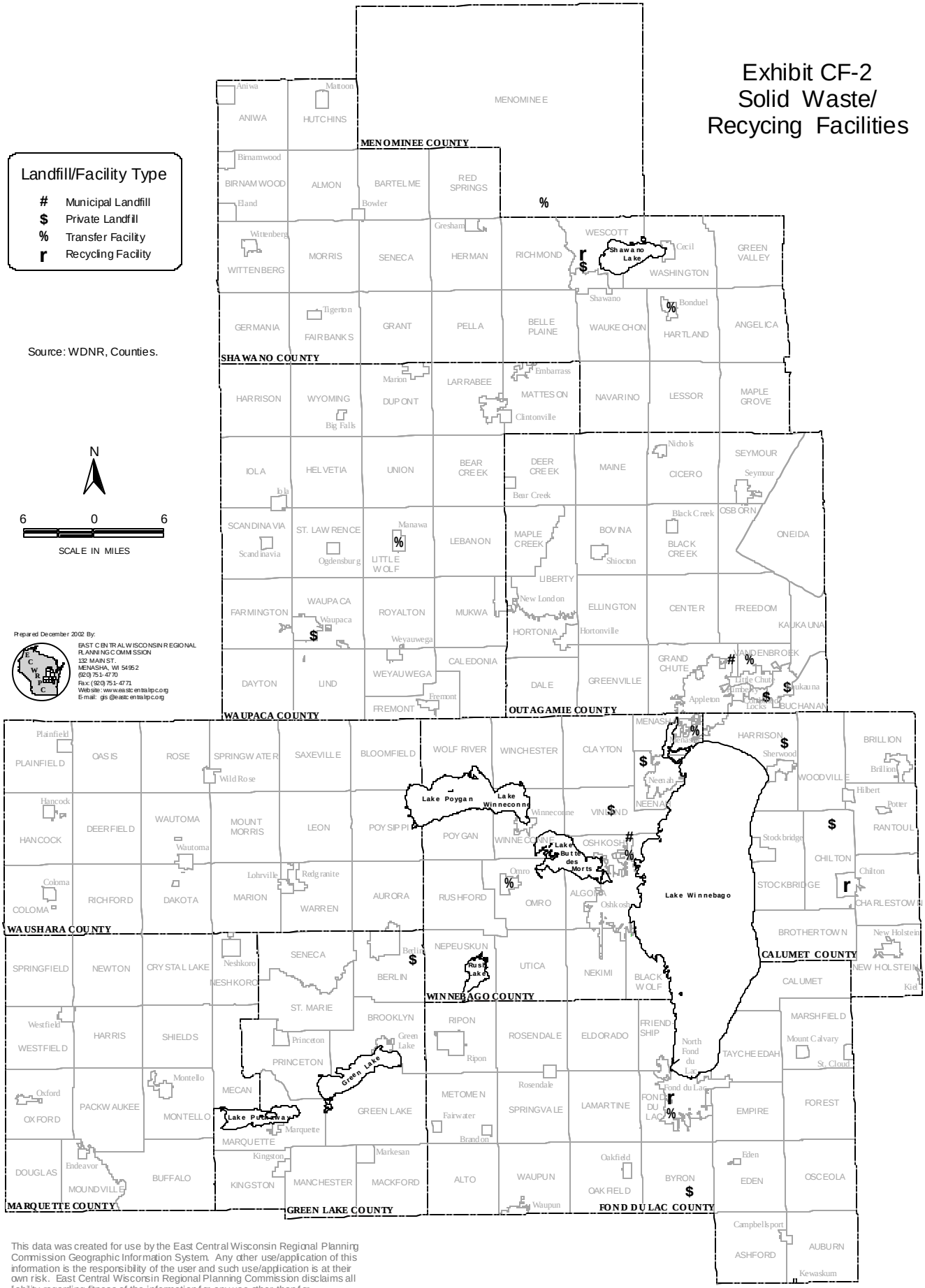

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Exhibit CF-3
Municipal/Private Water Systems
2001

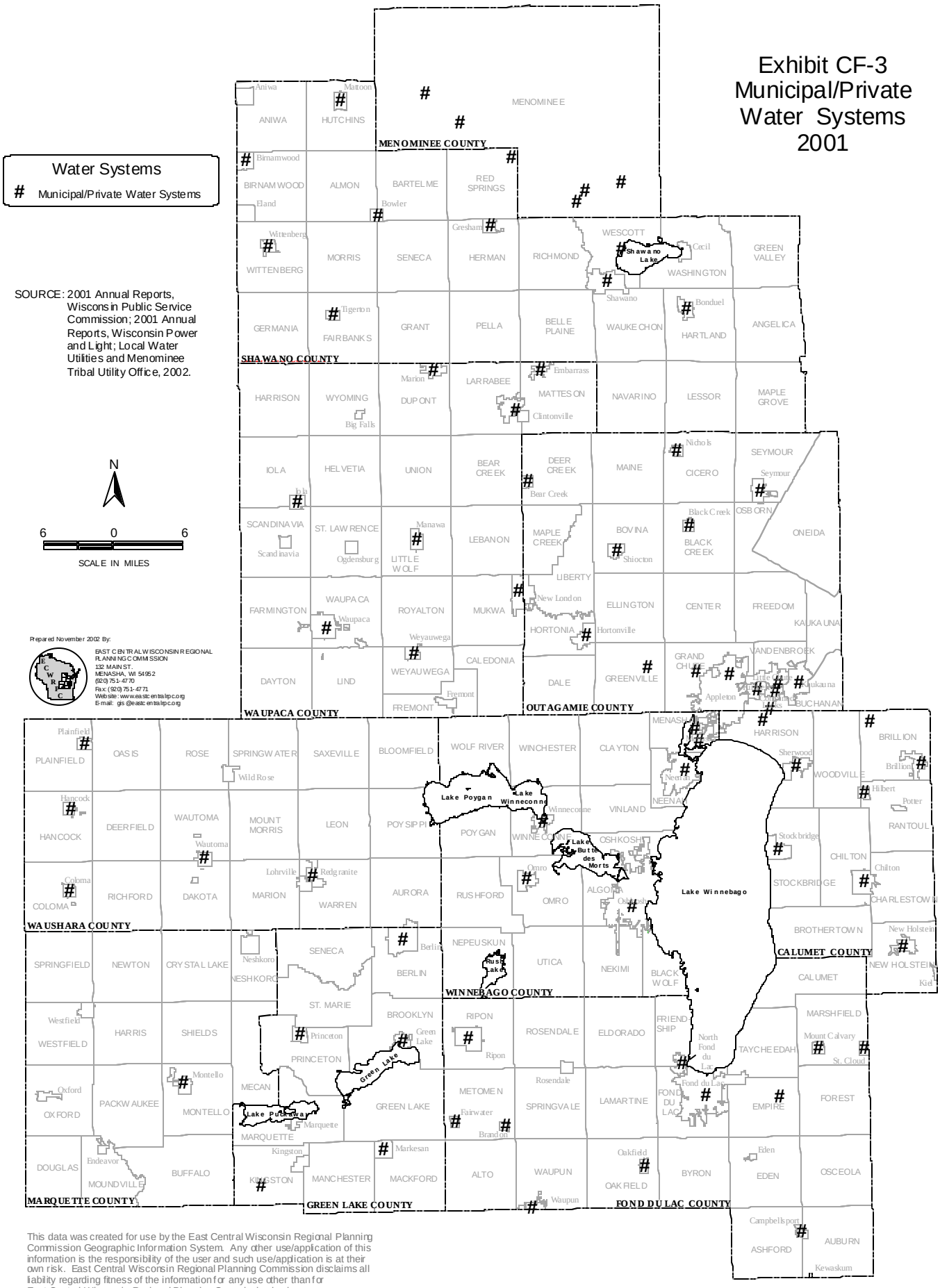

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Exhibit CF-4
Telephone Company Service Areas

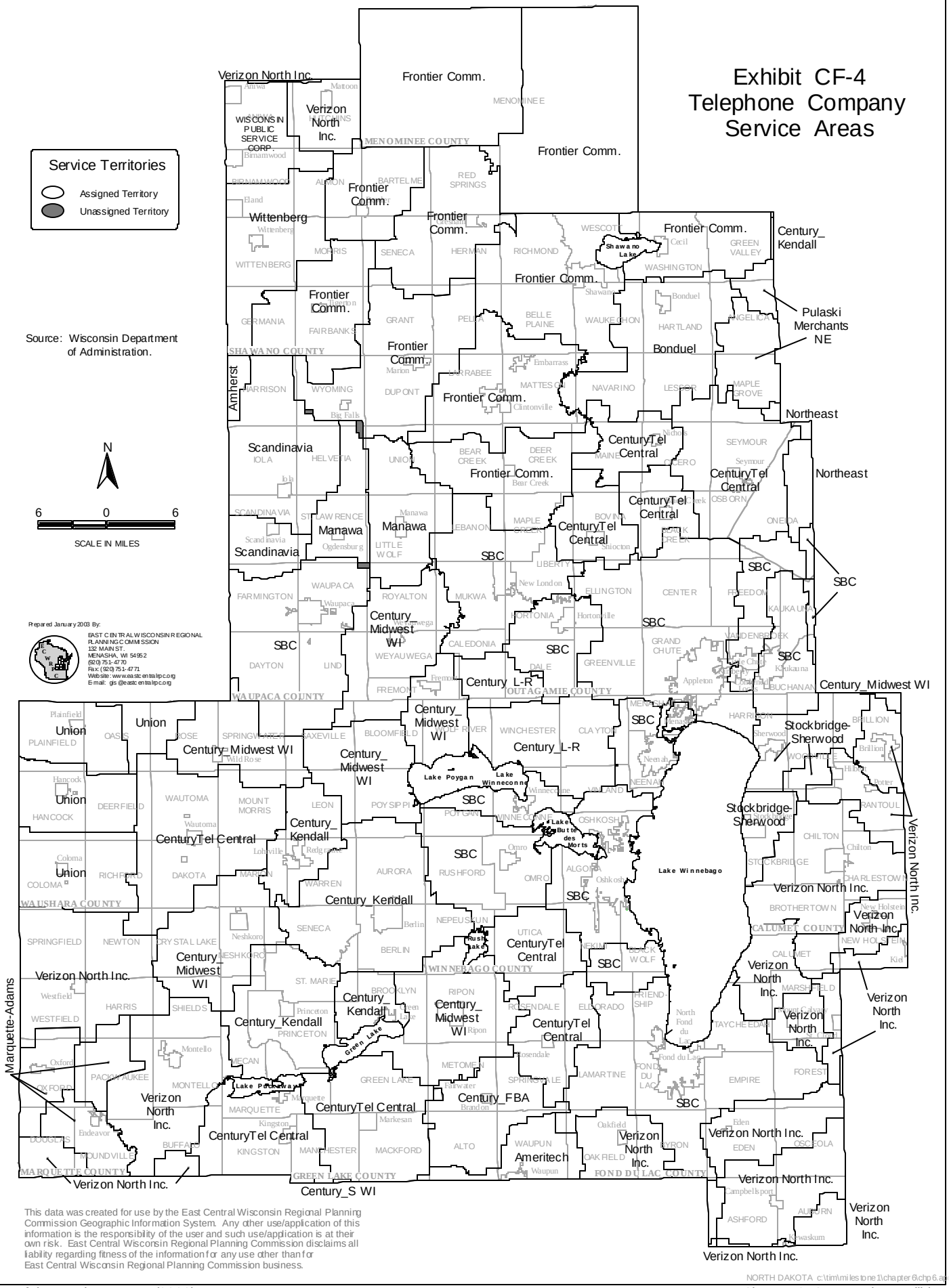

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Exhibit CF-5
Electric Service Areas

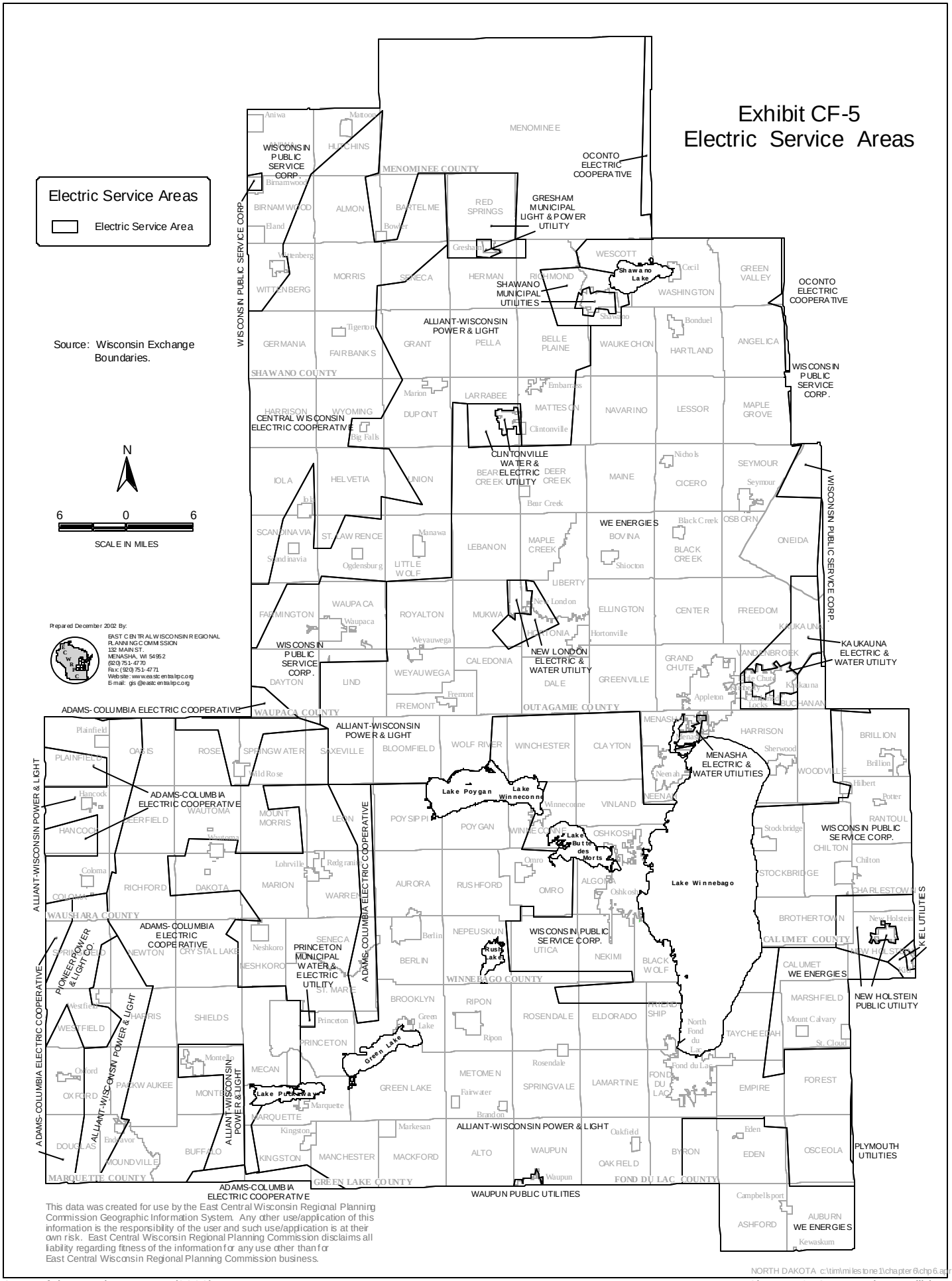

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Exhibit CF-6
Power Generation and Electric Transmission Lines

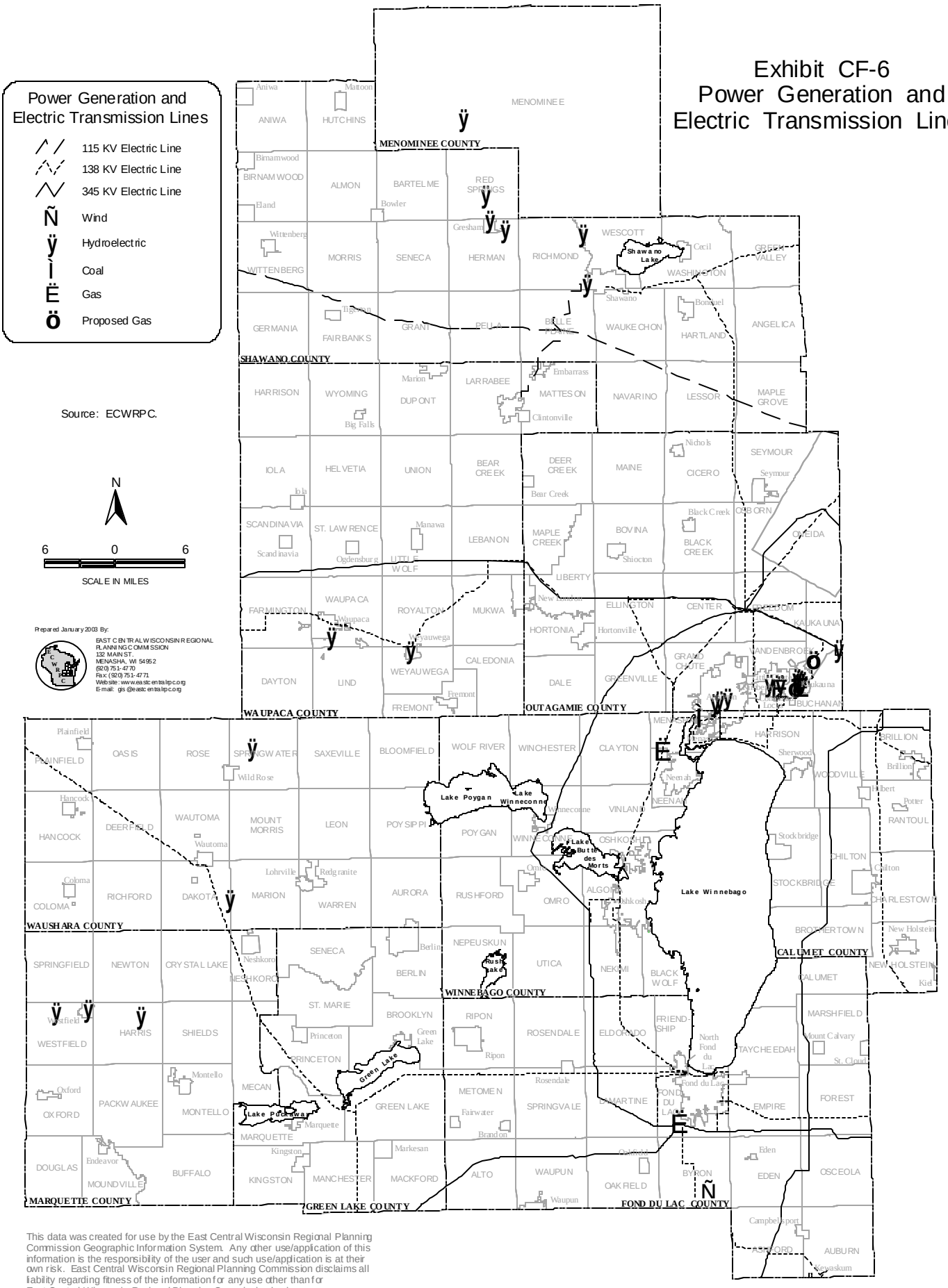

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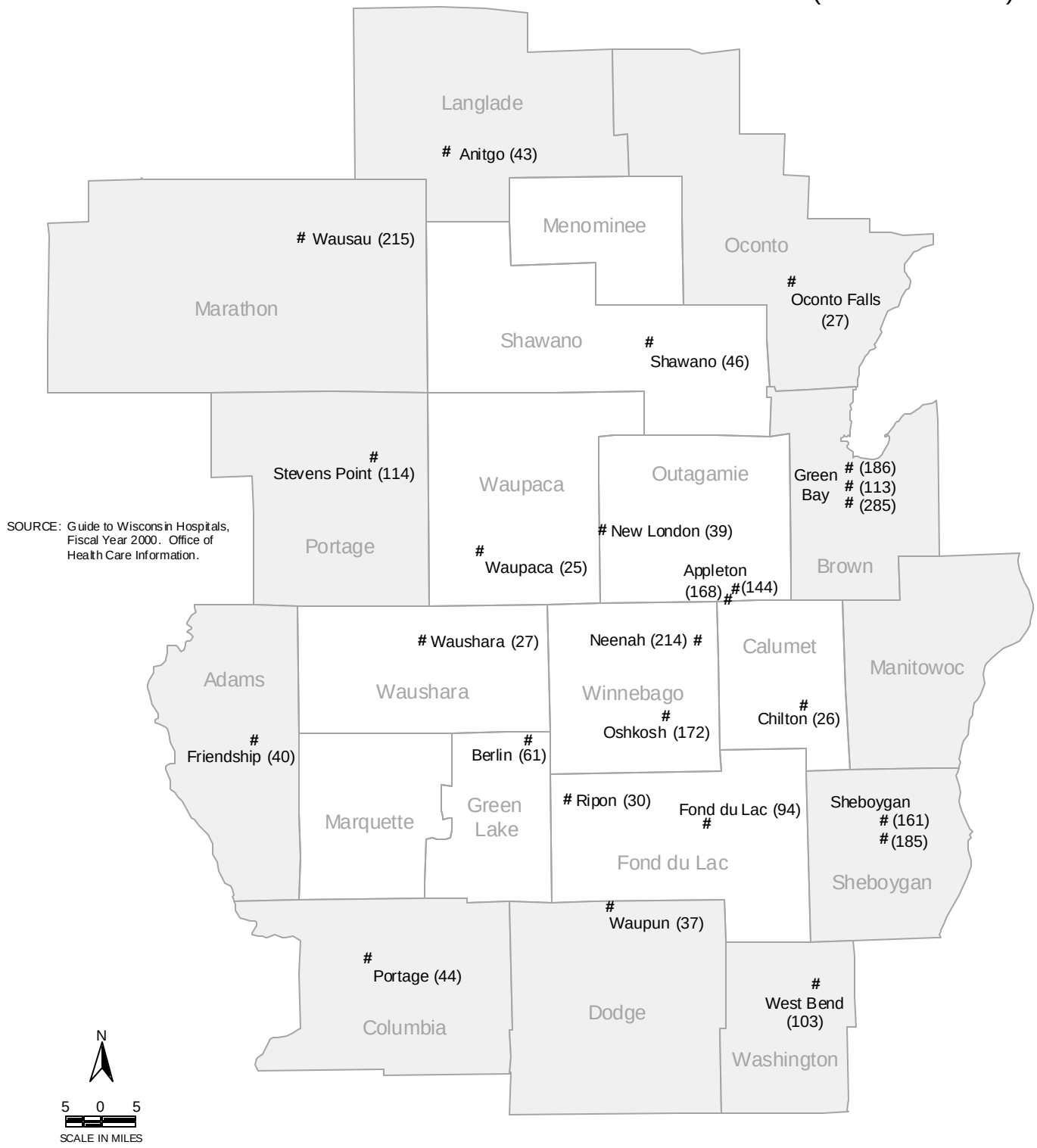
Exhibit CF-7
General Hospitals
(Number of Beds)



SOURCE: Guide to Wisconsin Hospitals, Fiscal Year 2000. Office of Health Care Information.

Prepared December 2002 By:

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Exhibit CF-8
Emergency Medical Service Areas

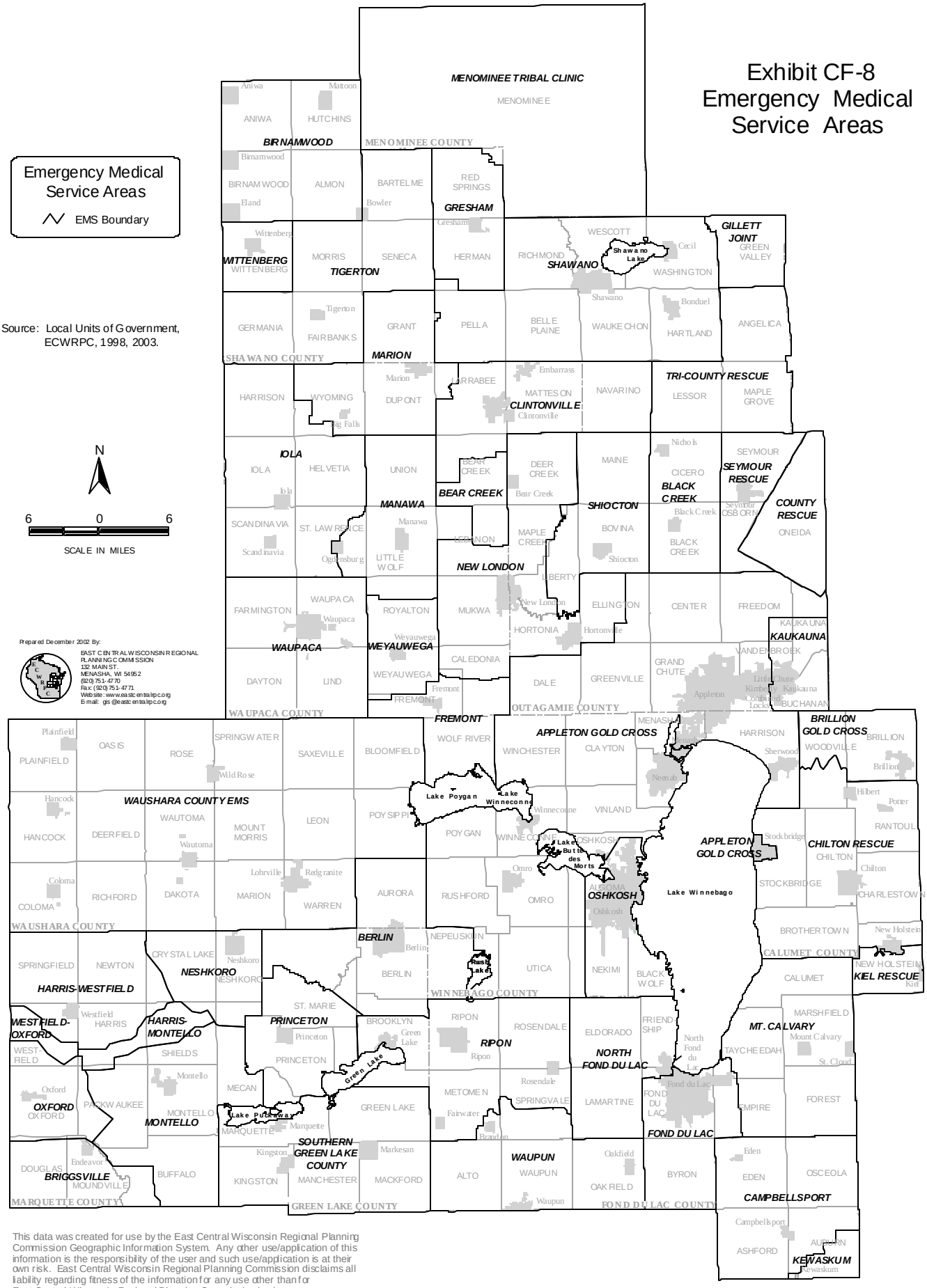

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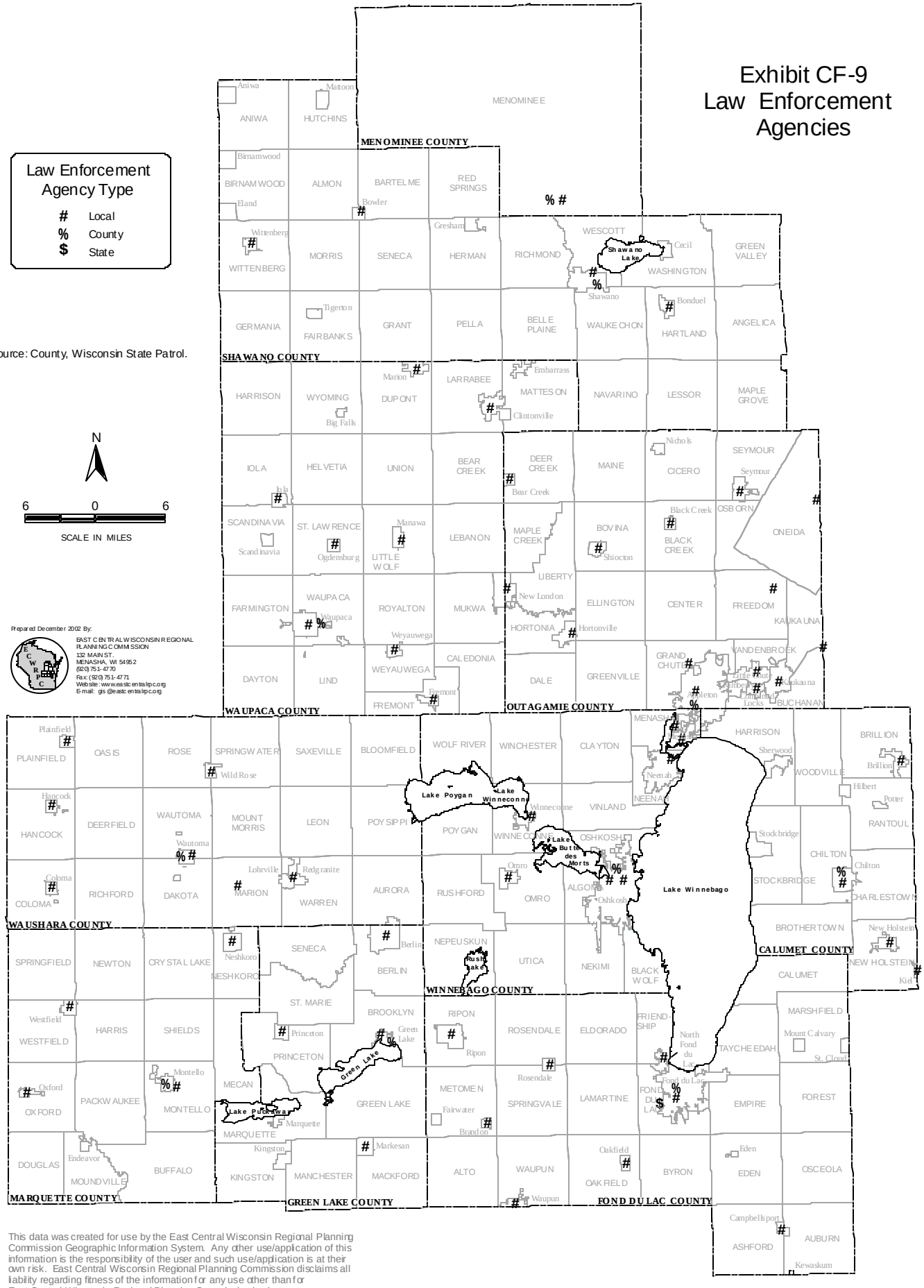
Exhibit CF-9
Law Enforcement Agencies



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CHAPTER 7: AGRICULTURAL RESOURCES

Introduction

Agriculture in Wisconsin has been facing increasing challenges in the last few decades. A poor agricultural economy, inadequate farm assistance policies, and increasing development pressures are leading to unprecedented loss of farms and farmland. The cultural and economic significance of agriculture is increasingly being debated as urban communities annex and rural development fragments farmland.

For the purpose of this chapter, the focus of the discussion will be on traditional Wisconsin agriculture involving farms and farmland. Other forms of agriculture such as nurseries and agricultural services, while becoming increasingly important from an economic perspective, will not be discussed or emphasized in detail.

In terms of the 14 local comprehensive planning goals listed in Chapter 1, East Central takes the view that those listed below relate to planning for agricultural resources.

- Protection of economically productive areas, including farmland and forests.
- Protection of natural areas, including wetlands, wildlife habitats, lakes, woodlands, open spaces and groundwater resources.
- Encouragement of land uses, densities and regulations that promote efficient development patterns and relatively low municipal, state governmental and utility costs.
- Balancing individual property rights with community interests and goals.
- Planning and development of land uses that create or preserve varied and unique urban and rural communities.

Policy Context

There are numerous federal, state and local programs designed to protect agricultural lands and assist farmers with land conservation and financial incentives. While many of these programs periodically change, the current major programs are listed below.

<u>Federal</u>

The recently enacted 2002 Farm Bill reauthorizes a number of federal programs. Among them are the Conservation Reserve Program (CRP) that protects sensitive farmland; Wetland Reserve Program that restores wetlands; Wildlife Habitat Incentives Program that improves wildlife and fishery habitat; Grazing Lands Conservation Incentive that provides cost sharing to improve gazing land management; and the Environmental Quality Incentives Program that cost shares conservation practices. Recently initiated, the Conservation Reserve Enhancement Program is a partnership between the USDA Farm Service Agency, Wisconsin Department of Agriculture, Trade and Consumer Protection, and USDA Natural Resource Conservation Service, Wisconsin

Department of Natural Resources and participating county land conservation departments. The program allows land owners to enroll agricultural lands into various land conservation management practices.

The USDA Commodity Program provides subsidies to farmers including direct payments for wheat, feed grains, and dairy. Loans for planting crops are also available.

State

Chapter 91 of the Wisconsin Statutes describes the Wisconsin Farmland Preservation Program that was adopted in 1977. The program includes agricultural preservation planning, exclusive agricultural zoning, and farmland preservation agreements that provide tax credits for farmland protection. With the adoption of a county or town farmland preservation plan exclusive agricultural zoning can be adopted and farmers may also enter into long-term agreements in exchange for tax credits to protect farmland. The program has mixed success and is currently under review.

The Farmland Tax relief Credit Program listed in Wisconsin Statutes Chapters 70, 71 and 74 provides direct tax relief benefits to farmers. The credit is computed as a percentage of property taxes and is administered by the Department of Revenue. Prior to 1995 farmland was assessed at full market value that reflected the sale price of comparable land. Under the new program land devoted to agricultural use is assessed on the use value for agricultural production rather than the market value. The purpose of the program is to give property tax relief to farmers to maintain land in agriculture rather than development.

Wisconsin Statute Chapter 88 provides for the formation of drainage districts to improve rural land drainage and prevent flooding. Once a drainage district is formed land within the district can be assessed for drainage needs.

Local

County government and to a lesser extent town government play a primary role in agricultural policy at the local level. County government provides the local outlet for many federal and state government programs and services. In addition, most counties provide services affecting agriculture through the land conservation department and zoning department. Some towns administer their own zoning. Various local drainage districts have also been created to provide adequate drainage and prevent flooding of rural agricultural lands.

Intergovernmental Cooperation

All levels of government are involved in agricultural issues. The federal government establishes agricultural policy at the national level that encompasses international trade. States also establish agricultural and farmland policy and local governments establish land use controls and provide local services. Farmers and other agriculture based business are thus impacted by a number of external (government) actions. Intergovernmental cooperation therefore entails a complex mix of these interactions with none independent of the other.

At the regional level, intergovernmental cooperation needs to address those agricultural issues that transcend town and county boundaries. Local governments need to provide common land use and development policies that complement and promote farming and agricultural uses. If one jurisdiction is preserving farmland and its neighbor is promoting rural residential development, the implications may "spill-over" placing economic pressures on farm operation. Varied and changing local land use policy also undercuts the predictability of future farm operations thus affecting future investment.

Background Information

Agriculture is an important natural, economic and cultural resource within the East Central region. Physical characteristics, primarily soils and drainage, dictate the type and potential of agriculture uses. Agriculture production and local economic significance varies significantly throughout the region. Existing land use and development pressures impact farm operations and agricultural economics. Family farms are decreasing and farmland loss is increasing.

The Agriculture Resource

Agricultural Suitability: Most of the region is well suited to agriculture. Shown in Exhibit AR-1, soils with high productivity potential have good textures, moderate permeability, adequate depth, low erodability and are free from flooding. The areas of least productivity are along the Fox and Wolf River bottomlands. Soils in this bottomland are subject to frequent flooding and have a high groundwater table. The soils in the outwash plains in the western portions of the region are also less suited to agriculture. These are highly permeable soils that are infertile or are steep or rocky. The less suitable soils areas can become more productive with intensive management such as draining or irrigation.

Exhibit AR-2 shows the areas of our region that have the best soil content as reflected by the high output of row crops, primarily corn. Top yields of 105-135 bushels of corn per acre are shown in Green Lake County and the western half of Fond du Lac County, and portions of Calumet, Waupaca and Outagamie Counties. The high corn output areas reflect and substantiate the most suitable soils areas shown in Exhibit AR-2.

Agricultural Production Value: The market value of agricultural products sold in the region during 1997 was $796,263,000 as shown in Table AR-1. The increase from 1992 was 3.4 percent, approximately half the statewide increase of 6.1 percent. Actual declines in sales were shown in Calumet and Green Lake Counties. This significant decline in production reflects the extent of loss of farms and farmland throughout the region.

Exhibit AR-1
Percent Potential for Prime Farmland

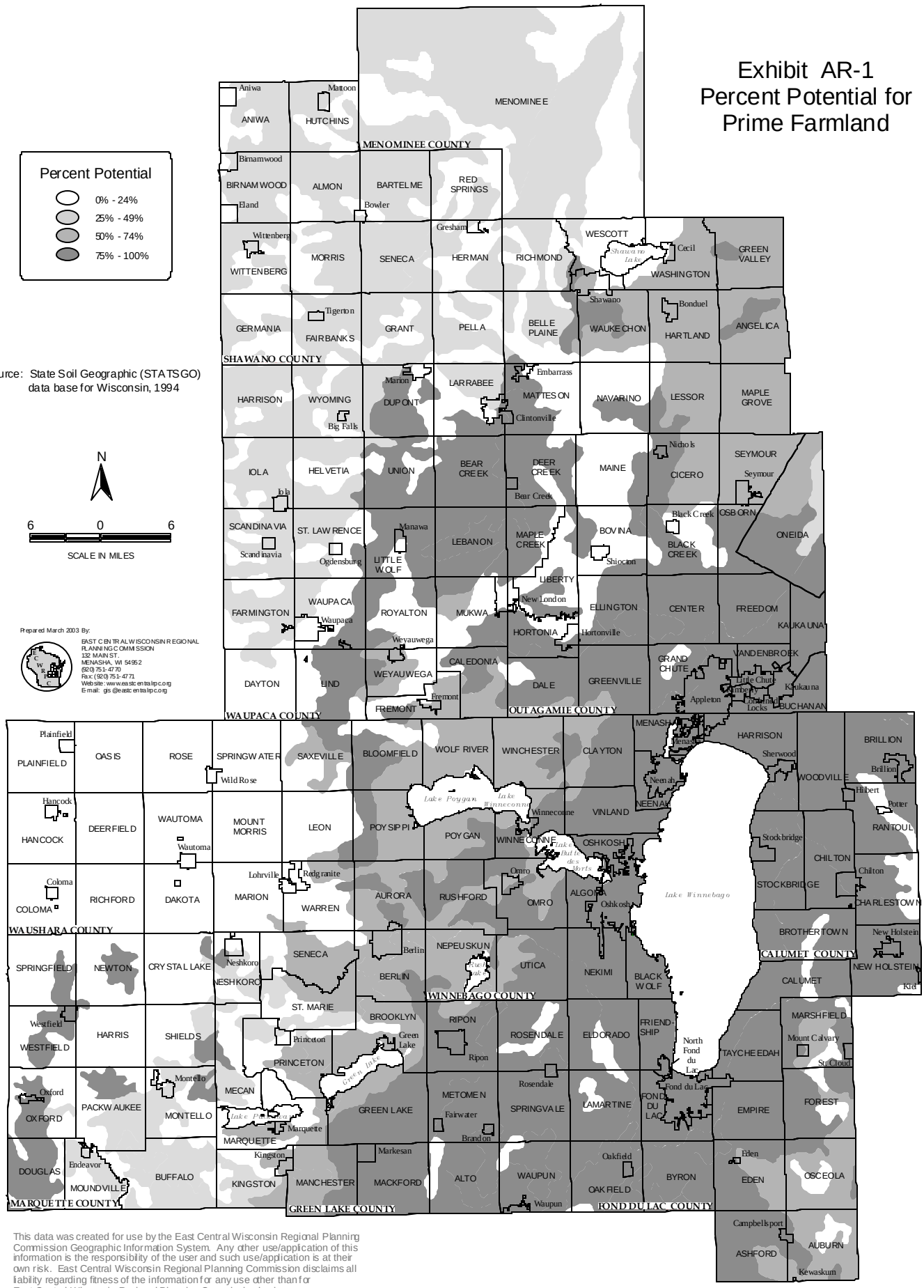

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Exhibit AR-2
Weighted Corn Yield

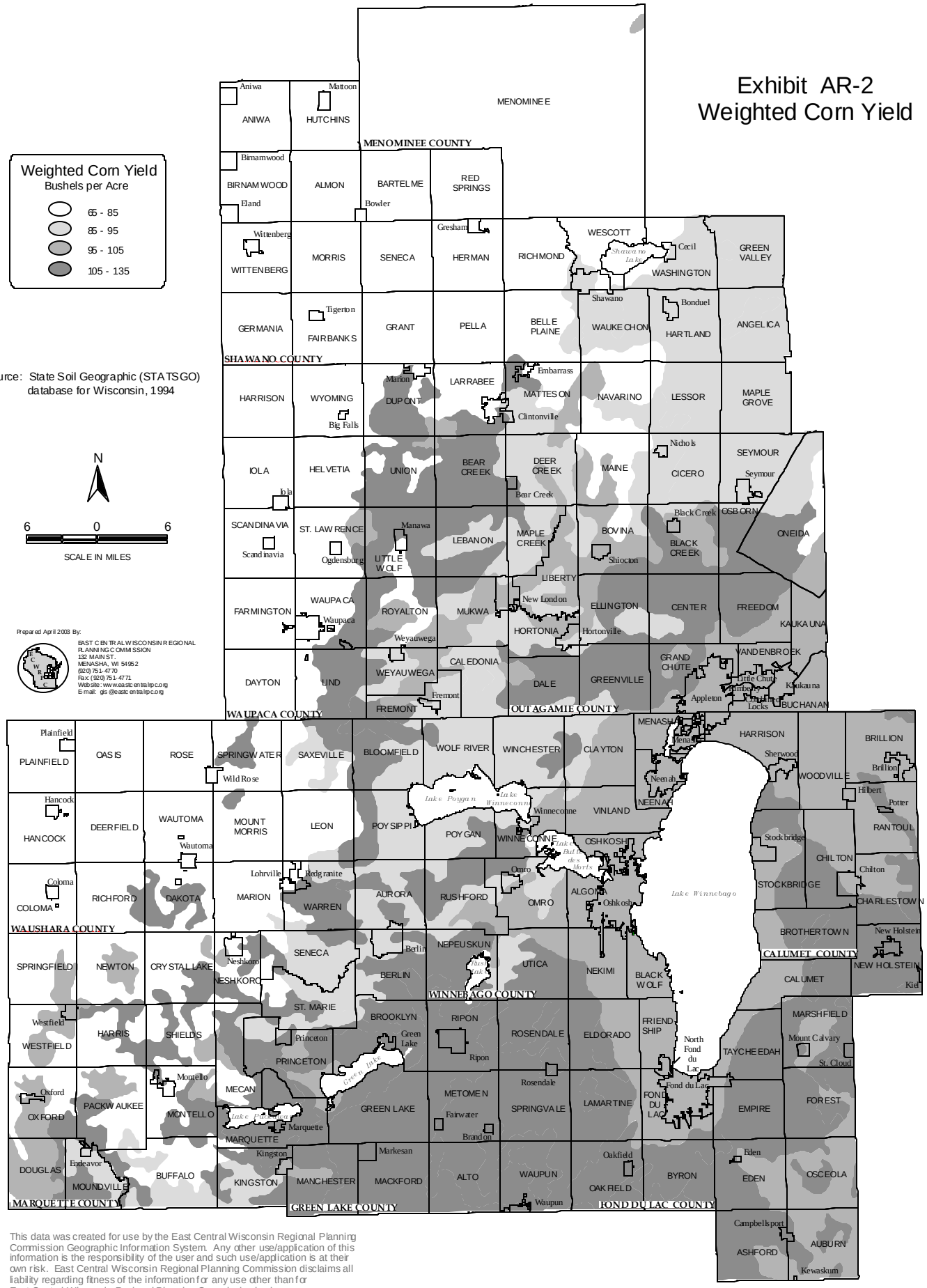


Table AR-1. Market Value of Agricultural Products Sold

	1997	1992	% Change
Calumet	75,984,000	77,226,000	-0.016
Fond du Lac	151,140,000	151,097,000	0.000
Green Lake	45,256,000	55,999,000	-0.192
Marquette	32,281,000	28,058,000	0.151
Menominee	13,000	-	-
Outagamie	142,184,000	130,219,000	0.092
Shawano	126,533,000	124,594,000	0.016
Waupaca	86,182,000	80,141,000	0.075
Waushara	75,001,000	64,161,000	0.169
Winnebago	61,689,000	58,503,000	0.054
Region	796,263,000	769,998,000	0.034
Wisconsin	5,579,861,000	5,259,670,000	0.061

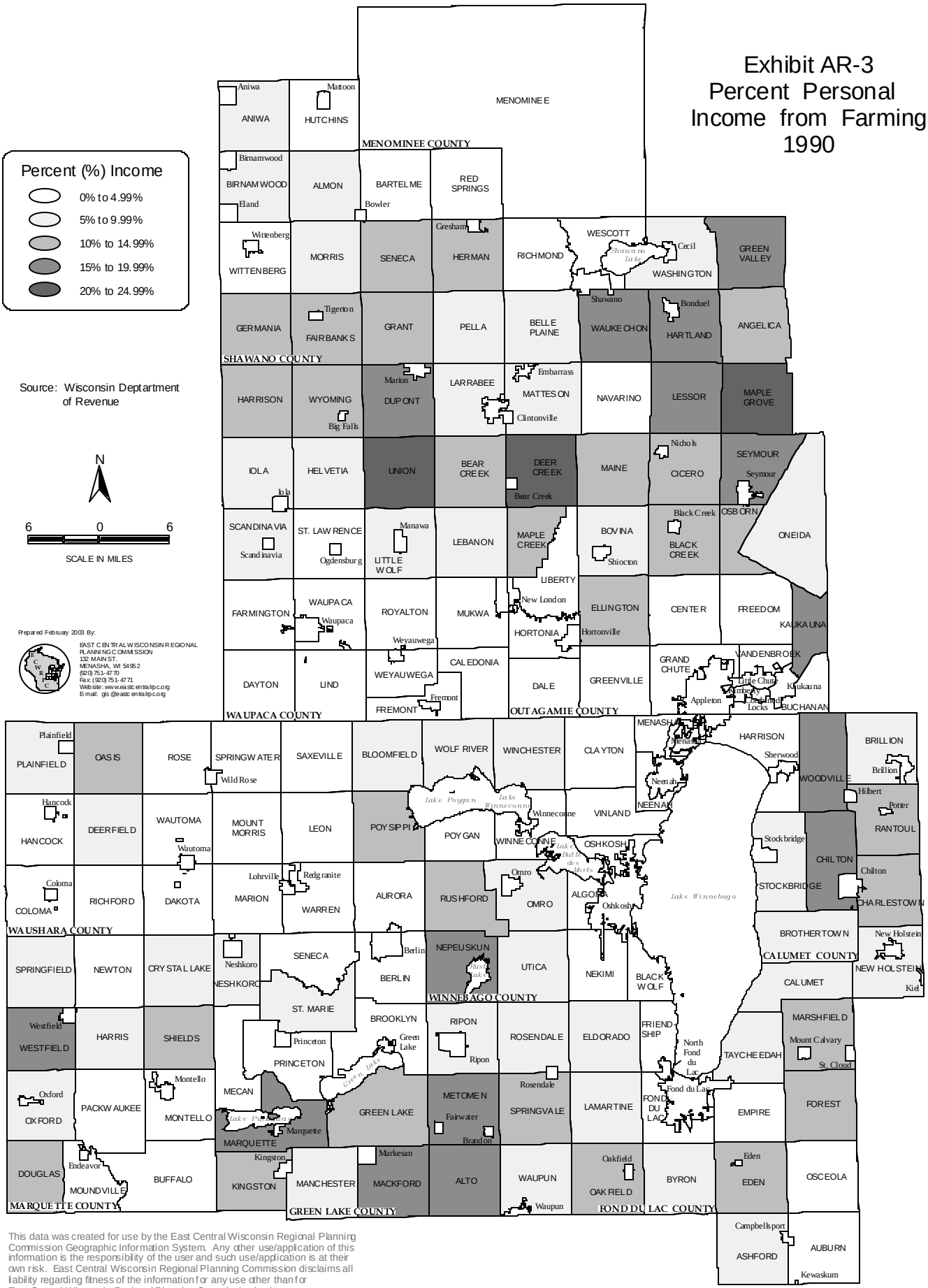
The average per farm market value of agricultural sales, shown in Table AR-2, is increasing throughout the region in all but Green Lake County. The average $92,399 per farm sales increased 10.2 percent from 1992 within the region compared to of state average of $85,056 with a 10.0 percent increase. This trend reflecting the increase in farm size and production follows the statewide average while individual farm production is higher than the state average.

Farm Personal Income: The percent of personal income from farming is a good indicator of the agricultural dependent areas of the region. Exhibit AR-3 provides a snapshot of where family farming is still dominate. As the trend to larger farms, that are run more like big businesses, progresses these income trends may change. Shawano, northern Outagamie, Calumet, southwestern Fond du Lac and Green Lake Counties show similar patterns of higher income dependence of farmers, exemplifying agricultural importance in these areas.

Table AR-2. Average Per Farm Market Value of Agricultural Products Sold

	1997	1992	% Change
Calumet	108,086	97,018	0.110
Fond du Lac	101,573	97,356	0.040
Green Lake	77,493	79,431	-0.020
Marquette	72,870	63,193	0.150
Menominee	-	-	-
Outagamie	110,563	92,748	0.190
Shawano	94,640	86,704	0.090
Waupaca	76,334	67,345	0.130
Waushara	118,298	102,166	0.160
Winnebago	71,731	68,505	0.050
Region	92,399	83,830	0.102
Wisconsin	85,056	77,395	0.100

Exhibit AR-3
Percent Personal Income from Farming 1990



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Farming Operations

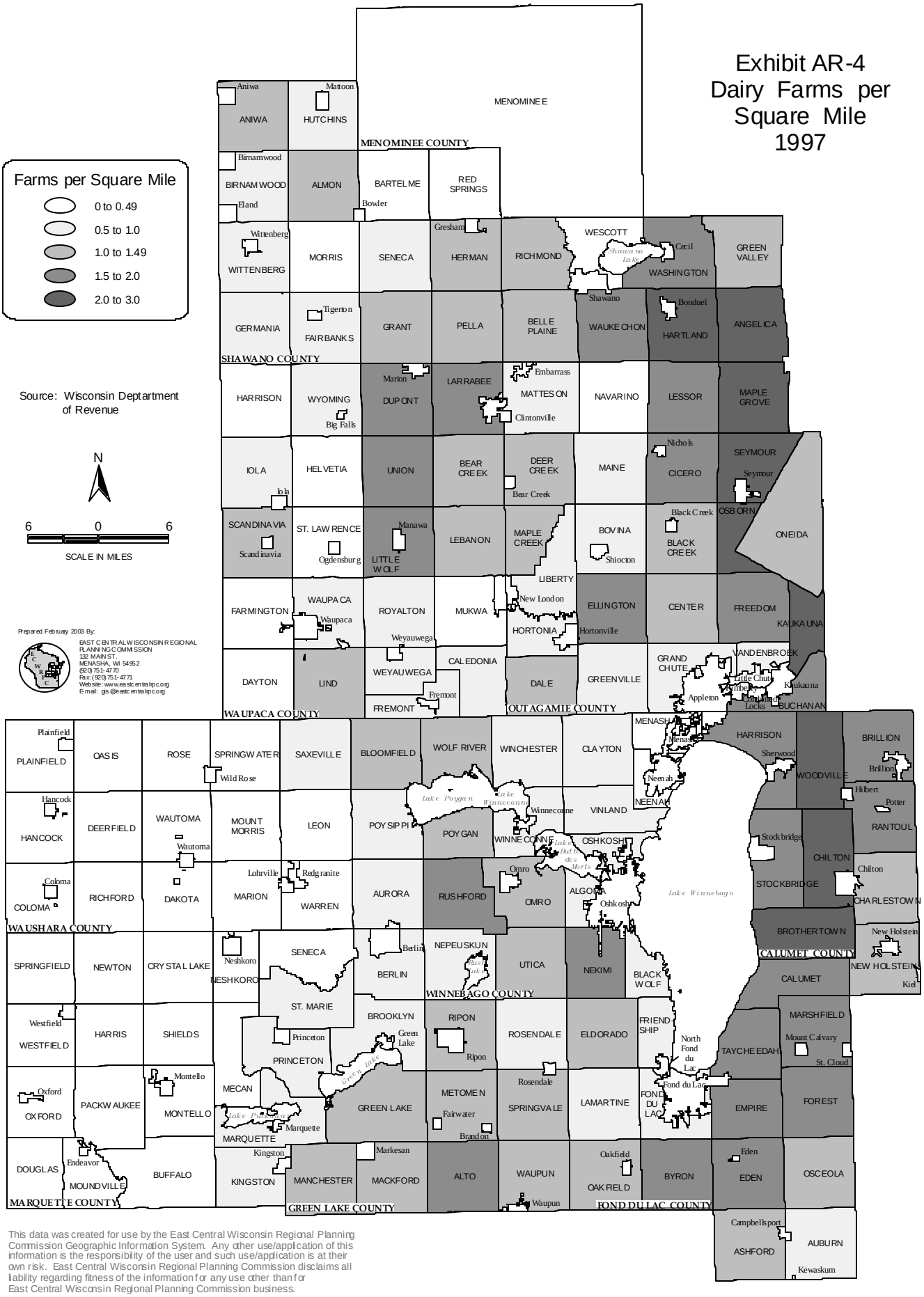
Farming is not only an important part of the Wisconsin economy but it is part of the Wisconsin culture. Farmers within the East Central region mainly produce dairy and grain products. The face of farming has changed from small family farms supporting the surrounding community to larger operations that are run more like a big business and serve a global economy. Table AR-3 shows that 51 percent of the land area within the region is used for farming. Calumet and Fond du Lac Counties have the highest amount of land area with over 70 percent of their areas used for farming.

Dairy Farms: While dairy farms only represent about 35% of the farms in the region, they account for the majority of agricultural production and value. Exhibit AR-4 shows the density of dairy farming within the region. Shawano County has the highest density, followed by Calumet and Fond du Lac. Very little dairy farming is occurring in the urban area fringe or the urban growth corridors to the west of the Fox Cities. This reflects the conversion of dairy farms and farmland to other uses.

Table AR-3. Land Used for Farming, 1997

	Total Land Acres	Farmed Land Acres	Farmed Land Percent
Calumet	204,714	143,579	70.1
Fond du Lac	462,704	324,893	70.2
Green Lake	226,755	134,271	59.2
Marquette	291,541	124,641	42.7
Menominee	229,117	387	0.2
Outagamie	409,849	252,471	61.6
Shawano	571,244	270,478	47.3
Waupaca	480,729	226,746	47.2
Waushara	400,695	174,524	43.6
Winnebago	280,723	167,524	59.7
Region	3,558,071	1,819,514	51.1
State	34,760,751	14,900,205	42.9

Exhibit AR-4
Dairy Farms per Square Mile
1997



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Mega Farms: Mega farms are large commercial agricultural, primarily dairy, operations that typically consist of 1000 or more animals and large amounts of land. The concept is sound; the large amount of animals equal more profit, production, and time savings. Farms of this nature have as many as six full size milk tankers waiting to be filled every day. One mega farm can typically produce more than multiples of smaller operations, and the consistency of the product is better. Milk is collected and separated for testing and quality check procedures into the bulk tanks for the many sections that make the entire farm. Mega farms may also promote supporting farm operations for feed in surrounding farmlands. While low in number, mega-farms are scattered throughout the region in the primary dairy areas. The increasing numbers of mega farms are causing concern among small farm owners and the public alike because of the intensity of the operations and changes to the land use and transportation characteristics of the area.

Farmland Losses

Farmland losses within the region follow state and national trends. There has been a steady 30 year decline in the number of farms and farmland acreage. Farm loss and the trend to larger farms in fewer numbers are exhibited in Table AR-4. Within the East Central region 5,125 farms were lost between 1970 and 1999, which is 16 percent of the 32,000 farms lost in the State of Wisconsin. Within the region Waupaca, Shawano, and Outagamie Counties have lost the most farms with 850, 810 and 720 respectively.

As farmers retire, the loss of active farms may accelerate dramatically without replacement by younger farmers. Over 35 percent of farmers in the region are over 60 years of age. Table AR-5 shows the average age of farmers in the region. Winnebago County has the highest average age of 56 years.

Land taxed as agriculture is an indicator of the significance of agriculture in an area. Exhibit AR-5 shows land taxed as agriculture is greatest in the Calumet and Fond du Lac Counties, falling into the 80-100% category. The eastern towns in Green Lake, Outagamie, Shawano and Winnebago Counties also have high percentages of agricultural taxed lands.

The areas that have lost land taxed as agriculture between 1990 and 1997 are shown in Exhibit AR-6. As can be seen the highest areas of loss are near to or influenced by urban area growth. The towns west of the Fox Cities and Fond du Lac reflect the commuting patterns of rural growth. Noticeable losses also occurred in the western portion of the region where second home, retirement housing and recreational land conversions are occurring.

Agricultural Land Use Impacts

Farming and logging were once the most important land use activities in the region. Today, because of cultural, technological and economic changes, agriculture is no longer the predominant activity. Personal farm income has declined, causing less incentive to continue farm operation. Land that was once prime farmland is now the target for development of subdivisions and growing communities.

Table AR-4. Farm Losses 1970-1999

County/Year	Number of farms	Land in farm use (acres)	Average farm size (acres)	# of farms lost 1970-1999
Calumet				
1970	1,380	196,000	142	
1980	1,240	184,500	149	
1990	990	175,000	177	
1999	830	159,000	192	550
Fond du Lac				
1970	2,450	414,000	169	
1980	2,070	388,600	188	
1990	1,840	376,000	204	
1999	1,790	360,000	201	660
Green Lake				
1970	970	181,000	187	
1980	790	165,800	210	
1990	740	167,000	226	
1999	690	149,000	216	280
Marquette				
1970	870	189,000	217	
1980	590	155,600	264	
1990	540	150,000	278	
1999	530	136,000	257	340
Outagamie				
1970	2,290	329,000	144	
1980	2,060	316,600	154	
1990	1,660	297,000	179	
1999	1,570	276,000	176	720
Shawano				
1970	2,380	400,000	168	
1980	1,980	366,000	185	
1990	1,710	348,000	204	
1999	1,570	296,000	189	810
Waupaca				
1970	2,150	357,000	166	
1980	1,780	328,200	184	
1990	1,430	280,000	196	
1999	1,300	249,000	192	850
Waushara				
1970	1,220	238,000	195	
1980	930	206,100	222	
1990	720	186,000	258	
1999	740	188,000	254	480
Winnebago				
1970	1,460	224,000	153	
1980	1,220	202,700	166	
1990	1,050	196,000	187	
1999	1,020	182,000	178	440
Menominee				
1970				
1980				
1990				
1997	5	387	77	
Totals for Region				
1970	**15,170**	**2,528,000**	**1,541**	
1980	**12,660**	**2,314,100**	**1,722**	
1990	**10,680**	**2,175,000**	**1,909**	
1997/99	**10,045**	**1,995,387**	**1,932**	5,125
Totals for State				
1970	**110,000**	**20,100,000**		
1980	**93,000**	**18,600,000**		
1990	**80,000**	**17,600,000**		
1999	**78,000**	**16,300,000**		32,000

Exhibit AR-5
Percent of Town Land Taxed as Agriculture 1997

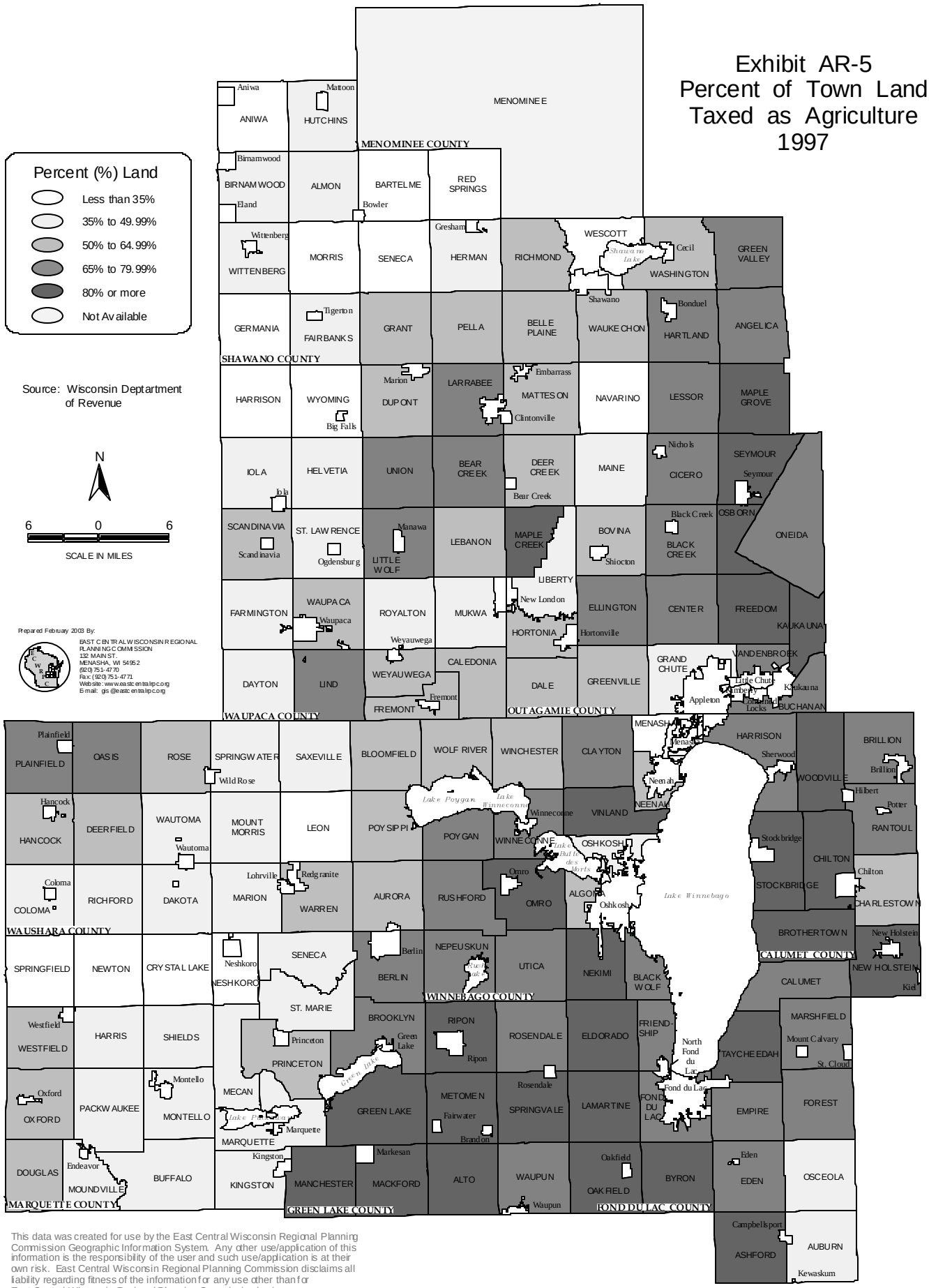

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Exhibit AR-6
Percent Loss of Acres Taxed as Agriculture 1990-1997

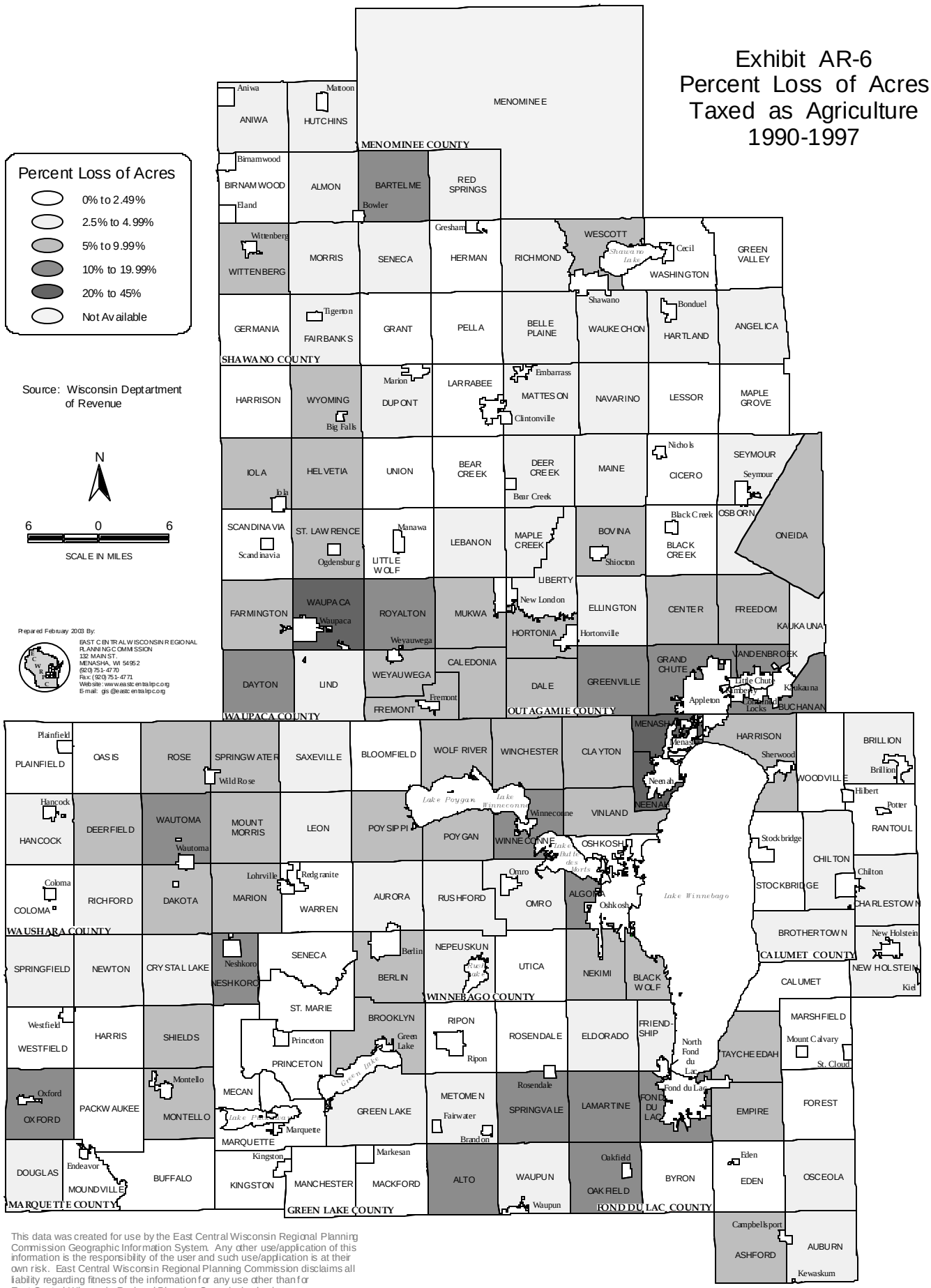

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Table AR-5. Farm Operator Age Grouping

	Under 35	35-45	45-59	60-69	70+	Average Age
Calumet	0.091	0.28	0.376	0.141	0.112	51
Fond du Lac	0.108	0.252	0.337	0.169	0.134	52
Green Lake	0.07	0.221	0.358	0.214	0.137	53
Marquette	0.081	0.253	0.325	0.187	0.153	53
Menominee	-	-	-	-	-	-
Outagamie	0.109	0.234	0.391	0.173	0.093	51
Shawano	0.117	0.233	0.376	0.178	0.125	51
Waupaca	0.098	0.238	0.386	0.17	0.107	51
Waushara	0.091	0.181	0.385	0.203	0.139	53
Winnebago	0.066	0.201	0.371	0.224	0.191	56
Region	0.092	0.233	0.367	0.184	0.132	52
State	0.09	0.237	0.365	0.181	0.126	52

Rural Population Increase: Rural areas are no longer just farm communities. Non- farm rural population has been increasing. Exhibit AR-7 shows the greatest concentration of people per square mile in 1997 are adjacent to Lake Winnebago on the north, west and south with between 100 and 1250 people per square mile. These densities have increased significantly over the last 30 years with the major urban area expansion. This trend is consistent with the areas of farmland lost.

Rural Housing Increase: Rural housing is increasing through single lot and subdivision development. As shown in Exhibit AR-8 the growth in housing stock between 1990 and 1997 was greatest in Outagamie County where almost half of that county had a 25% or more increase in its housing stock. Southern areas of Waushara and northern areas of Marquette County grew more with at least 50 %. Noticeable portions of Waupaca County also shared the 50% or more increase. These areas of housing increase reflect again the areas that are losing farmland.

Farmland Preservation Efforts

Preserving agriculture has been an on-going effort and is precedent to preserving rural character in the East Central region. In addition to economic assistance to maintain viable farms, growth management tools are needed to preserve prime agricultural areas. New home buyers are increasingly interested in purchasing land that is within short driving distance of the city, but still far enough away that it makes them feel like they live in the country. Country lots that were once used for agriculture bring a high price when being purchased for development. Many farmers now see their land as both short term equity and a longer term retirement fund.

There are a number of state and federal programs directed to assist agriculture and preserve farmland. While a number of these programs have been in existence for many years, they have mixed success in preserving agricultural lands and maintaining viable farms.

Exhibit AR-7
Population Density
2000

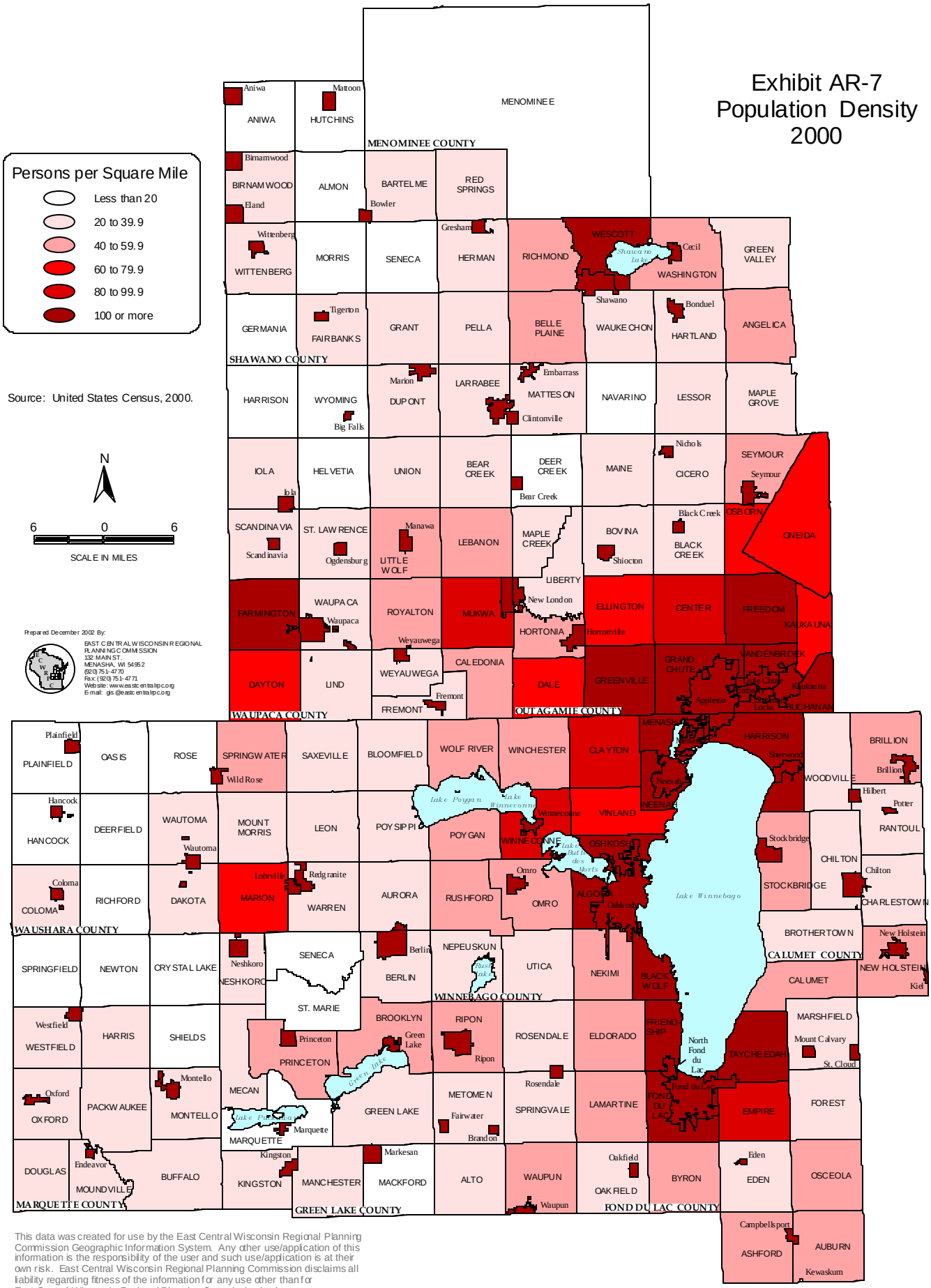

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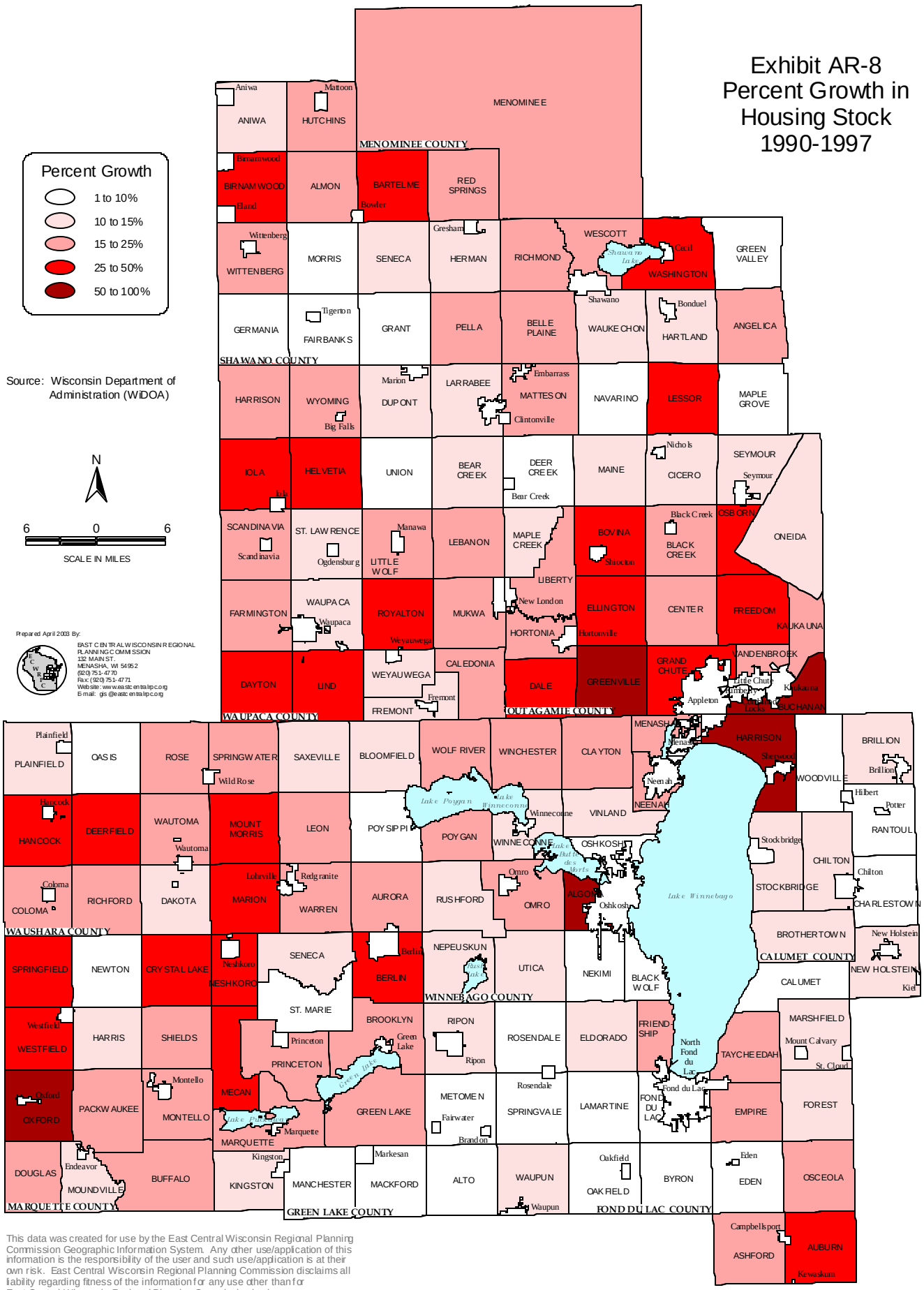
Exhibit AR-8
Percent Growth in Housing Stock 1990-1997



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Farmland Preservation Program: The Wisconsin program preserves farmland through property tax relief, land use zoning and conservation practices. Throughout the state, about 21,400 farmers claimed credits totaling $17.2 million s in 2001. About 78 percent of the claims were under land use zoning clause and 22 percent through tax relief agreements.

Table AR-6 shows the participation by county for the region. The highest participation rates were in Fond du Lac County and the lowest in Marquette County. The regional average of farmers participating in the program was 37 percent. This preservation program has not accomplished the results envisioned and is currently being re-evaluated.

Farmland Tax Relief Program: This Wisconsin program provides tax credits to farmland owners of 35 acres and over. Statewide, 58,400 farmers received credits totaling $11.9 million in 2001. Table AR-7 shows farmer participation for counties in the region. Fond du Lac County had the highest number of claimants in this program as well as the Farmland Preservation Program. The regional average claim rate was about five percent below the state average credit. Since this program has only been in effect since 2001, the impact of the program is not known.

Table AR-6. Farmland Preservation Credit by County 2002
(2001 Property Tax Year)

COUNTY	NUMBER OF CLAIMS	AMOUNT OF CREDIT	AVERAGE CREDIT	PARTICIPATON RATE(1)
CALUMET	298	$181,572	$609	34.9%
FOND DU LAC	1,216	870,936	716	73.7%
GREEN LAKE	264	217,184	823	45.5%
MARQUETTE	38	37,417	985	14.1%
OUTAGAMIE	358	231,048	645	29.5%
SHAWANO	404	326,989	809	31.7%
WAUPACA	111	76,080	685	12.7%
WAUSHARA	41	35,441	864	10.6%
WINNEBAGO	168	112,509	670	23.0%
E.C. Region	2,898	$2,089,176	$756	37.0%
Wisconsin	20,866	$16,627,621	$797	37.0%

Data on number of claims and credit amount for individuals are from tax returns processed between July 1, 2001 and June 30, 2002. Data on number and amcount of corporate credits are from taxes returns processed between January 1, 2002 and December 31, 2002.

The data are based on county of claimant, which may not be the same as the county in which the farmland is located.

(D) Data for counties with 5 or fewer claimants are not disclosed; however, data for these counties are included in the state totals.

(1) Estimated participation rate is the number of Farmland Preservation Credit claimants in the county as a percentage of the number of Farmland Tax Relief claimants in the county as shown in Table 2.

(2) Includes credits on returns for which no county is specified and out-of-state returns.

Table AR-7. Farmland Tax Relief Credit by County, 2002

COUNTY	NUMBER OF CLAIMS	AMOUNT OF CREDIT	AVERAGE CREDIT
CALUMET	855	$167,355	$196
FOND DU LAC	1,651	351,908	213
GREEN LAKE	580	145,595	251
MARQUETTE	270	84,284	312
OUTAGAMIE	1,213	235,556	194
SHAWANO	1,273	257,200	202
WAUPACA	875	189,263	216
WAUSHARA	388	117,737	303
WINNEBAGO	730	154,777	212
E.C. Region	7,835	$1,703,675	$233
Wisconsin	56,359	$13,653,097	$242

NOTES:

Data on number of claims and credit amount for individuals are from tax returns processed between July 1, 2001 and June 30, 2002. Data on the number and amount of corporate credits are from tax returns processed between January 1, 2002 and December 31, 2002.

The data are based on county of claimant, which may not be the same as the county in which the farmland is located.

* Includes credits on returns for which no county is specified and out of state returns.

Farm Bill 2002: The Farm Security and Rural Investment Act of 2002 created substantial new subsidies for farmers. The Act means about $10,000 per year for a typical Wisconsin dairy farmer with 75 cows. Because of size limits on milk production, this program will benefit small (family) farm operations. The Act also provides additional crop commodity and land conservation payments to farmers. Because detailed guidelines on the implementation of the program are not yet available, the extent of impact on farms within the region is not known at this time.

Past federal price support efforts have not been successful for Wisconsin farmers and may have actually accelerated farm losses. An example was the federal “whole herd buyout” that aimed to reduce milk production in the mid-1980s. This program accelerated the exit of 13,000 Wisconsin dairy farms between 1985 and 1995. Marginal farm operations decided to “cash out” and give up dairy farming. While the new program is directed at smaller farmers, these types of subsidy programs have not worked well in the past.

Agricultural Resources: Key Findings

Current Trends

- The majority of the East Central region's soils are well suited for agriculture with select sub areas having lower productivity.
- Dairy and grain farming are the primary agricultural operations.
- The number of dairy farms has decreased significantly while production has slightly increased due to larger operations.
- Land taxed as agriculture has declined with the highest rate of decline near the major urban areas.
- Personal farm income is declining and lags the statewide average.
- Agricultural commodity sales are increasing due to the increase in farm size and more efficient farm operations.
- Dairy sales are predominant over crop sales while only representing approximately one-third of the farms.
- Agriculture has numerous public support programs with a history of mixed success in assisting farmers.
- The 2002 Farm Bill is the newest federal assistance initiative targeted to small farm operations.
- Agricultural subsidies are an increasing proportion of farm income.
- Over one-third of farmers are participating in farmland preservation agreements in the region. While slowing the loss, the participation is mixed throughout the region.
- Farmers in the region claiming farmland tax relief receive slightly less than the state average.
- Urban expansion and scattered rural residential development is both consuming and fragmenting agricultural land.

Future Trends

- Farmers will be retiring in greater numbers resulting in potential greater losses of farms.
- Farm size will continue to increase.
- Dairy mega-farms will continue to increase in numbers impacting land uses in localized areas.
- Farmland losses will continue throughout the region and accelerate near urban areas.
- Agricultural subsidies will have greater impacts on agricultural production and farm operations.
- Global markets will have greater impact on farm operations and financial success.

Identification of Issues

- How can prime agricultural soils that are under development pressure be protected?
- Will young farmers replace retiring farmers?
- Can farm size continue to expand with increased scattered rural housing?
- What will be the impact of dairy mega-farms and how can they be accommodated?

- What impact will the 2002 Farm Act have on Wisconsin farmers?
- Can the farmland preservation and tax credit programs be improved for greater effectiveness?
- What agricultural related initiatives can support and promote farming in the East Central region?

Exhibit AR-1
Percent Potential for Prime Farmland

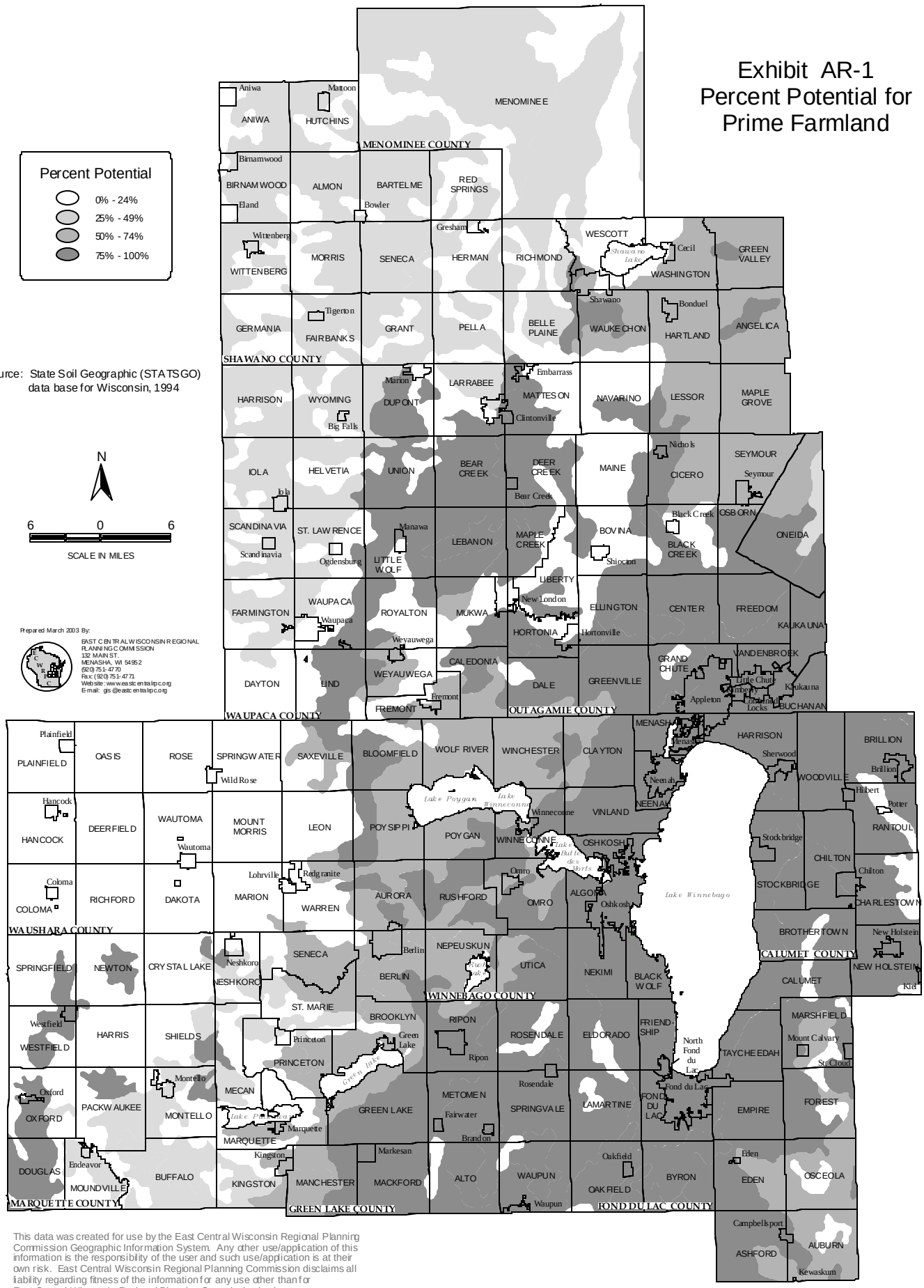

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Exhibit AR-2
Weighted Corn Yield

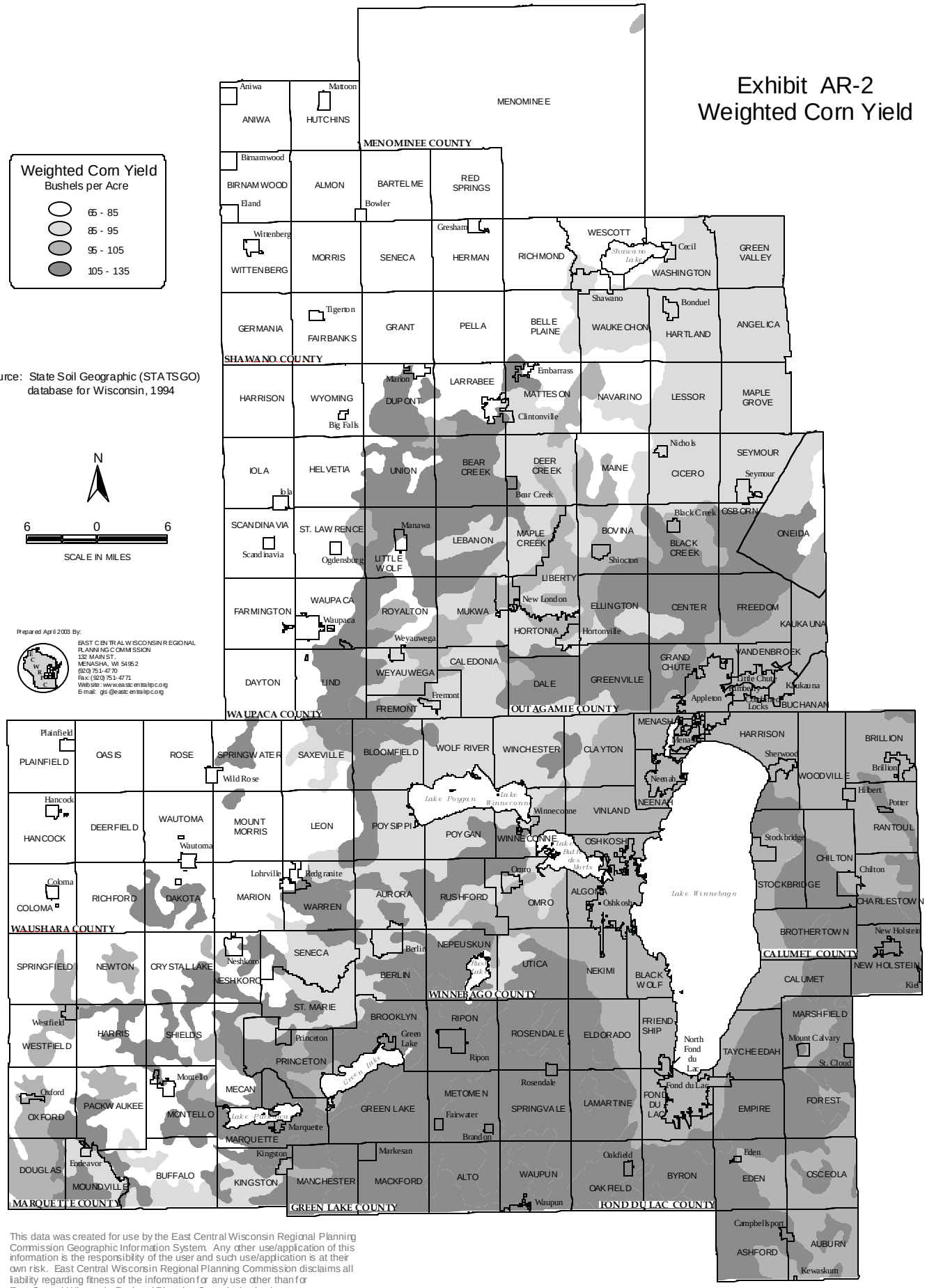

Exhibit AR-3
Percent Personal Income from Farming 1990

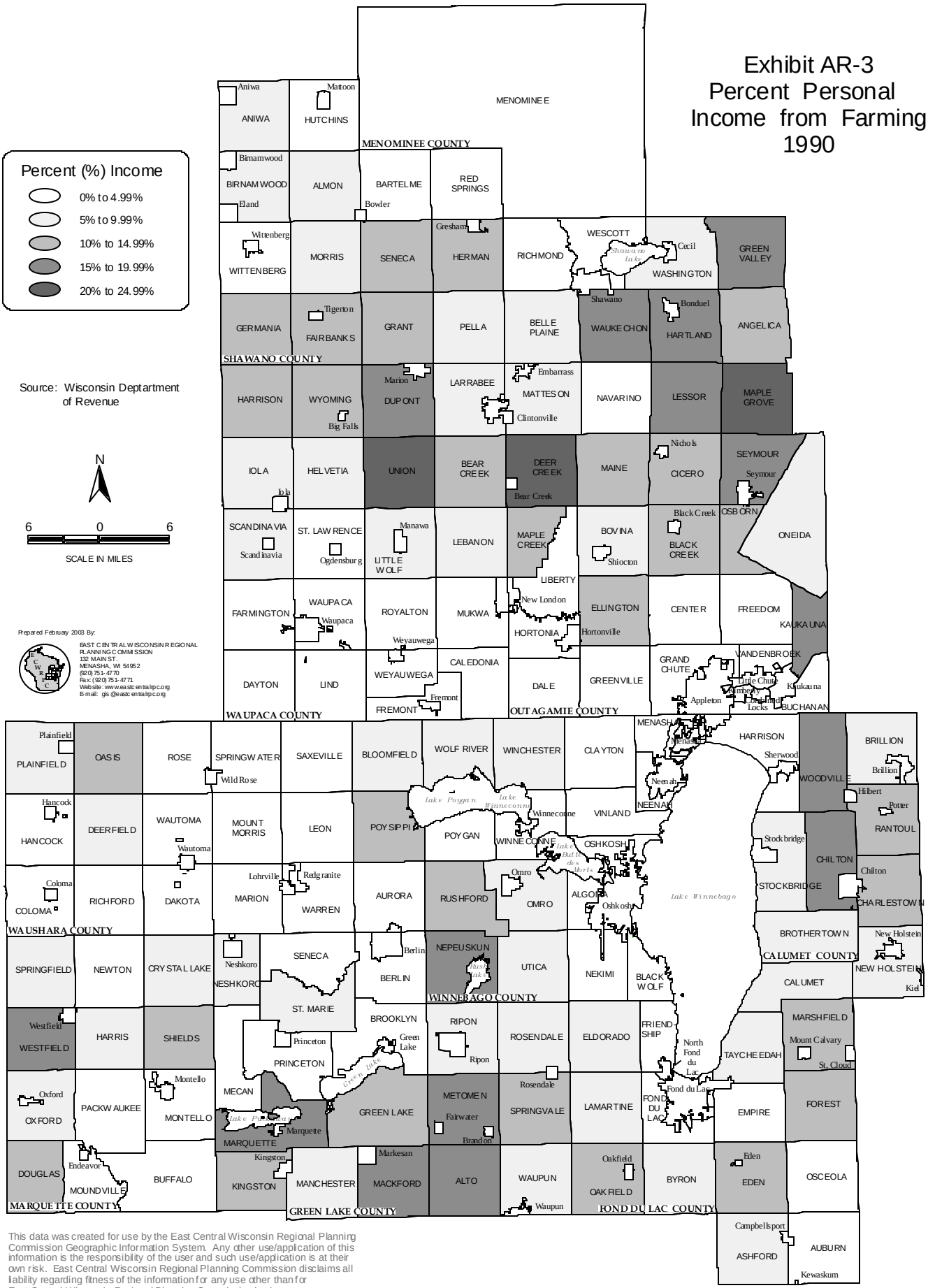

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Exhibit AR-4
Dairy Farms per Square Mile
1997

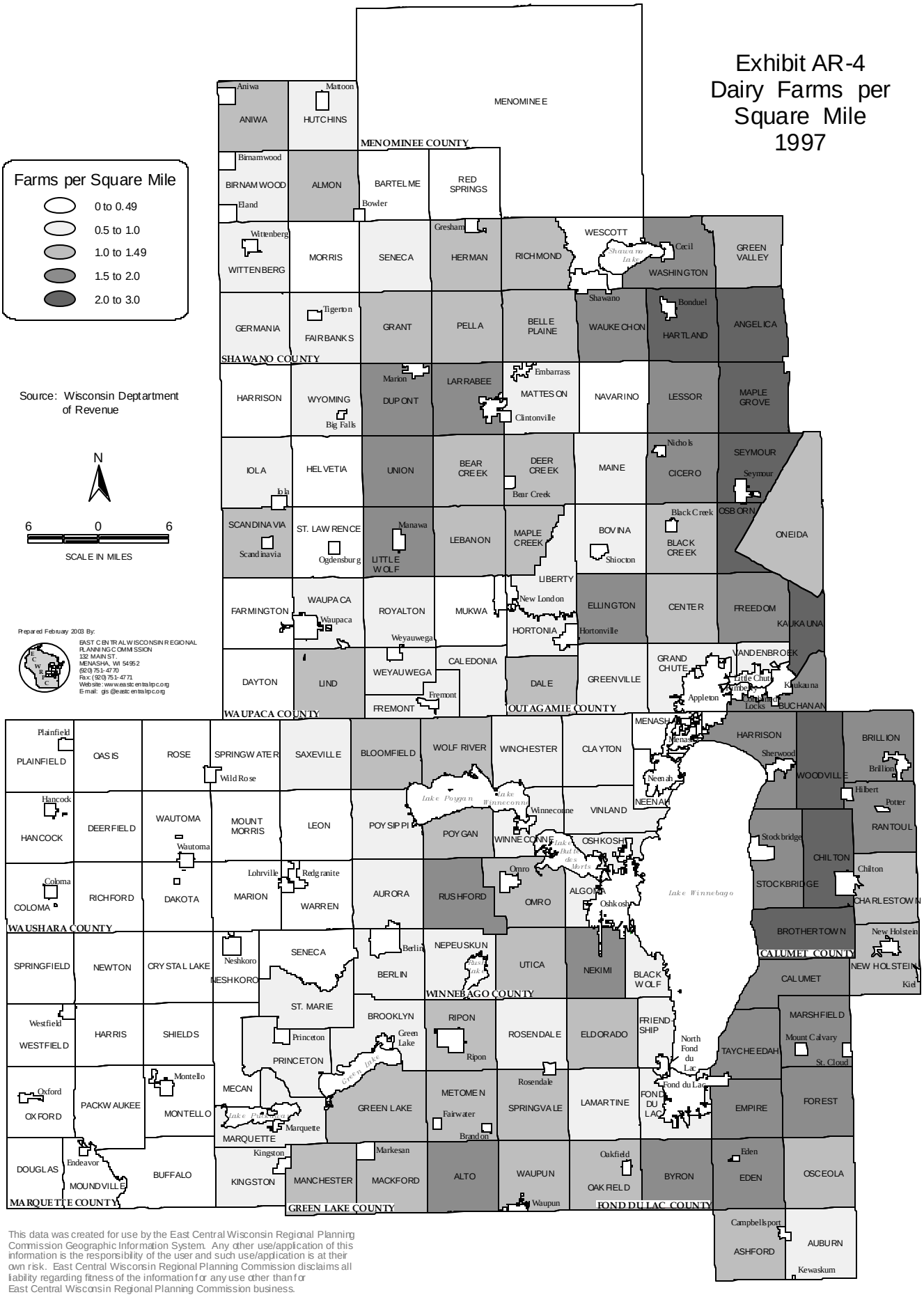

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Exhibit AR-5
Percent of Town Land Taxed as Agriculture 1997

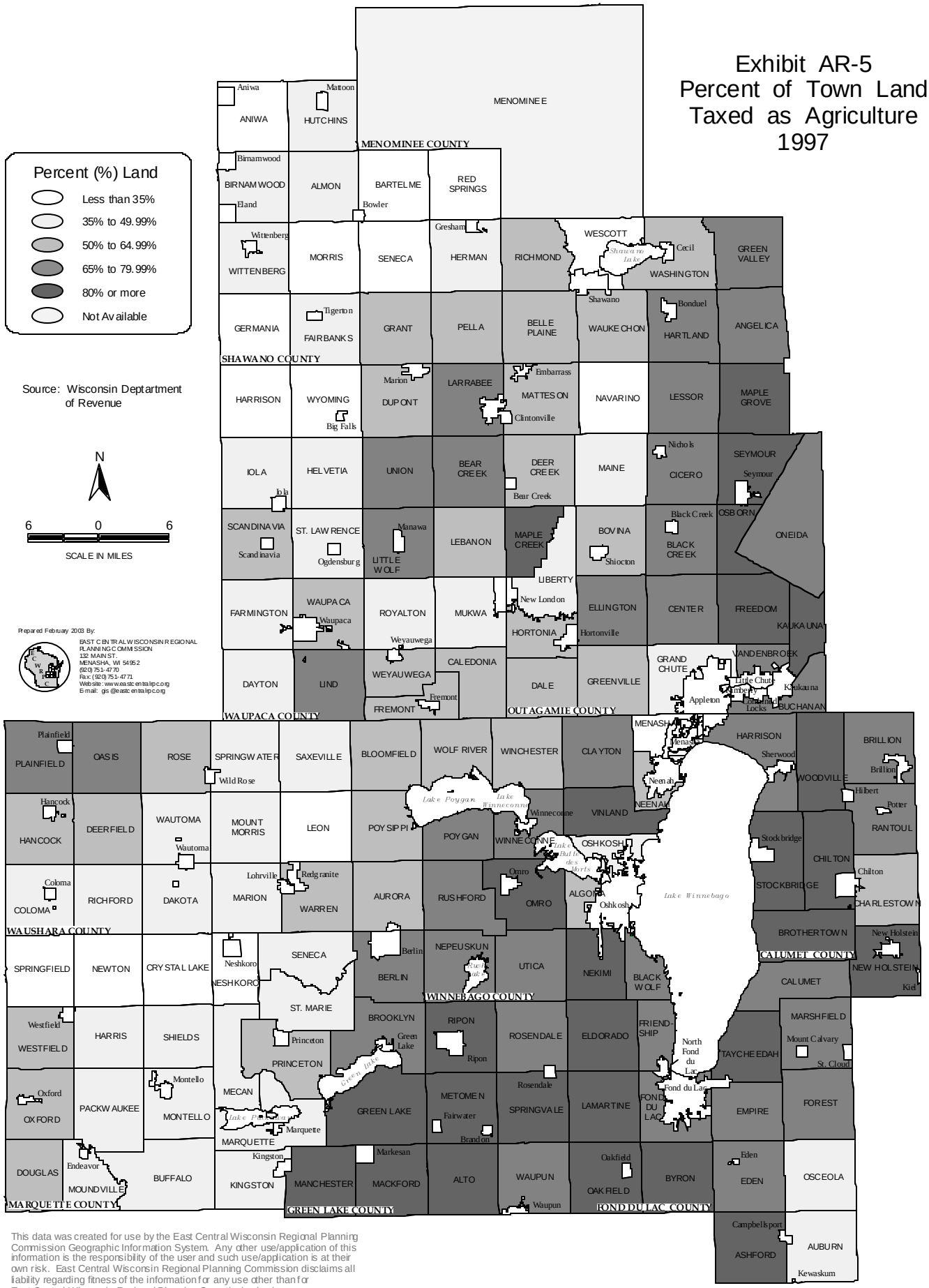

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Exhibit AR-6
Percent Loss of Acres Taxed as Agriculture 1990-1997

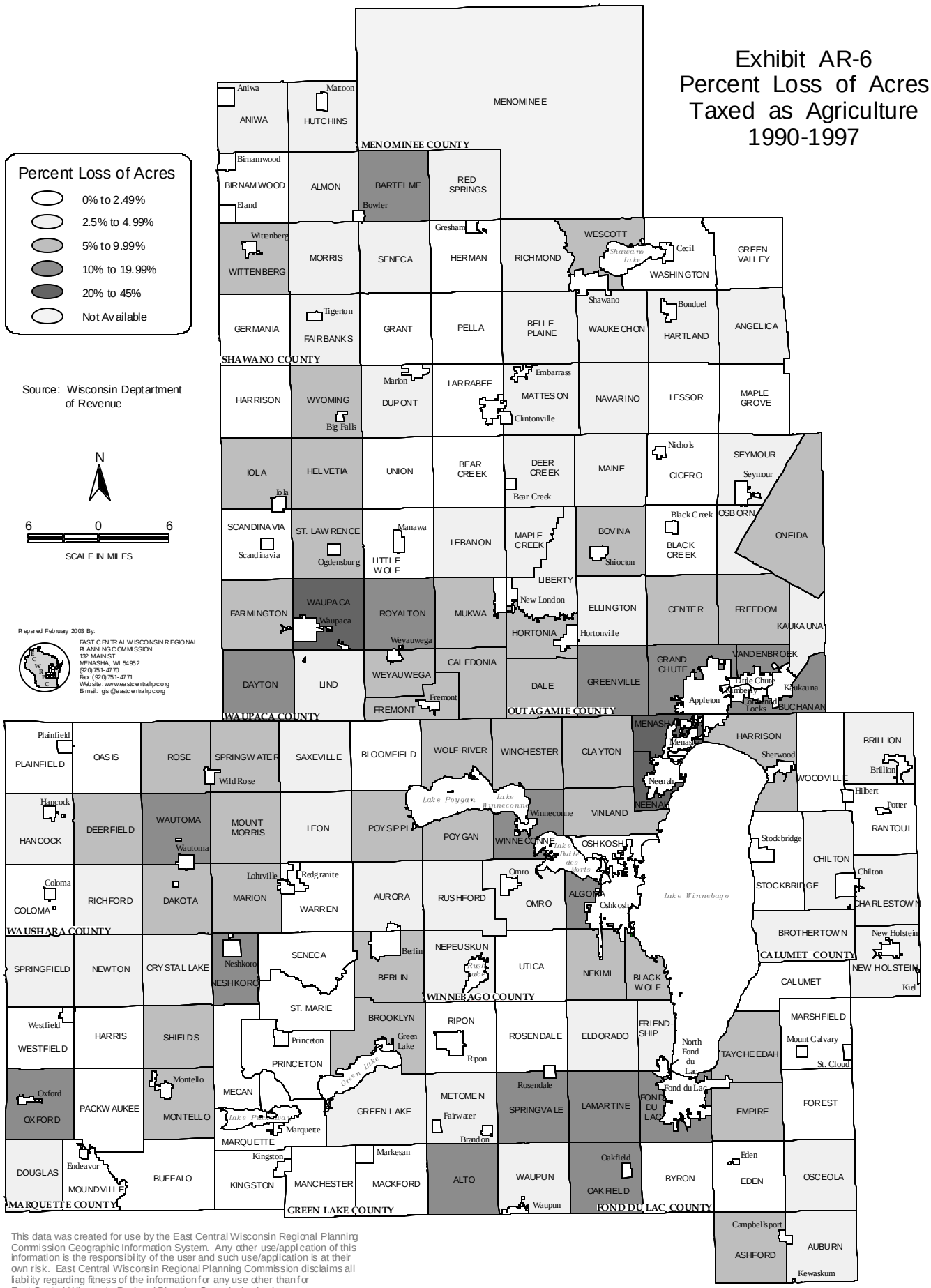

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Exhibit AR-7
Population Density
2000

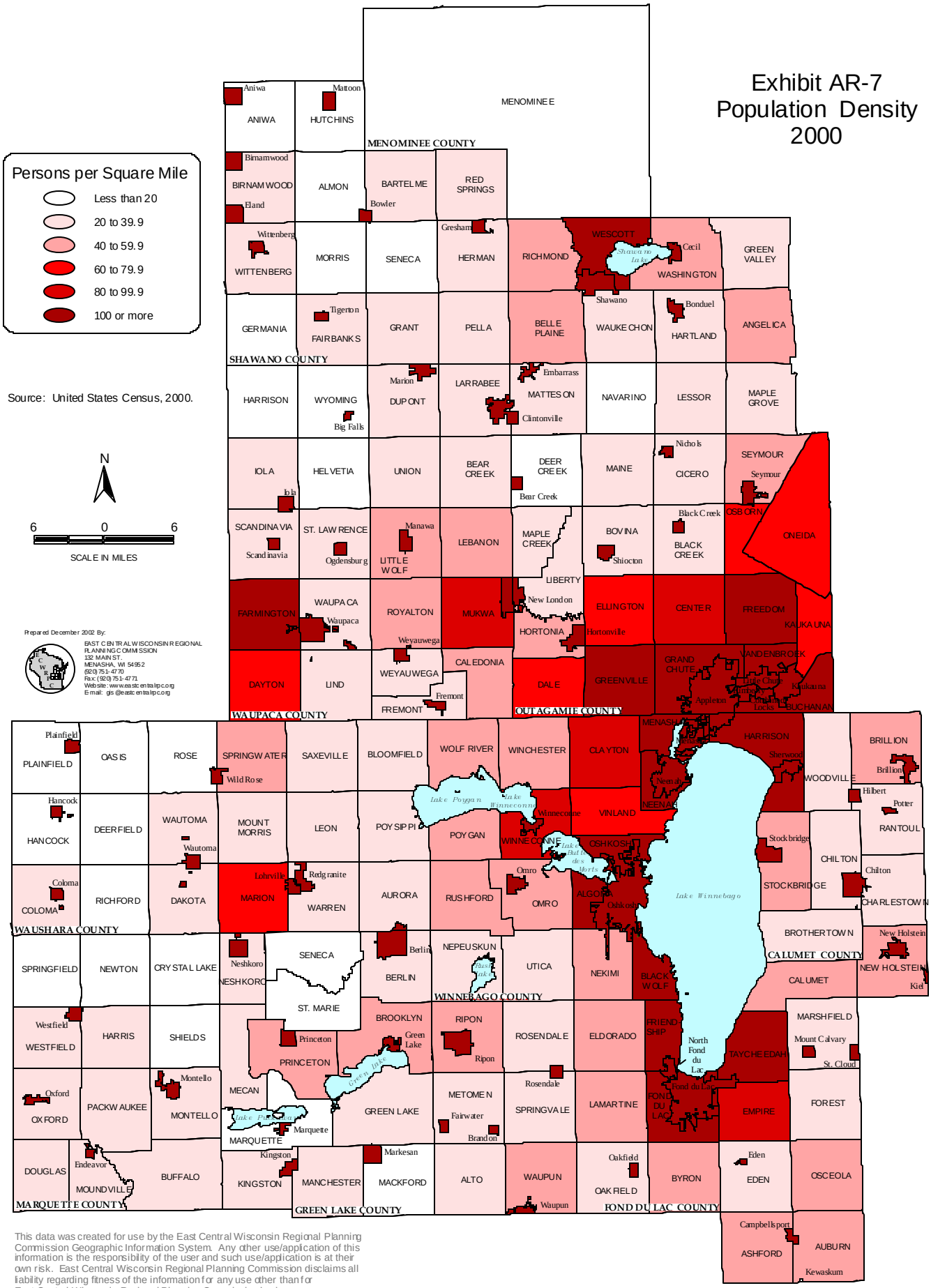

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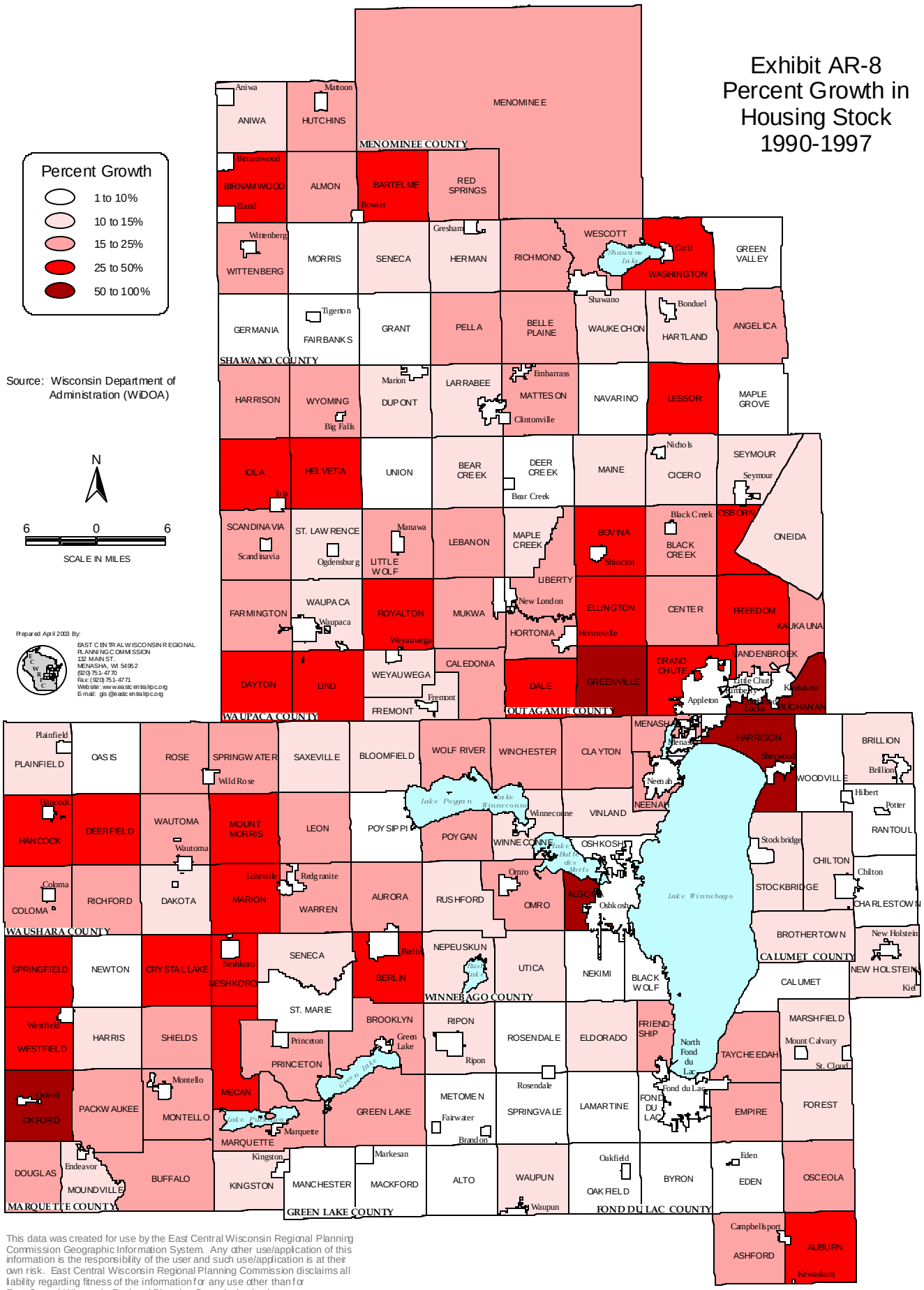
Exhibit AR-8
Percent Growth in Housing Stock 1990-1997



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CHAPTER 8: NATURAL RESOURCES

Introduction

The region's natural resources are a complex system of individual components and physical characteristics that serve specific ecosystem functions and fulfill part of the region's social needs. The wealth and variety of resources available within the region not only provided for its initial settlement and development, but now, hundreds of years later, still furnish its residents with the basic needs of life: food, water, power, and raw materials for human consumption. Most natural resources can be categorized as being either renewable or exhaustible and must be managed accordingly. Natural resources often act as both a physical constraint to development, as well as a commodity that enhances rural and urban environments by providing recreational and social opportunities.

Historic and future trends regarding the quantity and/or quality of these resources, as well their relationships to existing demographic and social trends are identified in this report. This chapter will provide an overall sense of the region's resources. This chapter provides the initial background information on the locations, amounts, and functions of the region's natural resources as required by Wisconsin State Statues 66.0295(2)(e), and listed below:

> *'A compilation of objectives, policies, goals, maps and programs for the conservation, and promotion of the effective management, of natural resources such as groundwater, forests, productive agricultural areas, environmentally sensitive areas, threatened and endangered species, stream corridors, surface water, floodplains, wetlands, wildlife habitat, metallic and nonmetallic mineral resources, parks, open spaces, historical and cultural resources, community design, recreational resources and other natural resources'*

These individual resource elements are discussed in a logical manner at a regional scale and, therefore; for clarity purposes are not addressed in the order shown. Additionally, items such as air quality, soils, and watersheds are addressed under their associated element, or separately as part of the broad 'other natural resources' category.

The chapter will also describe the policy context and importance of intergovernmental cooperation in managing natural resources. An examination of current and future trends as well as issues associated with the region's natural resources will be discussed in order to identify the specific resource areas that are considered to be 'of regional importance' – those that will be addressed further in the regional comprehensive plan process. In terms of the 14 state comprehensive planning goals listed in Chapter 1, East Central takes the view that those listed below relate specifically to the planning of natural resources:

- Protection of natural areas, including wetlands, wildlife habitats, lakes, woodlands, open spaces and groundwater resources.
- Protection of economically productive areas, including farmland and forests.
- Encouragement of land uses, densities and regulations that promote efficient development patterns and relatively low municipal, state governmental and utility costs.

- Encouragement of coordination and cooperation among nearby units of government.
- Building of community identity by revitalizing main streets and enforcing design standards.
- Promoting the expansion or stabilization of the current economic base and the creation of a range of employment opportunities at the state, regional and local levels.
- Balancing individual property rights with community interests and goals.
- Planning and development of land uses that create or preserve varied and unique urban and rural communities.

Policy Context

The management and protection of natural resources is governed at many levels: federal, state, regional, county, and local. These existing natural resource based laws and programs, or even those programs with environmental components must, from a regional perspective, be recognized when considering the impacts of land use decisions.

Federal

At the federal level, several major provisions have been developed to authorize the use and management of natural resources. Among the most well known are the Clean Water Act (1987)[1], Safe Drinking Water Act (1996), Clean Air Act (1990), and Endangered Species Act (1996), all of which are fairly self-explanatory in terms of their titles and general oversight These federal laws grant much of the authority and basis for state and, henceforth, local regulation over elements of the natural environment.

Other, less conspicuous federal programs and regulations also exist to foster the management and protection of the region's resources. The Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA), for example, reaffirmed the federal government's commitment to move into an era of balanced investment in transportation which better reflects the social, environmental and energy goals of the nation. A requirement of ISTEA is that 10% of the program's funds be allocated for transportation enhancement activities that could, in effect, help address environmental and open space concerns.

Additionally, the National Environmental Protection Act (NEPA) has provided a framework for specific environmental review and public input procedures on activities conducted or funded by governmental units.

Federal agencies that are involved in the planning, management, and regulatory activities and programs associated with natural resources include: the Environmental Protection Agency (EPA); Natural Resource Conservation Service (NRCS); U.S. Army Corps of Engineers (USACOE); U.S. Dept. of Agriculture (USDA); U.S. Geological Survey (USGS); U.S. Fish & Wildlife Service (USFW), and; the Federal Emergency Management Agency (FEMA).

1 - Note – date of most recent amendments contained in parentheses.

State

The State of Wisconsin has had a strong history of conservation ethics when it comes to the protection and management of natural resources. The Wisconsin State Statutes reflect this ethic by the various laws and programs established within them.

- Chapter 26 (Protection of Forest Lands & Productivity)
- Chapter 27 (Public Parks/Recreation)
- Chapter 29 (Wild Animals & Plants)
- Chapter 30 (Navigable Waterways)
- Chapter 33 (Inland Waters)
- Chapter 92 (Soil & Water Conservation)
- Chapter 107 (Mining)
- Chapter 285 (Air Quality)

Most of these laws are spelled out in Wisconsin Administrative Code chapters NR-1 through NR-800 and fall within the realm of the Wisconsin Department of Natural Resources (WDNR). The agency is authorized to manage and protect various resources through numerous programs and has the ability to directly purchase and manage land for purposes of resource conservation, environmental protection, or recreation. Some of the more notable WDNR authorities and programs that need to be considered as they relate to comprehensive planning include:

- NR-27 – Threatened & Endangered Species
- NR-103 - Wetland Water Quality Standards
- NR-115 - Shoreland Management Program
- NR-116 - Floodplains
- NR-117 - Shoreland/Wetland Protection
- NR-121 - Areawide Water Quality
- Management Plans (Sewer Service Area Plans)
- NR-135 - Non-Metallic Mining Reclamation
- NR-216 - Stormwater Management

Other State agencies which are responsible, in some part, for the management and protection of certain natural resources include: the Wisconsin Department of Commerce (WDOC); Wisconsin Department of Agriculture, Trade, and Consumer Protection (DATCP); Wisconsin Department of Transportation (WisDOT), and; educational institutions such as the UW-Extension (UWEX) and the Wisconsin Geologic & Natural History Survey (WGNHS). These state agencies also have a responsibility under the Wisconsin Environmental Policy Act (WEPA – 1972) to consider the environmental effects, including land use impacts, of its proposed actions, including the provision of financial assistance.

Regional

In addition to East Central, several other regional entities exist that have interests in natural resource related issues and have specific plans, goals and/or policies. These include three separate Resource, Conservation, and Development Councils (RC&Ds): Glacierland, Golden Sands, and Lumberjack Councils. These entities are designated as part of a national program under the U.S. Department of Agriculture to assist local persons by providing technical support to communities in order to protect and develop wise uses for natural resources. They achieve this by providing local direction and planning to coordinate the implementation of specific projects within their boundaries. Eight separate 'Basin Partnerships' have also been formed by the WDNR to assist in identify issues and opportunities for directing WDNR programs and priorities. These 'partnerships' are in various stages of activity throughout the region.

Since its formation in 1972, East Central has been very active in the planning of its natural resources, particularly in conjunction with local, county, and regional recreation and open space planning. In 1977 the Commission adopted the Open Space and Recreation Plan for East Central Wisconsin. This report outlined the master plan for the development of regional park and (trail) facilities throughout the 10 county area based on a number of factors, including population distributions/projections; assessments of existing regional facilities, and; natural resource characteristics. Goals, objectives, and policies, which are applicable to various natural resources, were also developed in the preparation of the 1985 Water Quality Plan. The 26 individual Sewer Service Area Plans that are part of this larger plan, deal with the cumulative and secondary impacts of sewered development on water quality and identify define 'environmentally sensitive areas'. Additional goals and recommendations pertaining to natural resources were also prepared in 1995 as part of the Transportation/Land Use Plan Addendum. The current goals, objectives, and policies for East Central that apply to natural resources are contained in a separate document entitled *East Central Policy (2003).*

Intergovernmental Cooperation

Natural resources do not follow the political boundaries established by governmental units, and therefore; often need to be planned for and managed at a regional level. More uniform assessment and management of natural resources at a regional level can often result in increased benefits for the environment, the community, and the taxpayer. Consistency in definitions and regulations across local units of government also helps to ensure more uniform protection levels and programs. Examples of existing regional cooperation in natural resources management include watershed based stormwater utilities, such as the Garner's Creek Stormwater Utility, located in the eastern portions of the Fox Cities. In 2001, East Central became involved in the regional implementation of the State mandated Non-Metallic Mining Reclamation requirements through an agreement with five of its ten counties. This program has allowed for the regional administration of county ordinance requirements that will require the reclamation of over 200 active mine sites. Many municipalities and governmental entities have begun to recognize the cost savings benefits of intergovernmental arrangements such as these to assist in managing these natural resources – now, the challenge of integrating local and regional land use decisions, and addressing their impacts on the natural resource base, must be addressed.

Background Information

This section provides information on each of the natural resources listed in the state's definition of a comprehensive plan with the exception of agricultural and historical resources and will provide a context for the discussion and further evaluation.

Air Quality

The region's air quality is generally of good to excellent quality. Existing information obtained from the Wisconsin Department of Natural Resources shows that only three air monitoring sites exist within the region (Fox Cities, Oshkosh, and Fond du Lac). These sites monitor ambient air quality parameters as part of a statewide network of 34 total sites whose results, particularly regarding ozone levels, are used as the basis for designation of air quality 'non-attainment' areas. While the urbanization of the region's metropolitan areas have, to some degree impacted the local air quality, none of the ten counties within the region are designated as 'non-attainment areas' at this time. Counties adjacent to the region's eastern boundary and several in southeastern Wisconsin and the shores of Lake Michigan, have however; received this designation and are required to address air quality problems in more detail, particularly with respect to transportation related factors. According to data obtained from the American Lung Association's State of the Air 2001 report, approximately 42% of the three urban counties (Fond du Lac, Outagamie, and Winnebago) populations are considered to be within an 'at-risk' when it comes to air quality problems (See Table NR-1). The continued urbanization of the region, particularly that which is automobile dependent, will continue to negatively impact the air quality.

Table NR-1: At Risk Populations for Air Quality in the Urbanized Counties

County	Total Population	At-Risk Groups					
		Under 14	Over 65	Pediatric Asthma	Adult Asthma	Chronic Bronchitis	Adult Emphysema
Fond du Lac	94,559	20,094	13,837	1,323	2,403	3,169	1,045
Outagamie	156,395	35,791	17,383	2,313	3,893	5,134	1,693
Winnebago	149,995	28,972	19,308	1,871	3,959	5,221	1,721
Totals	400,949	84,857	50,528	5,507	10,255	13,524	4,459

Source: American Lung Association Website. State of the Air 2001, and Nov. 2002.

Geologic Resources

The bedrock and glacial geology of the region is quite complex and plays a crucial role in development of the region. Ancient rocks of Precambrian age form the base of the region and, in places, are over two billion years old. These rocks were commonly altered from their original appearance, and represent the deposits of ancient seas, volcanoes, and underground bodies of liquid material called magma. Between 500,000 and 200,000 years ago, during the late part of the Cambrian Period, a shallow inland sea spread across much of Wisconsin and many layers of sedimentary materials covered the bottom of this sea. These deposits are represented by beds of sandstone, shale, and limestone.

During the Pleistocene period, between 15,000 and 25,000 years ago, several separate glacial advances and retreats took place over northeastern and central Wisconsin. These glaciers not only scoured and shaped some of the upper levels of bedrock, but also deposited numerous unsorted tills, and stratified gravel, sand and clay materials throughout the region. These deposits contain not only fragments of local limestone, shale and sandstones, but also igneous and metamorphic rocks imported into the region by the ice sheets. Further erosional action from the glacial melt-waters continued to shape the landscape in terms of topography and drainage patterns. Numerous unique landscapes and landforms were created as a result of the glaciers and include formations such as escarpments, outwash plains, lake plains, terminal moraines, ground moraines, and drumlins. More subtle features such as eskers, kames, and sand dunes are also a result of glaciation. Each of these features has its own unique qualities that need to be considered in terms of development, including: structural suitability, groundwater interaction, and the provision of non-metallic minerals to serve the needs of the urbanizing landscape of the region.

Bedrock Geology

The region is comprised of several distinct geologic layers, each having their own unique characteristics in terms of material composition and their ability to retain or transmit groundwater vertically and laterally. As illustrated in Exhibit NR-1 and Figures NR-1 and NR-2, these geologic units can be generally described as follows:

- Silurian Dolomites: This layered limestone is present within the eastern portion of the region only. It is naturally fractured along its horizontal plane and also contains numerous stress-related fractures along its vertical plane. These fractures permit groundwater to penetrate and move throughout the formation easily. This type of structure is often referred to as 'karst topography' and includes other unique characteristics and formations such as fractures, crevices, caves, sinkholes, pavements, and terraces. The Niagara Escarpment, a prominent bluff-like feature is, in essence, the exposed western edge of these Silurian (Niagaran) formations. The depth of this material generally increases as one travels eastward toward Lake Michigan.

- Mequoketa Shale: Paralleling, and lying below, the Silurian Dolomite is a rather impervious layer comprised of inter-stratified layers of bluish-gray dolomitic materials. This layer of material is unique in that it serves as a "confining unit" which prevents nearly all vertical movement of groundwater between the surface or Niagara Dolomite formation and the underlying Galena-Platteville formation. The Mequoketa formation is generally 300 to 400 hundred feet thick throughout the eastern part of the region.

- Sinnipee Group: These are comprised of undifferentiated layers of Galena dolomite and Platteville formation and lie below the layers of shale. These layers are approximately 250 feet in thickness and consist of fractured layers of dolomitic limestones. Areas in western Shawano County down through the Fox Cities, Oshkosh, and (western) Fond du Lac County lie along this formation.

Exhibit NR-1
Bedrock Geology

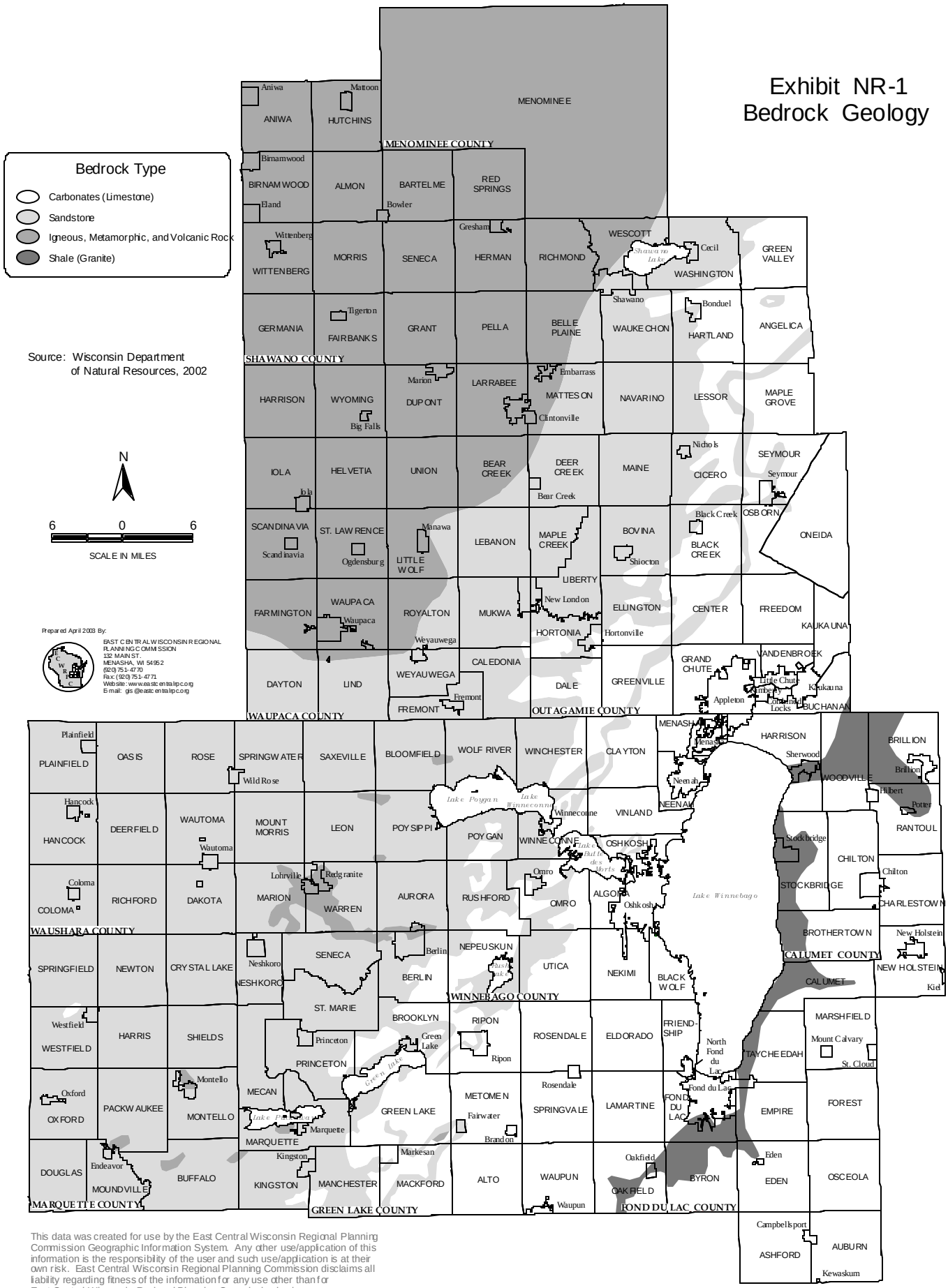

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Figure NR-1: Geologic Units within Wisconsin

Generalized Geologic Section of Wisconsin Aquifers

SYSTEM	GEOLOGIC UNIT	DOMINANT LITHOLOGY	AQUIFER
QUATERNARY	HOLOCENE ALLUVIAL AND PLEISTOCENE GLACIAL DEPOSITS	UNCONSOLIDATED SAND AND GRAVEL; VARIABLE AMOUNTS OF SILT, CLAY AND ORGANIC MATERIAL	SAND AND GRAVEL
DEVONIAN	UNDIFFERENTIATED	DOLOMITE AND SHALE	SILURIAN DOLOMITE
SILURIAN	UNDIFFERENTIATED	DOLOMITE	
ORDOVICIAN	MAQUOKETA SHALE	SHALE	MAQUOKETA SHALE
	GALENA DOLOMITE, AND DECORAH AND PLATTEVILLE FORMATIONS; UNDIFFERENTIATED	DOLOMITE	GALENA-PLATTEVILLE
	ST. PETER SANDSTONE	SANDSTONE	SANDSTONE
	PRAIRIE du CHIEN GROUP	DOLOMITE	
CAMBRIAN	CAMBRIAN SANDSTONES, UNDIFFERENTIATED	SANDSTONE	UPPER / LOWER
PRECAMBRIAN	LAKE SUPERIOR SANDSTONE AND LAVA FLOWS	SANDSTONE AND SHALE, BASALT	PRECAMBRIAN AQUIFER: LAKE SUPERIOR SANDSTONE AND LAVA FLOWS
	IGNEOUS AND METAMORPHIC ROCKS	GRANITIC AND METAMORPHIC ROCKS	PRECAMBRIAN AQUIFER: BASEMENT COMPLEX

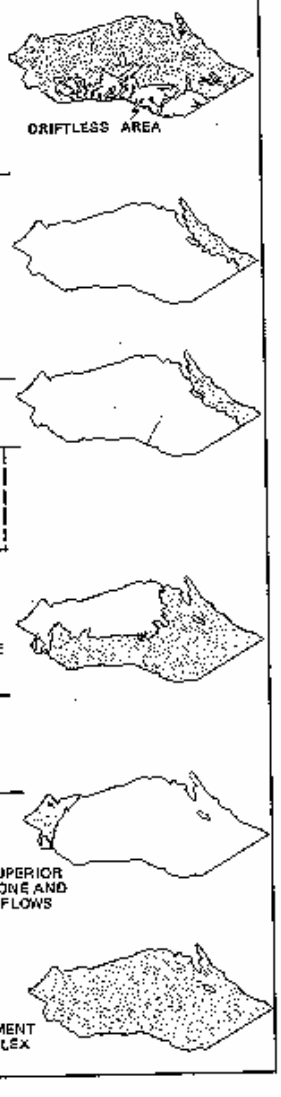
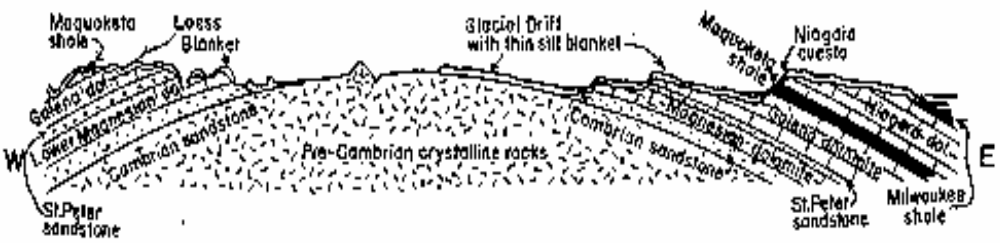


FIGURE NR-2: Geologic Cross Section of Wisconsin



- Ancell Group: This layer is comprised of fine to medium grained sandstone, most notably the St. Peter formation, which may be dolomitic in some areas or contain shales and other conglomerates. This sandstone layer is approximately 250 feet thick and is often used for private or municipal well purposes.

- Prairie du Chien Group: Consisting of a layer of thinly bedded dolomites, this formation may be interspersed with sandstones and shales and ranges greatly in thickness over relatively short distances due to a very irregular upper surface. These rocks generally have a low permeability.

- Cambrian Sandstones: Sandstones of the Cambrian age such as Trempeleau and Franconia lie below the Ordovician system and can be 300 to 500 feet in thickness. These sandstones can vary in permeability and are often used for municipal or high capacity wells.

- Pre-Cambrian Basement: Pre-Cambrian rocks such as granite and undifferentiated igneous and metamorphic rocks, including quartzite, schist and gneiss are estimated to be several thousand feet thick and lie beneath the previously described formations. This formation does not yield significant water and forms an impermeable basement below the upper geologic layers.

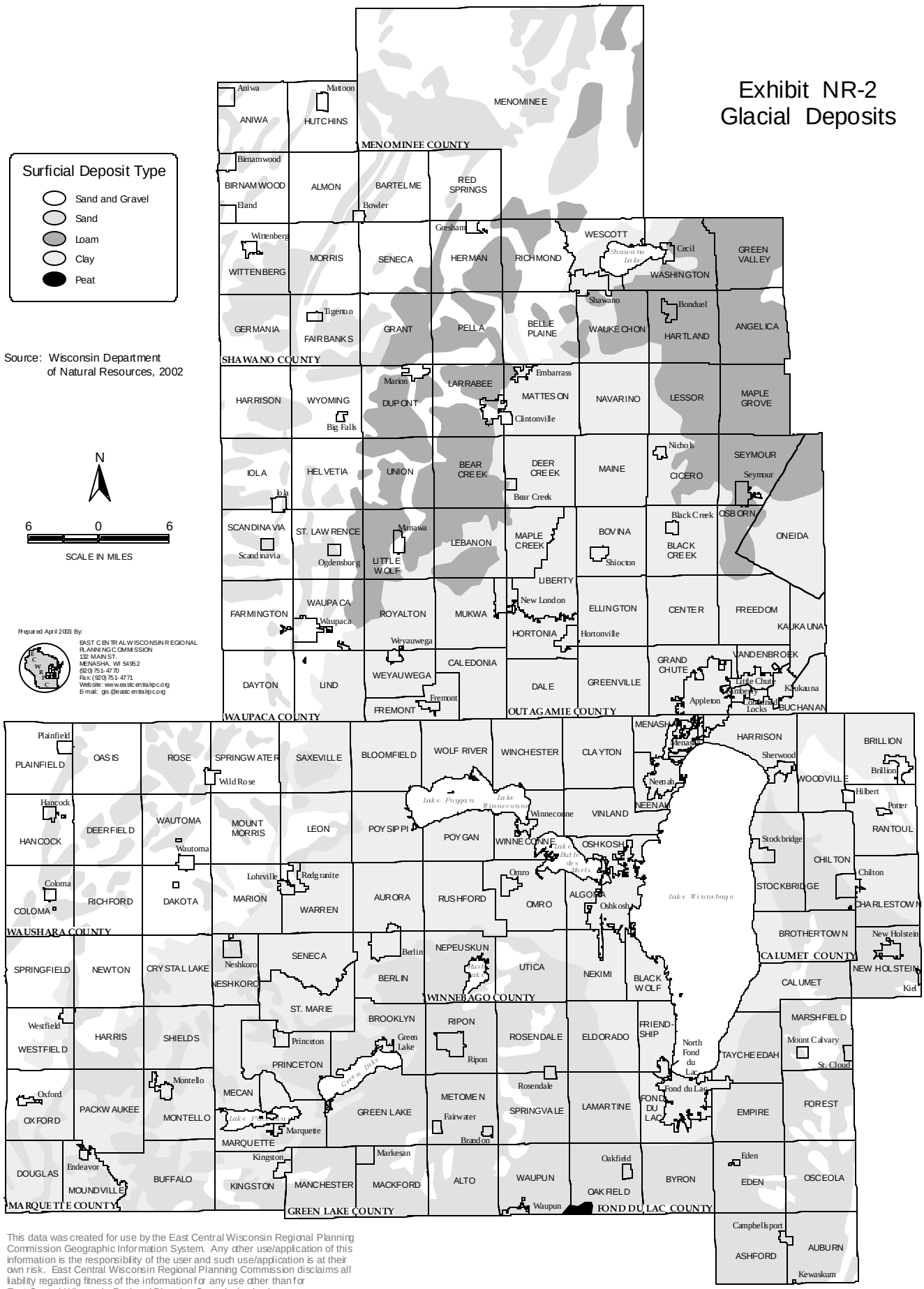
From an aesthetic standpoint, the region contains numerous examples of exposed geologic formations in the form of rock outcroppings that are either scenic or unique. These features range from the 60+ mile long portion of the Niagara Escarpment, which transects the southern and eastern portion of the region, to the granite and anorthosite outcroppings of the Tigerton Dells in west central Shawano County. Lands exhibiting such unique characteristics are continually at risk from development activities and their protection needs to be addressed more adequately.

Glacial Geology

Glacial deposits consist of soil, subsoil, sediment, sand, gravel, or stone and are scattered across the region in a variety of depths and patterns (Exhibit NR-2). In addition to containing a valuable non-metallic resource (i.e., sand and gravel), these glacial deposits and their features relate to two other important aspects of local and regional land use planning – topography and soil suitability.

The glaciers and their meltwaters formed a majority of the topographic highs and lows within the region and created the important natural drainage network which dictates surface water flow. This natural drainage can be a restriction or benefit for development. Steep slopes (typically defined as 12% or more) can also represent a limitation to development and are present throughout the region, but are most prevalent along the Niagara Escarpment in Calumet and Fond du Lac Counties; near Green Lake in Green Lake County; and lands associated with the moraines in the eastern portion of Waushara County and western Waupaca, Shawano and Menominee Counties. A third component of topography is that of 'prominence' in the visual landscape. Many of the upland areas and unique glacial features are considered to be prime rural homesites that are prized for their views.

Exhibit NR-2
Glacial Deposits



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The topsoil and subsoil layers left by the glaciers also contain various material compositions and properties which need to be considered for both development, as well as agricultural activities. Soils support the physical base for development within the region and knowledge of the limitations and potential difficulties of soil types is important in evaluating land use proposals such as residential development, utility installation and other various projects. Some soils exhibit characteristics such as slumping, compaction, erosion, and high water tables which place limits on development. Severe soil limitations do not necessarily indicate that areas cannot be developed, but rather indicate more extensive construction measures must be taken to prevent environmental and property damage. These construction techniques generally increase the costs of development and the utilities needed to service that development.

According to the Soil Survey Program of the Natural Resources Conservation Service (NRCS), a standard classification system (soil taxonomy) is used to organize the knowledge of over 18,000 soil types found within the U.S. Soils in the region vary greatly, but in general, soils to the north are silt loam over gravel and loam subsoils. Silty and loamy soils are also common in the southern counties while sandy soils predominate in the western counties. Marshy peat soils and red clays are common in the eastern and southern counties and clay soils are dominant in the central portion of the region. The percent composition of these three materials (clay, sand, and loam), as well as other characteristics of the topsoils and subsoils, determines its suitability for development or agricultural purposes. The NRCS has also published detailed soil surveys for each county within the region and, along with its accompanying Soil Survey Geographic Database (SSURGO) one can identify general soil classifications and detailed characteristics of specific soil types such as: erodibility, percent slope, stability, and permeability. These soil characteristics are very important for siting specific land uses such as confined animal feeding operations (CAFOs) and will be reviewed and mapped out in detail in subsequent stages of the regional comprehensive plan.

Metallic & Non-Metallic Mineral Resources

No active metallic mining activities occur within the region as metallic minerals are not present in high quantity, although some commercially limited deposits of copper and other base metals may be present in northwestern Shawano County. The bedrock geology of the region does, however; lend itself well to the production of building and crushed stone.

Numerous areas exist within the Silurian and Prairie du Chien (dolomite) formations to provide high quality limestone that is accessible from the surface. These areas are located primarily in the eastern and central portions of the region where the overlying glacial deposits are shallow. Exhibit NR-3 shows the general depth of soil materials encountered within the region and hence, illustrates how close to the surface some of these resources may be. Much of this material is utilized for either crushed stone or as an exterior building material.

Exhibit NR-3
Depth to Bedrock

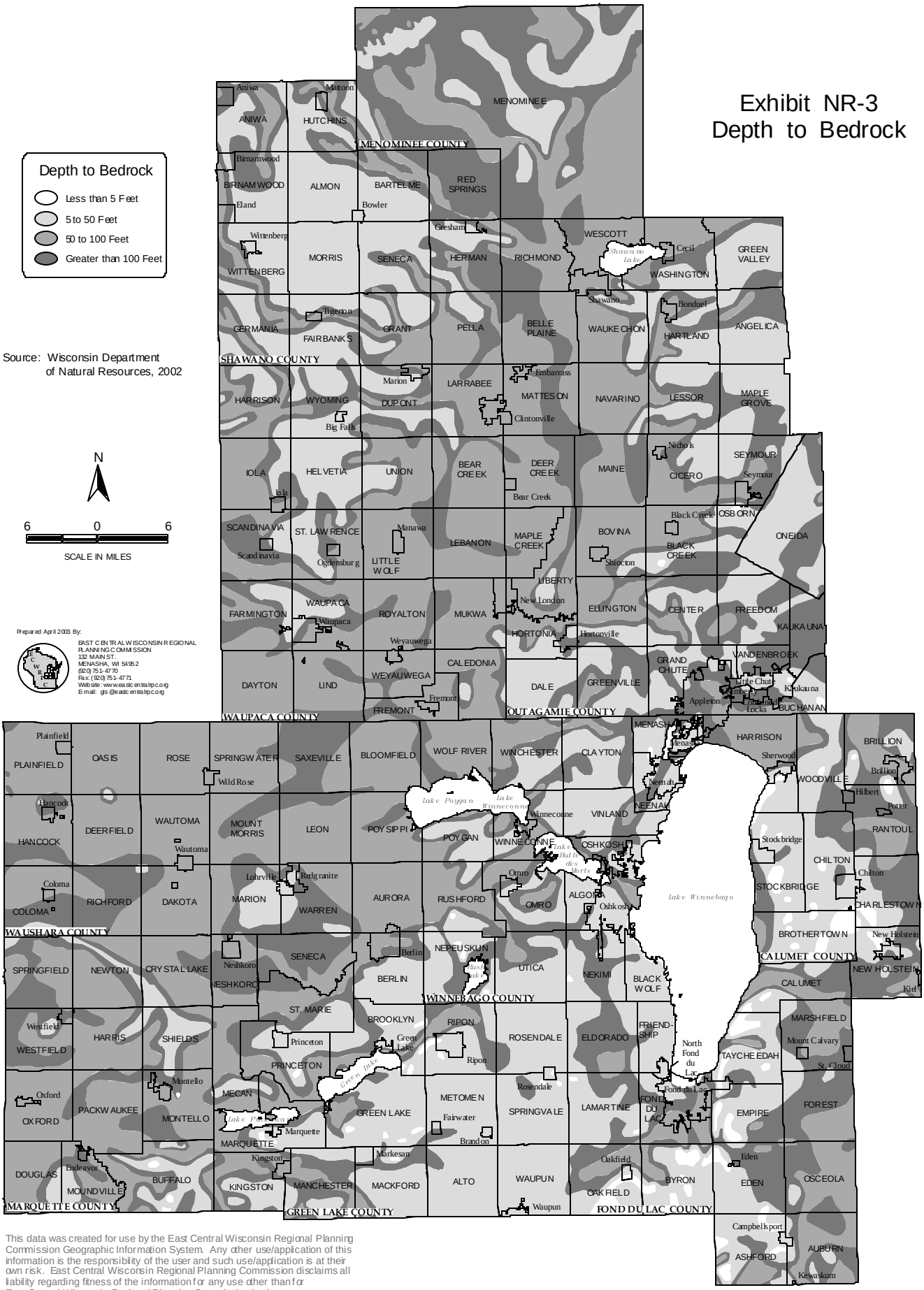

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Table NR-2 and Exhibit NR-4 illustrate a total of over 400 active and inactive stone quarries, sand and gravel pits, and topsoil/clay borrow areas within the region, although historically, many more were in operation. The bedrock geology of the region provides high quality materials such as granite, limestone, and crushed stone for road construction, housing and commercial developments, as well as agricultural products. These sites are typically located in close proximity to the major urban centers of the region due to the high transportation costs.

The extensive glacial activity was also responsible for providing one of the most valuable mineral assets to the region, namely sand and gravel. Extensive deposits of sand and gravel are found in virtually every county, principally in glacial outwash formations. These formations are at the surface or may be buried beneath subsequent glacial debris and, in some cases, drumlins, eskers, and river sediments also contain valuable deposits. The active and inactive non-metallic mine sites illustrated in Table NR-2 and Exhibit NR-4 show that these areas are essential for the future development of the region.

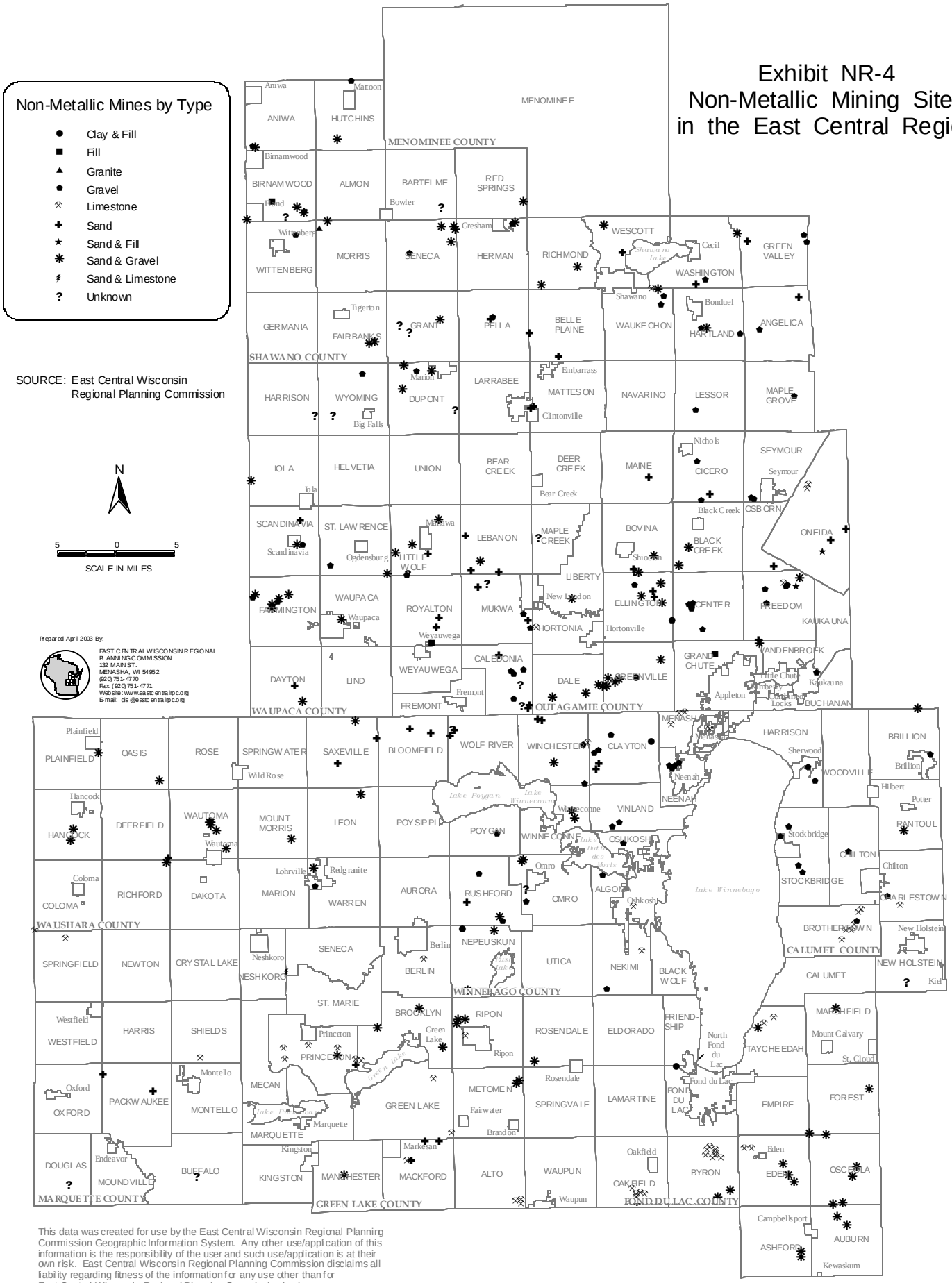
Table NR-2: Existing Non-Metallic Mining Operations within the East Central Region

County	Active Sites	Abandoned Sites	Total Sites
Calumet	19	5	24
Fond du Lac	48	unknown	48
Green Lake	20	unknown	20
Marquette	7	unknown	7
Menominee*	unknown	unknown	unknown
Outagamie	54	8	62
Shawano	48	19	67
Waupaca	47	72	119
Waushara	20	unknown	20
Winnebago	38	5	43
East Central Region	301	109	410

Source: ECWRPC, 2002 - based on NR-135 program inventories for each county.

*Menominee Co. not required to have NR-135 program.

Exhibit NR-4
Non-Metallic Mining Sites in the East Central Region



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Groundwater

Groundwater represents one of the most abundant and treasured resources within Wisconsin as it used not only for domestic consumption, but also to serve the needs of industry and agriculture, as well as tourism associated with recreational fishing activities on the numerous groundwater-fed, cold-water trout streams and lakes located within the region. Based on the bedrock and glacial geology of the region (refer back to Figure NR-1), five distinct groundwater aquifers are present and can be generally described as follows:

- The Water Table (Surficial or Shallow) Aquifer: This aquifer is present as a result of the varied glaciation of the region and is present in virtually all areas of the region. The thickness of this aquifer is variable, being greatest in pre-glacial bedrock valleys and least over topographic highs in the bedrock surface. Sand and gravel aquifers in stream valleys or other areas with thick glacial deposits can typically transmit adequate amounts of water for private well systems.

- The Silurian (Niagara) Aquifer: Specific to the area underlying the Niagara Cuesta, this aquifer forms an important regional aquifer along the western side of Lake Michigan. Nearly all of Calumet County and the eastern portion of Fond du Lac County rely on this aquifer system for private wells as some portions of the aquifer are capable of producing over 500 gallons per minute. This aquifer is confined by the lower Mequoketa formation and consists mainly of water stored in cracks and fractures located randomly throughout the rock.

- Mequoketa Aquifer: This is considered a separate “minor” aquifer located only in the eastern portion of the region, underneath the Niagara Aquifer, but is not readily present or used for private water supplies due to its impermeable nature and limited flow capacity.

- The Platteville-Galena Aquifer: This aquifer is comprised primarily of dolomite and acts as a leaky confining layer over the sandstone aquifer. It does not transmit water as readily as the underlying sandstone, but it is capable of supplying adequate amounts of water to private water systems due to secondary fractures.

- The Cambrian Sandstone Aquifer: The region’s thickest and most important aquifer, it is the most widely uses for sustained high capacity wells for municipal and industrial uses. The Cambrian Sandstone Aquifer is composed of two different sandstone layers: the upper St. Peter Sandstone and the lower Prairie du Chien sandstone formation.

The groundwater aquifers are recharged through surface runoff or the movement of groundwater between aquifers. The numerous bedrock layers and compositions cause many variations in both the vertical and horizontal flow of this groundwater throughout the region. Typically, direct downward percolation of precipitation occurs until the water reaches the saturated zone of the water table. Once contact with the water table is made, the water becomes part of the groundwater aquifer and moves along the slope of the water table. This horizontal flow of groundwater varies considerably throughout the region, however; a number of major groundwater divides (similar to surface drainage divides) exist within the region and represent major topographic highs in the lower bedrock units of the system.

Vertical flow is determined by either gravity and topography (downward flow) or, via natural elevation differences in the water table and the amount of "artesian" hydraulic pressure (upward flow) present. Confining layers, such as the Mequoketa Shale can completely restrict vertical movements within the system, however; if wells are not constructed or abandoned properly, leakage can actually occur from the upper aquifers to the lower aquifers, leading to possible contamination of the deeper aquifers.

In addition to being 'recharged' by surface runoff, aquifer systems can 'discharge' their water both vertically and horizontally, most often in the form of springs, seeps, and lakes. Significant amounts of development within certain areas of either recharge or discharge zones can alter the hydrologic flow patterns. Increases in impervious surfaces associated with development can also change or reduce the overall amount of water which flows back into the aquifer system. Increased numbers of municipal and private wells can affect the amount of drawdown in the aquifer as well as the size of its associated 'cone of depression'.

Groundwater Quantity

According to a recent report by the USGS, Wisconsin has approximately two quadrillion ($2x10^{15}$) gallons, or about one-third the volume of Lake Superior, stored as groundwater. This report also states that water use in Wisconsin has increased steadily overall for most categories of use since 1950. Irrigation water use more than doubled between 1980 and 2000 as irrigated acreage increased.

In general, groundwater use has increased within the region as urban areas continue to grow and require significant quantities of water for residential, commercial, and industrial users. The increase in rural housing developments, each with their own private well, also places demands on the existing aquifer system. Table NR-3 illustrates that the use of groundwater within the region has reached an upper end estimate of more than 170 million gallons per day. This figure soars to 253 million gallons per day if surface water sources (such as Lake Winnebago) are taken into consideration.

Table NR-3: Public Groundwater Use in the East Central Region

County	Total Water Use (mgd)		
	Public Supply	Self-Supplied Domestic	Agricultural Irrigation
Calumet	4.71	0.1-1.0	0.1-1.0
Fond du Lac	13.47	1.0-2.0	0.1-1.0
Green Lake	1.54	0.1-1.0	< 0.1
Marquette	0.51	0.1-1.0	0.1-1.0
Menominee	0.09	0.1-1.0	< 0.1
Outagamie	6.2	3.0-10.0	0.1-1.0
Shawano	2.2	1.0-2.0	0.1-1.0
Waupaca	6.48	1.0-2.0	1.0-2.0
Waushara	0.6	0.1-1.0	10.0-100.0
Winnebago	4.55	2.0-3.0	0.1-1.0
Total	40.35	8.5 - 24.0	11.8-108.0

Source: USGS, Water Use in Wisconsin, 2000. B.R. Ellefson, G.D. Mueller, and C.A. Buchwald - open file 02356
mgd= millions of gallons per day

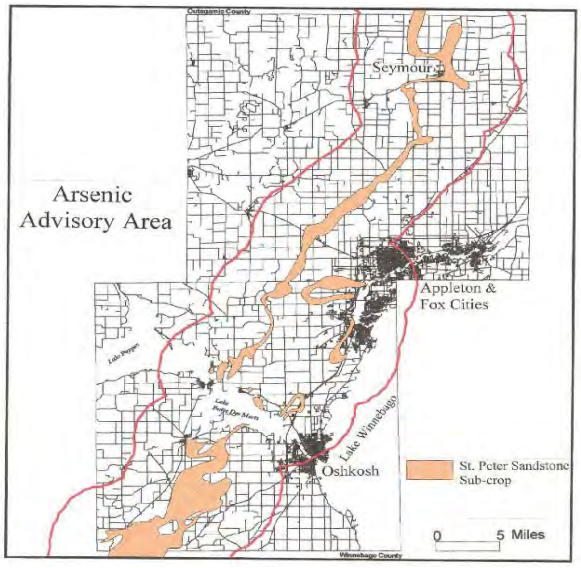
The highest water consumption is found within the region's urbanized areas, particularly near the Fox Cities, Oshkosh, and Fond du Lac. In 1990, the Fox Cities was estimated to withdraw approximately 5.6 million gallons per day[1]. While the amount of available water is not of concern immediately, the future supply is being diminished rapidly due to continued urbanization. A report produced in 1998 by the U.S. Geological Survey estimated that the deep aquifer system which serves the Fox Cities is being lowered by two feet per year[1], mostly as a result of increased pumpage by municipalities and industry, but also as an effect of interfering cones of depression. The main recharge areas for this aquifer system lie in the western portion of the region, and in some cases, outside of the region; thereby stressing the importance of future regional development patterns. Other, smaller and more isolated quantity problems may also exist in certain rural portions of the region strictly due to localized hydrogeologic conditions.

Groundwater Quality

The quality of the groundwater used for domestic purposes is relatively good although specific locations may have localized problems due to the geologic or aquifer characteristics. Some areas within the region are subject to certain types of natural and artificial contaminants such as arsenic, nitrates, or bacteria as described below.

Natural Contaminants: Natural contaminants exist within the region and can include such material as chloride, iron, manganese, and arsenic. Some problems are sporadic and due to unique aquifer conditions while others are more regional in nature such as arsenic contamination. The WDNR has recently identified portions of the central part of the region in Winnebago, Outagamie, and Shawano Counties (Figure NR-3) as an "Arsenic Advisory Area". This area coincides with the sub-crop of the St. Peter Sandstone and has one of the primary sulfide mineral bearing zones lying just below the glacial sediments. These sulfides breakdown when exposed to oxygen and create arsenic. Table NR-4 illustrates recent private well tests and the number, and strength, of arsenic detects by town for Winnebago and Outagamie Counties. Special casing regulations also exist along a 16-mile stretch within the Towns of Algoma and Omro, between USH 41 and CTH FF, north of CTH, and call for stronger, deeper wells with extra steel casing that can reach as deep as 260 feet where necessary. Ingested arsenic is a known cause of cancer, including cancer of the skin, lungs, bladder and kidneys.

Figure NR-3: Arsenic Advisory Area



Source: WDNR, 2002

1 - Optimization of Groundwater Withdrawal in the Lower Fox River Communities, Wisconsin. U.S.G.S. Publ. No.97-4218, 1998.

Table NR-4: 2000-01 Town-Based Arsenic Sampling

Arsenic Range (PPM)	Winnebago County								Outagamie County											TOTAL	Cum. %
	Algoma	Clayton	Clayton 2001	Rushford	Winneconne	Vinland	Winchester	Omro	Bovina	Freedom	Grand Chute	Greenville	Seymour	Ellington	Osborn	Black Creek	Center	Cicero	Maple Creek		
>100	21	5	0	0	0	1	0	1	0	0	0	0	2	0	1	0	6	0	0	37	1.1
>50	62	10	1	0	0	2	0	1	0	0	1	2	4	0	2	4	23	1	0	113	3.4
>20	163	30	7	2	5	7	2	6	0	12	1	9	9	0	7	11	63	1	0	335	9.9
>10	266	81	17	8	15	25	4	27	2	28	14	15	19	5	12	31	98	9	5	681	20.2
>5	377	139	33	17	27	47	8	53	10	47	23	49	27	22	29	43	153	20	19	1143	33.9
>3	441	174	37	27	41	58	10	69	18	71	32	79	38	31	40	51	171	29	24	1441	42.7
<3	321	127	32	32	105	51	47	47	22	195	222	140	74	149	88	58	168	39	15	1932	57.3
Totals	762	301	69	59	146	109	57	116	40	266	254	219	112	180	128	109	339	68	39	3373	

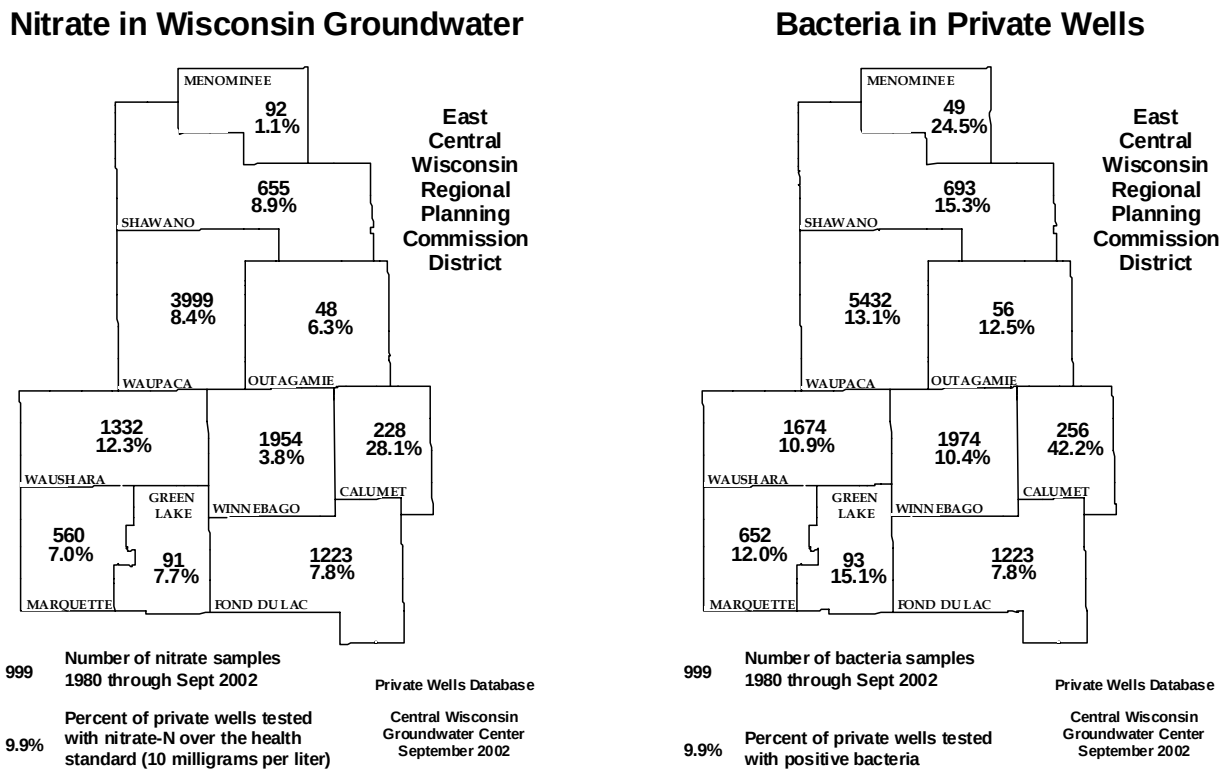
Number of samples in a given range is cumulative except <3 (<3 plus > 3 = total).
PPM = Parts per million.
Source: WDNR Website – January, 2003.

- Nitrates: Nitrates are typically present due to agricultural practices and improperly functioning on-site wastewater treatment systems. Nitrates are used in fertilizers and are found in sewage and wastes from human and/or farm animals. According to well water information obtained from the UW-Extension Private Well Project (Figure NR-4), Calumet and Waushara Counties contained the highest percentages of test samples that had nitrate levels higher than the EPA's Safe Drinking Water Act standards of 10 mg/l. These standards apply to municipal water sources only, but are suggested thresholds for private systems. Nitrate is a potential human health threat especially to infants, causing the condition known as methemoglobinemia, also called "blue baby syndrome"[1].

- Bacteria: On occasion, fecal coliform and other bacteria harmful to human health have been detected within areas of the region. These bacteria are typically linked to incidences of failing private on-site systems. These contaminants can trigger serious illnesses and sometimes even affect smaller municipal water supplies, resulting in 'boil' orders. Figure NR-4 shows that each county within the region has had some level of bacteria contamination, although higher incidences are present in Calumet County – likely due to its fractured bedrock and relatively thin soils.

1 – www.nitrate.com, February, 2003.

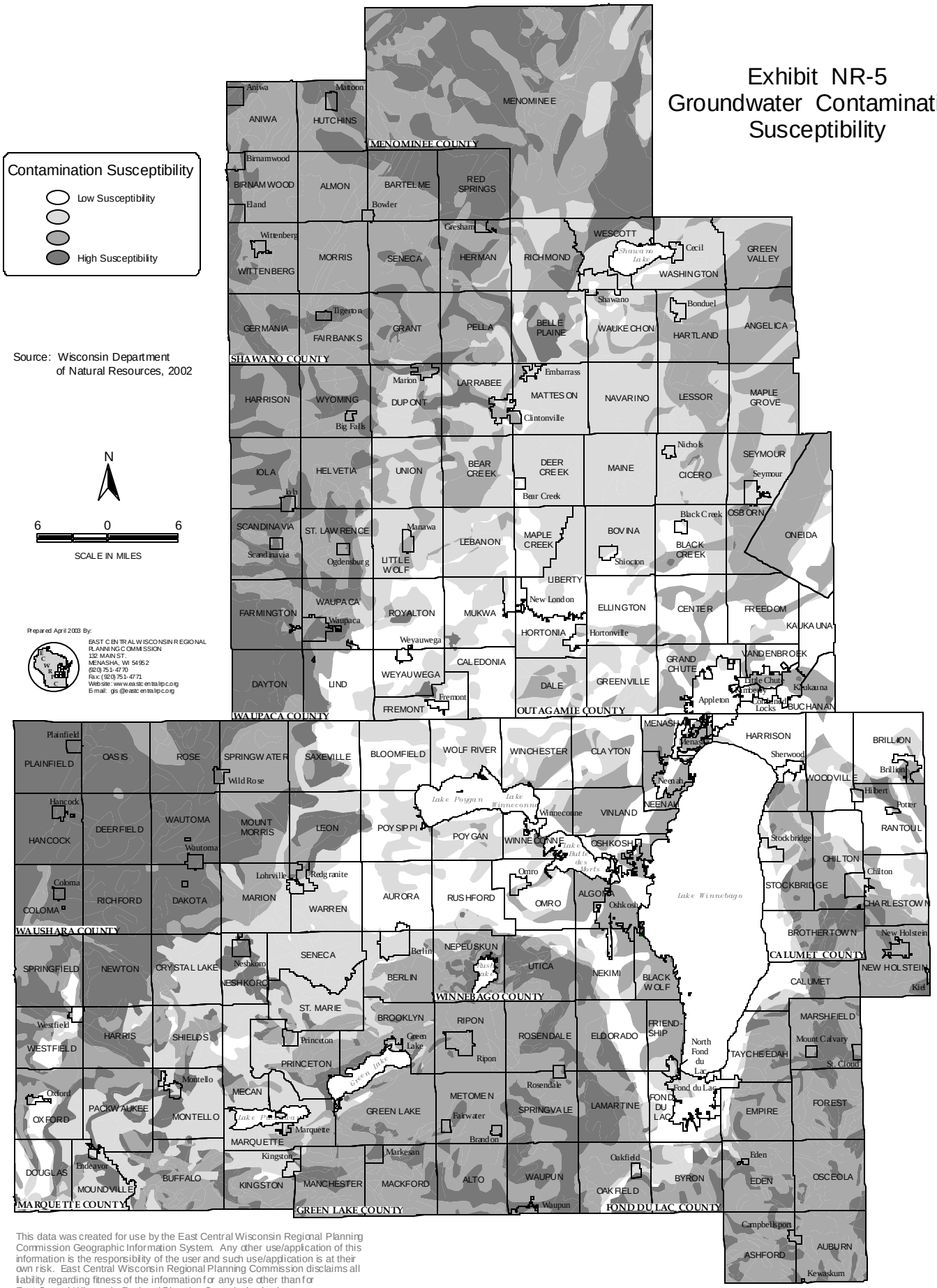
Figure NR-4: Regional Groundwater Contaminant Levels



Groundwater Contamination

Groundwater contamination is of concern in many parts of the region due to the varied individual and combined characteristics of the bedrock and surficial geology. Specific land uses and/or general urbanization can have immediate or long-term impacts on the quality of groundwater. A statewide model was generated by the WDNR to assess the potential for groundwater contamination, and is useful for regional planning purposes. Exhibit NR-5 is based on a number of different geologic, soil, and aquifer conditions and shows that the highest susceptibility for contamination exists in areas of the region with conditions such as sandy soils, thin soils or fractured bedrock.

Exhibit NR-5
Groundwater Contamination Susceptibility



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Private well supplies are typically more susceptible to contaminants due to their more shallow nature. Deeper municipal wells can also be affected by contaminants introduced through the ground surface. These concerns have prompted many communities within the region to prepare 'wellhead protection plans' to assist in identifying and regulating contaminant sources resulting from land use activities (Table NR-5).

Table NR-5: Approved/Adopted Wellhead Protection Plans/Ordinances

County	Entity
Calumet	V. Sherwood V. Stockbridge C. Waupun
Fond du Lac	V. Campbellsport Mary Hill Sanitary District V. Oakfield V. St. Cloud
Green Lake	C. Berlin
Outagamie	Darboy Sanitary District No. 1 Greenville Sanitary District No. 1 V. Little Chute C. New London Sanger B. Powers Correctional Inst.
Shawano	V. Mattoon Shawano County
Waushara	V. Coloma V. Redgranite C. Wautoma
Waupaca	V. Iola C. Manawa C Waupaca V. Embarrass

Note: Listing indicates a plan was adopted for at least one well within each community.

Source: WDNR - April, 2002 and; ECWRPC, Feb., 2003.

Surface Waters & Drainage

Figure NR-5: Great Lakes Basin Counties

The topography of the East Central region is such that all surface waters eventually flow into Lake Michigan with the exception of the southwestern portion of Fond du Lac County and northwestern Waushara County, which flow to the Wisconsin/Mississippi River system (Figure NR-5). The region is comprised of all or parts of eight individual drainage basins: the Lower Fox, Upper Fox, Wolf River, Rock River, Milwaukee River, Sheboygan River, Manitowoc River, and Upper Green Bay (Exhibit NR-6). A majority of the region is covered by three of these basins (Upper Fox, Lower Fox, and Wolf) which, in turn, form what is commonly referred to as the Fox-Wolf Basin. A brief description of each basin is contained in fact sheets prepared by the WDNR, which is part of Appendix F.

Watersheds

Each of these major river basins are further divided into 'watersheds'. A total of 60 separate watersheds, fall wholly or partially within the 10 county region (Exhibit NR-6 and Table NR-6). The health of these watersheds have been measured and monitored to varying degrees over the years by the Wisconsin Department of Natural Resources and County Land Conservation Departments. WDNR Basin Plans exist for each area and contain more detailed inventories, assessments, and rankings, of individual watersheds for both surface and groundwater quality and impairments. The WDNR's Priority Watershed Program developed out of these assessments and is illustrated in Exhibit NR-7 and Table NR-6. The Priority Watersheds illustrate, to some degree, the overall quality of the surface waters located within their respective boundaries. Often these are near heavily urbanized or agricultural areas.

Lakes

According to data obtained from the WDNR (Table NR-7), the East Central region contains 882 named and unnamed lakes covering approximately 219,325 acres. This represents only 5.9% of the actual lakes in Wisconsin, but almost 22.3% of the entire state's lake acreage. The region contains a variety of lake resources which span the range of having the county with the fewest lakes in the State (Outagamie with only 4), to having three of the five deepest lakes (Big Green Lake – 236 ft, Redgranite Quarry, 163 ft, and Lohrville Quarry, 120 feet) in the State, and; having the lake with the largest volume (696 billion gallons), most shoreline (85 miles), and largest surface area (137,708 acres) – Lake Winnebago (source: WDNR, the Lakes Book, 2002). Other well known lakes include Shawano Lake, Rush Lake, Green Lake, the Waupaca/Chain O Lakes, and the upper and lower pool lakes of the Winnebago system. Many of these lakes are used intensively for both fishing and recreational purposes, at times contributing to conflicts over use, or degraded water quality.

Exhibit NR-6
Basins and Watersheds of the East Central Region

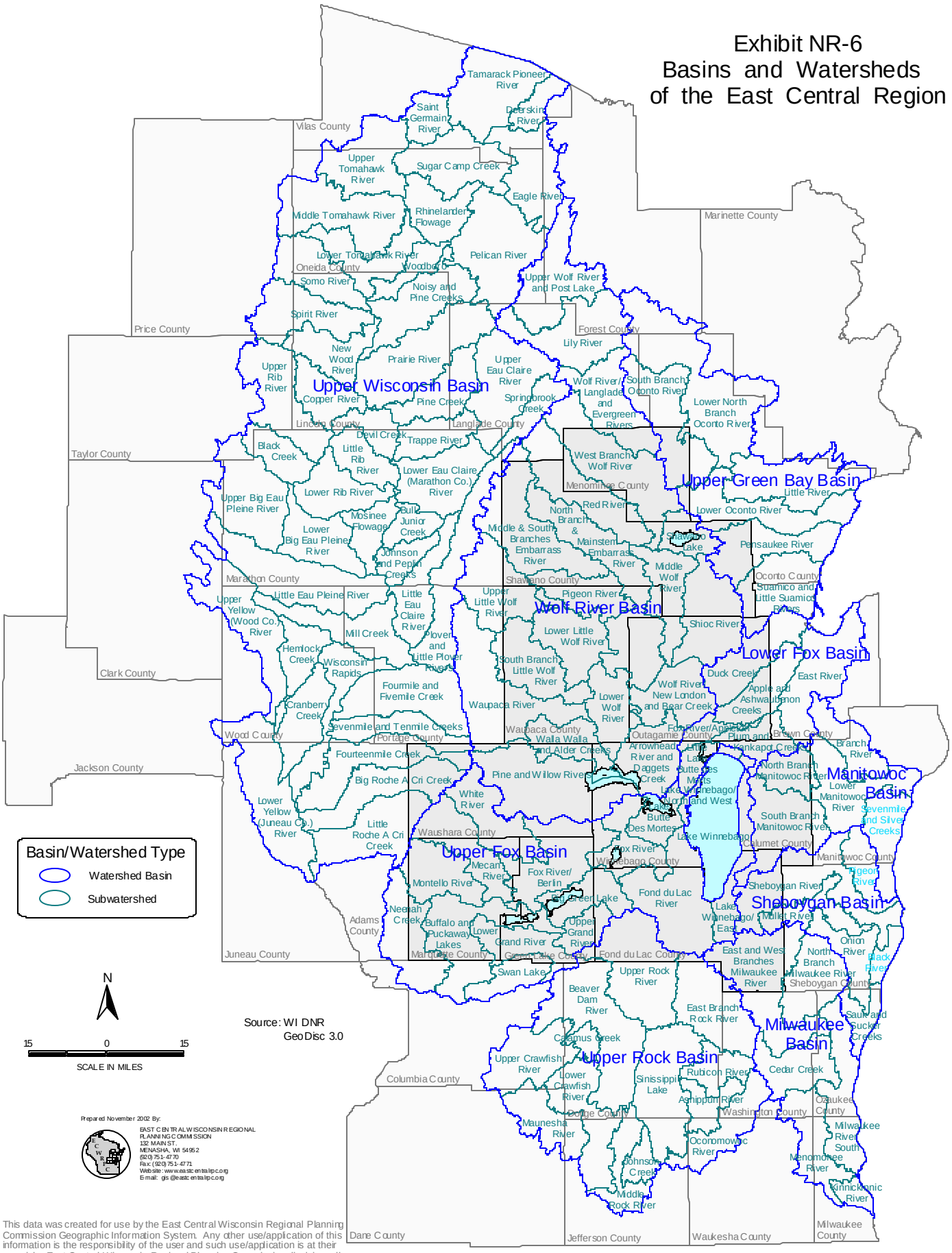

Table NR-6: Basin & Watershed Characteristics of the East Central Region

Basin Name	ID No.	Watershed Name	Area (Acres)	Area (Sq. Mi.)	Perimeter (Mi.)	Priority Watershed Project	
						Selection Yr.	Status
Upper Green Bay	GB01-130	Suamico and Little Suamico Rivers	109,936	172	90.0		
	GB02-130	Pensaukee River	104,802	164	97.0	1994	In Progress
	GB03-140	Lower Oconto River	125,748	196	131.3		
	GB05-140	Lower North Branch Oconto River	249,138	389	182.1		
	GB06-140	South Branch Oconto River	140,332	219	114.4		
Lower Fox River	LF01-113	East River	132,046	206	104.5	1986	In Progress
	LF02-113	Apple and Ashwaubenon Creeks	72,539	113	62.1	1994	In Progress
	LF03-113	Plum and Kankapot Creeks	53,785	84	61.2		
	LF04-113	Fox River/Appleton	25,199	39	47.0		
	LF05-113	Duck Creek	97,029	152	81.9	1994	In Progress
	LF06-113	Little Lake Butte des Morts	28,010	44	32.8		
Manitowoc River	MA02-070	Lower Manitowoc River	107,731	168	102.2	1979	Completed
	MA04-070	North Branch Manitowoc River	49,263	77	49.8		
	MA05-070	South Branch Manitowoc River	121,021	189	91.3		
Milwaukee River	MI05-050	North Branch Milwaukee River	95,789	150	63.9	1984	In Progress
	MI06-050	East and West Branches Milwaukee River	170,241	266	132.3	1984	In Progress
Sheboygan River	SH03-060	Sheboygan River	166,476	260	168.2	1985	In Progress
	SH05-060	Mullet River	56,442	88	98.8		
Upper Fox River	UF01-111	Lake Winnebago/North and West	5,253	8	16.0		
	UF01-111	Lake Winnebago/North and West	9,294	15	38.1		
	UF02-111	Lake Winnebago/East	63,618	99	101.2	1989	In Progress
	UF03-111	Fond du Lac River	156,631	245	100.8	1995	P
	UF04-111	Lake Butte Des Morts	50,973	80	51.4		
	UF05-111	Fox River	76,643	120	89.1		
	UF06-111	Fox River/Berlin	133,594	209	120.6		
	UF07-111	Big Green Lake	68,676	107	64.6	1980	Completed
	UF08-111	White River	95,879	150	91.6		
	UF09-111	Mecan River	94,917	148	89.7		
	UF10-111	Buffalo and Puckaway Lakes	144,071	225	139.8		
	UF11-111	Lower Grand River	70,011	109	83.3		
	UF12-111	Upper Grand River	39,651	62	43.2		
	UF13-111	Montello River	86,079	134	69.6		
	UF14-111	Neenah Creek	110,940	173	89.2	1991	In Progress
	UF15-111	Swan Lake	51,593	81	52.5		
Upper Rock River	UR03-011	Beaver Dam River	185,759	290	138.3	1990	In Progress
	UR12-011	Upper Rock River	164,869	258	95.1		
	UR13-011	East Branch Rock River	127,356	199	82.5		
Upper Wisc. River	UW01-171	Little Roche A Cri Creek	125,566	196	91.7		
	UW06-171	Big Roche A Cri Creek	113,279	177	99.5		
	UW07-171	Fourteenmile Creek	117,856	184	112.3		
	UW09-171	Sevenmile and Tenmile Creeks	71,834	112	74.0		
	UW12-171	Plover and Little Plover Rivers	129,401	202	153.2		

Table NR-6, continued.....

Basin Name	ID No.	Watershed Name	Area (Acres)	Area (Sq. Mi.)	Perimeter (Mi.)	Priority Watershed Project	
Wolf River	WR01-112	Arrowhead River and Daggets Creek	91,462	143	61.2	1990	In Progress
	WR02-112	Pine and Willow Rivers	193,328	302	118.8	1995	P
	WR03-112	Walla Walla and Alder Creeks	71,738	112	71.1		
	WR04-112	Lower Wolf River	76,766	120	73.0		
	WR05-112	Waupaca River	186,095	291	132.0	1993	In Progress
	WR06-112	Lower Little Wolf River	98,305	154	91.6	1995	In Progress
	WR07-112	Upper Little Wolf River	116,512	182	87.4		
	WR08-112	South Branch Little Wolf River	102,585	160	84.2		
	WR09-112	North Branch & Mainstem Embarrass R.	200,071	313	171.8		
	WR10-112	Pigeon River	74,443	116	74.9		
	WR11-112	Middle & South Branches Embarrass R.	160,003	250	126.5		
	WR12-112	Wolf River/New London and Bear Creek	91,191	142	72.0		
	WR13-112	Shioc River	121,441	190	81.3		
	WR14-112	Middle Wolf River	85,616	134	85.5		
	WR15-112	Shawano Lake	45,552	71	50.0		
	WR16-112	Red River	132,556	207	101.9		
	WR17-112	West Branch Wolf River	170,311	266	126.2		
	WR18-112	Wolf River/Langlade and Evergreen Rivers	115,035	180	94.6		

Source: WDNR, 2002.

Each lake within the region has specific qualities that make it unique and can vary based on physical characteristics, such as size, depth, configuration, chemical characteristics (such as soft versus hard water), water clarity, or the types of plant and animal life present. Natural lakes in Wisconsin are frequently classified by the source of water supply. Based on water source and outflows, four categories of lakes have been identified: Drainage lakes, seepage lakes, spring lakes, and drained lakes. Artificial lakes are human-made bodies of water referred to as impoundments. A lake is considered an impoundment if one-half or more of its maximum depth results from a dam or other type of control structure.

Exhibit NR-7
Priority Watershed Projects

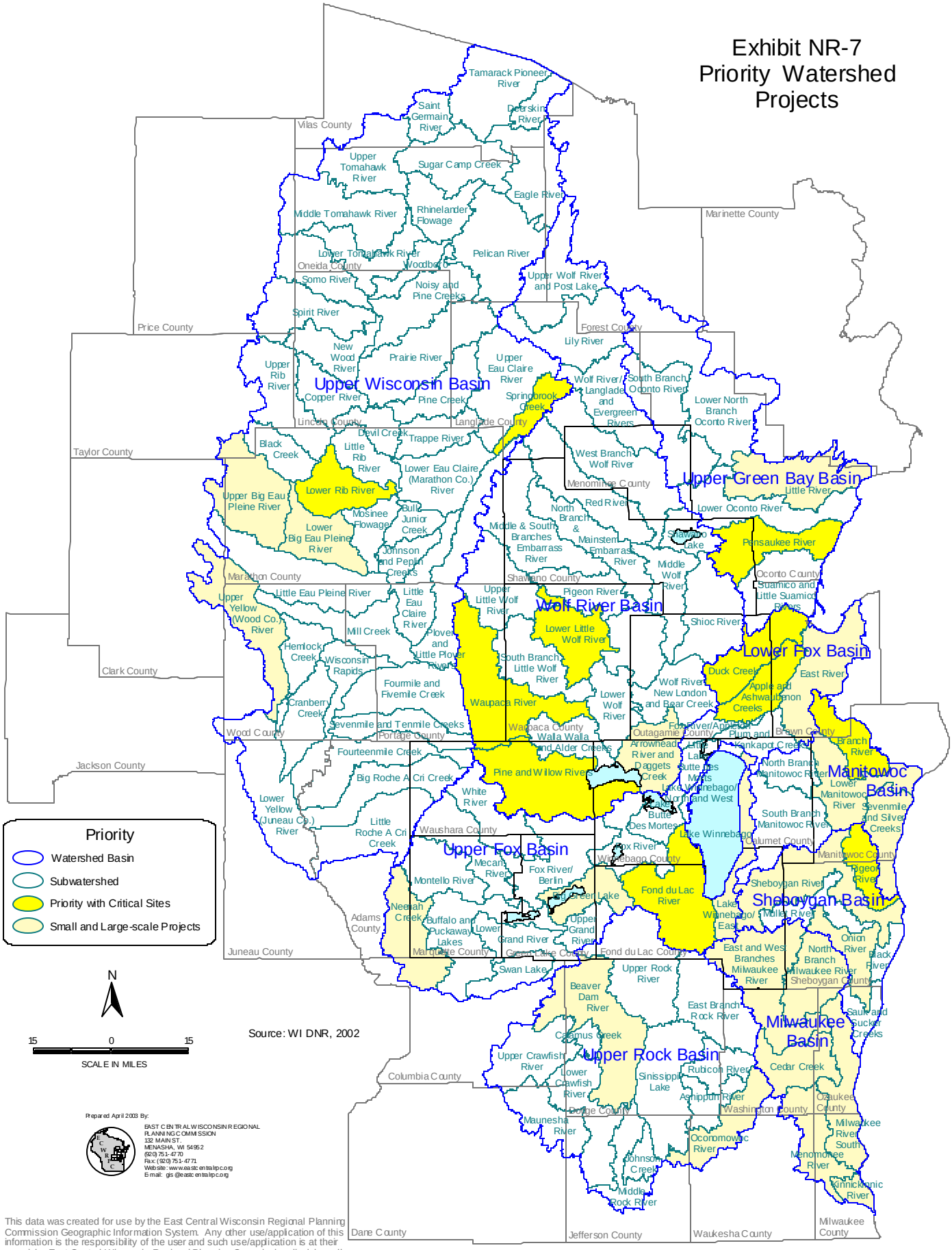

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Table NR-7: Lakes of the East Central Region

Geographic Area	Named Lakes		Unnamed Lakes		Total Lakes	
	No.	Acres	No.	Acres	No.	Acres
Calumet	6	91	2	7	8	98
Fond du Lac	31	1,625	11	30	42	1,655
Green Lake	14	16,985	22	135	36	17,120
Marquette	61	5,619	32	117	93	5,736
Menominee	56	3,767	72	277	128	4,044
Outagamie	4	118	29	95	33	213
Shawano	54	8,725	80	187	134	8,912
Waupaca	141	6,797	99	372	240	7,169
Waushara	97	4,445	41	178	138	4,623
Winnebago	8	169,603	22	152	30	169,755
East Central Region	472	217,775	410	1,550	882	219,325
State of Wisconsin	6,040	944,360	9,017	37,795	15,057	982,155

Source: Wisconsin Dept. of Natural Resources, The Lakes Book, 2002

Water Quality

The region has abundant stream and river resources, however; the water quality of these rivers lakes and streams vary considerably and is somewhat dependent on the proximity of urban and/or agricultural uses and the degree of both point and non-point source pollution. Point sources are typically associated with direct discharges to a water body (i.e., wastewater treatment plants, industry, etc.), while non-point sources are associated mainly with urban and agricultural runoff.

The water quality of a lake and species of fish present are significantly influenced by the lake type. For example, drainage lakes support fish populations, which are not necessarily identical to the streams, connected to them. Drainage lakes, particularly impoundments, usually have higher nutrient levels than many natural seepage or spring lakes. In contrast to drainage lakes, landlocked seepage lakes are not influenced by streams. Consequently, seepage lakes frequently have a less diverse fishery. Stream quality is attributed to many factors including stream flow, temperature, and surrounding land use. These aspects are assessed in the previously mentioned Basin Plans for each drainage area in the state and, overall, the quality of most upper stream and river reaches are good to excellent while middle and lower segments of specific river systems are impacted heavily by human activity and are, consequently rated as fair to poor.

Two classification schemes are in existence by the WDNR which help to visualize the health of the region's stream systems are:

- Outstanding & Exceptional Resource Waters: This designation is given by the WDNR to maintain the water quality in some of Wisconsin's cleanest waters. An outstanding resource water is defined as a lake or stream which has excellent water quality, high recreational and aesthetic value, has excellent fishing and is free from point source or non-point source pollution. An exceptional resource water is defined as a lake or stream exhibits the same high quality resource values as outstanding waters, but may be impacted by point source pollution or have the potential for future discharge from a small sewered community. Exhibit NR-8 shows that most of these waters lie in the western and northern portions of the region and correlate with those areas that are less urbanized or have more woodlands and forestry activities.

- 303d Impaired Waters List: This is a listing of waters under the Clean Water Act (s. 303(d)) that must, under current EPA requirements, occur every 2 years. This list identifies waters which are not meeting water quality standards and is used as the basis for development of Total Maximum Daily Loads (TMDLs) – a requirement not yet met by the WDNR. According to this list (Table NR-8), within the region there are 38 total lakes or stream segments identified as impaired on 32 separate water bodies. Fourteen of these are lakes, while the remaining 18 are rivers or streams.

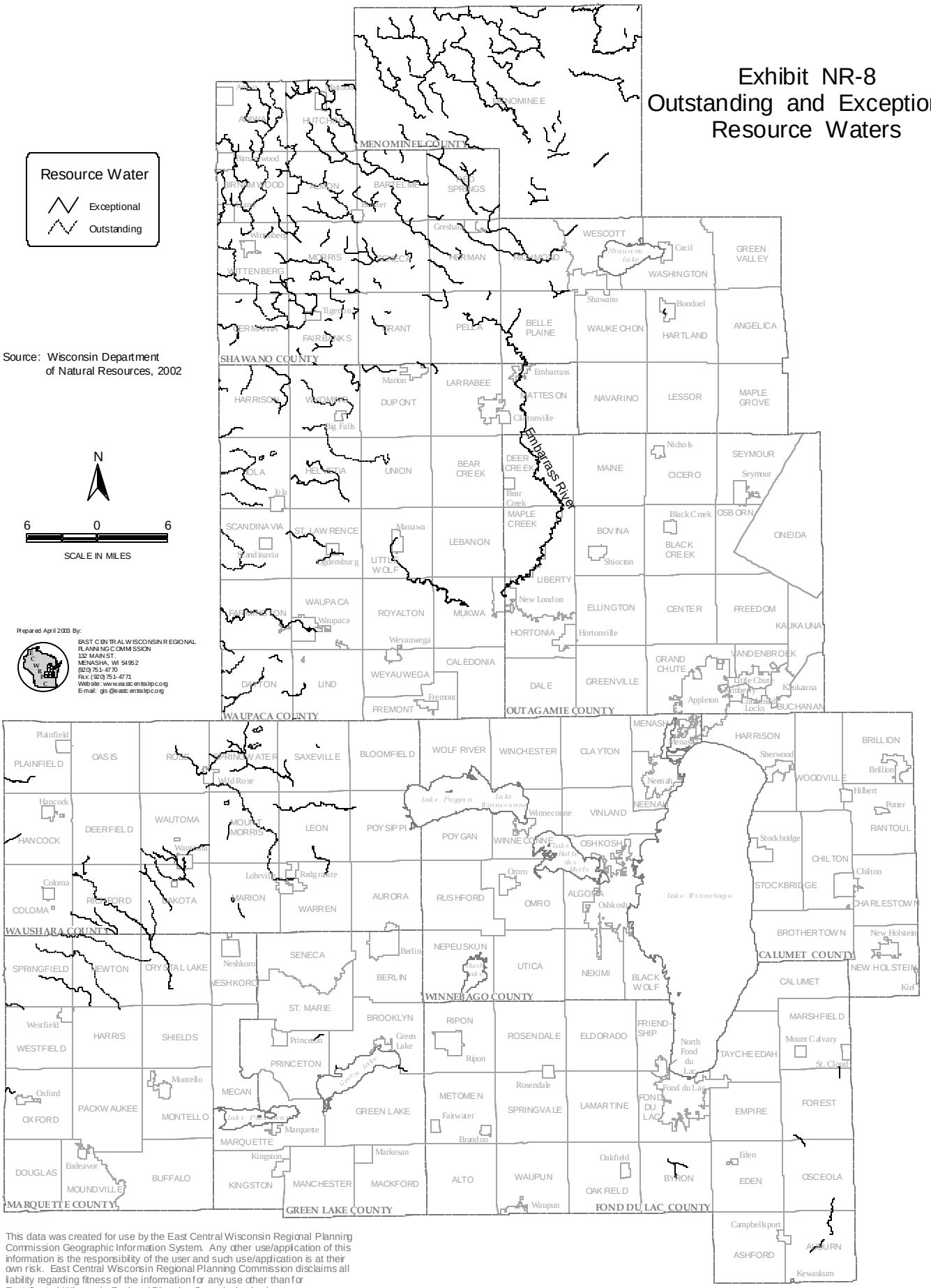
Considerable progress has been made in some areas toward improving water quality; however, for most of the lower reaches of the Fox-Wolf system, not much has changed in the last 10 years. Point source discharges of conventional pollutants have been drastically curtailed, although problems associated with their historic use are now being addressed, such as in the Lower Fox River which has been the recent focus for various EPA and WDNR investigations and legal decisions regarding the identification and clean-up of various deposits of PCB laden sediments. Issues surrounding the health of the region's citizenry as well as the economic impacts due to clean up costs and negotiations on responsibilities have been studied and debated for years with no absolute resolution. Further decisions are expected in the clean up process during 2003 and future years. In the meantime, educational efforts are being focused on the 'land use/stormwater' connection in hopes of controlling non-point sources of pollution.

Stream Corridors

Commonly referred to as 'shoreland areas' or the 'shoreland zone'[1], the stream corridors throughout the region provide important functions related to water quality, the provision of wildlife habitat, and accommodation of flood attenuation and storage. These lands typically fall under additional regulation as part of the WDNR's Shoreland Management Program. This is a partnership between state and local governments which requires adoption of county shoreland zoning ordinances to regulate development near navigable lakes and streams, in compliance with statewide minimum standards. Many counties have recently developed and adopted updated ordinances, which reflect a system known as 'lakes classification'. The State is currently convening an advisory committee to review possible changes needed to the 34 year old law.

1 - Shorelands, as defined by the WDNR include lands that are "within 1,000 feet of a lake, pond, or flowage, or within 300 feet of the landward edge of the floodplain of a navigable river or stream, whichever is greater".

Exhibit NR-8
Outstanding and Exceptional Resource Waters



Source: Wisconsin Department of Natural Resources, 2002

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Table NR-8: 303d Impaired Waters within the East Central Region

County	Water Body Name	Stream Mile	Total Miles	Impacts	Priority
Calumet	Manitowoc R. (mouth to confluence with North Branch)	0-5	5	DO., hab.	high
	Jordan Creek	0-1.2	1.2	PCB. FCA	high
	Killsnake Creek	5-20	15	PCB, FCA	high
	Manitowoc S. Br. (Confluence with N Br. to Chilton)	36-48.42	12.42	PCB, FCA	high
	Pine Creek	4-9	5	PCB, FCA	high
	Pine Creek	0-4	4	PCB, FCA	high
	Killsnake Creek	0-5	5	PCB, FCA	high
Fond du Lac	Rock R . S. Br.	3-20	17	d.o., hab.	high
	Fond du Lac River	0-2	2	metal, FCA, toc, Pcb, FA	med
	Forest Lake			Hg, FA	low
	Long Lake			Hg, FA	low
	Mauthe Lake			Hg, FA	low
	Silver Creek	0-14	14	hab, temp,sed	low
Green Lake	Wurch Creek	0-6	6	hab, sed.	med
Marquette	Buffalo Lake			Hg FA	low
	Fox River at Buffalo Lake			pcb FA	low
Outagamie	Fox R. Lower Seg. 1	32.4-40.0	7.6	pcb FCA, d.o.	high
	Apple Creek	5-24	19	sed, nut, DO viol., flow, hab, temp	med
	Apple Creek	0-4	4	sed, nut, DO viol., flow, hab, temp	med
	Duck Creek	0-10	10	sed, nut, DO hab, flow, pcb FA	med
	Duck Creek	11-32	21	sed, nut, DO, hab, flow	med
	Kankapot Creek	0-9	9	hab.	high
	Mud Creek	0-8	8	hab.	high
	Plum Creek	0-19	19	hab. temp	high
Shawano	Cloverleaf Chain of Lakes			Hg FA	low
	Shawano Lake			HgFCA	low
	Wolf River below Shawano Dam to state Hwy 156	0-18.7	18.7	Hg FA	low
Waupaca	Columbia Lake			Hg FA	low
Waushara	Big Hills Lake			Hg FA	low
	Kusel Lake			Hg FA	low
	Silver Lake (Big)			Aq. Tox	low
Winnebago	Butte des Morts Lake			sed, nut, DO pcb FCA, Hg FCA	low
	Poygan Lake			sed, nut, DO turb, pcb FCA, Hg FCA	low
	Winnebago Lake			sed, nut, DO pcb FCA, Hg FCA	low
	Winneconne Lake			sed, nut, DO turb, pcb FCA, Hg FCA	low
	Rat River	0-18	13	DO, flow	med
	Fox River, Oshkosh	0.5		Aq. Tox	low
	Neenah Slough	0-6	6	pcb FCA, d.o.	med

Source: WDNR Website - December, 2002

sed = cont. sediment, nut = excessive nutrients, DO = low dissolved oxygen, Aq. Tox. = toxins in water column, hab = habitat, temp = elev. temperature, PCB FCA = fish consumption advisory for pcbs , Hg FA = fish consumption advisory for mercury , turb = excessive susp. solids/turbidity,.

Dams

According to data obtained from the WDNR, there are approximately 4,700 dams in existence in the State of Wisconsin. Of these, 374 (8%) exist within the region (Table NR-9). Many of these dams have outlived their useful lives and are in various states of disrepair or abandonment. Others still serve useful purposes in terms of providing hydroelectricity or water level management functions. The federal government has jurisdiction only over large dams that produce hydroelectricity - approximately 5% of the dams in Wisconsin. The WDNR regulates the balance of the dams within the state.

A total of 98 'large' dams exist within the region. A 'large' dam is defined as a dam with a structural height of over 6 feet and impounding 50 acre-feet or more, or having a structural height of 25 feet or more and impounding more than 15 acre-feet. The removal of dams as a method to improve and restore native fish and near-shore habitats has been controversial in parts of the state as recreational enthusiasts and adjacent, waterfront landowners have typically been opposed to such actions.

Table NR-9: Dams within the East Central Region

County	Large	Small	Not Categorized	Total Dams
Calumet	5	9	1	16
Fond du Lac	10	35	10	55
Green Lake	5	26	2	33
Marquette	14	16	2	32
Menominee	4	4	3	11
Outagamie	10	20	1	31
Shawano	18	23	18	59
Waupaca	15	47	12	74
Waushara	14	23	5	42
Winnebago	3	16	2	21
East Central Region	98	219	56	374
State of Wisconsin				4789

Source: WDNR Website - November, 2002.

Wetlands

The region's wetlands are a critical part of its broad ecological system and perform many important functions with respect to water quality, flood control, and wildlife habitat, as well as social functions such as open space, recreation and aesthetics. A wetland's physical and biological components are driven for the most part by the surface and groundwater flows (hydrology) within the area. The dominant characteristics of wetlands are a combination of wet soils, hydrology, and vegetation[1].

1 -Wisconsin defines a wetland as "...an area where water is at, near, or above the land surface long enough to be capable of supporting aquatic or hydrophytic vegetation and which has soils indicative of wet conditions." (s. 23.32(1), Wis. Stat.).

Examples of wetlands are deep and shallow water marshes, wet meadow, fens, bogs, wooded swamps, floodplain forests, and wet shrub carr communities. Types of vegetation that can be found in wetlands range from pond lilies to cattails to reed canary grass to black ash to silver maple. The soils characteristic of wetlands are somewhat poorly, and very poorly drained wet mineral and organic soils, such as fine-grained clays and muck soils.

Prior to European settlement, Wisconsin had an estimated 10 million acres of wetlands. Today, Wisconsin has slightly more than 5.3 million acres remaining based on the Wisconsin Wetlands Inventory statewide wetlands mapping effort. According to data obtained from the WDNR, and illustrated in Table NR-10 and Exhibit NR-9, the region's wetlands totaled over 672,000 acres, with most of the acreage being located in Shawano and Waupaca Counties.

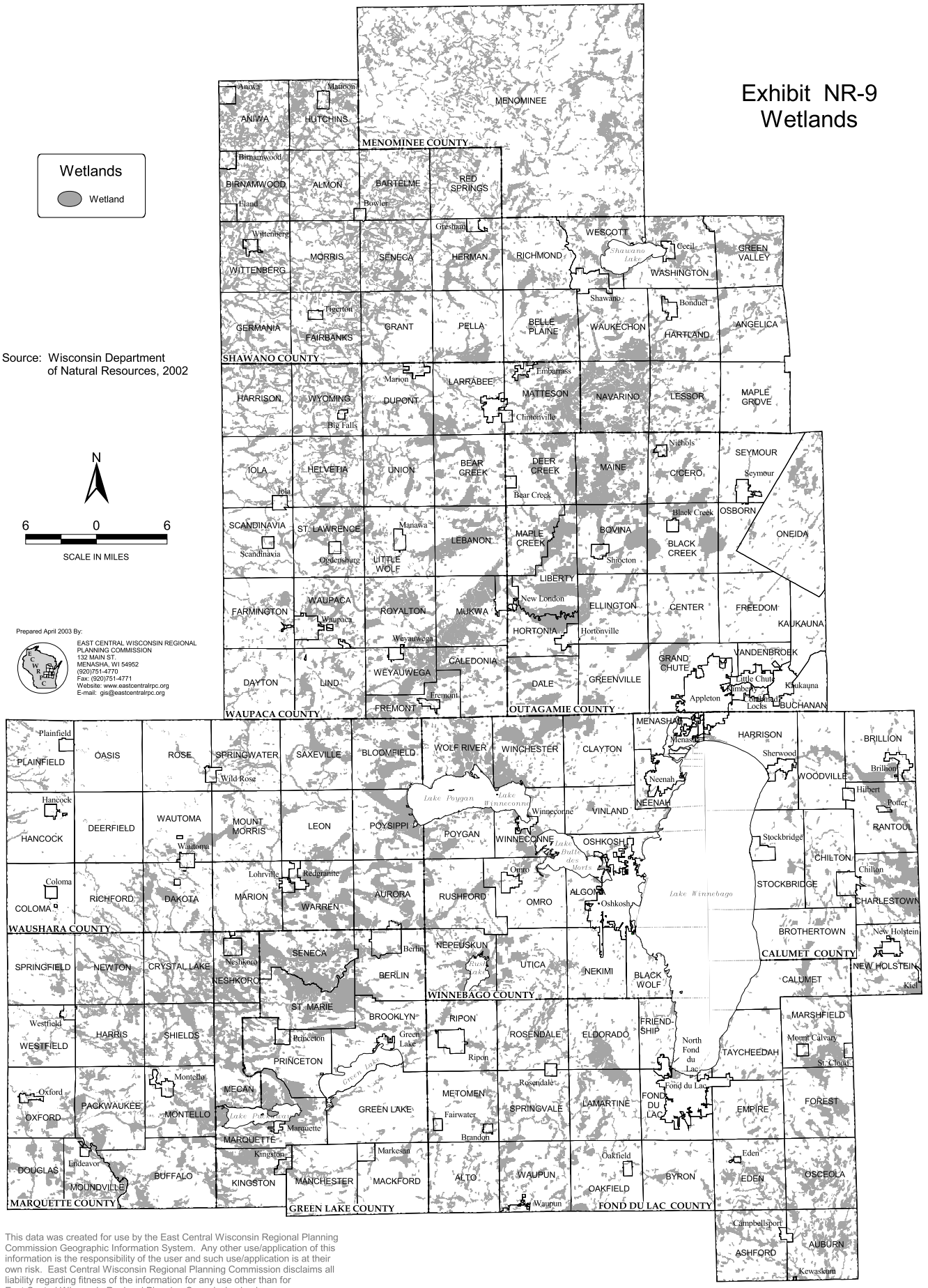
These wetland areas are not distributed evenly throughout the region and are somewhat dependent on the glaciation patterns, soils, surface drainage, and groundwater characteristics. Some of the larger wetland complexes in the basin are the El Dorado Marsh in Fond du Lac County, the White-Puchyan wetlands complex in Marquette and Green Lake counties, Germania Marsh in Marquette County, Grand River Marsh in Green Lake County and the Rush Lake wetlands in Winnebago County, and the Wolf. In addition to these, there are numerous other smaller wetland complexes, usually next to streams and lakes in the watershed.

Table NR-10: Wetland Acreages for East Central Region

County	Total Surface Area (Acres)	Acres of Wetland	% of County Mapped As Wetland	Wetlands as % of Statewide Total	Minimum Map Unit Size (Acres)
Calumet	204,714	24,736	12.1%	0.5%	5
Fond du Lac	462,704	69,128	14.9%	1.3%	5
Green Lake	226,755	58,816	25.9%	1.1%	5
Marquette	291,541	68,881	23.6%	1.3%	5
Menominee	229,117	33,545	14.6%	0.6%	5
Outagamie	409,849	74,221	18.1%	1.4%	5
Shawano	571,244	127,778	22.4%	2.4%	5
Waupaca	480,729	112,761	23.5%	2.1%	5
Waushara	400,695	58,725	14.7%	1.1%	2
Winnebago-1986	280,723	44,380	15.8%	0.8%	2
East Central Region	3,558,071	672,971	18.9%	12.6%	
State of Wisconsin	34,760,750	5,385,290		15.50%	

Wetland acreage is based on 1978-79 aerial photography, unless otherwise noted.
Source: Wisconsin Dept. of Natural Resources Website, November, 2001.

Exhibit NR-9
Wetlands



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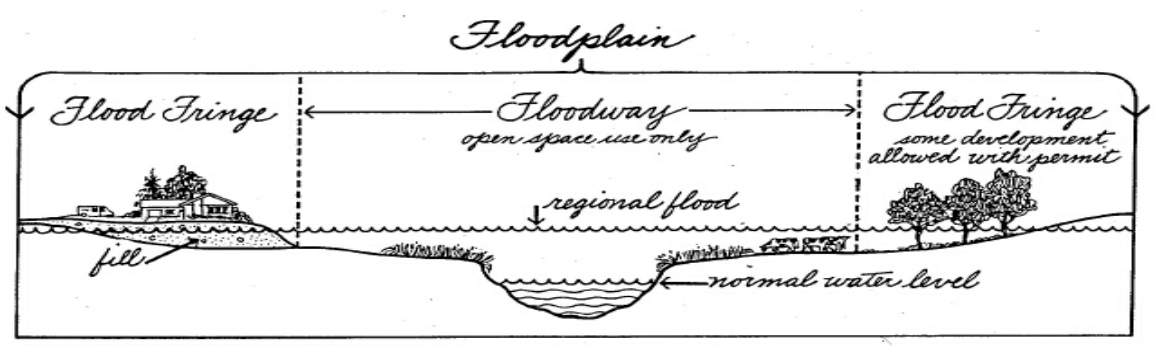
Historically, the greatest threat to wetlands in Wisconsin has been from agricultural drainage and urban development. A review of the U.S. Department of Agriculture soil survey maps for any of the counties in the region shows thousands of acres of hydric soils[1] which have been drained and converted to farmland. Other areas of hydric soils have been either drained or filled for roads and urban development, particularly near Lake Winnebago. In coming years, wetland filling will continue to be an increasing threat to wetland areas as the pressures of non-agricultural land use become more intensive. This will be especially true in areas where urban growth is occurring. Exotic plant species which invade wetlands are also of concern in the region.

Floodplains & Floodways

According to information obtained from the WDNR and FEMA, floods are the most common type of natural disaster as 90% of all presidential declarations of emergency or major disaster involve flooding. Flood damages throughout the nation exceed $2-3 billion annually while Wisconsin communities suffer millions of dollars in yearly flood damages. The direct and indirect costs of flood recovery are not borne by just the flood victims, but are shared by all taxpayers. Floodplains are valuable areas as they serve many functions. Not only do they store floodwaters, but they also assist in reducing flood velocities, durations, and peaks, as well as reducing erosion and sedimentation associated with these flows. Floodplain areas can help maintain water quality by filtering nutrients and impurities from runoff, processing organic wastes and moderating water temperature fluctuations. Floodplains also promote infiltration and recharge of local and regional aquifers and provide needed habitat and feeding grounds to waterfowl and some rare and endangered species.

Digital floodplain maps are not available for the entire region at this time, so no quantifiable set of data can be created to describe their location at this time. East Central is in the process of digitizing existing floodplain maps for the region (non-regulatory) in order to have a comprehensive set of maps for use in this, and future planning projects. As defined by FEMA and shown in Figure NR-6, the floodplain is that land which has been or may be covered by floodwater during the regional flood. The floodplain includes the floodway and floodfringe areas.

Figure NR-6: Description of Floodplain Components



Numerous communities within the region have participated in floodplain mitigation programs with the assistance of state and federal agencies. The goal of floodplain mitigation is to lessen the impact floods have on people, property, and the environment. In practice, mitigation can take many forms. It can involve actions such as: promoting sound land use planning based on known flood hazards; relocating or elevating structures out of the floodplains; and developing, adopting, and enforcing effective building codes and standards. Communities which participate in the National Flood Insurance Program are required to properly adopt a community's floodplain zoning ordinance and use the Flood Insurance Rate Maps (FIRM's). If more detailed data becomes available through a separate study(ies), the maps can be reviewed and modified through an established process.

Biological & Ecological Resources

The biological and ecological resources of the East Central region are numerous and varied. This section will address resources and issues associated with woodlands, forests, wildlife, and endangered species.

Ecological Landscapes

The region is classified as being part of seven (out of sixteen) distinct ecological landscape types that cover the state based on a system of land classification developed by the WDNR (Exhibit NR-10) which is a modification of the National Hierarchical Framework of Ecological Units (NHFEU). This system divides the state into ecological units based on combinations of biotic and environmental factors, which include climate, physiography, soils, hydrology, and vegetation. Each of these ecological units has additional, better defined 'natural communities'. These natural communities, in turn are associated with certain types of common and rare plant and animal species. A general description of each ecological unit is given below:

- Northern Lake Michigan Coastal: Covering northern Outagamie County and eastern Shawano County, this area is influenced by the Lake Michigan climate and contains gently rolling to flat topography with clay and loam soils; land cover now dominated by agriculture in the south and mixed conifer-hardwood forest in the north.

- Central Lake Michigan Coastal: Covering most of Outagamie County and northeastern Calumet County, this area is also influenced by the Lake Michigan climate and is characterized by generally flat topography with clay and silt loam soils; land cover now primarily urban and agricultural; some remnant northern hardwood forest with maple, beech, and some hemlock, plus conifer swamps, hardwood swamps, and riverine marshes.

- Southeast Glacial Plains: This landscape covers portions of northern and eastern Green Lake County, all of Fond du Lac County, southern and western Calumet County, Winnebago County and portions of Waupaca, Waushara, and Outagamie Counties. This area is characterized by gently rolling to flat topography with clay or silt loam-textured soils on till plain; land cover now primarily urban and agricultural; small remnant oak openings, oak forest, tallgrass prairie, and sugar maple-basswood forest.

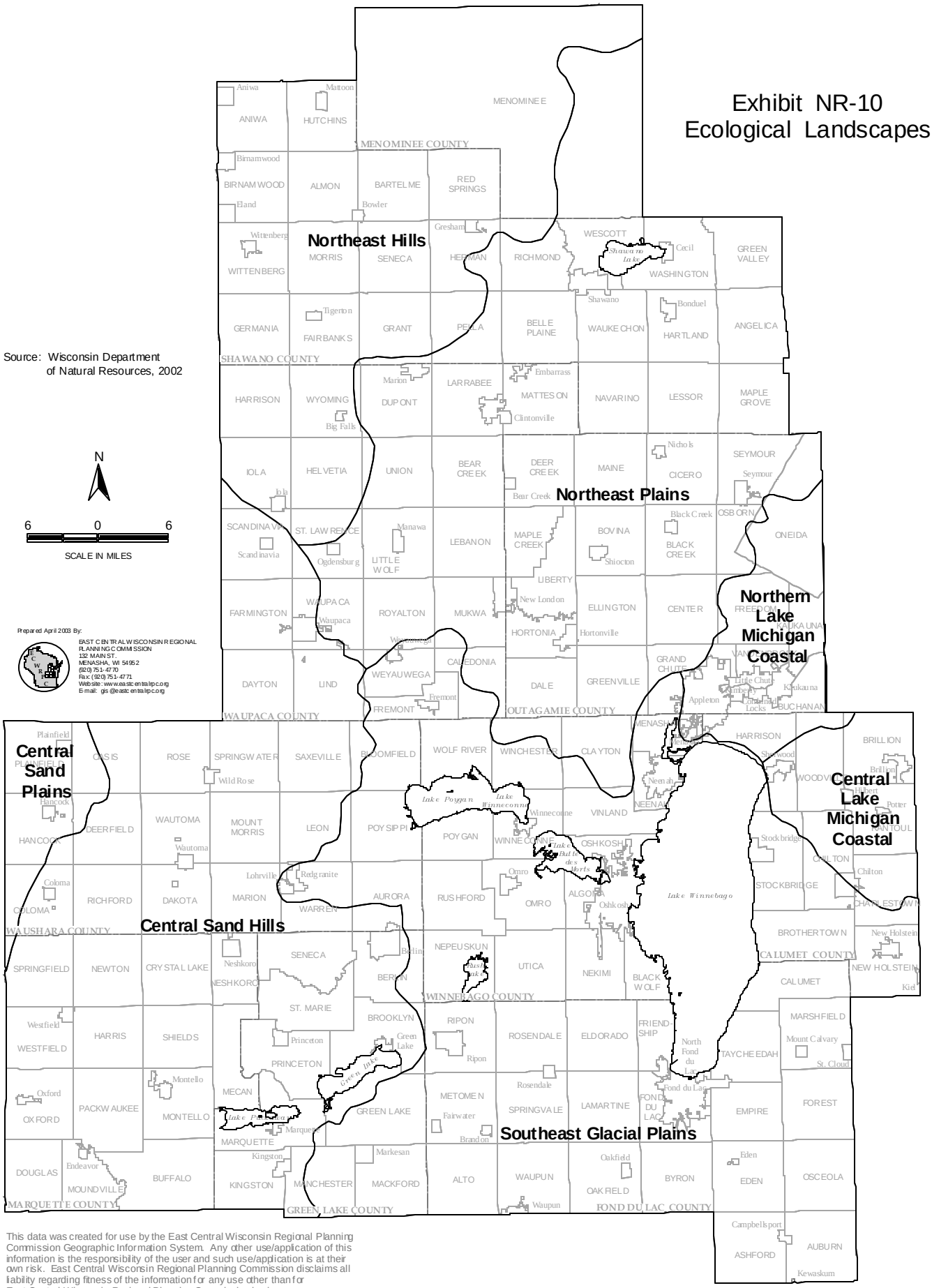
- Northeast Sands: Covering the eastern portion of Menominee County and portions of north-central Shawano County, this ecological landscape is characterized by glaciated topography with sandy, well drained soils as well as steep outcropping bedrock knolls. This area historically supported extensive oak and pine barrens and jack pine forests. Northern hardwood and red and white pine forests were interspersed throughout the landscape. Now, most of this landscape is forested, predominantly with aspen and paper birch. Jack pine stands remain on the outwash plains along with northern pin oak. Several important remnants of oak-pine barrens remain. The outwash plains include many pitted depressions, which frequently contain wetlands and kettle lakes.

- Forest Transition: This landscape covers western Menominee, Shawano and Waupaca Counties. In pre-settlement times, this landscape was almost entirely covered with mesic to wet-mesic forests of hemlock and sugar maple, with some yellow birch, red pine, and white pine. There were pockets of conifer swamps, often near the headwaters of streams, containing white cedar, black spruce and tamarack. With a combination of productive soils and more moderate climate, this band across the state marks the northern extent of predominantly agricultural use of land. Remaining forests tend to occur as fragments and are often quite small. Soils are diverse and range from sandy loam to loam and shallow silt loam (both poorly drained and well drained). At the eastern end of this landscape, which was covered by the Green Bay lobe of the last glacier, many lakes occur, the soil is not as favorable for farming, and more forests are present.

- Central Sand Plains: Covering the extreme western portion of Waushara County, the dominant feature in this landscape is the vast, remarkably flat, sandy plain that was once the bed of Glacial Lake Wisconsin – the enormous body of water fed primarily by glacial runoff. This lake, ringed by the Driftless Area to the southwest and the glacier to the north and east, was 70 to 150 feet deep and covered over 1,800 square miles. Streams and rivers draining from the glacier into the lake carried enormous loads of sand, silt, and clay that settled onto the lake bottom.

- Central Sand Hills: Covering southwestern Waupaca County, west-central Waushara County, Marquette County and most of Green Lake County, this ecological landscape is located at the eastern edge of the old Glacial Lake Wisconsin and contains a series of glacial moraines that were later partially covered by glacial outwash. Pre-settlement vegetation consisted of oak forest, oak savanna, and a variety of prairie types in the uplands. Fens, wet prairies, and rare coastal plain marshes occurred in the lowlands. Soils throughout the landscape have a significant sand component. A mixture of farmland, woodlots, and a variety of wetlands now characterizes the area. Agriculture is successful in the sandy areas with the use of center pivot irrigation but there is a considerable amount of less productive and idle agricultural land.

Exhibit NR-10
Ecological Landscapes



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Wildlife

Wildlife resources within the region are directly related to the ecological unit and natural community types within the region. The region has some of the highest concentrations of deer and pheasant in the state and supports large populations of ducks and geese. The region's extensive marshlands and wetlands also provide excellent habitat for furbearers such as bear, otter, muskrats, and mink. The scattered woodlots and wooded fence lines throughout the agricultural areas support, in addition to pheasants, rabbits, squirrels and Hungarian partridge, while the larger woodland provide cover for the many deer, bear, grouse, and other forest game. The Wolf River corridor from New London to Shawano offers an exceptional habitat for furbearers, waterfowl and forest game. Other areas especially conducive to wildlife are lands along the Fox River from Berlin to Lake Puckaway, lands surrounding Rush lake in Winnebago county; the west branch of the Fond du Lac River; and the north and south branches of the Manitowoc River in Calumet County. Portions of eastern Waushara County, Marquette County and southwestern Green Lake County also provide excellent habitat for wildlife.

The warm water fishery in the region includes the Fox River, the Winnebago pool lakes and the Wolf River to the dam at Shawano. Generally, these waters support bass, walleye and northern pike, muskellunge, panfish, sturgeon, catfish, white bass, and other rough fish. The Lower Wolf and the Upper Fox constitute the major spawning grounds for the white bass, walleye and sturgeon of the Winnebago pool. The large sturgeon population in the waters is the result of 125 miles of unobstructed river spawning grounds. As illustrated in Table NR-11, the best trout fisheries are found in the northern and western portions of the region, especially in Menominee, western Shawano, and western Waupaca counties. Streams in central Waushara and western Marquette counties also support large trout populations. These streams are rated by the WDNR as follows:

- Class 1. These are high quality trout waters, have sufficient natural reproduction to sustain populations of wild trout at or near carrying capacity. Consequently, streams in this category require no stocking of hatchery trout. These streams or stream sections are often small and may contain small or slow-growing trout, especially in the headwaters. There are 787.9 miles of class 1 streams and they comprise 68% of the region's total trout stream mileage.

- Class 2. Streams in this classification may have some natural reproduction, but not enough to utilize available food and space. Therefore, stocking is required to maintain a desirable sport fishery. These streams have good survival and carryover of adult trout, often producing some fish larger than average size. There are 332.3 miles of class 2 streams comprising 29% of the region's total trout stream mileage.

- Class 3. These waters are marginal trout habitat with no natural reproduction occurring. They require annual stocking of trout to provide trout fishing. Generally, there is no carryover of trout from one year to the next. There are 30.1 miles of class 3 streams in the region comprising 3% of the region's total trout stream mileage.

Table NR-11: Trout Streams in the East Central Region

County	Number of Trout Streams	Miles of Trout Stream			Total Trout Stream Miles
		Class 1	Class 2	Class 3	
Calumet	1	0.0	0.0	1.0	1.0
Fond du Lac	6	3.0	11.1	0.0	14.1
Green Lake	4	3.1	3.4	0.0	6.5
Marquette	13	40.4	31.9	10.9	83.2
Menominee	54	205.1	73.0	0.0	278.1
Outagamie	0	0.0	0.0	0.0	0.0
Shawano	120	316.7	101.8	18.2	436.7
Waupaca	38	111.5	68.7	0.0	180.2
Waushara	33	108.1	42.4	0.0	150.5
Winnebago	0	0.0	0.0	0.0	0.0
East Central Region	269	787.9	332.3	30.1	1,150.3
State of Wisconsin	2,931	4,037.0	4,636.8	1,591.9	10,265.7

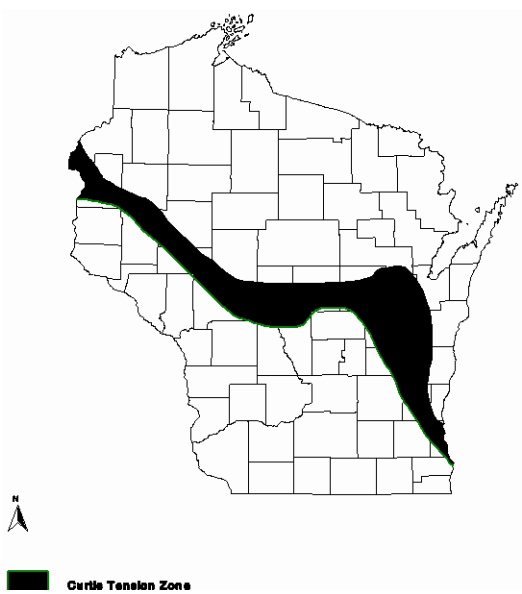
Source: WDNR Wisconsin Trout Streams April, 2002.

The region has also felt the effects of exotic species, particularly aquatics, over time. Species such as the common carp, sea lampreys, and zebra mussels, among others, pose threats to the Lake Winnebago system fishery. Such species can completely alter self-sustaining, and managed, fisheries and therefore have a significant impact on the tourism industry within the region.

Forests & Vegetation

Habitats for the aforementioned wildlife are comprised of a variety of forest and vegetation resources. A portion of the region lies within the “tension-zone” (Figure NR-7) which is a border between northern and southern floristic provinces based on the zone where the highest number of plant species reach their range boundaries (Curtis 1959). By being within this zone, a larger variety of vegetation types have the possibility of thriving compared to other portions of the state.)

Figure NR-7: Curtis Tension Zone



The natural woodland pattern of the region has been greatly modified by man's activities. Virgin forest lands are almost non-existent and much of the once-forested land, especially in the eastern portions of the region, have been replaced by urban, industrial and agricultural development. Historically, the pre-settlement vegetation of the region was comprised of a mixture of hardwoods and softwoods (sugar maple, Yellow birch, hemlock, and pine) with more Beech in the northern and central portions of the region; oak forest and oak openings in the southern and western portions of the region (Exhibit NR-11).

Approximately 30% of the region is covered in woodland or forest with Menominee, Shawano and Waushara Counties containing the most percentage of coverage. (Table NR-12). The region's northern and western counties support the most extensive forest growth with large areas of pine, spruce, balsam, and aspen, as well as stands of hard maple, basswood and birch. Hardwoods pre-dominate the southern counties while oak trees in sandier soils are prevalent in the western counties. These western counties have also been productive silvaculture areas (Christmas tree farming). Menominee County, almost entirely forested, contains the only mature stand of choice pine in the region.

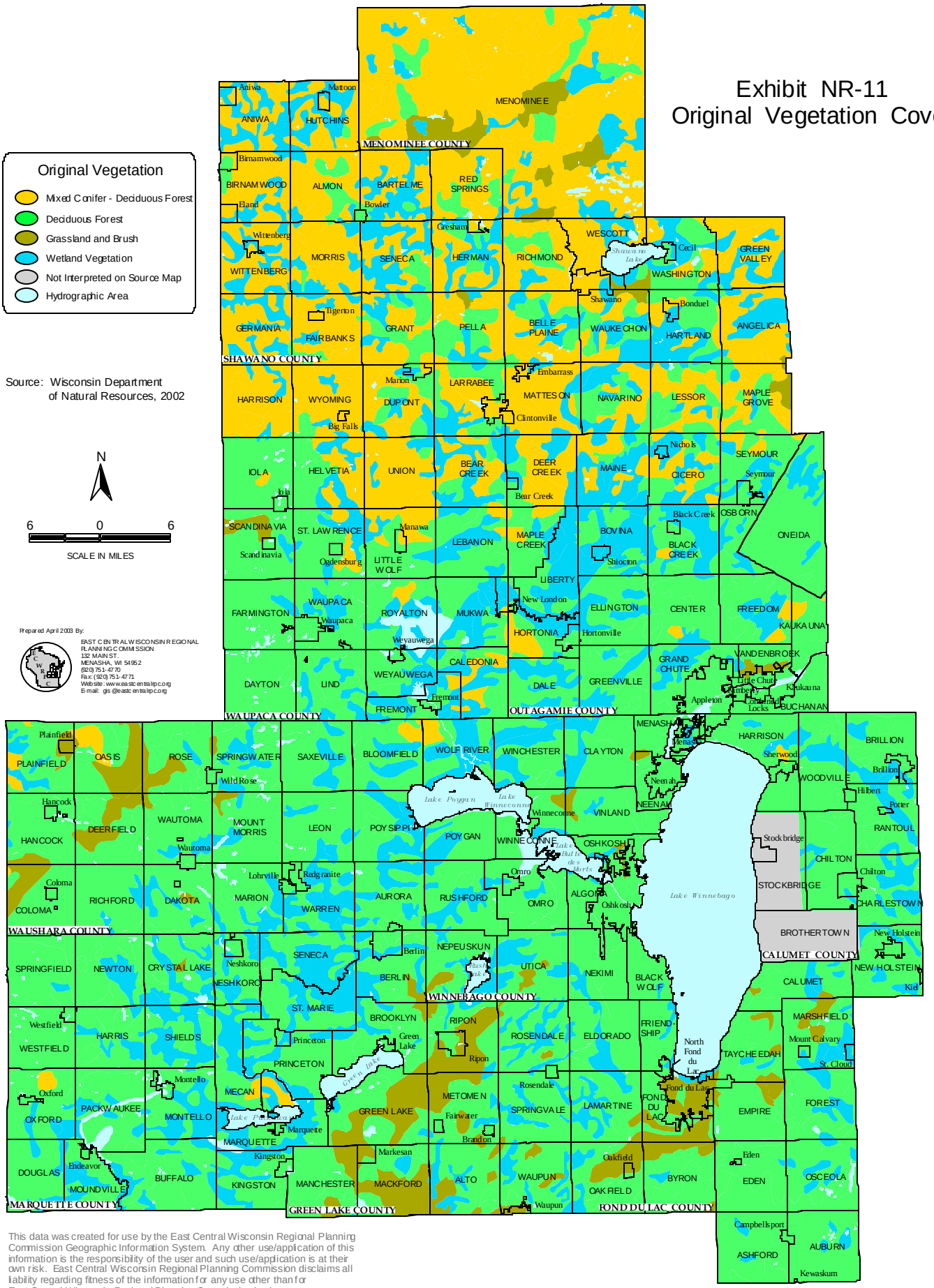
A majority of forests within the region are under private ownership on farms, along shorelines, and in scattered lots, however; approximately 10,249 acres of land are in public ownership as State Forests, all of which are located in Fond du Lac County. There are also 802 acres of designated County Forests located within Shawano, Waupaca, and Winnebago Counties. Private forests and woodlands can typically be classified as passive recreation lands (hunting, camping, open space) or as commercial forests used for lumber, pulp, or other wood products Chapter 3 - Economic Development contains additional information on the region's commercial forestry activities.

Table NR-12: Woodlands & Forest Cover in the East Central Region

County	Total Land Area (thousands of acres)	Forest Land Area (thousands of acres)	Percent of Total Area
Calumet	208.9	35.1	16.8%
Fond du Lac	463.8	35.1	7.6%
Green Lake	228.2	21.0	9.2%
Marquette	290.9	94.3	32.4%
Menominee	229.7	213.1	92.8%
Outagamie	411.0	70.7	17.2%
Shawano	574.0	259.2	45.2%
Waupaca	482.8	181.1	37.5%
Waushara	401.7	157.2	39.1%
Winnebago	287.6	14.2	4.9%
East Central Region	3,578.6	1,081.0	30.2%

Source: Tech. Bulletin NC-107 Wisconsin's Fourth Forest Inventory, 1983. USDA - Forest Service

Exhibit NR-11
Original Vegetation Cover



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Urban forests are also present within the region and need to be considered as a valuable resource. Urban tree cover assists in providing both stormwater management service as well as energy savings by reducing 'heat island' effects resulting from paved surfaces. Urban forests consist of all the trees and other vegetation in an around a community. Traditionally this has referred to tree-lined streets, but an urban forest also includes trees in home landscapes, school yards, parks, riverbanks, cemeteries, vacant lots, utility rights-of-way, adjacent woodlands and anywhere else trees can grow in and around a community of any size. Shrubs, flowers, vines, ground covers, grass, and a variety of wild plants and animals also are part of the urban forest and should be considered for its energy conservation value as well as other environmental and social reasons.

Two state-level programs regarding forests and woodlands exist which can be used to gauge the commercial level of forest use within the region, the Forest Crop Law (FCL), and the Managed Forest Law (MFL). The Forest Crop Law was enacted by the Legislature in 1927 and is a voluntary program, which encourages sound forestry practices. The law allows landowners to pay taxes on timber only after harvesting, or when the contract is terminated. Enrollment in the FCL program was terminated in 1987 and renewals are not allowed. FCL lands are open to the public for fishing and hunting activities as part of the contract agreement. The Managed Forest Law, enacted in 1985, combined the FCL program and a companion law, the Woodland Tax Law (WTL). The purpose of the MFL is to encourage the growth of future commercial crops through sound forestry practices while recognizing individual property owner's objectives and society's need for compatible recreational activities, forest aesthetics, wildlife habitat, erosion control and the protection of endangered resources. As of January 1, 2000, approximately 43,845.8 acres of land within the region were enrolled as 'open lands' in these programs (Table NR-13).

Table NR-13: Enrolled 'Open' Forest Program Lands within the East Central Region

County	Acres Enrolled in:		Total Acres
	Forest Crop Law	Managed Forest Law	
Calumet	340.00	-	340.00
Fond du Lac	40.00	91.00	131.00
Green Lake	-	-	-
Marquette	754.00	848.00	1,602.00
Menominee	-	319.00	319.00
Outagamie	377.58	526.35	903.93
Shawano	14,572.64	11,425.37	25,998.01
Waupaca	9,166.71	1,281.37	10,448.08
Waushara	2,371.19	1,555.52	3,926.71
Winnebago	40.00	137.07	177.07
East Central Region	27,662.12	16,183.68	43,845.80

Source: WDNR – January, 2000.

Many of the remaining woodland areas within the region continue to face pressures from development. Recreational demands for summer homes and hunting further divide the ownership of large tracts and make them more vulnerable to fragmentation. The development of homes within, or near, woodland areas may also impact the recreational (hunting) value of these areas. More detailed information and analyses on the amount and type of forest cover will be provided in subsequent reports, once East Central's land use inventory is completed in 2003.

Historically, numerous areas of grassland existed within the southwestern portions of the region; however, significant losses of these habitat types have occurred in the past due to expanding agricultural practices. The main threat to grasslands is now the development of rural housing. Grasslands have typically been underrated and ignored in terms of habitat in land use plans and need to be considered in more detail. Many species are dependent on the larger blocks of remaining grassland habitat and even the small, isolated patches of grassland, are important as 'stop-over' sites during the bird migration seasons. Important grasslands continue to remain in Green Lake, Marquette, Waushara, Waupaca, and Fond du Lac Counties and are worth further examination and protection. In some areas formal restoration programs for landowners exist, such as the Glacial Habitat Restoration Area (GHRA) led by the WDNR in western Fond du Lac and southern Winnebago Counties.

Wetlands, detailed in the preceding section, are worth noting again as areas of critical importance in terms of their provision of habitat. Much of the southern and eastern portions of the region contain wetland areas that have been noted as being of 'high value' for waterfowl production within the state.

The region is also subject to the continued introduction and management of 'exotic species'. A number of these non-native species are present within the region and are of special concern, including: purple loosestrife and Eurasian water milfoil. Such species could completely alter native ecosystems in the future if not controlled.

Endangered, Threatened and Concerned Species

Every county within the region harbors some type of plant or animal resource that is considered to be endangered, threatened, or of concern at a state level. According to Wisconsin State laws, an 'endangered species' is a species whose continued existence as a viable component of the state's wild animals or wild plants is determined by the WDNR to be in jeopardy on the basis of scientific evidence. A 'threatened species' is any species which appears likely, within the foreseeable future, on the basis of scientific evidence to become endangered.

A total of 2,317 'known occurrences', representing 615 different species and natural community types, have been listed by the WDNR as endangered or threatened within the region as listed by the State's Natural Heritage Inventory (NHI) database. According to Table NR-14, as well as maps and tables contained in Appendix F, the highest concentrations, in terms of both number of species types and occurrences, are located in Marquette, Waupaca and, Waushara Counties. Calumet County has the least number of species types and occurrences at 27 and 66, respectively. Four species types, with 87 occurrences, have been listed as federally endangered or threatened within the region.

It is noted by the WDNR that this information is for general planning purposes rather than regulatory decision-making and that the user is advised that the NHI is a statewide inventory of 'known' locations and that parts of the state have not yet been inventoried. Thus an "absence of evidence is not evidence of absence", nor does the presence of one element imply that other elements were surveyed for but not found.

Table NR-14: Endangered & Threatened Species/Natural Communities

County	No. of Species Types	Total No. Occurrences
Calumet	27	66
Fond du Lac	63	198
Green Lake	66	180
Marquette	95	299
Menominee	53	305
Outagamie	46	180
Shawano	61	335
Waupaca	81	290
Waushara	78	228
Winnebago	45	236
East Central Region	615	2,317

Source: WDNR, 2002

Environmentally Sensitive Areas

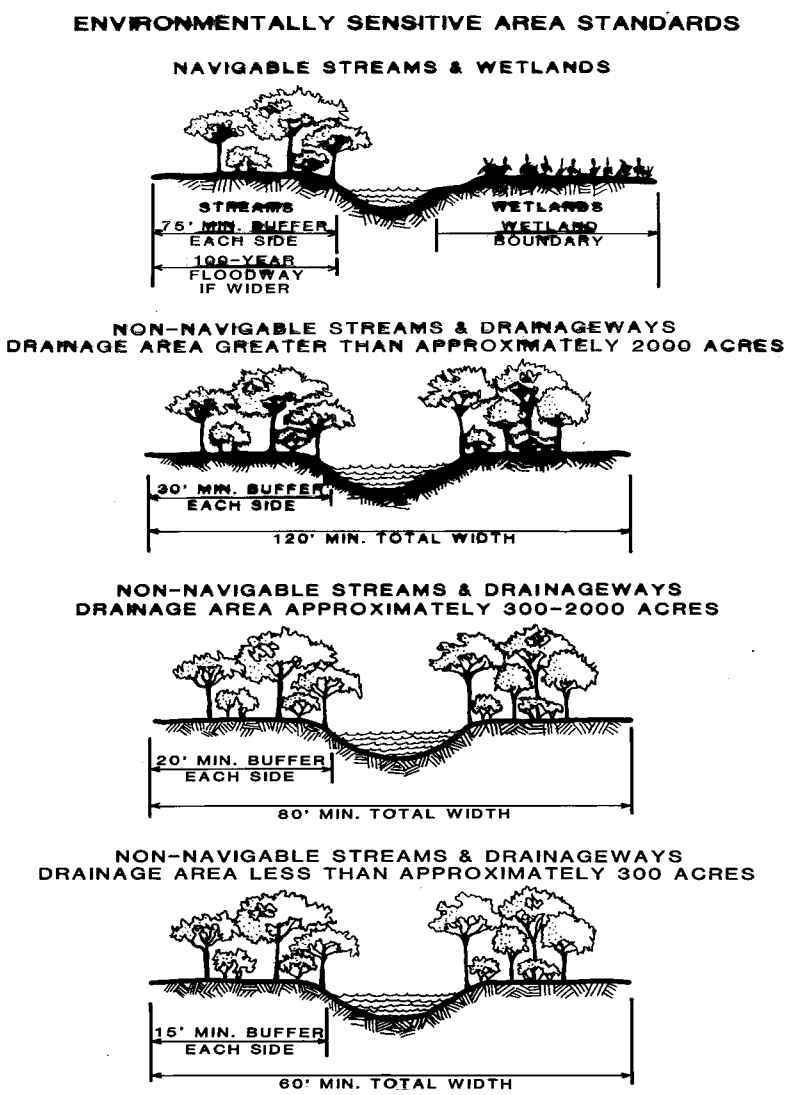
The term 'environmentally sensitive area' is based on the 'environmental corridor' concept originally developed by Philip H. Lewis Jr. during the 1960's and 1970's. In 1996, Mr. Lewis further defined environmental corridors as 'spatial patterns of occurrence of any or all of the combined features of water, wetlands, and steep topography of 12.5% or greater found in an urban or urbanizing environment'. Environmentally Sensitive Areas (ESAs) serve many functions related to water quality, habitat, and aesthetics in a community. Although these terms are somewhat interchangeable, their definitions may vary widely when used across the state as a management or regulatory tool.

East Central, as part of an agreement with the WDNR, develops and administers 26 individual Sewer Service Area Plans within its region, and as such; is responsible for the development of a policy definition for ESAs which is based on guidelines set forth in Wisconsin Administrative Code NR-121.05(g)(2)(c). East Central, after deliberations with technical and policy advisory committees in 1985, defined environmentally sensitive areas in a manner that complements existing local, state and federal regulations, which protect various environmental amenities from sewered development. While NR-121 authorizes sewer service area plans to identify a broad array of natural features as environmentally sensitive areas, only those features which were believed vital (at the time) in the region to preserve environmental quality were so designated. The current definition used by East Central is as follows and is illustrated in Figure NR-8.

Environmentally Sensitive Area: Geographic areas consisting of all lakes and streams shown on USGS quadrangle maps and their adjacent shoreland buffer areas. Also all wetlands shown on the state Wisconsin Wetland Inventory Maps and floodways as delineated on the official Federal Emergency Management Administration Flood Boundary and Floodway Maps.

The purpose of designating environmentally sensitive areas is to preserve significant environmental features from encroachment by sewered development. Environmentally sensitive areas perform a variety of important environmental functions including stormwater drainage, flood water storage, pollutant entrapment, and the provision of wildlife habitat. They can also provide desirable green space to enhance urban aesthetics.

Figure NR-8: East Central RPC ESA Definition for SSAs



Community (Regional) Design & Aesthetics

The region has numerous amounts and varieties of aesthetic resources. From the bluffs of the Niagara Escarpment on its eastern side, to the woodlands of the northern counties; or, the glacial moraines located in its western portion. Aesthetic resources are comprised of many natural and man-made features and are difficult to define at any level. For the most part, aesthetic resources can be divided into two major categories: rural character and urban design.

- Rural Character: Rural character is defined many ways and will vary by community, but typically would be comprised of the following general components: topography, farmlands, woodlands, wetlands, prairie, and other open spaces. Many of the region's natural resources or open spaces are large enough to be considered 'regionally significant' and contribute to the overall aesthetics of both the region and their associated communities. Many of these areas are desirable for rural housing sites and can often be degraded by the very persons who move to area. Often, these issues can be addressed as they related to the protection of natural resources and agricultural lands.

- Urban Design: Aspects of urban development such as tree planting, signage, neighborhood density and design, street patterns, building setbacks, building architecture, and construction materials all contribute to the overall feeling and uniqueness of an urban community or neighborhood. Design issues are commonly addressed in larger communities that contain significantly sized downtowns or other historic resources. Design aspects of newly developing areas however; have not been considered to a great degree in most communities. Developments that are more pedestrian friendly and aesthetically pleasing can translate into healthier communities.

Of mutual concern to both rural and urban areas are those types of man-made facilities which, in some person's eyes, result in the blight of the landscape. These include structures such as telecommunication towers, wind power generation facilities, and billboards. Only two large-scale wind power generating facilities exist within the region (Fond du Lac County); however; no comprehensive inventories of telecommunication towers or billboards have been completed.

Regulation of telecommunication facilities are typically handled at the local level under guidance from the FAA and FCC. Billboards are regulated at a local level, however; some state provisions exist. Currently, a 'billboard control' bill, SB219 is pending review and approval at a federal level, and on April 25, 2002, the Senate Environmental and Public Works Committee recommended passage of Senate Bill 975, the Community Character Act. This Act would authorize up to $50 million per year in grants to state, tribal and local governments to help them update and improve their land use plans. Among the criteria for awarding grants is that the proposed plans "...to the maximum extent practicable...enhance community character and conserve historic, scenic, natural and cultural resources."[1]

1 - Scenic America, Viewpoints, summer, 2002.

Open Space & Public Lands

Many of the previously described resources are components of the region's overall open space network and need to be considered as such from environmental, recreation, and aesthetic perspectives. This section focuses specifically on those areas not previously mentioned which also contribute to the open space and passive recreation needs of the region. Areas described here are considered to be regional in nature and many are in public or quasi-public ownership. More active recreation oriented county and local parks, including trails, are addressed in Chapter 6 - Community Facilities and Chapter 5 - Transportation.

Not counting these local community parks and recreational facilities, there are presently nearly 125,000 acres of publicly owned land available for outdoor recreational pursuits in the region (Table NR-15 and Exhibit NR-12). This regional open space serves many purposes, but a prime reason that many of these areas exist in public ownership is to ensure that important scenic features, natural and cultural resources, and habitat areas are preserved for the enjoyment of both present and future generations of Wisconsin residents. With minor exception, the vast majority of this acreage is virtually undeveloped, providing opportunities for passive (less intensive) forms of recreation; i.e., activities such as hunting, fishing, and hiking, which typically do not seriously tax the resource base.

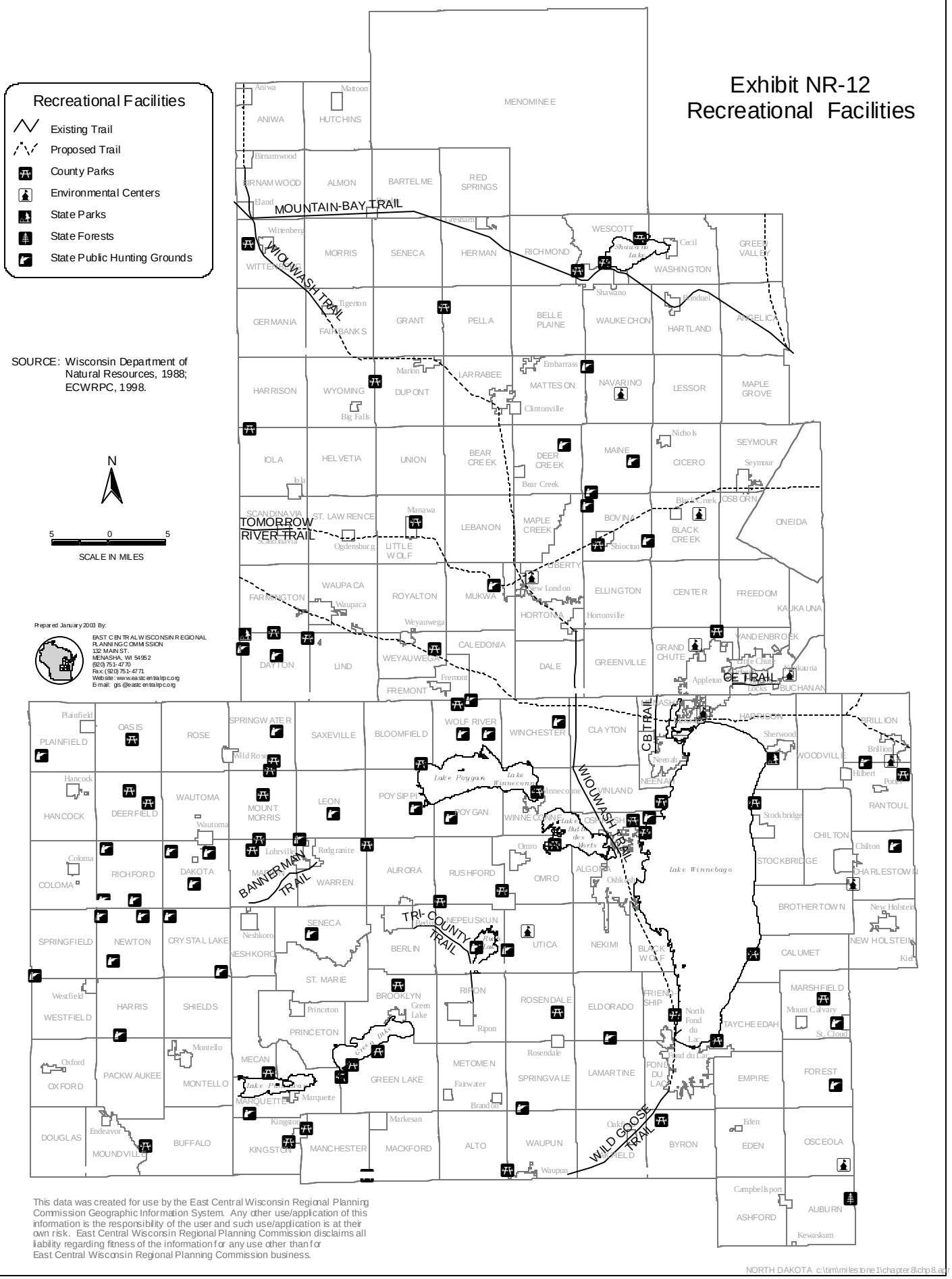
Table NR-15: Public Lands & Open Space Acreage within the East Central Region

County	FEDERAL		STATE					COUNTY			PRIVATE
	Wildlife Areas	Other	State Parks	State Forests	State Wildlife/ Fisheries	State Habitat Areas	Natural Areas (SNA)	County Parks	Forests, Hunting, Etc.	School Forests	Natural Areas (SNA)
Calumet	-	-	1,145	-	9,758	-	20	428	-	70	-
Fond du Lac	1,700	-	-	10,249	8,807	3,892	412	809	-	-	1
Green Lake		-	-	-	16,515	-	242	314	-	-	-
Marquette	1,008	-	-	-	10,213	127	712	240	-	320	820
Menominee	-	-	-	-	-	-	-	-	-	-	-
Outagamie	-	50	-	-	7,439	-	900	939	-	447	-
Shawano	-	-	-	-	13,485	-	80	970	481		-
Waupaca	-	-	976	-	5,882	-	423	105	200	98	20
Waushara		272	-	-	13,782	-	660	686	-	429	-
Winnebago	146	-	-	-	5,820	1,379	-	664	121	55	132
EC Region	2,854	322	2,121	10,249	91,701	5,398	3,449	5,155	802	1,419	973

Source: WDNR and ECWRPC, 2002.

There are over 3,000 acres of federally owned open space in the region. The northern tip of the Horicon National Wildlife Refuge east of Waupun and the Fox River National Wildlife Area south of Montello comprise the bulk of this acreage. Public access is not permitted on the Fox River project, which serves as a crane nesting and staging area.

Exhibit NR-12
Recreational Facilities



Over 90% of the regional open space is owned by the WDNR and many of its holdings are tracts of several thousand acres or more. Depending on parcel size, character, and other factors that led to its purchase, the WDNR manages each parcel consistent with an approved site-specific management plan containing specific management objectives. These management objectives provide a basis for the scope of development the project property is designed to accommodate and define its ultimate size and types of recreational opportunities that are allowed.

Only two state parks, High Cliff near Sherwood and Hartman Creek near Waupaca, are located with the region. Both receive heavy use with High Cliff generally ranking third among all state parks in attendance and Hartman Creek ranking in the top ten. Each park offers over 100 campsites and provides a variety of other recreational opportunities. Over 10,000 acres of the 29,000-acre Northern Unit of the Kettle Moraine State Forest is located in southeastern Fond du Lac County. Portions of the state forest are components of the Ice Age National Park and Trail.

Collectively totaling over 91,000 acres, the WDNR's state wildlife and fisheries areas provide almost 75 percent of the public open space within the region. With the exception of Menominee County, at least 5,800 acres are available in each of the region's ten counties. The largest single property is the 14,581-acre Navarino State Wildlife Area, located primarily in southern Shawano County. The primary management objective of these properties is wildlife and fishery habitat enhancement. Most of the state wildlife areas protect the region's largest habitat-rich wetlands. The state fisheries areas are concentrated along the headwater streams in the western portion of the region, many of which are naturally reproducing trout waters. Since fishery areas follow watercourses, they tend to be more linear and less contiguous than the blocks of land common to the wildlife areas.

Scattered sites totaling over 5,000 acres in southern Winnebago County and western Fond du Lac County comprise part of DNR's Glacial Habitat Restoration Area. This project, which also extends into adjacent counties south of the region, reflects an effort begun by the WDNR about ten years ago to acquire a goal of 38,600 acres for permanent grassland nesting cover and to restore 11,000 acres of wetlands to replicate pre-settlement habitat conditions.

Sites designated by the WDNR as State Natural Areas (SNAs) are another important component of regional open space. SNAs are jewels of the landscape that have been selected on the basis of their unique biotic and/or physiological features. They are offered a high degree of protection from human impact because they often provide the only or best remaining example of specific types of ecosystems to be found in the state and, for some sites, the plant communities or species are so rare that public access is restricted. There presently are 47 designated SNAs in the region and they collectively total almost 11,000 acres. Although many of the SNAs are located within other DNR project properties, over half of the SNAs in the region are "stand-alone" sites, including 21 sites totaling over 3,400 acres that are owned by the WDNR. Four SNAs are under county ownership and an additional five are owned by private interests.

County-owned open space totals nearly 6,000 acres regionwide. Although most of this acreage is in the form of county parks, it also includes county forests and hunting areas as well as a range of specialized facilities including nature centers, fairgrounds, golf courses, and ice arenas. Each county has its own philosophy related to the operation and funding of its park system. In general, the region's three urban counties tend to provide a more diverse and intensively developed range of facilities. Many sites classified as county parks are primarily public boat landings with little or no facility development. A trend during the past 25 years has been the incorporation of recreational trails into the region's county park systems. Today, over 100 miles of multi-use recreation trails can be found in the region.

The Ice Age National Scenic Trail, which is designed as a footpath, also passes through the region. Developed portions of the trail exist in Fond du Lac, Waupaca, and Waushara counties, and planning efforts are underway to complete the Waushara County segment of the trail as well as to extend it southward through Marquette County.

School district lands contribute over 1,400 acres of regional open space. Most of this land is maintained as school forest with little or no development, but Seymour and Oshkosh school districts maintain environmental centers. Quasi-public open space is also provided by Fallen Timbers (Seymour) and Sullivan's Woods (Oshkosh), as well as eight other environmental centers which exist within the region. The management of these environmental centers is diverse, ranging from DNR (Kettle Moraine), county (Mosquito Hill, Ledgeview, and Navarino), local (1000 Islands and Heckrodt), and private (Bubolz and Brillion). A combination of public and private sources is commonly used to fund and staff these centers.

The region's surface water also contributes valuable open space and recreational opportunities. The region's lakes alone occupy 219,000 acres and include Lake Winnebago, Wisconsin's largest lake at 137,708 acres, and a handful of other lakes in excess of 5,000 acres. Overall, the region's lakes have a high degree of public access; only eight of its 63 lakes over 100 acres do not have public access and six of these are in Menominee County, where circumstances for public access differ because of the county's status as an Indian reservation. Access to the region's major and minor streams is generally good and many of the trout streams have extensive amounts of shoreline owned or leased by DNR.

Land Legacy Places

Recently, additional efforts have been made to assist in considering the importance of the region's resources as part of the WDNR's Land Legacy Program. Beginning in 1999 a three year state-wide public process was initiated to gather public input and information on places that would be critical in meeting Wisconsin's conservation and recreation needs for the next 50 years. In October, 2002 the WDNR published a draft document which summarizes the process and provides information on 228 such 'Legacy Places' identified throughout Wisconsin. Table NR-16 highlights those identified areas within the region. According to the report, these places vary in size, harbor both common and rare species, and offer outdoor recreation, conservation and environmental values of varying significance. The report does not draw boundaries around any of the places, does not identify current ownership or how and when these places should be protected, or who should help protect them. The Regional Plan is one logical arena for such discussions as many of the identified areas fall within multiple jurisdictions, or are of such scale, that they truly are regional in nature.

Table NR-16: Land Legacy Places in the East Central Region

County	General Location
Calumet	Niagara Escarpment Corridor Manitowoc River Corridor
Fond du Lac	Niagara Escarpment Corridor Glacial Habitat Restoration Area Kettle Moraine State Forest Milwaukee River (headwaters) Horicon Marsh Campbellsport Drumlins Manitowoc River Corridor Upper Sheboygan River Marshes
Green Lake	Grand River Marsh & Lake Puckaway White River Marsh
Marquette	Comstock-Germania Marshes Grand River Marsh & Lake Puckaway Montello Area Coastal Plain Marshes Neenah Creek Portage to Buffalo Lake Corridor Sand Country Trout Streams White River Marsh & Uplands Oxford Savanna
Menominee	Large Woodland Blocks (Comm., MFL & FCL Lands, etc.) Red River Upper Wolf River
Outagamie	Lower Wolf River Bottomlands Duck Creek & Burma Swamp
Shawano	Comet Creek & Woodlands North Branch Embarrass River Oconto River Red River Lower Wolf River Bottomlands
Waupaca	Comet Creek and Woodlands Hartman and Emmons Creeks Lower Wolf River Bottomlands Sand Country Trout Streams
Waushara	Lakes of the Winnebago Pool Sand Country Trout Streams
Winnebago	Glacial Habitat Restoration Area Lakes of the Winnebago Pool Lower Wolf Bottomlands Rush Lake

Source: WDNR, 2002 Draft Land Legacy Program.

Natural Resources: Key Findings

Current and Future Trends

Geologic Resources

- The underlying bedrock and glacial geology (soils) serve as major determinants in the location and amount of future development within the region. Unique geologic conditions exist within the region that need to be addressed on both a broad and local scale to minimize impacts to the region's groundwater supplies.

- The region's unique geologic resources, such as the Niagara Escarpment and Terminal Moraine, are key features which define the aesthetics and character of the region. These areas have, and will continue to have, severe development pressures placed upon them now and during the planning period.

- Approximately 400 active and abandoned mines, pits and quarries exist within the region and are important sources of the raw materials necessary for the continued development of the region. It has become increasingly difficult for existing mining operations to expand, or to site new operations, due to conflicts with ever increasing amounts of urban and rural development.

Groundwater

- The quantity of groundwater from the deep aquifers has been declining rapidly (2 feet per year) due to continued urbanization of the Fox Valley region. Continued development of the region will continue to lower the aquifer and may impact future supplies. Continued development of the western portion of the region will also contribute to a reduction in the amount of groundwater recharge available for the deep aquifers.

- The quality of groundwater within the region has generally been good, however; numerous areas of natural and man-made contaminants are present within various aquifer systems such as arsenic, nitrates, and bacteria. Continued development of the region's urbanized areas will likely contribute to the overall decline in quality unless proper development, conservation, and management techniques are employed.

Wetlands

- The region's large and small wetland complexes contribute to the overall quality of life within the region through the provision of functions such as flood control, surface water quality, and terrestrial and aquatic habitat. Historically, these resources have been negatively impacted and reduced in size. Continued urbanization of the region will place pressure for the development or alteration of remaining wetland areas. Their protection is vital to the region's economy in terms of recreation, tourism and service provision for stormwater management.

Floodplains

- Floodplain areas have been considerably impacted within urbanizing portions of the region as a result of development over time. As urbanization continues, it will be important to preserve and protect their functionality for both flood storage and attenuation and as open space for wildlife habitat and recreation.

Surface Waters

- The quality of surface waters (lakes, streams, rivers, etc.) varies considerably, although most of the impacted areas are within or near the urbanized and agricultural areas of the lower reaches of the Fox-Wolf Basin. No discernable change in water quality has occurred within the last 10 years for much of these areas. Water quality will continue to degrade as the cumulative effects of both urban and rural development continue.

- The use of the region's surface waters for recreational purposes will continue to increase during the planning period. As such, the potential for increased conflicts amongst their users (i.e., jet-skis vs. fishermen, etc.) also exists.

Forests/Woodlands and Wildlife Habitat

- Woodland areas have been severely reduced in size in the central and eastern portions of the region due to agriculture and urbanization. Remaining woodland areas have, and will continue to be, fragmented due to development and transportation projects unless appropriate measures are put in place to protect them.

- Large and small-scale commercial forestry and silvaculture remain a prominent land use and economic activity within the northern and western portions of the region, while significant areas of remaining woodlands provide ideal habitats which contribute to recreational hunting activities.

- The region has numerous areas of wildlife habitat, including riverine, woodland, wetland, prairie, and forests. These habitats have been, and will continue to be impacted and fragmented by development and transportation projects. Unless landscape level ecosystem management concepts are successfully integrated into local and county land use plans and regulations, these concerns will persist.

Endangered and Threatened Resources

- Approximately 615 different plant and animal species listed on the WDNR's Endangered and Threatened Resources list are known to be located within the region. Larger concentrations of these endangered and threatened species are located in western portions of the region (Marquette, Waushara, and Shawano Counties) as well as along the Niagara Escarpment corridor within Calumet and Fond du Lac Counties. Habitats associated with these resources are continually impacted by both urbanization and sporadic rural development.

Environmentally Sensitive Areas

- East Central currently has a definition for ESAs only for lands within a designated NR-121 Sewer Service Area Plan. This definition was developed and adopted by the Commission in 1985 and is need of review.

- Existing ESAs continued to be impacted by development within these urban areas, however; increased protection methods (zoning, stormwater management, etc.), instituted at the local level, have been developed in recent years.

Open Space

- About 125,000 acres of open space is available to meet the needs of the region's 610,000 residents. This is over 200 acres per 1,000 residents, which is twice the 100 acres of regional open space per 1,000 residents that was adopted as a recommended standard in the *Open Space and Outdoor Recreation Plan for East Central Wisconsin*, 1977.

- There is also an excellent distribution of public open space throughout the region, even though the largest tracts are resource-based. All counties except Menominee have at least 5,800 acres of regional open space. Even so, continued demands for public open space and recreation areas, as well as trails, will exist occur throughout the region, particularly within, and near, areas of more dense population.

- Declining levels of funding, from all sources, will need to be overcome in order to provide and maintain open space and recreational opportunities for existing and future residents of the region.

Regional Design & Aesthetics

- Historically, lands with high environmental qualities have also been those sought after for homesites. The region is rich with glacial and geologic features boasting prominent topography that have been and continue to be threatened by development. The region also has extensive surface water and shoreline resources which have and will continue to be impacted over time. These areas have become an important part of the region's economy and quality of life. Many highway corridors contain valuable natural and visual resources which leave positive impressions on those visiting the region or passing through. Much value is placed on the region's 'scenic resources', however; billboards, cellular communication towers, strip commercial development and monotonous, cookie cutter houses and subdivisions persist in many communities and metropolitan areas.

In summary, much of the planning for resource protection is driven by state and federal programs and regulations. Ultimately, the principles of these regulations may find their way into local land use controls. This approach has met with some success, most notably in the area of wetland protection. On other resource management issues, such as forest fragmentation, the outcome has not been as favorable. In many respects, the effectiveness of local resource management programs is directly related to the strength of the state or federal guidelines requiring protection. Unless mandated, local jurisdictions seem reluctant to adopt controls on the use and management of natural resources. In keeping with the above, few

stream corridors, woodlands, steep slopes, etc. have received only passing consideration as part of the community planning process.

Misuse and consequent degradation of these resources is common. There are however some indications that natural resource protection and the preservation of open space are receiving greater attention at the local level. Local initiatives to develop urban recreational trails, greenways and natural areas have been gaining support, and some developers are incorporating green space and recreational amenities into their development plans. Although far from a comprehensive resource protection strategy, these efforts may be signaling a broader recognition of the use and value of natural resources.

Issue Identification:

General Issues Identified

During the fall of 2002, a series of focus group meetings were held throughout the region to help to begin to identify the issues that local governments, interest groups and citizens feel should be addressed in the regional comprehensive plan. These workshops identified a significant amount of local and regional issues associated with natural resources and land use planning and implementation:

- General concerns exist on identifying and preserving the overall quality of the region's natural resource base while still allowing for continued economic development.

- Impacts on surface and groundwater water supplies from rural and agricultural development is a recurring issue throughout the region.

- The loss of the resources and green space associated with them as urban and rural development sprawl throughout the countryside.

- Rural development and its conflicts with resource-based land uses, such as non-metallic mining is a common issue throughout the region.

- Preserving the truly unique resources of our region, such as the Niagara Escarpment, Winnebago Pool Lakes, and the Terminal Moraine from development.

- The 'homogenization' of small communities within the region, caused by 'big-box suburbia' types of development have attributed to a loss of community character. These broader urban and regional design concepts have not been adequately addressed in the past.

- Protection of the region's surface waters and other resources for recreational development is also of concern. The need for additional trails and green spaces were identified for urbanizing portions of the region.

- Concepts of sustainability and integrated ecosystem planning are a recurring theme in terms of concerns for the future. The high costs associated with cleaning up or restoring these resources, versus the relatively low costs for planning and protection of them is also of concern.

- Many concerns exist on the general lack of planning and protection for these resources in local and county plans. It also has been noted that natural resource issues are either too technically complex, or it is difficult to achieve a consensus for protection, and; therefore, this area does not receive significant attention.

- Many opportunities exist for more coordinated, multi-jurisdictional planning efforts to address natural resource issues. It had been recognized by many that current laws do not promote such planning as there is little to no control over resources outside a community's jurisdiction. A more coordinated, regional approach is necessary to address many of these issues.

Regional Issues to be Addressed

Many of the issues identified are regional in nature, as they occur almost universally throughout the region. After further review by staff, it has been determined that the number of issues associated with natural resources cannot be completely addressed within the regional comprehensive plan. Certain sub-elements, however, have been discussed as being important due to their regional nature, or because of their current lack of consideration in local plans due to the need for a regional framework. These major issues will be addressed in detail during the regional comprehensive planning process and include:

- Non-Metallic Mining Resources: There is a need to more specifically identify and preserve non-metallic resources within the region while more proactively addressing land use conflicts associated with these activities. The future growth and development of the region's economy and transportation infrastructure will depend on the preservation of these geologic deposits in close proximity to urbanizing areas. Where will the region's growing areas get their materials from in the future? Where are these resources located and how can they be protected? How can communities and counties eliminate, or reduce, the conflicts which arise from siting these types of uses?

- Groundwater Quality & Quantity: Much concern exists over the future capabilities of the region's aquifer system to sustain development. The quality and quantity of groundwater is imperative to maintaining and improving the region's economy and quality of life. What will be the quality of surface and groundwater resource within the region in the year 2030? Will there be sufficient groundwater resources to accommodate the future projected population in the year 2030? How should/will multi-jurisdictional groundwater recharge issues be addressed to support the current and future demands on the local and deep aquifer systems? How will issues regarding the future siting of large groundwater users (municipal wells, industries, etc.) be addressed during the planning period?

- Surface Water Quality & Watershed Planning: A need exists to develop integrated watershed-based plans which adequately address surface water quality, groundwater, and ecosystem management issues. These plans need to be tied directly to land use impacts and need to identify more specific, coordinated, multi-jurisdictional strategies to address both point and non-point source pollutants. How will the needs for regional watershed-based plans and concepts be addressed and implemented to maintain and improve surface water quality?

- Ecological & Biological Resource Protection: These issues have not been adequately addressed at a variety of levels. Many sources of information on these resources have been made available to units of government in recent years, however; a broad perspective is needed to address them as most issues associated with them are multi-jurisdictional. How can broad, eco-system management concepts be integrated into the regional, as well as county and local level, plans? What areas, and how much, of the existing wildlife habitat should be preserved or protected throughout the region? How fragmented will the region's forest and woodland areas be from development in 2030? How will the region's unique and rare habitats such the Niagara Escarpment be preserved? Whose responsibility will it be to ensure that these areas are protected? How will issues associated with the acquisition and management of public lands (i.e. WDNR) be handled?

- Environmentally Sensitive Areas: The age of the current East Central definition, as well as the sporadic application of policies associated with ESAs need to be addressed in more detail during the development of the Regional Comprehensive Plan. How should the definition and application of Environmentally Sensitive Areas be addressed to ensure both adequate protection and continuity within the region?

- Open Space & Recreation: While an abundance of public open space and recreational areas exists within the region, there are specific needs for more overnight and weekly camping sites, particularly in western portions of the region. There is also a need for continued expansion of the region's recreational trail network to link communities and other points of interest and provide economic benefits. The region is also underserved by state park facilities - at least one additional state park is needed to disperse the heavy user pressure at the two state parks located within the region.

- With funding issues expected to be an ongoing concern, it will become increasingly important to seek ways to expand the involvement of the general public in the funding and routine maintenance of open space areas. Where will these funds come from and who will pay for future land acquisitions? How should recreational opportunities be coordinated amongst various agencies and entities? Continuing issues of overuse/user conflicts on water bodies also need to be addressed. These include public access vs. overuse, conflicts between various activities, and conflicts between lakeshore residents and non-resident user groups. Additionally, WDNR management objectives of fish and wildlife areas perhaps contribute to conflicts between users and local residents.

- Regional Design & Aesthetics: Communities visually and physically 'run together' in certain areas of the region as the result of highway patterns, economic pressures, and community independence, often with a total disregard for the 'sense of community' which once defined them. The existence of unique natural resource characteristics and associated open space lands which define a community(ies) must be held in higher regard in order to maintain and improve the economy and quality of life for the region. What will the region's highways and byways look like in the year 2030? Will there be a clear pattern of development which preserves the region's unique communities and the characteristics that define them? Or will scattered rural development and highway commercial uses render the region's landscape a hodgepodge of visual clutter which is not sensitive to the region's resources?

Exhibit NR-1
Bedrock Geology

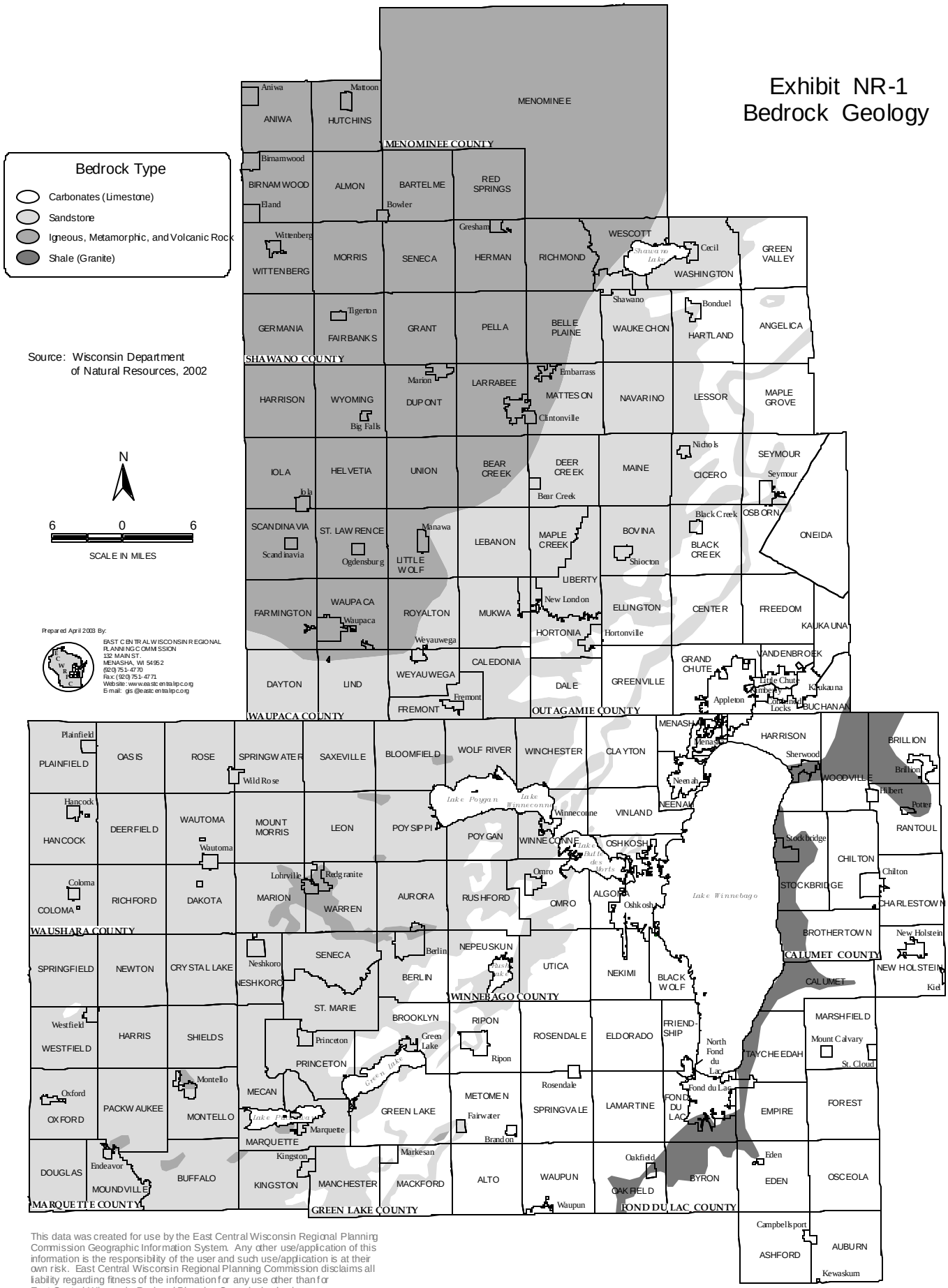


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Exhibit NR-10
Ecological Landscapes

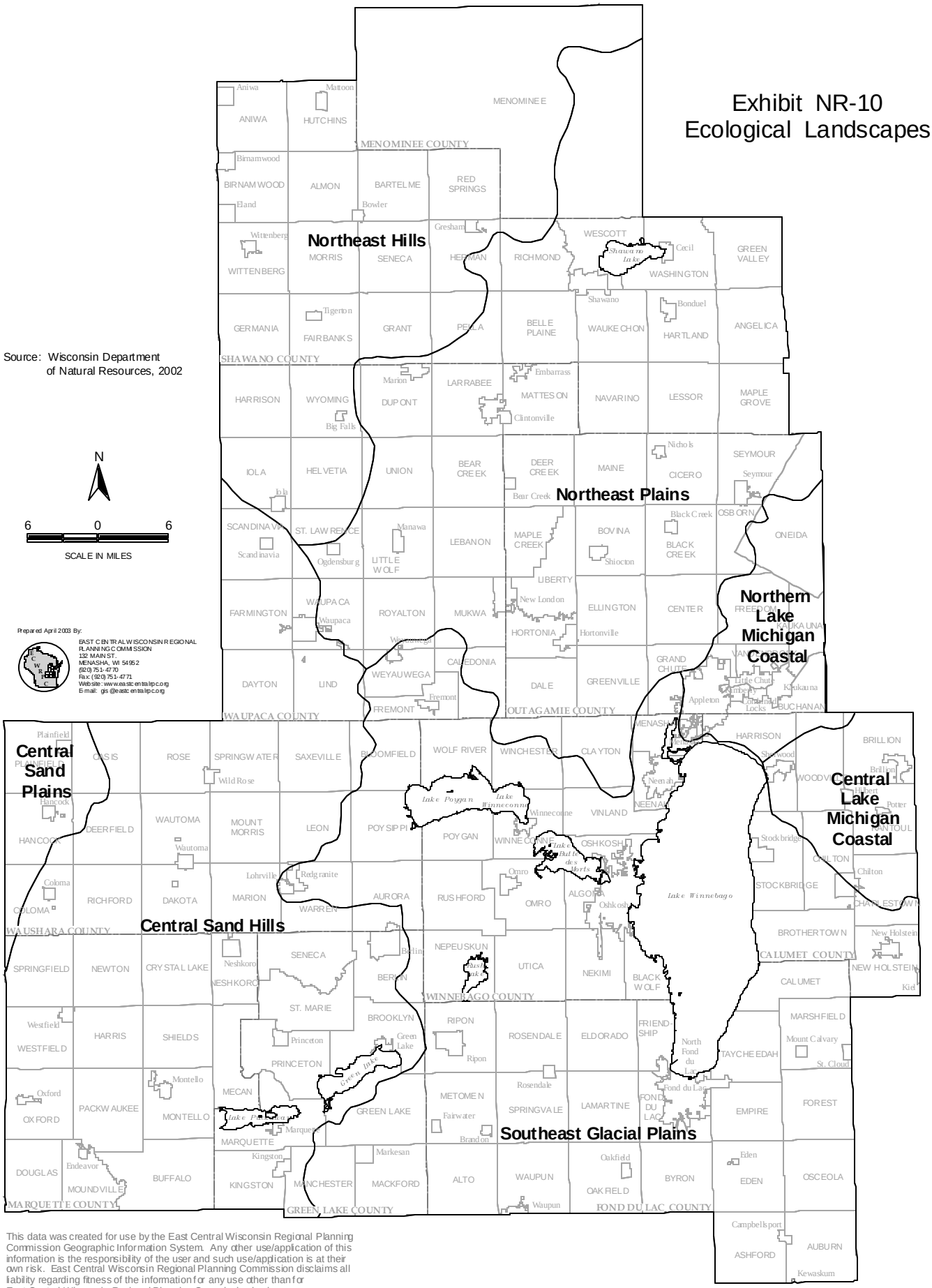

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Exhibit NR-11
Original Vegetation Cover

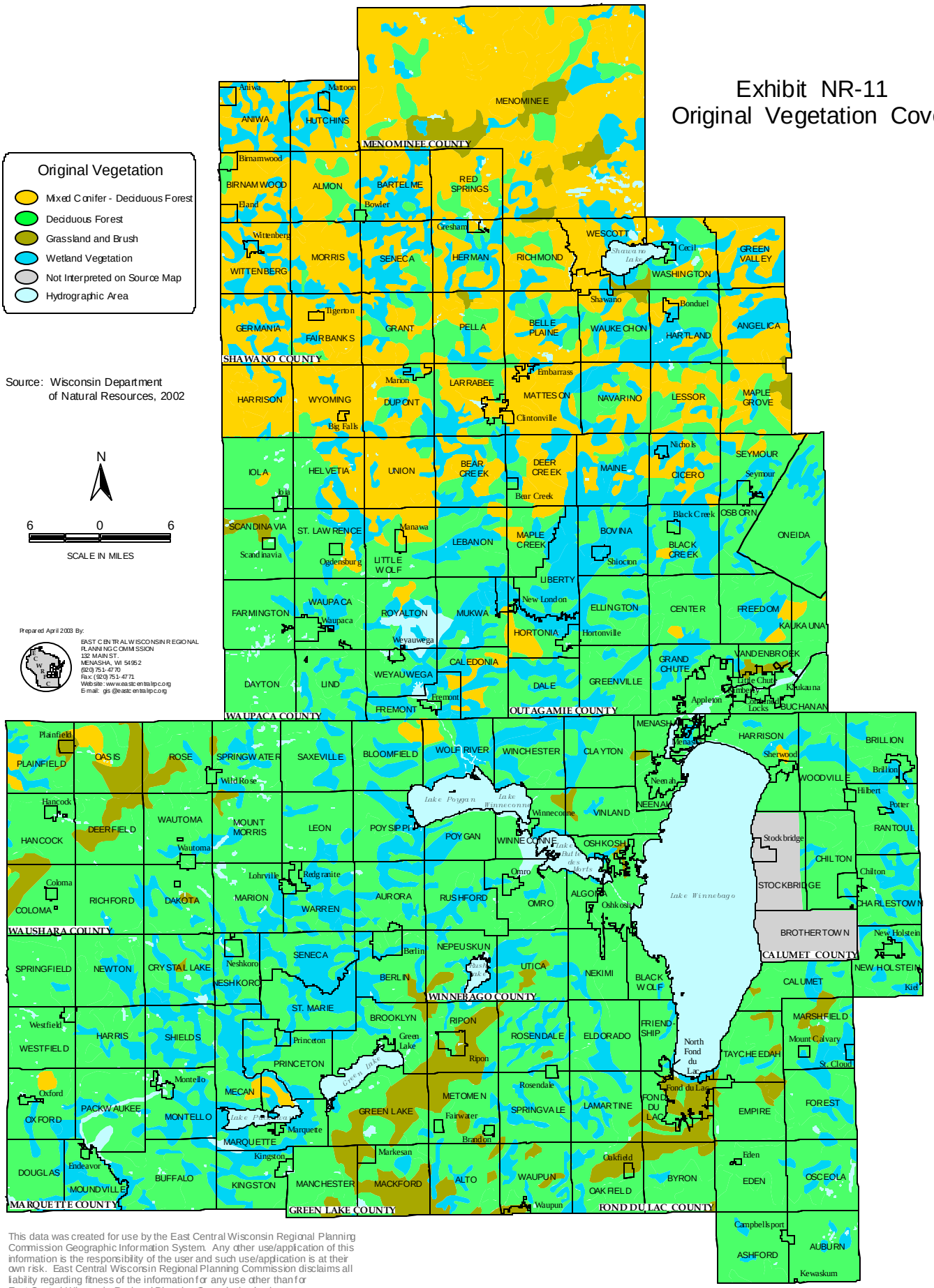

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Exhibit NR-12
Recreational Facilities

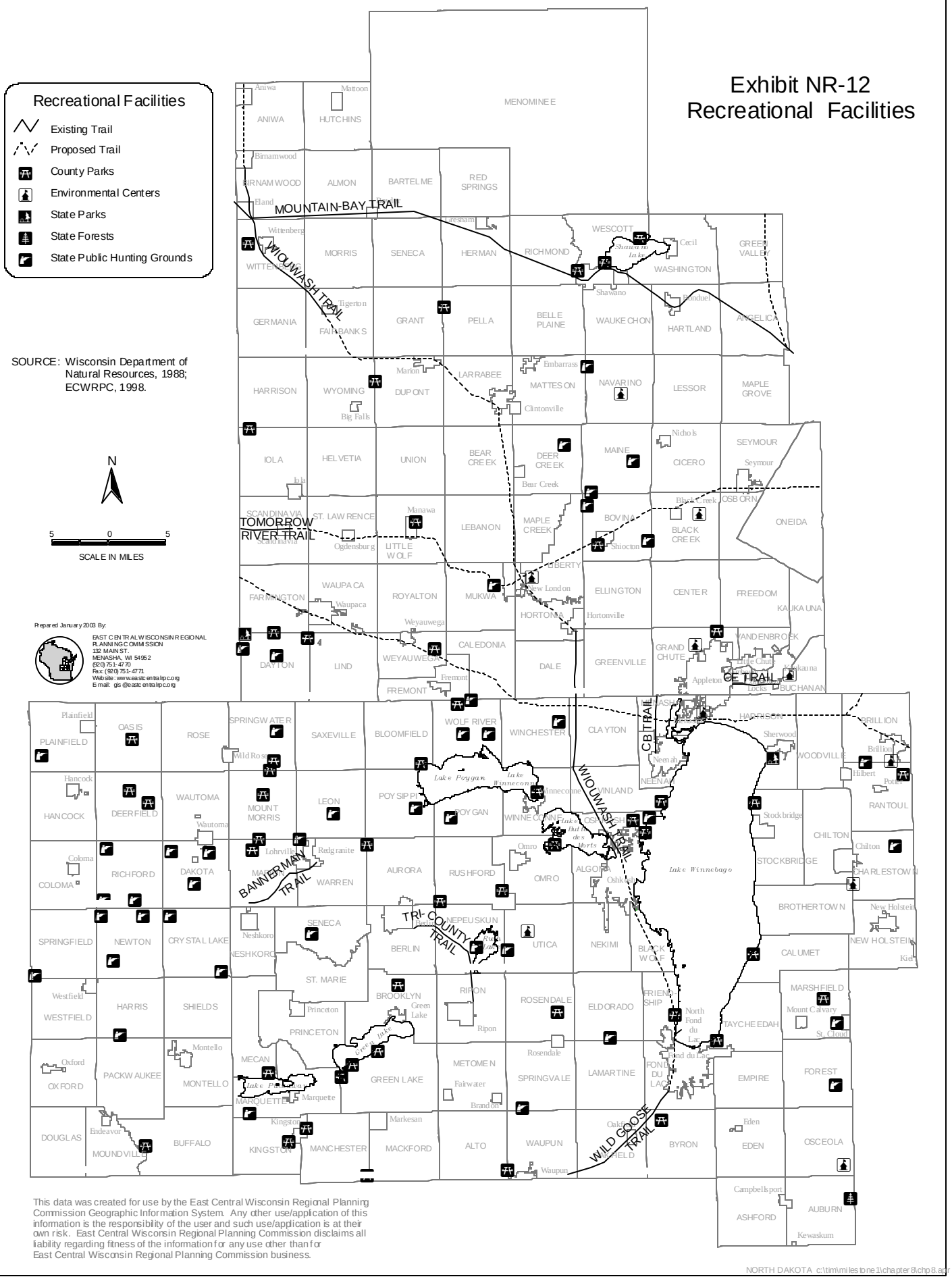
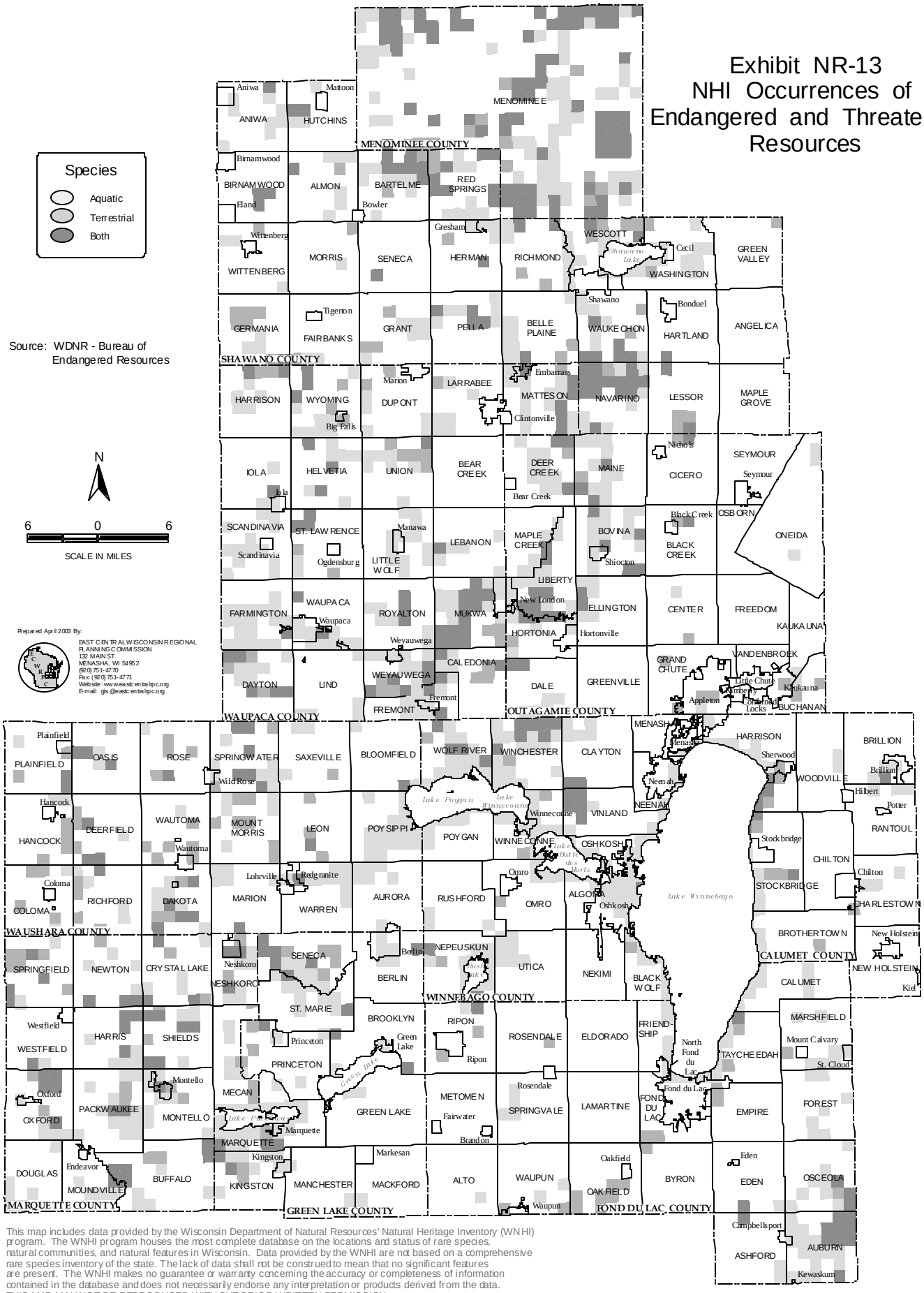


Exhibit NR-13
NHI Occurrences of Endangered and Threatened Resources



This map includes data provided by the Wisconsin Department of Natural Resources' Natural Heritage Inventory (WNHI) program. The WNHI program houses the most complete database on the locations and status of rare species, natural communities, and natural features in Wisconsin. Data provided by the WNHI are not based on a comprehensive rare species inventory of the state. The lack of data shall not be construed to mean that no significant features are present. The WNHI makes no guarantee or warranty concerning the accuracy or completeness of information contained in the database and does not necessarily endorse any interpretation or products derived from the data.
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Exhibit NR-2
Glacial Deposits

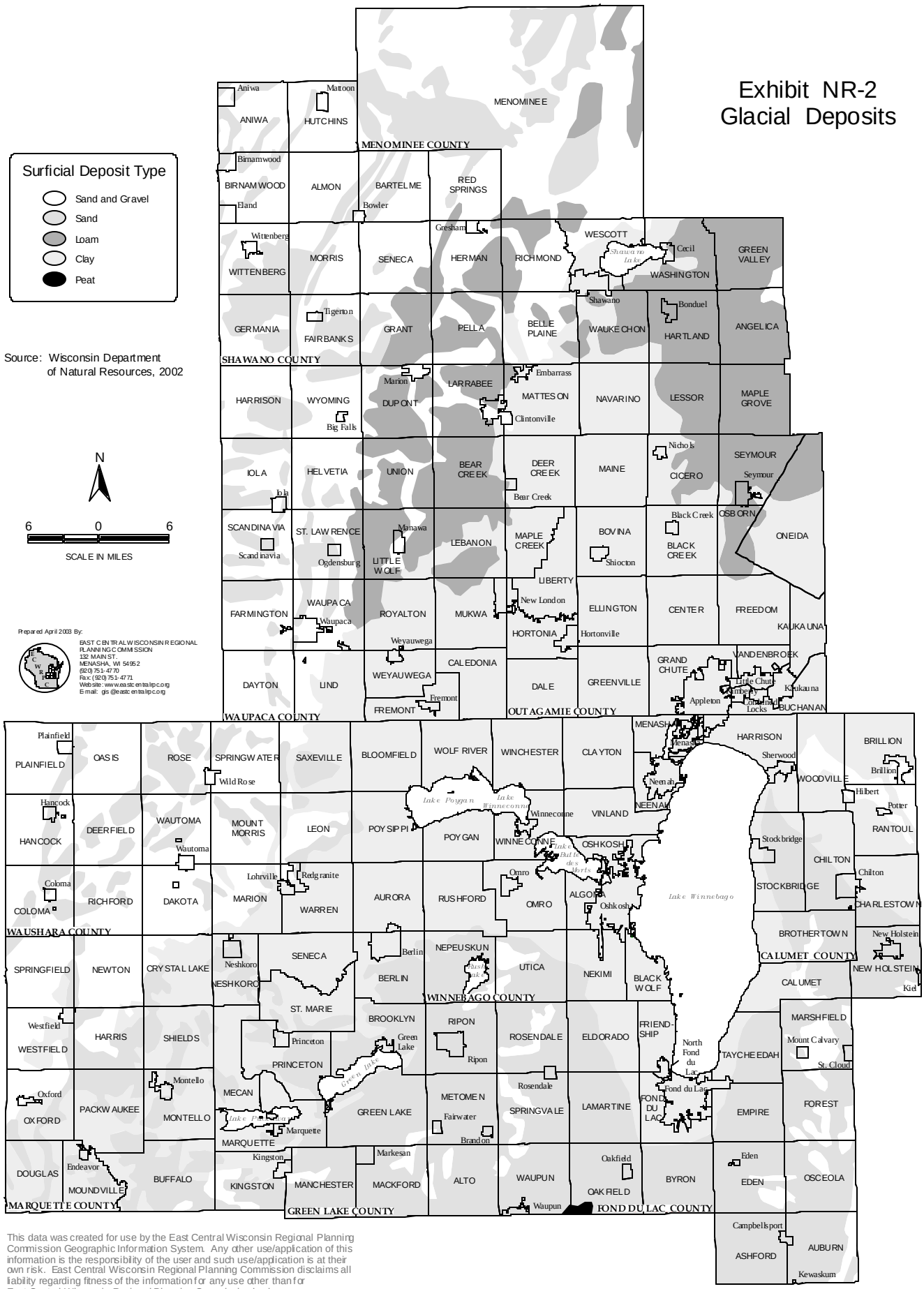

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Exhibit NR-3
Depth to Bedrock

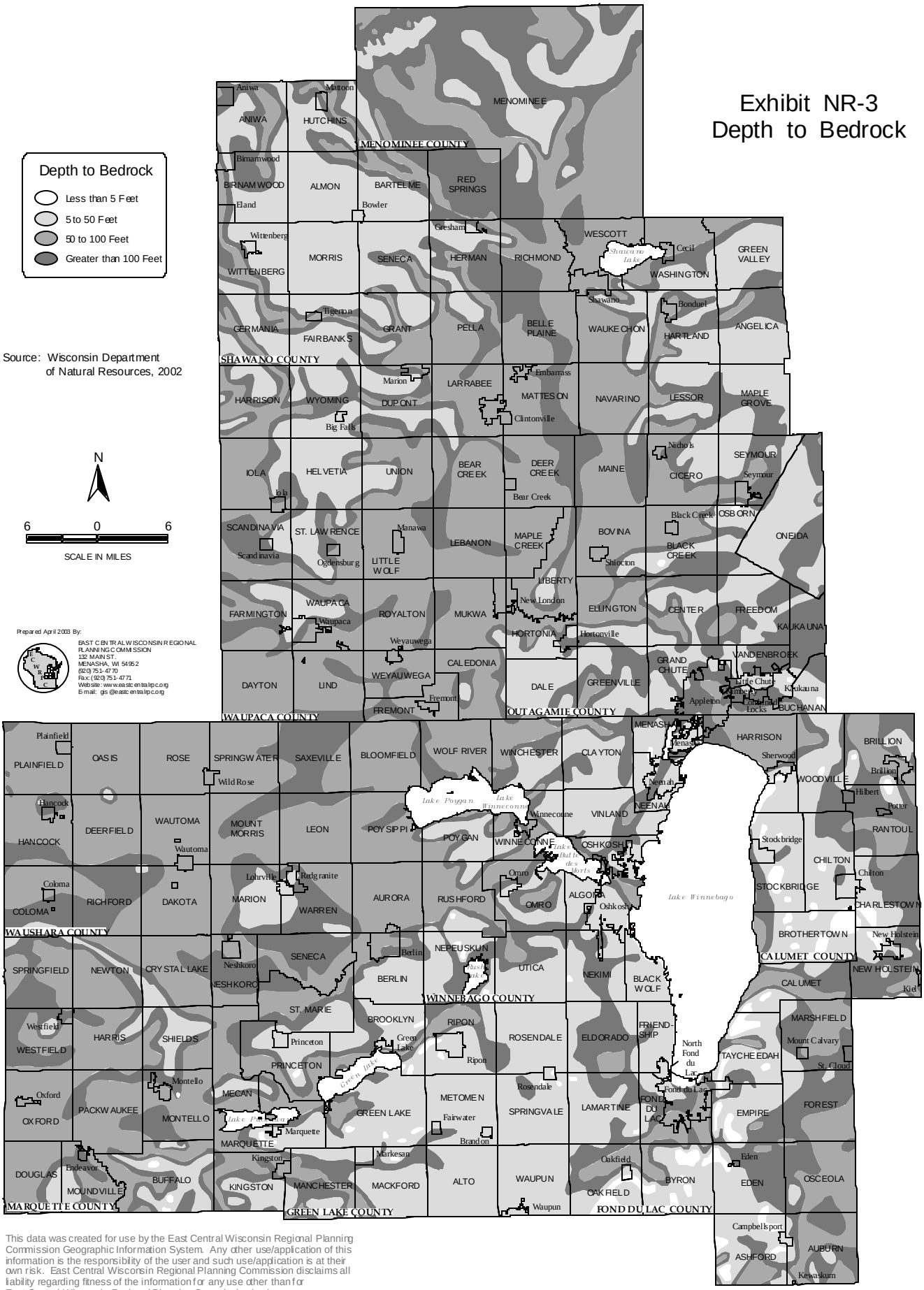

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Exhibit NR-4
Non-Metallic Mining Sites in the East Central Region

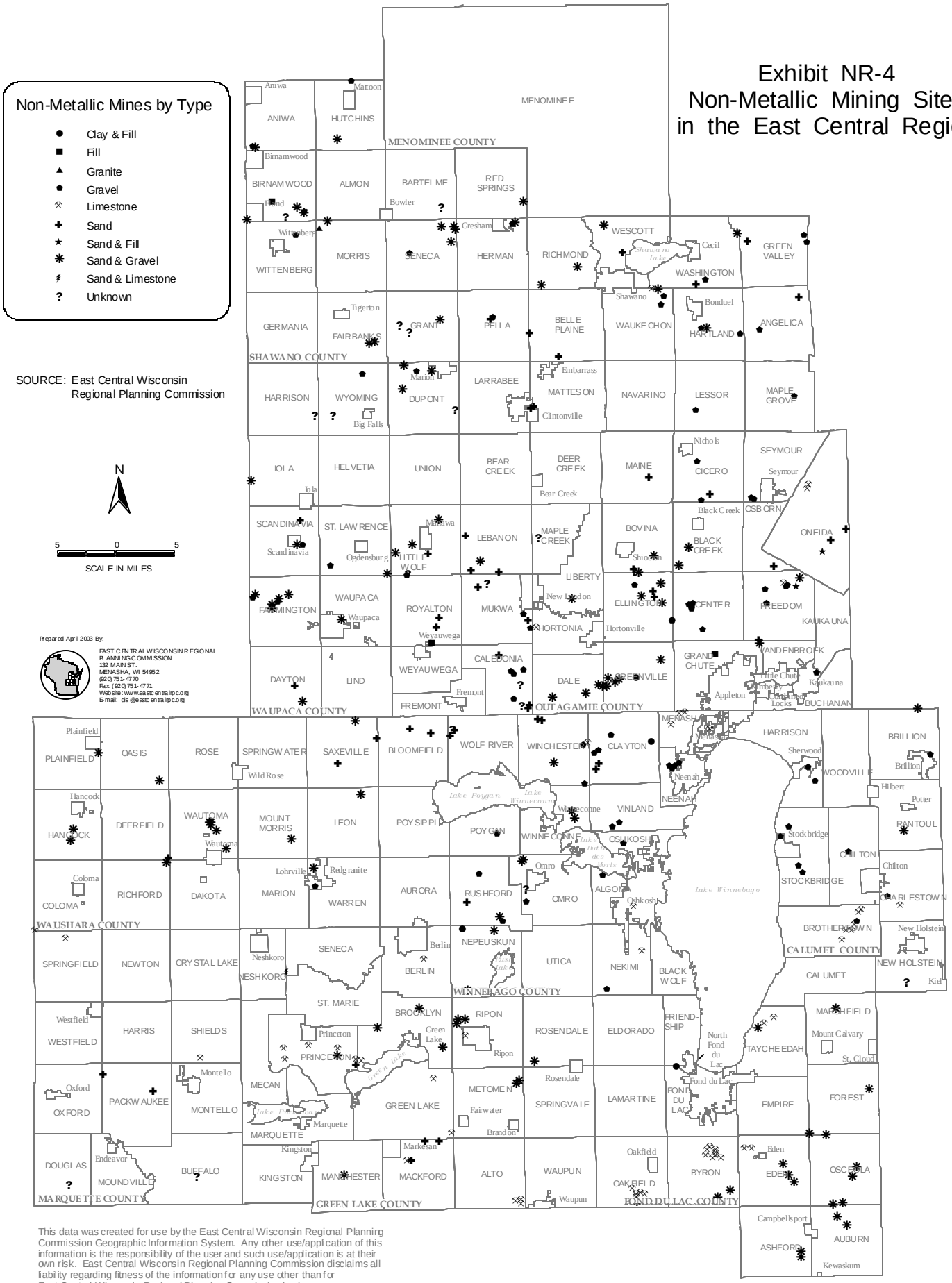

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Exhibit NR-5
Groundwater Contamination Susceptibility

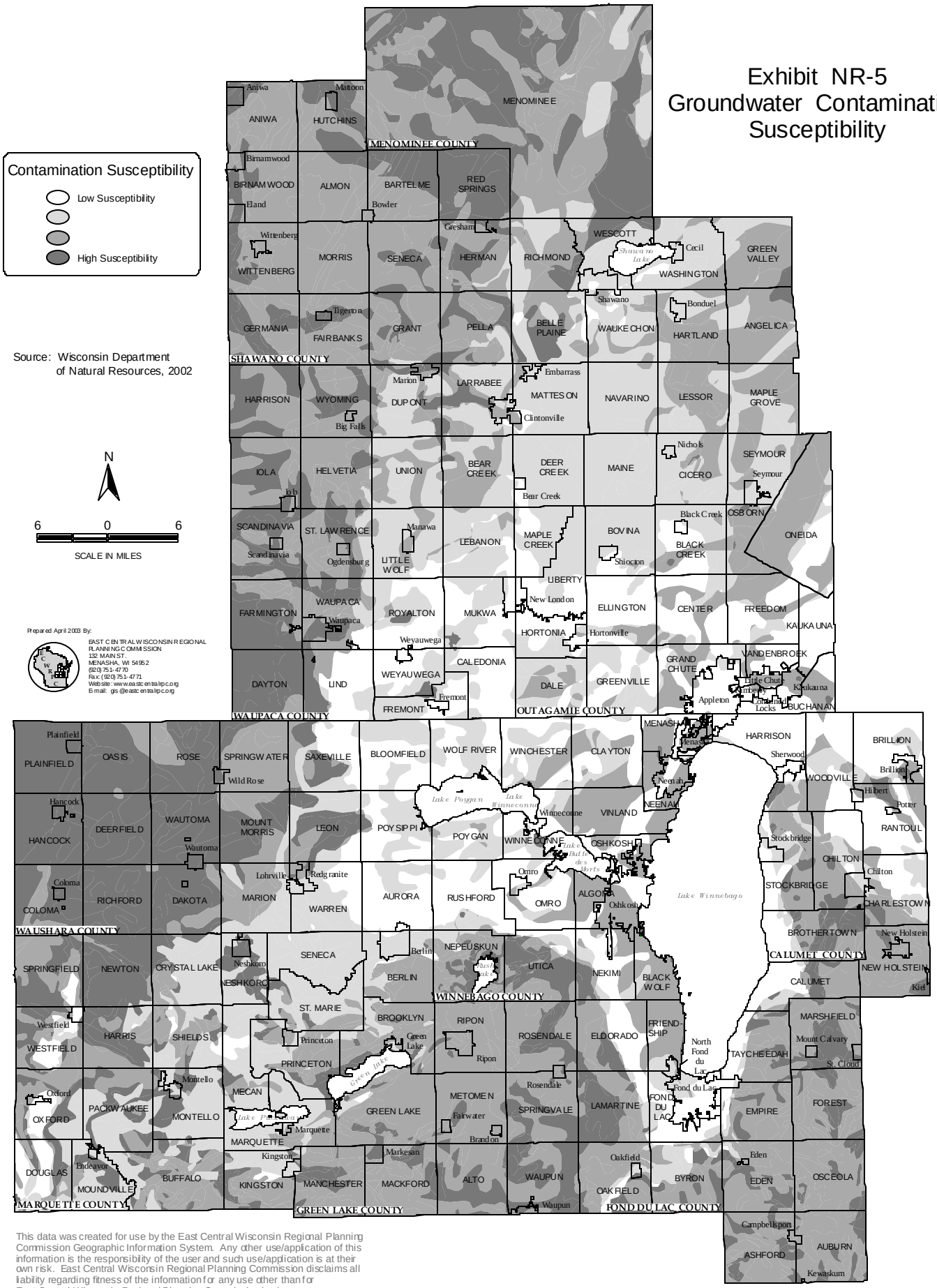

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Exhibit NR-6
Basins and Watersheds of the East Central Region

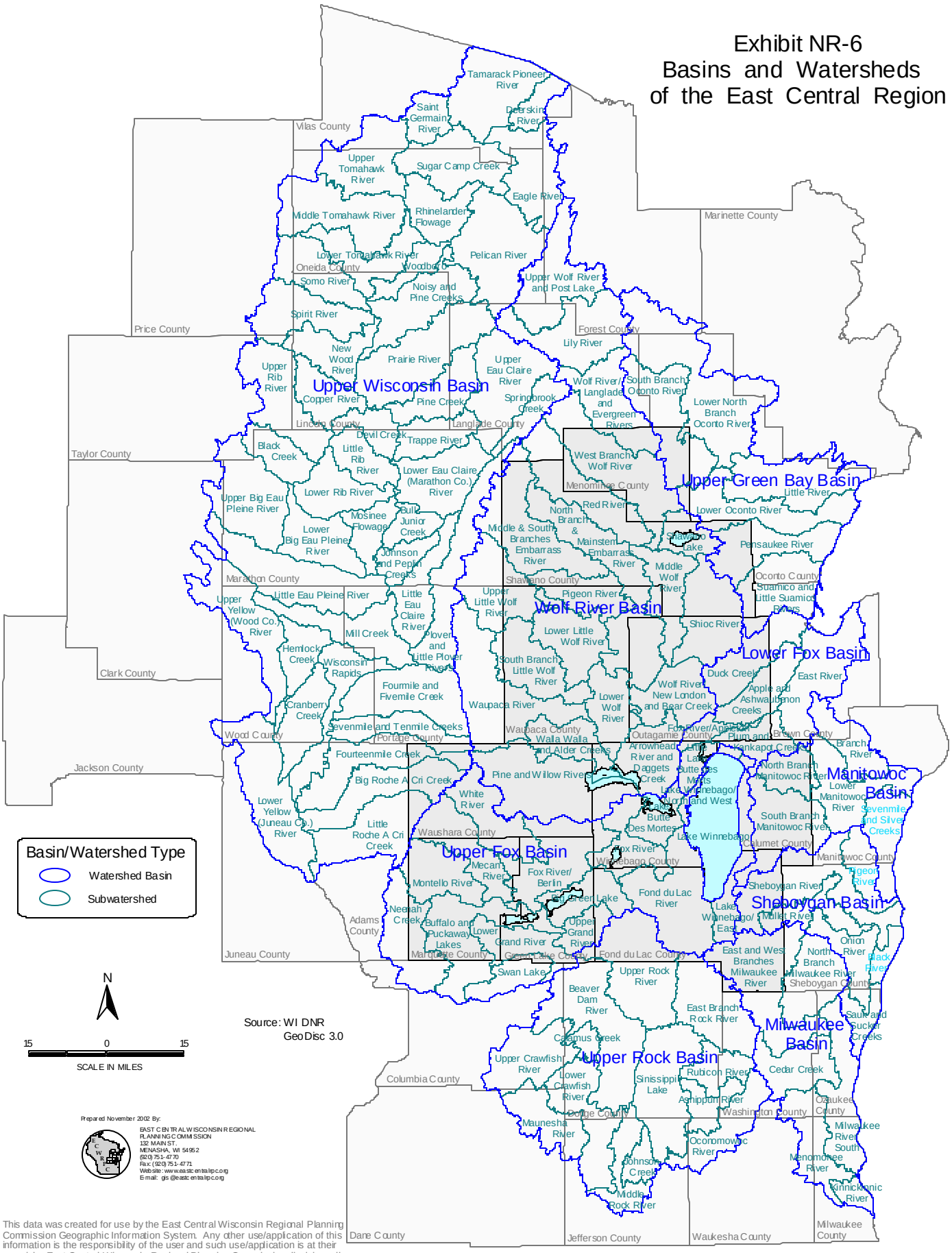

Exhibit NR-7
Priority Watershed Projects

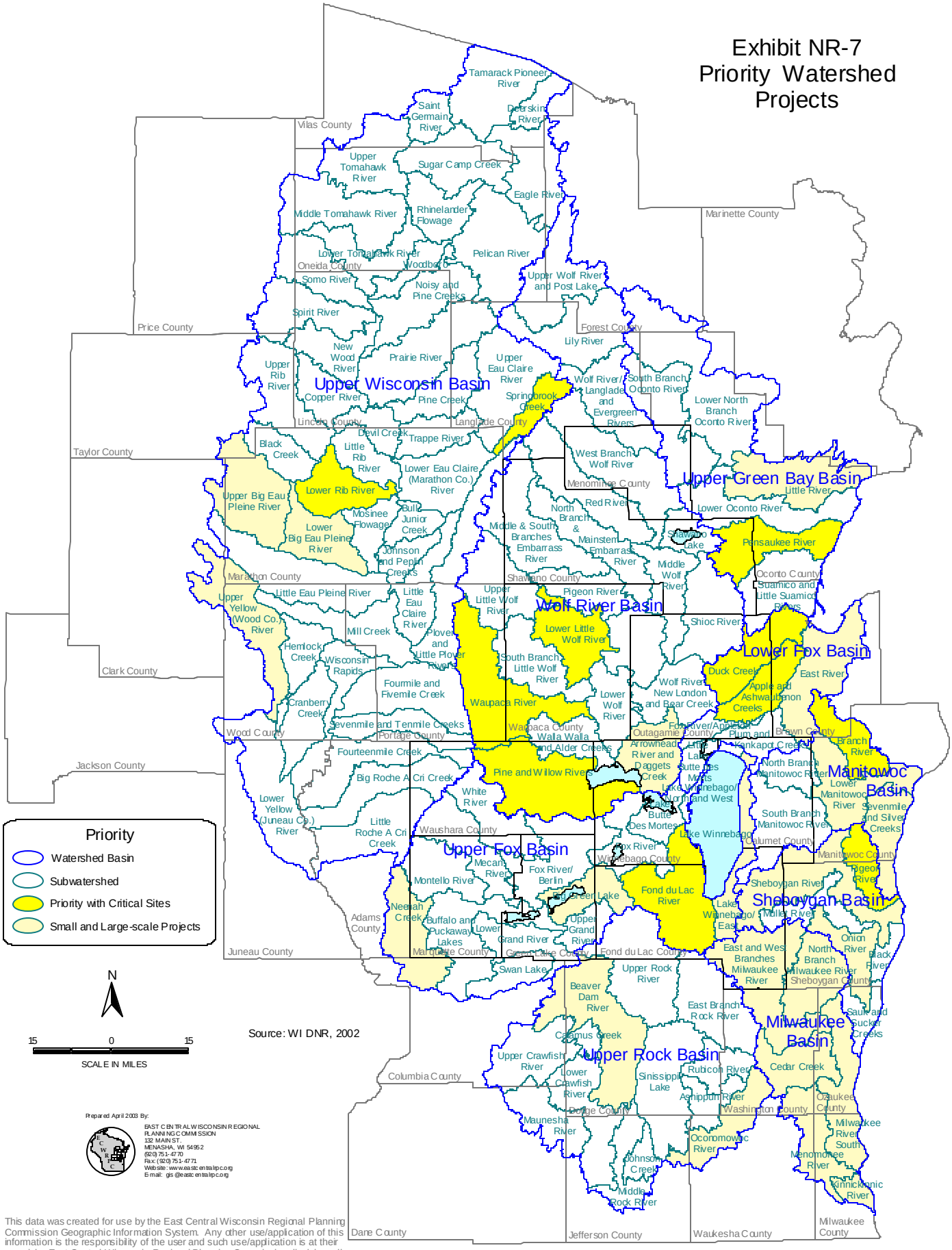

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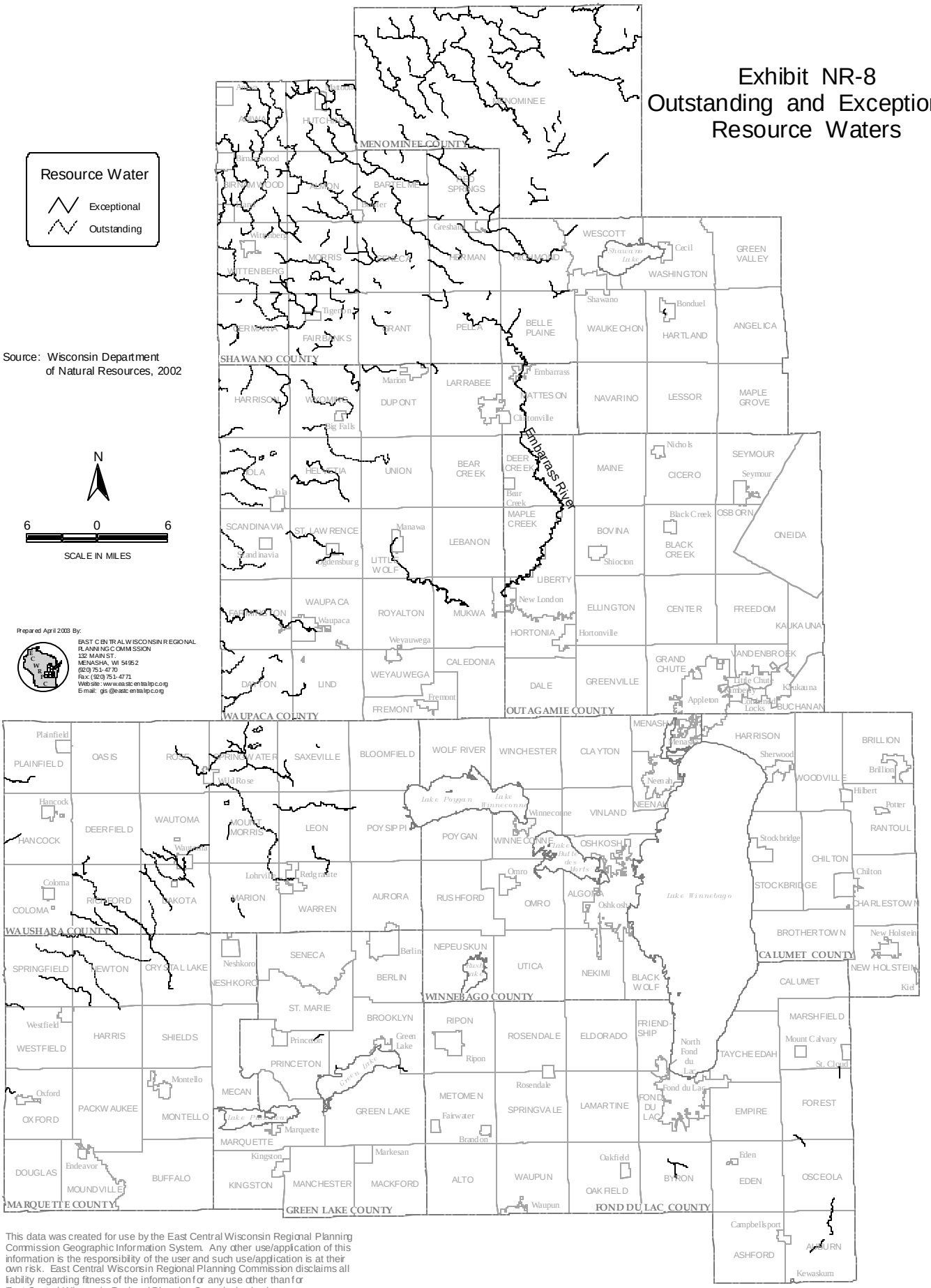
Exhibit NR-8
Outstanding and Exceptional Resource Waters



Source: Wisconsin Department of Natural Resources, 2002

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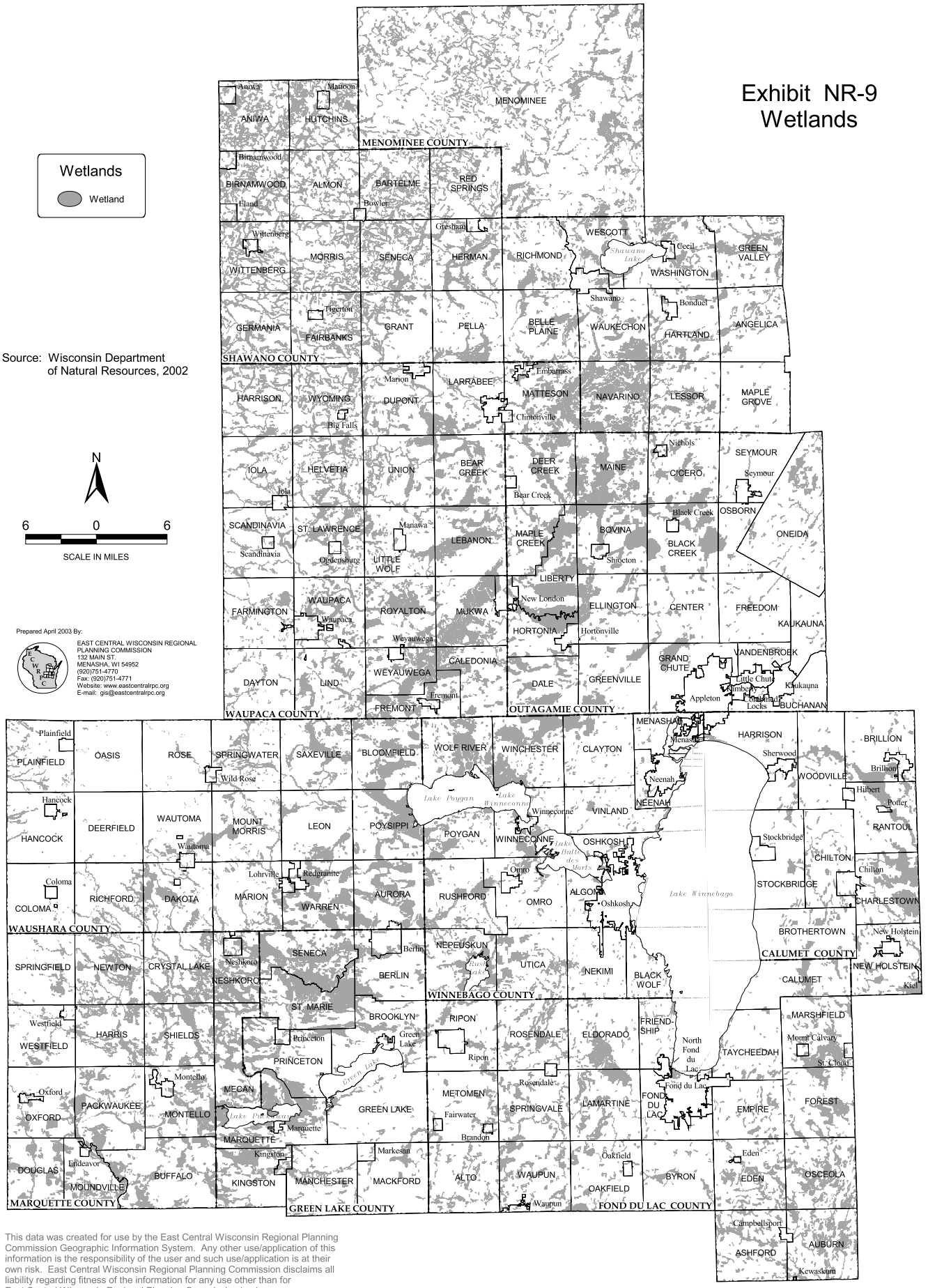
Exhibit NR-9
Wetlands



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CHAPTER 9: CULTURAL RESOURCES

Introduction

The relationship between historic preservation and smart growth planning may not be immediately obvious. The preservation of historic resources[1] seems at first to have little to do with managing new growth and development. Yet the two issues are interconnected. Put simply, historic preservation is smart growth. The reuse of an historic building uses the existing infrastructure instead of creating a demand for something new. Historic buildings utilize existing land, roads, sewers, utilities, and public services, and require virtually nothing new. Less pressure is therefore put on open land. Reuse of a building also raises, or at the very least, maintains the existing property values of a neighborhood. Moreover, if the building in question is under-utilized or abandoned outright, then adaptive reuse restores its status as a local tax-generator. Reuse also requires labor, thus creating local jobs and boosting the local economy. The location of historic architecture is also an important factor. Historic buildings typically are situated in denser, pedestrian-friendly neighborhoods. These neighborhoods also tend to be mixed-use: residential, commercial, and even light industrial uses are often sited within close proximity to each other. This means that people may reach their shopping and work destinations by means other than the automobile, minimizing traffic congestion and air pollution.

Four main issues are addressed in this chapter. First, the policy context and legal basis for historic preservation is outlined. Second, existing intergovernmental relationships in the field of historic preservation are discussed. Third, an inventory of existing historic, cultural, and archaeological resources is provided within the context of an historical overview of the region. Finally, some initial conclusions are drawn about the cultural resource issues that may arise.

In terms of the 14 local comprehensive planning goals listed in Chapter 1, East Central takes the view that those listed below relate specifically to planning for cultural resources.

- Preservation of cultural, historic, and archaeological sites.
- Encouragement of coordination and cooperation among nearby units of government.
- Building of community identity by revitalizing main streets and enforcing design standards.
- Balancing individual property rights with community interests and goals.
- Planning and development of land uses that create or preserve varied and unique urban and rural communities.

[1] The definition of historic resource used here will be that provided under Title III, Section 301 (16 U.S.C. 470w) of the National Historic Preservation Act of 1966: historic property, historic resource or cultural resource means any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion on the National Register, including artifacts, records, and material remains related to such a property or resource.

The Policy Context

Federal

Historic preservation occurs at all levels of government[2], as well as within the private and non-profit sectors. Certain broad and far-reaching programs, like the National Register of Historic Places, provide a framework within which most preservation activities, whether national, statewide, or local, are based.

The federal government began identifying and documenting historic resources during the first decades of the 20th Century, with the passage of the American Antiquities Act of 1906 and the Historic Sites Act of 1935. The latter established the National Historic Landmarks program. These laws, however, were limited in their scope, and focused mainly on the preservation of government-owned buildings and on the recordation of public and private historic properties. Of the Wisconsin buildings identified during surveys conducted under these early acts, only 30% survive to this day. Of the Indian mounds and archaeological sites that were recorded, only 25% are still intact.

The National Historic Preservation Act of 1966, as amended, is the core piece of legislation that informs historic preservation in the United States. This program was conceived as a partnership among federal, state, tribal, and local governments, nonprofit and for-profit organizations, and individual citizens It established the National Register of Historic Places program and laid the groundwork for future preservation across the country. The National Historic Preservation Act was conceived as a response to the growing disregard for America's heritage demonstrated in the 1950's and 1960's, when a massive federal program of road-building and slum clearance swept away entire historic neighborhoods in cities from Boston to Chicago to Madison. The National Historic Preservation Act recognized that the protection of both public and private historic resources, through a program of recognition, technical assistance, and financial incentives, was in the public interest.

The National Register of Historic Places is the nation's official list of cultural resources worthy of preservation. As a national program, its role is to coordinate and support public and private efforts to identify, evaluate, and protect historic and archeological resources. The National Park Service administers the program. Properties listed in the National Register of Historic Places include buildings[3], structures[4], objects[5], sites[6], and districts[7] that are significant for a number of

[2] For a complete list of the numerous laws, regulations, standards, and executive orders that relate to historic preservation at the various levels of government, with links to each document's full text, see the National Park Service's "Laws, Regulations, and Standards" website at www.cr.nps.gov/linklaws.htm. Also relevant is the bulletin, *Historic Preservation Legislation in Wisconsin, (1996)*, which may be found at www.legis.state.wi.us/lrb/pubs/ib/96ib2.pdf.

[3] A building, such as a house, barn, church, hotel, or similar construction, is created principally to shelter any form of human activity. The term may also be used to refer to a historically and functionally related unit, such as a courthouse and jail or a house and barn.

[4] The term structure is used to distinguish from buildings those functional constructions made usually for purposes other than creating human shelter, such as bridges, roads, canals, grain elevators, and trolley cars.

[5] The term object is used to distinguish from buildings and structures those constructions that are primarily artistic in nature or are relatively small in scale and simply constructed, for example, fountains

reasons: for their association with American history, architecture, archaeology, engineering, or culture.

All federal agencies are subject to the requirements of the National Historic Preservation Act discussed above. Certain individual units of government play a particularly active role in historic preservation. The Department of Housing and Urban Development (HUD) is one such unit. HUD maintains a library of technical publications related to economic development, rehabilitation, and other topics relevant to historic preservation[8]. The Department of Transportation Federal Highway Administration (DOTFHWA) also engages in historic preservation as a routine part of its duties[9]. The Federal Highway Administration's TEA-21 (Transportation Equity Act for the 21st Century, PL 105-178 and 206) program is especially important to historic preservation. One of TEA-21 goals is the protection and enhancement of communities, while providing safe and efficient transportation services. To these ends, the program provides funds for transportation enhancements, a general provision that can include the preservation of historic resources that relate to transportation in some way. A National Register of Historic Places building located on a state trunk highway would, for example, be eligible for transportation enhancement funds.

State

Perhaps the most significant aspect of the National Historic Preservation Act of 1966 to statewide historic preservation is the requirement that states have in place an historic preservation office with qualified staff in order to participate in the program. In 1972, six years after the National Historic Preservation Act became law, Wisconsin hired its first historic preservation staff. Shortly thereafter, properties in Wisconsin began to be listed on the National Register of Historic Places. The first resources in the region to be listed were two houses: the 1856 Octagon House at 276 Linden Street in Fond du Lac, Fond du Lac County, and the 1836 Charles A. Grignon House at 1313 Augustine Street in Kaukauna, Outagamie County. Both were listed on the National Register in 1972. The state offices also administer historic preservation programs in which local communities and individuals can participate. Such programs include the Historic Rehabilitation Tax Credit program, the Certified Local Government Program, the Sub-grants program, and others. 36 CFR Part 61 provides the regulatory framework for voluntary participation by state, local, and tribal governments in this national program.

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and statuary. Although it may be, by nature or design, movable, an object is associated with a specific setting or environment.

[6] A site is the location of a significant event, a prehistoric or historic occupation or activity, or a building or structure, whether standing, ruined, or vanished, where the location itself possesses historic, cultural, or archeological value regardless of the value of any existing structure. Examples of sites include effigy mounds, burial sites, both Indian and European-American, battlefields, rock carvings, shipwrecks, natural features like rock formations, and designed man-made landscapes.

[7] A district possesses a significant concentration, linkage, or continuity of sites, buildings, structures, or objects united historically or aesthetically by plan or physical development. For example, a business district, college campus, a workers' housing estate, or a residential neighborhood. Districts comprised of other types of resources like archaeological sites also exist but are less common.

[8] These resources can be obtained at the Department's official website, www.hud.gov, or at the HUD USER site, www.huduser.org.

[9] Information on this program can be found at the Federal Highway Administration website, www.fhwa.dot.gov.

In Wisconsin, historic preservation laws are hierarchical and mutually exclusive. If a local unit of government, and no other, is involved in preservation in one way or another, then Wis.Stat. 66.1111 is applicable. If only a state agency is involved, then the applicable law is Wis.Stat. 44.40. If there is involvement by a federal agency, then the National Historic Preservation Act 106 is triggered.

The State Register of Historic Places is the official listing of properties determined to be significant to the state's heritage and is maintained by the Division of Historic Preservation at the Wisconsin Historical Society. In Wisconsin, the State and National Registers are essentially the same thing; if a property is listed on one, it is typically listed on the other[10]. The State Register was created by 1987 Wisconsin Act 395, and became effective on 1 January, 1989.

Additional historic preservation statutes affect specific units of state government. For example, school districts must comply with the provisions of Wis.Stat. 120.12 (21) with respect to school properties on or eligible for the National Register of Historic Places. In 2000, the Wisconsin State Historic Preservation Office drafted a plan for the five-year period ending in 2005. The purpose of this document was to provide general policy guidance for the future.

Local

In 1993, historic preservation became a required part of the local planning process. The 1993 Wisconsin Act 471 mandated that municipalities that were home to properties on the National Register of Historic Places must, by the end of 1995, adopt a local historic preservation ordinance. The purpose of these ordinances was to establish a preservation program, administered by a local historic preservation commission that would ensure the continued existence of a community's cultural resources. Historic preservation commissions, or local landmarks commissions, as they are commonly called, are official bodies that are empowered to identify locally significant historic resources. A representative from the local government unit's planning or economic development office typically staffs them. Monthly public meetings are usually held at the municipal hall, and are formally announced in the same manner as other official public meetings.

The types of resources that are landmarked are similar to those listed on the National Register: in particular, those buildings and historic districts that the community deems important. Unlike the voluntary and honorific National Register program, however, local landmarking is a police power: it is a matter of community interest, and as such, an historic preservation commission typically holds the power to prohibit the alteration or demolition of a listed landmark. For this reason, historic preservation commissions vary greatly from community to community. Their responsibilities and goals, and the nature of the properties they landmark, reflect the local climate and the degree to which it embraces historic preservation as a valuable community endeavor. Nevertheless, the overarching purpose of landmarks commissions is to identify potential historic resources within the community and to advocate for their preservation. Local ordinances differ in the degree to which they allow for this general goal to be met.

[10] The National Register of Historic Places is used to indicate both the State and National Register in this document.

Other

The non-profit sector also supports local preservation efforts. One of the best known and most successful of these programs is the Main Street Program. In 1977, the National Trust for Historic Preservation initiated the National Main Street Program to infuse life in older down towns nationwide through the marriage of historic preservation and economic development. The Division of Community Development of the Wisconsin Department of Development administers the Wisconsin Main Street program, which was created by 1987 Wisconsin Act 109. Because certain financial benefits accompany the program, participation is not automatic and communities must apply for entry into the competitive program. In addition to nationwide programs like Main Street, communities within the region are also home to a variety of local historic preservation groups.

With 250,000 members worldwide, the National Trust for Historic Preservation is the primary non-profit advocacy organization in the United States. The National Trust was founded in Washington, D.C. in 1949. Its mission is "to provide leadership, education and advocacy to save America's diverse historic places and revitalize our communities". The National Trust exerts more influence than any other preservation advocacy organization. The organization also hosts an annual "ten most endangered" list, which focuses attention on historic properties at risk of being lost throughout the nation.

Madison is home to the Wisconsin Trust for Historic Preservation, a statewide non-profit organization that functions in much the same way as its national namesake. Like the National Trust, the Wisconsin Trust advocates for better preservation practices, provides technical guidance, and annually draws up a state-wide "ten most endangered" list.

Private, for-profit consultants make up a large portion of the professionals working in the field of historic preservation. The projects they undertake, researching and writing National Register of Historic Places nominations, conducting intensive surveys of architecture, or undertaking archaeological investigations, are collectively referred to as "cultural resource management" or "CRM."

Intergovernmental Cooperation

An excellent example of intergovernmental cooperation in the field of historic preservation within the region is the Fox River Heritage Parkway, a multi-jurisdictional project along the Fox River that is currently under development. This project extends the length of the Fox River from Lake Winnebago to the Bay of Green Bay and incorporates 17 lock properties within three counties.

The Fox River Heritage Parkway is actually an extension of the larger Fox-Wisconsin Heritage Corridor, which encompasses river related heritage elements from Prairie-du-Chien in the southwest corner of the state to Green Bay in the northeast. The historic river corridor follows the Marquette-Joliet discovery route of the 1670's. The Heritage Parkway utilizes 17 historic lock sites and their related properties to create a new public park owned by the state which will be developed and utilized by the local communities and governing jurisdictions where each site is located. The project will preserve nationally significant cultural heritage, provide recreational opportunities and act as an economic generator for the local tourism and business economies.

The scope and complexity of intergovernmental cooperation required to create, and to ultimately implement this project, is unprecedented in Wisconsin's history. The lock site properties, previously owned by the U.S. Army Corps of Engineers, are being transferred to the state and placed under DNR ownership with management responsibilities shared by an Authority created by state legislation. The funding to restore the navigational system linking the 17 park sites, that will become the heritage parkway, comes from a mix of federal, state, and local private contributions managed by three-area community foundations.

As these 17 lock sites are on the National Register of Historic places, the planning effort has required the cooperation of different levels of government and various organizations. These include East Central, the Friends of the Fox, local Historic Commissions and Historical Societies, the Wisconsin State Historical Society, the National Parks Service and the National Trust for Historic Preservation, as well as the preservation planning staff of the Army Corps of Engineers. State and federal preservation standards and requirements must be considered and integrated into development plans being proposed by local governing bodies. These local leaders and their staff will determine the most desirable uses for the parkway properties to insure that they will best serve the needs of the communities. All of these individual needs are being woven into a unified Fox Heritage Parkway plan.

All of the many and diverse entities involved in this project are working together on a shared vision because they have a common interest in the success of the project. The project illustrates how governmental units and their staff, on all levels from local to federal, can work together in a cooperative manner to achieve a common goal.

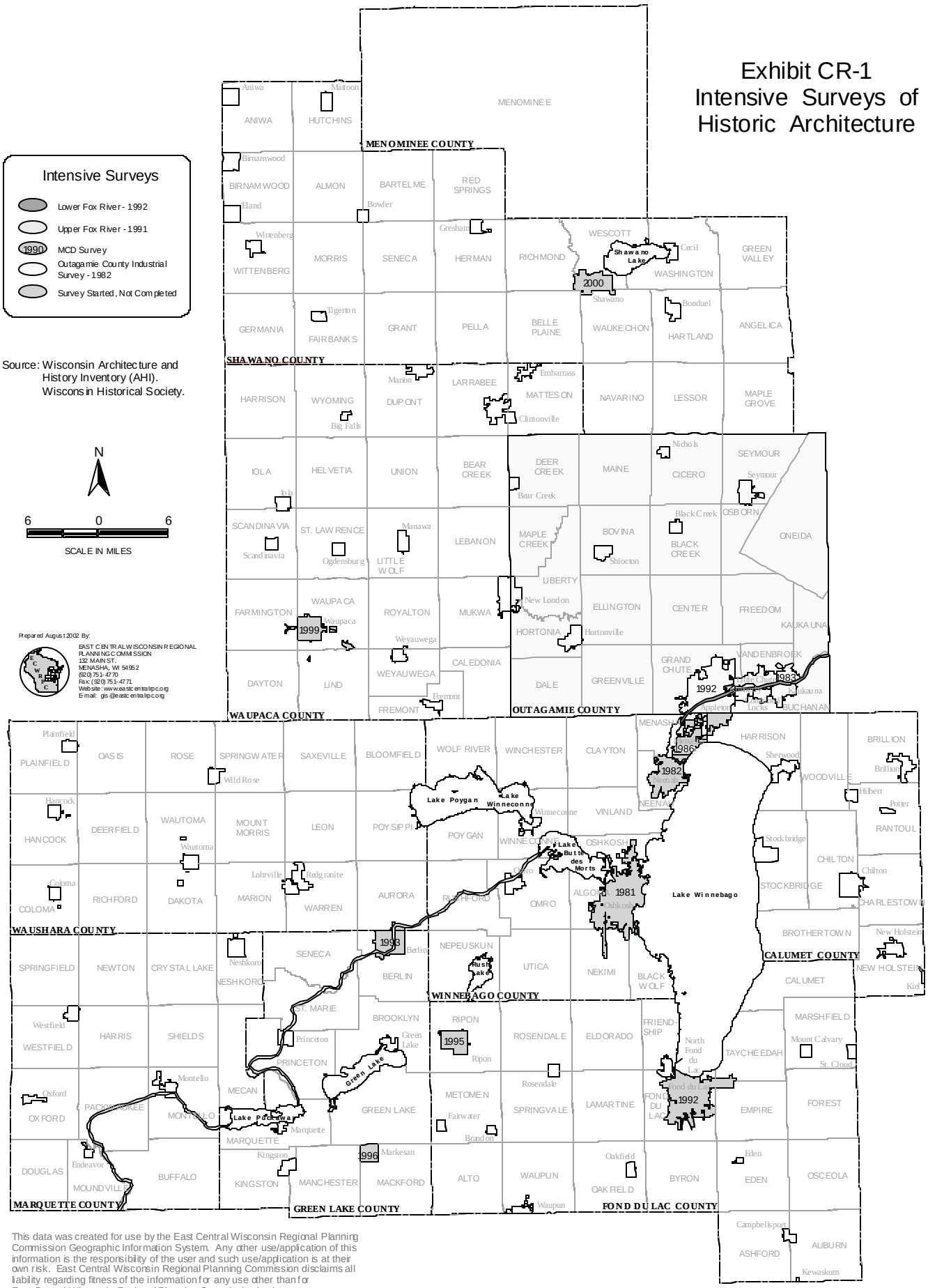
Background Information

The region's history has been defined by its diverse peoples, societal trends, and historical events and it is home to an eclectic assortment of cultural resources. Some of these resource types are only found within one of more of the counties, while others can be found in other parts of Wisconsin and outside the state as well. Several cultural and historical books and maps on Wisconsin were published during the 1990s. Because of the ready availability of these comprehensive resources, similar maps describing the history of the region, ethnic settlement patterns, prominent industries, religious groups, places associated with significant individuals, etc., are omitted from the current report[11]. Information on those areas that have been surveyed is available from the on-line Architecture and History Inventory (AHI). In addition, the State Historic Preservation Office maintains a list of intensive surveys with project dates (Exhibit CR-1).

To give a flavor of the region's cultural resources a brief description of a series of historical themes is presented below. To tie these themes to physical places, a partial selection of National Register of Historic Places properties associated with the various themes is also included. These buildings and archaeological sites tell only part of the region's story, however. This is because history, and our understanding of it, is in a constant state of change. Additional properties will be listed on the National Register in the future as their historical worth is

[11] See the University of Wisconsin's Cultural Map of Wisconsin: *A Cartographic Portrait of the State (1996)*, the Wisconsin Cartographers' Guild's *Wisconsin's Past and Present: A Historical Atlas (1998)*, and Kazimierz J. Zaniewski and Carol J. Rosen's *The Atlas of Ethnic Diversity in Wisconsin (1998).*

Exhibit CR-1
Intensive Surveys of Historic Architecture



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discovered, and as time passes and formerly non-historic resources gradually become historic. This section concludes by presenting a summary snapshot of current cultural resources.

Indigenous Settlement

Indigenous Peoples

The region was once home to several indigenous groups that predate not only European settlement, but that of tribal Native Americans as well. These Paleo-Indian groups first began hunting, fishing, and gathering food in Wisconsin 12,000 years ago. Significant to the region is the Old Copper Culture group that settled and worked in the area beginning in about 3,000 BC. This group was named after the tools its members crafted using ore extracted from copper mines on Upper Peninsula of Michigan. The counties around Lake Winnebago are particularly rich with the material artifacts of this culture. Subsequent pre-tribal groups also left evidence of their presence: Early, Middle, and Late Woodland mounds (both non-representation conical mounds and effigy "image" mounds), Middle Mississippian mound groups such as that at Aztalan, and Oneota pictographs and petroglyphs. The continued protection and preservation of mounds is especially important, as an estimated four-fifths of all mounds in Wisconsin have been destroyed since the European settlement first began.

Tribes

Contact between European explorers and Wisconsin natives began in the mid-17th Century, when French and British explorers and traders arrived by way of the Great Lakes. Leaving Green Bay, a trader could travel southwest on the Fox River as far as Portage. There, as the town's name implies, he could transfer to the Wisconsin River, which, in turn, would empty his boat into the Mississippi River near Prairie du Chien, thus allowing passage from the East Coast of the United States to the Gulf of Mexico.

During these early voyages explorers encountered several flourishing native groups. Two tribes were prominent in the region: the Menominee and the Ho-Chunk (or Winnebago). The Menominee tribes claimed extensive lands to the north of Lake Winnebago and west of Green Bay. Ho-Chunk lands were situated to the south, in the flat lands to the south and west of Lake Winnebago. Other native groups could also be found in the area. Potawottami lands to the east of Lake Winnebago extended from as far south as Indiana and as far east as Michigan. Trading villages representing a diverse handful of tribes could be found along major bodies of water: Saux, Mascouten, Meskwaki, and Miami villages once existed along the Fox River, as did Ho-Chunk and Meskwaki villages on the shores of Lake Winnebago. Not all of these Native American groups were indigenous to the area, however. Some, like the Oneida and Stockbridge-Munsee tribes, migrated to Wisconsin from New York in the 1820s and 1830s.

The once-thriving Native American presence in the region today is primarily limited to three areas. The Menominee reservation sits in the self-same county that was created out of two other counties, Shawano and Oconto, in 1961 (making it the newest county in the state). The small Stockbridge-Munsee reservation in Shawano County borders the Menominee reservation to the south, and the Oneida reservation is located to the southeast, straddling both Outagamie and Brown counties. The many Native American place names of the region remain as a legacy to these peoples.

Within the region, there are two buildings listed on the National Register of Historic Places that are significant for their association with Native Americans. These are Saint Joseph of the Lake Church and Cemetery in the Town of Menominee, Menominee County; and the Lutheran Indian Mission in the Town of Red Springs, Shawano County. There are also many archaeological sites. These include: the Calumet County Park Group, Stockbridge Harbor, and the Stockbridge Indian Cemetery, all in the Town of Stockbridge, Calumet County; the High Cliff Mounds in the Town of Harrison, Calumet County; the Aebischer Site (47CT30) in the Town of Charlestown, Calumet County; the Ridge Group in the Town of Brothertown, Calumet County; the Pipe Site in the Town of Calumet, Fond du Lac County; the Hamilton-Brooks Site in the Town of Berlin, Green Lake County; the Bonnie Oaks Historic District in the Town of Douglas, Marquette County; the Osprey Site in the Village of Kaukauna, Outagamie County; Sanders Site (47WP26 and 47WP70) in the Town of Fremont, Waupaca County; the Whistler Mound Group in the Village of Hancock, Waushara County; the Bell Site in the Town of Algoma, Winnebago County; the Brainerd Site in the Town of Vinland, Winnebago County; the Carpenter Site (47 Wn 246) in the Town of Rushford, Winnebago County; the Doty Island Site (47-WN-30) and Menasha Lock Site, both in the City of Menasha, Winnebago County; the Doty Island Village Site in the City of Neenah, Winnebago County; the Overton Archaeological District in the Town of Oshkosh, Winnebago County; the Kamrath Site and Lasley's Point Site, both in the Town of Winneconne, Winnebago County; and the Metzig Garden Site (47WN283) in the Town of Wolf River, Winnebago County. It should be stressed that this list includes only known archaeological sites; additional sites will undoubtedly be discovered in the future.

There are relatively few National Register-listed cultural resources related to Native Americans in the region. One can attribute this in part to a difference between European-Americans and Native Americans conceptions of what is meant by "historic" or what exactly a "cultural resource" is. Wisconsin Historical Marker on State Highway 55, 2.5 miles north of Keshena, Menominee County, describes the Spirit Rock, a natural feature imbued with meaning through its association with an important Meneminee tribal legend. It also gives some sense of what resources Native Americans regard as having cultural value.

Settlement

Old World Wisconsin is a book published in 1944 that explored the European immigrant communities of the state. Indeed, Wisconsin is a state rich with a great diversity of "Old World" European settlement. From early French and French-Canadian traders and explorers, whose presence are still felt in such place names as Prairie du Chien, Fond du Lac, Butte des Morts, Eau Claire and others, to Italians in Racine County, Poles in Portage County, and Finns in Douglas County, nearly every European nationality is represented. The buildings erected by these groups during the last 150 years lend the Wisconsin landscape its unique historical charm. Several of the more predominant groups found in the region are described below.

British Isles and Anglo-American

Two centuries after the first explorers began to chart the Wisconsin area, people from the British Isles and their American cohort Anglo-American Yankees from the eastern seaboard arrived in Wisconsin, as settlement began in earnest. Marquette County was especially favored by British and Irish settlers. English and Scottish settlement could be found throughout

Winnebago and Marquette counties, while small pockets of Welsh settlement appeared in Winnebago, Fond du Lac, Green Lake, and Waushara counties. Irish settlement occurred in Waupaca, Winnebago, and Fond du Lac counties, with significant settlement in Marquette County. A testimony to the influence of these groups can be found in the places names of the region. Winchester, Manchester, and Ripon were named for their English precedents, while Dundee was a reference to the seaport on Scotland's east coast. Settlers from the eastern states also brought their communities' names with them: Medina, New London, Maine, Plainfield, Brandon, and Princeton are all Yankee place names. The significance of these place names has paled over the years, as most communities in Wisconsin have been christened with either English or Native American place names.

Within the region, there is one property listed on the National Register of Historic Places that is significant for its association with English-Americans: the John Scott Horner House at 336 Scott Street, Ripon, Fond du Lac County.

<u>German</u>

A quick scan of surnames in almost any city directory will reveal that German is the predominant ethnicity in Wisconsin. Significant German settlement occurred in the rural and urban areas of all of the counties in the region. The immigrants that settled here tended to cluster together on the basis of point of origin. Thus, Germans from the northern states often settled together, as did those from Bavaria and other states in the south. Not surprisingly, Lutheran churches are found more often in the former areas, Catholic churches in the latter. The presence of German names on many of these churches stand as a reminder of the original settlers' ethnic and religious affiliation. To the rear of the East Central offices in Menasha is a former church, now an apartment complex, with the words "Ev. Luth. Dreieinigheits Kirche" "Evangelical Lutheran Trinity Church" inscribed in a panel at the base of the steeple. Parochial schools affiliated with German congregations were also identified by the German word for "school": the "Ev. Luth. St. Peter's Schule" in the Town of Freedom, Outagamie County, and the "St. Marien Schule" in Chilton, Calumet County, being two cases in point. No other ethnic group in Wisconsin openly proclaimed its ethnicity to the degree that Germans did. Because of this open expression of ethnicity, German-built buildings are often easy to identify. Certain building types were also commonly associated with German immigrants. Like other ethnic groups, Germans tended to continue their chosen professions in their new home. It is no coincidence, therefore, that Wisconsin has a long tradition of beer-brewing and sausage-making. Many of these buildings, especially in the Milwaukee area, the famous *Deutsch Athen* of Teutonic culture, are listed on the National Register.

Communities with German origins can be found in the region. If the region is akin to other areas of the state, German names were likely anglicized or changed outright during the two World Wars. Surviving names include Berlin, Germania, Kiel, New Holstein, Wittenberg, and Zittau. Many more townships were named in honor of the "old country," among them Berlin, Germania, New Holstein, and even Helvetia (the Latin name for Switzerland). Streets named after early German residents also abound.

Within the region, there are four properties listed on the National Register of Historic Places that are significant for their association with German-Americans. These are the Herman C. Timm House at 1600 Main Street, New Holstein, Calumet County; the Fuhrmann Hotel in Pipe,

Fond du Lac County; Temple Zion and School at 320 N. Durkee Street and 309 E. Harris Street, Appleton, Outagamie County; and the Mayer-Banderob House at 809 Ceape Avenue in Oshkosh, Winnebago County. The J. & C. Wipf Mills at 280 N. Main Street, Iola, Waupaca County, is significant for its association with Swiss-Americans, presumably immigrants from a German-speaking canton in Switzerland.

Scandinavian

Scandinavian immigrants, those from Denmark, Finland, Iceland, Norway, and Sweden, settled in great numbers throughout the state during the 19th Century. Oddly, however, the counties of Calumet, Fond du Lac, Green Lake, Marquette, Menominee, and Outagamie attracted little in the way of Scandinavian settlement. What presence there is in the region tends to be from Norwegians and Danes. Norwegian settlement occurred in large pockets in Shawano, Waupaca, Waushara, and Winnebago counties. The Waupaca County settlement was centered in the communities of Scandinavia and Iola, and was part of a Norwegian colony known as "Indielandet" ("the Indian Land"). Danes settled in large numbers in and around Waupaca. The remaining Scandinavian countries are not well represented, however. Communities of Swedes are completely absent in the region, while place names like Elo and Ladoga suggest some Finnish settlement. The Village of Pulcifer was established by Icelanders who eventually relocated to the Dakota Territory. The unincorporated community of Landstad, Town of Vinland, and (of course) the Village and Town of Scandinavia are nods to the ethnic origins of the prevalent local settlers. The Village of Lind Center and Town of Lind were both named in honor of "the Swedish Nightingale": the 19th Century operatic singer Jenny Lind.

Within the region, there are three properties listed on the National Register of Historic Places that are significant for their association with Danish-Americans, all in the City of Waupaca. These are the Danes Hall at 303 N. Main Street; the Jens Hansen Wagon and Carriage Shop at 117 E. Fulton Street; and the Matt and Lena Jensen House at 501 W. Fulton Street. The Danes Hall was the home of a fraternal organization primarily for Danish-Americans, and as such was a major center of Danish life in the state. No other Scandinavian groups are represented in the National Register within the region.

Unlike the Germans, Scandinavians were less likely to proclaim their ethnicity openly. Few buildings in region, or in Wisconsin, have linguistic identifiers like the German Kirche (church) or Schüle (school). A rare exception is St. Peter's Lutheran Church in Iola, the cornerstone of which is inscribed "Ev. Luth. Kirke"—kirke, of course, being "church" in both Norwegian and Danish. The United Norwegian Lutheran Church in the community of Winchester, Winnebago County, is also named in such a way as to identify the ethnicity of its original congregation. In this case, however, the name is in the new language of English. Like those of German immigrants, epithets of Scandinavian grave stones are often written in the native language. For example, Födt (born) and Döde or Död (died) are common on early Norwegian stones, as are passages of scripture.

Other European Settlement

In addition to Yankees, Britons, Irish, Scandinavians, and Germans, subsequent waves of immigrants came from Southern and Eastern Europe. Many of these people made their way to the region to work on farms and in the paper mills. Dutch Catholics settled in great numbers in

the Fox Cities, as well as in the southeastern section of Fond du Lac County[12]. Poles, the state's second largest ethnic group, after Germans, settled in pockets in Green Lake, Marquette, and Waushara counties. Shawano County is also home to a village named after Poland's second city, Krakow. A small number of Italians also settled alongside the Poles on the Green Lake-Waushara County border. At present, no resources related to these immigrant groups have been recognized as being eligible for the National Register of Historic Places.

Non-European Settlement

Settlers from outside of Europe began to arrive in greater numbers following World War II. Two countries stand apart as major contributors: Mexico and Laos. Appreciable Mexican immigration can be found in four counties: Fond du Lac, Marquette, Menominee, and Waushara. Hmong immigrants—an ethnic minority from northern Laos and Vietnam-can be found in large numbers in Outagamie County, and to a lesser degree in Fond du Lac and Winnebago counties. Wisconsin, in fact, is third after California and Minnesota in number of Hmong-American citizens. The region is also home to immigrants from China, India, Korea, and Laos. African-Americans, while significantly represented in Milwaukee County, have not settled in large numbers in the region.

Because non-European immigration is a relatively new phenomenon, few cultural resources within the state are old enough to have been listed on the National Register of Historic Places for their association with any of the new ethnic groups. One of the few examples of this type of resource is the Fairbanks Flats in Beloit, Rock County. This apartment complex was built for Southern African-Americans who migrated to Wisconsin during World War I to supplement the diminished industrial workforce. As time passes, more of these types of properties will be become eligible for the National Register. The burgeoning social organizations for new immigrants (e.g. Hmong-Americans) might play an active role in identifying the next generation of cultural resources in Wisconsin.

Religion

Like most parts of the country, organized religion has played a significant role in the settlement of Wisconsin. In 1906, the state was approximately half Roman Catholic and one-third Lutheran, while the remaining was a mixture of other denominations, including Methodist, Congregationalist, Baptist, Presbyterian, and German Evangelical. In the region, the counties with larger urban centers, Fond du Lac, Outagamie, and Winnebago, have tended to be Catholic, while the rural, farming areas have been Lutheran, Green Lake, Marquette, Menominee, Shawano, Waupaca, and Waushara. The Lutherans in the region are predominantly of the Missouri or Wisconsin synods, both historically German, as opposed to the Norwegian synods of the southern and western parts of the state. Calumet County is the one exception; it is both rural and heavily Catholic. Other faiths represented in the area include Jewish, Baha'I, and Amish.

The region is also home to "Wisconsin's Holy Land," an area east of Lake Winnebago that includes portions of Calumet and Fond du Lac counties, as well as parts of Manitowoc and Sheboygan. This area is so-called because of the cluster of communities named after their local

[12] For a history of Dutch in the Town of Alto, Fond du Lac County, see the Fond du Lac County local history website at http://www.wlhn.org/fond_du_lac/fdl_co.htm.

Catholic churches. The villages in this "Holy Land" include Charlesburg, Jericho, and St. Anna in Calumet County, and Calvary, Johnsburg, Marytown, Mt. Calvary, St. Joseph, St. Peter, and St. Cloud in Fond du Lac County. Many of the Catholic churches in these communities are prominently sited, and visually evoke the towns of southern Germany from which their settlers emigrated. Contrast these with the Calumet County communities of Kiel and New Holstein, which were settled by Germans from the predominantly Lutheran, northern German state of Schleswig-Holstein.

Places of worship of many different denominations in the region are listed on the National Register of Historic Places. These include the following: First Baptist Church of Fond du Lac at 90 S. Macy Street, Fond du Lac, Fond du Lac County; First Congregational Church at 220 Ransom Street, Village of Ripon, Fond du Lac County; St. Peter's Episcopal Church at 217 Houston Street, Ripon, Fond du Lac County; St. John Evangelical Lutheran Church and the St. Matthias Mission, both in Town of Auburn, Fond du Lac County; St. John the Baptist Catholic Church, Town of Taycheedah, Fond du Lac County; Zion Lutheran Church at 912 N. Oneida Street and the Temple Zion and School at 320 N. Durkee Street and 309 E. Harris Street, both in Appleton, Outagamie County; Holy Cross Church at 309 Desnoyer Street and the St. Mary's Catholic Church at 119 W. 7th Street, both in Kaukauna, Outagamie County; Algoma Boulevard Methodist Church at 1174 Algoma Boulevard, First Methodist Church at 502 N. Main Street, First Presbyterian Church at 110 Church Street, and the Trinity Episcopal Church at 203 Algoma Boulevard, all in Oshkosh, Winnebago County; and finally, the Veterans Home Chapel in the Town of Farmington, Waupaca County. Houses of worship are also included in several of the National Register of Historic Places historic districts within the region.

Industry

Outside of Milwaukee, the region is one of the more heavily industrialized areas of Wisconsin. The Fox River waterway, so important to early explorers and traders in their transcontinental passage from the Atlantic Ocean to the Gulf of Mexico, provided later generations of settlers with a ready source of water, food, and, most importantly, hydropower for industry. Indeed, access to hydropower and the proximity of counties in the region to the pine forests of the north made the processing and transportation of wood projects a logical economic choice. Cities along Lake Winnebago and the waterways of Fond du Lac, Outagamie, Waupaca, and Winnebago counties were home to flour mills, furniture and building supply manufactures, carriage and wagon works, paper mills, and just about every variety of wood processing plant imaginable. Other industries that were less dependent on waterpower also thrived: stoneware and earthenware production, the processing of fruits and vegetables, tanning and leather processing, and of course brewing.

The region is very significant geologically, and, since settlement times, has been home to a healthy stone quarrying and masonry industry. Limestone quarries once operated on the western shores of Lake Winnebago, while Niagara Limestone was removed from sites to the south and east of the lake. Outagamie County was home to a handful of sandstone quarries, and granite veins were tapped in Fond du Lac, Green Lake, Marquette, Waupaca, and Waushara counties. Two types of granite are of particular note. The first, red granite, is an igneous rock quarried in and around the community of the same name in Waushara County. Red granite holds the distinction of being Wisconsin's official state rock. The second type of stone is Montello granite, from the eponymous village in Marquette County. Montello granite

was once heralded as the hardest granite in the world. Buildings in the Montello Commercial Historic District, as well as the Charles Samuel Richter House on 105 Underwood Avenue, incorporate Montello granite into their designs. The Wisconsin State Capitol and Grant's Tomb in New York are two of the more famous buildings to make use of Montello granite.

The industrial history of the region is rich and varied. In addition to the processing plants and factories themselves, a host of ancillary buildings were also erected in communities large and small. Many of these still stand: union halls, public meeting spaces, cooperative stores, workers' housing, and mansions for local captains of industry. While some of the original industries persist, many are long gone today. Yet the area is still replete with the industrial heritage of earlier days.

Agriculture

Agriculture has played a significant role in the region, much as it has throughout the rest of the state. Wheat was once an important crop in all the counties in the region. But the importance of wheat began to wane in the late 19th Century, and was eventually supplanted by a variety of other crops. Among the new sources of food were barley, cabbage, apples, cucumbers, potatoes, mint, and snap beans. Yet despite the rich tradition of agriculture in the region, only a handful of related properties have been listed on the National Register of Historic Places: the Bonnie Oaks Historic District in the Town of Douglas, Marquette County; the Klein Dairy Farmhouse at 1018 Sullivan Avenue, Kaukauna, Outagamie County; and the Alanson M. Kimball Farmhouse in the Town of Leon, Waushara County. Perhaps one of the most unique National Register buildings in all of Wisconsin happens to be a farm building in Winnebago County, which was once home to a thriving fox and mink fur industry. The unusual Cole Watch Tower in the Town of Omro is comprised of a two-story Italianate house onto which has been grafted a multi-story, Art Deco watch tower. It stands as one of the most conspicuous landmarks to an historic industry in the state.

As wheat production was declining in Wisconsin, another industry was growing just as quickly: dairying. The counties of the region are situated in what was once known as the Eastern Cheese Region of Wisconsin, one of the most prolific cheese-producing regions in the state and in the world. Thousands of farms in Winnebago and Outagamie counties, and in particular, Calumet and Shawano counties, produced milk for cheese and for bottling. The Rosendale Men's Club erected a commemorative marker on State Highway 103, to the west of Ladoga, Fond du Lac County, in honor of Chester Hazen's cheese factory. Hazen was the first full-time cheese manufacturer in Wisconsin. The marker is situated just west of Ladoga on State Highway 103, at the former site of Hazen's factory. Only one building is listed on the National Register of Historic Places, and serves as a reminder of this once flourishing tradition: the Philip H. Kasper Cheese Factory in the Town of Union, Waupaca County. Many other buildings associated with cheese production, dairy barns, creameries, cheese factories, still stand in the region. Most have probably been adapted for other uses.

Several industrial buildings in the region are listed on the National Register of Historic Places. These include the following: the J. P. Luther Company Glove Factory at 139 S. Pearl Street and the Wisconsin Power and Light Berlin Power Plant at 142 Water Street, both in Berlin, Green Lake County; J. B. Courtney Woolen Mills at 301 E. Water Street and the Fox River Paper Company Historic District, both in Appleton, Outagamie County; the J. & C. Wipf Mills at 280 N.

Main Street, Iola, Waupaca County; the Crescent Roller Mills at 213 Oborn Street and the Jens Hansen Wagon and Carriage Shop at 117 E. Fulton Street, both in Waupaca, Waupaca County; in Waupaca, Waupaca County; the Rural on the Crystal Historic District in the Town of Dayton, Waupaca County; and finally, the Paine Lumber Company Historic District in Oshkosh, Winnebago County. Two additional industrial properties, the Appleton Wire Works at 600 S. Atlantic Street, Appleton, Outagamie County, and the Chief Oshkosh Brewery at 1610 Doty Street, Oshkosh, Winnebago County, have both been determined eligible for the National Register of Historic Places but are not yet listed. It should be noted that several of the historic districts in the region are home to a variety of uses, including industrial buildings.

Transportation

Early explorers used the waterways of eastern Wisconsin to travel to the interior of Wisconsin and beyond. Subsequent generations arrived by rail, automobile, and aircraft. Indeed, the counties that comprise the region have long been at the heart of an expansive state and interstate transportation system. The many cultural resources related to water, ground, and air travel reflect this important transportation heritage.

The indigenous population and earliest traders used the Fox River as a water highway. Subsequent generations "improved" the river for better shipping through the addition of locks and canals. Many of these structures survive to this day, and are now listed on the National Register of Historic Places. These include the Appleton Lock 1-3 Historic District and Appleton Lock 4 Historic District, both in Appleton, Outagamie County; Cedars Lock and Dam Historic District and the Little Chute Locks and Canal Historic District, both in Little Chute, Outagamie County; the Kaukauna Locks Historic District in Kaukauna, Outagamie County; the Rapide Croche Lock and Dam Historic District in the Town of Buchanan, Outagamie County; the Menasha Dam and the Tayco Street Bridge, both in Menasha, Winnebago County; and finally, the Eureka Lock and Lock Tender's House, Town of Rushford, Winnebago County. The heyday of these industrial properties was the late 19th and early 20th centuries.

Freight and passenger rail was also present in the region. Not only did the Chicago and Northwestern Railway maintain two lines in northeastern Wisconsin, but railways served the populations of several of the larger cities and interurban lines allowed passage between Fond du Lac and Green Bay. Prior to the Chicago and Northwestern Railway, the Soo Line operated in the region and the Rock River Valley Union Railroad connected Fond du Lac and Janesville. Two properties related to railroading are listed on the National Register of Historic Places: the 1892 Chicago and Northwestern Railroad Depot at 182 Forest Avenue, Fond du Lac, Fond du Lac County; and another station, the 1892 Chicago and Northwestern Railroad Depot at 500 N. Commercial Street, Neenah, Winnebago County. An official Wisconsin Historical Marker affixed to the 1905 Hotel Menasha at 177 Main Street in Menasha's Upper Main Street Historic District commemorates the founding of the Wisconsin Central Railroad on that site.

Part of the latticework of historic and modern roadways is the Raube Road Site in the Town of Springvale, Fond du Lac County, an old section of the c.1835 military road that linked the forts of Howard, Winnebago, and Crawford. A locally erected commemorative plaque on Winnebago Drive in Fond du Lac marks the location of one of many tollgates that operated in the area before roads were publicly maintained. Walter Owen Park in Clintonville, Waupaca County, is

home to a Wisconsin Historical Marker that commemorates the invention of the first successful four-wheel drive automobile.

Air transportation is represented on the National Register, too. The 1922 Larson Brothers Airport, Town of Clayton, Winnebago County is oldest extant airfield in the state. A Wisconsin Historical Marker also commemorates the site. Another marker at Wittman Field Airport in Oshkosh recognizes the historical accomplishments of S.J. Wittman, "aircraft designer, race pilot, inventor." The Municipal Airport in Clintonville, Waupaca County, features a Historical Marker that tells the story of the 1944 birth of Wisconsin Central Airlines.

Wisconsin's communities grew and markets developed around transportation nodes. Several National Register buildings in the region owe their existence to one form of transportation or another. The Augustin Grignon Hotel in the Town of Winneconne, Winnebago County, is a former stagecoach hotel, as is Club Harbor (or Fuhrman Hotel), a stopping place of the military road in the Town of Calumet, Fond du Lac County. The 1897 Joseph Kronser Hotel and Saloon in the Town of Greenville, Outagamie County, was built to accommodate travelers on a rail line that passed through the town.

Recreational water transport is also significant to the region. E.C. Kiekhaefer, inventor of outboard boat motors under the trade name Mercury, started production in 1939 in what was then the Town of Fond du Lac.

Government Buildings

Several of the buildings owned by units of government are listed on the National Register of Historic Places. Of the 10 county courthouses, 5 are listed (Calumet, Green Lake, Marquette, Waushara, and Winnebago), and at least one more, Outagamie, is eligible for listing. Several post offices and public schools are listed, although some of these are no longer owned by the federal government or local school district. Multiple buildings at the State of Wisconsin Veterans Home in the Town of Farmington, Waupaca County, are on the National Register: a 31-resource historic district, the Commandant's Residence Home, the Old Hospital, and the Veterans Home Chapel. The Village of Hortonville has the region's only municipally-owned historic resource: the Hortonville Community Hall at 312 W. Main Street.

One of the most common public buildings encountered in travels through rural Wisconsin is the small school; the proverbial one-room schoolhouse. Although school consolidation in the 1950s and 1960s closed the vast majority of these schools, many of the buildings themselves are still extant. Although some have been abandoned, others have been converted for use as private residences and town halls. Those not marked by a cast-stone name panel on the façade can be identified by other means: location at a crossroads; ample fenestration to allow light into the classrooms; or the presence of a pair of entrance doors, side by side, one for girls and the other for boys.

Architects

The region is home to one of Wisconsin's most talented and prolific 19th Century architects, William Waters (1843-1917). A New Yorker by birth, Waters immigrated to Oshkosh in the 1850s and established a successful architectural practice. In the course of the long career that

followed, his firm designed nearly 150 buildings primarily in the counties around Lake Winnebago: schools, churches, governmental buildings, and private residences. A Waters design was also chosen to represent the State of Wisconsin at the 1893 Columbian Exposition in Chicago. Numerous William Waters buildings are listed on the National Register of Historic Places, including the Henry J. Rogers House, Hearthstone, at 625 W. Prospect Ave., Appleton, Outagamie County, and the Oshkosh Grand Opera House at 100 High Ave., Winnebago County. This number represents only a handful of his total body of work. The Oshkosh Public Library, also designed by Waters, provides a walking tour of the architect's local buildings.

Identified Cultural Resources

In all, the region is home to 198 buildings, structures, objects, sites, and districts listed on the State and National Registers of Historic Places, out of approximately 1,600 statewide and 74,000 nationwide. Wisconsin is ranked around tenth in number of National Register listings, an impressive statistic given the relative youth and size of the state, especially as compared with those of the east coast. These properties reflect the history and people that make up the region. The majority of National Register properties are buildings: houses, commercial buildings, government buildings, and churches. There are also numerous historic districts and archaeological sites, as well as a handful of objects and structures. This breakdown of resources by type within the region is typical of general trends in Wisconsin and other states. By far the best represented National Register resource type is the building. Properties continue to be listed on the National Register today (Exhibit CR-2).

The region is also home to two National Historic Landmarks. The Fountain Lake Farm in the Town of Montello, Marquette County, is one. This historic farm and landscape is associated with the life of Scottish-born naturalist John Muir. A Wisconsin Historical Marker on State Highway 22, 8 miles south of Montello, commemorates the naturalist and his work in what is now known as "John Muir Country". The Little White Schoolhouse at 303 Blackburn Street in Ripon is the other National Historic Landmark in the region. This unassuming school housed an important historical event: the founding of the Republican Party in the 1850s. These exceptional properties represent two of only 30 National Historic Landmarks in the state and less than 2,500 nationwide.

Many National Register of Historic Places properties in the region have benefited under preservation incentives offered by the state and federal government. Perhaps the most important of these is the Historic Rehabilitation Tax Credit program, which provides a 25% state and federal tax credit to owners of historic properties, both income-producing and residential, who agree to rehabilitate their buildings in a manner consistent with the Standards for Historic Rehabilitation. Other National Register properties have been impacted by government projects and therefore subjected to review through the Section 106 compliance process. Communities large and small have also received grants through the Wisconsin State Historic Preservation Office to conduct surveys in order to identify the existence of historic properties within their areas. Many properties identified as historic during these surveys have later been nominated to the National Register by their owners.

At the local level, 18 villages and cities, but no towns or counties, have enacted historic preservation ordinances and formed commissions to administer these codes (Exhibit CR-3). A subset of this group of municipalities have Certified Local Government status through the

Wisconsin State Historic Preservation Office. Many communities with preservation ordinances have also designated local landmarks as a way of ensuring the continued, tangible presence of history within their borders. A small number of communities, that are required to have preservation ordinances, do not yet have them in place.

In the region, the relative quality of historic preservation ordinances varies from effective to ineffective. The City of Fond du Lac is regarded as an example of good practice. Effective ordinances establish clear operating criteria and allow commissions to actively landmark properties to ensure their continued protection for the benefit of whole community. Those judged to be ineffective tend to lack this ability. In order to encourage strong and effective ordinances, the Wisconsin Historical Society's Division of Historic Preservation makes funding available to certain communities that meet the required qualifications. Communities with certified ordinances can participate in the Certified Local Government program, which allows them to apply for special grants to promote preservation locally. Only four of the 18 communities within the region are Certified Local Governments.

Several neighborhood-based non-profits exist in the region at present. Appleton is home to two 501©3 groups: the Old Third Ward Neighborhood Association and the City Park Association. Each of these groups serve neighborhoods that were, at one time, threatened by redevelopment and encroaching non-compatible uses: the Old Third Ward by Outagamie County government buildings, and City Park by neighboring Lawrence University. Both have pursued National Register listing as a means of generating interest and publicity in their neighborhoods. To date there are no citywide organizations, like the Madison Trust for Historic Preservation, a non-profit advocacy organization that serves Wisconsin's capital, based within the region.

In the region, three communities currently have Main Street status: Ripon, Tigerton, and Waupaca.

Exhibit CR-2
National Register of Historic Places and National Historic Landmarks

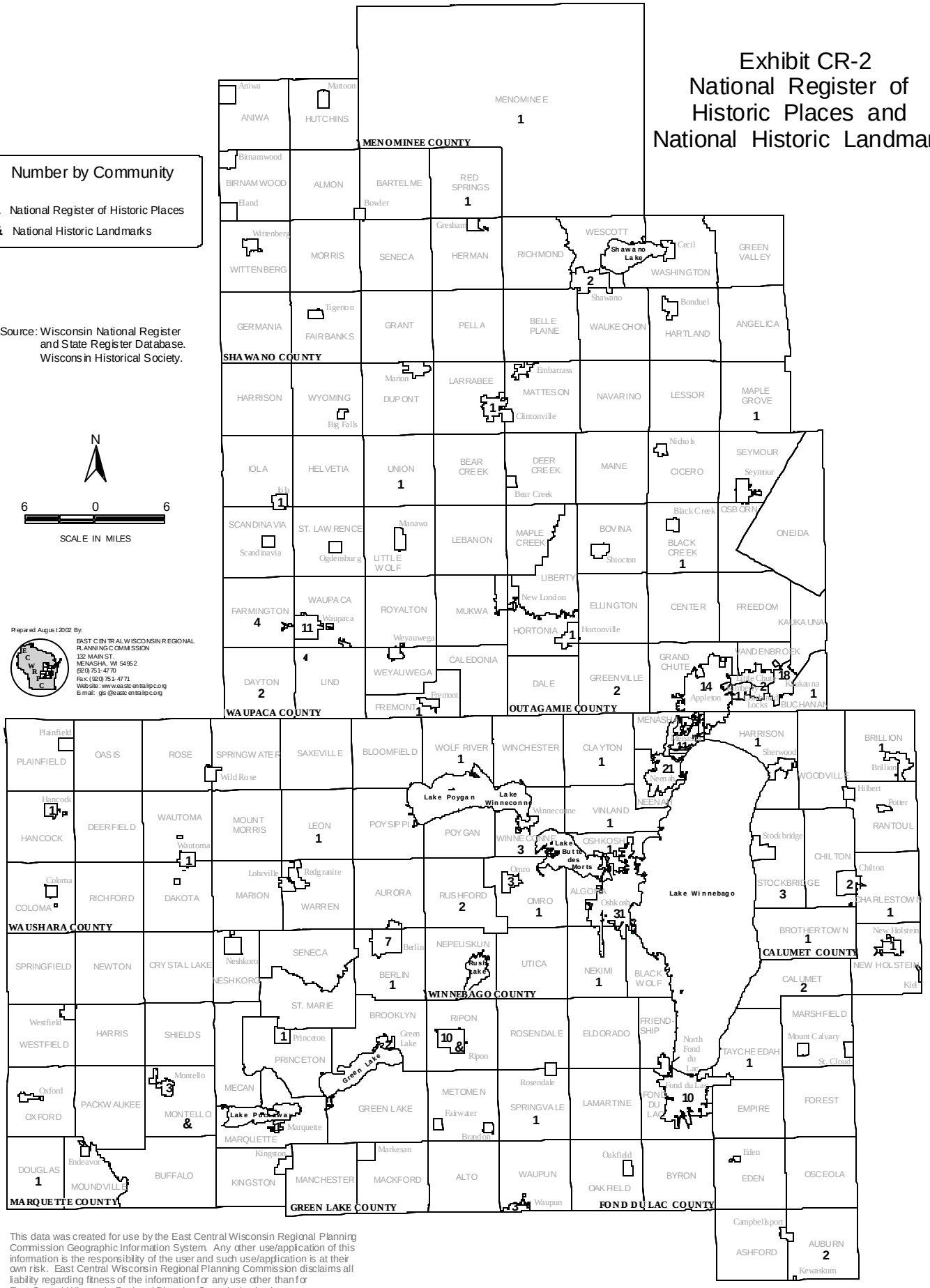

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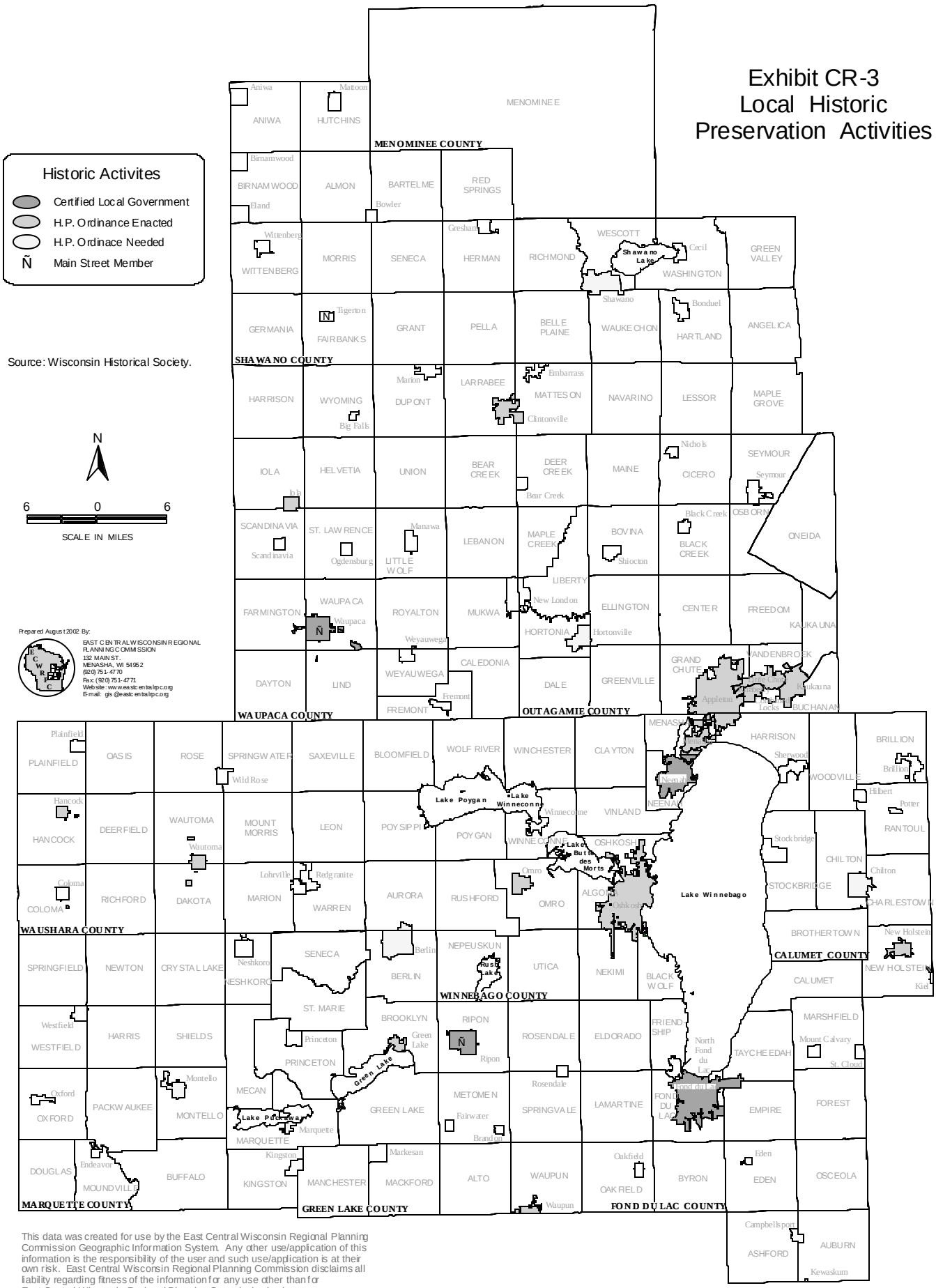
Exhibit CR-3
Local Historic Preservation Activities



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Cultural Resources: Key Findings

Current Trends

- There are 198 buildings, structures, objects, sites and districts, within the region, listed on the State and National Registers of Historic Places.
- The region is home to 2 National Historic Landmarks.
- There are 18 Preservation Commissions.
- Four communities have Certified Local Government status through the Wisconsin State Historic Preservation Office.
- 3 communities currently have Main Street status.
- There are a number of local Historical Societies.

Future Trends

- When planning for cultural resources and smart growth, it is not essential that one is aware of each and every cultural resource within the area. However, it is important to know how to access relevant information, and to have a sense of the distribution of each type of resource and the participation in the various programs.
- It is also important to be able to identify areas where surveys to identify cultural resources have not been conducted, or where surveys were conducted so long ago that the validity of the gathered information is in question. It is to these areas that effort and resources should be channeled.
- An awareness of these things will help ensure that planning for cultural resources is accomplished with orderly effectiveness, not in an ad hoc or piecemeal fashion.

Identification of Issues

- How can we improve the identification and inventory process for cultural resources, including archaeological sites?
- The number, extent and depth of cultural resource surveys that have been conducted in the region to date have been inadequate, for example, there are a number of areas in the region that have never had a reconnaissance survey, or for which existing surveys are dated. Similarly, there are areas in the region that have never had an intensive survey, or for which existing surveys are dated. How can we address inadequacies in the surveying cultural resources?
- How can we address some thematic holes in the historical record, particularly in terms of industrial sites along the waterways and lakes; agricultural sites associated with cheese-making; properties associated with indigenous populations and ethnic settlement groups such as the German, Dutch, and British?
- In areas were low to moderate income housing is in short supply, the Historic Rehabilitation Tax Credit program works well as a means of generating such housing, and can be piggybacked with other related programs (e.g. WHEDA's housing assistance programs). How can we ensure that local communities are aware of federal and state programs, such as the Historic Rehabilitation Tax Credit program?
- Historic preservation programs, in general, seem to be underutilized because many communities are unaware of their existence. This suggests a lack of communication

between the various levels of government involved in preservation. How can we address communication and education issues?

- Benefits are likely to accrue if preservation commissions within the region network and share best practice examples with each other. An example of best practice, implemented by one commission within the region but currently no others, is the City of Oshkosh Landmarks Commission's Acanthus Award program. This honorific, annual program is a means of focusing attention on local individuals, businesses, and organizations that help protect Oshkosh's cultural heritage. How do we promote sharing of best practice?
- There is recognition and a desire to capitalize on historic and cultural resources to benefit quality of life and create economic development opportunities. Historic preservation is increasingly regarded as an important tool in resisting the community homogenization that often results from "big box" developments. How do we plan for the preservation of government-owned historic buildings, and the reuse of historic buildings over new construction?[13].
- The importance of preserving Indian tribal heritage and cultures is regarded as important, especially language. At present, only one tribe in the region has a Tribal Preservation Officer[14] the Menominee Indian Tribe of Wisconsin, based in Keshena, Menominee County. How can we best support the three tribes within the region as they work to preserve their respective heritages?
- How do we address the fact that there are a number of communities in the region that are required to have local historic preservation ordinances, because of the presence of National Register listings, that do not have such ordinances in place?
- Is there a need for a regional clearinghouse for information relevant to local historic preservation commissions?
- How do we balance the benefits of cultural preservation with the costs involved?

[13] See, for example, Executive Order No. 13006, which encourages the location of federal facilities on historic properties in central cities.

[14] The National Historic Preservation Act provides for the creation of Tribal Preservation Officers, the equivalent of State Historic Preservation Officers, for federally recognized Indian tribes.

Exhibit CR-1
Intensive Surveys of Historic Architecture

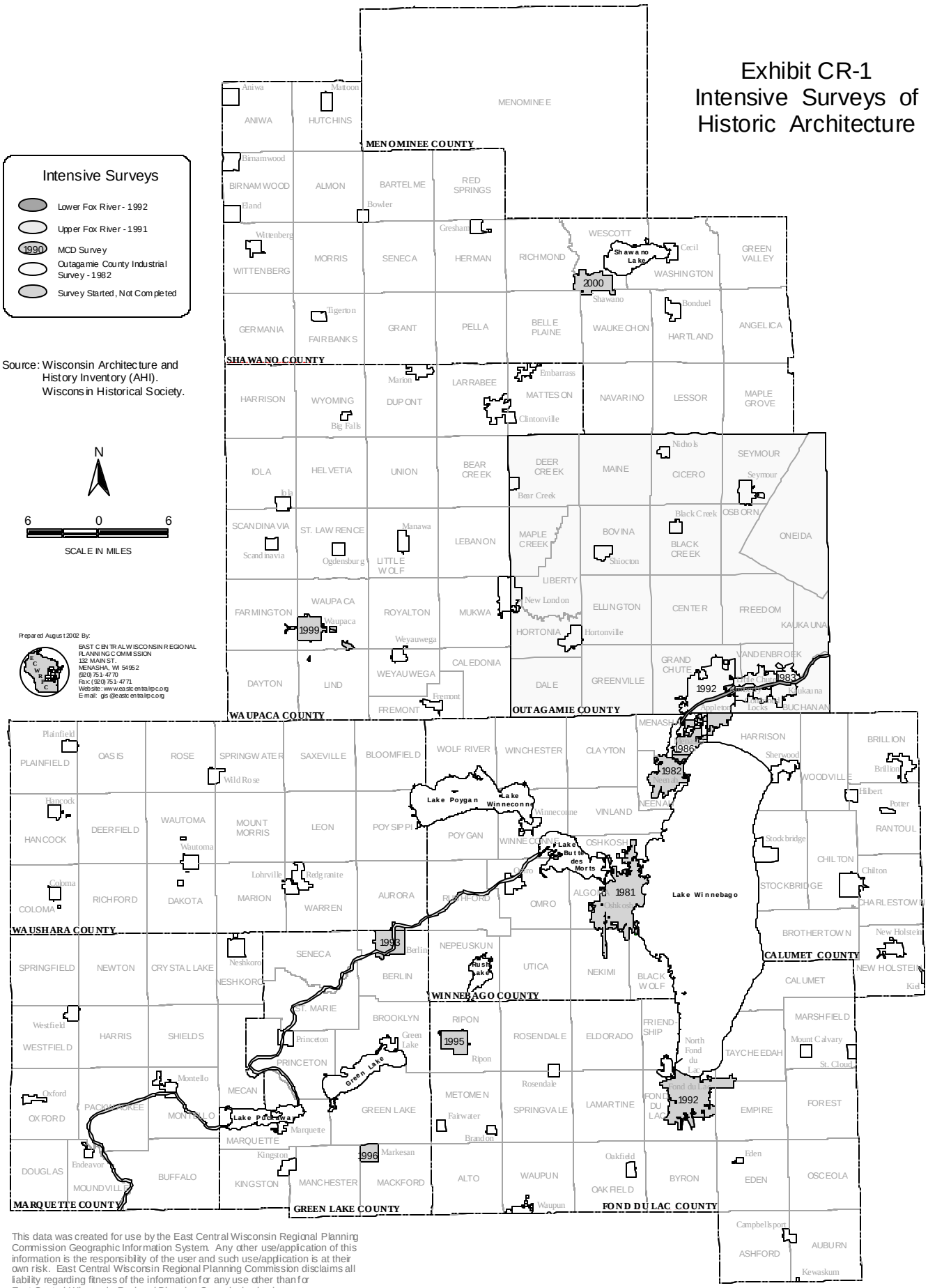

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Exhibit CR-2
National Register of Historic Places and National Historic Landmarks

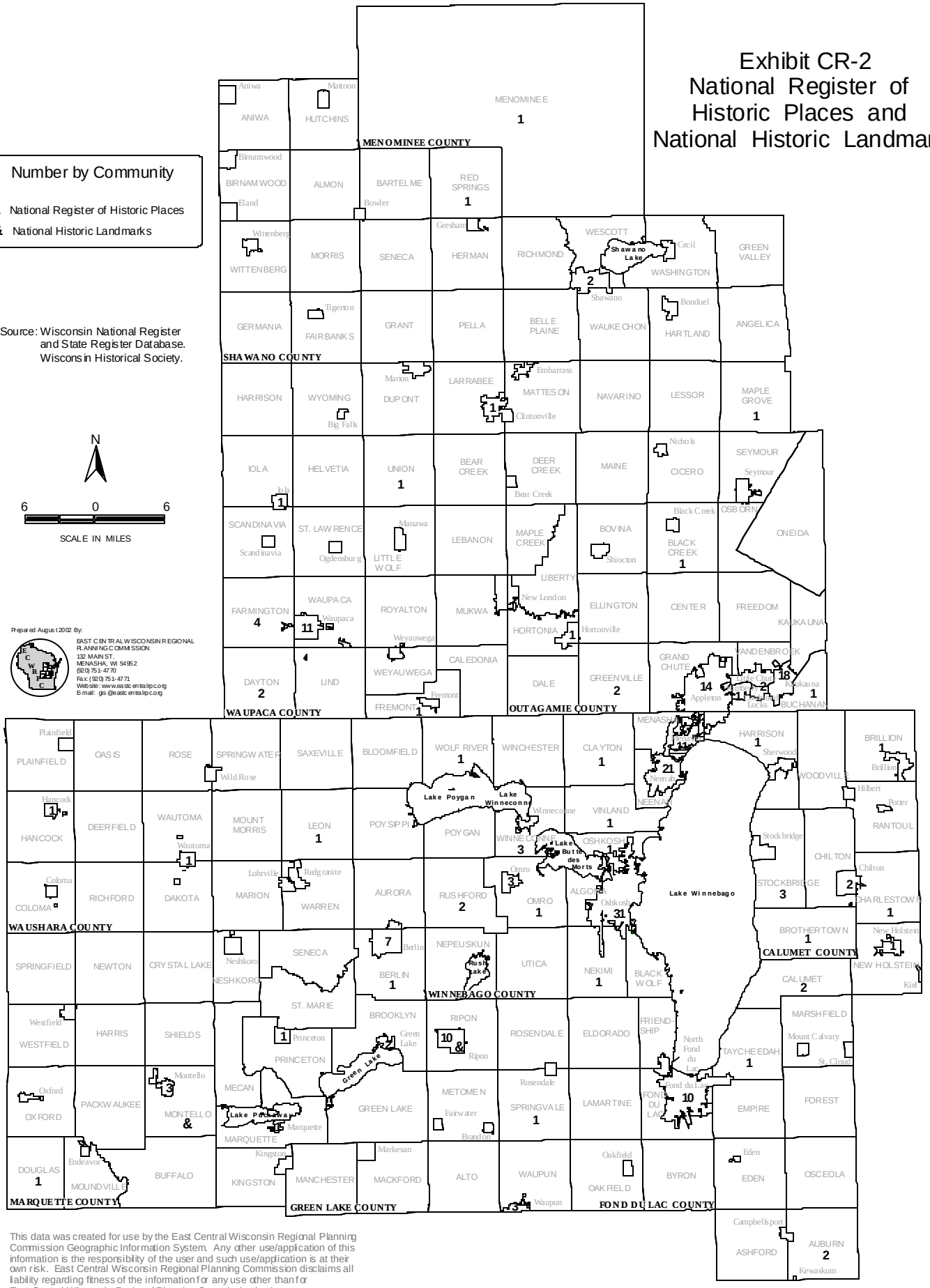

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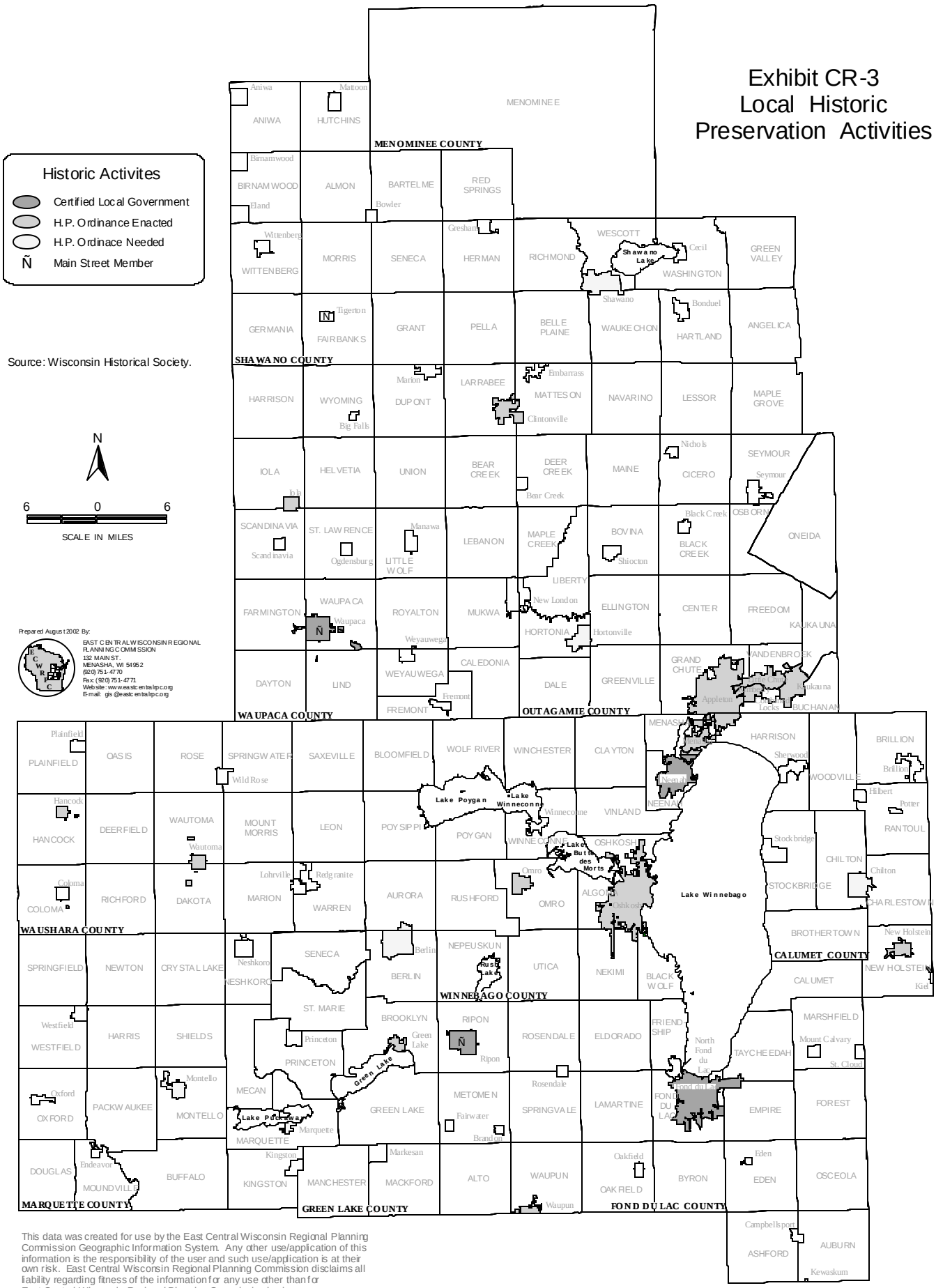
Exhibit CR-3
Local Historic Preservation Activities



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Chapter 10: Land Use

Introduction

Land use is the final element to be addressed in the comprehensive planning process. Previous chapters in this report have discussed demographic, economic and housing growth; documented historic and current needs for increases in transportation and other utilities and community facilities; discussed our agricultural, natural and cultural resources and described the amount and effectiveness of intergovernmental cooperation in our region. In many respects this chapter, as it assesses current and future land use trends, pulls together the various elements of the previous chapters. Many aspects of our life are impacted directly or indirectly by land use. Our choices for housing type, location, transportation alternatives, as well as our decisions on employment locations, our recreational opportunities and the quality of our manmade and natural environment are all inextricably woven together into our region's land use. Land use policy decisions made in siting a business, or in improving a roadway, can have far reaching repercussions for several other areas such as the demand for housing growth, or the protection of natural wildlife habitat, etc.

This chapter also describes the land use policy context, discusses the need for additional intergovernmental cooperation, and identifies issues that need to be addressed.

Of the 14 local comprehensive planning goals listed in Chapter 1, East Central takes the view that those listed below specifically relate to planning for land use.

- 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 neighborhood designs that support a range of transportation choices.
- Protection of natural areas, including wetlands, wildlife habitats, lakes, woodlands, open spaces and ground water resources.
- Protection of economically productive areas, including farmland and forests.
- Encouragement of land uses, densities and regulations that promote efficient development patterns and relatively low municipal, state governmental and utility costs.
- Preservation of cultural, historic and archaeological sites.
- Providing 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.
- Balancing individual property rights with community interests and goals.
- Planning and development of land uses that create or preserve varied and unique urban and rural communities.

Over the last thirty years, the region has experienced considerable growth. The Appleton-Oshkosh-Neenah MSA is one of the fastest growing regions in Wisconsin. Much of that growth has occurred in the form of low density urban and suburban development. Rural areas in the region are also under pressure from scattered rural residential and vacation home development. Large lot development in rural areas has fragmented farmland and forestland and put pressure on our lakes, streams and sensitive environmental areas.

Policy Context

Land is a basic physical resource with natural properties, and also a unique social and economic commodity. Good design can contribute to the enjoyment and livability of an area, and proper location and quality of services strengthens the economic viability of a region. Planning can help to integrate these diverse aspects into a single seamless coordinated, functional living environment. Some elements of land use are best decided by local jurisdictional governments, but other elements span multiple jurisdictions and can best be addressed on a regional scale, balancing the interests of several governmental jurisdictions. Having a cohesive public policy for land use is pivotal to the physical, economic and social health of rural areas, cities, counties and regions. As a result, policy planning is done on the federal, state, regional and local level.

Federal

At the federal level, concepts such as Manifest Destiny combined with expansive federal housing, land and transportation legislation, policies and subsidies have heavily influenced the settlement patterns we see today. Early expansionism was motivated by a strong desire for settlers to own land, and for a new government to maintain order.

The Homestead Act (1862-1986), for instance, promised ownership of a 160-acre parcel of public land to the head of a family after he had cleared and improved the land and lived on it for five years. In many parts of the nation, including the east central portion of Wisconsin, this has resulted in a grid settlement pattern in rural areas. During this time, rivers and railroad legs provided access and generally determined the survival or demise of new cities. The new cities served as service centers for the settlers of the surrounding rural landowners. Most everything needed by the residents of the city and the surrounding area was available in one central location.

In the post war 1950's, the demand for housing and services increased dramatically, prompting the rapid construction of new housing developments, new communities, and new federal policies. The signing of the Federal Housing Act of 1954[1] resulted in standards for affordable housing and the advent of the residential subdivision. The subdivision was based on the concept of a separation of land uses, which segregated single-family residential from all other land uses. This sort of development resulted in lower densities and the dramatic increase in auto ownership and the development of highways, as it was no longer convenient, or in some cases feasible, to use other forms of transportation.

Transportation was the topic of many policy actions in the post-war era. Following the start of federal aid for highways in 1916, a new interstate system of freeways was authorized in 1956. The construction and expansion of this system over the next 30 years enabled the development of residential subdivisions farther and farther from the central cities, very segregated land use patterns, and the near demise of railroads. Communities became more fragmented and isolated. Central cities began to decline, as infrastructure investments shifted from maintenance of existing infrastructure to construction and expansion of new infrastructure.

[1] See Chapter 4 for additional housing policy information.

Poverty, discrimination, and inadequate housing sparked a new rash of federal policies in the 1960s aimed at preservation and revitalization. The Civil Rights Act of 1964 and the National Environmental Policy Act of 1969 dealt with complimentary functions of providing services in the inner city, encouraging redevelopment and rehabilitation, and the preservation of natural features, eventually evolving into policy and standards for clean air, clean water, quieter communities, and safe disposal of wastes[2]. This change in focus from expansion to preservation ended the Homestead Act in 1976 for the lower 48 states.

The Rural Development Act of 1972 provided grants to nonmetropolitan planning agencies, as well as grants for water and waste disposal construction, an agricultural credit insurance fund, insured watershed loans, industrial assistance (loans and grants), rural housing loans, and small enterprise operation loans. According to Section 106 of the act, "...no loan under this section shall be made that is inconsistent with a multijurisdictional planning and development district area-wide plan of such agency." Other concerns of the Rural Development Act included "the conservation and utilization of land, land use and water quality, rural community fire protection, and research and education grants to enhance the capabilities of colleges and universities to perform the vital public service roles of research, transfer, and practical knowledge in support of rural development." The 1972 Act was substantiated by the Rural Development Policy Act of 1980, which primarily set up the political structure to administer the programs, and assigned roles for implementation.

The Intermodal Surface Transportation Efficiency Act of 1991(ISTEA), followed by the Transportation Equity Act for the 21st Century (TEA-21) requires that urbanized areas examine the relationship between transportation and land use, and consider alternative land use patterns that would promote multi-modal transportation opportunities. This requirement is carried out for the Fox Cities and Oshkosh urbanized areas by East Central, the Metropolitan Planning Organization (MPO) for the two areas. The Fond du Lac urbanized area, the designation resulting from the 2000 Census, will be undergoing this process for the first time by 2005. [3]

State

State land use legislation such as that addressing water quality planning requirements (NR 121), farmland preservation, natural resource protection and real estate tax codes have influenced growth and settlement in the region. Responsibility for such legislation is dispersed among a number of state agencies, including the Department of Administration (plat reviews, land use legislation, and municipal boundary reviews), Department of Commerce (onsite waste disposal systems), Department of Natural Resources (sewer extensions, waste treatment facilities, erosion control, and stormwater), Department of Revenue (real estate laws, transfers and assessment regulations, and use value assessment), and Department of Agriculture, Trade, and Consumer Protection (farmland preservation). A close relationship also exists between land use and transportation, resulting in a number of WisDOT policies and regulations that have had significant effects on land use in the area. A few of the policies having the most significant effect on land use are discussed here.

[2] For more detailed information on federal environmental policy, see Chapter 8.
[3] For more details on federal transportation regulations effecting land use, see Chapter 5.

Wisconsin's water quality legislation (NR121) establishes regulations specifying policies, procedures, and requirements for Wisconsin's areawide water quality planning process. It sets the requirement for areawide plans regarding the management of the quality of waters, ground and surface, public and private, including consideration of the relationship of water quality to land and water resources and uses. The purpose of this planning process is to systematically evaluate alternative means of achieving state and federal water quality goals and related standards. This planning process integrates consideration of both the technical measures for water pollution abatement and the management arrangements necessary for implementing abatement measures.

The preservation of Wisconsin's valuable farmland was the goal of the Farmland Preservation Program (established in 1979). The program required and made funding available to counties in creating county agricultural preservation plans. These lay the groundwork for towns, municipalities and the county to develop exclusive agriculture zoning districts. Farmers can then participate by signing an individual, long-term agreement. The farmland preservation program provides state income tax credits to farmers who meet the program's requirements; to meet soil and water conservation standards; and to use the land for agriculture only. A minimum lot size of 35 acres was set for land divisions in the zoned areas. The program has met with mixed reviews and the attainment of its goals is a much-debated issue.

The regulations regarding the extension of sewer service and the development of facility plans have had what is arguably the most significant impacts on the pattern of land use that has developed over the past thirty years. Any extension must go through a conformance review, which consists of an evaluation (for sewer extensions) of the location of the proposed work and its proximity to environmentally sensitive areas such as wetlands, floodways, steep slopes, etc. For facility plans, the conformance review involves evaluating the population statistics used, the projected flows, and impacts on water quality as they relate to the area's sewer service area plan and water quality management plan. This process, and the standards behind it, have had some effect on keeping new urban development, at least that on municipal systems, contiguous to existing urban development.

Perhaps the most significant recent state legislation affecting land use is that concerning use valuation of agricultural land. Prior to 1995, agricultural land, like all other taxable property, was assessed at full market value. Under the 1995 Act 25, land devoted primarily to agricultural use could be valued on the basis of its use rather than at its potential value in the marketplace. An emergency rule provided for the full implementation of the use value beginning in the year 2000. The intent behind the use valuation legislation was to provide property tax relief for the farm sector, and deter the tax burden pressure on farmers to sell off parcels of land for development.

The Wisconsin Department of Transportation's policies are often criticized for encouraging development away from urban centers, along highway corridors. While a chicken and egg discussion will always result, it is safe to say that the construction and expansion of highways have reduced travel time to the urban centers, which has resulted in the reduction in importance of one common deterrent to rural residential development – commuting. Highway related development, such as fast-food establishments and convenience stores, at and near interchanges and major highway intersections also follow construction. Concerns in this area prompted the development of *Transportation and Land Use Coordination: Executive Summary*

and Report of the WisDOT Land Use Workgroup (August, 2002)[4]. The report addresses the short-comings of Trans233, a plat review process for properties desiring access to state highways, as well as the benefits of corridor planning. Corridor planning examines land use and access needs along the full corridor of a highway, and the creation of a future vision for the corridor. For a more detailed description of corridor plans, see Chapter 5 of this report.

Concerns regarding growth, service costs, land use issues and the effectiveness of existing state planning legislation to address these issues led to the development of what is commonly referred to as Wisconsin's "Smart Growth Law". Wisconsin's smart growth legislation, adopted in 1999, encourages all government entities involved in land use decisions create a comprehensive plan, which shall then be used as a basis for land use decision making[5].

Regional

While broader land use policy is set at the federal and state level, most land use decisions are made locally. While some elements of land use are best decided by local jurisdictions, other elements span multiple jurisdictions and can best be addressed on a regional scale, balancing the interests of several governmental jurisdictions. Transportation corridors, for instance, can traverse several communities and counties. Surface water and groundwater quality issues can impact several communities. Provision of utility services, recreational needs, and police and fire protection services are often handled locally. However, these are examples of areas where there may be efficiencies in sharing equipment and staff between governmental jurisdictions.

To bridge the gap between state and local government, the state passed legislation in 1959 to establish regional planning commissions (RPC's). The RPC's were established to carry out comprehensive, intergovernmental planning, meet areawide requirements so that local jurisdictions can receive federal grants, and to have an organization to receive federal planning grants.

East Central plays a key role in creating an overall land use framework for its ten county region. Initial regional policies were established in the mid-1970's. For a full description of policy development and current policies, including preliminary policy analysis please refer to *East Central Policy (2003),* which is available on line at www.eastcentralrpc.org.

County and Local Government

As stated earlier, while policy direction may come from federal and state agencies, on the ground decisions are made locally. Local attitudes towards growth and accompanying zoning legislation, transportation and utility investments and tax and land subsidies also influence the type and amount of growth and development which occurs in each community.

Land use issues are often complex and interwoven. What is a good solution for one aspect of the living environment may be detrimental to another aspect. For example, an older farmer, who's chosen to rely on developing his farm for his retirement, could drive up the land value so high, that a young farmer cannot afford to purchase additional acreage to make his farm

[4] The report can be found, in its entirety, online at: www.dot.wisconsin.gov/localgov/docs/landuse-coordination.pdf.
[5] For additional information regarding smart growth legislation, see Chapter 1.

economically viable (good for one purpose, but bad for the young farmer and farm preservation). His buyer could be a hunting and fishing enthusiast, who will pay a premium price to control a large open tract of land, and will protect the woodlots and waterways (a good thing for the wildlife and the environment); but may, in the process, increase property values for established residents in the surrounding area (a bad thing economically for existing taxpayers, but a good thing in terms of future resale value). His buyer could be a developer, who provides housing and commercial and industrial buildings, thereby adding significant value to the land (good for increasing tax revenues). However, the additional development will increase the need for additional services (bad for increasing tax expenditures). The development of the additional housing and other buildings may also dramatically alter the character of the community (good or bad, depending on the community's vision).

Land use policies must consider multiple positions and consequences, and strive to create a harmonious balance between competing values so that property rights are balanced and the common good is served. Local land use policies must be carefully crafted to balance the physical protection of the sustaining land and water, with the economic benefits, and be tempered by social responsibility for a healthy living environment.

To that end, several counties within the region have formed land use planning committees to coordinate preparation of county wide master plans well in advance of the state mandated 2010 deadline established for completing "smart growth" comprehensive master plans. A common practice has been to adopt a bottom up approach where the individual communities, villages and towns prepare land management plans for their respective jurisdictions, and when adopted, submit them to the County for use in developing an overall county plan.

Each community and county in the region will need to address a number of issues. An array of tools are available to offer some assistance to local communities to protect water quality, wildlife habitat and rural character vistas and views. The Clean Water Act grant programs, Conservation subdivisions, purchase of development rights (PDR) programs, conservation easements, open space acquisition programs, land trusts, forest management, the DNR Stewardship grant program and many other state and federal programs are available to assist with implementing this goal.

Other issues such as building code enforcement, quality housing, reduction of visual blight and improving the provision of good public services may best be addressed by forging cooperative agreements with other adjacent communities, the appropriate County agency and staff, and the private and nonprofit sectors. It may be possible for several towns and communities to share a privately contracted staff person under a shared services agreement. Private industry/business development attraction, and some major transportation improvements and healthcare service issues may lend themselves to solutions prepared on a regional scale.

Intergovernmental Cooperation

Competition for growth and lack of communication between communities are two major factors that have contributed to sprawl and inefficient development patterns within the region. As a result, East Central has worked hard to facilitate communication and coordination between communities and overlapping districts, particularly in regards to transportation and sewer service area planning. While some progress has been made, many opportunities for increasing

intergovernmental cooperation and efficiencies still exist. As a result, East Central will continue to work to foster continued cooperation and communication within the region.

Many urban communities in the region have experience with developing and implementing land use plans, but have not always considered the impact of their decisions on other communities within the region. Much of the planning in the region also tends to be reactive, rather than proactive. As a result, growth has, at times, outpaced municipal boundaries and facility and service growth, and the long-term costs associated with development patterns have not always been considered. East Central is working with these communities to help mitigate some of these impacts.

East Central has, and will continue to, work with county and local land use planning committees and UW-Extension in rural areas to facilitate meetings, bring in speakers, and provide support staff, information, data and maps to aid local land use planning efforts. East Central has been instrumental in getting state grants to greatly reduce the local share of doing these local plans. Local communities and counties have also benefited from a cooperative relationship where the county zoning administrator, county planner, UW-Extension staff and East Central staff have worked together to provide information and guidance to aid the local communities as they have worked to formulate their own plans.

Background Information

The following section briefly discusses growth pressures and reviews changes in housing density, land use and property values within the region. Land use trends will be discussed and potential land use needs, conflicts and issues will be identified.

Growth Trends

As noted in the issues and opportunities and housing chapters, the region has experienced considerable growth in the past twenty years. Population has increased by 19%, the number of households in the region has increased by 31% and the total number of housing units has increased by 39%. The growth in housing units, not only reflects the growth in households, but also the increase in seasonal units in the region during this time period. Table L-1 examines the increase in housing unit density between 1980 and 2000.

In 1980, the region averaged 33 houses per square mile, which was slightly higher than the state average of 32 houses per square mile. Within the region, urban counties averaged 63 houses per square mile, while rural counties averaged 15 houses per square mile. Housing densities in urban counties ranged from 111 houses per square mile in Winnebago County to 31 houses per square mile in Calumet County, while housing densities in rural counties ranged from 22 houses per square mile in Waupaca County to 3 houses per square mile in Menominee County.

Between 1980 and 2000, residential densities increased throughout the region and state. By 2000, the region's average residential density was 46 houses per square mile, compared to the state's 43 houses per square mile. Within the region, housing densities in urban counties ranged from 148 houses per square mile in Winnebago County to 49 houses per square mile in

Calumet County. Housing densities in rural counties ranged from 30 houses per square mile in Waupaca County to 6 houses per square mile in Menominee County.

Table L–1. Housing Unit Density, 1980 to 2000

	Land Area in sq. miles	1980		2000	
		Tot Units	Units/sq mi	Tot Units	Units/sq mi
Wisconsin	54,313.7	1,756,311	32.34	2,321,144	42.74
Region	5,559.5	185,819	33.42	257,449	46.31
Urban Counties	2,121.9	133,472	62.90	182,364	85.94
Rural Counties	3,437.6	52,347	15.23	75,085	21.84
Calumet	319.9	10,042	31.39	15,758	49.26
Fond du Lac	723.0	31,018	42.90	39,271	54.32
Green Lake	354.3	7,332	20.69	9,831	27.75
Marquette	455.5	5,466	12.00	8,664	19.02
Menominee	358.0	1,231	3.44	2,098	5.86
Outagamie	640.4	43,883	68.52	62,614	97.77
Shawano	892.6	13,435	15.05	18,317	20.52
Waupaca	751.1	16,188	21.55	22,508	29.97
Waushara	626.1	8,695	13.89	13,667	21.83
Winnebago	438.6	48,529	110.65	64,721	147.56

Source: U. S. Census, 1980 and 2000.

Land Use Trends

As growth has occurred, land use in the region has changed in intensity and net density. Population and household growth have resulted, not only in the expansion of residential land uses, but also in the expansion of commercial, industrial and public land uses. Land has been converted out of agriculture and open space for these uses and their accompanying infrastructure. Agricultural practices have intensified, as dairy farmers have expanded herds, mega-farms have developed and farming has become more mechanized and farm inputs have increased. In some areas, agricultural land has been purchased for recreation. Hunters and fisherman have purchased large tracts of land, pulling them out of pasture and woodlots and converting them to conservation land for hunting or to game farms. While these uses do not necessarily increase densities or land use intensities, they do fragment farm and forestland.

The data used in the land use and property value trends sections of this chapter comes from the Wisconsin Department of Revenue and Menominee County (Table L-2 and Table L-4), with supporting data from the Wisconsin Department of Agriculture, Trade and Consumer Protection (DATCAP) (Table L-3). The Wisconsin Department of Revenue collects yearly assessment information regarding land by real estate class for each minor civil division in the state. Acreage figures for these reports do not include trust lands or other tax-exempt properties. Acreage data for incorporated communities is also incomplete, as their information is frequently provided in number of parcels, as opposed to number of acres, to the Department of Revenue. While this gives us an incomplete picture of the total amount of land currently devoted to

residential, commercial, industrial and public facility land uses, it gives us a very good picture of land consumption within the region during this time period.

Table L-2. Land Use Acres by Real Estate Class, 1980 to 2000

		Residential	Commercial	Manufacturing	Agricultural	Swamp & Waste	Forest Land	Other	Total
Region	1980	76,954	13,877	8,032	1,815,321	147,739	495,087	1,500	2,558,510
	1990	148,791	24,240	19,348	1,907,084	225,650	551,850	0	2,876,963
	2000	209,873	34,702	6,105	1,525,308	374,512	725,864	27,357	2,915,221
Urban	1980	28,259	5,954	5,510	766,786	68,263	60,778	0	935,550
	1990	59,734	13,918	7,745	932,356	86,934	83,150	0	1,183,837
	2000	88,350	22,125	3,636	780,979	116,495	88,193	13,529	1,113,307
Rural	1980	48,695	7,923	2,522	1,048,535	79,476	434,309	1,500	1,622,960
	1990	89,057	10,322	11,603	974,728	138,716	468,700	0	1,693,126
	2000	121,523	12,577	2,469	744,329	258,017	637,671	13,828	1,801,914
Calumet	1980	2,811	820	567	139,858	8,754	11,085	0	163,895
	1990	7,000	1,813	657	153,096	7,019	12,735	0	182,320
	2000	8,339	2,245	859	105,659	7,900	12,048	1,772	138,822
Fond du Lac*	1980	6,707	1,131	1,257	223,241	10,707	11,145	0	254,188
	1990	14,704	2,330	1,748	355,623	33,026	15,538	0	422,969
	2000	21,009	5,512	2,237	288,709	48,425	17,515	6,433	387,603
Green Lake*	1980	2,401	438	553	156,305	9,931	6,888	1,500	178,016
	1990	7,725	1,797	810	142,571	26,424	18,887	0	198,214
	2000	9,215	2,041	1,142	116,897	47,012	18,436	2,267	195,868
Marquette*	1980	13,625	1,327	239	157,210	21,761	77,143	0	271,305
	1990	24,347	1,771	248	110,111	38,300	69,671	0	244,448
	2000	27,062	1,687	238	98,755	58,523	69,479	1,806	257,312
Menominee	1980	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
	1990	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
	2000	n.a.	n.a.	n.a.	n.a.	n.a.	223,500	n.a.	235,000
Outagamie	1980	5,874	1,495	1,545	208,044	26,500	30,524	0	273,982
	1990	18,244	5,153	2,297	243,601	21,177	42,907	0	333,379
	2000	31,209	6,723	2,777	227,788	27,172	45,543	3,385	344,597
Shawano	1980	6,507	3,408	521	242,267	9,075	154,824	0	416,602
	1990	12,558	2,734	650	271,594	17,752	177,880	0	483,168
	2000	15,556	3,314	1,284	184,288	33,118	139,743	4,067	381,370
Waupaca	1980	10,405	1,481	896	272,926	13,555	109,339	0	408,602
	1990	19,342	2,326	857	249,843	32,625	108,880	0	413,873
	2000	30,023	3,299	1,185	189,086	64,749	101,168	3,481	392,991
Waushara*	1980	15,757	1,269	313	219,827	25,154	86,115	0	348,435
	1990	25,085	1,694	303	206,912	23,271	96,158	0	353,423
	2000	39,667	2,236	195	155,303	54,615	85,345	2,207	339,373
Winnebago*	1980	12,867	2,508	2,141	195,643	22,302	8,024	0	243,485
	1990	19,786	4,622	3,043	180,036	25,712	11,970	0	245,169
	2000	27,793	7,645	3,352	158,823	32,998	13,087	1,939	242,285

* Manufacturing totals from 2002, not 2000.

Source: Wisconsin Department of Revenue, 1980, 1990, 2000, 2002; Menominee County, 2000.

In 1980, the Wisconsin Department of Revenue classified 71% of the land in the region[6] as agricultural, 19% as forestland and 6% as swamp and wasteland. Only 3% of the land was designated as residential and 1% was designated as commercial and manufacturing. However, it's likely that the residential, commercial and manufacturing acres are underestimated, because most of the land in these categories, commercial and manufacturing, in particular, are located in incorporated areas.

[6] Since the majority of land in Menominee County is trust land, Menominee County data is not included. Therefore, 'region' refers to the remaining 9 counties in the region.

In 1980, 58% of agricultural land, 54% of swamp and wasteland and 88% of forestland was located in rural counties in the region. Sixty-three percent of residential land and 57% of commercial land was also located in the rural counties. Sixty-nine percent of manufacturing land was located in urban counties.

By 2000, the amount of land classified as agricultural in these 9 counties had declined to 57%. Eighteen percent of the region's land was classified as forestland and 14% was classified as swamp and wasteland. The amount of land designated as residential had increased to 8%. Less than 2% was designated as commercial and manufacturing. Rural counties continued to hold the largest share of forest, residential swamp and wasteland in the region. In 2000, 83% of the region's forestland, 69% of swamp and wasteland and 58% of residential land was located in rural counties in the region. Seventy percent of the land classified as manufacturing and 64% of the land classified as commercial was located in the urban counties.

Residential

Between 1980 and 2000, the amount of land classified as residential in the region more than doubled, rising from 77,954 acres in 1980 to 209,873 acres in 2000. Within the region, the amount of residential land increased by 213% in urban counties, rising from 28,259 acres in 1980 to 88,350 in 2000. In rural counties, the amount of residential land increased by 150%, rising from 48,695 acres in 1980 to 121,523 acres in 2000. During this same time period, the number of households in urban counties increased by 34% and the number of households in rural counties increased by 22%. These numbers equate to an average consumption rate of 1.4 acres of land for every new household in urban counties and an average of 5.2 acres of land for every new household in rural counties.

Commercial

Commercial acreage also more than doubled, rising from 13,877 acres in 1980 to 34,702 in 2000. Between 1980 and 2000, commercial land use increased by 272% in urban counties and 59% in rural counties. The largest increases in commercial land use occurred on the edge of existing urban communities. One of these new areas is the Fox River Mall, located west of Appleton, which has become a regional trade center for northeastern Wisconsin.

Manufacturing

Table L-2 seems to indicate that the amount of land classified as manufacturing decreased between 1980 and 2000. However, that is likely incorrect. Most manufacturing facilities are located in incorporated communities, which typically provide number of parcels, rather than number of acres to DOR. East Central conducts a yearly survey of public industrial parks within the region. Based on survey results, the number of industrial parks and reported acreage has increased during this time period.

Agricultural

Based on Department of Revenue data, 30%, or 304,206 acres, of agricultural land disappeared from the tax rolls in rural counties in the region between 1980 and 2000. Acreage data for agriculture was missing from some urban county reports. As a result, agricultural land lost in

these counties can not be determined from this source. 2000 was also the first year that use value assessment was fully implemented. The change in tax law to use value assessment resulted in a reclassification of some land out of agriculture into swamp, wasteland and other real estate categories. To obtain a clearer picture of agricultural land losses, information from the *Wisconsin Agricultural Statistics* is used to evaluate the loss in agricultural land (Table L-3). Additional information is also provided in the agricultural resources chapter.

Information from DATCAP indicates that the region lost 319,100 acres of farmland between 1980 and 1999. Based on their numbers, rural counties lost 203,700 acres of farmland during this time period, while urban counties lost 115,400 acres of farmland. The largest losses occurred in Shawano and Waupaca Counties, which lost 70,000 acres and 79,200 acres respectively. Green Lake County lost the least amount of farmland, 16,800 acres.

The loss in farmland was accompanied by a reduction in the number of farms, and an increase in average farm size. Between 1980 and 1999, 2,620 farms were lost in the region. Urban counties lost the largest number of farms, 1,380 and experienced the largest increases in average farm size.

Table L-3. Change in Farms, 1980 to 1999

	Land in Farms		Number of Farms		Average Farm Size	
	1980	2000	1980	2000	1980	2000
Region	2,314,100	1,995,000	12,660	10,040	n.a.	n.a.
Urban Counties	1,092,400	977,000	6,590	5,210	n.a.	n.a.
Rural Counties	1,221,700	1,018,000	6,070	4,830	n.a.	n.a.
Calumet	184,500	159,000	1,240	830	149	192
Fond du Lac	388,600	360,000	2,070	1,790	188	201
Green Lake	165,800	149,000	790	690	210	216
Marquette	155,600	136,000	590	530	264	257
Menominee	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Outagamie	316,600	276,000	2,060	1,570	154	176
Shawano	366,000	296,000	1,980	1,570	185	189
Waupaca	328,200	249,000	1,780	1,300	184	192
Waushara	206,100	188,000	930	740	222	254
Winnebago	202,700	182,000	1,220	1,020	166	178

Source: WI Agricultural Statistics

Swamp and wasteland

Land classified as swamp and wasteland increased substantially, rising from 147,739 acres in 1980 to 374,512 in 2000. The rise in acres in this category likely reflects the conversion of less productive land out of agriculture, the increasing popularity of privately owned recreational property and reclassification of farmland to swamp and wasteland due to the change in the real estate tax code to use value assessment. Rural counties experienced the largest gains in swamp and wasteland. The number of acres in this category increased by 178,541 in rural counties and 48,232 in urban counties.

Forest

Based on DOR data, the amount of forestland in nine counties in the region appears to have increased by less than 2%, rising from 495,087 acres in 1980 to 502,364 acres in 2000. Data from Menominee County indicates that approximately 223,500 acres of the reservation, or 95%, is forested, which brings the region's total forestland acres to 725,864. Eighty-eight percent of the 725,864 acres of forestland in the region was located in rural counties in 2000. Thirty-one percent of forestland in the region is located in Menominee County. Twelve percent of the region's forestland is located in urban counties. More detailed information regarding type of forests and forest fragmentation can be found in the natural resources chapter of this document.

Other

Land classified as other does not appear in most counties until 2000. Other includes the land that supports agricultural buildings, such as barns and stables and small barnyards. In some instances, it also includes hobby farms. One percent of land in the region was classified as other in 2000.

Development Status

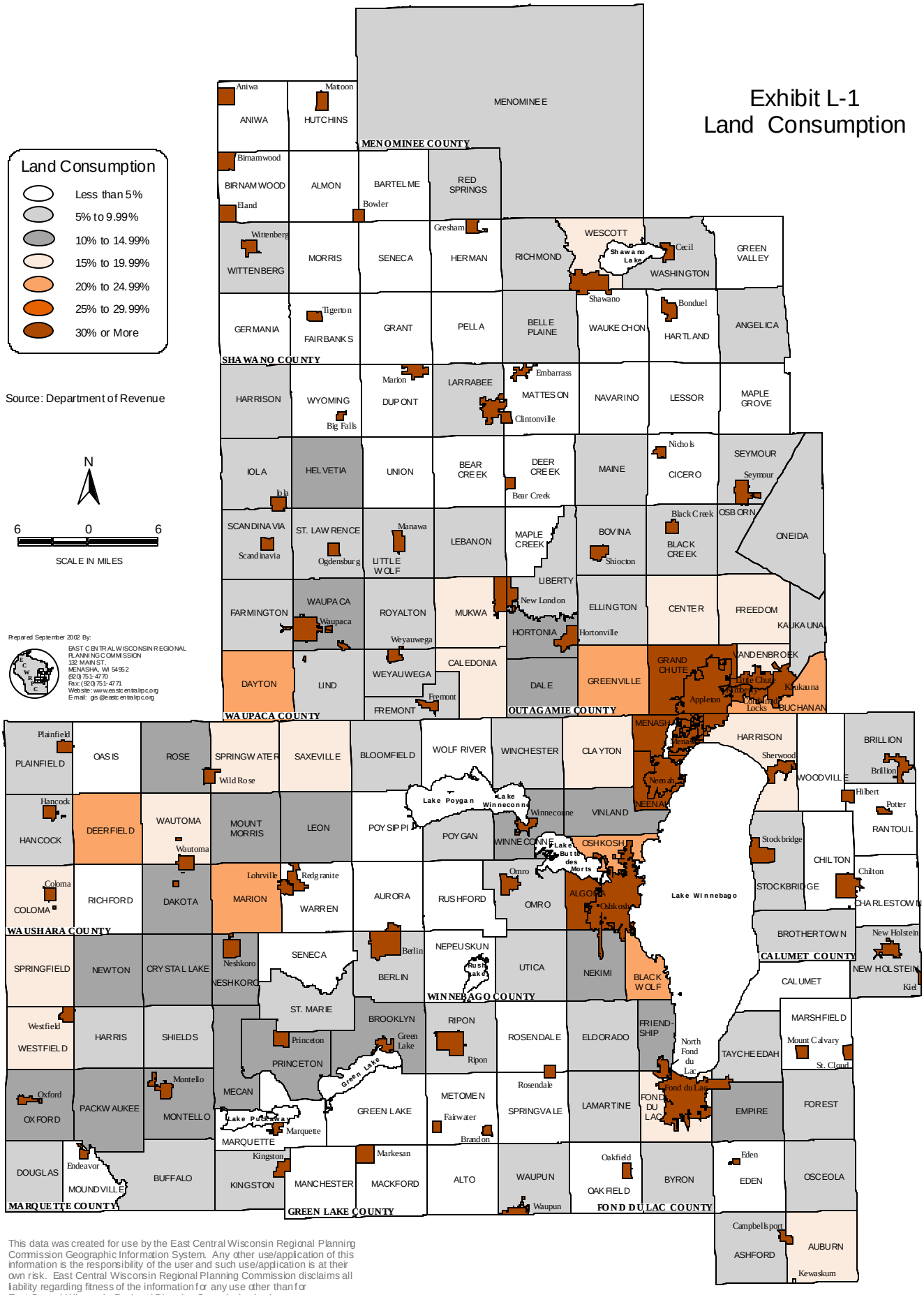
Exhibit L-1. Land Consumption shows the proportion of the land in each MCD in the region, which was classified as residential, commercial and/or manufacturing in 2000 by the Department of Revenue. Communities with the highest share of land in these three land use categories includes incorporated communities and well developed urban towns such as Algoma, Grand Chute, Menasha and Neenah. Rural recreational towns and urban fringe towns experiencing large lot residential growth also have a larger share of land in these three categories than other rural towns.

Rural towns with less than 10% of their land area developed as residential, commercial and/or manufacturing tend to have significant amounts of land developed as agricultural, and/or large tracts of forestland. Since some of these towns also have higher population densities (see Exhibit P-2, Chapter 2) than other towns with higher rates of land consumption, it is likely that these towns have more efficient settlement patterns, which have allowed them to better preserve agricultural land and natural resource areas.

Changes in Land Values

The price of land varies over time and space. Factors influencing land prices include market supply and demand factors; policy directions, implementations and outcomes; location; access; the state of the economy and amenity factors. Land is a finite resource. As such, its total supply is limited. The supply of land on the market at any given time, however, varies based on the owner's ability, willingness or need to sell. The price the owner will receive for the land varies based on market demands, amount of disposable income, location, access, amenities, and the buyer's perceived return on the investment. One of the difficulties in preserving farmland and open space is that both have a lower return on investment than other types of

Exhibit L-1
Land Consumption



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and use. As a result, residential land use outbids agricultural land uses in the market place and commercial and industrial land uses typically outbid residential land use.

Between 1980 and 2000, the equalized value of all property in Wisconsin more than doubled, rising from $108 billion in 1980 to $286 billion in 2000. During this time period, equalized land values in the region increased by 83%. Within the region, the highest increases in land value occurred in the swamp and wasteland real estate category, followed by residential, then commercial land values. The large increase in swamp and wasteland land values resulted from a change in market conditions, and will be discussed in more detail below.

Urban counties experienced the largest increase in total land values. Land values rose by 88% in urban counties, while land values in rural counties increased by 80%. The largest increase in land values occurred in Winnebago County, where land values, in total, more than doubled. Fond du Lac County experienced the smallest increase in land values, 21% (Table L-4).

Table L-4. Equalized Land Values, 1980 to 2000

		Residential	Commercial	Manufacturing	Agricultural	Swamp & Waste	Forest Land	Other	Total
Region	1980	1,307,923,100	310,161,600	61,210,500	1,642,035,300	32,992,800	251,981,700	0	3,606,305,000
	1990	1,771,607,185	382,648,500	77,862,600	1,121,569,604	40,014,855	232,896,908	0	3,626,599,652
	2000	4,244,817,542	906,780,350	134,500,300	625,850,297	191,189,806	505,152,143	87,323,175	6,612,817,343
Urban	1980	910,086,400	261,551,400	54,946,200	987,912,000	9,371,800	39,890,500	0	2,263,758,300
	1990	1,223,155,035	312,365,715	70,720,100	627,825,468	13,638,258	35,573,735	0	2,283,278,311
	2000	2,830,836,020	771,129,375	125,075,800	352,788,425	54,485,096	83,875,742	54,796,520	4,194,114,108
Rural	1980	397,836,700	48,610,200	6,264,300	654,123,300	23,621,000	212,091,200	0	1,342,546,700
	1990	548,452,150	70,282,785	7,142,500	493,744,136	26,376,597	197,323,173	0	1,343,321,341
	2000	1,413,981,522	135,650,975	9,424,500	273,061,872	136,704,710	421,276,401	32,526,655	2,418,703,235
Calumet	1980	60,103,200	9,707,400	2,842,000	159,171,500	737,200	5,817,900	0	238,379,200
	1990	101,361,110	14,754,245	3,196,700	94,163,303	841,310	4,298,500		218,615,168
	2000	276,057,700	52,636,500	4,548,400	65,562,000	4,609,700	12,312,900	10,892,100	426,619,300
Fond du Lac	1980	201,855,500	47,239,100	9,474,400	383,128,100	2,499,900	12,618,000	0	656,815,000
	1990	268,665,945	64,805,235	19,678,200	223,944,245	4,174,883	7,056,910	0	588,325,418
	2000	489,085,163	127,420,460	19,594,600	120,657,955	23,164,481	17,801,437	18,530,550	796,660,046
Green Lake	1980	71,000,100	9,331,900	1,694,600	125,518,500	3,725,500	6,653,400	0	217,924,000
	1990	108,485,715	11,964,050	1,721,400	85,078,960	6,615,150	9,186,450	0	223,051,725
	2000	317,357,925	20,864,750	2,697,300	38,504,504	18,168,250	15,187,300	6,065,800	416,148,529
Marquette	1980	51,162,100	3,623,200	254,400	78,933,900	8,728,100	37,924,800	0	180,626,500
	1990	64,229,450	4,613,020	329,100	47,300,032	8,715,330	32,392,135	0	157,579,067
	2000	154,786,562	9,073,275	549,600	30,318,824	26,355,735	55,785,770	4,076,705	280,396,871
Menominee	1980	15,328,600	29,500	n.a.	n.a.	n.a.	n.a.	n.a.	15,358,100
	1990	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
	2000	39,224,400	153,600	n.a.	n.a.	n.a.	n.a.	n.a.	39,378,000
Outagamie	1980	306,234,100	122,776,000	16,214,900	251,299,600	3,802,200	12,290,000	0	712,616,800
	1990	294,869,500	87,625,400	12,383,700	179,905,900	4,147,100	18,251,500	0	597,183,100
	2000	978,443,800	302,773,600	38,461,600	102,318,800	15,368,000	42,977,900	13,893,300	1,494,237,000
Shawano	1980	78,159,900	13,665,400	1,676,500	162,744,200	3,805,300	60,355,900	0	320,407,200
	1990	102,663,100	20,463,400	1,579,200	113,835,900	2,307,400	57,974,400	0	298,823,400
	2000	271,063,300	36,019,300	1,537,500	77,810,300	18,148,400	167,500,800	9,526,400	581,606,000
Waupaca	1980	97,626,600	15,727,200	2,290,100	157,898,100	3,022,000	48,878,000	0	325,442,000
	1990	162,708,500	26,526,400	3,095,200	126,189,200	3,852,000	50,050,900	0	372,422,200
	2000	351,972,500	48,034,600	3,963,600	72,370,800	44,306,700	100,043,100	7,471,100	628,162,400
Waushara	1980	84,559,400	6,233,000	348,700	129,028,600	4,340,100	58,279,100	0	282,788,900
	1990	110,365,385	6,715,915	417,600	121,340,044	4,886,717	47,719,288	0	291,444,949
	2000	279,576,835	21,505,450	676,500	54,057,444	29,725,625	82,759,431	5,386,650	473,011,435
Winnebago	1980	341,893,600	81,828,900	26,414,900	194,312,800	2,332,500	9,164,600	0	655,947,300
	1990	558,258,480	145,180,835	35,461,500	129,812,020	4,474,965	5,966,825	0	879,154,625
	2000	1,087,249,357	288,298,815	62,471,200	64,249,670	11,342,915	10,783,505	11,480,570	1,476,597,762

Source: Wisconsin Department of Revenue, 1980, 1990 and 2000.

Residential

Residential land experienced the second highest increase in land values in the region between 1980 and 2000. In 1980, residential land in the region was valued at $1.3 billion. By 2000,

residential land values had increased to $4.2 billion. Rural counties experienced the largest increase in residential land values, 259%. Urban counties on average experienced a slightly lower increase in residential land values, 211%. At the county level, however, the highest and lowest increases in residential land values occurred in urban counties. Calumet County experienced the largest increase in residential land values, 359%, largely in response to growth pressures from the Fox Cities. Fond du Lac County experienced the smallest increase in residential land values in the region, 142%. Fond du Lac County also experienced the smallest increase in total dwelling units in the region during this time period.

Commercial

Commercial land values increased by 192% between 1980 and 2000. The largest increases occurred in urban counties, where commercial land values increased by 195%. Calumet County, by far, experienced the largest jump in commercial land values, 442%. Increases in commercial land values in the remaining urban counties ranged from 252% in Winnebago County to 147% in Outagamie County.

Rural counties, on average, experienced a 179% increase in commercial land values between 1980 and 2000. Increases in commercial land values in rural counties ranged from 245% in Waushara County to 124% in Green Lake County.

Manufacturing

Manufacturing land values rose from $61 million in 1980 to $134 million in 2000, an increase of 120%. Urban counties experienced higher growth in manufacturing land values, 128%, than rural counties, 50%. Increases in manufacturing land values ranged from 137% in Outagamie County to 59% in Green Lake County. Shawano County was the only county in the region to see a decrease in total manufacturing land values during this time period. In actuality, however, no decrease in manufacturing land values per acre occurred in Shawano County. Rather a movement of parcels onto and off the assessment roles occurred.

Between 1980 and 2000, a number of cheese factories in Shawano County closed and were removed from the manufacturing real estate class. Other manufacturing establishments closed when the railroad shut down. Also, some manufacturing parcels entered hazard waste mitigation during this time period. When manufacturing parcels enter waste treatment, their acreage remains in the manufacturing real estate class. However, those acres are assigned $0 for assessment purposes while the land is being cleaned up. When counties with limited manufacturing acreage, such as Shawano County, experience changes in the number of establishments or have sites in hazardous waste remediation, their total manufacturing land values can fluctuate substantially.

Agricultural

Agricultural land was the only real estate class to experience declines in property values. The decline in agricultural property values likely results from the change to use value assessment. With the change to use value assessment, farm buildings and small barnyards were transferred from the agricultural real estate class to the other real estate class, farmhouses were transferred to the residential real estate class and farmers' swamp and wasteland was added to

the swamp and wasteland real estate category. As a result of these changes and the decline in agricultural land tax rates, agricultural land values declined by 62% in the region between 1980 and 2000. Urban counties experienced the largest decline in agricultural land values, 64%. In rural counties, agricultural land values declined by 58% during this time period.

Care should be taken, however, in evaluating the economic benefits of use value assessment to individual farmers in the region. While the change to use value assessment seems to have lowered the tax burden on agriculture in general, the benefit has not been uniform. In some instances, the change to use value assessment has actually increased a farmer's total tax bill, rather than reducing the farmer's tax burden. As a result, communities will need to evaluate the policy impacts at the local level on the effectiveness of land use value assessment in preserving farms and farmland.

Swamp and wasteland

The largest increase in property values occurred in the swamp and wasteland category. The large increase in property values results from a change in real estate classification and a change in market perceptions. In 1980, swamp and wasteland was seen as land that merited little, if any return on investment. That was especially true when the swamp and wasteland was part of a farm operation.

Swamps and wastelands, however, do provide shelter for wildlife, which makes them popular with hunters, fishermen and conservationists. By 2000, swamp and wasteland had become quite popular, as more individuals began purchasing swamp and wasteland for private recreation purposes. As a result of the increase in demand for recreational property and the change to use value assessment, the value of swamp and wasteland increased and the amount of land designated as swamp and wasteland also increased. The change in market conditions and additional land in this category resulted in the value of swamp and wasteland in the region rising from $32 million in 1980 to $191 million in 2000, an increase of 480%. Waupaca County experienced the largest change in property values in this category in the region. In 1980, swamp and wasteland in Waupaca County was valued at $3 million. By 2000, swamp and wasteland in Waupaca County was valued at $44 million.

Forest

Forestland values in the region doubled in value between 1980 and 2000. Urban counties experienced a larger increase in forestland values, 110%, than rural counties, 98%. However, the highest and lowest increases in forestland values occurred in urban counties. Increases in forestland values between 1980 and 2000 ranged from 250% in Outagamie County to 18% in Winnebago County. In rural counties, increases in forestland values during this time period ranged from 178% in Shawano County to 42% in Waushara County.

Other

Other real estate, which includes farm buildings and small barnyards, was not included in the agricultural real estate class in the 1980 and 1990 statistical reports of property valuations. As a result, change in land values is not available from this source for this category. The 2000

statistical reports of property valuations indicate that the value of other real estate in the region was $87 million.

Existing Land Use

East Central is in the process of creating a regional land use inventory based on aerial photography interpretation, with some spot field checking in rural areas and additional fieldwork in incorporated areas. At this point in time, the regional land use inventory has been completed for Shawano, Waupaca, Waushara and the non-urban portions of Winnebago and Outagamie Counties (Exhibit L-2). The land use inventory for Fond du Lac, Winnebago, Outagamie and Calumet Counties (urban and non-urban) is scheduled for completion in 2003. The remaining counties of Marquette, Green Lake and Menominee will be completed in 2004. Once this inventory is complete, it will provide a picture of existing conditions in the region.

Existing Zoning

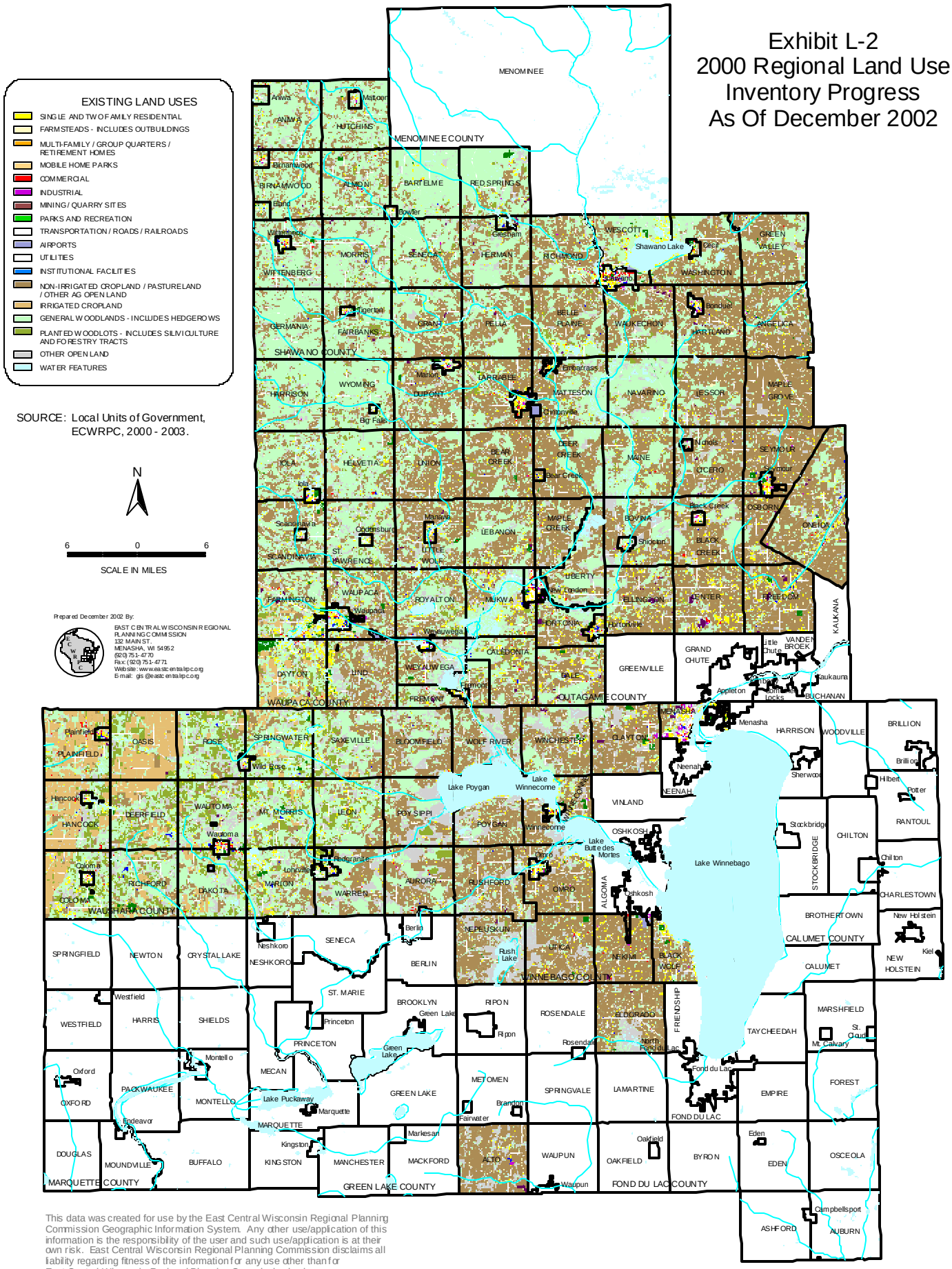
Most minor civil divisions (MCDs) in the region had some form of zoning by the late 1990's (Exhibit L-3). According to survey information gathered by East Central staff and UW-Extension, all but 31 MCDs in the region have zoning. With the exception of four communities, all MCDs with no zoning are located in rural counties. The four urban county MCDs with no zoning are located in rural portions of Calumet and Outagamie Counties, and are communities, which have experienced limited population growth. In Fond du Lac County, all towns administer their own zoning ordinances. In the remainder of the region, most towns in the region with zoning are under county zoning. Four towns, T. Bartelme and T. Red Springs in Shawano County, T. Oneida in Outagamie County and T. Menominee in Menominee County are under county and tribal zoning. Zoning on tribal trust lands is administered by the tribe. Zoning on nontrust land is administered by the county.

Land Demand and Supply

Based on preliminary forecasts, population in the region is expected to grow by 9% and households are expected to increase by 23% through 2020. Additional growth is also expected to occur through 2030. Demographic changes, which include an aging population and newly forming households, will likely spur the demand for additional life cycle housing. While some infill lots or redevelopment opportunities may accommodate some of the demand for additional land for residential, commercial, manufacturing, recreation, public facility and utility expansion, additional land will also be needed. Additional land needed to accommodate this growth will require the conversion of existing agricultural, forest, swamp, waste and open space land to more intensive urban and exurban uses.

The amount and type of land set aside for conversion to more intensive uses, will largely depend on the planning and policy choices communities and counties make. As residential development and other intensive land uses seek out rural areas, they pose unique challenges that require a balance of economic, environmental, and aesthetic considerations. As a result, policies that provide adequate protection of these rural areas while still accommodating the realities of urban expansion and exurban and rural development pressures will be essential.

Exhibit L-2
2000 Regional Land Use Inventory Progress As Of December 2002


EXISTING LAND USES
SINGLE AND TWO FAMILY RESIDENTIAL
FARMSTEADS - INCLUDES OUTBUILDINGS
MULTI-FAMILY / GROUP QUARTERS / RETIREMENT HOMES
MOBILE HOME PARKS
COMMERCIAL
INDUSTRIAL
MINING / QUARRY SITES
PARKS AND RECREATION
TRANSPORTATION / ROADS / RAILROADS
AIRPORTS
UTILITIES
INSTITUTIONAL FACILITIES
NON-IRRIGATED CROPLAND / PASTURELAND / OTHER AG OPEN LAND
IRRIGATED CROPLAND
GENERAL WOODLANDS - INCLUDES HEDGEROWS
PLANTED WOODLOTS - INCLUDES SILVICULTURE AND FORESTRY TRACTS
OTHER OPEN LAND
WATER FEATURES
SOURCE: Local Units of Government, ECWRPC, 2000 - 2003.
N
6 0 6
SCALE IN MILES
Prepared December 2002 By:
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MENOMINEE
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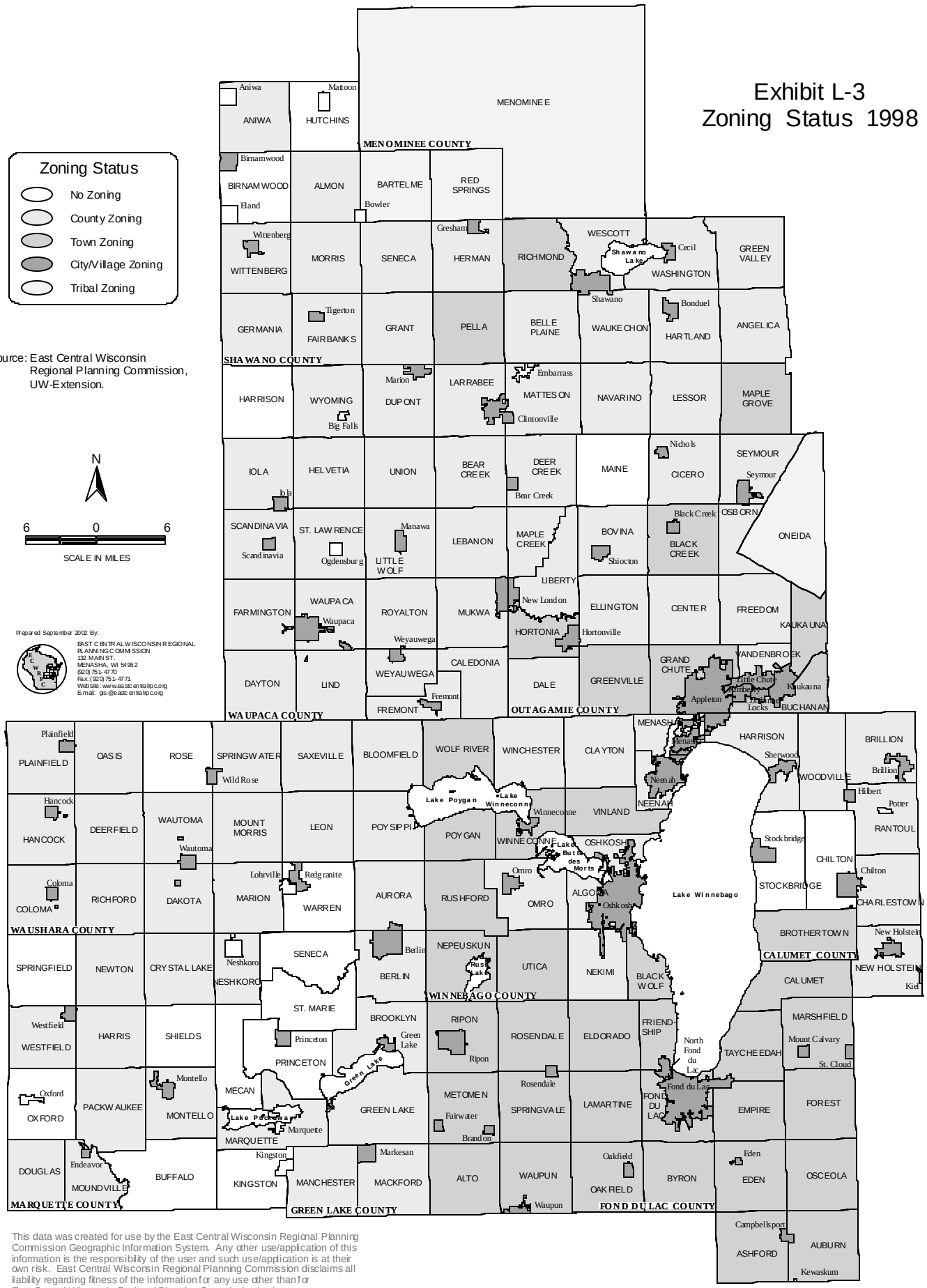
SHAWANO COUNTY
WAUPACA COUNTY
OUTAGAMIE COUNTY
WAUSHARA COUNTY
WINNEBAGO COUNTY
CALUMET COUNTY
MARQUETTE COUNTY
GREEN LAKE COUNTY
FOND DU LAC COUNTY
Lake Poygan
Lake Winnecome
Lake Winnebago
Lake Butte des Morts
Green Lake
Lake Puckaway
Shawano Lake
Menasha
Neenah
Appleton
Oshkosh
Fond du Lac
Ripon
Berlin
Waupaca
Weyauwega
Wautoma
Wild Rose
Princeton
Montello
Marquette
Kingston
Markesan
Brandon
Fairwater
Waupun
Oakfield
Eden
Campbellsport
Plainfield
Hancock
Coloma
Oxford
Endeavor
Westfield
Nesbkoro
Rush Lake
Rosendale
Mt. Calvary
St. Cloud
Brillion
Hilbert
Potter
Stockbridge
Chilton
Kaukauna
Little Chute
Combined Locks
Sherwood
Kiel
New Holstein
Omro
Winneconne
Pickett
Fremont
Hortonville
New London
Bear Creek
Black Creek
Shiocton
Embarrass
Bonduel
Cecil
Bowler
Gresham
Marion
Big Falls
Iola
Scandinavia
Oconomowoc
Manawa
Tigerton
Wittenberg
Birnamwood
Antigo
Mattoon
Aniwa
Bryant
Deerbrook
Pearson
Mountain
Suamico
Pulaski
Seymour
Cicero
Osborn
Oneida
Freedom
Kaukauna
Vandenbroek
Buchanan
Greenville
Grand Chute
Menasha
Neenah
Harrison
Woodville
Brillion
Rantoul
Chilton
Stockbridge
Charlestown
Brothertown
New Holstein
Calumet
Fond du Lac
Empire
Forest
Eden
Osceola
Ashford
Auburn
Byron
Oakfield
Waupun
Mackford
Manchester
Kingston
Buffalo
Moundville
Douglas
Oxford
Packwaukee
Montello
Mecan
Princeton
Westfield
Harris
Shields
Springfield
Newton
Crystal Lake
Neshkoro
Seneca
St. Marie
Brooklyn
Ripon
Rosendale
Eldorado
Friendship
Marshfield
Taycheedah
Metomen
Springvale
Lamartine
Green Lake
Aurora
Rushford
Omro
Algoma
Nekimi
Black Wolf
Utica
Nepeuskun
Winchester
Clayton
Wolf River
Bloomfield
Saxeville
Springwater
Oasis
Rose
Deerfield
Wautoma
Mt. Morris
Leon
Poy Sippi
Poygan
Richford
Dakota
Marion
Warren
Hedgeville
Lohrville
Farmington
Dayton
Lind
Weyauwega
Fremont
Caledonta
Bale
Royalton
Mukwa
Liberty
Ellington
Center
Maple Creek
Bovina
Lebanon
Little Wolf
Oconomowoc
Oddfellows
St. Lawrence
Scandinavia
Iola
Helvetia
Union
Deer Creek
Maine
Cicero
Seymour
Osborn
Oneida
Freedom
Kaukauna
Vandenbroek
Buchanan
Greenville
Grand Chute

Exhibit L-3
Zoning Status 1998



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As East Central develops its regional framework plan, policies regarding appropriate densities, land uses and land consumption, which may direct and impact growth patterns will be discussed. Current regional policies will be modified and additional policies and recommendations will be developed as necessary to further promote efficient development patterns and limit service costs within the region.

Potential Land Use Conflicts

As growth within the region continues, land use conflicts will continue to increase. The greatest growth is expected to occur in urban counties, where the highest quality farmland is located. Urban expansion will also require the contraction of rural land uses and result in a reduction of rural character. Urban and exurban residential, commercial and industrial land use expansions will require the conversion and possible fragmentation of farmland, forest and wildlife habitats. Ironically, the most attractive land for development also happens to be the best farmland and best recreation land. Ensuring the economic vitality of the agricultural and forestry sectors and the health of our natural resources will be difficult in the face of this expansion.

In order to accommodate the additional residential, commercial and industrial development, nonmetallic mining activities will need to be expanded to provide material for the basements, foundations, buildings and roads. Nonmetallic mining activities can conflict with urban and rural land uses. People do not care for the noise, dust and number of trucks involved in nonmetallic mining operations. Blasting activities can also disturb buildings, natural water resources and livestock.

Exurban development occurs as individuals relocate from urban areas in order to enjoy rural character. As more individuals move into the “country”, the rural character they came to enjoy disappears. Urban residents moving into rural areas are also often not prepared for the realities of rural living. They do not expect the reduction in services, the need for additional travel time for basic supplies, nor the noise, dust, and smells associated with agricultural operations. Additional commuters on the road also make it more dangerous for farmers to move their livestock and equipment.

Balancing the needs and demands of urban and exurban residents and land uses with rural land uses and environmentally sensitive areas will be difficult. Communities will also need to balance individual property rights with broad community interests in the face of these competing interests. Some of these land use conflicts can be reduced if communities take advantage of existing redevelopment opportunities.

Redevelopment Opportunities

Redevelopment opportunities exist for just about every community in the region. These opportunities may be as simple as renovating and refurbishing older apartments above retail establishments for occupancy, or as complex as cleaning up and redeveloping abandoned brownfield sites. In either case, redevelopment opportunities allow communities the opportunity to accommodate growth, while utilizing existing infrastructure and eliminating eyesores, rather than expanding and building new infrastructure.

For commercial and industrial uses, communities within the region can compile an inventory of areas identified as brownfield properties. Cleanup and redevelopment of these abandoned properties will put these properties back onto tax rolls and to productive uses and ultimately create jobs. Economic development grants for rehabilitation and other incentives should be utilized to fund projects in these areas.

The Wisconsin Department of Natural Resources and other state and federal agencies maintain several on-line resources to make available information about contaminated properties (see Chapter 3 for additional information). Local realtors will also have property listings for sites, which may be vacant, but are not on the contaminated properties lists.

Redevelopment opportunities can be combined with the Wisconsin Department of Commerce's Main Street program to assist in downtown revitalization efforts. For example, the City of Ripon, in Fond du Lac County, one of the three Main Street Communities in the region, took advantage of an historic, architecturally significant structure, the Pratt Building which is located in the downtown area. Ripon's Main Street, Inc. purchased the building and renovated the interior and exterior of the structure. There are apartments located on the second floor and a commercial use is in place on the street level. Ripon has capitalized on historic preservation and redevelopment opportunities to create an attractive destination for shopping, festivals and other musical events.

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Land Use: Key Findings

Current Trends

Increase in net density

- In 1980, the region averaged 33 houses per square mile.
- By 2000, the region averaged 46 houses per square mile.
- On average, the region has a higher net density than the state, which had an average housing density of 43 houses per square mile in 2000.
- Within the region, Winnebago County had the highest housing density, 148 houses per square mile. Menominee County had the lowest housing density, 6 houses per square mile

Increase in land use intensity

- Residential, commercial and manufacturing land uses have expanded.
- Urban area boundaries have grown.
- Agricultural land use has declined.

Change in Land Use

- The amount of residential and commercial land more than doubled between 1980 and 2000. Most of this growth occurred in urban counties, where the best farmland is located.
- The number of residential units in the region increased by 43% between 1980 and 2000, while the amount of residential land increased by 173%.
- The largest increases in commercial land occurred on the edge of existing urban communities.
- 319,100 acres of farmland was lost during this time period; this represents an area larger than the entire area of Winnebago County.

Change in Equalized Land Values

- Between 1980 and 2000, equalized land values in the state increased by 164%, while equalized land values in the region increased by 83%.
- The largest increases in land values occurred in the swamp and wasteland real estate category, followed by residential and commercial real estate categories.
- Agricultural land was the only real estate class to see a decline in property values between 1980 and 2000. The decline in agricultural land values resulted from the change to use value assessment.

Zoning Status

- All but 31 Minor Civil Divisions in the region have zoning. All but four of these are located in rural counties

Future Trends

Land Demand and Supply

- Additional land will be needed to accommodate residential, commercial and industrial growth.
- Accommodating this growth will require the conversion of existing agricultural, forest, swamp, waste and open space land to more intensive urban and exurban uses.
- The amount of land needed to accommodate growth will be determined by the amount of growth coupled with policy decisions regarding net densities and intensities and zoning ordinance requirements.
- The amount of land needed could be reduced by promoting redevelopment opportunities, and encouraging higher densities.

Land Values

- Land values are expected to continue to increase.
- The increase in land values will drive up the cost of housing and commercial and industrial real estate values.
- Development pressures will also increase economic pressures on agricultural and forestry industries.

Identification of Issues

- How do we balance economic, environmental, and aesthetic considerations?
- How do we address the conflicts that will arise given that the majority of future growth is expected to occur in the urban counties, which is where most of the region's more productive farmland is located?
- How do we promote recognition of the relationship between the density of settlement and the amount and location of land consumed for housing, commercial and industrial uses and the cost of services?
- How do we promote infill development, and redevelopment of vacant properties?
- How do we reduce the movement of government facilities from urban areas and downtowns to fringe areas?
- How do we promote the expansion of government facilities within urban areas, without reducing affordable housing options?
- How do we promote land use configurations that maximize the delivery of effective and efficient public services (police, fire, roads, etc.)?
- How do we provide adequate protection of natural, cultural and agricultural resources, while still accommodating the realities of exurban and rural development pressures?
- How do we ensure the economic vitality of the agricultural and forestry sectors in the context of a decrease in the amount of open space?
- How do we balance the right to farm with expectations of exurban residents?
- How do we reduce exurban and agricultural conflict issues?
- How do we reduce conflicts between exurban and long term rural residents?
- How do we balance property rights between individuals and balance property rights with broad community interests?

- How do we maintain family farms in the face of increasing economic pressures and competition for land for other uses?
- How do we protect surface waters and subsurface ground water from pollution resulting from rural and urban land uses?
- How do we define rural character?
- Once it is defined, how do we preserve rural character?
- How can we develop and administer quality building code standards and eliminate visual blight in an efficient, cost effective manner, particularly in rural areas, with limited staff?
- How do we attract new businesses and provide affordable housing in the face of rising land values?

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Exhibit L-1
Land Consumption

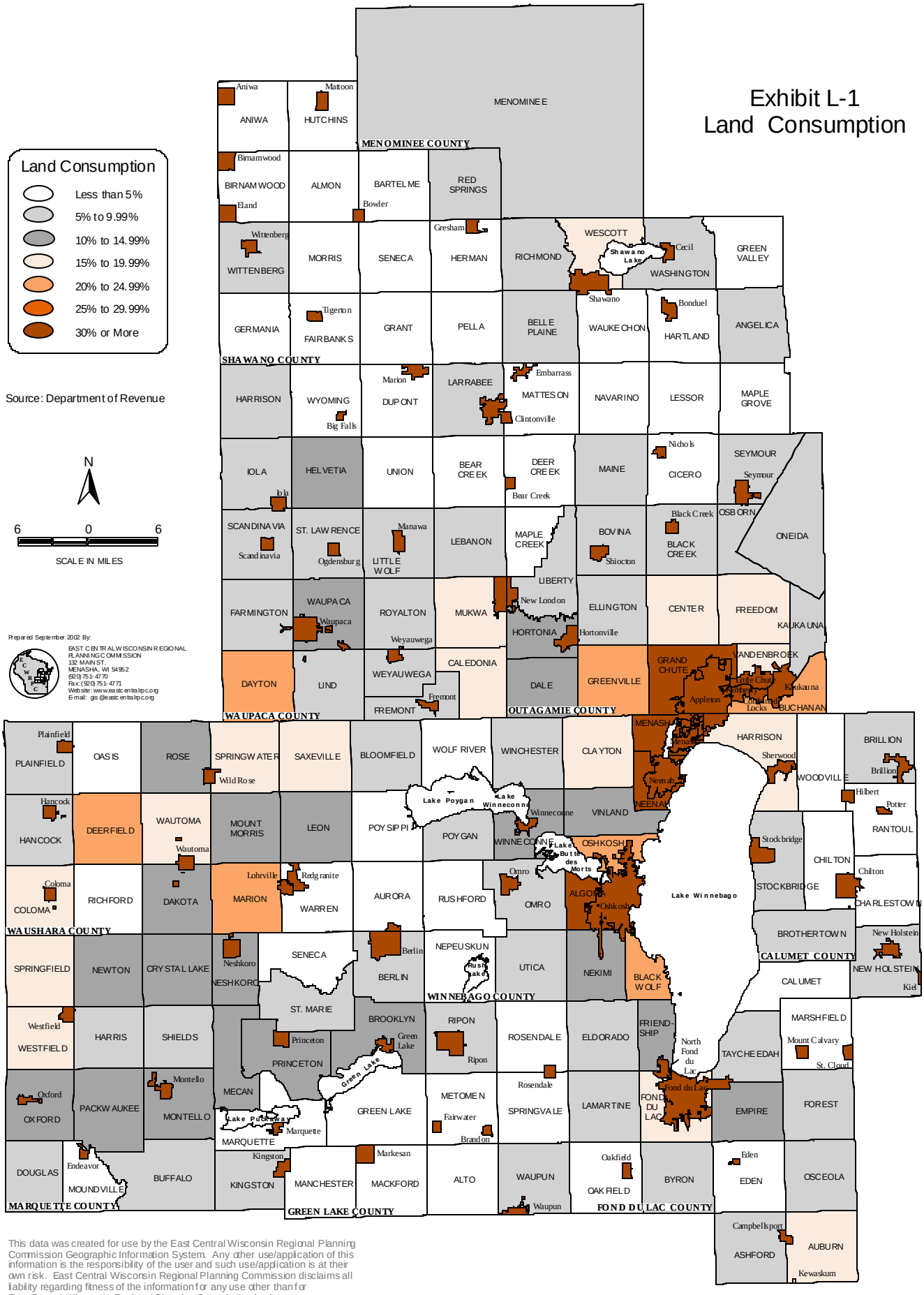

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Exhibit L-2
2000 Regional Land Us
Inventory Progress
As Of December 2002

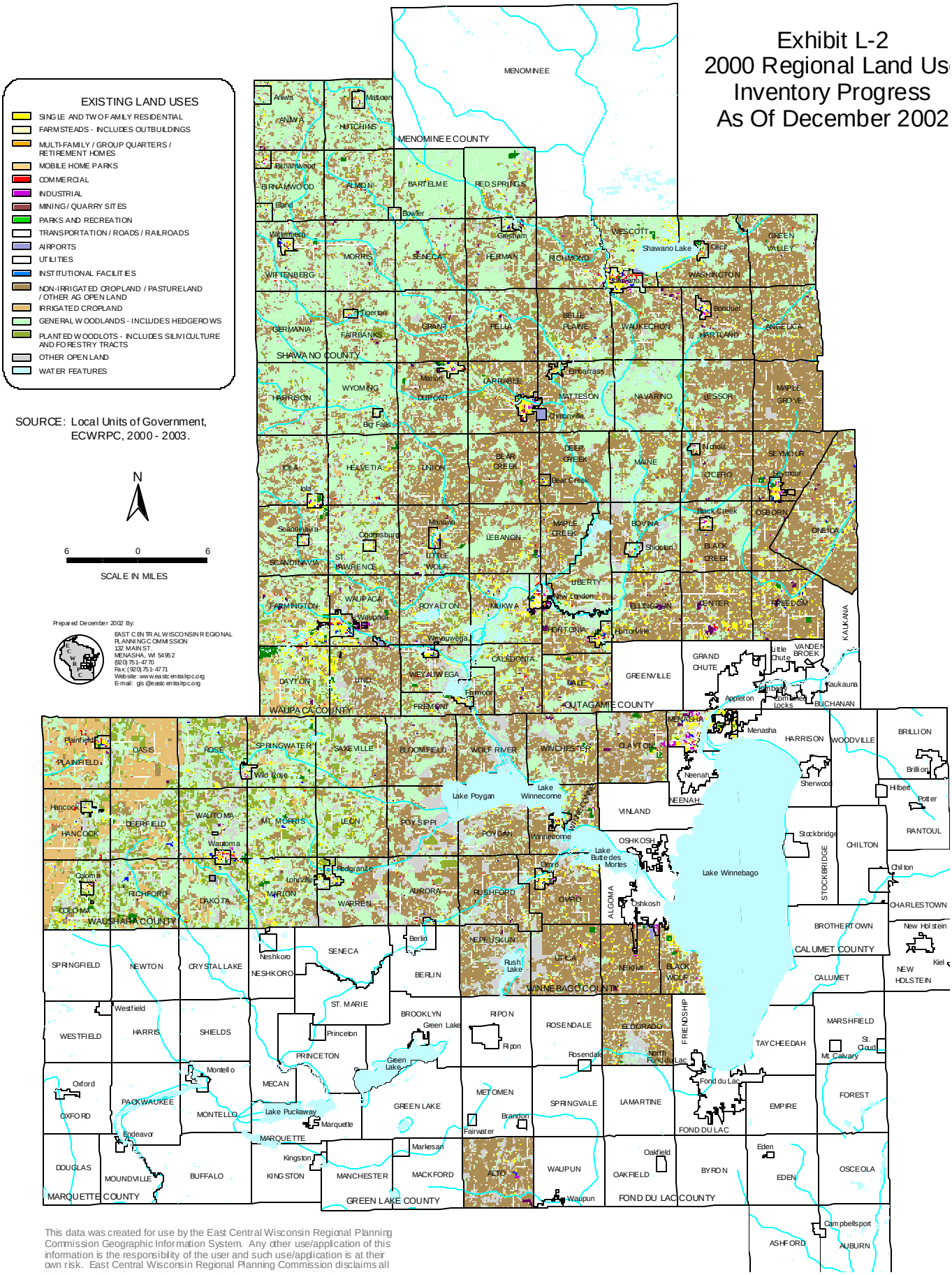

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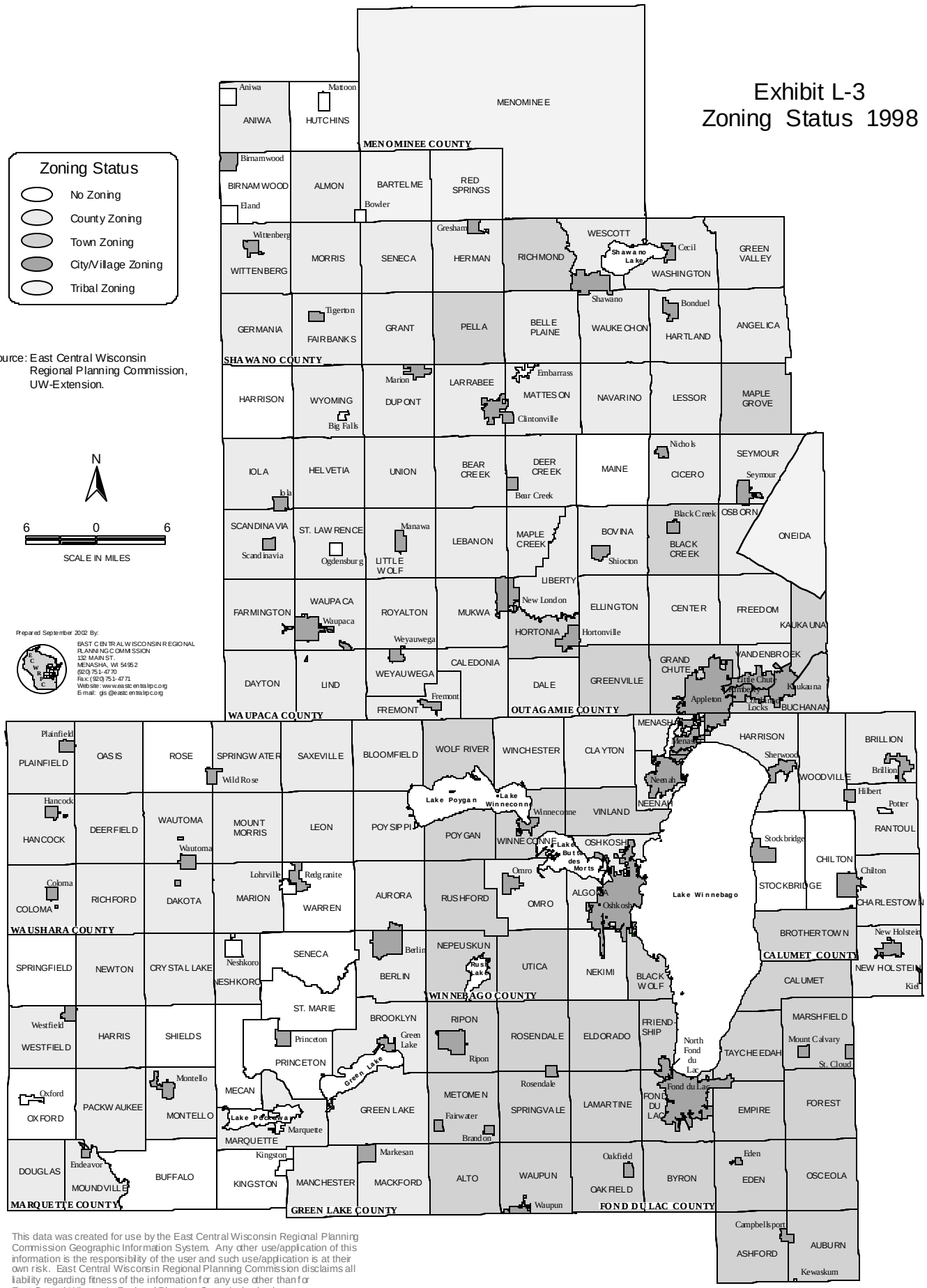
Exhibit L-3
Zoning Status 1998



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Conclusion and Next Steps

East Central has produced a State of the Region report for two reasons.

- To provide useful, accessible information to people in their communities, local government staff and officials, and interest groups.
- To collate baseline information that will enable us all to understand the basic make-up of the region and provide the foundation on which we will begin to plan for the future. This report along with input from the public participation process will enable East Central to take the next step in the regional planning process.

This report has explored current and future trends, as well as identified issues in nine broad categories: demographic and socioeconomic data, economic development, housing, transportation, community facilities, agricultural, natural, and cultural resources, and land use. It has also examined examples of intergovernmental cooperation currently in place throughout the region. This information will help us to make good strategic policy choices.

To achieve real progress, development of policies for these areas will need to be pursued in an integrated way. For example, land use and transportation planning will have to be taken forward together, there will need to be close links between housing and economic development strategies, while preserving rural character will require action on a variety of fronts. In addition, protecting water quality, avoiding excessive long-term costs for infrastructure provision and maintenance, minimizing the fragmentation of ecosystems and curbing damage to environmentally sensitive areas will require a solid understanding of the interaction between urban and rural policies. To move forward successfully will require close cooperation and partnership between the public, private and voluntary sectors at the regional, county and local levels.

The policy choices that are made will have long-term impacts on residents' quality of life: socially, economically and environmentally. As we begin to think about the future we will need to take a broad, long term, proactive approach. This includes being aware of the broader context of our decisions and conscious of the forces of change, which may or may not originate within the region. In addition, it means embracing many uncertainties and involving all stakeholders in clarifying a preferred future. We need to clarify our aspirations for how we want the region to look in the future, specifically: what would we like to be preserved? what would we like to be changed? and, what would we like to be created?

Developing a vision of our preferred future represents the next step in the regional planning process and will be the focus of Milestone Report #2: Issues, Opportunities and a Regional Vision. As we work toward producing this report there are two primary approaches that can be used to explore the impact that the trends identified in this report may have on the region.

- First, for the trends that are most likely, for example, an aging population, an increasing number of households and a reduction in household size, we need to ask how do we respond?

- Second, for the areas of greatest conflict, we need to reexamine our basic assumptions about the issues and we need to ask are there better ways to address these challenges?
  - New construction, reconstruction and expansion of highways, at considerable cost, seem to be the dominant current trend in transportation. How can we rethink how we deal with transportation issues relating to sprawl? how can we promote compact, mixed land use patterns that provide access, reduce social exclusion, and create livable communities while being cost effective?
  - The number of residential units in the region increased by 43% in the 20 years between 1980 and 2000, however the amount of residential land increased by 173%. How can we promote cost-effective redevelopment and development of land with existing or nearby community facilities while continuing to provide both housing choice and affordability?
  - Approximately 320,000 acres of farmland were lost during this 20 year time period, an area larger than the entire area of Winnebago County. How can we protect farmland and preserve rural character while ensuring the continued economic vitality of the region?
  - The region's natural resources, groundwater and surface water, lakes and open spaces are under increasing pressure from both the urbanization of our rural areas and greater than ever recreational use. How do we ensure the protection of our natural resources in the face of competing demands?

Developing policies to address these issues will require trade-offs that will present many challenges. Regulation vs. private property rights, economic development vs. environmental protection, development vs. costs, residential development vs. preservation of rural character, consolidation vs. local control.

Next Steps

In terms of the planning process the next steps are outlined below:

- Complete Chapters 7 and 8, February 28th, 2003.
- Make available the approved State of the Region report on the East Central web site, February 14th, 2003.
- Make available, interactive data tables, on the East Central Data Center, February 14th, 2003.
- Prepare a summary State of the Region report, newsletter format, for widespread dissemination, March 14th, 2003.
- Organize two public information meetings in the region, March / April.
- Establish Citizen and Technical Advisory Committees, February through April.
- Bring Milestone Report #1: The State of the Region (2003) and East Central Policy (2003) to the April Commission meeting for adoption, April 25th, 2003.
- Draft Milestone Report # 2: Issues, Opportunities and a Regional Vision for presentation at the October 2003 Commission meeting, February through October.

ECONOMIC DEVELOPMENT APPENDICES

Appendix A:1 Economic Development Financial Assistance Programs

Appendix A:2 Table Series ED-1

Appendix A:3 Table Series ED-2

Appendix A:4 Table Series ED-3

Appendix A:5 Table Series ED-5

Financial Assistance for Wisconsin Communities

The Wisconsin Department of Commerce (Commerce) has a broad range of financial assistance programs to help communities undertake economic development. This quick reference guide identified these programs and selected programs from other agencies. COMMERCE maintains a network of Area Development Managers to offer customized services to each region of Wisconsin. For more information on COMMERCE finance programs contact the Area Development Manager for your region.

The **Brownfields Initiative** provides grants to persons, businesses, local development organizations, and municipalities for environmental remediation activities for Brownfield sites where the owner is unknown, cannot be located or cannot meet the cleanup costs. Contact Jason Scott, 608/261-7714.

The **Community-Based Economic Development Program** is designed to promote local business development in economically-distressed areas. The program awards grants to community-based organizations for development and business assistance projects and to municipalities for economic development planning. The program helps community-based organizations plan, build, and create business and technology-based incubators, and can also capitalize an incubator tenant revolving-loan program. Contact Doug Thurlow, 608/266-7942.

The **CDBG-Blight Elimination and Brownfield Redevelopment Program** can help small communities obtain money for environmental assessments and remediate Brownfield's. Contact Joe Leo, 608/267-0751.

The **CDBG-Emergency Grant Program** can help small communities repair or replace infrastructure that has suffered damages as a result of catastrophic events. Call 608/266-8934.

The **CDBG-Public Facilities** component helps eligible local governments upgrade community facilities, infrastructure, and utilities for the benefit of low – to moderate-income residents. Call 608/266-8934.

The **CDBG-Public Facilities for Economic Development** component offers grants to communities to provide infrastructure for a particular economic development project. Contact Joe Leo, 608/267-0751, or Dawn Zanto, 608/266-8525.

The **Community Development Zone Program** is a tax-benefit initiative designed to encourage private investment and job creation in economically-distressed areas. The program offers tax credits for creating new, full-time jobs, hiring disadvantaged workers and undertaking environmental remediation. Tax credits can be taken only on income generated by business activity in the zone. Call 608/267-3895.

The **Freight Railroad Preservation Program** provides grants to communities to purchase abandoned rail lines in the effort to continue freight rail service, preserve the opportunity for future rail service, and to rehabilitate facilities, such as tracks and bridges, on publicly-owned rail lines. Contact Ron Adams, Department of Transportation, 608/267-9284.

The **Health Care Provider Loan Assistance Program** provides repayment of educational loans up to $25,000 over a five-year period to physician assistants, nurse practitioner, and nurse midwives who agree to practice in medical-shortage areas in Wisconsin. The program is designed to help communities that have shortages of primary care providers and have difficulty recruiting providers to their area. Contact M. Jane Thomas, 608/267-3837.

The **Minority Business Development Fund – Revolving Loan Fund (RLF) Program** is designed to help capitalize RLFs administered by American Indian tribal governing bodies or local development corporations that target their loans to minority-owned businesses. The corporation must be at least 51-percent controlled and actively managed by minority-group members, and demonstrate the expertise and commitment to promote minority business development in a specific geographic area. Contact Mary Perich, 414/220-5367 or Bureau of Minority Business Development, 608/267-9550.

The **Physician Loan Assistance Program** provides repayment of medical school loans up to $50,000 over a five-year period to physicians who are willing to practice in medical-shortage areas in Wisconsin. The program is designed to help communities that have shortages of primary care physicians, and have had difficulty recruiting these physicians to their area. Contact M. Jane Thomas, 608/267-3837.

The **State Infrastructure Bank Program** is a revolving loan program that helps communities provides transportation infrastructure improvements to preserve, promote, and encourage economic development and/or to promote transportation efficiency, safety, and mobility. Loans obtained through SIB funding can be used in conjunction with other programs. Contact Dennis Leong, Department of Transportation, 608/266-9910.

Tax Incremental Financing (TIF) can help a municipality undertake a public project to stimulate beneficial development or redevelopment that would not otherwise occur. It is a mechanism for financing local economic development project in underdeveloped and blighted areas. Taxes generated by the increased property values pay for land acquisition or needed public works.

The **Wisconsin Transportation Facilities Economic Assistance and Development Program** funds transportation facilities improvements (road, rail, harbor, airport) that are part of an economic development project. Contact Dennis W. Leong, Department of Transportation, 608/266-9910.

Other Related Financial Programs

The **Community Development Block Grant (CDBG)-Economic Development Program** provides grants to communities to loan to businesses for start-up, retention, and expansion projects based on the number of jobs created or retained. Communities can create community revolving loan funds from the loan repayments.

The **Freight Railroad Infrastructure Improvement Program** awards loans to businesses or communities wishing to rehabilitate rail lines, advance economic development, connect an industry to the national railroad system, or to make improvements to enhance transportation efficiency, safety, and intermodal freight movement. Contact Ron Adams, Department of Transportation, 608/267-9284.

The **Recycling Demonstration Grant Program** helps businesses and local governing units fund waste reduction, reuse, and recycling pilot projects. Contact JoAnn Farnsworth, 608/267-7154, DNR.

The **Wisconsin Fund** provides grants to help small commercial businesses rehabilitate or replace their privately-owned sewage systems. Contact Jean Joyce, 608/267-7113.

Area Development Managers

Wisconsin Department of Commerce area development managers assist business expansions, promote business retention, and help local development organizations in their respective territories. Area development managers (ADM) use their knowledge of federal, state, and regional resources to provide a variety of information to expanding or relocating firms. They also mobilize resources to help struggling businesses. Local economic development practitioners can turn to area development managers for assistance with long-term marketing and planning strategies. Three commerce area regions fall within the east central region.

Commerce Region 3: Dennis Russell 920/498-6302 dlrussell@commerce.state.wi.us
Commerce Region 5: Kathy Heady 608/266-9944 kheady@commerce.state.wi.us
Commerce Region 6: William Lehman 920/929 0242
wlehman@commerce.state.wi.us

For other finance questions – 1 800-HELP BUSINESS

Table Series ED-1: East Central Wisconsin Civilian Labor Force Average Annual Figures by County, 2002.

	Jan 2002	Feb 2002	Mar 2002	Apr 2002	May 2002	Jun 2002	Jul 2002	Aug 2002	Sep 2002	Oct 2002	Nov 2002	Dec 2002	Annual Average
Wisconsin													
Labor Force	3,028,133	3,051,464	3,051,296	3,046,302	3,039,286	3,113,709	3,116,640	3,089,606	3,050,161				
Employment	2,851,064	2,846,824	2,851,896	2,872,302	2,901,290	2,954,543	2,969,894	2,942,854	2,919,602				
Unemployment	177,069	204,640	199,400	174,000	137,996	159,166	146,746	146,752	130,559				
Unemp. Rate	5.8	6.7	6.5	5.7	4.5	4.5	4.7	4.7	4.3				
East Central District													
Labor Force	368,457	369,473	369,887	369,198	368,687	377,058	376,858	374,843	370,903				
Employment	347,048	344,845	345,977	348,297	352,204	358,330	360,554	357,665	355,387				
Unemployment	21,409	24,628	23,872	20,901	16,483	18,728	16,304	17,178	15,516				
Unemp. Rate	7.3	8.2	7.8	7.1	5.4	6.2	5.3	5.5	4.8				
Calumet													
Labor Force	26,470	26,463	26,367	26,164	26,088	26,664	26,582	26,449	26,261				
Employment	24,897	24,671	24,701	24,788	24,980	25,415	25,535	25,385	25,226				
Unemployment	1,573	1,792	1,666	1,376	1,108	1,249	1,047	1,064	1,035				
Unemp. Rate	5.9	6.8	6.3	5.3	4.2	4.7	3.9	4.0	3.9				
Fond du Lac													
Labor Force	56,696	57,301	57,511	57,396	57,455	58,617	58,595	58,540	57,381				
Employment	53,435	53,514	53,792	54,410	55,159	55,749	56,060	55,581	55,225				
Unemployment	3,261	3,787	3,719	2,986	2,296	2,868	2,535	2,959	2,156				
Unemp. Rate	5.8	6.6	6.5	5.2	4.0	4.9	4.3	5.1	3.8				
Green Lake													
Labor Force	11,144	11,339	11,370	11,216	11,105	11,297	11,208	11,110	10,999				
Employment	10,218	10,233	10,286	10,404	10,547	10,660	10,719	10,628	10,560				
Unemployment	926	1,106	1,084	812	558	637	489	482	439				
Unemp. Rate	8.3	9.8	9.5	7.2	5.0	5.6	4.4	4.3	4.0				
Marquette													
Labor Force	7,450	7,531	7,550	7,512	7,524	7,821	7,830	7,729	7,618				
Employment	6,692	6,667	6,865	6,865	7,039	7,328	7,419	7,331	7,215				
Unemployment	758	864	647	647	485	493	411	398	403				
Unemp. Rate	10.2	11.5	8.6	8.6	6.4	6.3	5.2	5.1	5.3				

	Jan 2002	Feb 2002	Mar 2002	Apr 2002	May 2002	Jun 2002	Jul 2002	Aug 2002	Sep 2002	Oct 2002	Nov 2002	Dec 2002	Annual Average
Menominee													
Labor Force	2,290	2,278	2,314	2,403	2,352	2,423	2,464	2,456	2,294				
Employment	2,039	2,011	2,031	2,066	2,092	2,062	2,142	2,124	2,060				
Unemployment	251	267	283	337	260	361	322	332	234				
Unemp. Rate	11.0	11.7	12.2	14.0	11.1	14.9	13.1	13.5	10.2				
Outagamie													
Labor Force	106,058	106,109	106,238	105,779	105,291	107,620	107,726	107,269	106,421				
Employment	100,408	99,494	99,618	99,968	100,744	102,498	102,982	102,376	101,734				
Unemployment	5,650	6,615	6,620	5,811	4,547	5,122	4,744	4,893	4,687				
Unemp. Rate	5.3	6.2	6.2	5.5	4.3	4.8	4.4	4.6	4.4				
Shawano													
Labor Force	20,009	20,228	20,169	20,438	20,448	20,692	20,665	20,336	20,365				
Employment	18,581	18,552	18,606	18,966	19,439	19,607	19,764	19,408	19,510				
Unemployment	1,428	1,676	1,563	1,472	1,009	1,085	901	928	855				
Unemp. Rate	7.1	8.3	7.7	7.2	4.9	5.2	4.4	4.6	4.2				
Waupaca													
Labor Force	27,019	27,092	27,191	27,476	27,363	28,169	28,142	27,785	27,618				
Employment	25,187	25,110	25,234	25,770	26,144	26,786	26,956	26,519	26,494				
Unemployment	1,832	1,982	1,957	1,706	1,219	1,383	1,186	1,266	1,124				
Unemp. Rate	6.8	7.3	7.2	6.2	4.5	4.9	4.2	4.6	4.1				
Waushara													
Labor Force	11,915	11,883	11,991	11,678	11,838	12,494	12,680	12,536	12,057				
Employment	11,031	10,894	11,029	10,915	11,184	11,697	11,994	11,900	11,554				
Unemployment	884	989	962	763	654	797	686	636	503				
Unemp. Rate	7.4	8.3	8.0	6.5	5.5	6.4	5.4	5.1	4.2				
Winnebago													
Labor Force	99,406	99,249	99,186	99,136	99,223	101,261	100,966	100,633	99,889				
Employment	94,560	93,699	93,815	94,145	94,876	96,528	96,983	96,413	95,809				
Unemployment	4,846	5,550	5,371	4,991	4,347	4,733	3,983	4,220	4,080				
Unemp. Rate	4.9	5.6	5.4	5.0	4.4	4.7	3.9	4.2	4.1				

Source: Wisconsin Department of Workforce Development, 2002 Local Area Unemployment Statistics (LAUS) Estimates Report.

Table Series ED-1: East Central Wisconsin Civilian Labor Force Average Annual Figures by County, 2001.

	Jan 2001	Feb 2001	Mar 2001	Apr 2001	May 2001	Jun 2001	Jul 2001	Aug 2001	Sep 2001	Oct 2001	Nov 2001	Dec 2001	Annual Average
Wisconsin													
Labor Force	2,935,648	2,956,688	2,960,768	29,868,760	2,978,127	3,052,733	3,060,659	3,024,304	2,980,831	2,993,006	2,994,286	2,981,126	3,031,860
Employment	2,795,086	2,798,541	2,805,169	2,826,542	2,853,596	2,906,045	2,920,052	2,899,189	2,868,474	2,870,761	2,861,145	2,849,076	2,855,240
Unemployment	140,562	158,147	155,599	142,218	124,531	146,688	140,607	125,115	112,357	122,245	133,141	132,050	176,620
Unemp. Rate	4.8	5.3	5.3	4.8	4.2	4.8	4.6	4.1	3.8	4.1	4.4	4.4	4.6
East Central District													
Labor Force	355,532	357,112	358,394	359,928	360,248	370,603	372,729	368,806	362,882	363,152	363,012	361,558	369,093
Employment	339,921	339,635	341,130	343,757	346,591	354,242	357,653	355,641	350,212	349,100	347,278	346,156	347,938
Unemployment	15,614	17,477	17,264	16,171	13,657	16,361	15,076	13,505	12,590	14,052	15,734	15,412	21,155
Unemp. Rate	5.9	6.6	6.5	6.0	5.1	6.1	5.6	4.9	4.4	4.9	5.6	5.7	5.6
Calumet													
Labor Force	25,515	25,584	25,678	25,717	25,580	26,190	26,478	26,297	25,870	25,996	26,015	25,873	26,489
Employment	24,648	24,565	24,622	24,589	24,699	25,235	25,487	25,333	24,955	24,940	24,894	24,830	24,923
Unemployment	870	1,019	1,056	1,128	881	955	991	964	915	1,056	1,121	1,043	1,566
Unemp. Rate	3.4	4.0	4.1	4.4	3.4	3.6	3.7	3.7	3.5	4.1	4.3	4.0	3.9
Fond du Lac													
Labor Force	53,846	54,260	54,562	54,959	55,480	57,120	57,258	56,708	55,940	55,890	55,766	55,604	56,761
Employment	50,973	51,431	51,771	52,604	53,341	54,464	54,942	54,954	53,750	53,750	53,529	53,364	53,509
Unemployment	2,873	2,829	2,791	2,355	2,139	2,656	2,316	2,114	2,140	2,140	2,237	2,250	3,252
Unemp. Rate	5.3	5.2	5.1	4.3	3.9	4.6	4.0	3.7	3.8	3.8	4.0	4.0	4.3
Green Lake													
Labor Force	10,503	10,667	10,653	10,692	10,678	10,986	11,036	10,937	10,716	10,739	10,869	10,893	11,154
Employment	9,747	9,834	9,899	10,059	10,199	10,414	10,506	10,439	10,349	10,278	10,235	10,204	10,231
Unemployment	756	833	754	633	479	572	530	498	367	461	634	689	923
Unemp. Rate	7.2	7.8	7.1	5.9	4.5	5.2	4.8	4.6	3.4	4.3	5.8	6.3	5.6
Marquette													
Labor Force	7,074	7,194	7,253	7,253	7,351	7,669	7,614	7,530	7,364	7,252	7,159	7,165	7,323
Employment	6,356	6,371	6,471	6,669	6,859	7,193	7,183	7,164	7,014	6,835	6,667	6,647	6,786
Unemployment	718	823	782	584	492	476	431	366	350	417	492	518	537
Unemp. Rate	10.1	11.4	10.8	8.1	6.7	6.2	5.7	4.9	4.8	5.8	6.9	7.2	7.4

	Jan 2001	Feb 2001	Mar 2001	Apr 2001	May 2001	Jun 2001	Jul 2001	Aug 2001	Sep 2001	Oct 2001	Nov 2001	Dec 2001	Annual Average
Menominee													
Labor Force	2,251	2,291	2,313	2,423	2,409	2,498	2,600	2,297	2,185	2,241	2,218	2,230	2,291
Employment	2,067	2,082	2,085	2,127	2,137	2,092	2,193	2,025	1,944	2,007	1,962	1,980	2,040
Unemployment	184	209	228	296	272	406	407	272	241	234	256	250	251
Unemp. Rate	8.2	9.1	9.9	12.2	11.3	16.3	15.7	11.8	11.0	10.4	11.5	11.2	11.6
Outagamie													
Labor Force	103,242	103,542	103,805	103,440	103,059	105,741	106,733	105,628	103,855	104,175	104,561	104,164	106,166
Employment	99,405	99,069	99,299	99,166	99,608	101,771	102,785	102,168	100,641	100,579	100,396	100,136	100,511
Unemployment	3,837	4,473	4,506	4,274	3,451	3,970	3,948	3,460	3,214	3,596	4,165	4,028	5,655
Unemp. Rate	3.7	4.3	4.3	4.1	3.3	3.8	3.7	3.3	3.1	3.5	4.0	3.9	3.8
Shawano													
Labor Force	19,507	19,572	19,855	20,456	20,436	21,066	21,046	20,688	20,653	20,200	20,068	19,999	20,356
Employment	18,377	18,235	18,518	19,216	19,439	19,964	20,072	19,740	19,720	19,270	18,958	18,875	18,938
Unemployment	1,130	1,337	1,337	1,240	997	1,102	974	928	903	930	1,110	1,124	1,418
Unemp. Rate	5.8	6.8	6.7	6.1	4.9	5.2	4.6	4.5	4.4	4.6	5.5	5.6	5.4
Waupaca													
Labor Force	25,831	25,921	26,053	26,631	26,725	27,787	27,665	27,104	26,893	26,830	26,496	26,422	27,140
Employment	24,490	24,363	24,511	25,226	25,601	26,222	26,312	26,096	25,920	25,640	25,120	24,988	25,311
Unemployment	1,341	1,558	1,542	1,405	1,124	1,565	1,353	1,008	973	1,190	1,376	1,434	1,829
Unemp. Rate	5.2	6.0	5.9	5.3	4.2	5.6	4.9	3.7	3.6	4.4	5.2	5.4	5.0
Waushara													
Labor Force	10,983	11,203	11,249	11,385	11,493	11,875	12,052	12,206	11,531	11,623	11,593	11,443	11,914
Employment	10,243	10,387	10,439	10,711	10,902	11,044	11,375	11,505	11,140	11,080	10,968	10,829	11,032
Unemployment	740	816	810	674	591	831	677	701	391	543	625	614	882
Unemp. Rate	6.7	7.3	7.2	5.9	5.1	7.0	5.6	5.7	3.4	4.7	5.4	5.4	5.8
Winnebago													
Labor Force	96,780	96,878	96,973	96,972	97,037	99,671	100,247	99,411	97,875	98,206	98,267	97,765	99,499
Employment	93,615	93,298	93,515	93,390	93,806	95,843	96,798	96,217	94,779	94,721	94,549	94,303	94,657
Unemployment	3,165	3,580	3,458	3,582	3,231	3,828	3,449	3,194	3,096	3,485	3,718	3,462	4,842
Unemp. Rate	3.3	3.7	3.6	3.7	3.3	3.8	3.4	3.2	3.2	3.5	3.8	3.5	3.5

Source: Wisconsin Department of Workforce Development, 2001 Benchmark Local Area Unemployment Statistics (LAUS) Estimates Report.

Table Series ED-1: East Central Wisconsin Civilian Labor Force Average Annual Figures by County, 2000.

	Jan 2000	Feb 2000	Mar 2000	Apr 2000	May 2000	Jun 2000	Jul 2000	Aug 2000	Sep 2000	Oct 2000	Nov 2000	Dec 2000	Annual Average
Wisconsin													
Labor Force	2,860,943	2,876,931	2,890,594	2,904,211	2,920,790	3,004,919	3,011,228	2,981,337	2,939,658	2,940,226	2,948,522	2,939,813	2,934,931
Employment	2,750,275	275,562	2,771,193	2,798,609	2,825,013	2,887,858	2,900,303	2,881,972	2,852,615	2,856,012	2,854,182	2,839,352	2,831,162
Unemployment	110,668	120,369	119,401	105,602	95,777	117,061	110,925	99,365	87,043	84,214	94,340	100,461	103,769
Unemp. Rate (%)	3.9	4.2	4.1	3.6	3.3	3.9	3.7	3.3	3.0	2.9	3.2	3.4	3.5
East Central District													
Labor Force	345,031	346,671	348,592	349,867	352,401	362,937	365,122	361,816	355,799	354,853	356,297	355,487	354,107
Employment	333,113	333,658	335,935	339,015	342,712	350,578	354,098	351,786	346,907	345,960	346,221	344,671	343,286
Unemployment	11,918	13,043	12,657	10,852	9,689	12,359	11,024	10,030	8,892	8,893	10,076	10,816	10,851
Unemp. Rate (%)	4.8	5.2	5.1	4.4	4.1	5.0	4.0	4.0	3.4	3.4	4.0	4.3	4.3
Calumet													
Labor Force	24,579	24,736	24,829	24,968	24,993	25,719	25,965	25,877	25,428	25,629	25,674	25,564	25,330
Employment	24,014	24,041	24,147	24,312	24,482	25,058	25,344	25,257	24,877	24,874	24,970	24,884	24,688
Unemployment	565	695	682	656	511	661	621	620	551	755	704	680	642
Unemp. Rate (%)	2.3	2.8	2.7	2.6	2.0	2.6	2.4	2.4	2.2	2.9	2.7	2.7	2.5
Fond du Lac													
Labor Force	52,608	52,937	53,355	53,479	53,732	55,192	55,395	54,991	54,110	53,876	53,829	53,940	53,797
Employment	50,709	50,765	51,335	51,767	52,260	53,130	53,660	53,205	52,693	52,470	52,421	52,211	52,062
Unemployment	1,899	2,172	2,020	1,712	1,472	2,062	1,735	1,786	1,417	1,406	1,408	1,729	1,735
Unemp. Rate (%)	3.6	4.1	3.8	3.2	2.7	3.7	3.1	3.2	2.6	2.6	2.6	3.2	3.2
Green Lake													
Labor Force	10,304	10,415	10,402	10,327	10,356	10,545	10,604	10,491	10,320	10,276	10,467	10,500	10,387
Employment	9,696	9,707	9,816	9,899	9,993	10,159	10,260	10,173	10,075	10,033	10,024	9,983	9,955
Unemployment	608	708	586	428	363	386	344	318	245	243	443	517	432
Unemp. Rate (%)	5.9	6.8	5.6	4.1	3.5	3.7	3.2	3.0	2.4	2.4	4.2	4.9	4.2
Marquette													
Labor Force	6,766	6,846	6,884	6,930	7,120	7,407	7,279	7,271	7,142	6,955	6,880	6,919	6,959
Employment	6,178	6,221	6,309	6,454	6,728	7,040	7,011	6,966	6,834	6,643	6,489	6,451	6,567
Unemployment	588	625	575	476	392	367	268	305	308	312	391	468	422
Unemp. Rate (%)	8.7	9.1	8.4	6.9	5.5	5.0	3.7	4.2	4.3	4.5	5.7	6.8	6.0

	Jan 2000	Feb 2000	Mar 2000	Apr 2000	May 2000	Jun 2000	Jul 2000	Aug 2000	Sep 2000	Oct 2000	Nov 2000	Dec 2000	Annual Average
Menominee													
Labor Force	2,194	2,251	2,304	2,364	2,399	2,429	2,371	2,360	2,258	2,289	2,307	2,276	2,371
Employment	2,054	2,101	2,092	2,135	2,123	2,049	2,125	2,084	2,051	2,087	2,121	2,109	2,147
Unemployment	140	150	212	229	276	380	246	276	207	202	186	167	224
Unemp. Rate (%)	6.4	6.7	9.2	9.7	11.5	15.6	10.4	11.7	9.2	8.8	8.1	7.3	9.6
Outagamie													
Labor Force	99,884	100,303	100,638	100,870	101,121	104,010	105,030	104,209	102,485	102,478	103,259	103,058	102,105
Employment	96,848	96,954	97,384	98,047	98,733	101,059	102,211	101,859	100,326	100,316	100,701	100,355	99,393
Unemployment	3,036	3,349	3,254	2,823	2,388	2,951	2,819	2,350	2,159	2,162	2,558	2,703	2,712
Unemp. Rate (%)	3.0	3.3	3.2	2.8	2.4	2.8	2.7	2.3	2.1	2.1	2.5	2.6	2.7
Shawano													
Labor Force	19,336	19,399	19,677	19,999	20,182	20,797	20,680	20,342	20,230	19,935	20,028	19,896	19,900
Employment	18,397	18,409	18,598	19,136	19,522	19,908	19,919	19,645	19,584	19,323	19,267	19,069	19,092
Unemployment	939	990	1,079	863	660	889	761	697	646	612	761	827	808
Unemp. Rate (%)	4.9	5.1	5.5	4.3	3.3	4.3	3.7	3.4	3.2	3.1	3.8	4.2	4.1
Waupaca													
Labor Force	25,244	25,415	25,649	25,915	26,408	27,310	27,554	26,759	26,366	26,112	25,994	25,888	26,289
Employment	24,186	24,251	24,481	24,950	25,547	26,294	26,473	25,998	25,625	25,394	25,143	24,896	25,341
Unemployment	1,058	1,164	1,168	965	861	1,016	1,081	761	741	718	851	992	948
Unemp. Rate (%)	4.2	4.6	4.6	3.7	3.3	3.7	3.9	2.8	2.8	2.7	3.3	3.8	3.6
Waushara													
Labor Force	10,506	10,534	10,649	10,467	10,796	11,259	11,278	11,159	10,688	10,640	10,730	10,729	10,935
Employment	9,824	9,902	10,062	9,979	10,342	10,708	10,838	10,673	10,360	10,347	10,249	10,204	10,437
Unemployment	682	662	587	488	454	551	440	486	328	293	481	525	498
Unemp. Rate (%)	6.5	6.3	5.5	4.7	4.2	4.9	3.9	4.4	3.1	2.8	4.5	4.9	4.6
Winnebago													
Labor Force	93,610	93,835	94,205	94,548	95,294	98,269	98,966	98,357	96,772	96,663	97,129	96,717	96,034
Employment	91,207	91,307	91,711	92,336	92,982	95,173	96,257	95,926	94,482	94,473	94,836	94,509	93,604
Unemployment	2,403	2,528	2,494	2,212	2,312	3,096	2,709	2,431	2,290	2,190	2,293	2,208	2,430
Unemp. Rate (%)	2.6	2.7	2.6	2.3	2.4	3.2	2.7	2.5	2.4	2.3	2.4	2.3	2.5

Source: Wisconsin Department of Workforce Development, 2000 Benchmark Local Area Unemployment Statistics (LAUS) Estimates Report.

Table Series ED-1: East Central Wisconsin Civilian Labor Force Average Annual Figures by County, 1990.

	Jan 1990	Feb 1990	Mar 1990	Apr 1990	May 1990	Jun 1990	Jul 1990	Aug 1990	Sep 1990	Oct 1990	Nov 1990	Dec 1990	Annual Average
Wisconsin													
Labor Force	2,549,206	2,549,437	2,551,553	2,561,983	2,570,541	2,641,385	2,644,722	2,615,155	2,584,351	2,572,872	2,572,916	2,558,841	2,581,079
Employment	2,414,424	2,418,240	2,423,503	2,447,610	2,469,437	2,525,119	2,534,479	2,510,655	2,484,334	2,458,011	2,458,011	2,443,872	2,466,597
Unemployment	134,782	131,197	128,050	114,373	101,104	116,266	110,243	104,500	100,017	114,905	1,146,905	114,969	114,483
Unemp. Rate (%)	5.3	5.1	5.0	4.5	3.9	4.4	4.2	4.0	3.9	4.0	4.5	4.5	4.4
East Central District													
Labor Force	302,637	301,308	302,324	303,221	306,185	314,241	315,091	1,066,450	306,902	305,585	305,000	302,957	306,678
Employment	284,311	285,835	287,418	290,354	294,456	292,438	226,948	298,495	295,282	292,895	290,999	288,912	293,036
Unemployment	15,326	28,203	14,870	13,867	11,729	12,681	13,143	11,855	11,650	12,687	34,001	14,045	13,642
Unemp. Rate (%)	6.5	6.6	6.5	6.0	5.2	5.9	5.6	4.9	4.4	4.9	5.9	5.9	5.8
Calumet													
Labor Force	20,787	20,881	20,867	20,956	20,912	21,993	22,410	21,747	21,482	21,499	21,478	21,280	21,358
Employment	19,500	19,469	19,589	19,759	19,809	20,351	20,658	20,369	20,078	19,901	19,901	19,749	19,928
Unemployment	1,287	14,142	1,278	1,197	1,103	1,642	1,752	1,378	1,404	1,598	1,577	1,531	1,430
Unemp. Rate (%)	6.2	6.8	6.1	5.7	5.3	7.5	7.8	6.3	6.5	7.4	7.3	7.2	6.7
Fond du Lac													
Labor Force	48,615	47,766	48,007	48,249	48,420	50,193	49,725	49,027	48,729	48,344	47,841	47,319	48,520
Employment	45,821	45,018	45,327	45,927	46,309	47,631	47,252	46,602	46,208	45,821	45,120	44,807	45,987
Unemployment	2,794	2,748	2,680	2,322	2,111	2,562	2,473	2,425	2,521	2,523	22,721	2,512	2,533
Unemp. Rate (%)	5.7	5.8	5.6	4.8	4.4	5.1	5.0	4.9	5.2	5.2	5.7	5.3	5.2
Green Lake													
Labor Force	9,541	9,447	9,483	9,481	9,350	9,640	9,483	9,326	9,239	9,198	9,325	9,336	9,404
Employment	8,780	8,626	8,626	8,801	8,874	513	9,054	8,930	8,855	8,780	8,646	8,586	8,812
Unemployment	761	821	821	680	476	5	429	396	384	418	679	750	592
Unemp. Rate (%)	8.0	8.7	8.7	7.2	5.1	5.2	4.5	4.2	4.2	4.5	7.3	8.0	6.3
Marquette													
Labor Force	5,809	5,758	5,718	5,822	5,913	6,277	6,374	6,308	6,201	5,975	5,839	5,757	5,980
Employment	5,249	5,181	5,201	5,394	5,584	5,928	6,046	6,042	5,971	5,690	5,413	5,261	5,578
Unemployment	560	577	517	428	329	349	328	266	260	285	426	496	402
Unemp. Rate (%)	9.6	10.0	9.0	7.4	5.6	5.6	5.1	4.2	4.2	4.8	7.3	8.6	6.7

	Jan 1990	Feb 1990	Mar 1990	Apr 1990	May 1990	Jun 1990	Jul 1990	Aug 1990	Sep 1990	Oct 1990	Nov 1990	Dec 1990	Annual Average
Menominee													
Labor Force	1,013	1,033	1,077	1,136	1,123	1,180	1,176	1,212	1,211	1,251	1,235	1,266	1,159
Employment	933	955	972	991	989	1,028	1,040	1,094	1,133	1,164	1,136	1,177	1,051
Unemployment	80	78	105	145	134	152	136	118	78	87	99	89	108
Unemp. Rate (%)	7.9	7.6	9.7	12.8	11.9	12.9	11.6	9.7	6.4	7.0	8.0	7.0	9.3
Outagamie													
Labor Force	82,953	82,859	83,194	83,196	85,501	86,429	85,266	840,115	83,441	83,775	83,772	83,431	83,966
Employment	79,476	79,350	79,836	80,732	82,944	84,195	83,018	81,830	81,111	81,110	81,110	80,490	81,219
Unemployment	3,477	3,509	3,358	3,464	2,557	2,234	2,248	2,185	2,330	2,662	2,662	2,941	2,747
Unemp. Rate (%)	4.2	4.2	4.0	3.0	3.0	2.6	2.6	2.6	2.8	3.2	3.2	3.5	3.3
Shawano													
Labor Force	18,246	18,094	18,153	17,990	18,356	18,356	18,622	18,500	18,553	18,066	17,934	17,968	18,255
Employment	14,179	17,012	17,052	17,061	17,491	17,491	17,864	17,741	17,744	17,240	16,883	16,894	17,325
Unemployment	1,067	1,082	1,101	929	865	865	758	759	809	826	1,051	1,074	930
Unemp. Rate (%)	5.8	6.0	6.1	5.2	4.7	4.7	4.1	4.1	4.4	4.6	5.9	6.0	5.1
Waupaca													
Labor Force	23,063	22,508	22,561	22,379	22,573	23,207	23,683	23,160	22,960	22,812	22,604	22,516	22,836
Employment	21,470	21,303	21,360	21,274	21,651	22,166	22,311	22,217	22,053	21,832	21,545	21,456	21,720
Unemployment	1,593	1,205	1,201	1,105	922	1,041	1,372	943	907	980	1,059	1,060	1,116
Unemp. Rate (%)	6.9	5.4	5.3	4.9	4.1	4.5	5.8	4.1	4.0	4.3	4.7	4.7	4.9
Waushara													
Labor Force	10,983	11,203	11,249	11,385	11,493	11,875	12,052	12,206	11,531	11,623	11,593	11,443	11,914
Employment	10,243	10,387	10,439	10,711	10,902	11,044	11,375	11,505	11,140	11,080	10,968	10,829	11,032
Unemployment	740	816	810	674	591	831	677	701	391	543	625	614	882
Unemp. Rate (%)	6.7	7.3	7.2	5.9	5.1	7.0	5.6	5.7	3.4	4.7	5.4	5.4	7.4
Winnebago													
Labor Force	81,627	81,759	82,015	82,627	82,544	85,091	86,300	84,849	83,555	83,042	83,379	82,641	83,286
Employment	78,660	78,534	79,016	79,704	79,903	82,091	8,330	82,165	80,989	80,277	80,277	79,663	80,384
Unemployment	2,967	3,225	2,999	2,923	2,641	3,000	2,970	2,684	2,566	2,765	3,102	2,978	2,902
Unemp. Rate (%)	3.6	3.9	3.7	3.5	3.2	3.5	3.4	3.2	3.1	3.3	3.7	3.6	3.5

Source: Wisconsin Department of Workforce Development, 1990 Benchmark Local Area Unemployment Statistics (LAUS) Estimates Report.

Table Series ED-2: Employment Covered by Unemployment Compensation by Industry Group, Wisconsin, 1990, 2000, 2001.

Wisconsin	1990	Percent of Total-1990	2000	Percent of Total-2000	2001	Percent of Total-2001	% Change 1990-2000	% Change 2000-2001
All Industries	2,166,004	100.00%	2,688,142	100.00%	2,897,215	100.00%	24.11%	7.78%
All Governments	316,310	14.60%	366,243	13.62%	385,055	13.29%	15.79%	5.14%
Federal	29,116	1.34%	31,845	1.18%	29,759	1.03%	9.37%	-6.55%
State	62,444	2.88%	72,361	2.69%	74,235	2.56%	15.88%	2.59%
Local	224,750	10.38%	262,037	9.75%	281,061	9.70%	16.59%	7.26%
Private Coverage	1,849,694	--	2,321,899	--	2,512,180	--	25.53%	8.20%
Agriculture, Forestry, and Fishing	14,571	0.67%	25,104	0.93%	25,025	0.86%	72.29%	-0.31%
Mining	1,746	0.08%	2,386	0.09%	2,169	0.07%	36.66%	-9.09%
Construction	72,193	3.33%	111,750	4.16%	109,371	3.78%	54.79%	-2.13%
Manufacturing	550,408	25.41%	613,849	22.84%	595,214	20.54%	11.53%	-3.04%
Durable Goods	334,312	15.43%	375,837	13.98%	380,859	13.15%	12.42%	1.34%
Lumber & Wood Products Except Furniture	26,457	1.22%	31,952	1.19%	31,303	1.08%	20.77%	-2.03%
Furniture and Fixtures	13,014	0.60%	18,317	0.68%	18,576	0.64%	40.75%	1.41%
Stone, Clay, Glass and Concrete Products	7,445	0.34%	10,787	0.40%	10,582	0.37%	44.89%	-1.90%
Primary Metal Industries	21,182	0.98%	26,242	0.98%	24,306	0.84%	23.89%	-7.38%
	58,581	2.70%	67,157	2.50%	64,726	2.23%	14.64%	-3.62%
Machinery, Except Electrical	112,510	5.19%	111,428	4.15%	105,213	3.63%	-0.96%	-5.58%
Electrical & Electronic Machinery & Equp.	38,561	1.78%	46,465	1.73%	45,240	1.56%	20.50%	-2.64%
Transportation Equipment	25,435	1.17%	34,807	1.29%	32,707	1.13%	36.85%	-6.03%
Measuring, Analyzing, & Controlling Instr. & R	20,466	0.94%	17,915	0.67%	17,572	0.61%	-12.46%	-1.91%
Miscellaneous Manufacturing Ind	10,661	0.49%	10,767	0.40%	10,634	0.37%	0.99%	-1.24%
Nondurable Goods	216,096	9.98%	238,012	8.85%	234,355	8.09%	10.14%	-1.54%
Food & Kindred Products	60,279	2.78%	64,357	2.39%	64,748	2.23%	6.77%	0.61%
Textile Mill Products	4,306	0.20%	2,428	0.09%	2,271	0.08%	-43.61%	-6.47%
Apparel and Other Products	6,975	0.32%	5,708	0.21%	5,749	0.20%	-18.16%	0.72%
Paper and Allied Products	50,684	2.34%	52,335	1.95%	52,352	1.81%	3.26%	0.03%
Printing, Publishing and Allied Industries	46,267	2.14%	54,491	2.03%	53,967	1.86%	17.78%	-0.96%
Chemical and Allied Products	10,805	0.50%	14,868	0.55%	14,755	0.51%	37.60%	-0.76%
Petroleum Refining & Related Ind	257	0.01%	391	0.01%	398	0.01%	52.14%	1.79%
Rubber & Misc. Plastic Products	30,194	1.39%	39,783	1.48%	36,992	1.28%	31.76%	-7.02%
Leather & Leather Products	6,329	0.29%	3,621	0.13%	3,120	0.11%	-42.79%	-13.84%
Transportation, and Public Utilities	104,602	4.83%	125,828	4.68%	128,787	4.45%	20.29%	2.35%
Wholesale Trade	116,094	5.36%	137,854	5.13%	135,957	4.69%	18.74%	-1.38%
Retail Trade	406,724	18.78%	483,562	17.99%	697,974	24.09%	18.89%	44.34%
Finance, Insurance, & Real Estate	116,864	5.40%	142,814	5.31%	145,696	5.03%	22.21%	2.02%
Services	466,484	21.54%	675,434	25.13%	669,065	23.09%	44.79%	-0.94%

Source: Wisconsin Department of Workforce Development;Employment and Wages Covered by Wisconsin's U.I. Law, Table 202, First Qtr., 1990, 2000, 2001.

Table Series ED-2: Employment Covered by Unemployment Compensation by Industry Group, East Central Region, 1990, 2000, 2001.

East Central District	1990	Percent of Total-1990	2000	Percent of Total-2000	2001	Percent of Total-2000	% Change 1990-2000	% Change 2000-2001
All Industries	227,206	100.00%	291,131	97.14%	295,084	100.00%	28.14%	1.36%
All Governments	27,644	12.17%	35,712	15.55%	39,516	13.39%	29.19%	10.65%
Federal	1,541	0.68%	2,022	0.88%	1,795	0.61%	31.21%	-11.23%
State	2,978	1.31%	5,158	2.25%	5,515	1.87%	73.20%	6.92%
Local	23,139	10.18%	28,530	12.42%	32,194	10.91%	23.30%	12.84%
Private Coverage	199,538	--	255,419	--	255,558	--	28.01%	0.05%
Agriculture, Forestry, and Fishing	1,673	0.74%	3,213	1.40%	3,249	1.10%	92.05%	1.12%
Mining	405	0.18%	0	0.00%	0	0.00%	--	--
Construction	9,438	4.15%	16,439	7.16%	16,379	5.55%	74.18%	-0.36%
Manufacturing	75,480	33.22%	85,275	37.12%	84,843	28.75%	12.98%	-0.51%
Durable Goods	36,060	15.87%	40,242	17.52%	38,676	13.11%	11.60%	-3.89%
Lumber & Wood Products Except Furniture	3,310	1.46%	2,971	1.29%	3,029	1.03%	-10.24%	1.95%
Furniture and Fixtures	1,024	0.45%	546	0.24%	484	0.16%	-46.68%	-11.36%
Stone, Clay, Glass and Concrete Products	203	0.09%	458	0.20%	404	0.14%	125.62%	-11.79%
Primary Metal Industries	3,387	1.49%	1,138	0.50%	1,069	0.36%	-66.40%	-6.06%
Fabricated Metal Products	2,739	1.21%	3,447	1.50%	3,298	1.12%	25.85%	-4.32%
Machinery, Except Electrical	14,247	6.27%	15,415	6.71%	14,089	4.77%	8.20%	-8.60%
Electrical & Electronic Machinery & Equp.	3,469	1.53%	4,773	2.08%	4,987	1.69%	37.59%	4.48%
Transportation Equipment	4,705	2.07%	4,497	1.96%	4,675	1.58%	-4.42%	3.96%
Measuring, Analyzing, & Controlling Instr. & Rel.	187	0.08%	275	0.12%	261	0.09%	47.06%	-5.09%
Miscellaneous Manufacturing Ind	939	0.41%	911	0.40%	904	0.31%	-2.98%	-0.77%
Nondurable Goods	39,425	17.35%	44,373	19.32%	51,370	17.41%	12.55%	15.77%
Food & Kindred Products	6,929	3.05%	8,650	3.77%	8,619	2.92%	24.84%	-0.36%
Textile Mill Products	911	0.4	451	0.2	399	0.14	-50.49%	-11.53%
Apparel and Other Products	1,926	0.85%	1,751	0.76%	1,263	0.43%	-9.09%	-27.87%
Paper and Allied Products	17,178	7.56%	18,704	8.14%	19,721	6.68%	8.88%	5.44%
Printing, Publishing and Allied Industries	5,974	2.63%	7,106	3.09%	7,300	2.47%	18.95%	2.73%
Chemical and Allied Products	289	0.13%	342	0.15%	319	0.11%	18.34%	-6.73%
Rubber & Misc. Plastic Products	1,681	0.74%	3,618	1.58%	3,685	1.25%	115.23%	1.85%
Leather & Leather Products	325	0.14	107	0.05	126	0.04	-67.08%	17.76%
Transportation, and Public Utilities	10,092	4.44%	12,748	5.55%	13,649	4.63%	26.32%	7.07%
Wholesale Trade	9,715	4.28%	12,360	5.38%	12,302	4.17%	27.23%	-0.47%
Retail Trade	41,661	18.34%	51,187	22.28%	52,338	17.74%	22.87%	2.25%
Finance, Insurance, & Real Estate Services	10,030	4.41%	11,799	5.14%	12,485	4.23%	17.64%	5.81%
Services	40,972	18.03%	61,337	26.70%	59,641	20.21%	49.70%	-2.77%

Source: Wisconsin Department of Workforce Development;Employment and Wages Covered by Wisconsin's U.I. Law, Table 202, First Qtr., 1990, 2000, 2001.

Table Series ED-2: Employment Covered by Unemployment Compensation by Industry Group, Calumet County, 1990, 2000, 2001.

Calumet County	1990	Percent of Total-1990	2000	Percent of Total-2000	2001	Percent of Total-2001	% Change 1990-2000	% Change 2000-2001
All Industries	10,258	100.00%	12,624	100.00%	12,043	100.00%	23.06%	-4.60%
All Governments	1,135	11.06%	1,407	11.15%	1,404	11.66%	23.96%	-0.21%
Federal	55	0.54%	147	1.16%	113	0.94%	167.27%	-23.13%
State	0	0	15	0.12%	14	0.12%		-6.67%
Local	1,079	10.52%	1,245	9.86%	1,277	10.60%	15.38%	2.57%
Private Coverage	9,123	88.94%	11,217	88.85%	10,639	88.34%	22.95%	-5.15%
Agriculture, Forestry, and Fishing	120	1.17%	211	1.67%	214	1.78%	75.83%	1.42%
Mining								
Construction	316	3.08%	620	4.91%	502	4.17%	96.20%	-19.03%
Manufacturing	5,030	49.03%	5,669	44.91%	5,064	42.05%	12.70%	-10.67%
Durable Goods	4,298	41.90%	4,962	39.31%	4,284	35.57%	15.45%	-13.66%
Lumber & Wood Products Except Furniture	70	0.68%			13	0.11%		
Furniture and Fixtures			70	0.55%	64	0.53%		-8.57%
Stone, Clay, Glass and Concrete Products				0.00%				
Primary Metal Industries	872	8.50%						
Fabricated Metal Products	432	4.21%	583	4.62%	611	5.07%	34.95%	4.80%
Machinery, Except Electrical	2,774	27.04%	3,091	24.49%	2,540	21.09%	11.43%	-17.83%
Electrical & Electronic Machinery & Equp.								
Transportation Equipment								
Measuring, Analyzing, & Controlling Instr. & Rel.								
Miscellaneous Manufacturing Ind	72	0.70%	64	0.51%	53	0.44%	-11.11%	-17.19%
Nondurable Goods	732	7.14%	707	5.60%	780	6.48%	-3.42%	10.33%
Food & Kindred Products	546	5.32%	541	4.29%	611	5.07%	-0.92%	12.94%
Textile Mill Products								
Apparel and Other Products								
Paper and Allied Products								
Printing, Publishing and Allied Industries	167	1.63%	61	0.48%	59	0.49%	-63.47%	-3.28%
Chemical and Allied Products								
Petroleum Refining & Related Ind								
Rubber & Misc. Plastic Products								
Leather & Leather Products								
Transportation, and Public Utilities	168	1.64%	287	2.27%	283	2.35%	70.83%	-1.39%
Wholesale Trade	472	4.60%	681	5.39%	694	5.76%	44.28%	1.91%
Retail Trade	1,731	16.87%	1,988	15.75%	2,039	16.93%	14.85%	2.57%
Finance, Insurance, & Real Estate	240	2.34%	337	2.67%	339	2.81%	40.42%	0.59%
Services	1,006	9.81%	1,216	9.63%	1,343	11.15%	20.87%	10.44%

Source: Wisconsin Department of Workforce Development;Employment and Wages Covered by Wisconsin's U.I. Law, Table 202, First Qtr., 1990, 2000, 2001

Table Series ED-2: Employment Covered by Unemployment Compensation by Industry Group, Fond du Lac County, 1990, 2000, 2001.

Fond du Lac County	1990	Percent of Total-1990	2000	Percent of Total-2000	2001	Percent of Total-2001	% Change 1990-2000	% Change 2000-2001
All Industries	39,114	100.00%	46,701	100.00%	46,781	100.00%	19.40%	0.17%
All Governments	4,371	11.18%	5,703	12.21%	5,658	12.09%	30.47%	-0.79%
Federal	215	0.55%	322	0.69%	255	0.55%	49.77%	-20.81%
State	68	0.17%	542	1.16%	594	1.27%	697.06%	9.59%
Local	4,088	10.45%	4,839	10.36%	4,819	10.30%	18.37%	-0.41%
Private Coverage	34,743	88.82%	40,998	87.79%	41,093	87.84%	18.00%	0.23%
Agriculture, Forestry, and Fishing	153	0.39%	439	0.94%	470	1.00%	186.93%	7.06%
Mining	110	0.28%						
Construction	1,541	3.94%	2,463	5.27%	2,401	5.13%	59.83%	-2.52%
Manufacturing	13,173	33.68%	14,339	30.70%	13,659	29.20%	8.85%	-4.74%
Durable Goods	7,397	18.91%	8,300	17.77%	7,667	16.39%	12.21%	-7.63%
Lumber & Wood Products Except Furniture	123	0.31%	149	0.32%	151	0.32%	21.14%	1.34%
Furniture and Fixtures	114	0.29%						
Stone, Clay, Glass and Concrete Products	71	0.18%	128	0.27%	101	0.22%	80.28%	-21.09%
Primary Metal Industries	289	0.74%	429	0.92%	427	0.91%	48.44%	-0.47%
Fabricated Metal Products	732	1.87%	845	1.81%	674	1.44%	15.44%	-20.24%
Machinery, Except Electrical	3,992	10.21%	5,265	11.27%	4,765	10.19%	31.89%	-9.50%
Electrical & Electronic Machinery & Equp.	1,754	4.48%	1,079	2.31%	1,137	2.43%	-38.48%	5.38%
Transportation Equipment			17	0.04%	11	0.02%		-35.29%
Measuring, Analyzing, & Controlling Instr. & Rel.	19	0.05%	9	0.02%	7	0.01%	-52.63%	-22.22%
Miscellaneous Manufacturing Ind	284	0.73%	250	0.54%	247	0.53%	-11.97%	-1.20%
Nondurable Goods	5,776	14.77%	6,039	12.93%	5,992	12.81%	4.55%	-0.78%
Food & Kindred Products	1,697	4.34%	1,904	4.08%	1,833	3.92%	12.20%	-3.73%
Textile Mill Products								
Apparel and Other Products	421	1.08%	585	1.25%	547	1.17%	38.95%	-6.50%
Paper and Allied Products								
Printing, Publishing and Allied Industries	696	1.78%	862	1.85%	859	1.84%	23.85%	-0.35%
Chemical and Allied Products								
Petroleum Refining & Related Ind								
Rubber & Misc. Plastic Products			283	0.61%	303	0.65%		7.07%
Leather & Leather Products								
Transportation, and Public Utilities	1,937	4.95%	2,002	4.29%	2,315	4.95%	3.36%	15.63%
Wholesale Trade	1,413	3.61%	1,756	3.76%	1,779	3.80%	24.27%	1.31%
Retail Trade	7,880	20.15%	8,688	18.60%	8,975	19.19%	10.25%	3.30%
Finance, Insurance, & Real Estate	1,367	3.49%	1,419	3.04%	1,544	3.30%	3.80%	8.81%
Services	7,169	18.33%	9,700	20.77%	9,771	20.89%	35.30%	0.73%

Source: Wisconsin Department of Workforce Development;Employment and Wages Covered by Wisconsin's U.I. Law, Table 202, First Qtr., 1990, 2000, 2001

Table Series ED-2: Employment Covered by Unemployment Compensation by Industry Group, Green Lake County, 1990, 2000, 2001.

Green Lake County	1990	Percent of Total-1990	2000	Percent of Total-2000	2001	Percent of Total-2001	% Change 1990-2000	% Change 2000-2001
All Industries	6,341	100.00%	7,098	100.00%	6,978	100.00%	11.94%	-1.69%
All Governments	883	13.93%	1,124	15.84%	1,124	16.11%	27.29%	0.00%
Federal	56	0.88%	78	1.10%	66	0.95%	39.29%	-15.38%
State			8	0.11%	6	0.09%		-25.00%
Local	826	13.03%	1,038	14.62%	1,052	15.08%	25.67%	1.35%
Private Coverage	5,458	86.07%	5,974	84.16%	5,854	83.89%	9.45%	-2.01%
Agriculture, Forestry, and Fishing	61	0.96%	152	2.14%	160	2.29%	149.18%	5.26%
Mining	72	1.14%						
Construction	319	5.03%	383	5.40%	388	5.56%	20.06%	1.31%
Manufacturing	2,338	36.87%	1,783	25.12%	1,730	24.79%	-23.74%	-2.97%
Durable Goods	1,132	17.85%	1,136	16.00%	1,087	15.58%	0.35%	-4.31%
Lumber & Wood Products Except Furniture	20	0.32%						
Furniture and Fixtures			61	0.86%	26	0.37%		-57.38%
Stone, Clay, Glass and Concrete Products			13	0.18%	11	0.16%		-15.38%
Primary Metal Industries	613	9.67%	494	6.96%	450	6.45%	-19.41%	-8.91%
Fabricated Metal Products	190	3.00%	84	1.18%	74	1.06%	-55.79%	-11.90%
Machinery, Except Electrical			58	0.82%	58	0.83%		0.00%
Electrical & Electronic Machinery & Equp.								
Transportation Equipment	16	0.25%						
Measuring, Analyzing, & Controlling Instr. & Rel.			170	2.40%	166	2.38%		-2.35%
Miscellaneous Manufacturing Ind			132	1.86%	191	2.74%		44.70%
Nondurable Goods	1,206	19.02%	647	9.12%	643	9.21%	-46.35%	-0.62%
Food & Kindred Products	125	1.97%	88	1.24%	99	1.42%	-29.60%	12.50%
Textile Mill Products								
Apparel and Other Products	503	7.93%	239	3.37%	216	3.10%	-52.49%	-9.62%
Paper and Allied Products								
Printing, Publishing and Allied Industries	91	1.44%	55	0.77%	47	0.67%	-39.56%	-14.55%
Chemical and Allied Products								
Petroleum Refining & Related Ind								
Rubber & Misc. Plastic Products			46	0.65%	42	0.60%		-8.70%
Leather & Leather Products	325	5.13%	107	1.51%	126	1.81%	-67.08%	17.76%
Transportation, and Public Utilities	300	4.73%	290	4.09%	263	3.77%	-3.33%	-9.31%
Wholesale Trade	174	2.74%	173	2.44%	144	2.06%	-0.57%	-16.76%
Retail Trade	1,086	17.13%	1,397	19.68%	1,309	18.76%	28.64%	-6.30%
Finance, Insurance, & Real Estate	171	2.70%	206	2.90%	258	3.70%	20.47%	25.24%
Services	937	14.78%	1,492	21.02%	1,504	21.55%	59.23%	0.80%

Source: Wisconsin Department of Workforce Development;Employment and Wages Covered by Wisconsin's U.I. Law, Table 202, First Qtr., 1990, 2000, 2001

Table Series ED-2: Employment Covered by Unemployment Compensation by Industry Group, Menominee County, 1990, 2000, 2001.

Menominee County	1990	Percent of Total-1990	2000	Percent of Total-2000	2001	Percent of Total-2001	% Change 1990-2000	% Change 2000-2001
All Industries	993	100.00%	2,033	100.00%	2,050	100.00%	104.73%	0.84%
All Governments	357	35.95%	364	17.90%	1,918	93.56%	1.96%	426.92%
Federal			18	0.89%	8	0.39%		-55.56%
State								
Local	353	35.55%	344	16.92%	1,908	93.07%	-2.55%	454.65%
Private Coverage	636	64.05%	1,669	82.10%	132	6.44%	162.42%	-92.09%
Agriculture, Forestry, and Fishing								
Mining								
Construction			29	1.43%				
Manufacturing	197	19.84%						
Durable Goods	197	19.84%						
Lumber & Wood Products Except Furniture	197	19.84%						
Furniture and Fixtures								
Stone, Clay, Glass and Concrete Products								
Primary Metal Industries								
Fabricated Metal Products								
Machinery, Except Electrical								
Electrical & Electronic Machinery & Equp.								
Transportation Equipment								
Measuring, Analyzing, & Controlling Instr. & Rel.								
Miscellaneous Manufacturing Ind								
Nondurable Goods								
Food & Kindred Products								
Textile Mill Products								
Apparel and Other Products								
Paper and Allied Products								
Printing, Publishing and Allied Industries								
Chemical and Allied Products								
Petroleum Refining & Related Ind								
Rubber & Misc. Plastic Products								
Leather & Leather Products								
Transportation, and Public Utilities			15	0.74%				
Wholesale Trade								
Retail Trade	17	1.71%			81	3.95%		
Finance, Insurance, & Real Estate			73	3.59%				
Services	409	41.19%	1,239	60.94%	33	1.61%	202.93%	-97.34%

Source: Wisconsin Department of Workforce Development;Employment and Wages Covered by Wisconsin's U.I. Law, Table 202, First Qtr., 1990, 2000, 2001

Table Series ED-2: Employment Covered by Unemployment Compensation by Industry Group, Marquette County, 1990, 2000, 2001.

Marquette County	1990	Percent of Total-1990	2000	Percent of Total-2000	2001	Percent of Total-2001	% Change 1990-2000	% Change 2000-2001
All Industries	2,643	100.00%	3,565	100.00%	3,649	100.00%	34.88%	2.36%
All Governments	584	22.10%	797	22.36%	804	22.03%	36.47%	0.88%
Federal	40	1.51%	67	1.88%	57	1.56%	67.50%	-14.93%
State			9	0.25%	10	0.27%		
Local	543	20.54%	721	20.22%	737	20.20%	32.78%	2.22%
Private Coverage	2,059	77.90%	2,768	77.64%	2,845	77.97%	34.43%	2.78%
Agriculture, Forestry, and Fishing	40	1.51%	146	4.10%	171	4.69%	265.00%	17.12%
Mining								
Construction	72	2.72%	142	3.98%	139	3.81%	97.22%	-2.11%
Manufacturing	929	35.15%	1,149	32.23%	1,228	33.65%	23.68%	6.88%
Durable Goods	447	16.91%	489	13.72%	451	12.36%	9.40%	-7.77%
Lumber & Wood Products Except Furniture	108	4.09%	201	5.64%	161	4.41%	86.11%	-19.90%
Furniture and Fixtures								
Stone, Clay, Glass and Concrete Products								
Primary Metal Industries								
Fabricated Metal Products								
Machinery, Except Electrical	123	4.65%	163	4.57%	167	4.58%	32.52%	2.45%
Electrical & Electronic Machinery & Equp.	181	6.85%						
Transportation Equipment								
Measuring, Analyzing, & Controlling Instr. & Rel.								
Miscellaneous Manufacturing Ind								
Nondurable Goods	482	18.24%						
Food & Kindred Products								
Textile Mill Products								
Apparel and Other Products								
Paper and Allied Products								
Printing, Publishing and Allied Industries	12	0.45%	10	0.28%	18	0.49%	-16.67%	80.00%
Chemical and Allied Products								
Petroleum Refining & Related Ind								
Rubber & Misc. Plastic Products								
Leather & Leather Products								
Transportation, and Public Utilities	79	2.99%	91	2.55%	81	2.22%	15.19%	-10.99%
Wholesale Trade	78	2.95%	78	2.19%	85	2.33%	0.00%	8.97%
Retail Trade	483	18.27%	673	18.88%	656	17.98%	39.34%	-2.53%
Finance, Insurance, & Real Estate	92	3.48%	98	2.75%	98	2.69%	6.52%	0.00%
Services	286	10.82%	391	10.97%	387	10.61%	36.71%	-1.02%

Source: Wisconsin Department of Workforce Development;Employment and Wages Covered by Wisconsin's U.I. Law, Table 202, First Qtr., 1990, 2000, 2001

Table Series ED-2: Employment Covered by Unemployment Compensation by Industry Group, Outagamie County, 1990, 2000, 2001.

Outagamie County	1990	Percent of Total-1990	2000	Percent of Total-2000	2001	Percent of Total-2001	% Change 1990-2000	% Change 2000-2001
All Industries	71,498	100.00%	91,987	100.00%	96,276	100.00%	28.66%	4.66%
All Governments	6,590	9.22%	8,600	9.35%	9,621	9.99%	30.50%	11.87%
Federal	336	0.47%	377	0.41%	370	0.38%	12.20%	-1.86%
State	39	0.05%	138	0.15%	141	0.15%	253.85%	2.17%
Local	6,215	8.69%	8,085	8.79%	9,110	9.46%	30.09%	12.68%
Private Coverage	64,908	90.78%	83,387	90.65%	86,655	90.01%	28.47%	3.92%
Agriculture, Forestry, and Fishing	407	0.57%	713	0.78%	681	0.71%	75.18%	-4.49%
Mining	223	0.31%						
Construction	4,298	6.01%	7,475	8.13%	7,958	8.27%	73.92%	6.46%
Manufacturing	19,105	26.72%	20,216	21.98%	20,098	20.88%	5.82%	-0.58%
Durable Goods	7,488	10.47%	7,201	7.83%	7,238	7.52%	-3.83%	0.51%
Lumber & Wood Products Except Furniture	283	0.40%	518	0.56%	495	0.51%	83.04%	-4.44%
Furniture and Fixtures	520	0.73%		0.00%				
Stone, Clay, Glass and Concrete Products	124	0.17%	145	0.16%	136	0.14%	16.94%	-6.21%
Primary Metal Industries	273	0.38%	215	0.23%	192	0.20%	-21.25%	-10.70%
Fabricated Metal Products	250	0.35%	569	0.62%	604	0.63%	127.60%	6.15%
Machinery, Except Electrical	4,157	5.81%	4,113	4.47%	4,036	4.19%	-1.06%	-1.87%
Electrical & Electronic Machinery & Equp.	293	0.41%	876	0.95%	1,022	1.06%	198.98%	16.67%
Transportation Equipment	1,096	1.53%	26	0.03%	42	0.04%	-97.63%	61.54%
Measuring, Analyzing, & Controlling Instr. & Rel.			4	0.00%	5	0.01%		25.00%
Miscellaneous Manufacturing Ind	491	0.69%	269	0.29%	241	0.25%	-45.21%	-10.41%
Nondurable Goods	11,617	16.25%	13,015	14.15%	12,860	13.36%	12.03%	-1.19%
Food & Kindred Products	2,944	4.12%	4,892	5.32%	4,868	5.06%	66.17%	-0.49%
Textile Mill Products	911	1.27%	451	0.49%	399	0.41%	-50.49%	-11.53%
Apparel and Other Products	153	0.21%	388	0.42%			153.59%	-100.00%
Paper and Allied Products	5,546	7.76%	5,832	6.34%	5,744	5.97%	5.16%	-1.51%
Printing, Publishing and Allied Industries	869	1.22%	1,033	1.12%	1,107	1.15%	18.87%	7.16%
Chemical and Allied Products	101	0.14%	125	0.14%	111	0.12%	23.76%	-11.20%
Petroleum Refining & Related Ind								
Rubber & Misc. Plastic Products	1,087	1.52%	278	0.30%	244	0.25%	-74.43%	-12.23%
Leather & Leather Products								
Transportation, and Public Utilities	3,992	5.58%	4,865	5.29%	5,549	5.76%	21.87%	14.06%
Wholesale Trade	3,834	5.36%	4,909	5.34%	4,944	5.14%	28.04%	0.71%
Retail Trade	13,590	19.01%	17,764	19.31%	19,217	19.96%	30.71%	8.18%
Finance, Insurance, & Real Estate	4,725	6.61%	5912	6.43%	6,318	6.56%	25.12%	6.87%
Services	14,734	20.61%	21,306	23.16%	21,676	22.51%	44.60%	1.74%

Source: Wisconsin Department of Workforce Development;Employment and Wages Covered by Wisconsin's U.I. Law, Table 202, First Qtr., 1990, 2000, 2001.

Table Series ED-2: Employment Covered by Unemployment Compensation by Industry Group, Shawano County, 1990, 2000, 2001.

Shawano County	1990	Percent of Total-1990	2000	Percent of Total-2000	2001	Percent of Total-2001	% Change 1990-2000	% Change 2000-2001
All Industries	9,560	100.00%	12,096	100.00%	12,335	100.00%	26.53%	1.98%
All Governments	1,681	17.58%	2,071	17.12%	2,904	23.54%	23.20%	40.22%
Federal	97	1.01%	144	1.19%	120	0.97%	48.45%	-16.67%
State	10	0.10%	41	0.34%	43	0.35%	310.00%	4.88%
Local	1,574	16.46%	1,886	15.59%	2,741	22.22%	19.82%	45.33%
Private Coverage	7,879	82.42%	10,025	82.88%	9,431	76.46%	27.24%	-5.93%
Agriculture, Forestry, and Fishing	283	2.96%	427	3.53%	436	3.53%	50.88%	2.11%
Mining								
Construction	313	3.27%	448	3.70%	447	3.62%	43.13%	-0.22%
Manufacturing	2,064	21.59%	2,468	20.40%	2,444	19.81%	19.57%	-0.97%
Durable Goods	1,250	13.08%	1,399	11.57%	1,453	11.78%	11.92%	3.86%
Lumber & Wood Products Except Furniture	841	8.80%	623	5.15%	658	5.33%	-25.92%	5.62%
Furniture and Fixtures			42	0.35%	35	0.28%		-16.67%
Stone, Clay, Glass and Concrete Products	8	0.08%	12	0.10%	11	0.09%	50.00%	-8.33%
Primary Metal Industries								
Fabricated Metal Products			61	0.50%	63	0.51%		
Machinery, Except Electrical	129	1.35%	160	1.32%	146	1.18%	24.03%	-8.75%
Electrical & Electronic Machinery & Equp.								
Transportation Equipment	124	1.30%						
Measuring, Analyzing, & Controlling Instr. & Rel.								
Miscellaneous Manufacturing Ind								
Nondurable Goods	819	8.57%	1,069	8.84%	991	8.03%	30.53%	-7.30%
Food & Kindred Products	250	2.62%	172	1.42%	175	1.42%	-31.20%	1.74%
Textile Mill Products								
Apparel and Other Products			118	0.98%	99	0.80%		
Paper and Allied Products								
Printing, Publishing and Allied Industries	58	0.61%	162	1.34%	153	1.24%	179.31%	-5.56%
Chemical and Allied Products								
Petroleum Refining & Related Ind								
Rubber & Misc. Plastic Products								
Leather & Leather Products								
Transportation, and Public Utilities	407	4.26%	568	4.70%	537	4.35%	39.56%	-5.46%
Wholesale Trade	678	7.09%	424	3.51%	431	3.49%	-37.46%	1.65%
Retail Trade	2,086	21.82%	2,547	21.06%	2,506	20.32%	22.10%	-1.61%
Finance, Insurance, & Real Estate	413	4.32%	377	3.12%	384	3.11%	-8.72%	1.86%
Services	1,621	16.96%	2,762	22.83%	2,241	18.17%	70.39%	-18.86%

Source: Wisconsin Department of Workforce Development;Employment and Wages Covered by Wisconsin's U.I. Law, Table 202, First Qtr., 1990, 2000, 2001.

Table Series ED-2: Employment Covered by Unemployment Compensation by Industry Group, Waupaca County, 1990, 2000, 2001.

Waupaca County	1990	Percent of Total-1990	2000	Percent of Total-2000	2001	Percent of Total-2001	% Change 1990-2000	% Change 2000-2001
All Industries	15,660	100.00%	20,289	100.00%	20,263	100.00%	29.56%	-0.13%
All Governments	3,080	19.67%	3,742	18.44%	3,805	18.78%	21.49%	1.68%
Federal	122	0.78%	161	0.79%	141	0.70%	31.97%	-12.42%
State	658	4.20%	802	3.95%	811	4.00%	21.88%	1.12%
Local	2,300	14.69%	2,779	13.70%	2,853	14.08%	20.83%	2.66%
Private Coverage	12,580	80.33%	16,547	81.56%	16,458	81.22%	31.53%	-0.54%
Agriculture, Forestry, and Fishing	102	0.65%	250	1.23%	272	1.34%	145.10%	8.80%
Mining								
Construction	341	2.18%	814	4.01%	716	3.53%	138.71%	-12.04%
Manufacturing	5,326	34.01%	6,378	31.44%	6,283	31.01%	19.75%	-1.49%
Durable Goods	3,317	21.18%	4,148	20.44%	4,048	19.98%	25.05%	-2.41%
Lumber & Wood Products Except Furniture	504	3.22%	500	2.46%	570	2.81%	-0.79%	14.00%
Furniture and Fixtures	105	0.67%	140	0.69%	125	0.62%	33.33%	-10.71%
Stone, Clay, Glass and Concrete Products								
Primary Metal Industries								
Fabricated Metal Products	189	1.21%	395	1.95%	407	2.01%	108.99%	3.04%
Machinery, Except Electrical	670	4.28%	630	3.11%	564	2.78%	-5.97%	-10.48%
Electrical & Electronic Machinery & Equp.								
Transportation Equipment	750	4.79%	764	3.77%	736	3.63%	1.87%	-3.66%
Measuring, Analyzing, & Controlling Instr. & Rel.								
Miscellaneous Manufacturing Ind	32	0.20%	14	0.07%	5	0.02%	-56.25%	-64.29%
Nondurable Goods	2,009	12.83%	2,230	10.99%	2,215	10.93%	11.00%	-0.67%
Food & Kindred Products	680	4.34%	529	2.61%	509	2.51%	-22.21%	-3.78%
Textile Mill Products								
Apparel and Other Products								
Paper and Allied Products	649	4.14%	559	2.76%	580	2.86%	-13.87%	3.76%
Printing, Publishing and Allied Industries	514	3.28%	822	4.05%	842	4.16%	59.92%	2.43%
Chemical and Allied Products								
Petroleum Refining & Related Ind								
Rubber & Misc. Plastic Products	134	0.86%	166	0.82%	197	0.97%	23.88%	18.67%
Leather & Leather Products								
Transportation, and Public Utilities	532	3.40%	629	3.10%	729	3.60%	18.23%	15.90%
Wholesale Trade	623	3.98%	854	4.21%	831	4.10%	37.08%	-2.69%
Retail Trade	2,986	19.07%	3,862	19.03%	3,731	18.41%	29.34%	-3.39%
Finance, Insurance, & Real Estate	501	3.20%	603	2.97%	589	2.91%	20.36%	-2.32%
Services	2,169	13.85%	3,145	15.50%	3,320	16.38%	45.00%	5.56%

Source: Wisconsin Department of Workforce Development;Employment and Wages Covered by Wisconsin's U.I. Law, Table 202, First Qtr., 1990, 2000, 2001.

Table Series ED-2: Employment Covered by Unemployment Compensation by Industry Group, Waushara County, 1990, 2000, 2001.

Waushara County	1990	Percent of Total-1990	2000	Percent of Total-2000	2001	Percent of Total-2001	% Change 1990-2000	% Change 2000-2001
All Industries	3,962	100.00%	5,591	100.00%	5,752	100.00%	41.12%	2.88%
All Governments	839	21.18%	1,164	20.82%	1,389	24.15%	38.74%	19.33%
Federal	54	1.36%	106	1.90%	69	1.20%	96.30%	-34.91%
State			41	0.73%	292	5.08%		612.20%
Local	806	20.34%	1,017	18.19%	1,028	17.87%	26.18%	1.08%
Private Coverage	3,099	78.22%	4,427	79.18%	4,363	75.85%	42.85%	-1.45%
Agriculture, Forestry, and Fishing	279	7.04%	452	8.08%	408	7.09%	62.01%	-9.73%
Mining								
Construction	117	2.95%	262	4.69%	233	4.05%	123.93%	-11.07%
Manufacturing	342	8.63%	785	14.04%	763	13.26%	129.53%	-2.80%
Durable Goods	245	6.18%	674	12.06%	642	11.16%	175.10%	-4.75%
Lumber & Wood Products Except Furniture	45	1.14%	139	2.49%	113	1.96%	208.89%	-18.71%
Furniture and Fixtures								
Stone, Clay, Glass and Concrete Products								
Primary Metal Industries								
Fabricated Metal Products					29	0.50%		
Machinery, Except Electrical	131	3.31%						
Electrical & Electronic Machinery & Equp.								
Transportation Equipment								
Measuring, Analyzing, & Controlling Instr. & Rel.								
Miscellaneous Manufacturing Ind								
Nondurable Goods	97	2.45%	111	1.99%	121	2.10%	14.43%	9.01%
Food & Kindred Products	34	0.86%	49	0.88%	53	0.92%	44.12%	8.16%
Textile Mill Products								
Apparel and Other Products								
Paper and Allied Products								
Printing, Publishing and Allied Industries	31	0.78%						
Chemical and Allied Products								
Petroleum Refining & Related Ind								
Rubber & Misc. Plastic Products								
Leather & Leather Products								
Transportation, and Public Utilities	192	4.85%	287	5.13%	291	5.06%	49.48%	1.39%
Wholesale Trade	359	9.06%	184	3.29%	164	2.85%	-48.75%	-10.87%
Retail Trade	1,027	25.92%	1,291	23.09%	1,297	22.55%	25.71%	0.46%
Finance, Insurance, & Real Estate	169	4.27%	199	3.56%	200	3.48%	17.75%	0.50%
Services	614	15.50%	966	17.28%	1,007	17.51%	57.33%	4.24%

Source: Wisconsin Department of Workforce Development;Employment and Wages Covered by Wisconsin's U.I. Law, Table 202, First Qtr., 1990, 2000, 2001.

Table Series ED-2: Employment Covered by Unemployment Compensation by Industry Group, Winnebago County, 1990, 2000, 2001.

Winnebago County	1990	Percent of Total-1990	2000	Percent of Total-2000	2001	Percent of Total-2000	% Change 1990-2000	% Change 2000-2001
All Industries	67,177	100.00%	89,147	100.00%	88,957	100.00%	32.70%	-0.21%
All Governments	8,124	12.09%	10,740	12.05%	10,889	12.24%	32.20%	1.39%
Federal	566	0.84%	602	0.68%	596	0.67%	6.36%	-1.00%
State	2,203	3.28%	3,562	4.00%	3,604	4.05%	61.69%	1.18%
Local	5,355	7.97%	6,576	7.38%	6,669	7.50%	22.80%	1.41%
Private Coverage	59,053	87.91%	78,407	87.95%	78,088	87.78%	32.77%	-0.41%
Agriculture, Forestry, and Fishing	228	0.34%	423	0.47%	437	0.49%	85.53%	3.31%
Mining								
Construction	2,121	3.16%	3,803	4.27%	3,595	4.04%	79.30%	-5.47%
Manufacturing	26,976	40.16%	32,488	36.44%	33,574	37.74%	20.43%	3.34%
Durable Goods	10,289	15.32%	11,933	13.39%	11,806	13.27%	15.98%	-1.06%
Lumber & Wood Products Except Furniture	1,119	1.67%	841	0.94%	868	0.98%	-24.84%	3.21%
Furniture and Fixtures	285	0.42%	233	0.26%	234	0.26%	-18.25%	0.43%
Stone, Clay, Glass and Concrete Products			160	0.18%	145	0.16%		-9.38%
Primary Metal Industries	1,340	1.99%						
Fabricated Metal Products	946	1.41%	910	1.02%	836	0.94%	-3.81%	-8.13%
Machinery, Except Electrical	2,271	3.38%	1,935	2.17%	1,813	2.04%	-14.80%	-6.30%
Electrical & Electronic Machinery & Equp.	1,241	1.85%	2,818	3.16%	2,828	3.18%	127.07%	0.35%
Transportation Equipment	2,719	4.05%	3,690	4.14%	3,886	4.37%	35.71%	5.31%
Measuring, Analyzing, & Controlling Instr. & Rel.	168	0.25%	92	0.10%	83	0.09%	-45.24%	-9.78%
Miscellaneous Manufacturing Ind	60	0.09%	182	0.20%	167	0.19%	203.33%	-8.24%
Nondurable Goods	16,687	24.84%	20,555	23.06%	27,768	31.22%	23.18%	35.09%
Food & Kindred Products	653	0.97%	475	0.53%	471	0.53%	-27.26%	-0.84%
Textile Mill Products								
Apparel and Other Products	849	1.26%	421	0.47%	401	0.45%	-50.41%	-4.75%
Paper and Allied Products	10,983	16.35%	12,313	13.81%	13,397	15.06%	12.11%	8.80%
Printing, Publishing and Allied Industries	3,536	5.26%	4,101	4.60%	4,215	4.74%	15.98%	2.78%
Chemical and Allied Products	188	0.28%	217	0.24%	208	0.23%	15.43%	-4.15%
Petroleum Refining & Related Ind								
Rubber & Misc. Plastic Products	460	0.68%	2,845	3.19%	2,899	3.26%	518.48%	1.90%
Leather & Leather Products								
Transportation, and Public Utilities	2,485	3.70%	3,714	4.17%	3,601	4.05%	49.46%	-3.04%
Wholesale Trade	2,084	3.10%	3,301	3.70%	3,230	3.63%	58.40%	-2.15%
Retail Trade	10,775	16.04%	12,977	14.56%	12,527	14.08%	20.44%	-3.47%
Finance, Insurance, & Real Estate Services	2,352	3.50%	2,575	2.89%	2,755	3.10%	9.48%	6.99%
Services	12,027	17.90%	19,120	21.45%	18,359	20.64%	58.98%	-3.98%

Source: Wisconsin Department of Workforce Development;Employment and Wages Covered by Wisconsin's U.I. Law, Table 202, First Qtr., 1990, 2000, 2001.

Table Series ED-2: East Central Wisconsin Non- Farm Employment and Wages by County, 2002.

SIC	Wisconsin	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
3/01BM CES	Total Nonfarm	2,752,358	2,759,831	2,775,697	2,809,563	2,842,265	2,871,382	2,846,183	2,852,495	2,856,119
	Goods Producing	675,829	669,354	671,033	680,930	693,191	710,339	715,279	716,244	707,922
	Service Producing	2,076,529	2,090,477	2,104,664	2,128,633	2,149,074	2,161,043	2,130,904	2,136,251	2,148,197
14-17	Construction & Mining	107,940	104,676	108,900	118,256	129,159	136,774	140,286	138,940	135,742
20-39	Manufacturing	567,889	564,678	562,133	562,674	564,032	573,565	574,993	577,304	572,180
	Durable	338,262	337,491	336,058	336,092	336,669	341,916	340,453	341,867	339,211
	Nondurable	229,627	227,187	226,075	226,582	227,363	231,649	234,540	235,437	232,969
40-49	TCPU*	129,803	129,376	130,088	130,768	132,806	132,559	129,131	129,798	133,191
50-59	Total Trade	626,492	621,383	625,995	634,314	644,073	651,286	649,783	653,323	645,912
50-51	Wholesale Trade	135,520	135,336	135,863	136,805	138,101	139,771	138,224	138,382	137,199
52-59	Retail Trade	490,972	486,047	490,132	497,509	505,972	511,515	511,559	514,941	508,713
60-67	FIRE**	150,916	150,802	151,350	151,407	152,188	153,897	154,758	154,747	153,642
70-89	Services & Misc.	760,036	766,817	770,487	782,885	792,059	806,695	808,865	813,337	809,379
	Total Government	409,282	422,099	426,744	429,259	427,948	416,606	388,367	385,046	406,073
	Federal	29,882	29,711	29,675	29,719	30,146	30,601	30,247	30,292	30,172
	State	93,035	100,524	103,067	105,418	102,233	94,161	92,162	95,325	98,940
	Local	286,365	291,864	294,002	294,122	295,569	291,844	265,958	259,429	276,961

Source: Wisconsin Department of Workforce Development, Employment Summaries in Major Industries for Counties, 2002

* Transportation, Communications, and Public Utilities. **Finance, Insurance, and Real Estate.

SIC	Region	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
	Total Nonfarm	301,295	300,341	302,274	305,063	308,877	311,676	308,991	310,023	311,724
	Goods Producing	96,546	95,130	95,696	96,746	97,998	100,161	100,202	100,091	99,455
	Service Producing	204,749	205,211	206,578	208,317	210,879	211,515	208,789	209,932	212,269
14-17	Construction & Mining	16,193	15,972	16,512	17,731	19,000	19,605	19,865	20,094	20,347
20-39	Manufacturing	80,353	79,158	79,184	79,015	78,998	80,556	80,337	79,997	79,108
	Durable	35,350	35,150	35,134	34,961	35,066	35,699	35,592	35,194	34,754
	Nondurable	45,003	44,008	44,050	44,054	43,932	44,857	44,745	44,803	44,354
40-49	TCPU*	13,791	13,746	13,779	13,969	13,997	14,081	14,106	14,152	14,408
50-59	Total Trade	65,740	65,053	65,741	66,615	67,385	68,223	68,122	69,104	68,301
50-51	Wholesale Trade	12,661	12,576	12,666	12,737	12,899	13,237	13,377	13,264	13,066
52-59	Retail Trade	53,079	52,477	53,075	53,878	54,486	54,986	54,745	55,840	55,235
60-67	FIRE**	12,967	12,996	13,092	13,098	13,214	13,423	13,377	13,312	13,238
70-89	Services & Misc.	71,033	71,331	71,578	72,152	73,294	74,394	74,384	75,127	75,366
	Total Government	41,218	42,085	42,388	42,483	42,989	41,394	38,800	38,237	40,956
	Federal	1,760	1,775	1,782	1,807	1,845	1,877	1,805	1,794	1,768
	State	6,704	7,088	7,385	7,433	7,397	6,649	6,506	6,627	6,715
	Local	32,754	33,222	33,221	33,243	33,747	32,868	30,489	29,816	32,473

Source: East Central Wisconsin Regional Planning Commission, 2002.

* Transportation, Communications, and Public Utilities. **Finance, Insurance, and Real Estate.

Table Series ED-2: East Central Wisconsin Non- Farm Employment and Wages by County, 2002.

SIC	Appleton-Oshkosh-Neenah	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
3/01BM	Total Nonfarm	201,669	200,578	201,665	202,782	204,704	206,713	204,902	205,974	207,151
CES										
	Goods Producing	67,472	66,310	66,628	67,183	67,903	69,422	69,252	69,255	69,019
	Service Producing	134,197	134,268	135,037	135,599	136,801	137,291	135,650	136,719	138,132
14-17	Construction & Mining	11,275	10,988	11,369	11,930	12,829	13,142	13,307	13,494	13,882
20-39	Manufacturing	56,197	55,322	55,259	55,253	55,074	56,280	55,945	55,761	55,137
	Durable	20,559	20,528	20,414	20,444	20,394	20,861	20,686	20,388	20,018
	Nondurable	35,638	34,794	34,845	34,809	34,680	35,419	35,259	35,373	35,119
40-49	TCPU*	9,651	9,613	9,590	9,686	9,632	9,702	9,772	9,724	9,909
50-59	Total Trade	43,492	43,020	43,387	43,749	43,963	44,397	44,400	45,422	45,000
50-51	Wholesale Trade	9,147	9,092	9,115	9,123	9,234	9,479	9,532	9,483	9,312
52-59	Retail Trade	34,345	33,928	34,272	34,626	34,729	34,918	34,868	35,939	35,688
60-67	FIRE**	9,507	9,556	9,626	9,610	9,699	9,832	9,781	9,694	9,642
70-89	Services & Misc.	47,979	47,903	48,034	48,210	48,873	49,775	49,655	50,123	50,343
	Total Government	23,568	24,176	24,400	24,344	24,634	23,585	22,042	21,756	23,238
	Federal	1,037	1,054	1,053	1,053	1,082	1,096	1,046	1,041	1,039
	State	4,786	5,130	5,438	5,460	5,419	4,618	4,475	4,594	4,721
	Local	17,745	17,992	17,909	17,831	18,133	17,871	16,521	16,121	17,478

Source: Wisconsin Department of Workforce Development, Employment Summaries in Major Industries for Counties, 2002

* Transportation, Communications, and Public Utilities.
**Finance, Insurance, and Real Estate.

SIC	Fond du Lac	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
3/01BM	Total Nonfarm	47,802	48,121	48,479	48,954	49,487	49,564	49,155	49,410	49,679
Model										
	Goods Producing	14,823	14,705	14,796	14,942	15,158	15,457	15,592	15,577	15,334
	Service Producing	32,979	33,416	33,683	34,012	34,329	34,107	33,563	33,833	34,345
14-17	Construction & Mining	2,847	2,948	2,997	3,322	3,462	3,541	3,571	3,621	3,581
20-39	Manufacturing	11,976	11,757	11,799	11,620	11,696	11,916	12,021	11,956	11,753
	Durable	7,393	7,275	7,318	7,133	7,198	7,282	7,343	7,335	7,272
	Nondurable	4,583	4,482	4,481	4,487	4,498	4,634	4,678	4,621	4,481
40-49	TCPU*	2,230	2,221	2,253	2,307	2,351	2,358	2,373	2,476	2,488
50-59	Total Trade	11,032	10,958	11,123	11,283	11,398	11,412	11,232	11,244	11,147
50-51	Wholesale Trade	1,795	1,776	1,830	1,861	1,894	1,921	1,921	1,904	1,869
52-59	Retail Trade	9,237	9,182	9,293	9,422	9,504	9,491	9,311	9,340	9,278
60-67	FIRE**	1,810	1,798	1,809	1,815	1,816	1,868	1,869	1,886	1,868
70-89	Services & Misc.	12,212	12,558	12,606	12,712	12,790	12,560	12,576	12,842	13,103
	Total Government	5,695	5,881	5,892	5,895	5,974	5,909	5,513	5,385	5,739
	Federal	256	257	257	274	283	276	277	272	258
	State	639	657	648	657	658	683	684	680	681
	Local	4,800	4,967	4,987	4,964	5,033	4,950	4,552	4,433	4,800

Source: Wisconsin Department of Workforce Development, Employment Summaries in Major Industries for Counties, 2002

* Transportation, Communications, and Public Utilities. **Finance, Insurance, and Real Estate.

Table Series ED-2: East Central Wisconsin Non- Farm Employment and Wages by County, 2002.

SIC	Green Lake	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
3/01BM Model	Total Nonfarm	7,423	7,354	7,471	7,747	8,080	8,202	8,055	7,958	7,908
	Goods Producing	2,230	2,163	2,188	2,269	2,330	2,389	2,388	2,359	2,315
	Service Producing	5,193	5,191	5,283	5,478	5,750	5,813	5,667	5,599	5,593
14-17	Construction & Mining	493	478	498	569	615	669	674	672	651
20-39	Manufacturing	1,737	1,685	1,690	1,700	1,715	1,720	1,714	1,687	1,664
	Durable	1,051	1,003	1,003	1,017	1,033	1,033	1,030	1,011	1,001
	Nondurable	686	682	687	683	682	687	684	676	663
40-49	TCPU*	243	248	256	268	280	283	279	273	277
50-59	Total Trade	1,431	1,392	1,434	1,502	1,571	1,635	1,623	1,606	1,546
50-51	Wholesale Trade	124	124	130	148	148	143	148	143	142
52-59	Retail Trade	1,307	1,268	1,304	1,354	1,423	1,492	1,475	1,463	1,404
60-67	FIRE**	292	294	300	307	312	321	326	332	326
70-89	Services & Misc.	2,053	2,030	2,075	2,142	2,263	2,359	2,358	2,345	2,255
	Total Government	1,174	1,227	1,218	1,259	1,324	1,215	1,081	1,043	1,189
	Federal	68	66	67	66	65	67	65	65	62
	State	14	13	13	14	14	15	16	16	16
	Local	1,092	1,148	1,138	1,179	1,245	1,133	1,000	962	1,111

Source: Wisconsin Department of Workforce Development, Employment Summaries in Major Industries for Counties, 2002

* Transportation, Communications, and Public Utilities. **Finance, Insurance, and Real Estate.

SIC	Marquette	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
3/01BM Model	Total Nonfarm	3,522	3,519	3,569	3,744	3,907	3,902	3,840	3,859	3,977
	Goods Producing	1,340	1,314	1,338	1,431	1,499	1,521	1,516	1,540	1,530
	Service Producing	2,182	2,205	2,231	2,313	2,408	2,381	2,324	2,319	2,447
14-17	Construction & Mining	127	120	141	241	310	341	338	335	320
20-39	Manufacturing	1,213	1,194	1,197	1,190	1,189	1,180	1,178	1,205	1,210
	Durable	445	436	438	429	428	438	437	431	427
	Nondurable	768	758	759	761	761	742	741	774	783
40-49	TCPU*	74	74	78	79	80	81	83	81	85
50-59	Total Trade	738	737	747	763	813	830	840	841	822
50-51	Wholesale Trade	92	93	94	104	108	107	108	110	108
52-59	Retail Trade	646	644	653	659	705	723	732	731	714
60-67	FIRE**	111	109	109	111	115	118	115	115	113
70-89	Services & Misc.	547	547	560	597	648	695	733	717	676
	Total Government	712	738	737	763	752	657	553	565	751
	Federal	59	61	59	59	59	60	59	59	58
	State	17	19	20	22	23	19	19	19	20
	Local	636	658	658	682	670	578	475	487	673

Source: Wisconsin Department of Workforce Development, Employment Summaries in Major Industries for Counties, 2002

* Transportation, Communications, and Public Utilities. **Finance, Insurance, and Real Estate.

Table Series ED-2: East Central Wisconsin Non- Farm Employment and Wages by County, 2002.

SIC	Menominee	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
3/01BM Model	Total Nonfarm	1,969	1,951	1,979	2,017	2,048	2,003	2,053	2,053	2,022
	Goods Producing	3	2	3	5	6	7	8	8	7
	Service Producing	1,966	1,949	1,976	2,012	2,042	1,996	2,045	2,045	2,015
14-17	Construction & Mining	3	2	3	5	6	7	8	8	7
20-39	Manufacturing	0	0	0	0	0	0	0	0	0
	Durable	0	0	0	0	0	0	0	0	0
	Nondurable	0	0	0	0	0	0	0	0	0
40-49	TCPU*	4	4	5	4	4	3	3	4	4
50-59	Total Trade	93	93	92	98	96	97	98	98	97
50-51	Wholesale Trade	0	0	0	0	0	0	0	0	0
52-59	Retail Trade	93	93	92	98	96	97	98	98	97
60-67	FIRE**	10	8	7	7	7	7	7	7	6
70-89	Services & Misc.	22	27	23	28	23	31	32	32	31
	Total Government	1,837	1,817	1,849	1,875	1,912	1,858	1,905	1,904	1,877
	Federal	12	12	20	22	23	20	21	19	17
	State	6	8	9	8	8	9	7	6	6
	Local	1,819	1,797	1,820	1,845	1,881	1,829	1,877	1,879	1,854

Source: Wisconsin Department of Workforce Development, Employment Summaries in Major Industries for Counties, 2002

* Transportation, Communications, and Public Utilities. **Finance, Insurance, and Real Estate.

SIC	Shawano	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
3/01BM Model	Total Nonfarm	12,096	12,087	12,134	12,393	12,721	12,750	12,602	12,473	12,665
	Goods Producing	2,846	2,823	2,862	2,889	2,962	3,056	3,106	3,090	3,019
	Service Producing	9,250	9,264	9,272	9,504	9,759	9,694	9,496	9,383	9,646
14-17	Construction & Mining	441	434	458	486	517	563	578	584	563
20-39	Manufacturing	2,405	2,389	2,404	2,403	2,445	2,493	2,528	2,506	2,456
	Durable	1,379	1,386	1,402	1,402	1,453	1,483	1,496	1,483	1,449
	Nondurable	1,026	1,003	1,002	1,001	992	1,010	1,032	1,023	1,007
40-49	TCPU*	517	522	532	540	557	554	533	518	545
50-59	Total Trade	2,837	2,800	2,831	2,893	3,032	3,108	3,075	3,063	2,971
50-51	Wholesale Trade	420	420	419	429	443	442	442	441	434
52-59	Retail Trade	2,417	2,380	2,412	2,464	2,589	2,666	2,633	2,622	2,537
60-67	FIRE**	388	390	394	394	398	399	398	400	401
70-89	Services & Misc.	2,635	2,652	2,666	2,759	2,835	2,885	2,892	2,921	2,956
	Total Government	2,873	2,900	2,849	2,918	2,937	2,748	2,598	2,481	2,773
	Federal	121	120	121	131	131	139	135	135	135
	State	62	63	62	63	63	65	65	64	65
	Local	2,690	2,717	2,666	2,724	2,743	2,544	2,398	2,282	2,573

Source: Wisconsin Department of Workforce Development, Employment Summaries in Major Industries for Counties, 2002

* Transportation, Communications, and Public Utilities. **Finance, Insurance, and Real Estate.

Table Series ED-2: East Central Wisconsin Non- Farm Employment and Wages by County, 2002.

SIC 3/01BM Model	Waupaca	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
	Total Nonfarm	20,891	20,878	21,030	21,507	21,852	22,251	22,022	21,959	22,093
	Goods Producing	6,860	6,844	6,900	7,012	7,099	7,236	7,259	7,193	7,175
	Service Producing	14,031	14,034	14,130	14,495	14,753	15,015	14,763	14,766	14,918
14-17	Construction & Mining	763	757	787	882	950	996	1,033	1,030	1,012
20-39	Manufacturing	6,097	6,087	6,113	6,130	6,149	6,240	6,226	6,163	6,163
	Durable	3,917	3,918	3,955	3,945	3,960	4,006	4,001	3,952	3,989
	Nondurable	2,180	2,169	2,158	2,185	2,189	2,234	2,225	2,211	2,174
40-49	TCPU*	777	766	765	780	789	799	770	779	793
50-59	Total Trade	4,660	4,589	4,628	4,778	4,914	5,026	5,060	5,072	4,993
50-51	Wholesale Trade	909	884	880	869	865	878	903	903	912
52-59	Retail Trade	3,751	3,705	3,748	3,909	4,049	4,148	4,157	4,169	4,081
60-67	FIRE**	625	628	634	635	642	652	653	652	656
70-89	Services & Misc.	4,094	4,133	4,155	4,324	4,419	4,544	4,562	4,559	4,470
	Total Government	3,875	3,918	3,948	3,978	3,989	3,994	3,718	3,704	4,006
	Federal	143	142	140	142	141	150	143	143	141
	State	825	839	830	832	833	861	871	870	838
	Local	2,907	2,937	2,978	3,004	3,015	2,983	2,704	2,691	3,027

Source: Wisconsin Department of Workforce Development, Employment Summaries in Major Industries for Counties, 2002

* Transportation, Communications, and Public Utilities. **Finance, Insurance, and Real Estate.

SIC 3/01BM Model	Waushara	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
	Total Nonfarm	5,923	5,853	5,947	5,919	6,078	6,291	6,362	6,337	6,229
	Goods Producing	972	969	981	1,015	1,041	1,073	1,081	1,069	1,056
	Service Producing	4,951	4,884	4,966	4,904	5,037	5,218	5,281	5,268	5,173
14-17	Construction & Mining	244	245	259	296	311	346	356	350	331
20-39	Manufacturing	728	724	722	719	730	727	725	719	725
	Durable	606	604	604	591	600	596	599	594	598
	Nondurable	122	120	118	128	130	131	126	125	127
40-49	TCPU*	295	298	300	305	304	301	293	297	307
50-59	Total Trade	1,457	1,464	1,499	1,549	1,598	1,718	1,794	1,758	1,725
50-51	Wholesale Trade	174	187	198	203	207	267	323	280	289
52-59	Retail Trade	1,283	1,277	1,301	1,346	1,391	1,451	1,471	1,478	1,436
60-67	FIRE**	224	213	213	219	225	226	228	226	226
70-89	Services & Misc.	1,491	1,481	1,459	1,380	1,443	1,545	1,576	1,588	1,532
	Total Government	1,484	1,428	1,495	1,451	1,467	1,428	1,390	1,399	1,383
	Federal	64	63	65	60	61	69	59	60	58
	State	355	359	365	377	379	379	369	378	368
	Local	1,065	1,006	1,065	1,014	1,027	980	962	961	957

Source: Wisconsin Department of Workforce Development, Employment Summaries in Major Industries for Counties, 2002

* Transportation, Communications, and Public Utilities. **Finance, Insurance, and Real Estate.

Industries* by County, 2000

* Data that is available. Some data are suppressed for an industry and/or county if there are less than 3 establishments, or if 1 establishment represents 80% or more of the employment for industry/county. Wisconsin also uses a secondary suppression routine so that identification of data cannot be determined by subtraction. Therefore, data that is suppressed is shown as an "S" in the tables below.

East Central Region **

SIC Code	Industry Title	Number of Establishments	Avg. Number of Employees All Establishments
011	Cash Grains	S	S
013	Field Crops, Except Cash Grains	12	239
016	Vegetables and Melons	10	175
017	Fruits and Tree Nuts	S	S
018	Horticultural Specialties	17	148
019	General Farms, Primarily Crop	5	70
021	Livestock, except Dairy and Poultry	S	S
024	Dairy Farms	70	603
025	Poultry and Eggs	S	S
027	Animal Specialties	S	S
071	Soil Preparation Services	S	S
072	Crop Services	S	S
074	Veterinary Services	56	509
075	Animal Services, except Veterinary	30	361
076	Farm Labor and Management Services	S	S
078	Landscape/Horticultural Services	149	752
081	Timber Tracts	11	189
097	Hunting, Trapping, Game Propagation	S	S

Source: East Central Wisconsin Regional Planning Commission, compiled December, 2002.

Data in this table are totals from counties within the region that have unsuppressed employee and establishment information. There are more employees and establishments than reflected in this table, but because of the suppression of data an exact number cannot be calculated. The purpose of this table is to provide a general idea of the presence of agricultural industry employment in the region.

Calumet County

SIC Code	Industry Title	Number of Establishments	Avg. Number of Employees All Establishments
011	Cash Grains	S	S
017	Fruits and Tree Nuts	S	S
024	Dairy Farms	13	136
025	Poultry and Eggs	S	S
027	Animal Specialties	S	S
071	Soil Preparation Services	S	S
074	Veterinary Services	4	21
075	Animal Services, except Veterinary	S	S
078	Landscape/Horticultural Services	6	32

Source: Wisconsin Department of Workforce Development, Current Employment and Wages (CEW), 2000 Annual Industry Employment.

Table Series ED-3: East Central Region Annual Employment for Private Agricultural Industries* by County, 2000

* Data that is available. Some data are suppressed for an industry and/or county if there are less than 3 establishments, or if 1 establishment represents 80% or more of the employment for industry/county. Wisconsin also uses a secondary suppression routine

so that identification of data cannot be determined by subtraction. Therefore, data that is suppressed is shown as an "S" in the tables below.

Fond du Lac County

SIC Code	Industry Title	Number of Establishments	Avg. Number of Employees All Establishments
021	Livestock, except Dairy and Poultry	S	S
024	Dairy Farms	22	180
027	Animal Specialties	S	S
029	General Farms, Primarily Animal	S	S
071	Soil Preparation Services	S	S
072	Crop Services	S	S
074	Veterinary Services	9	79
075	Animal Services, except Veterinary	7	38
076	Farm Labor and Management Services	S	S
078	Landscape/Horticultural Services	24	129
081	Timber Tracts	S	S
097	Hunting, Trapping, Game Propagation	S	S

Source: Wisconsin Department of Workforce Development, Current Employment and Wages (CEW), 2000 Annual Industry Employment.

Green Lake County

SIC Code	Industry Title	Number of Establishments	Avg. Number of Employees All Establishments
024	Dairy Farms	6	12
074	Veterinary Services	S	S
075	Animal Services, except Veterinary	S	S
078	Landscape/Horticultural Services	10	39

Source: Wisconsin Department of Workforce Development, Current Employment and Wages (CEW), 2000 Annual Industry Employment.

Marquette County

SIC Code	Industry Title	Number of Establishments	Avg. Number of Employees All Establishments
021	Livestock, except Dairy and Poultry	S	S
024	Dairy Farms	S	S
074	Veterinary Services	4	15
075	Animal Services, except Veterinary	S	S
078	Landscape/Horticultural Services	S	S
081	Timber Tracts	4	17

Source: Wisconsin Department of Workforce Development, Current Employment and Wages (CEW), 2000 Annual Industry Employment.

Menominee County

SIC Code	Industry Title	Number of Establishments	Avg. Number of Employees All Establishments
078	Landscape/Horticultural Services	S	S

Source: Wisconsin Department of Workforce Development, Current Employment and Wages (CEW), 2000 Annual Industry Employment.

Table Series ED-3: East Central Region Annual Employment for Private Agricultural Industries* by County, 2000

* Data that is available. Some data are suppressed for an industry and/or county if there are less than 3 establishments, or if 1 establishment represents 80% or more of the employment for industry/county. Wisconsin also uses a secondary suppression routine so that identification of data cannot be determined by subtraction. Therefore, data that is suppressed is shown as an "S" in the tables below.

Outagamie County

SIC Code	Industry Title	Number of Establishments	Avg. Number of Employees All Establishments
011	Cash Grains	S	S
016	Vegetables and Melons	S	S
018	Horticultural Specialties	7	76
021	Livestock, except Dairy and Poultry	S	S
024	Dairy Farms	18	165
027	Animal Specialties	S	S
071	Soil Preparation Services	S	S
074	Veterinary Services	13	151
075	Animal Services, except Veterinary	10	19
076	Farm Labor and Management Services	S	S
078	Landscape/Horticultural Services	49	360
097	Hunting, Trapping, Game Propagation	S	S

Source: Wisconsin Department of Workforce Development, Current Employment and Wages (CEW), 2000 Annual Industry Employment.

Shawano County

SIC Code	Industry Title	Number of Establishments	Avg. Number of Employees All Establishments
011	Cash Grains	S	S
013	Field Crops, Except Cash Grains	S	S
016	Vegetables and Melons	S	S
018	Horticultural Specialties	S	S
021	Livestock, except Dairy and Poultry	S	S
024	Dairy Farms	S	S
071	Soil Preparation Services	S	S
072	Crop Services	S	S
074	Veterinary Services	6	46
075	Animal Services, except Veterinary	5	221
078	Landscape/Horticultural Services	4	20
097	Hunting, Trapping, Game Propagation	S	S

Source: Wisconsin Department of Workforce Development, Current Employment and Wages (CEW), 2000 Annual Industry Employment.

Waupaca County

SIC Code	Industry Title	Number of Establishments	Avg. Number of Employees All Establishments
013	Field Crops, Except Cash Grains	S	S
018	Horticultural Specialties	S	S
021	Livestock, except Dairy and Poultry	S	S
024	Dairy Farms	S	S
072	Crop Services	S	S
074	Veterinary Services	10	68
075	Animal Services, except Veterinary	S	S
078	Landscape/Horticultural Services	14	36

Source: Wisconsin Department of Workforce Development, Current Employment and Wages (CEW), 2000 Annual Industry Employment.

Table Series ED-3: East Central Region Annual Employment for Private Agricultural Industries* by County, 2000

* Data that is available. Some data are suppressed for an industry and/or county if there are less than 3 establishments, or if 1 establishment represents 80% or more of the employment for industry/county. Wisconsin also uses a secondary suppression routine so that identification of data cannot be determined by subtraction. Therefore, data that is suppressed is shown as an "S" in the tables below.

Waushara County

SIC Code	Industry Title	Number of Establishments	Avg. Number of Employees All Establishments
013	Field Crops, Except Cash Grains	12	239
016	Vegetables and Melons	10	175
018	Horticultural Specialties	3	32
019	General Farms, Primarily Crop	5	70
021	Livestock, except Dairy and Poultry	S	S
024	Dairy Farms	S	S
027	Animal Specialties	S	S
072	Crop Services	S	S
074	Veterinary Services	S	S
075	Animal Services, except Veterinary	S	S
078	Landscape/Horticultural Services	4	8
081	Timber Tracts	7	172

Source: Wisconsin Department of Workforce Development, Current Employment and Wages (CEW), 2000 Annual Industry Employment.

Winnebago County

SIC Code	Industry Title	Number of Establishments	Avg. Number of Employees All Establishments
011	Cash Grains	S	S
016	Vegetables and Melons	S	S
018	Horticultural Specialties	7	40
021	Livestock, except Dairy and Poultry	S	S
024	Dairy Farms	11	110
027	Animal Specialties	S	S
074	Veterinary Services	10	129
075	Animal Services, except Veterinary	8	83
078	Landscape/Horticultural Services	38	128

Source: Wisconsin Department of Workforce Development, Current Employment and Wages (CEW), 2000 Annual Industry Employment.

Table Series ED-3: East Central Region Annual Employment for Private Agricultural Industries* by County, 1990

* Data that is available. Some data are suppressed for an industry and/or county if there are less than 3 establishments, or if 1 establishment represents 80% or more of the employment for industry/county. Wisconsin also uses a secondary suppression routine so that identification of data cannot be determined by subtraction. Therefore, data that is suppressed is shown as an "S" in the tables below.

East Central Region **

SIC Code	Industry Title	Number of Establishments	Avg. Number of Employees All Establishments
011	Cash Grains	S	S
013	Field Crops, Except Cash Grains	7	113
016	Vegetables and Melons	20	333
017	Fruits and Tree Nuts	S	S
018	Horticultural Specialties	10	121
019	General Farms, Primarily Crop	6	71
021	Livestock, except Dairy and Poultry	S	S
024	Dairy Farms	5	46
025	Poultry and Eggs	S	S
027	Animal Specialties	S	S
071	Soil Preparation Services	S	S
072	Crop Services	S	S
074	Veterinary Services	40	292
075	Animal Services, except Veterinary	16	154
076	Farm Labor and Management Services	S	S
078	Landscape/Horticultural Services	78	351
081	Timber Tracts	3	144
097	Hunting, Trapping, Game Propagation	S	S

Source: East Central Wisconsin Regional Planning Commission, compiled December, 2002.

Data in this table are totals from counties within the region that have unsuppressed employee and establishment information. There are more employees and establishments than reflected in this table, but because of the suppression of data an exact number cannot be calculated. The purpose of this table is to provide a general idea of the presence of agricultural industry employment in the region.

Calumet County

SIC Code	Industry Title	Number of Establishments	Avg. Number of Employees All Establishments
017	Fruits and Tree Nuts	S	S
024	Dairy Farms	5	46
025	Poultry and Eggs	S	S
027	Animal Specialties	S	S
074	Veterinary Services	S	S
075	Animal Services, except Veterinary	S	S
078	Landscape/Horticultural Services	4	6

Source: Wisconsin Department of Workforce Development, Current Employment and Wages (CEW), 1990 Annual Industry Employment.

Table Series ED-3: East Central Region Annual Employment for Private Agricultural Industries* by County, 1990

* Data that is available. Some data are suppressed for an industry and/or county if there are less than 3 establishments, or if 1 establishment represents 80% or more of the employment for industry/county. Wisconsin also uses a secondary suppression routine so that identification of data cannot be determined by subtraction. Therefore, data that is suppressed is shown as an "S" in the tables below.

Fond du Lac County

SIC Code	Industry Title	Number of Establishments	Avg. Number of Employees All Establishments
016	Vegetables and Melons	4	21
018	Horticultural Specialties	3	30
021	Livestock, except Dairy and Poultry	S	S
024	Dairy Farms	S	S
072	Crop Services	S	S
074	Veterinary Services	10	60
075	Animal Services, except Veterinary	5	11
076	Farm Labor and Management Services	S	S
078	Landscape/Horticultural Services	14	63

Source: Wisconsin Department of Workforce Development, Current Employment and Wages (CEW), 1990 Annual Industry Employment.

Green Lake County

SIC Code	Industry Title	Number of Establishments	Avg. Number of Employees All Establishments
018	Horticultural Specialties	S	S
021	Livestock, except Dairy and Poultry	S	S
024	Dairy Farms	S	S
074	Veterinary Services	S	S
075	Animal Services, except Veterinary	S	S
078	Landscape/Horticultural Services	8	21

Source: Wisconsin Department of Workforce Development, Current Employment and Wages (CEW), 1990 Annual Industry Employment.

Marquette County

SIC Code	Industry Title	Number of Establishments	Avg. Number of Employees All Establishments
016	Vegetables and Melons	3	43
018	Horticultural Specialties	S	S
019	General Farms, Primarily Crop	S	S
074	Veterinary Services	S	S
075	Animal Services, except Veterinary	S	S

Source: Wisconsin Department of Workforce Development, Current Employment and Wages (CEW), 1990 Annual Industry Employment.

Menominee County No agricultural industries present

Source: Wisconsin Department of Workforce Development, Current Employment and Wages (CEW), 1990 Annual Industry Employment.

Table Series ED-3: East Central Region Annual Employment for Private Agricultural Industries* by County, 1990

* Data that is available. Some data are suppressed for an industry and/or county if there are less than 3 establishments, or if 1 establishment represents 80% or more of the employment for industry/county. Wisconsin also uses a secondary suppression routine so that identification of data cannot be determined by subtraction. Therefore, data that is suppressed is shown as an "S" in the tables below.

Outagamie County

SIC Code	Industry Title	Number of Establishments	Avg. Number of Employees All Establishments
011	Cash Grains	S	S
016	Vegetables and Melons	S	S
018	Horticultural Specialties	7	91
021	Livestock, except Dairy and Poultry	S	S
027	Animal Specialties	S	S
071	Soil Preparation Services	S	S
074	Veterinary Services	12	100
075	Animal Services, except Veterinary	4	103
076	Farm Labor and Management Services	S	S
078	Landscape/Horticultural Services	28	138
081	Timber Tracts	S	S

Source: Wisconsin Department of Workforce Development, Current Employment and Wages (CEW), 1990 Annual Industry Employment.

Shawano County

SIC Code	Industry Title	Number of Establishments	Avg. Number of Employees All Establishments
013	Field Crops, Except Cash Grains	S	S
018	Horticultural Specialties	S	S
027	Animal Specialties	S	S
071	Soil Preparation Services	S	S
074	Veterinary Services	5	30
075	Animal Services, except Veterinary	S	S
078	Landscape/Horticultural Services	4	6
097	Hunting, Trapping, Game Propagation	S	S

Source: Wisconsin Department of Workforce Development, Current Employment and Wages (CEW), 1990 Annual Industry Employment.

Waupaca County

SIC Code	Industry Title	Number of Establishments	Avg. Number of Employees All Establishments
013	Field Crops, Except Cash Grains	S	S
016	Vegetables and Melons	S	S
018	Horticultural Specialties	S	S
024	Dairy Farms	S	S
072	Crop Services	S	S
074	Veterinary Services	4	39
078	Landscape/Horticultural Services	S	S

Source: Wisconsin Department of Workforce Development, Current Employment and Wages (CEW), 1990 Annual Industry Employment.

Table Series ED-3: East Central Region Annual Employment for Private Agricultural Industries* by County, 1990

* Data that is available. Some data are suppressed for an industry and/or county if there are less than 3 establishments, or if 1 establishment represents 80% or more of the employment for industry/county. Wisconsin also uses a secondary suppression routine so that identification of data cannot be determined by subtraction. Therefore, data that is suppressed is shown as an "S" in the tables below.

Waushara County

SIC Code	Industry Title	Number of Establishments	Avg. Number of Employees All Establishments
011	Cash Grains	S	S
013	Field Crops, Except Cash Grains	7	113
016	Vegetables and Melons	13	269
018	Horticultural Specialties	S	S
019	General Farms, Primarily Crop	6	71
024	Dairy Farms	S	S
025	Poultry and Eggs	S	S
072	Crop Services	S	S
074	Veterinary Services	S	S
081	Timber Tracts	3	144

Source: Wisconsin Department of Workforce Development, Current Employment and Wages (CEW), 1990 Annual Industry Employment.

Winnebago County

SIC Code	Industry Title	Number of Establishments	Avg. Number of Employees All Establishments
017	Fruits and Tree Nuts	S	S
018	Horticultural Specialties	S	S
021	Livestock, except Dairy and Poultry	S	S
024	Dairy Farms	S	S
025	Poultry and Eggs	S	S
027	Animal Specialties	S	S
074	Veterinary Services	9	63
075	Animal Services, except Veterinary	7	40
078	Landscape/Horticultural Services	20	117

Source: Wisconsin Department of Workforce Development, Current Employment and Wages (CEW), 1990 Annual Industry Employment.

Table Series ED-5: Wisconsin Average Weekly Wages by Industry Group, 1990, 2000, 2001.

Wisconsin	1990	2000	2001	% Change 1990-2000	% Change 2000-2001
All Industries	$399.27	$591.11	$562.63	48.05%	-4.82%
All Governments	$446.88	$616.43	$646.94	37.94%	4.95%
Federal	$553.22	$803.78	$863.59	45.29%	7.44%
State	$489.69	$670.85	$735.14	36.99%	9.58%
Local	$420.81	$578.98	$600.19	37.59%	3.66%
Private Coverage	$391.18	$587.13	$549.85	50.09%	-6.35%
Agriculture, Forestry, and Fishing	$323.67	$399.83	$408.25	23.53%	2.11%
Mining	$542.97	$744.41	$759.02	37.10%	1.96%
Construction	$484.64	$704.19	$726.46	45.30%	3.16%
Manufacturing	$520.95	$764.72	$775.88	46.79%	1.46%
Durable Goods	$527.53	$785.12	$772.14	48.83%	-1.65%
Lumber & Wood Products Except Furniture	$354.97	$509.59	$516.13	43.56%	1.28%
Furniture and Fixtures	$392.49	$597.20	$577.73	52.16%	-3.26%
Stone, Clay, Glass and Concrete Products	$501.28	$689.99	$708.71	37.65%	2.71%
Primary Metal Industries	$501.06	$732.51	$711.82	46.19%	-2.82%
Fabricated Metal Products	$510.02	$708.39	$726.38	38.89%	2.54%
Machinery, Except Electrical	$587.52	$842.10	$850.90	43.33%	1.05%
Electrical & Electronic Machinery & Equp.	$490.33	$739.03	$736.24	50.72%	-0.38%
Transportation Equipment	$658.33	$1,105.14	$967.65	67.87%	-12.44%
Measuring, Analyzing, & Controlling Instr. & Rel	$577.14	$1,153.46	$1,087.37	99.86%	-5.73%
Miscellaneous Manufacturing Ind	$384.53	$589.79	$594.81	53.38%	0.85%
Nondurable Goods	$510.77	$732.44	$781.89	43.40%	6.75%
Food & Kindred Products	$477.91	$676.59	$773.76	41.57%	14.36%
Textile Mill Products	$375.17	$495.47	$869.77	32.07%	75.54%
Apparel and Other Products	$332.97	$947.24	$525.55	184.48%	-44.52%
Paper and Allied Products	$688.31	$947.24	$1,015.24	37.62%	7.18%
Printing, Publishing and Allied Industries	$437.93	$646.52	$654.26	47.63%	1.20%
Chemical and Allied Products	$648.89	$916.23	$945.51	41.20%	3.20%
Petroleum Refining & Related Ind	$658.90	$1,002.94	$1,024.88	52.21%	2.19%
Rubber & Misc. Plastic Products	$428.10	$630.57	$646.33	47.30%	2.50%
Leather & Leather Products	$372.85	$541.24	$511.70	45.16%	-5.46%
Transportation, and Public Utilities	$497.26	$688.27	$711.03	38.41%	3.31%
Wholesale Trade	$505.52	$773.39	$776.90	52.99%	0.45%
Retail Trade	$192.96	$306.85	$211.52	59.02%	-31.07%
Finance, Insurance, & Real Estate	$480.26	$844.58	$884.25	75.86%	4.70%
Services	$323.98	$500.85	$530.43	54.59%	5.91%

Source: Wisconsin Department of Workforce Development;Employment and Wages Covered by Wisconsin's U.I. Law, Table 202, First Qtr., 1990, 2000, 200.

Table Series ED-5: East Central Average Weekly Wages by Industry Group, Calumet County, 1990, 2000, 2001.

Calumet County	1990	2000	2001	% Change 1990-2000	% Change 2000-2001
All Industries	$361.86	$516.49	$501.95	42.73%	-2.82%
All Governments	$333.04	$498.75	$514.20	49.76%	3.10%
Federal	$482.47	$649.65	$804.84	34.65%	23.89%
State	--	$633.71	$755.20	--	19.17%
Local	$325.15	$480.30	$485.50	47.72%	1.08%
Private Coverage	$365.51	$518.74	$500.32	41.92%	-3.55%
Agriculture, Forestry, and Fishing	$271.44	$356.89	$422.10	31.48%	18.27%
Mining					
Construction	$365.12	$510.69	$572.63	39.87%	12.13%
Manufacturing	$480.11	$677.85	$648.16	41.19%	-4.38%
Durable Goods	$503.94	$695.41	$650.18	--	-6.50%
Lumber & Wood Products Except Furniture	$245.54		$243.62	--	--
Furniture and Fixtures	--	$508.85	$532.97	--	4.74%
Stone, Clay, Glass and Concrete Products	--		--	--	--
Primary Metal Industries	$745.80	--	--	--	--
Fabricated Metal Products	$341.75	$526.78	$531.10	54.14%	0.82%
Machinery, Except Electrical	$471.57	$667.58	$631.24	41.57%	-5.44%
Electrical & Electronic Machinery & Equp.	--	--	--	--	--
Transportation Equipment	--	--	--	--	--
Measuring, Analyzing, & Controlling Instr. & Rel.	--		--	--	--
Miscellaneous Manufacturing Ind	$217.00	$231.93	$272.72	6.88%	17.59%
Nondurable Goods	$341.63	$554.97	$638.84	62.45%	15.11%
Food & Kindred Products	$374.62	$600.76	$722.52	60.37%	20.27%
Textile Mill Products	--	--	--	--	--
Apparel and Other Products	--	--	--	--	--
Paper and Allied Products	--		--	--	--
Printing, Publishing and Allied Industries	$220.50	$437.28	$314.28	98.31%	-28.13%
Chemical and Allied Products	--	--	--	--	--
Petroleum Refining & Related Ind	--	--	--	--	--
Rubber & Misc. Plastic Products	--		--	--	--
Leather & Leather Products	--	--	--	--	--
Transportation, and Public Utilities	$263.32	$422.53	$431.91	60.46%	2.22%
Wholesale Trade	$374.11	$543.19	$559.65	45.20%	3.03%
Retail Trade	$148.02	$203.42	$207.66	37.43%	2.08%
Finance, Insurance, & Real Estate	$300.93	$443.46	$445.58	47.36%	0.48%
Services	$223.51	$327.09	$349.50	46.34%	6.85%

Source: Wisconsin Department of Workforce Development;Employment and Wages Covered by Wisconsin's U.I. Law, Table 202, First Qtr., 1990, 2000, 2001

Table Series ED-5: East Central Average Weekly Wages by Industry Group, Fond du Lac County, 1990, 2000, 2001.

Fond du Lac County	1990	2000	2001	% Change 1990-2000	% Change 2000-2001
All Industries	$390.56	$588.09	$580.23	50.58%	-1.34%
All Governments	$396.57	$559.04	$588.78	40.97%	5.32%
Federal	$571.01	$657.96	$772.16	15.23%	17.36%
State	$539.01	$650.80	$748.41	20.74%	15.00%
Local	$385.13	$542.15	$559.11	40.77%	3.13%
Private Coverage	$389.81	$592.07	$590.49	51.89%	-0.27%
Agriculture, Forestry, and Fishing	$237.38	$310.91	$322.15	30.98%	3.62%
Mining	$370.63	--	--	--	--
Construction	$534.16	$675.43	$686.20	26.45%	1.59%
Manufacturing	$569.99	$915.34	$898.68	60.59%	-1.82%
Durable Goods	$611.86	$1,080.81	$1,058.31	76.64%	-2.08%
Lumber & Wood Products Except Furniture	$353.57	$510.65	$484.86	44.43%	-5.05%
Furniture and Fixtures	$398.59	--	--	--	--
Stone, Clay, Glass and Concrete Products	$338.82	$549.26	$617.37	62.11%	12.40%
Primary Metal Industries	$431.09	$629.06	$659.72	45.92%	4.87%
Fabricated Metal Products	$482.40	$566.64	$564.97	17.46%	-0.29%
Machinery, Except Electrical	$719.63	$1,338.93	$1,322.10	86.06%	-1.26%
Electrical & Electronic Machinery & Equp.	$539.69	$738.33	$694.64	36.81%	-5.92%
Transportation Equipment	--	$697.92	$575.12	--	--
Measuring, Analyzing, & Controlling Instr. & Rel.	$286.61	$612.35	$524.18	113.65%	-14.40%
Miscellaneous Manufacturing Ind	$296.65	$474.71	$479.54	60.02%	1.02%
Nondurable Goods	$514.71	$686.95	$692.82	33.46%	0.85%
Food & Kindred Products	$446.46	$562.90	$556.15	26.08%	-1.20%
Textile Mill Products	--	--	--	--	--
Apparel and Other Products	$304.75	$463.73	$440.10	52.17%	-5.10%
Paper and Allied Products	--	--	--	--	--
Printing, Publishing and Allied Industries	$288.09	$415.23	$470.39	44.13%	13.28%
Chemical and Allied Products	--	--	--	--	--
Petroleum Refining & Related Ind	--	--	--	--	--
Rubber & Misc. Plastic Products	--	$620.85	$628.33	--	1.20%
Leather & Leather Products	--	--	--	--	--
Transportation, and Public Utilities	$399.86	$611.82	$617.13	53.01%	0.87%
Wholesale Trade	$379.10	$552.03	$572.06	45.62%	3.63%
Retail Trade	$170.86	$250.25	$256.81	46.46%	2.62%
Finance, Insurance, & Real Estate	$335.56	$592.14	$635.44	76.46%	7.31%
Services	$274.57	$415.51	$440.60	51.33%	6.04%

Source: Wisconsin Department of Workforce Development;Employment and Wages Covered by Wisconsin's U.I. Law, Table 202, First Qtr., 1990, 2000, 2001

Table Series ED-5: East Central Average Weekly Wages by Industry Group, Green Lake County, 1990, 2000, 2001.

Green Lake County	1990	2000	2001	% Change 1990-2000	% Change 2000-2001
All Industries	$292.94	$426.77	$450.20	45.69%	5.49%
All Governments	$317.97	$445.08	$483.13	39.98%	8.55%
Federal	$478.22	$619.36	$641.76	29.51%	3.62%
State	--	$533.19	$646.08	--	21.17%
Local	$306.73	$432.93	$450.43	41.14%	4.04%
Private Coverage	$288.84	$423.29	$447.68	46.55%	5.76%
Agriculture, Forestry, and Fishing	$339.57	$356.99	$349.59	5.13%	-2.07%
Mining	$461.08	--	--	--	--
Construction	$352.01	$533.86	$720.65	51.66%	34.99%
Manufacturing	$324.90	$476.87	$503.44	46.77%	5.57%
Durable Goods	$365.10	$497.40	$517.74	36.24%	4.09%
Lumber & Wood Products Except Furniture	$310.62	--	--	--	--
Furniture and Fixtures	--	$353.82	$460.07	--	30.03%
Stone, Clay, Glass and Concrete Products	--	$554.95	$540.15	--	-2.67%
Primary Metal Industries	$370.76	$524.70	$565.60	41.52%	7.79%
Fabricated Metal Products	$386.86	$450.96	$457.20	16.57%	1.38%
Machinery, Except Electrical	--	$608.29	$579.82	--	-4.68%
Electrical & Electronic Machinery & Equp.	--	--	--	--	--
Transportation Equipment	$389.95	--	--	--	--
Measuring, Analyzing, & Controlling Instr. & Re	--	$483.34	$471.22	--	-2.51%
Miscellaneous Manufacturing Ind	--	$491.17	$474.54	--	-3.39%
Nondurable Goods	$286.68	$440.84	$479.25	53.77%	8.71%
Food & Kindred Products	$363.28	$517.42	$543.78	42.43%	5.09%
Textile Mill Products	--	--	--	--	--
Apparel and Other Products	$272.34	$461.43	$500.34	69.43%	8.43%
Paper and Allied Products	--	--	--	--	--
Printing, Publishing and Allied Industries	$237.17	$307.47	$393.90	29.64%	28.11%
Chemical and Allied Products	--	--	--	--	--
Petroleum Refining & Related Ind	--	--	--	--	--
Rubber & Misc. Plastic Products	--	$564.97	$563.97	--	-0.18%
Leather & Leather Products	$257.86	$323.32	$340.17	25.39%	5.21%
Transportation, and Public Utilities	$447.41	$564.18	$575.64	26.10%	2.03%
Wholesale Trade	$308.42	$554.63	$558.29	79.83%	0.66%
Retail Trade	$159.54	$237.68	$244.29	48.98%	2.78%
Finance, Insurance, & Real Estate	$340.37	$443.36	$422.79	30.26%	-4.64%
Services	$249.48	$439.86	$448.11	76.31%	1.88%

Source: Wisconsin Department of Workforce Development;Employment and Wages Covered by Wisconsin's U.I. Law, Table 202, First Qtr., 1990, 2000, 2001

Table Series ED-5: East Central Average Weekly Wages by Industry Group, Marquette County, 1990, 2000, 2001.

Marquette County	1990	2000	2001	% Change 1990-2000	% Change 2000-2001
All Industries	$300.57	$437.78	$440.18	45.65%	0.55%
All Governments	$306.77	$418.74	$435.31	36.50%	3.96%
Federal	$467.90	$583.64	$632.69	24.74%	8.40%
State	--	$650.13	$724.52	--	11.44%
Local	$293.92	$401.27	$415.40	36.52%	3.52%
Private Coverage	$298.83	$443.20	$441.56	48.31%	-0.37%
Agriculture, Forestry, and Fishing	$399.17	$367.41	$371.72	-7.96%	1.17%
Mining	--	--	--	--	--
Construction	$673.26	$436.81	$385.54	-35.12%	-11.74%
Manufacturing	$375.90	$637.55	$615.01	69.61%	-3.54%
Durable Goods	$360.74	$644.08	$802.38	78.54%	24.58%
Lumber & Wood Products Except Furniture	$559.92	$750.32	$639.38	34.00%	-14.79%
Furniture and Fixtures	--	--	--	--	--
Stone, Clay, Glass and Concrete Products	--	--	--	--	--
Primary Metal Industries	--	--	--	--	--
Fabricated Metal Products	--	--	--	--	--
Machinery, Except Electrical	$394.45	$654.22	$699.61	65.86%	6.94%
Electrical & Electronic Machinery & Equp.	$247.53	--	--	--	--
Transportation Equipment	--	--	--	--	--
Measuring, Analyzing, & Controlling Instr. & Rel.	--	--	--	--	--
Miscellaneous Manufacturing Ind	--	--	--	--	--
Nondurable Goods	$390.19	--	--	--	--
Food & Kindred Products	--	--	--	--	--
Textile Mill Products	--	--	--	--	--
Apparel and Other Products	--	--	--	--	--
Paper and Allied Products	--	--	--	--	--
Printing, Publishing and Allied Industries	$146.27	$403.72	$309.73	176.01%	-23.28%
Chemical and Allied Products	--	--	--	--	--
Petroleum Refining & Related Ind	--	--	--	--	--
Rubber & Misc. Plastic Products	--	--	--	--	--
Leather & Leather Products	--	--	--	--	--
Transportation, and Public Utilities	$438.35	$617.40	$694.28	40.85%	12.45%
Wholesale Trade	$310.92	$397.42	$442.65	27.82%	11.38%
Retail Trade	$134.09	$192.17	$193.11	43.31%	0.49%
Finance, Insurance, & Real Estate	$300.22	$389.45	$379.21	29.72%	-2.63%
Services	$190.57	$301.27	$312.81	58.09%	3.83%

Source: Wisconsin Department of Workforce Development;Employment and Wages Covered by Wisconsin's U.I. Law, Table 202, First Qtr., 1990, 2000, 2001

Table Series ED-5: East Central Average Weekly Wages by Industry Group, Menominee County, 1990, 2000, 2001.

Menominee County	1990	2000	2001	% Change 1990-2000	% Change 2000-2001
All Industries	$311.24	$466.48	$472.00	49.88%	1.18%
All Governments	$349.75	$527.01	$490.19	50.68%	-6.99%
Federal	--	$413.12	$764.91	--	85.15%
State	--	--	--	--	--
Local	$349.13	$529.62	$488.90	51.70%	-7.69%
Private Coverage	$289.61	$454.07	$216.34	56.79%	-52.36%
Agriculture, Forestry, and Fishing	--	--	--	--	--
Mining	--	--	--	--	--
Construction	--	$394.81	--	--	--
Manufacturing	$298.68	--	--	--	--
Durable Goods	$300.64	--	--	--	--
Lumber & Wood Products Except Furniture	$300.64	--	--	--	--
Furniture and Fixtures	--	--	--	--	--
Stone, Clay, Glass and Concrete Products	--	--	--	--	--
Primary Metal Industries	--	--	--	--	--
Fabricated Metal Products	--	--	--	--	--
Machinery, Except Electrical	--	--	--	--	--
Electrical & Electronic Machinery & Equp.	--	--	--	--	--
Transportation Equipment	--	--	--	--	--
Measuring, Analyzing, & Controlling Instr. & Rel.	--	--	--	--	--
Miscellaneous Manufacturing Ind	--	--	--	--	--
Nondurable Goods	--	--	--	--	--
Food & Kindred Products	--	--	--	--	--
Textile Mill Products	--	--	--	--	--
Apparel and Other Products	--	--	--	--	--
Paper and Allied Products	--	--	--	--	--
Printing, Publishing and Allied Industries	--	--	--	--	--
Chemical and Allied Products	--	--	--	--	--
Petroleum Refining & Related Ind	--	--	--	--	--
Rubber & Misc. Plastic Products	--	--	--	--	--
Leather & Leather Products	--	--	--	--	--
Transportation, and Public Utilities	--	$575.25	--	--	--
Wholesale Trade	--	--	--	--	--
Retail Trade	$77.16	$200.24	$185.93	159.51%	-7.15%
Finance, Insurance, & Real Estate	--	--	--	--	--
Services	$289.37	$454.40	$204.95	57.03%	-54.90%

Source: Wisconsin Department of Workforce Development;Employment and Wages Covered by Wisconsin's U.I. Law, Table 202, First Qtr., 1990, 2000, 2001

Table Series ED-5: East Central Average Weekly Wages by Industry Group, Outagamie County, 1990, 2000, 2001.

Outagamie County	1990	2000	2001	% Change 1990-2000	% Change 2000-2001
All Industries	$419.00	$596.24	$612.73	42.30%	2.77%
All Governments	$441.26	$635.63	$642.61	44.05%	1.10%
Federal	$585.31	$818.66	$880.78	39.87%	7.59%
State	$600.26	$694.07	$769.28	15.63%	10.84%
Local	$432.37	$626.11	$630.87	44.81%	0.76%
Private Coverage	$417.61	$592.21	$609.45	41.81%	2.91%
Agriculture, Forestry, and Fishing	$259.64	$392.77	$422.25	51.27%	7.51%
Mining	$571.95	--	--	--	--
Construction	$522.72	$791.43	$848.02	51.41%	7.15%
Manufacturing	$575.05	$773.57	$802.27	34.52%	3.71%
Durable Goods	$556.12	$785.36	$801.34	41.22%	2.03%
Lumber & Wood Products Except Furniture	$357.16	$423.87	$450.01	18.68%	6.17%
Furniture and Fixtures	$397.88	--	--	--	--
Stone, Clay, Glass and Concrete Products	$566.20	$627.06	$692.17	10.75%	10.38%
Primary Metal Industries	$591.19	$925.48	$1,004.45	56.55%	8.53%
Fabricated Metal Products	$705.42	$720.22	$678.91	2.10%	-5.74%
Machinery, Except Electrical	$609.64	$943.23	$977.82	54.72%	3.67%
Electrical & Electronic Machinery & Equp.	$410.02	$550.63	$569.63	34.29%	3.45%
Transportation Equipment	$574.85	$433.84	$410.17	-24.53%	-5.46%
Measuring, Analyzing, & Controlling Instr. & Rel.	--	$487.98	$359.00	--	-26.43%
Miscellaneous Manufacturing Ind	$308.78	$422.03	$388.93	36.68%	-7.84%
Nondurable Goods	$587.14	$767.07	$802.79	30.65%	4.66%
Food & Kindred Products	$446.37	$597.85	$686.79	33.94%	14.88%
Textile Mill Products	$525.51	$788.53	$742.25	50.05%	-5.87%
Apparel and Other Products	$411.78	$582.74	--	41.52%	--
Paper and Allied Products	$692.11	$961.84	$968.78	38.97%	0.72%
Printing, Publishing and Allied Industries	$387.35	$563.59	$547.95	45.50%	-2.78%
Chemical and Allied Products	$490.85	$847.72	$824.62	72.70%	-2.72%
Petroleum Refining & Related Ind	--	--	--	--	--
Rubber & Misc. Plastic Products	$687.66	$577.74	$629.98	-15.98%	9.04%
Leather & Leather Products	--	--	--	--	--
Transportation, and Public Utilities	$533.87	$711.58	$679.15	33.29%	-4.56%
Wholesale Trade	$511.88	$730.76	$713.13	42.76%	-2.41%
Retail Trade	$193.78	$293.50	$298.44	51.46%	1.68%
Finance, Insurance, & Real Estate	$509.51	$894.44	$904.96	75.55%	1.18%
Services	$306.27	$464.21	$495.87	51.57%	6.82%

Source: Wisconsin Department of Workforce Development;Employment and Wages Covered by Wisconsin's U.I. Law, Table 202, First Qtr., 1990, 2000, 2001.

Table Series ED-5: East Central Average Weekly Wages by Industry Group, Waupaca County, 1990, 2000, 2001.

Waupaca County	1990	2000	2001	% Change 1990-2000	% Change 2000-2001
All Industries	$316.58	$467.52	$478.07	47.68%	2.26%
All Governments	$335.68	$486.98	$504.28	45.07%	3.55%
Federal	$522.33	$630.15	$668.20	20.64%	6.04%
State	$347.39	$487.27	$535.36	40.27%	9.87%
Local	$322.21	$478.85	$486.80	48.61%	1.66%
Private Coverage	$311.94	$463.15	$472.10	48.47%	1.93%
Agriculture, Forestry, and Fishing	$301.11	$397.65	$414.58	32.06%	4.26%
Mining	--	--	--	--	--
Construction	$300.90	$461.19	$496.05	53.27%	7.56%
Manufacturing	$404.83	$648.43	$626.35	60.17%	-3.41%
Durable Goods	$418.25	$672.72	$632.82	60.84%	-5.93%
Lumber & Wood Products Except Furniture	$320.62	$495.78	$586.62	54.63%	18.32%
Furniture and Fixtures	$306.24	$410.83	$411.74	34.15%	0.22%
Stone, Clay, Glass and Concrete Products	--	--	--	--	--
Primary Metal Industries	--	--	--	--	--
Fabricated Metal Products	$406.33	$614.65	$642.45	51.27%	4.52%
Machinery, Except Electrical	$322.08	$505.71	$518.57	57.01%	2.54%
Electrical & Electronic Machinery & Equp.	--	--	--	--	--
Transportation Equipment	$468.09	$604.81	$606.25	29.21%	0.24%
Measuring, Analyzing, & Controlling Instr. & Rel.	--	--	--	--	--
Miscellaneous Manufacturing Ind	$215.42	$121.21	$268.58	-43.73%	121.58%
Nondurable Goods	$382.29	$603.28	$614.88	57.81%	1.92%
Food & Kindred Products	$327.52	$601.93	$559.41	83.78%	-7.06%
Textile Mill Products	--	--	--	--	--
Apparel and Other Products	--	--	--	--	--
Paper and Allied Products	$460.19	$706.17	$753.31	53.45%	6.68%
Printing, Publishing and Allied Industries	$398.64	$597.75	$614.99	49.95%	2.88%
Chemical and Allied Products	--	--	--	--	--
Petroleum Refining & Related Ind	--	--	--	--	--
Rubber & Misc. Plastic Products	$265.93	$432.98	$413.56	62.82%	-4.49%
Leather & Leather Products	--	--	--	--	--
Transportation, and Public Utilities	$419.96	$516.39	$514.88	22.96%	-0.29%
Wholesale Trade	$370.78	$549.25	$603.09	48.13%	9.80%
Retail Trade	$155.70	$229.87	$231.66	47.64%	0.78%
Finance, Insurance, & Real Estate	$368.00	$491.42	$526.35	33.54%	7.11%
Services	$245.75	$333.83	$396.22	35.84%	18.69%

Source: Wisconsin Department of Workforce Development;Employment and Wages Covered by Wisconsin's U.I. Law, Table 202, First Qtr., 1990, 2000, 2001.

Table Series ED-5: East Central Average Weekly Wages by Industry Group, Waushara County, 1990, 2000, 2001.

Waushara County	1990	2000	2001	% Change 1990-2000	% Change 2000-2001
All Industries	$257.93	$375.27	$391.80	45.49%	4.40%
All Governments	$307.28	$457.79	$506.82	48.98%	10.71%
Federal	$468.94	$509.34	$568.27	8.62%	11.57%
State	--	$533.77	$597.46	--	--
Local	$295.22	$450.37	$478.92	52.55%	6.34%
Private Coverage	$244.44	$353.19	$355.52	44.49%	0.66%
Agriculture, Forestry, and Fishing	$391.64	$408.06	$420.10	4.19%	2.95%
Mining	--	--	--	--	--
Construction	$227.76	$405.38	$397.76	77.99%	-1.88%
Manufacturing	$310.19	$480.53	$477.72	54.91%	-0.58%
Durable Goods	$358.91	$502.43	$502.03	39.99%	-0.08%
Lumber & Wood Products Except Furniture	$180.14	$354.87	$404.01	97.00%	13.85%
Furniture and Fixtures	--	--	--	--	--
Stone, Clay, Glass and Concrete Products	--	--	--	--	--
Primary Metal Industries	--	--	--	--	--
Fabricated Metal Products	--	--	$550.84	--	--
Machinery, Except Electrical	$411.62	$607.26	--	47.53%	--
Electrical & Electronic Machinery & Equp.	--	--	--	--	--
Transportation Equipment	--	--	--	--	--
Measuring, Analyzing, & Controlling Instr. & Rel.	--	--	--	--	--
Miscellaneous Manufacturing Ind	--	--	--	--	--
Nondurable Goods	$195.76	$349.69	$348.74	78.63%	-0.27%
Food & Kindred Products	$197.68	$338.23	$337.01	71.10%	-0.36%
Textile Mill Products	--	--	--	--	--
Apparel and Other Products	--	--	--	--	--
Paper and Allied Products	--	--	--	--	--
Printing, Publishing and Allied Industries	$139.90	--	--	--	--
Chemical and Allied Products	--	--	--	--	--
Petroleum Refining & Related Ind	--	--	--	--	--
Rubber & Misc. Plastic Products	--	--	--	--	--
Leather & Leather Products	--	--	--	--	--
Transportation, and Public Utilities	$422.12	$541.79	$546.75	28.35%	0.92%
Wholesale Trade	$329.32	$517.28	$583.40	57.08%	12.78%
Retail Trade	$147.80	$216.95	$218.09	46.79%	0.53%
Finance, Insurance, & Real Estate	$307.79	$371.19	$334.06	20.60%	-10.00%
Services	$190.27	$305.40	$319.37	60.51%	4.57%

Source: Wisconsin Department of Workforce Development;Employment and Wages Covered by Wisconsin's U.I. Law, Table 202, First Qtr., 1990, 2000, 2001.

Table Series ED-5: East Central Average Weekly Wages by Industry Group, Winnebago County, 1990, 2000, 2001.

Winnebago County	1990	2000	2001	% Change 1990-2000	% Change 2000-2001
All Industries	$433.31	$656.62	$689.58	51.54%	5.02%
All Governments	$452.27	$623.21	$653.08	37.80%	4.79%
Federal	$565.35	$858.12	$870.80	51.79%	1.48%
State	$476.99	$621.60	$685.88	30.32%	10.34%
Local	$429.70	$602.40	$615.67	40.19%	2.20%
Private Coverage	$430.68	$661.19	$694.68	53.52%	5.07%
Agriculture, Forestry, and Fishing	$237.14	$338.45	$349.63	42.72%	3.30%
Mining	--	--	--	--	--
Construction	$530.70	$745.13	$731.17	40.41%	-1.87%
Manufacturing	$583.21	$901.83	$970.31	54.63%	7.59%
Durable Goods	$498.97	$689.98	$686.62	38.28%	-0.49%
Lumber & Wood Products Except Furniture	$442.03	$553.47	$560.15	25.21%	1.21%
Furniture and Fixtures	$308.30	$430.40	$469.20	39.60%	9.01%
Stone, Clay, Glass and Concrete Products	--	$649.76	$594.87	--	-8.45%
Primary Metal Industries	$561.29	--	--	--	--
Fabricated Metal Products	$498.95	$612.49	$622.72	22.76%	1.67%
Machinery, Except Electrical	$537.14	$762.49	$763.51	41.95%	0.13%
Electrical & Electronic Machinery & Equp.	$360.62	$574.41	$557.44	59.28%	-2.95%
Transportation Equipment	$551.52	$800.91	$803.49	45.22%	0.32%
Measuring, Analyzing, & Controlling Instr. & Rel.	$409.39	$521.20	$517.65	27.31%	-0.68%
Miscellaneous Manufacturing Ind	$367.48	$519.68	$498.42	41.42%	-4.09%
Nondurable Goods	$635.10	$1,024.78	$1,129.53	61.36%	10.22%
Food & Kindred Products	$384.45	$622.39	$673.10	61.89%	8.15%
Textile Mill Products	--	--	--	--	--
Apparel and Other Products	$436.75	$1,024.11	$1,200.93	134.48%	17.27%
Paper and Allied Products	$717.62	$1,134.56	$1,290.86	58.10%	13.78%
Printing, Publishing and Allied Industries	$445.57	$832.82	$809.03	86.91%	-2.86%
Chemical and Allied Products	$597.08	$716.49	$756.63	20.00%	5.60%
Petroleum Refining & Related Ind	--	--	--	--	--
Rubber & Misc. Plastic Products	$879.81	$907.09	$983.21	3.10%	8.39%
Leather & Leather Products	--	--	--	--	--
Transportation, and Public Utilities	$441.79	$617.51	$630.23	39.77%	2.06%
Wholesale Trade	$441.23	$772.44	$669.68	75.07%	-13.30%
Retail Trade	$170.47	$260.01	$285.07	52.53%	9.64%
Finance, Insurance, & Real Estate Services	$383.93	$966.91	$829.54	151.85%	-14.21%
Services	$314.08	$457.31	$477.16	45.60%	4.34%

Source: Wisconsin Department of Workforce Development;Employment and Wages Covered by Wisconsin's U.I. Law, Table 202, First Qtr., 1990, 2000, 2001.

HOUSING APPENDIX

Appendix B:1 Housing Stress Matrix

Housing Stress Index

Variables	Variable Weighting Score	Concentration Weight			
		1% to 10% of Units	11% to 25% of Units	26% to 50% of Units	Greater than 50% of units
Vacancy Rates					
Rental Vacancy Rate => 5%	0	0	0	0	0
Rental Vacancy Rate >3%< 5%	1	0	0	0	0
Rental Vacancy Rate >1%< 3%	5	0	0	0	0
Rental Vacancy Rate< 1%	10	0	0	0	0
Owner Occupied Vacancy Rate => 1.5%	0	0	0	0	0
Owner Occupied Vacancy Rate >1%< 1.5%	1	0	0	0	0
Owner Occupied Vacancy Rate >0.5%< 1%	5	0	0	0	0
Owner Occupied Vacancy Rate <0.5%	10	0	0	0	0
Affordability					
Rental Costs <30% of hh Income	0	0	0	0	0
Rental Costs >30% of hh Income	1	1	5	10	15
Homeowner Costs <30% of hh Income	0	0	0	0	0
Homeowner Costs >30% of hh Income	1	1	5	10	15
Age + Value (lowest % prevails)					
% units <$50,000 & % units >40 yrs <25%	0	0	0	0	0
% units <$50,000 & % units >40 yrs >25%<50%	1	0	0	0	0
% units <$50,000 & % units >40 yrs >50%<75%	5	0	0	0	0
% units <$50,000 & % units >40 yrs >75%	10	0	0	0	0
Overcrowding					
Rental units with <1 persons per room	0	0	0	0	0
Rental units with 1+ persons per room	1	1	5	10	15
Owner-occupied units with <1 persons per room	0	0	0	0	0
Owner-occupied units with 1+ persons per room	1	1	5	10	15
Plumbing					
Housing Units with Complete Plumbing Facilities	0	0	0	0	0
Housing Units Lacking Complete Plumbing Facilities	1	1	5	10	15

TRANSPORTATION APPENDIX

Appendix C:1 Public Transportation Systems

Table T-5. Public Transportation Systems

Co.	System Name	Service Area	Type of Service	Responsible Jurisdiction	Self-provided/ Contracted	Funding Source	Eligible Riders	Est. Trips (2001)
Outagamie, Winnebago & Calumet counties	Valley Transit	Appleton, Menasha, Neenah, Kaukauna, Kimberly, Little Chute, T. Menasha, T. Buchanan	fixed route bus	C. Appleton	Self	Federal, State, Local, and Farebox	general public	741,200
	Valley Transit II	same as previous	van service/ demand response	C. Appleton	contracted (Kobussen)	same as previous	certified persons with disabilities	73,700
Winnebago County	Oshkosh Transit System	City of Oshkosh	fixed route bus	C. Oshkosh	Self	Federal, State, Local, and Farebox	general public	1,200,750
	ADA Paratransit	City of Oshkosh	taxi & van service/ demand response	C. Oshkosh	contracted (City Cab/ Cabulance)	Federal, State, Local, and Farebox	certified persons with disabilities	18,821
	Dial-A-Ride	City of Oshkosh	taxi service/ demand response	C. Oshkosh	contracted (City Cab)	Federal, State, Local, and Farebox	certified elderly (60+)/ persons with disabilities	53,438
	N. Winnebago Dial-a-Ride	Winnebago Co. portions of: C. Appleton, C. Neenah, C. Menasha, T. Menasha	taxi service/ demand response	C. Neenah	contracted (Lamers)	Federal, State, Local, and Farebox	certified elderly (60+)	15,429
	American Red Cross Volunteer Transportation Services	Regionwide	private auto	American Red Cross	contracted (volunteer drivers)	state/local/ fares	Winnebago Co. DHS clients/ non-clients 60+	n.a.
	Winnebago County Rural Transportation for Elderly and Disabled	Winnebago County, except City and Town of Menasha, and Cities of Neenah and Oshkosh	taxi & van service/ demand response	American Red Cross	contracted (City Cab)	state/local/ fares	disabled individuals and elderly (60+)	4,674
	Nutrition Transportation	Countywide w/ trips to mealsites in Omro, Winneconne, and Pickett	taxi service	ADVOCAP	contracted (varies by mealsite)	state/local/ donations	Elderly Persons	1,304

Table T-5. Public Transportation Systems (cont'd)

Fond du Lac County	Fond du Lac Area Transit	C. Fond du Lac, V. N. Fond du Lac	fixed route bus	C. Fond du Lac	C. Fond du Lac contracted (V. NFdL)	Federal, State, Local, and Farebox	general public	200,624
	FDLAT ADA Paratransit	C. Fond du Lac, V. N. Fond du Lac	van service/ demand response	C. Fond du Lac	contracted	Federal, State, Local, and Farebox	certified persons with disabilities	20,680
	Job-Ride	C. Fond du Lac, outside of fixed route bus service	taxi service/ demand response	C. Fond du Lac	contracted	Federal, State, Local, and Farebox	general public	5,331
	Elderly and Handicapped Program	Fond du Lac Co.	vans	Fond du Lac Co.	self	State, Local, Farebox	elderly(60+) & persons with disabilities	27,017
	Driver Escort	Statewide	private autos	Fond du Lac Co.	contracted (volunteer drivers)	State, Local, Farebox	persons with disabilities	1,834
	Ripon Shared-Ride Taxi	C. Ripon area	taxi & van service/ demand response	C. Ripon	contracted	State, Local, Farebox	general public	30,836
Outagamie County	Outagamie Co. Elderly Service	Outagamie Co.	taxi service/ demand response	OutagamieCo.	contracted (Kobussen)	Federal, State, Local, and Farebox	Elderly Persons (65+)	4,463
	Sunday	ADA Service area in Outagamie Co.	taxi service/ demand response	OutagamieCo.	contracted (Kobussen)	Federal, State, Local, and Farebox	Elderly and Disabled Persons	4,410
	Outagamie Rural	Outagamie Co.	taxi service/ demand response	OutagamieCo.	contracted (Kobussen)	Federal, State, Local, and Farebox	Elderly and Disabled Persons	70,144
	Developmentally Disabled Transportation	Outagamie Co.	fixed route bus	OutagamieCo.	contracted (Kobussen)	Federal, State, Local, and Farebox	Disabled Persons	5,775
	Outagamie TANF	Outagamie Co.	taxi service/ demand response	OutagamieCo.	contracted (Kobussen)	Federal, State, Local, and Farebox	Low Income Persons for work trips	17,063

Table T-5. Public Transportation Systems (cont'd)

Green Lk. Co.	Berlin Dial-a-ride	C. Berlin area	taxi & van service/ demand response	C. Berlin	contracted	State, Local, Farebox	general public	29,260
	Berlin Senior Transportation	C. Berlin area	taxi and van service/ demand response	C. Berlin/Green Lake Co.	contracted w/ county	Federal, State, Local, and Farebox	Elderly (55+) and Disabled Persons	9,505
	City of Princeton	C. Princeton area	taxi and van service/ demand response	C. Princeton /Green Lake Co.	contracted w/ county	State, Local, Farebox	Elderly (55+) and Disabled Persons	590
	City of Green Lake	C. Green La6e44.k. Area	taxi and van service/ demand response	C. Green Lake /Green Lake Co.	contracted w/ county	State, Local, Farebox	Elderly (55+) and Disabled Persons	346
	Fox River Industries	Green Lake Co.	bus and vans	Green Lake Co.	self	State, Local, Donation	Elderly & Disabled Persons	13,245
	Southern Green Lk. Co. Senior Transportation	unserved portions of Green Lake Co.	taxi and van service/ demand response	Green Lake Co.	self	State, Local, Farebox	Elderly (55+) and Disabled Persons	2,108
Shawano Co.	Shawano Shared-Ride Taxi	C. Shawano area	taxi & van service/ demand response	C. Shawano	contracted	State, Local, Farebox	general public	35,434
	Mini-Bus	Shawano Co.	flexible fixed route bus	Shawano Co.	in-house	State, Local, Farebox	elderly & disabled	4,564
	Driver Escort	Shawano Co. and beyond as needed	private auto	Shawano Co.	contracted (volunteer drivers)	State, Local, Farebox	elderly & disabled	2,086
	User-side Subsidy	C. Shawano area	taxi service/ demand response	Shawano Co.	contracted	State, Local, Farebox	elderly & disabled	19,223
	Workshop Transportation	Shawano Co.	buses/ fixed route	Shawano Co. Dept. Comm. Programs	contract	State, Local	persons with disabilities	26,000

Table T-5. Public Transportation Systems (cont'd)

Waupaca Co.	Volunteer Driver Program	Waupaca Co. and beyond, as needed	private auto	Waupaca Co.	contracted (volunteer drivers)	State, Local, Farebox	elderly & disabled, DHHS clients, veterans, low-income work trips, nutrition program	approx. 11,000
	Waupaca Shared-Ride Taxi	C. Waupaca area	taxi & van service/ demand response	C. Waupaca	contracted	State, Local	general public	37,150
	Waupaca County Industries	Waupaca Co.	buses/ fixed route	Waupaca Co.	in-house	State, Local, Farebox	workshop clients	approx. 41,000
	Clintonville Dial-a-ride	C. Clintonville area	taxi & van service/ demand response	C. Clintonville	contracted	State, Local, Farebox	general public	9,050
	New London E&D Van Program	w/in 10 miles of New London	van w/ lift	C. New London	in-house	Local, Farebox	Elderly (55+) and Disabled Persons	approx. 8,001
Calumet Co.	New Hope Center	Calumet Co.	van service/ fixed client route	Calumet Co.	self	State, Local	New Hope clients	12,360
	County Van Program	county-wide and state-wide	4 vans (3 w/ lift)	Calumet Co.	self	State, Local	Elderly and Disabled Persons	4,910
	Volunteer Driver Program	Calumet Co.and beyond, as needed	private auto	Calumet Co.	contracted (volunteer drivers)	State, Local	Elderly and Disabled Persons	6,568
Marquette Co.	Marquette Senior Transportation	Marquette Co. + 50 mile radius	van/bus demand response service	Marquette Co.	in-house	State, Local, Donations	Elderly and Disabled Persons	2,670
	Volunteer Driver Program	Marquette Co. + 50 mile radius	private auto	Marquette Co.	contracted (volunteer drivers)	State, Local, Donations	Elderly and Disabled Persons	462
	Marquette Area Opportunities	Marquette Co.	vans/ fixed route	Marquette Co.	in-house	State, Local	workshop clients	11,508
Menominee Co.	Menominee County Tribal Transit System	Menominee Co.	fixed route vans	Menominee Tribe of Indians	Self	State, Local	general public	n/a

COMMUNITY FACILITIES APPENDICES

Appendix D:1 Wastewater Treatment Facilities, 2002
Appendix D:2 Sanitary Permits, 2000-2002
Appendix D:3 Existing Drainage Districts
Appendix D:4 Existing Landfills, 2002
Appendix D:5 Water Facilities, 2001
Appendix D:6 Existing and Approved Power Generating Sites
Appendix D:7 General Hospitals, 2000
Appendix D:8 Fire Departments, 2002
Appendix D:9 Library Services, 2001
Appendix D:10 School Districts, 2001-2002
Appendix D:11 Charter Schools, 2002

Table CF-1. Wastewater Treatment Facilities, 2002

Location / Facility Name	Design Flow (MGD)	Type of Treatment	Sewer Ext. Limitation	System Needs	No. Reported I/I SSO/Bypass
Calumet County					
Brillion	0.993	Activated Sludge	None		
Chilton	0.875	Activated Sludge	None	Proj. Need - 1.0 MGD	2
Forest Junction	0.029	Activated Sludge	None	Above 90% Flow	1
Hilbert	0.326	Oxidation Ditch	None		
New Holstein	1.300	Activated Sludge	None		
Potter	0.040	Activated Sludge	None		
Sherwood	0.259	Oxidation Ditch	None	New Facility is Planned	
Stockbridge	0.060	Activated Sludge	None	At 90% Flow	
Fond du Lac County					
Brandon	0.166	Activated Sludge	Yes		
Campbellsport	0.470	Activated Sludge	None		
Eden	0.151	Stabilization Pond	None	Above 90% Flow	
Fairwater	0.050	Stabilization Pond	Yes	Periodic Exceedance of 90% Design Flow & BOD & TSS Limits	
Fond du Lac*	11.000	Activated Sludge	None		4 (1 N. FDL)
Mt. Calvary	0.170	Aerated Lagoon	None		
Oakfield	0.305	Activated Sludge	None		
Ripon	2.000	Activated Sludge	None		
Rosendale	0.216	Stabilization Pond	None		
St. Cloud	0.044	Aerated Lagoon	None		
Green Lake County					
Green Lake*	0.282	Activated Sludge	None		
Green Lake Sanitary District No. 1					
Kingston	0.021	Aerated Lagoon	None	Above BOD & TSS Limits	
Markesan	0.362	Activated Sludge	None		
Princeton	0.277	Activated Sludge	Yes	Above 90% Flow	

Table CF-1 Cont. Wastewater Treatment Facilities, 2002

Location / Facility Name	Design Flow (MGD)	Type of Treatment	Sewer Ext. Limitation	System Needs	No. Reported I/I SSO/Bypass
Marquette County					
Endeavor					
Montello	0.300	Activated Sludge	None		
Neshkoro	0.060	Stabilization Pond	None		
Oxford	0.064	Activated Sludge	None		
WI Corp 7th Day Adventists[2] (Oxford)					
Packwaukee S.D. No. 1	0.050	Oxidation Ditch	Yes		
Westfield	0.250	Activated Sludge	Yes	Above 90% Flow	
Menominee County					
Keshena	0.015	Stabilization Pond	None		
Middle Village	0.065	Sequenced Batch Reactor	None		
Neopit	0.015	Stabilization Pond	None		
Outagamie County					
Appleton*	15.500	Activated Sludge	None	Above 90% Flow	
Bear Creek	0.100	Activated Sludge	None		
Black Creek	0.475	RBC[1]	None		
Dale S.D. No. 1	0.060	Aerated Lagoon	None		
Freedom S.D. No. 1	0.420	Activated Sludge	None		
Heart of the Valley M.S.D.*	9.000	Activated Sludge/UNOX	None	Interceptor @ capacity (I/I)	11 (10 C. Kaukauna)
Hortonville	0.500	RBC[1]	None		
Nichols	0.050	Activated Sludge	None		
Sanger B. Powers (Oneida - Private)					
Seymour	0.578	Activated Sludge	None		
Shiocton	0.151	Activated Sludge	None		
Stephensville S.D. No. 1	0.024	Oxidation Ditch	None		

Table CF-1 Cont. Wastewater Treatment Facilities, 2002

Location / Facility Name	Design Flow (MGD)	Type of Treatment	Sewer Ext. Limitation	System Needs	No. Reported I/I SSO/Bypass
Shawano County					
Birnamwood	0.146	Activated Sludge	None		
Bowler	0.336	Aerated Lagoon	None	Planning New Facility	
Caroline S.D. No. 1	0.018	Stabilization Pond	None		
Cecil	0.099	Stabilization Pond	None	Near 90% Flow	
Gresham	0.153	Aerated Lagoon	None		
Krakow S.D. No. 1	0.100	Activated Sludge	None		
Mattoon	0.038	Stabilization Pond	None	In Planning Phase	
Maple La. Health Care Ctr.[2](Shaw.)					
Wolf (Shawano) WWTF* (V. Bonduel)	3.000	Activated Sludge	None		
Tigerton	0.112	Activated Sludge	None		
Wittenberg	0.245	Aerated Lagoon	None	Phos., BOD, and I/I Concerns - FP Underway	
Waupaca County					
Clintonville	1.040	Activated Sludge	None		
Embarrass*	1.520	Stabilization Pond	None		
Fremont*	0.100	Aerated Lagoon	None	Above 100% BOD	
Iola	0.217	Activated Sludge	None		
Manawa	0.285	Activated Sludge	Yes	Above 100% Flow	
Marion	0.240	RBC[1]	None		
New London	2.000	Activated Sludge	None		
Scandinavia	0.040	Stabilization Pond	None		
Waupaca*	1.500	Activated Sludge	None	Potential High BOD	
Weyauwega	0.508	Activated Sludge	None		1

Table CF-1 Cont. Wastewater Treatment Facilities, 2002

Location / Facility Name	Design Flow (MGD)	Type of Treatment	Sewer Ext. Limitation	System Needs	No. Reported I/I SSO/Bypass
Waushara County					
Coloma	0.031	Stabilization Pond	None		
Berlin	1.500	Activated Sludge	None		
Hancock	0.066	Stabilization Pond	None		
Plainfield	0.097	Stabilization Pond	None		
Poy Sippi S.D. No. 1	0.048	Aerated Lagoon	None		
Redgranite	0.100	Activated Sludge	None		
Silver Lake S.D.*	2.140	Oxidation Ditch	None		
Wild Rose	0.117	Aerated Lagoon	None		
Winnebago County					
Edison Est. Mobile Home Pk[2] (Osh.)					
Grand Chute-Menasha West*	5.240	Activated Sludge	Yes	Above 90% Flow	4
Larsen-Winchester S.D. No. 1*	0.049	Stabilization Pond	None		
Neenah Menasha Sewerage Comm.*	12.800	Activated Sludge	None		4
N. Lake Poygan S.D. No. 1	0.029	Oxidation Ditch	None		
Omro*	0.540	Activated Sludge	None	Above 90% Flow	
Oshkosh*	20.000	Activated Sludge	None		
Poygan-Poy Sippi S.D.No. 1*	0.078	Aerated Lagoon	None		
Ridgeway Ctry. Club Inc.[2] (Neenah)					
Winneconne*	0.495	Activated Sludge	None		
Butte Des Morts Consolidated S.D. #1*	0.078	Aerated Lagoon	Yes	At Capacity	

Notes:

WWTFs are listed under the county where the actual facility is located, not by community.

[1]RBC - Rotating Biological Contactors

[2]Private

[3] (1 Greenville S.D., 3 Grand Chute SD#2)

[4](1 Waverly S.D., 1 Men. UD, 1 C. Neenah)

* = Regional facility serving more than one unit of government

NR-121 Plan Prepared and Administered by East Central Planning

Source: ECWRPC and Wisconsin Department of Natural Resources - March, 2001 & December, 2002, and MSA, 2002

Table CF-2. Sanitary Permits, 2000 – 2002

	Total Sanitary Permits Issued			
County	2000	2001	2002	3-Year Total
Calumet	data in process of being obtained			
Fond du Lac	data in process of being obtained			
Green Lake	38	54	60	152
Marquette	121	110	114	345
Menominee	data in process of being obtained			
Outagamie	263	409	349	1,021
Shawano	175	167	172	514
Waupaca	400	376	336	1,112
Waushara	365	313	341	1,019
Winnebago	170	145	175	490
Totals	1,532	1,574	1,547	4,653

Source: County Planning/Zoning Departments, 2003.

Table CF-3. Existing Drainage Districts

County	No. of Drainage Districts	Level of Activity
Calumet	0	n.a.
Fond du Lac	8	Low
Green Lake	6	Medium
Marquette	4	Low
Menominee	0	n.a.
Outagamie	8	High
Shawano	2	Low
Waupaca	8	Low
Waushara	8	Medium
Winnebago	2	Medium
Totals	46	n.a.

Source: Wisconsin Dept. of Agriculture, Trade & Consumer Protection - Nov., 1997

Table CF-4. Existing Landfills, 2002

Name	Location	Owner	Design Capacity Cubic Yds	Estimated Remaining Life Years	Type of Waste
Calumet County					
Appleton Coated LLC	T. Harrison	Private	525,000	>20	2
Superior Hickory Meadows LF	T. Chilton	Private	7,648,000	11.6	1,3,4,5,6,22,23
Fond du Lac County					
Sadoff & Rudoy Industries	T. Byron	Private	700,000	14.5	6
Green Lake County					
W M WI - Valley Trails	T. Berlin	Private	2,065,000	6.8	1,2,3,4,5,6,19,23
Outagamie County					
Appleton Coated LLC - Locks Mill	Combined Locks	Private	425,000	3	2,3
Outagamie County SW Div LF	T. Grand Chute/Vandenbroek	Public	3,250,000	>40	1,3,4,19,21
Thilmany Plase 5 Red Hills LF	T. Kaukauna	Private	2,749,471	16.7	2,3,6,21
Shawano County					
Shawano County Phase 2 LF	C. Shawano	Public	405,000	4.86	1,4,6
Waupaca County					
Waupaca Foundry Inc. LF #3	T. Waupaca	Private	1,339,000	3	4
Winnebago County					
General Chemical Corp. Alum LF	T. Neenah	Private	175,000	>100	6
Georgia-Pacific tissue LLC - N	T. Vinland	Private	3,062,000	1.3	NA
Winnebago County Sunneyview LF	T. Oshkosh	Public	8,000,000	11	1,3,19,21,22

NA: Not Available

Type of Waste: 1-Municpal solid waste, 2-Ashes/sludges from electric/process steam generating facilities, 3-Pulp/papermill sludges produced by waste treatment or MFG process, 4-Manufacturing solid waste from foundaries, 5-Sludges produced by municipal WWTF, 6-All other solid wastes not designaed as hazardous, 7-Hazardous wastes 8-Hazardous ashes or sludges from electicor process steam generating facilites, 9- Hazardous sludges produced by wase treament or MFG process, 10-Hazardous manufacturing process solid waste, 11- Hazardous sludges produced by WWTF, 12-Hazardous Tailing Solids, 13-Nonhazardous tailing solids or nonacid producing taconite solids, 14-Hazardous sludge, 15-Nonhazardous sludge, 16-Hazardous waste rock, 17-Nonhazardous waste rock or nonacid producing taconite waste rock, 18-Any prospecting or mining waste not specified in categories 12-17, 19-Waste exemp from fees-used as daily cover, berms, dikes, etc., 20-Ash from incineration for energy recovery, 21-High volume waste exempt from fees-used as daily cover, berms, dikes, etc., 22-Shredder flulff exempt from fees-used as daily cover, berms, dikes, etc., 23-Contaminated soil exempt from fees used as daily cover, berms, dikes, etc.

Source: WDNR

Table CF-5. Water Facilities, 2001

Location	Utility Class	Ave. No. Customers	Wells		Ave. Pumped Per Day (MGD)	Storage (000's Gallons)		
			Active	Inactive		Reservoir	Elevated Tank	Standpipe
Region		157,137	167	5	59.743	29,877	31,396	1,486
Calumet County		**6,863**	**16**	**1**	**2.568**	**1,113**	**1,775**	**250**
Brillion	C	1,156	3	1	0.886	NA	350	NA
Chilton	C	1,573	3	0	0.694	600	800	NA
Forest Junction Utilities	D	226	1	0	0.038	NA	50	NA
Hilbert	D	491	2	0	0.092	83	65	NA
New Holstein	C	1,316	3	0	0.491	365	310	NA
Sherwood	D	701	2	0	0.136	20.5	200	100
Stockbridge	D	318	2	0	0.040	44	NA	150
Waverly S.D.	D	1,082	a[1]	a[1]	0.190	NA	NA	NA
Fond du Lac County		**26,383**	**40**	**0**	**8.568**	**9,472**	**2,677**	**660**
Brandon	D	388	2	0	0.070	40	51.8	NA
Campbellsport	D	734	2	0	0.180	66	300	NA
Mary Hill Park S.D.	D	2	1	0	0.012	46.6	NA	NA
Fairwater	D	158	1	0	0.144	NA	50	NA
Fond du Lac	AB	16,447	16	0	5.461	8,000	1,075	NA
Mt. Calvary	D	231	2	0	0.048	NA	NA	100
North Fond du Lac	C	1,803	3	0	0.459	500	200	NA
Ripon	A	2,816	4	0	1.036	212.3	300	NA
Oakfield	D	378	2	0	0.142	75	NA	560
St. Cloud	D	194	2	0	0.031	NA	50	NA
Waupun	AB	3,232	5	0	0.986	532	650	NA
Green Lake County		**3,736**	**11**	**0**	**1.259**	**805**	**660**	**0**
Berlin	C	2,329	3	0	0.833	705	NA	NA
Dalton	D	74	2	0	0.009	0	10	0
Green Lake	D	699	2	0	0.156	NA	250	NA
Markesan	D	634	2	0	0.144	NA	200	NA
Princeton	C	725	2	0	0.118	100	200	NA
Marquette County		**632**	**2**	**0**	**0.162**	**0**	**250**	**0**
Montello	D	632	2	0	0.162	NA	250	NA
Menominee County		**663**	**9**	**0**	**0.339**	**0**	**529**	**0**
Keshena	D	309	1	0	0.190	NA	250	NA
Middle Village	-	60	1	0	0.020	NA	75	NA
Neopit	-	224	2	0	0.120	NA	200	NA
Red Wing	-	21	2	0	0.003	NA	2	NA
Trailer Court	-	20	1	0	0.002	NA	1	NA
Zoar	-	29	2	0	0.004	NA	1	NA
Outagamie County		**51,865**	**23**	**2**	**18.514**	**2,639**	**10,975**	**0**
Appleton	AB	25,220	b[1]	b[1]	10.021	NA	6,530	NA
Bear Creek	D	163	2	0	0.034	NA	75	NA
Black Creek	D	469	2	0	0.460	NA	460	NA
Combined Locks	D	1,033	a[2]	a[2]	0.315	NA	NA	NA
Darboy S.D.	C	3,035	3, a[2]	0, a[2]	0.708	500	300	NA
Grand Chute S.D. #1	AB	6,436	a[3]	a[3]	2.124	NA	500	NA

Table CF-5 Cont. Water Facilities, 2001

Location	Utility Class	Ave. No. Customers	Wells		Ave. Pumped Per Day (MGD)	Storage (000's Gallons)		
			Active	Inactive		Reservoir	Elevated Tank	Standpipe
Outagamie County (Cont)								
Greenville S.D.	D	1,612	2	1	0.459	NA	600	NA
Hortonville	D	910	2	0	0.161	NA	300	NA
Kaukauna	AB	4,926	4	1	1.327	579	1,000	NA
Kimberly	C	2,421	3	0	1.218	430	350	NA
Little Chute	C	3,774	3	0	1.292	1,050	350	NA
Nichols	D	128	1	0	0.019	NA	100	NA
Seymour	C	1,345	2	0	0.305	80	350	NA
Shiocton	D	393	2	0	0.070	NA	60	NA
Shawano County		**7,989**	**20**	**1**	**2.434**	**2,600**	**1,410**	**50**
Birnamwood	D	293	2	0	0.075	NA	50	NA
Bonduel	D	560	3	0	0.113	NA	300	NA
Bowler	D	145	1	0	0.027	100	NA	50
Gresham	D	246	2	0	0.041	0	100	0
Mattoon	D	185	1	1	0.058	NA	100	NA
Shawano	AB	3,521	4	0	1.445	2,000	250	NA
Shawano Lake S.D.	C	2,208	3	0	0.485	500	400	NA
Tigerton	D	364	2	0	0.059	NA	60	NA
Wittenberg	D	467	2	0	0.129	NA	150	NA
Waupaca County		**10,143**	**33**	**1**	**6.262**	**445**	**3,835**	**482**
Clintonville	C	1,978	6	0	0.429	NA	650	NA
Embarrass	D	166	1	1	0.032	NA	NA	50
Iola	D	456	2	0	0.151	NA	NA	132
Manawa	D	538	5	0	0.159	245	200	NA
Marion	D	559	2	0	0.219	100	250	NA
New London	AB	2,663	7	0	2.056	NA	900	NA
Waupaca	AB	2,993	7	0	2.633	NA	1,500	300
Weyauwega	D	790	3	0	0.583	100	335	NA
Waushara County		**2,069**	**9**	**0**	**0.630**	**60**	**525**	**44**
Coloma	D	230	2	0	0.120	NA	NA	44
Hancock	D	183	1	0	0.040	NA	50	NA
Plainfield	D	337	2	0	0.112	NA	50	NA
Redgranite	D	431	2	0	0.137	60	175	NA
Wautoma	D	888	2	0	0.222	NA	250	NA
Winnebago County		**46,794**	**4**	**0**	**19.007**	**12,744**	**8,760**	**0**
Menasha	AB	5,018	b[1,2]	b[1,2]	3.206	3,800	1,250	NA
T. Menasha	AB	7,461	4, a[4]	0, a[4]	2.950	3,000	900	NA
Neenah	AB	9,650	b[1,2]	b[1,2]	4.771	3,000	1,400	NA
Omro	C	1,277	2	0	0.251	NA	400	NA
Oshkosh	AB	22,297	b[1]	b[1]	7.622	2,767	4,250	NA
Winneconne	D	1,091	2	0	0.207	177	560	NA

Note: a Purchase

[1]Town of Menasha [2]Village of Kimberly [3]City of Appleton [4]City of Menasha

b Surface Water

[1] Lake Winnebago [2]Fox River

Source: *2001 Annual Reports*, Wisconsin Public Service Commission (www.psc., Menominee Tribal Utility.

Table CF-7. Existing and Approved Power Generating Sites

Site	Fuel Type	Number of Units	Capacity MW	Existing	Proposed
Fond du Lac County					
So. Fond du Lac[1]	Gas	4	336	X	
Rosier	Wind	NA	0.7	X	
Marquette County					
Lawrence Lake	Hydro	NA	NA	X	
Westfield	Hydro	NA	1	X	
Harrisville	Hydro	NA	2	X	
Menominee County					
Neopit	Hydro	NA	1	X	
Outagamie County					
Kaukauna, City					
Kaukauna	Hydro	NA	4.8	X	
Combined Locks	Hydro	NA	7	X	
Lower Kaukauna	Hydro	NA	4.8	X	
Little Chute	Hydro	NA	3.3	X	
Rapids Croche	Hydro	NA	2.4	X	
Kaukauna, City[2]	Gas	1	18	X	
Kaukauna, City[2,3]	Oil	3	6	X	
Wisconsin Public Power, Inc.[1]	Gas	1	55		X
Fox Energy[1]	Gas	1	635		X
Lower Appleton	Hydro	NA	6	X	
Middle Appleton	Hydro	NA	1.3	X	
Upper Appleton	Hydro	NA	31	X	
Kimberly	Hydro	NA	27	X	
Shawano County					
Carroll	Hydro	NA	0	X	
Weed	Hydro	NA	0.6	X	
Upper Shawano	Hydro	NA	0.7	X	
Shawano	Hydro	NA	0.4	X	
Gresham	Hydro	NA	0.3	X	
Waupaca County					
Felt Mill	Hydro	NA	2	X	
Weyauwega	Hydro	NA	0.4	X	
Waushara County					
Lower White River	Hydro	NA	2	X	
Idlewild	Hydro	NA	1	X	
Winnebago County					
Menasha[2]	Coal	2	21.2	X	
Alliant[1]	Gas	2	314	X	
Minergy LLC[1]	Biomass	NA	6.5	X	

Source: [1] *Strategic Energy Assessment, Draft Report, Wisconsin Public Service Commission, July 2002,*
[2] *Wisconsin Energy Statistics/2000, Wisconsin Energy Division, Department of Administration,*
[3]Will be taken out of service on May 1, 2003.
Public Service Commission, Wisconsin Department of Natural Resources, City of Kaukauna.

NA - Not Available

Table CF-8. General Hospitals, 2000

Hospitals	Location	Number of Beds	Occupancy Rate
Wisconsin		13,000	54.0%
East Central Region		1,046	51.9%
Urban	-	887	55.5%
Rural	-	159	31.6%
Calumet County			
Calumet Medical Center, Inc.	Chilton	26	22.5%
Fond du Lac County			
Agnesian Healthcare Inc.	Fond du Lac	94	91.1%
Ripon Medical Center	Ripon	30	33.7%
Green Lake County			
Berlin Memorial	Berlin	61	27.0%
Outagamie County			
Appleton Medical Center	Appleton	144	62.2%
St. Elizabeth	Appleton	168	55.7%
New London Family Medical Center	New London	39	23.4%
Shawano County			
Shawano Medical Center	Shawano	46	39.8%
Waupaca County			
Riverside Medical Center	Waupaca	25	51.0%
Waushara County			
Wild Rose Community Memorial Hospital	Wild Rose	27	9.9%
Winnebago County			
Theda Clark Medical Center	Neenah	214	49.8%
Mercy Medical Center	Oshkosh	172	53.5%

Source: *Guide to Wisconsin Hospitals, Fiscal Year 2000. Office of Health Care Information.*

Figure CF-15. Fire Department, 2002

Fire Department	Coverage Area	Class
Calumet County		
Brillion FD	C. Brillion, T. Brillion (partial)	5,7/9
Chilton FD	C. Chilton, T. Charlestown (partial), T. Brothertown (partial), T Chilton (partial)	3, 3/9
Kiel FD	C. Kiel	4
New Holstein FD	C. New Holstein, T. Charlestown (partial), T. New Holstein (partial)	3, 6/9
Hilbert FD	V. Hilbert, T. Chilton (partial), T. Woodville (partial)	6, 6/9
Potter FD	V. Potter, T. Charlestown (partial), T. Rantoul	8, 8/9
Stockbridge FD	V. & T. Stockbridge	6, 8/9
Harrison FD	T. Harrison (partial)	5/9
Forest Junction FD	Forest Junction, T. Brillion (partial)	7/9
Harrison #1 FD	V. Sherwood, T. Harrison (partial), T. Woodville (partial)	6, 6/9
Hollandtown FD (Brown Co.)	T. Woodville (partial), T. Buchanan (Out. Co.)	7/9
St. Anna FD	T. New Holstein (partial)	7/9
Fond du Lac County		
C. Fond du Lac FD	C. Fond du Lac	3
T. Fond du Lac FD	T. Fond du Lac	8/9
Ripon FD	C. Ripon, T. Metomen (partial), T. Brooklyn (Gr. Lk Co.) T. Green Lake (Gr. Lk Co. - partial), T. Ripon, T. Nepeuskun (Winn. Co. - partial)	4/9
Waupun FD	C. Waupun	4, 4/9
Waupun, Town of FD	T. Waupun (partial)	NA
Brandon FD	V. Brandon, T. Metomen (partial), T. Springvale (partial), T. Waupun (partial)	5/9
Campbellsport FD	V. Campbellsport, T. Ashford (part), T. Auburn (part), T. Osceola (part)	6, 8/9
Eden FD	V. Eden, T. Byron (part.), T. Empire (part.), T. Eden T. Osceola (part.)	7, 7/9
Fairwater FD	V. Fairwater	8
Mt. Calvary FD	V. Mt. Calvary, T. Empire (partial), T. Forest (partial) T. Marshfield (partial), T. Taycheedah (partial)	5, 7/9
North Fond du Lac FD	V. North Fond du Lac	6
Oakfield FD	V. Oakfield, T. Byron (partial), T. Oakfield	6, 6/9
Rosendale FD	V. Rosendale, T. Rosendale, T. Springvale (partial)	9/9
St. Cloud FD	V. St. Cloud, T. Forest (partial), T. Marshfield (partial)	6, 6/9
Alto FD	T. Alto	9/9
Calumet (Pipe) FD	T. Brothertown Cal. Co. - part), T. Calumet, T. Taycheedah (partial)	7/9
Lamartine FD	T. Lamartine	6/9
Eldorado FD	T. Eldorado	9/9
Brownsville FD (Dodge Co.)	T. Byron (partial)	6/9
Van Dyne	T. Black Wolf (Winn. Co.), T. Friendship	8/9
Lomira FD (Dodge Co.)	T. Byron (partial), T. Ashford (partial)	NA
Kewaskum FD (Washington)	T. Auburn (partial)	4/9

Figure CF-15 Cont. Fire Department, 2002

Fire Department	Coverage Area	Class
Green Lake County		
Berlin FD	C. & T. Berlin, T. Seneca, T. Aurora (Waus. Co.) T. Rushford & T. Nepeukum (part) (Winn. Co.) T. Warren (Waushara Co. - part)	4, 4/9
Green Lake FD	C. Green Lake	5, 5/9
Markesan FD	C. Markesan, V. & T. Manchester, T. Mackford, T. Green Lake (partial)	5, 5/9
Princeton FD	C. Princeton, T. St. Marie, T. Princeton, T. Mecan (Marq. Co.)	5, 5/9
Kingston FD	V. Kingston	7
Marquette FD	V. & T. Marquette	9/9
Dalton FD	Dayton, T. Kingston	8/9
Marquette County		
Montello FD	C. & T. Montello, T. Buffalo, T. Packwaukee, T. Shields	4, 4/9
Endeavor FD	V. Endeavor, T. Moundsville (partial)	7, 7/9
Neshkoro FD	V. Neshkoro, T. Crystal Lake, T. Neshkoro, T. Marion (Partial - Waus. Co.)	9
Oxford FD	V. Oxford, T. Oxford	8/9
Westfield FD	V. Westfield, T. Westfield	9
Harris FD	T. Harris	9/9
Springfield FD	T. Springfield (partial)	9/9
Briggsville FD	Briggsville, T. Douglas, T. Moundsville (partial)	7/9
Newton FD	T. Newton, T. Springfield (partial)	9/9
Menominee County		
T. Menominee FD	T. Menominee, T. Red Springs (Shaw. Co. - partial)	7/9
Outagamie County		
Outagamie County Airport	Outagamie County Airport - T. Greenville (partial)	NA
Appleton FD	C. Appleton (Outagamie, Calumet, Winnebago Co.)	2
Kaukauna FD	C. Kaukauna	4
C. Seymour FD	C. Seymour	6
Bear Creek FD	V. Bear Creek, T. Maple Creek (partial), T. Deer Creek T. Lebanon & T. Bear Creek (Waup. Co.-partial)	8/9
Black Creek FD	V. Black Creek, T. Black Creek	5, 5/9
Combined Locks FD	V. Combined Locks	6
Kimberly FD	V. Kimberly	4
Little Chute FD	V. Little Chute	4
Nichols FD	V. Nichols, T. Cicero, T. Maine (partial)	7, 7/9
Wrightstown (Brown Co.)	V. Wrightstown	6, 9
Buchanan FD	T. Buchanan (partial)	4/9
Center FD	T. Center	6/9
Dale FD	T. Dale, T. Caledonia & Readfield	8/9
Ellington FD	T. Ellington	7/9
Freedom FD	T. Freedom	7/9

Figure CF-15 Cont. Fire Department, 2002

Fire Department	Coverage Area	Class
Outagamie County Cont.		
Grand Chute FD	T. Grand Chute	4, 7/9
Greenville FD	T. Greenville (partial)	5/9
Oneida FD	T. Oneida	6/9
Osborn FD	T. Osborn	7/9
T. Seymour FD	T. Seymour	7/9
Hortonville-Hortonia FD	V. Hortonville, T. Hortonia, T. Liberty (partial)	6, 6/9
Shiocton FD	V. Shiocton. T. Bovina, T. Liberty (partial), T. Maine (partial)	6, 6/9
VandenBroek FD	T. VandenBroek, T. Kaukauna	7/9
Shawano County		
Shawano Area FD	C. Shawano, T. Belle Plaine, T. Richmond, T. Waukechon T. Wescott	3, 5/9
Birnamwood FD	V. & T. Aniwa, V. Eland, V. & T. Birnamwood,	6/9
Bonduel FD	V. Bonduel, T. Hartland	6, 6/9
Bowler FD	V. Bowler, T. Almon, T. Bartelme (partial), T. Seneca, T. Morris (partial)	7, 7/9
Cecil/Washingon FD	V. Cecil, T. Washington	5/9
Gresham FD	V. Gresham, T. Herman, T. Red Springs (partial)	8, 8/9
Mattoon FD	V. Mattoon, T. Hutchins	6, 6/9
Tigerton FD	V. Tigerton, T. Fairbanks, T. Germania, T. Morris (partial) T. Wyoming (Waupaca Co. - partial)	6, 6/9
Wittenberg FD	V. & T. Wittenberg, T. Mt. Morris (partial)	6/9
Green Valley FD	T. Green Valley	9/9
Pella FD	T. Pella (partial), T. Herman (partial)	9/9
Tri County FD	T. Angelica, T. Maple Grove	7/9
Navarino/Lessor FD	T. Navarino, T. Lessor	9/9
Stockbridge	T. Bartelme (partial), T. Red Springs (partial)	9/9
Grant FD	T. Grant, T. Pella (partial)	9/9
Waupaca County		
Clintonville FD	C. Clintonville, T. Bear Creek (part), T. Larabee T. Matteson	5, 5/9
Manawa FD	C. Manawa, T. Union, T. Little Wolf, T. Royalton (partial) T. Lebanon (partial)	5, 5/9
Marion FD	C. Marion, T. Dupont, V. Big Falls, T. Wyoming (partial)	5, 5/9
New London FD	C. New London, T. Maple Creek (Out. Co. - partial), T. Liberty (Out. Co. - part), T. Caledonia (partial), T. Lebanon (partial)	5/9
New London/Mukwa FD	T. Mukwa (partial)	9
Waupaca FD	C. & T. Waupaca, T. Dayton, T. Lind (part), T. Farmington	5, 8/9
Weyauwega FD	C. & T. Weyauwega, T. Royalton (partial), T. Lind (partial) T. Mukwa (part), T. Caledonia (part), T. Fremont (part)	4, 7/9
Embarrass FD	V. Embarrass	6

Figure CF-15 Cont. Fire Department, 2002

Fire Department	Coverage Area	Class
Waupaca County (cont.)		
Fremont/Wolf River FD	V. Fremont, T. Fremont (partial), T. Wolf River (Winn. Co.- partial)	9, 9/9
Iola FD	V. Iola, T. Harrison, T. Helvetia, T. Iola	6, 6,9
Ogdensburg FD	V. Ogdensburg, T. St. Lawrence	9/9
Scandinavia FD	V. & T. Scandinavia	NA
Mukwa FD	T. Mukwa (partial)	9/9
King FD	King	5
Waushara County		
Coloma FD	V. & T. Coloma, T. Richford (partial)	7, 7/9
Hancock FD	V. & T. Hancock, T. Deerfield (partial)	7/9
Plainfield FD	V. & T. Plainfield, T. Oasis	6/9
Redgranite FD	V. Redgranite, T. Marion (partial), T. Mt. Morris (partial) T. Leon (partial), T. Warren (partial), V. Lohrville	5, 5/9
Wild Rose FD	V. Wild Rose, T. Rose, T. Springwater (partial) T. Wautoma (partial), T. Mt. Morris (partial)	8, 8/9
Poy Sippi FD	T. Poy Sippi, T. Saxeville (partial), T. Leon (partial)	8/9
Saxeville FD	T. Saxeville (partial), T. Springwater (partial)	8/9
W. Bloomfield/Tustin FD	T. Bloomfield	9/9
Wautoma Area Fire Dept	T. Dakota, T. Deerfield (partial), T. Marion,. T. Mt. Morris, T. Richford (partial), C. Wautoma	5, 5/9
Winnebago County		
Menasha FD	C. Menasha	3, 3/4
Neenah FD	C. Neenah	3
Omro FD	C. Omro, T. Rushford, T. Omro	4, 4/9
Oshkosh FD	C. Oshkosh	2
Winneconne FD	V. Winneconne, T. Poygan, T. Winneconne	4, 4/9
Menasha FD, Town	T. Menasha	5
Neenah FD, Town	T. Neenah	6
Nekimi FD	T. Nekimi	9/9
Oshkosh FD, Town	T. Oshkosh	7
Utica FD	T. Utica	7/9
Vinland FD	T. Vinland	9/9
Boon Bay	T. Wolf River (Partial)	9
Larson-Winchester	T. Clayton, T. Winchester	9/9
Fremont/Wolf River FD	T. Wolf River (Partial) see Fremont, Boon Bay & Tustin FD	9/9
Tustin FD	T. Wolf River (Partial)	9/9
Algoma FD	T. Algoma	6/9

Source: Counties, towns, fire departments and ISO.

Note: ECWRPC has made every effort to ensure that the information contained in this table is correct, however due to source inconsistencies, some errors may exist.

Table CF-17. Library Services, 2001

ID No.	Location	Number of Libaries: Total	Public	Academic	Special	Total Service Pop	Public Libraries: Number of Volumes	Volumes Per Person
	Wisconsin	993	387	139	467	5,400,449	18,949,714	3.51
	Region	89	57	9	23	608,816	2,193,534	3.60
	Calumet County	3	3	0	0	29,263	113,364	3.87
42	Brillion	1	1	0	0	6,973	32,732	4.69
62	Chilton	1	1	0	0	16,269	43,834	2.69
231	New Holstein	1	1	0	0	6,021	36,798	6.11
	Fond du Lac County	14	6	4	4	94,624	339,084	3.58
41	Brandon	1	1	0	0	1,322	7,409	5.60
55	Campbellsport	1	1	0	0	4,463	16,568	3.71
109	Fond du Lac	7	1	3	3	69,600	222,138	3.19
235	North Fond du Lac	1	1	0	0	5,729	20,700	3.61
239	Oakfield	1	1	0	0	2,183	15,815	7.24
295	Ripon	2	1	1	0	11,327	56,454	4.98
	Taycheedah	1	0	0	1	na	0	0.00
	Green Lake County	6	5	0	1	19,247	102,860	5.34
29	Berlin	2	1	0	1	8,446	49,637	5.88
128	Green Lake	1	1	0	0	3,797	23,862	6.28
162	Kingston	1	1	0	0	1,405	5,730	4.08
193	Markesan	1	1	0	0	2,854	12,287	4.31
281	Princeton	1	1	0	0	2,745	11,344	4.13
	Marquette County	6	6	0	0	14,663	61,058	4.16
103	Endeavor	1	1	0	0	1,038	12,795	12.33
216	Montello	1	1	0	0	4,303	10,432	2.42
228	Neshkoro	1	1	0	0	2,566	10,738	4.18
256	Oxford	1	1	0	0	1,388	10,178	7.33
257	Packwaukee	1	1	0	0	1,377	6,152	4.47
366	Westfield	1	1	0	0	3,991	10,763	2.70
	Menominee County	1	1	0	0	4,591	9,441	2.06
157	Keshena	1	1	0	0	4,591	9,441	2.06
	Outagamie County	15	8	2	5	171,480	512,334	2.99
10	Appleton	8	1	2	5	103,806	295,450	2.85
31	Black Creek	1	1	0	0	3,817	16,035	4.20
143	Hortonville	1	1	0	0	7,973	15,965	2.00
154	Kaukauna	1	1	0	0	18,117	63,378	3.50
161	Kimberly	1	1	0	0	27,258	83,825	3.08
	Little Chute	1	1	0	0	a	a	a
306	Seymour	1	1	0	0	7,668	26,741	3.49
312	Shiocton	1	1	0	0	2,841	10,940	3.85

Table CF-17 Cont. Library Services, 2001

ID No.	Location	Number of Libaries: Total	Public	Academic	Special	Total Service Pop	Public Libraries: Number of Volumes	Volumes Per Person
	Shawano County	6	6	0	0	40,901	128,550	3.14
	Birnamwood	1	1	0	0	b	b	b
	Bonduel	1	1	0	0	b	b	b
	Mattoon-Hutchins	1	1	0	0	b	b	b
308	Shawano	1	1	0	0	40,901	128,550	3.14
	Tigerton	1	1	0	0	b	b	b
	Wittenberg	1	1	0	0	b	b	b
	Waupaca County	10	9	0	1	53,540	257,101	4.80
66	Clintonville	1	1	0	0	8,092	49,791	6.15
115	Fremont	1	1	0	0	1,897	13,939	7.35
148	Iola	1	1	0	0	3,719	16,656	4.48
	King	1	0	0	1	na	0	0.00
188	Manawa	1	1	0	0	3,732	17,240	4.62
192	Marion	1	1	0	0	2,252	23,705	10.53
233	New London	1	1	0	0	12,323	45,039	3.65
305	Scandinavia	1	1	0	0	885	5,985	6.76
356	Waupaca	1	1	0	0	17,676	66,424	3.76
367	Weyawega	1	1	0	0	2,964	18,322	6.18
	Waushara County	8	8	0	0	23,282	84,686	3.64
70	Coloma	1	1	0	0	1,510	9,877	6.54
135	Hancock	1	1	0	0	785	5,932	7.56
266	Pine River	1	1	0	0	2,632	11,682	4.44
269	Plainfield	1	1	0	0	1,786	14,183	7.94
275	Poy Sippi	1	1	0	0	2,597	8,596	3.31
286	Redgranite	1	1	0	0	1,672	9,019	5.39
359	Wautoma	1	1	0	0	8,151	14,789	1.81
371	Wild Rose	1	1	0	0	4,149	10,608	2.56
	Winnebago County	20	5	3	12	157,225	585,056	3.72
201	Menasha	3	1	1	1	23,435	121,595	5.19
225	Neenah	5	1	0	4	40,040	134,831	3.37
245	Omro	1	1	0	0	3,171	26,954	8.50
253	Oshkosh	7	1	2	4	86,168	276,836	3.21
	Winnebago	3	0	0	3	na	0	0.00
375	Winneconne	1	1	0	0	4,411	24,840	5.63

Note: a This is a branch library. Its volumes are included within the Kimberly Public Library.
b This is a branch library. Its volumes are included within the Shawano Public Library.
na Not Applicable

Source: *Wisconsin Library Service Record, 2000 and 2001* , Wisconsin Department of Public Instruction. www.dpi.state.wi.us

Table CF-18. School Districts, 2001-2002

Name of School District	District Code	Enrollment	Pupil/Teacher Ratios	Valuation Per Pupil	Expenditure Per Pupil
Wisconsin		879,361	14.48	341,348	7,522
Region		122,172	14.60	298,993	7,265
Calumet County					
Brillion	0658	866	13.24	267,173	8,027
Chilton	1085	1,324	15.05	234,197	6,396
Hilbert	2534	493	12.71	290,254	8,070
Kiel Area	2828	1,517	15.55	255,377	7,477
New Holstein	3941	1,242	13.56	347,265	7,407
Stockbridge	5614	270	11.07	374,440	8,644
Fond du Lac County					
Campbellsport	0910	1,561	15.16	343,414	6,886
Fond du Lac	1862	7,228	14.99	317,621	6,826
Kewaskum	2800	1,926	14.73	351,827	7,639
Lomira	3171	1,111	15.05	265,858	7,846
North Fond du Lac	3983	1,224	14.26	249,352	7,732
Oakfield	4025	661	14.00	209,129	7,857
Ripon	4872	1,688	14.42	274,936	7,907
Rosendale-Brandon	4956	1,029	14.25	235,581	8,443
Waupun	6216	2,367	12.85	271,161	7,775
Green Lake County					
Berlin Area	0434	1,802	14.54	237,345	7,364
Cambria-Friesland	0882	514	15.14	224,046	6,986
Green Lake	2310	360	10.66	1,344,897	9,920
Markesan	3325	948	14.89	401,476	8,468
Princeton	4606	471	12.62	509,491	8,204
Marquette County					
Montello	3689	822	13.93	467,955	7,302
Portage Community	4501	2,542	13.63	309,966	7,371
Westfield	6335	1,346	13.40	446,553	7,764
Wisconsin Dells	6678	1,735	13.69	672,306	7,584
Menominee County					
Menominee Indian	3434	993	8.99	160,416	9,271
Outagamie County					
Appleton	0147	14,800	15.59	300,790	7,099
Freedom	1953	1,574	16.27	237,259	6,668
Hortonville	2583	2,764	14.01	284,623	7,111
Kaukauna Area	2758	3,641	15.34	248,243	7,407
Kimberly Area	2835	3,330	15.64	274,291	6,689
Little Chute Area	3129	1,546	16.34	214,829	6,777
Seymour Community	5138	2,443	15.95	188,572	7,030
Shiocton	5348	860	14.14	196,895	7,594
West Depere	6328	1,915	14.47	419,733	7,369
Wrightstown Community	6734	1,005	14.16	273,429	7,730

Table CF-18 Cont. School Districts, 2001-2002

Name of School District	District Code	Enrollment	Pupil/Teacher Ratios	Valuation Per Pupil	Expenditure Per Pupil
Shawano County					
Antigo	0140	3,022	13.39	239,590	7,597
Bonduel	0602	871	14.74	315,429	8,129
Bowler	0623	537	10.79	148,994	7,912
Gillett	2128	868	14.31	196,433	6,626
Pulaski Community	4613	3,404	14.77	245,902	7,749
Shawano-Gresham	5264	3,001	15.51	300,991	6,572
Tigerton	5740	407	11.75	202,923	8,090
Wittenberg-Birnamwood	6692	1,432	14.69	214,476	7,111
Waupaca County					
Clintonville	1141	1,608	13.37	247,728	8,183
Iola-Scandinavia	2639	830	13.99	278,797	6,908
Manawa	3276	918	14.72	217,940	7,980
Marion	3318	641	13.37	254,904	7,088
New London	3955	2,540	15.14	240,364	7,199
Rosholt	4963	775	15.38	248,701	7,498
Waupaca	6195	2,695	13.65	318,122	7,292
Weyauwega-Fremont	6384	1,124	13.88	315,475	7,439
Waushara County					
Almond-Bancroft	0105	540	13.04	193,261	7,478
Tri-County Area	4375	860	13.46	266,543	7,239
Wautoma Area	6237	1,630	13.21	363,639	6,521
Wild Rose	6475	771	14.08	516,442	7,321
Winnebago County					
Menasha	3430	3,677	14.98	275,590	6,868
Neenah	3892	6,595	15.98	366,539	7,152
Omro	4088	1,235	14.15	240,780	8,123
Oshkosh Area	4179	10,638	14.97	293,031	6,842
Winneconne Community	6608	1,635	15.01	338,401	7,355

Source: *Basic Facts About Wisconsin's Elementary and Secondary Schools, 2001 - 2002* .
Wisconsin Department of Public Instruction. www.dpi.state.wi.us/dpi/dfm/sfms/basicpdf.htm

Table CF-19. Charter Schools, 2002

Name of School District	District Code	Charter School	School Code	Focus	Grade	Year Established	Enrollment	Teacher FTE
Region							1,049	48.10
Fond du Lac County								
Ripon	4872	Enterprise Charter School[1]	9800	At-Risk	6 - 12	2000	1	
Waupun	6216	Waupun Alternative High	0400	At-Risk	9 - 12	2000	41	3.2
Outagamie County								
Appleton	0147	Appleton Central Alt Sch	0400	At-Risk	9 - 12	1996	91	4.2
Appleton	0147	Appleton Lrng Center	0230	At-Risk	7 - 8	2000	6	1.0
Appleton	0147	Appleton eSchool	0440	Internet	9 - 12	2002	9	0.8
Appleton	0147	Classical Charter School	0110	General	KG - 8	1999	316	14.0
Appleton	0147	Elementary TAG School	0115	Gifted	5 - 6	2002	39	3.0
Appleton	0147	Magellan Middle School	0210	Gifted	7 - 8	2000	38	2.4
Appleton	0147	Renaissance School	0420	Arts	9 - 12	2000	140	3.1
Appleton	0147	Tesla Engineering Charter Sch	0430	Engineerng	9 - 12	2002	34	1.4
Appleton	0147	Wisconsin Connections Acad	0125	Virtual	KG - 8	2002	238	6.0
Appleton	0147	District Totals					911	
Waupaca County								
Clintonville	1141	Waupaca County Charter[2]	9408	At-Risk	6 - 12	1998	3	
Iola-Scandinavia	2639	Waupaca County Charter[2]	9408	At-Risk	6 - 12	1998	2	
Manawa	3276	Waupaca County Charter[2]	9408	At-Risk	6 - 12	1998	1	
New London	3955	Waupaca County Charter[2]	9408	At-Risk	6 - 12	1998	2	
New London	3955	Castle Charter School	0850	At-Risk	7 - 12	2002	35	2.0
Waupaca	6195	Waupaca County Charter[2]	9408	At-Risk	6 - 12	1998	4	
Weyauwega-Fremont	6384	Waupaca County Charter[2]	9408	At-Risk	6 - 12	1998	2	2.0
Winnebago County								
Menasha	3430	School on the Lake	0200	Environment	6 - 8	2000	43	2.0
Omro	4088	Enterprise Charter School	9800	At- Risk	6 - 12	2000	4	1.0
Oshkosh Area	4179	EAA/Oshkosh 3rd Gr Aviation	0115	Aviation	3	2001	40	2.0

Source: *Wisconsin Charter Schools, 2001 - 02* , Wisconsin Department of Public Instruction

Wisconsin Department of Public Instruction. www.dpi.state.wi.us/dpi

School Districts

[1]See Enterprise Charter School, Omro. Enrollment is for Ripon School District, students are transported to Omro.

[2]Enrollment is for individual school districts. All students are transported to Weyauwega-Fremont site, CESA 8 provides 2 teachers.

AGRICULTURAL RESOURCES APPENDIX

Appendix E:1 Table Series AR-8

Table Series AR-8: Highlights of Agriculture, 1997 and 1992 - Calumet County

ITEM	ALL FARMS 1997	ALL FARMS 1992
Farms .....number..	703	796
Land in farms .....acres..	143,579	162,205
Average size of farm .....acres..	204	204
Value of land and buildings*:		
Average per farm .....dollars..	271,733	229,006
Average per acre .....dollars..	1,359	1,105
Estimated market value of all machinery and equipment*		
Average per farm .....dollars..	83,603	78,685
Farms by size:		
1 to 9 acres	54	52
10 to 49 acres	108	92
50 to 179 acres	257	316
180 to 499 acres	238	289
500 to 999 acres	32	34
1,000 acres or more	14	13
Total cropland .....farms..	665	745
acres..	122,247	140,254
Harvested cropland .....farms..	625	723
acres..	111,518	125,145
Irrigated land .....farms..	4	13
acres..	6	304
Market value of agricultural products sold.....$1,000..	75,984	77,226
Average per farm .....dollars..	108,086	97,018
Crops, including nursery and greenhouse crops.....$1,000..	12,978	8,582
Livestock, poultry, and their products.....$1,000..	63,007	68,644
Farms by value of sales:		
Less than $2,500	87	59
$2,500 to $4,999	33	53
$5,000 to $9,999	63	65
$10,000 to $24,999	95	89
$25,000 to $49,999	83	68
$50,000 to $99,999	97	168
$100,000 or more	245	294
Total farm production expenses.$1,000..	56,392	57,818
Average per farm .....dollars..	80,216	72,727
Operators by principal occupation:		
Farming	474	601
Other	229	195
Operators by days worked off farm:		
Any	278	287
200 days or more	210	213

Calumet County (cont'd)

Livestock and poultry:			
Cattle and calves inventory	farms	467	591
	number	50,497	58,402
Beef cows	farms	58	62
	number	679	1 096
Milk cows	farms	322	459
	number	22,020	26,190
Cattle and calves sold	farms	465	585
	number	23,427	26,325
Hogs and pigs inventory	farms	33	51
	number	2,230	3,720
Hogs and pigs sold	farms	27	50
	number	4,744	9,156
Sheep and lambs inventory	farms	11	21
	number	204	324
Layers and pullets 13 weeks old and older inventory	farms	13	22
	number	(D)	(D)
Broilers and other meat-type chickens sold	farms	3	4
	number	(D)	220
Selected crops harvested:			
Corn for grain or seed	farms	412	479
	acres	26,509	31,170
	bushels	3,168,068	2,983,251
Corn for sil or green chop	farms	334	461
	acres	12,485	16,709
	tons, green	174,987	193,095
Oats for grain	farms	189	365
	acres	3,949	8,839
	bushels	275,469	629,656
Soybeans for beans	farms	241	173
	acres	14,481	8,469
	bushels	648,570	243,370
Potatoes, excl. sweet potatoes	farms	3	0
	acres	1	0
	cwt	425	0
Hay-alf, other, wild, silage	farms	527	639
	acres	48,634	57,344
	tons, dry	121,950	116,748
Vegetables harvested	farms	62	73
	acres	3,576	5,084

* Data are based on a sample of farms.

Legend:
(D) Withheld to avoid disclosing data for individual farms
(X) Not applicable
(Z) Less than half the unit shown
(NA) Not available

Source: 1997 Census of Agriculture, Volume 1 Geographic Area Series, "Table 1. County Summary Highlights: 1997." This electronic series presents summary statistics for each county and State together with comparable data from the 1992 census. The items included are the same for all States and counties, except selected crops harvested, which vary by State. Data for 1997 and 1992 are directly comparable for acreage and inventories. Dollar values have not been adjusted for change sin price levels.

You can obtain the Volume 1 Geographic Area Series from the National Technical Information Service. If you have any questions concerning the data in this report or need additional information or order forms for agriculture publications, please call the National Agricultural Statistics Service at 1-800-523-3215 or 1-800-727-9540.

.Table Series AR-8: Highlights of Agriculture, 1997 and 1992 - Fond du Lac County

ITEM	ALL FARMS 1997	ALL FARMS 1992
Farms .....number..	1,488	1,552
Land in farms .....acres..	324,893	351,633
Average size of farm .....acres..	218	227
Value of land and buildings*:		
Average per farm .....dollars..	305,591	242,245
Average per acre .....dollars..	1,388	1,084
Estimated market value of all machinery and equipment*		
Average per farm .....dollars..	76,316	81,295
Farms by size:		
1 to 9 acres	86	96
10 to 49 acres	176	165
50 to 179 acres	614	571
180 to 499 acres	490	592
500 to 999 acres	87	102
1,000 acres or more	35	26
Total cropland .....farms..	1,387	1,465
acres..	273,448	300,707
Harvested cropland .....farms..	1,206	1,408
acres..	239,607	263,566
Irrigated land .....farms..	19	25
acres..	790	1,484
Market value of agricultural products sold.....$1,000..	151,140	151,097
Average per farm .....dollars..	101,573	97,356
Crops, including nursery and greenhouse crops.....$1,000..	38,510	26,031
Livestock, poultry, and their products.....$1,000..	112,630	125,065
Farms by value of sales:		
Less than $2,500	271	140
$2,500 to $4,999	67	86
$5,000 to $9,999	87	122
$10,000 to $24,999	192	193
$25,000 to $49,999	175	177
$50,000 to $99,999	200	239
$100,000 or more	496	595
Total farm production expenses.$1,000..	111,875	114,330
Average per farm .....dollars..	75,185	73,571
Operators by principal occupation:		
Farming	934	1,127
Other	554	425
Operators by days worked off farm:		
Any	659	574
200 days or more	457	378

Fond du Lac County (cont'd)

Livestock and poultry:			
Cattle and calves inventory	farms	850	1,048
	number	91,677	104,943
Beef cows	farms	101	91
	number	1,782	2,268
Milk cows	farms	583	779
	number	40,210	45,481
Cattle and calves sold	farms	843	1,038
	number	39,280	47,809
Hogs and pigs inventory	farms	72	139
	number	13,257	33,172
Hogs and pigs sold	farms	79	150
	number	26,996	57,337
Sheep and lambs inventory	farms	32	36
	number	1,367	1,962
Layers and pullets 13 weeks old and older inventory	farms	28	29
	number	868	(D)
Broilers and other meat-type chickens sold	farms	7	9
	number	952	2,530
Selected crops harvested:			
Corn for grain or seed	farms	891	1,012
	acres	78,306	78,757
	bushels	10,067,568	7,588,920
Corn for sil or green chop	farms	586	844
	acres	21,643	36,656
	tons, green	319,665	381,682
Oats for grain	farms	372	652
	acres	7,838	15,330
	bushels	543,396	873,746
Soybeans for beans	farms	503	354
	acres	36,407	21,013
	bushels	1,594,485	586,763
Potatoes, excl. sweet potatoes	farms	1	0
	acres	(D)	0
	cwt	(D)	0
Hay-alf, other, wild, silage	farms	919	1,099
	acres	78,174	88,704
	tons, dry	201,233	173,753
Vegetables harvested	farms	270	391
	acres	19,406	31,199

* Data are based on a sample of farms.

Legend:
(D) Withheld to avoid disclosing data for individual farms
(X) Not applicable
(Z) Less than half the unit shown
(NA) Not available

Source: 1997 Census of Agriculture, Volume 1 Geographic Area Series, "Table 1. County Summary Highlights: 1997." This electronic series presents summary statistics for each county and State together with comparable data from the 1992 census. The items included are the same for all States and counties, except selected crops harvested, which vary by State. Data for 1997 and 1992 are directly comparable for acreage and inventories. Dollar values have not been adjusted for changes in price levels.

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Table Series AR-8: Highlights of Agriculture, 1997 and 1992 – Green Lake County

ITEM	ALL FARMS	
	1997	1992
Farms .....number..	584	705
Land in farms .....acres..	134,271	163,145
Average size of farm .....acres..	230	231
Value of land and buildings*:		
Average per farm .....dollars..	305,958	251,599
Average per acre .....dollars..	1,453	1,198
Estimated market value of all machinery and equipment*		
Average per farm .....dollars..	61,954	64,957
Farms by size:		
1 to 9 acres	34	28
10 to 49 acres	68	90
50 to 179 acres	226	250
180 to 499 acres	205	273
500 to 999 acres	42	53
1,000 acres or more	9	11
Total cropland .....farms..	543	677
acres..	105,560	131,728
Harvested cropland .....farms..	466	642
acres..	88,888	108,964
Irrigated land .....farms..	19	30
acres..	2,625	2,469
Market value of agricultural products sold.....$1,000..	45,256	55,999
Average per farm .....dollars..	77,493	79,431
Crops, including nursery and greenhouse crops.....$1,000..	16,632	12,778
Livestock, poultry, and their products.....$1,000..	28,624	43,221
Farms by value of sales:		
Less than $2,500	124	108
$2,500 to $4,999	41	52
$5,000 to $9,999	42	46
$10,000 to $24,999	77	81
$25,000 to $49,999	71	81
$50,000 to $99,999	82	129
$100,000 or more	147	208
Total farm production expenses.$1,000..	29,201	43,387
Average per farm .....dollars..	49,745	61,541
Operators by principal occupation:		
Farming	338	473
Other	246	232
Operators by days worked off farm:		
Any	288	310
200 days or more	192	198

Green Lake County (cont'd)

Livestock and poultry:			
Cattle and calves inventory	farms	305	433
	number	27,357	41,043
Beef cows	farms	51	60
	number	695	1,163
Milk cows	farms	162	286
	number	9,140	15,009
Cattle and calves sold	farms	306	431
	number	15,772	24,920
Hogs and pigs inventory	farms	44	99
	number	5,592	17,308
Hogs and pigs sold	farms	47	107
	number	9,414	24,894
Sheep and lambs inventory	farms	19	26
	number	333	491
Layers and pullets 13 weeks old and older inventory	farms	13	20
	number	1,493	(D)
Broilers and other meat-type chickens sold	farms	4	6
	number	1,553	1,675
Selected crops harvested:			
Corn for grain or seed	farms	388	474
	acres	39,211	48,637
	bushels	4.990,165	4,613,694
Corn for sil or green chop	farms	165	302
	acres	5,516	9,829
	tons, green	75,324	105,754
Oats for grain	farms	147	251
	acres	2,466	6,366
	bushels	159,047	392,095
Soybeans for beans	farms	141	127
	acres	11,881	8,060
	bushels	503,530	261,063
Potatoes, excl. sweet potatoes	farms	6	6
	acres	43	22
	cwt	(D)	2 250
Hay-alf, other, wild, silage	farms	351	517
	acres	21,624	30,051
	tons, dry	55,937	69,392
Vegetables harvested	farms	106	122
	acres	10,383	9,190

* Data are based on a sample of farms.

Legend:
(D) Withheld to avoid disclosing data for individual farms
(X) Not applicable
(Z) Less than half the unit shown
(NA) Not available

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Table Series AR-8: Highlights of Agriculture, 1997 and 1992 – Marquette County

ITEM	ALL FARMS 1997	ALL FARMS 1992
Farms .....number..	443	444
Land in farms .....acres..	124,804	135,538
Average size of farm .....acres..	282	305
Value of land and buildings*:		
Average per farm .....dollars..	334,301	202,775
Average per acre .....dollars..	1,137	726
Estimated market value of all machinery and equipment*		
Average per farm .....dollars..	55,300	53,949
Farms by size:		
1 to 9 acres	14	13
10 to 49 acres	65	45
50 to 179 acres	150	156
180 to 499 acres	150	154
500 to 999 acres	46	59
1,000 acres or more	18	17
Total cropland .....farms..	420	422
acres..	86,037	93,144
Harvested cropland .....farms..	359	395
acres..	69,719	66,212
Irrigated land .....farms..	35	41
acres..	4,327	5,001
Market value of agricultural products sold.....$1,000..	32,281	28,058
Average per farm .....dollars..	72,870	63,193
Crops, including nursery and greenhouse crops.....$1,000..	17,286	9,364
Livestock, poultry, and their products.....$1,000..	14,996	18,694
Farms by value of sales:		
Less than $2,500	128	94
$2,500 to $4,999	38	55
$5,000 to $9,999	49	55
$10,000 to $24,999	60	59
$25,000 to $49,999	56	58
$50,000 to $99,999	37	41
$100,000 or more	75	82
Total farm production expenses.$1,000..	23,819	22,927
Average per farm .....dollars..	53,889	51,636
Operators by principal occupation:		
Farming	223	296
Other	220	148
Operators by days worked off farm:		
Any	254	169
200 days or more	163	102

Marquette County (cont'd)

Livestock and poultry:			
Cattle and calves inventory	farms	205	226
	number	14,501	18,256
Beef cows	farms	89	71
	number	1,438	960
Milk cows	farms	75	114
	number	4,836	6,246
Cattle and calves sold	farms	191	221
	number	5,858	8,162
Hogs and pigs inventory	farms	28	45
	number	5,868	13,501
Hogs and pigs sold	farms	20	45
	number	28,812	20,435
Sheep and lambs inventory	farms	13	25
	number	1,464	1,713
Layers and pullets 13 weeks old and older inventory	farms	26	19
	number	1,283	(D)
Broilers and other meat-type chickens sold	farms	10	3
	number	632	288
Selected crops harvested:			
Corn for grain or seed	farms	252	270
	acres	27,232	24,735
	bushels	3,098,644	1,976,144
Corn for sil or green chop	farms	109	143
	acres	4,754	7,847
	tons, green	65,633	68,719
Oats for grain	farms	53	88
	acres	1,137	1,918
	bushels	52,406	62,995
Soybeans for beans	farms	78	60
	acres	7,025	4,052
	bushels	267,514	84,003
Potatoes, excl. sweet potatoes	farms	5	6
	acres	823	463
	cwt	233,150	84,642
Hay-alf, other, wild, silage	farms	257	318
	acres	21,063	24,116
	tons, dry	45,649	36,840
Vegetables harvested	farms	30	20
	acres	2,888	1,480

* Data are based on a sample of farms.

Legend:
(D) Withheld to avoid disclosing data for individual farms
(X) Not applicable
(Z) Less than half the unit shown
(NA) Not available

Source: 1997 Census of Agriculture, Volume 1 Geographic Area Series, "Table 1. County Summary Highlights: 1997." This electronic series presents summary statistics for each county and State together with comparable data from the 1992 census. The items included are the same for all States and counties, except selected crops harvested, which vary by State. Data for 1997 and 1992 are directly comparable for acreage and inventories. Dollar values have not been adjusted for changes in price levels.

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Table Series AR-8: Highlights of Agriculture, 1997 and 1992 - Menominee County

ITEM	ALL FARMS 1997	ALL FARMS 1992
Farms .....number..	5	1
Land in farms .....acres..	387	(D)
Average size of farm .....acres..	77	(D)
Value of land and buildings*:		
Average per farm .....dollars..	189,350	(D)
Average per acre .....dollars..	2,446	(D)
Estimated market value of all machinery and equipment*		
Average per farm .....dollars..	13,448	(D)
Farms by size:		
1 to 9 acres	1	0
10 to 49 acres	2	1
50 to 179 acres	1	0
180 to 499 acres	1	0
500 to 999 acres	0	0
1,000 acres or more	0	0
Total cropland .....farms..	2	0
acres..	(D)	0
Harvested cropland .....farms..	2	0
acres..	(D)	0
Irrigated land .....farms..	0	0
acres..	0	0
Market value of agricultural products sold.....$1,000..	13	(D)
Average per farm .....dollars..	2,506	(D)
Crops, including nursery and greenhouse crops.....$1,000..	(D)	0
Livestock, poultry, and their products.....$1,000..	(D)	(D)
Farms by value of sales:		
Less than $2,500	3	0
$2,500 to $4,999	1	1
$5,000 to $9,999	1	0
$10,000 to $24,999	0	0
$25,000 to $49,999	0	0
$50,000 to $99,999	0	0
$100,000 or more	0	0
Total farm production expenses.$1,000..	19	(D)
Average per farm .....dollars..	3,859	(D)
Operators by principal occupation:		
Farming	3	0
Other	2	1
Operators by days worked off farm:		
Any	3	1
200 days or more	2	1

Livestock and poultry:		
Cattle and calves inventory...farms..	1	0
number..	(D)	0
Beef cows .....farms..	1	0
number..	(D)	0
Milk cows .....farms..	0	0
number..	0	0
Cattle and calves sold .....farms..	1	0
number..	(D)	0
Hogs and pigs inventory .....farms..	1	0
number..	(D)	0
Hogs and pigs sold .....farms..	1	0
number..	(D)	0
Sheep and lambs inventory ....farms..	0	0
number..	0	0
Layers and pullets 13 weeks old and older inventory.....farms..	0	0
number..	0	0
Broilers and other meat-type chickens sold.....farms..	0	0
number..	0	0
Selected crops harvested:		
Corn for grain or seed .....farms..	0	0
acres..	0	0
bushels..	0	0
Corn for sil or green chop....farms..	0	0
acres..	0	0
tons, green..	0	0
Oats for grain.....farms..	0	0
acres..	0	0
bushels..	0	0
Soybeans for beans .....farms..	0	0
acres..	0	0
bushels..	0	0
Potatoes, excl. sweet potatoes.farms..	0	0
acres..	0	0
cwt..	0	0
Hay-alf, other, wild, silage..farms..	2	0
acres..	(D)	0
tons, dry..	(D)	0
Vegetables harvested.....farms..	0	0
acres..	0	0

* Data are based on a sample of farms.

Legend:
(D) Withheld to avoid disclosing data for individual farms
(X) Not applicable
(Z) Less than half the unit shown
(NA) Not available

Source: 1997 Census of Agriculture, Volume 1 Geographic Area Series, "Table 1. County Summary Highlights: 1997." This electronic series presents summary statistics for each county and State together with comparable data from the 1992 census. The items included are the same for all States and counties, except selected crops harvested, which vary by State. Data for 1997 and 1992 are directly comparable for acreage and inventories. Dollar values have not been adjusted for changes in price levels.

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Table Series AR-8: Highlights of Agriculture, 1997 and 1992 – Outagamie County

ITEM	ALL FARMS 1997	ALL FARMS 1992
Farms .....number..	1,286	1,404
Land in farms .....acres..	252,471	263,514
Average size of farm .....acres..	196	188
Value of land and buildings*:		
Average per farm .....dollars..	304,666	211,118
Average per acre .....dollars..	1,557	1,185
Estimated market value of all machinery and equipment*		
Average per farm .....dollars..	82,565	64,208
Farms by size:		
1 to 9 acres	75	93
10 to 49 acres	265	242
50 to 179 acres	473	502
180 to 499 acres	375	486
500 to 999 acres	81	69
1,000 acres or more	17	12
Total cropland .....farms..	1,198	1,327
acres..	212,260	224,995
Harvested cropland .....farms..	1,077	1,278
acres..	189,055	195,202
Irrigated land .....farms..	22	26
acres..	237	149
Market value of agricultural products sold.....$1,000..	142,184	130,219
Average per farm .....dollars..	110,563	92,748
Crops, including nursery and greenhouse crops.....$1,000..	33,765	22,156
Livestock, poultry, and their products.....$1,000..	108,419	108,062
Farms by value of sales:		
Less than $2,500	232	167
$2,500 to $4,999	69	82
$5,000 to $9,999	100	135
$10,000 to $24,999	192	179
$25,000 to $49,999	113	147
$50,000 to $99,999	152	183
$100,000 or more	428	511
Total farm production expenses.$1,000..	102,722	96,754
Average per farm .....dollars..	79,877	68,962
Operators by principal occupation:		
Farming	761	961
Other	525	443
Operators by days worked off farm:		
Any	577	549
200 days or more	415	396

Outagamie County (cont'd)

Livestock and poultry:			
Cattle and calves inventory	farms	755	920
	number	83,897	94,710
Beef cows	farms	107	116
	number	1,229	1,528
Milk cows	farms	479	655
	number	34,179	39,512
Cattle and calves sold	farms	744	906
	number	52,754	51,612
Hogs and pigs inventory	farms	62	133
	number	13,238	19,873
Hogs and pigs sold	farms	65	132
	number	33,744	35,061
Sheep and lambs inventory	farms	22	37
	number	617	617
Layers and pullets 13 weeks old and older inventory	farms	35	45
	number	1,322	(D)
Broilers and other meat-type chickens sold	farms	12	15
	number	(D)	14,130
Selected crops harvested:			
Corn for grain or seed	farms	688	854
	acres	62,597	68,379
	bushels	7,739,525	6,775,293
Corn for sil or green chop	farms	526	715
	acres	23,834	29,279
	tons, green	365,211	373,183
Oats for grain	farms	247	443
	acres	5,184	11,038
	bushels	353,815	706,543
Soybeans for beans	farms	364	237
	acres	29,649	13,307
	bushels	1,215,823	393,749
Potatoes, excl. sweet potatoes	farms	1	2
	acres	(D)	(D)
	cwt	(D)	(D)
Hay-alf, other, wild, silage	farms	788	962
	acres	61,215	67,619
	tons, dry	148,150	139,197
Vegetables harvested	farms	110	161
	acres	7,590	11,322

* Data are based on a sample of farms.

Legend:
(D) Withheld to avoid disclosing data for individual farms
(X) Not applicable
(Z) Less than half the unit shown
(NA) Not available

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Table Series AR-8: Highlights of Agriculture, 1997 and 1992 – Shawano County

ITEM	ALL FARMS	
	1997	1992
Farms .....number..	1,337	1,437
Land in farms .....acres..	270,478	297,984
Average size of farm .....acres..	202	207
Value of land and buildings*:		
Average per farm .....dollars..	213,320	189,379
Average per acre .....dollars..	1,082	904
Estimated market value of all machinery and equipment*		
Average per farm .....dollars..	70,855	79,093
Farms by size:		
1 to 9 acres	49	32
10 to 49 acres	156	149
50 to 179 acres	561	592
180 to 499 acres	485	577
500 to 999 acres	76	81
1,000 acres or more	10	6
Total cropland .....farms..	1,257	1,390
acres..	184,047	207,174
Harvested cropland .....farms..	1,185	1,354
acres..	159,993	175,831
Irrigated land .....farms..	13	22
acres..	251	604
Market value of agricultural products sold.....$1,000..	126,533	124,594
Average per farm .....dollars..	94,640	86,704
Crops, including nursery and greenhouse crops.....$1,000..	12,704	7,409
Livestock, poultry, and their products.....$1,000..	113,830	117,184
Farms by value of sales:		
Less than $2,500	225	161
$2,500 to $4,999	100	95
$5,000 to $9,999	114	107
$10,000 to $24,999	179	181
$25,000 to $49,999	140	160
$50,000 to $99,999	218	305
$100,000 or more	361	428
Total farm production expenses.$1,000..	79,023	84,666
Average per farm .....dollars..	59,149	58,878
Operators by principal occupation:		
Farming	881	1,092
Other	456	345
Operators by days worked off farm:		
Any	587	512
200 days or more	385	322

Shawano County (cont'd)

Livestock and poultry:			
Cattle and calves inventory	farms	911	1,138
	number	83,189	94,723
Beef cows	farms	177	146
	number	2,098	1,699
Milk cows	farms	642	868
	number	37,063	43,483
Cattle and calves sold	farms	891	1,117
	number	42,284	43,422
Hogs and pigs inventory	farms	52	90
	number	3,725	3,939
Hogs and pigs sold	farms	50	85
	number	7,731	10,449
Sheep and lambs inventory	farms	27	25
	number	464	645
Layers and pullets 13 weeks old and older inventory	farms	45	54
	number	1,670	3,559
Broilers and other meat-type chickens sold	farms	10	6
	number	882	(D)
Selected crops harvested:			
Corn for grain or seed	farms	718	669
	acres	39,246	32,448
	bushels	4,652,892	2,969,781
Corn for sil or green chop	farms	689	924
	acres	24,731	36,200
	tons, green	361,940	361,388
Oats for grain	farms	374	577
	acres	8,161	12,753
	bushels	520,018	810,899
Soybeans for beans	farms	121	99
	acres	6,258	4,247
	bushels	248,284	111,990
Potatoes, excl. sweet potatoes	farms	2	2
	acres	(D)	(D)
	cwt	(D)	(D)
Hay-alf, other, wild, silage	farms	1,028	1,237
	acres	87,953	97,136
	tons, dry	207,808	181,671
Vegetables harvested	farms	40	43
	acres	1,969	3,085

* Data are based on a sample of farms.

Legend:
(D) Withheld to avoid disclosing data for individual farms
(X) Not applicable
(Z) Less than half the unit shown
(NA) Not available

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Table Series AR-8: Highlights of Agriculture, 1997 and 1992 – Waupaca County

ITEM	ALL FARMS 1997	ALL FARMS 1992
Farms .....number..	1,129	1,190
Land in farms .....acres..	226,746	241,778
Average size of farm .....acres..	201	203
Value of land and buildings*:		
Average per farm .....dollars..	226,507	191,021
Average per acre .....dollars..	1 210	903
Estimated market value of all machinery and equipment*		
Average per farm .....dollars..	55,526	59,627
Farms by size:		
1 to 9 acres	61	53
10 to 49 acres	163	164
50 to 179 acres	463	484
180 to 499 acres	361	403
500 to 999 acres	67	74
1,000 acres or more	14	12
Total cropland .....farms..	1,066	1,123
acres..	162,243	175,235
Harvested cropland .....farms..	972	1,065
acres..	140,574	142,615
Irrigated land .....farms..	46	45
acres..	8,869	6,661
Market value of agricultural products sold.....$1,000..	86,182	80,141
Average per farm .....dollars..	76,334	67,345
Crops, including nursery and greenhouse crops.....$1,000..	22,579	11,534
Livestock, poultry, and their products.....$1,000..	63,602	68,607
Farms by value of sales:		
Less than $2,500	262	220
$2,500 to $4,999	99	102
$5,000 to $9,999	108	108
$10,000 to $24,999	136	165
$25,000 to $49,999	106	119
$50,000 to $99,999	161	195
$100,000 or more	257	281
Total farm production expenses.$1,000..	64,459	64,259
Average per farm .....dollars..	57,144	53,999
Operators by principal occupation:		
Farming	649	791
Other	480	399
Operators by days worked off farm:		
Any	557	519
200 days or more	416	348

Waupaca County (cont'd)

Livestock and poultry:			
Cattle and calves inventory	farms	696	784
	number	56,749	61,324
Beef cows	farms	154	124
	number	1,570	1,619
Milk cows	farms	432	555
	number	25,171	28,091
Cattle and calves sold	farms	678	761
	number	23,878	30,260
Hogs and pigs inventory	farms	41	86
	number	2,535	5,698
Hogs and pigs sold	farms	38	89
	number	4,611	10,984
Sheep and lambs inventory	farms	34	44
	number	837	1,304
Layers and pullets 13 weeks old and older inventory	farms	37	49
	number	1,379	1,850
Broilers and other meat-type chickens sold	farms	7	12
	number	632	833
Selected crops harvested:			
Corn for grain or seed	farms	620	668
	acres	48,591	46,880
	bushels	5,873,639	4,732,601
Corn for sil or green chop	farms	477	605
	acres	16,787	22,511
	tons, green	227,255	253,153
Oats for grain	farms	252	329
	acres	4,786	6,164
	bushels	277,268	369,004
Soybeans for beans	farms	141	113
	acres	8,518	5,364
	bushels	345,900	133,912
Potatoes, excl. sweet potatoes	farms	6	16
	acres	1,597	1,007
	cwt	647,115	166,290
Hay-alf, other, wild, silage	farms	833	914
	acres	60,904	65,392
	tons, dry	138,611	120,141
Vegetables harvested	farms	41	50
	acres	4,005	2,463

* Data are based on a sample of farms.

Legend:
(D) Withheld to avoid disclosing data for individual farms
(X) Not applicable
(Z) Less than half the unit shown
(NA) Not available

Source: 1997 Census of Agriculture, Volume 1 Geographic Area Series, "Table 1. County Summary Highlights: 1997." This electronic series presents summary statistics for each county and State together with comparable data from the 1992 census. The items included are the same for all States and counties, except selected crops harvested, which vary by State. Data for 1997 and 1992 are directly comparable for acreage and inventories. Dollar values have not been adjusted for changes in price levels.

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Table AR-8: Highlights of Agriculture, 1997 and 1992 – Waushara County

ITEM	ALL FARMS	
	1997	1992
Farms .....number..	634	628
Land in farms .....acres..	174,524	167,191
Average size of farm .....acres..	275	266
Value of land and buildings*:		
Average per farm .....dollars..	382,855	293,903
Average per acre .....dollars..	1,308	1,071
Estimated market value of all machinery and equipment*		
Average per farm .....dollars..	85,380	87,061
Farms by size:		
1 to 9 acres	35	34
10 to 49 acres	109	84
50 to 179 acres	248	241
180 to 499 acres	166	188
500 to 999 acres	46	56
1,000 acres or more	30	25
Total cropland .....farms..	596	589
acres..	126,543	120,663
Harvested cropland .....farms..	542	547
acres..	108,073	98,667
Irrigated land .....farms..	96	111
acres..	49,203	42,777
Market value of agricultural products sold.....$1,000..	75,001	64,161
Average per farm .....dollars..	118,298	102,166
Crops, including nursery and greenhouse crops.....$1,000..	56,512	40,448
Livestock, poultry, and their products.....$1,000..	18,489	23,712
Farms by value of sales:		
Less than $2,500	165	124
$2,500 to $4,999	82	62
$5,000 to $9,999	75	78
$10,000 to $24,999	72	90
$25,000 to $49,999	71	59
$50,000 to $99,999	51	77
$100,000 or more	118	138
Total farm production expenses.$1,000..	58,139	52,482
Average per farm .....dollars..	91,847	83,703
Operators by principal occupation:		
Farming	336	403
Other	298	225
Operators by days worked off farm:		
Any	328	274
200 days or more	214	185

Waushara County (cont'd)

Livestock and poultry:			
Cattle and calves inventory	farms	283	339
	number	16,396	21,421
Beef cows	farms	75	82
	number	892	856
Milk cows	farms	129	183
	number	6,192	7,815
Cattle and calves sold	farms	270	330
	number	9,092	15,202
Hogs and pigs inventory	farms	51	84
	number	2,803	7,711
Hogs and pigs sold	farms	45	88
	number	5,627	17,097
Sheep and lambs inventory	farms	25	19
	number	617	685
Layers and pullets 13 weeks old and older inventory	farms	44	35
	number	1,915	1,661
Broilers and other meat-type chickens sold	farms	13	9
	number	2,694	7,905
Selected crops harvested:			
Corn for grain or seed	farms	307	340
	acres	24,216	28,191
	bushels	2,885,841	2,765,093
Corn for sil or green chop	farms	126	207
	acres	4,245	6,680
	tons, green	51,699	59,162
Oats for grain	farms	86	125
	acres	1,405	2,278
	bushels	78,056	113,689
Soybeans for beans	farms	104	81
	acres	9,149	4,757
	bushels	378,831	118,643
Potatoes, excl. sweet potatoes	farms	37	35
	acres	12,990	10,762
	cwt	4,890,798	4,235,780
Hay-alf, other, wild, silage	farms	354	404
	acres	23,754	25,395
	tons, dry	47,309	43,965
Vegetables harvested	farms	77	82
	acres	24,732	21,60

* Data are based on a sample of farms.

Legend:
(D) Withheld to avoid disclosing data for individual farms
(X) Not applicable
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(NA) Not available

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Table Series AR-8: Highlights of Agriculture, 1997 and 1992 – Winnebago County

ITEM	ALL FARMS 1997	ALL FARMS 1992
Farms .....number..	860	854
Land in farms .....acres..	167,59	169,876
Average size of farm .....acres..	195	199
Value of land and buildings*:		
Average per farm .....dollars..	331,110	217,907
Average per acre .....dollars..	1,722	1,077
Estimated market value of all machinery and equipment*		
Average per farm .....dollars..	75,535	64,719
Farms by size:		
1 to 9 acres	38	33
10 to 49 acres	168	170
50 to 179 acres	353	336
180 to 499 acres	224	244
500 to 999 acres	60	61
1,000 acres or more	17	10
Total cropland .....farms..	814	829
acres..	135,709	145,112
Harvested cropland .....farms..	699	792
acres..	118,356	124,209
Irrigated land .....farms..	14	22
acres..	479	861
Market value of agricultural products sold.....$1,000..	61,689	58,503
Average per farm .....dollars..	71,731	68,505
Crops, including nursery and greenhouse crops.....$1,000..	19,576	13,746
Livestock, poultry, and their products.....$1,000..	42,113	44,757
Farms by value of sales:		
Less than $2,500	230	147
$2,500 to $4,999	63	65
$5,000 to $9,999	71	81
$10,000 to $24,999	126	120
$25,000 to $49,999	79	103
$50,000 to $99,999	104	135
$100,000 or more	187	203
Total farm production expenses.$1,000..	49,923	47,063
Average per farm .....dollars..	58,050	55,045
Operators by principal occupation:		
Farming	498	551
Other	362	303
Operators by days worked off farm:		
Any	401	366
200 days or more	292	256

Livestock and poultry:			
Cattle and calves inventory	farms	399	466
	number	35,726	39,001
Beef cows	farms	64	56
	number	609	535
Milk cows	farms	249	334
	number	16,229	17,478
Cattle and calves sold	farms	387	451
	number	12,991	15,234
Hogs and pigs inventory	farms	22	61
	number	2,477	4,664
Hogs and pigs sold	farms	24	55
	number	2,983	8,526
Sheep and lambs inventory	farms	26	34
	number	420	800
Layers and pullets 13 weeks old and older inventory	farms	23	34
	number	(D)	(D)
Broilers and other meat-type chickens sold	farms	6	5
	number	765	635
Selected crops harvested:			
Corn for grain or seed	farms	459	509
	acres	38,650	43,459
	bushels	4,381,023	4,469,415
Corn for sil or green chop	farms	260	311
	acres	10,382	10,826
	tons, green	135,774	125,703
Oats for grain	farms	130	237
	acres	2,750	5,674
	bushels	175,221	362,389
Soybeans for beans	farms	340	299
	acres	26,561	18,698
	bushels	1,097,624	550,230
Potatoes, excl. sweetpotatoes	farms	0	1
	acres	0	(D)
	cwt	0	(D)
Hay-alf, other, wild, silage	farms	485	581
	acres	33,385	40,374
	tons, dry	80,864	77,757
Vegetables harvested	farms	64	109
	acres	4,889	7,128

* Data are based on a sample of farms.

Legend:
(D) Withheld to avoid disclosing data for individual farms
(X) Not applicable
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Natural Resources Appendices

Appendix F-1: Basin/Watershed Information

Appendix F-2: Endangered Species Information
Table NR-17
County Level Occurrence Maps

Table NR-17: Endangered and Threatened Resources within the East Central Region

County	Group	Scientific Name	Common Name	Federal Status	State Status	Srank	GRank	Date Listed	Total
Calumet	BIRD	COTURNICOPS NOVEBORACENSIS	YELLOW RAIL		THR	S1B;SZN	G4	1991	1
(27 species)	BUTTERFLY	POANES VIATOR	BROAD-WINGED SKIPPER		SC/N	S3	G5	1990	1
	COMMUNITY	DRY CLIFF	DRY CLIFF		NA	S4		1983	2
	COMMUNITY	MOIST CLIFF	MOIST CLIFF		NA	S4		1983	2
	COMMUNITY	SOUTHERN MESIC FOREST	SOUTHERN MESIC FOREST		NA	S3	G3?	1979	7
	COMMUNITY	EMERGENT AQUATIC	EMERGENT AQUATIC		NA	S4	G4	1982	1
	COMMUNITY	FLOODPLAIN FOREST	FLOODPLAIN FOREST		NA	S3	G3?	1983	6
	COMMUNITY	NORTHERN WET FOREST	NORTHERN WET FOREST		NA	S4	G4	1982	1
	COMMUNITY	OPEN BOG	OPEN BOG		NA	S4	G5	1982	1
	COMMUNITY	SHRUB-CARR	SHRUB-CARR		NA	S4	G5	1982	2
	CRUSTACEAN	CRANGONYX GRACILIS	A SIDE-SWIMMER		NONE	SU	G?	1994	1
	FISH	FUNDULUS DIAPHANUS	BANDED KILLIFISH		SC/N	S3	G5	1964	8
	FISH	MOXOSTOMA VALENCIENNESI	GREATER REDHORSE		THR	S2S3	G3	1979	1
	FROG	ACRIS CREPITANS BLANCHARDI	BLANCHARD'S CRICKET FROG		END	S1	G5T5	1982	4
	MAMMAL	SOREX HOYI	PIGMY SHREW		SC/N	S2	G5	1970	2
	OTHER	BAT HIBERNACULUM	BAT HIBERNACULUM		SC	S3		1986	1
	PLANT	CARDAMINE PRATENSIS	CUCKOOFLOWER		SC	S3	G5	1981	1
	PLANT	GENTIANA ALBA	YELLOW GENTIAN		THR	S2	G4	1992	2
	PLANT	POLYTAENIA NUTTALLII	PRAIRIE PARSLEY		THR	S2	G5	1848	2
	PLANT	TRILLIUM NIVALE	SNOW TRILLIUM		THR	S2	G4	1995	2
	PLANT	CYPRIPEDIUM ARIETINUM	RAM'S-HEAD LADY'S-SLIPPER		THR	S1	G3	1891	2
	PLANT	CYPRIPEDIUM CANDIDUM	SMALL WHITE LADY'S-SLIPPER		THR	S3	G4	1890	3
	SNAIL	CATINELLA GELIDA	A LAND SNAIL		SC/N	S1S2	G2	1996	4
	SNAIL	PARAVITREA MULTIDENTATA	DENTATE SUPERCOIL		SC/N	S2S3	G4G5	1996	2
	SNAIL	SUCCINEA "BAKERI"	A LAND SNAIL		SC/N	SU	G?	1996	2
	SNAIL	VALLONIA PERSPECTIVA	THIN-LIP VALLONIA		SC/N	S3	G4G5	1996	4
	SNAKE	DIADOPHIS PUNCTATUS EDWARDSII	NORTHERN RINGNECK SNAKE		SC/N	S3?	G5T5	1986	1
Fond du Lac	BIRD	NYCTICORAX NYCTICORAX	BLACK-CROWNED NIGHT-HERON		SC/M	S2B;SZN	G5	1986	1
(63 species)	BIRD	PODICEPS GRISEGENA	RED-NECKED GREBE		END	S1B;SZN	G5	1986	1
	BIRD	STERNA HIRUNDO	COMMON TERN		END	S1B;S2N	G5	1997	2
	BUTTERFLY	CALEPHELIS MUTICUM	SWAMP METALMARK		END	S1	G4	1993	2
	BUTTERFLY	POANES MASSASOIT	MULBERRY WING		SC/N	S3	G4	1992	1
	COMMUNITY	DRY PRAIRIE	DRY PRAIRIE		NA	S3	G3	1988	2
	COMMUNITY	MESIC PRAIRIE	MESIC PRAIRIE		NA	S1	G2	1988	4
	COMMUNITY	MOIST CLIFF	MOIST CLIFF		NA	S4		1976	3

Table NR-17: Endangered and Threatened Resources within the East Central Region (cont'd)

	COMMUNITY	SOUTHERN DRY FOREST	SOUTHERN DRY FOREST		NA	S3	G4	1978	1
	COMMUNITY	SOUTHERN DRY-MESIC FOREST	SOUTHERN DRY-MESIC FOREST		NA	S3	G4	1992	4
	COMMUNITY	SOUTHERN MESIC FOREST	SOUTHERN MESIC FOREST		NA	S3	G3?	1985	11
	COMMUNITY	CALCAREOUS FEN	CALCAREOUS FEN		NA	S3	G3	1976	1
	COMMUNITY	EMERGENT AQUATIC	EMERGENT AQUATIC		NA	S4	G4	1979	13
	COMMUNITY	FLOODPLAIN FOREST	FLOODPLAIN FOREST		NA	S3	G3?	1978	3
	COMMUNITY	LAKE--SHALLOW; HARD; DRAINAGE	LAKE--SHALLOW; HARD; DRAINAGE		NA	SU	GU	1978	1
	COMMUNITY	LAKE--SHALLOW; HARD; SEEPAGE	LAKE--SHALLOW; HARD; SEEPAGE		NA	SU	GU	1979	4
	COMMUNITY	LAKE--SHALLOW; SOFT; SEEPAGE	LAKE--SHALLOW; SOFT; SEEPAGE		NA	S4	GU	9999	2
	COMMUNITY	LAKE--SOFT BOG	LAKE--SOFT BOG		NA	S4	GU	1976	1
	COMMUNITY	NORTHERN WET FOREST	NORTHERN WET FOREST		NA	S4	G4	1979	12
	COMMUNITY	NORTHERN WET-MESIC FOREST	NORTHERN WET-MESIC FOREST		NA	S3S4	G3?	9999	2
	COMMUNITY	OPEN BOG	OPEN BOG		NA	S4	G5	1979	3
	COMMUNITY	SHRUB-CARR	SHRUB-CARR		NA	S4	G5	9999	20
	COMMUNITY	SOUTHERN HARDWOOD SWAMP	SOUTHERN HARDWOOD SWAMP		NA	S2	G4?	1979	1
	COMMUNITY	SOUTHERN SEDGE MEADOW	SOUTHERN SEDGE MEADOW		NA	S3	G4	9999	10
	COMMUNITY	STREAM--FAST; HARD; COLD	STREAM--FAST; HARD; COLD		NA	S4	GU	1979	1
	COMMUNITY	STREAM--FAST; SOFT; COLD	STREAM--FAST; SOFT; COLD		NA	SU	GU	1978	1
	COMMUNITY	STREAM--SLOW; HARD; WARM	STREAM--SLOW; HARD; WARM		NA	SU		9999	1
	COMMUNITY	WET PRAIRIE	WET PRAIRIE		NA	SU	G3	1988	2
	CRUSTACEAN	STYGOBROMUS PUTEALIS	WISCONSIN WELL AMPHIPOD		SC	S1S2	G1?	1994	1
	DRAGONFLY	ENALLAGMA TRAVIATUM	SLENDER BLUET		SC/N	S1S2	G5	1990	1
	FISH	ACIPENSER FULVESCENS	LAKE STURGEON		SC/H	S3	G3	9999	2
	FISH	ERIMYZON SUCETTA	LAKE CHUBSUCKER		SC/N	S3?	G5	1978	2
	FISH	ETHEOSTOMA MICROPERCA	LEAST DARTER		SC/N	S3	G5	1977	1
	FISH	FUNDULUS DIAPHANUS	BANDED KILLIFISH		SC/N	S3	G5	1979	10
	FISH	LEPOMIS MEGALOTIS	LONGEAR SUNFISH		THR	S2	G5	1978	4
	FISH	LYTHRURUS UMBRATILIS	REDFIN SHINER		THR	S3	G5	1972	2
	FISH	MOXOSTOMA VALENCIENNESI	GREATER REDHORSE		THR	S2S3	G3	1996	1
	FISH	NOTROPIS ANOGENUS	PUGNOSE SHINER		THR	S2S3	G3	1979	3
	FISH	NOTROPIS TEXANUS	WEED SHINER		SC/N	S2S3	G5	1973	1
	INVERTEBRATE	VENUSTACONCHA ELLIPSIFORMIS	ELLIPSE		THR	S2	G3G4	1977	2
	LEAFHOPPER	AFLEXIA RUBRANURA	RED-TAILED PRAIRIE LEAFHOPPER		END	S1	G1G2	1998	2
	PLANT	ASCLEPIAS LANUGINOSA	WOOLY MILKWEED		THR	S1S2	G4?	1938	4
	PLANT	ASCLEPIAS SULLIVANTII	PRAIRIE MILKWEED		THR	S2	G5	1987	1
	PLANT	ASTER FURCATUS	FORKED ASTER		THR	S1S2	G3	1998	1
	PLANT	CARDAMINE PRATENSIS	CUCKOOFLOWER		SC	S3	G5	1968	2
	PLANT	DRABA ARABISANS	ROCK WHITLOW-GRASS		SC	S1	G4	1997	1
	PLANT	ERIGENIA BULBOSA	HARBINGER-OF-SPRING		END	SH	G5	0	4
	PLANT	GENTIANA ALBA	YELLOW GENTIAN		THR	S2	G4	1994	1

Table NR-17: Endangered and Threatened Resources within the East Central Region (cont'd)

	PLANT	LITHOSPERMUM LATIFOLIUM	AMERICAN GROMWELL		SC	S2	G4	1965	1
	PLANT	POLYTAENIA NUTTALLII	PRAIRIE PARSLEY		THR	S2	G5	1848	3
	PLANT	CALAMAGROSTIS STRICTA	SLIM-STEM SMALL-REEDGRASS		SC	SU	G5	1938	1
	PLANT	CYPRIPEDIUM CANDIDUM	SMALL WHITE LADY'S-SLIPPER		THR	S3	G4	1873	3
	PLANT	CYPRIPEDIUM PARVIFLORUM	SMALL YELLOW LADY'S-SLIPPER		SC	S2S3	G5	1970	2
	PLANT	CYPRIPEDIUM REGINAE	SHOWY LADY'S-SLIPPER		SC	S2S3	G4	1940	1
	PLANT	PELTANDRA VIRGINICA	GREEN ARROW-ARUM		SC	S1	G5	1997	2
	SNAIL	CATINELLA GELIDA	A LAND SNAIL		SC/N	S1S2	G2	1997	4
	SNAIL	SUCCINEA "BAKERI"	A LAND SNAIL		SC/N	SU	G?	1997	4
	SNAIL	VALLONIA PERSPECTIVA	THIN-LIP VALLONIA		SC/N	S3	G4G5	1997	5
	SNAIL	VERTIGO HUBRICHTI	MIDWEST PLEISTOCENE VERTIGO		END	S1	G2	1997	4
	SNAIL	VERTIGO IOWAENSIS	IOWA PLEISTOCENE VERTIGO		SC/N	S1S2	G2	1997	2
	SNAIL	VERTIGO TRIDENTATA	HONEY VERTIGO		SC/N	S3	G4G5	1997	2
	SNAKE	THAMNOPHIS BUTLERI	BUTLER'S GARTER SNAKE		THR	S2	G4	1973	1
	TURTLE	EMYDOIDEA BLANDINGII	BLANDING'S TURTLE		THR	S3	G4	1995	7
Green Lake	BIRD	AMMODRAMUS HENSLOWII	HENSLOW'S SPARROW		THR	S2S3B;SZN	G4	1986	3
(66 species)	BIRD	AMMODRAMUS SAVANNARUM	GRASSHOPPER SPARROW		SC/M	S3B;SZN	G5	1986	1
	BIRD	DENDROICA CERULEA	CERULEAN WARBLER		THR	S2S3B;SZN	G4	1988	2
	BIRD	EMPIDONAX VIRESCENS	ACADIAN FLYCATCHER		THR	S2S3B;SZN	G5	1988	2
	BIRD	FALCO COLUMBARIUS	MERLIN		SC/M	S3B;S2N	G5	1915	2
	BIRD	TYMPANUCHUS CUPIDO	GREATER PRAIRIE-CHICKEN		THR	S2B;S2N	G4	1981	2
	BIRD	VIREO BELLII	BELL'S VIREO		THR	S2B;SZN	G5	1979	1
	BIRD	BUTEO LINEATUS	RED-SHOULDERED HAWK		THR	S1N;S3S4B	G5	1983	7
	BIRD	NYCTICORAX NYCTICORAX	BLACK-CROWNED NIGHT-HERON		SC/M	S2B;SZN	G5	9999	12
	BIRD	PANDION HALIAETUS	OSPREY		THR	S3S4B;SZN	G5	1981	1
	BIRD	PODICEPS GRISEGENA	RED-NECKED GREBE		END	S1B;SZN	G5	1996	4
	BIRD	STERNA FORSTERI	FORSTER'S TERN		END	S2B;SZN	G5	1996	2
	BUTTERFLY	LYCAEIDES MELISSA SAMUELIS	KARNER BLUE BUTTERFLY	LE	SC/N	S2S3	G5T2	1993	4
	BUTTERFLY	POANES VIATOR	BROAD-WINGED SKIPPER		SC/N	S3	G5	1997	1
	BUTTERFLY	EUPHYES BIMACULA	TWO-SPOTTED SKIPPER		SC/N	S2S3	G4	1996	1
	BUTTERFLY	OARISMA POWESHEIK	POWESHEIK SKIPPERLING		END	S1	G2G3	1997	1
	COMMUNITY	BEDROCK GLADE	BEDROCK GLADE		NA	S3	G3?	1990	2
	COMMUNITY	DRY PRAIRIE	DRY PRAIRIE		NA	S3	G3	1978	1
	COMMUNITY	DRY PRAIRIE	DRY PRAIRIE		NA	S3	G3	1967	1
	COMMUNITY	MESIC PRAIRIE	MESIC PRAIRIE		NA	S1	G2	1979	2
	COMMUNITY	MOIST CLIFF	MOIST CLIFF		NA	S4		1976	2
	COMMUNITY	NORTHERN DRY-MESIC FOREST	NORTHERN DRY-MESIC FOREST		NA	S3	G4	1979	1
	COMMUNITY	SOUTHERN DRY FOREST	SOUTHERN DRY FOREST		NA	S3	G4	1981	5
	COMMUNITY	SOUTHERN DRY FOREST	SOUTHERN DRY FOREST		NA	S3	G4	1968	3
	COMMUNITY	CALCAREOUS FEN	CALCAREOUS FEN		NA	S3	G3	1990	9
	COMMUNITY	EMERGENT AQUATIC	EMERGENT AQUATIC		NA	S4	G4	1981	6

Table NR-17: Endangered and Threatened Resources within the East Central Region (cont'd)

	COMMUNITY	FLOODPLAIN FOREST	FLOODPLAIN FOREST		NA	S3	G3?	1979	2
	COMMUNITY	SHRUB-CARR	SHRUB-CARR		NA	S4	G5	1979	5
	COMMUNITY	SOUTHERN SEDGE MEADOW	SOUTHERN SEDGE MEADOW		NA	S3	G4	1988	13
	COMMUNITY	SPRINGS AND SPRING RUNS; HARD	SPRINGS AND SPRING RUNS; HARD		NA	S4	GU	1976	2
	COMMUNITY	TAMARACK FEN	TAMARACK FEN		NA	S3	G3	1979	2
	COMMUNITY	WET PRAIRIE	WET PRAIRIE		NA	SU	G3	1986	4
	COMMUNITY	WET-MESIC PRAIRIE	WET-MESIC PRAIRIE		NA	S2	G2	1986	11
	FISH	ACIPENSER FULVESCENS	LAKE STURGEON		SC/H	S3	G3	1991	3
	FISH	CLINOSTOMUS ELONGATUS	REDSIDE DACE		SC/N	S3	G4	1928	1
	FISH	COREGONUS ARTEDI	LAKE HERRING		SC/N	S3	G5	1947	1
	FISH	ERIMYZON SUCETTA	LAKE CHUBSUCKER		SC/N	S3?	G5	1991	2
	FISH	ETHEOSTOMA MICROPERCA	LEAST DARTER		SC/N	S3	G5	1925	1
	FISH	NOTROPIS TEXANUS	WEED SHINER		SC/N	S2S3	G5	1925	3
	INVERTEBRATE	PLEUROBEMA SINTOXIA	ROUND PIGTOE		SC/H	S3	G4	1997	4
	INVERTEBRATE	TRITOGONIA VERRUCOSA	BUCKHORN		THR	S2	G4	1997	4
	LEAFHOPPER	AFLEXIA RUBRANURA	RED-TAILED PRAIRIE LEAFHOPPER		END	S1	G1G2	1997	1
	MOTH	MACROCHILO BIVITTATA	AN OWLET MOTH		SC/N	S3	GU	1996	1
	MOTH	MEROPLEON AMBIFUSCA	NEWMAN'S BROCADE		SC/N	S3	GU	1996	1
	MOTH	PAPAIPEMA BEERIANA	LIATRIS BORER MOTH		SC/N	SU	G3	1996	1
	PLANT	MUHLENBERGIA RICHARDSONIS	SOFT-LEAF MUHLY		END	S1	G5	1989	2
	PLANT	OPUNTIA FRAGILIS	BRITTLE PRICKLY-PEAR		THR	S3	G4G5	1990	2
	PLANT	OPUNTIA FRAGILIS	BRITTLE PRICKLY-PEAR		THR	S3	G4G5	1950	2
	PLANT	PLATANTHERA FLAVA VAR HERBIOLA	PALE GREEN ORCHID		THR	S1	G4T4Q	1980	1
	PLANT	POLYTAENIA NUTTALLII	PRAIRIE PARSLEY		THR	S2	G5	1986	1
	PLANT	ARMORACIA LACUSTRIS	LAKE-CRESS		END	S1	G4?	1921	1
	PLANT	CALAMAGROSTIS STRICTA	SLIM-STEM SMALL-REEDGRASS		SC	SU	G5	1938	2
	PLANT	CYPRIPEDIUM CANDIDUM	SMALL WHITE LADY'S-SLIPPER		THR	S3	G4	1986	1
	PLANT	ELEOCHARIS ROBBINSII	ROBBINS SPIKERUSH		SC	S3	G4G5	1984	1
	PLANT	EPILOBIUM STRICTUM	DOWNY WILLOW-HERB		SC	S2S3	G5?	1975	1
	PLANT	GENTIANOPSIS PROCERA	LESSER FRINGED GENTIAN		SC	S3	G5	1986	2
	PLANT	RHEXIA VIRGINICA	VIRGINIA MEADOW-BEAUTY		SC	S2	G5	1932	2
	PLANT	SCIRPUS CESPITOSUS VAR CALLOSUS	TUSSOCK BULRUSH		END	S2S3	G5T?	1986	1
	PLANT	SCLERIA TRIGLOMERATA	WHIP NUTRUSH		SC	S1	G5	1980	1
	PLANT	SCLERIA VERTICILLATA	LOW NUTRUSH		SC	S2	G5	1989	2
	PLANT	TOFIELDIA GLUTINOSA	STICKY FALSE-ASPHODEL		THR	S3	G5	1986	3
	PLANT	TOFIELDIA GLUTINOSA	STICKY FALSE-ASPHODEL		THR	S3	G5	1938	2
	PLANT	TRIGLOCHIN MARITIMUM	COMMON BOG ARROW-GRASS		SC	S3	G5	9999	6
	PLANT	TRIGLOCHIN PALUSTRE	SLENDER BOG ARROW-GRASS		SC	S3	G5	1986	2
	SNAKE	REGINA SEPTEMVITTATA	QUEEN SNAKE		END	S1	G5	1978	1
	TURTLE	EMYDOIDEA BLANDINGII	BLANDING'S TURTLE		THR	S3	G4	1981	4
Marquette	BEETLE	HYGROTUS SYLVANUS	SYLVAN HYGROTUS DIVING BEETLE		SC/N	S1	G1	1990	1
(95 species)	BIRD	FALCO COLUMBARIUS	MERLIN		SC/M	S3B;S2N	G5	1915	1

Table NR-17: Endangered and Threatened Resources within the East Central Region (cont'd)

	BIRD	VIREO BELLII	BELL'S VIREO		THR	S2B;SZN	G5	1982	1
	BIRD	BUTEO LINEATUS	RED-SHOULDERED HAWK		THR	S1N;S3S4B	G5	1978	5
	BIRD	MERGUS SERRATOR	RED-BREASTED MERGANSER		SC/M	S3B;SZN	G5	1998	1
	BIRD	NYCTICORAX NYCTICORAX	BLACK-CROWNED NIGHT-HERON		SC/M	S2B;SZN	G5	9999	9
	BIRD	STERNA FORSTERI	FORSTER'S TERN		END	S2B;SZN	G5	1996	3
	BUTTERFLY	CHLOSYNE GORGONE	GORGONE CHECKER SPOT		SC/N	S3	G4	1985	2
	BUTTERFLY	LYCAEIDES MELISSA SAMUELIS	KARNER BLUE BUTTERFLY	LE	SC/N	S2S3	G5T2	1996	7
	BUTTERFLY	CALEPHELIS MUTICUM	SWAMP METALMARK		END	S1	G4	1998	1
	BUTTERFLY	LYCAENA EPIXANTHE	BOG COPPER		SC/N	S2S3	G4G5	1998	1
	BUTTERFLY	POANES MASSASOIT	MULBERRY WING		SC/N	S3	G4	1984	1
	COMMUNITY	CEDAR GLADE	CEDAR GLADE		NA	S4		1971	2
	COMMUNITY	DRY PRAIRIE	DRY PRAIRIE		NA	S3	G3	1995	4
	COMMUNITY	MESIC PRAIRIE	MESIC PRAIRIE		NA	S1	G2	1978	1
	COMMUNITY	NORTHERN DRY FOREST	NORTHERN DRY FOREST		NA	S3	G3?	1979	6
	COMMUNITY	NORTHERN DRY-MESIC FOREST	NORTHERN DRY-MESIC FOREST		NA	S3	G4	1979	8
	COMMUNITY	OAK BARRENS	OAK BARRENS		NA	S2	G2?	9999	3
	COMMUNITY	OAK OPENING	OAK OPENING		NA	S1	G1	1967	1
	COMMUNITY	SAND BARRENS	SAND BARRENS		NA	SU		1978	4
	COMMUNITY	SOUTHERN DRY FOREST	SOUTHERN DRY FOREST		NA	S3	G4	9999	13
	COMMUNITY	SOUTHERN DRY-MESIC FOREST	SOUTHERN DRY-MESIC FOREST		NA	S3	G4	1985	3
	COMMUNITY	ALDER THICKET	ALDER THICKET		NA	S4	G4	1978	3
	COMMUNITY	CALCAREOUS FEN	CALCAREOUS FEN		NA	S3	G3	1990	10
	COMMUNITY	COASTAL PLAIN MARSH	COASTAL PLAIN MARSH		NA	S1	G2?	1977	5
	COMMUNITY	EMERGENT AQUATIC	EMERGENT AQUATIC		NA	S4	G4	1979	10
	COMMUNITY	FLOODPLAIN FOREST	FLOODPLAIN FOREST		NA	S3	G3?	1995	1
	COMMUNITY	LAKE--DEEP; HARD; DRAINAGE	LAKE--DEEP; HARD; DRAINAGE		NA	S3	GU	1977	4
	COMMUNITY	LAKE--SHALLOW; HARD; DRAINAGE	LAKE--SHALLOW; HARD; DRAINAGE		NA	SU	GU	1979	3
	COMMUNITY	LAKE--SHALLOW; HARD; SEEPAGE	LAKE--SHALLOW; HARD; SEEPAGE		NA	SU	GU	1978	4
	COMMUNITY	LAKE--SHALLOW; SOFT; SEEPAGE	LAKE--SHALLOW; SOFT; SEEPAGE		NA	S4	GU	1979	3
	COMMUNITY	NORTHERN SEDGE MEADOW	NORTHERN SEDGE MEADOW		NA	S3	G4	1984	10
	COMMUNITY	NORTHERN WET FOREST	NORTHERN WET FOREST		NA	S4	G4	1985	13
	COMMUNITY	OPEN BOG	OPEN BOG		NA	S4	G5	1978	2
	COMMUNITY	SHRUB-CARR	SHRUB-CARR		NA	S4	G5	1979	8
	COMMUNITY	SOUTHERN SEDGE MEADOW	SOUTHERN SEDGE MEADOW		NA	S3	G4	9999	11
	COMMUNITY	SPRINGS AND SPRING RUNS; HARD	SPRINGS AND SPRING RUNS; HARD		NA	S4	GU	1978	3
	COMMUNITY	STREAM--FAST; HARD; COLD	STREAM--FAST; HARD; COLD		NA	S4	GU	1984	2
	COMMUNITY	TAMARACK FEN	TAMARACK FEN		NA	S3	G3	1987	3
	COMMUNITY	WET PRAIRIE	WET PRAIRIE		NA	SU	G3	1978	1
	COMMUNITY	WET-MESIC PRAIRIE	WET-MESIC PRAIRIE		NA	S2	G2	1978	9
	CRUSTACEAN	CRANGONYX RICHMONDENSIS	A SIDE-SWIMMER		SC	SU	G?	1994	2
	DRAGONFLY	AESHNA MUTATA	SPATTERDOCK DARNER		THR	S1	G3G4	1989	5
	DRAGONFLY	AESHNA TUBERCULIFERA	BLACK-TIPPED DARNER		SC/N	S3	G4	1989	3

Table NR-17: Endangered and Threatened Resources within the East Central Region (cont'd)

	DRAGONFLY	ISCHNURA HASTATA	CITRINE FORKTAIL		SC/N	S2	G5	1989	1
	DRAGONFLY	LESTES EURINUS	AMBER-WINGED SPREADWING		SC/N	S3	G4	1989	4
	DRAGONFLY	LESTES INAEQUALIS	ELEGANT SPREADWING		SC/N	S2S3	G5	1989	2
	DRAGONFLY	LESTES VIGILAX	SWAMP SPREADWING		SC/N	S3	G5	1989	2
	FISH	ERIMYZON SUCETTA	LAKE CHUBSUCKER		SC/N	S3?	G5	1980	2
	FISH	ETHEOSTOMA MICROPERCA	LEAST DARTER		SC/N	S3	G5	1925	1
	FISH	FUNDULUS DIAPHANUS	BANDED KILLIFISH		SC/N	S3	G5	1995	6
	FISH	MOXOSTOMA VALENCIENNESI	GREATER REDHORSE		THR	S2S3	G3	1988	1
	FISH	NOTROPIS ANOGENUS	PUGNOSE SHINER		THR	S2S3	G3	1978	2
	FISH	NOTROPIS TEXANUS	WEED SHINER		SC/N	S2S3	G5	1925	3
	FROG	ACRIS CREPITANS BLANCHARDI	BLANCHARD'S CRICKET FROG		END	S1	G5T5	1988	1
	FROG	RANA CATESBEIANA	BULLFROG		SC/H	S3S4	G5	1984	1
	INVERTEBRATE	ALASMIDONTA MARGINATA	ELKTOE		SC/H	S4	G4	1997	1
	INVERTEBRATE	PLEUROBEMA SINTOXIA	ROUND PIGTOE		SC/H	S3	G4	1997	1
	LIZARD	OPHISAURUS ATTENUATUS	WESTERN SLENDER GLASS LIZARD		END	S2	G5	1990	9
	MOTH	HEMILEUCA MAIA	BUCK MOTH			SRF	G4	1997	1
	MOTH	MEROPLEON AMBIFUSCA	NEWMAN'S BROCADE		SC/N	S3	GU	1998	1
	PLANT	ASCLEPIAS LANUGINOSA	WOOLY MILKWEED		THR	S1S2	G4?	1999	1
	PLANT	CARDAMINE PRATENSIS	CUCKOOFLOWER		SC	S3	G5	1971	1
	PLANT	CLEMATIS OCCIDENTALIS	PURPLE CLEMATIS		SC	S3	G5	1962	2
	PLANT	LESPEDEZA VIRGINICA	SLENDER BUSH-CLOVER		THR	S2	G5	1955	2
	PLANT	OPHIOGLOSSUM VULGATUM	ADDER'S-TONGUE		SC	S3	G5	1951	3
	PLANT	OPUNTIA FRAGILIS	BRITTLE PRICKLY-PEAR		THR	S3	G4G5	1991	2
	PLANT	OPUNTIA FRAGILIS	BRITTLE PRICKLY-PEAR		THR	S3	G4G5	1956	2
	PLANT	OROBANCHE UNIFLORA	ONE-FLOWERED BROOMRAPE		SC	S3	G5	9999	2
	PLANT	PLATANTHERA FLAVA VAR HERBIOLA	PALE GREEN ORCHID		THR	S1	G4T4Q	1980	1
	PLANT	POLYTAENIA NUTTALLII	PRAIRIE PARSLEY		THR	S2	G5	1942	1
	PLANT	TALINUM RUGOSPERMUM	PRAIRIE FAME-FLOWER		SC	S3S4	G3?	1995	2
	PLANT	CAREX LIVIDA VAR RADICAULIS	LIVID SEDGE		SC	S2	G5T5	1979	1
	PLANT	CYPRIPEDIUM CANDIDUM	SMALL WHITE LADY'S-SLIPPER		THR	S3	G4	1986	1
	PLANT	CYPRIPEDIUM PARVIFLORUM	SMALL YELLOW LADY'S-SLIPPER		SC	S2S3	G5	1986	3
	PLANT	CYPRIPEDIUM REGINAE	SHOWY LADY'S-SLIPPER		SC	S2S3	G4	1970	1
	PLANT	DESCHAMPSIA CESPITOSA	TUFTED HAIRGRASS		SC	S3	G5	1962	1
	PLANT	ELEOCHARIS ENGELMANNII	ENGELMANN SPIKE-RUSH		SC	S2	G4?	1929	2
	PLANT	ELEOCHARIS OLIVACEA	CAPITATE SPIKERUSH		SC	S2	G5	1962	1
	PLANT	ELEOCHARIS ROBBINSII	ROBBINS SPIKERUSH		SC	S3	G4G5	1990	3
	PLANT	EPILOBIUM STRICTUM	DOWNY WILLOW-HERB		SC	S2S3	G5?	1992	1
	PLANT	FUIRENA PUMILA	DWARF UMBRELLA-SEDGE		END	S1	G4	1992	1
	PLANT	GENTIANOPSIS PROCERA	LESSER FRINGED GENTIAN		SC	S3	G5	1987	4
	PLANT	POA PALUDIGENA	BOG BLUEGRASS		THR	S2	G3	1987	1
	PLANT	POLYGALA CRUCIATA	CROSSLEAF MILKWORT		SC	S2	G5	1990	1

Table NR-17: Endangered and Threatened Resources within the East Central Region (cont'd)

	PLANT	PSILOCARYA SCIRPOIDES	LONG-BEAKED BALDRUSH		THR	S1	G4	1998	5
	PLANT	RHEXIA VIRGINICA	VIRGINIA MEADOW-BEAUTY		SC	S2	G5	1995	7
	PLANT	SCLERIA TRIGLOMERATA	WHIP NUTRUSH		SC	S1	G5	1941	2
	PLANT	SCLERIA VERTICILLATA	LOW NUTRUSH		SC	S2	G5	1974	2
	PLANT	TOFIELDIA GLUTINOSA	STICKY FALSE-ASPHODEL		THR	S3	G5	1969	1
	PLANT	TRIGLOCHIN MARITIMUM	COMMON BOG ARROW-GRASS		SC	S3	G5	1969	1
	PLANT	UTRICULARIA GEMINISCAPA	HIDDEN-FRUITED BLADDERWORT		SC	S3	G4G5	1969	4
	PLANT	UTRICULARIA PURPUREA	PURPLE BLADDERWORT		SC	S3	G5	1993	1
	PLANT	UTRICULARIA RESUPINATA	NORTHEASTERN BLADDERWORT		SC	S2S3	G4	1976	1
	TURTLE	EMYDOIDEA BLANDINGII	BLANDING'S TURTLE		THR	S3	G4	1991	3
Menominee	BIRD	BUTEO LINEATUS	RED-SHOULDERED HAWK		THR	S1N;S3S4B	G5	1981	2
(53 species)	BIRD	HALIAEETUS LEUCOCEPHALUS	BALD EAGLE	LT	SC/FL	S2N;S3B	G4	1992	7
	BUTTERFLY	ERYNNIS PERSIUS	PERSIUS DUSKY WING		SC/N	S2	G4	1990	1
	COMMUNITY	BEDROCK GLADE	BEDROCK GLADE		NA	S3	G3?	1982	2
	COMMUNITY	DRY CLIFF	DRY CLIFF		NA	S4		1982	1
	COMMUNITY	MOIST CLIFF	MOIST CLIFF		NA	S4		1982	1
	COMMUNITY	NORTHERN DRY-MESIC FOREST	NORTHERN DRY-MESIC FOREST		NA	S3	G4	1992	30
	COMMUNITY	NORTHERN MESIC FOREST	NORTHERN MESIC FOREST		NA	S4	G4	1992	21
	COMMUNITY	PINE BARRENS	PINE BARRENS		NA	S2	G2	1982	1
	COMMUNITY	SOUTHERN DRY-MESIC FOREST	SOUTHERN DRY-MESIC FOREST		NA	S3	G4	1991	1
	COMMUNITY	EMERGENT AQUATIC	EMERGENT AQUATIC		NA	S4	G4	1982	11
	COMMUNITY	LAKE--DEEP; HARD; DRAINAGE	LAKE--DEEP; HARD; DRAINAGE		NA	S3	GU	1982	7
	COMMUNITY	LAKE--DEEP; HARD; SEEPAGE	LAKE--DEEP; HARD; SEEPAGE		NA	S2	GU	1982	2
	COMMUNITY	LAKE--DEEP; SOFT; SEEPAGE	LAKE--DEEP; SOFT; SEEPAGE		NA	S3	GU	1982	4
	COMMUNITY	LAKE--SHALLOW; HARD; DRAINAGE	LAKE--SHALLOW; HARD; DRAINAGE		NA	SU	GU	1982	1
	COMMUNITY	LAKE--SHALLOW; HARD; SEEPAGE	LAKE--SHALLOW; HARD; SEEPAGE		NA	SU	GU	1982	6
	COMMUNITY	LAKE--SHALLOW; SOFT; SEEPAGE	LAKE--SHALLOW; SOFT; SEEPAGE		NA	S4	GU	1982	5
	COMMUNITY	LAKE--UNIQUE	LAKE--UNIQUE		NA	SU		1982	7
	COMMUNITY	NORTHERN SEDGE MEADOW	NORTHERN SEDGE MEADOW		NA	S3	G4	1892	1
	COMMUNITY	NORTHERN SEDGE MEADOW	NORTHERN SEDGE MEADOW		NA	S3	G4	1982	19
	COMMUNITY	NORTHERN WET FOREST	NORTHERN WET FOREST		NA	S4	G4	1982	13
	COMMUNITY	NORTHERN WET-MESIC FOREST	NORTHERN WET-MESIC FOREST		NA	S3S4	G3?	9999	28
	COMMUNITY	OPEN BOG	OPEN BOG		NA	S4	G5	1982	5
	COMMUNITY	SPRING POND	SPRING POND		NA	S3	GU	1982	16
	COMMUNITY	SPRINGS AND SPRING RUNS; HARD	SPRINGS AND SPRING RUNS; HARD		NA	S4	GU	1982	2
	COMMUNITY	STREAM--FAST; HARD; COLD	STREAM--FAST; HARD; COLD		NA	S4	GU	1982	11
	COMMUNITY	STREAM--FAST; HARD; WARM	STREAM--FAST; HARD; WARM		NA	SU		1982	4
	COMMUNITY	STREAM--SLOW; HARD; COLD	STREAM--SLOW; HARD; COLD		NA	SU		1982	1
	COMMUNITY	STREAM--SLOW; HARD; WARM	STREAM--SLOW; HARD; WARM		NA	SU		1982	1
	FISH	FUNDULUS DIAPHANUS	BANDED KILLIFISH		SC/N	S3	G5	1966	1

Table NR-17: Endangered and Threatened Resources within the East Central Region (cont'd)

	HERPTILE	CLEMMYS INSCULPTA	WOOD TURTLE		THR	S3	G4	1922	3
	INVERTEBRATE	LYCAEIDES IDAS NABOKOVI	NORTHERN BLUE BUTTERFLY		END	S1	G5TU	1921	3
	INVERTEBRATE	LYCAEIDES MELISSA SAMUELIS	KARNER BLUE BUTTERFLY	LE	SC/N	S2S3	G5T2	1993	8
	INVERTEBRATE	ALASMIDONTA MARGINATA	ELKTOE		SC/H	S4	G4	1994	10
	INVERTEBRATE	ALASMIDONTA VIRIDIS	SLIPPERSHELL MUSSEL		THR	S2	G4G5	1991	11
	INVERTEBRATE	GOMPHURUS LINEATIFRONS	SPLENDID CLUBTAIL		SC/N	S3	G4	1992	3
	INVERTEBRATE	GOMPHUS VIRIDIFRONS	GREEN-FACED CLUBTAIL		SC/N	S3	G3	1991	5
	INVERTEBRATE	NEUROCORDULIA YAMASKANENSIS	STYGIAN SHADOWFLY		SC/N	S3	G5	1991	1
	INVERTEBRATE	OPHIOGOMPHUS HOWEI	PYGMY SNAKETAIL		THR	S3	G3	1998	9
	INVERTEBRATE	PLEUROBEMA SINTOXIA	ROUND PIGTOE		SC/H	S3	G4	1997	7
	MOTH	SCHINIA INDIANA	PHLOX MOTH		END	S2?	GU	1992	3
	PLANT	ADLUMIA FUNGOSA	CLIMBING FUMITORY		SC	S3	G4	1963	1
	PLANT	ARABIS MISSOURIENSIS VAR DEAMII	DEAM'S ROCKCRESS		SC	S3	G4?QT3?Q	1964	3
	PLANT	MEDEOLA VIRGINIANA	INDIAN CUCUMBER-ROOT		SC	S3	G5	1991	6
	PLANT	PLATANTHERA ORBICULATA	LARGE ROUNDLEAF ORCHID		SC	S2S3	G5?	1921	5
	PLANT	RIBES HUDSONIANUM	NORTHERN BLACK CURRANT		SC	S3	G5	1937	1
	PLANT	CAREX ASSINIBOINENSIS	ASSINIBOINE SEDGE		SC	S2	G4G5	1964	1
	PLANT	CERATOPHYLLUM ECHINATUM	PRICKLY HORNWORT		SC	S2	G4?	1982	1
	PLANT	CYPRIPEDIUM REGINAE	SHOWY LADY'S-SLIPPER		SC	S2S3	G4	1987	3
	PLANT	ELEOCHARIS ROBBINSII	ROBBINS SPIKERUSH		SC	S3	G4G5	1982	5
	PLANT	PLATANTHERA DILATATA	LEAFY WHITE ORCHIS		SC	S3	G5	1982	2
	PLANT	UTRICULARIA PURPUREA	PURPLE BLADDERWORT		SC	S3	G5	1982	1
	PLANT	UTRICULARIA RESUPINATA	NORTHEASTERN BLADDERWORT		SC	S2S3	G4	1974	1
Outagamie	BIRD	TYTO ALBA	BARN OWL		END	S1B;S1N	G5	1979	2
(46 species)	BIRD	HALIAEETUS LEUCOCEPHALUS	BALD EAGLE	LT	SC/FL	S2N;S3B	G4	1992	2
	BUTTERFLY	CALLOPHRYS HENRICI	HENRY'S ELFIN		SC/N	S2	G5	1990	1
	BUTTERFLY	CHLOSYNE GORGONE	GORGONE CHECKER SPOT		SC/N	S3	G4	1991	2
	BUTTERFLY	ERYNNIS LUCILIUS	COLUMBINE DUSKY WING		SC/N	S2	G4	1991	1
	BUTTERFLY	LYCAEIDES MELISSA SAMUELIS	KARNER BLUE BUTTERFLY	LE	SC/N	S2S3	G5T2	1993	1
	BUTTERFLY	PHYCIODES BATESII	TAWNY CRESCENT SPOT		SC/N	S3	G4	1991	1
	BUTTERFLY	POANES VIATOR	BROAD-WINGED SKIPPER		SC/N	S3	G5	1991	2
	BUTTERFLY	EUPHYES BIMACULA	TWO-SPOTTED SKIPPER		SC/N	S2S3	G4	1989	1
	BUTTERFLY	POANES MASSASOIT	MULBERRY WING		SC/N	S3	G4	1991	1
	BUTTERFLY	POMPEIUS VERNA	LITTLE GLASSY WING		SC/N	S1?	G5	1991	1
	COMMUNITY	NORTHERN DRY FOREST	NORTHERN DRY FOREST		NA	S3	G3?	1978	1
	COMMUNITY	NORTHERN MESIC FOREST	NORTHERN MESIC FOREST		NA	S4	G4	1982	2
	COMMUNITY	SOUTHERN DRY-MESIC FOREST	SOUTHERN DRY-MESIC FOREST		NA	S3	G4	1982	1
	COMMUNITY	ALDER THICKET	ALDER THICKET		NA	S4	G4	1978	1
	COMMUNITY	FLOODPLAIN FOREST	FLOODPLAIN FOREST		NA	S3	G3?	1983	4
	COMMUNITY	LAKE--SHALLOW; HARD; SEEPAGE	LAKE--SHALLOW; HARD; SEEPAGE		NA	SU	GU	1987	1

Table NR-17: Endangered and Threatened Resources within the East Central Region (cont'd)

	COMMUNITY	LAKE--SOFT BOG	LAKE--SOFT BOG		NA	S4	GU	1979	2
	COMMUNITY	NORTHERN SEDGE MEADOW	NORTHERN SEDGE MEADOW		NA	S3	G4	1987	1
	COMMUNITY	NORTHERN WET FOREST	NORTHERN WET FOREST		NA	S4	G4	1983	7
	COMMUNITY	NORTHERN WET-MESIC FOREST	NORTHERN WET-MESIC FOREST		NA	S3S4	G3?	1982	3
	COMMUNITY	OPEN BOG	OPEN BOG		NA	S4	G5	1986	3
	FISH	ACIPENSER FULVESCENS	LAKE STURGEON		SC/H	S3	G3	9999	28
	FISH	ETHEOSTOMA CLARA	WESTERN SAND DARTER		SC/N	S3?	G3	1994	2
	FISH	NOTROPIS TEXANUS	WEED SHINER		SC/N	S2S3	G5	1995	6
	FISH	OPSOPOEODUS EMILIAE	PUGNOSE MINNOW		SC/N	S3?	G5	1973	1
	INVERTEBRATE	ALASMIDONTA MARGINATA	ELKTOE		SC/H	S4	G4	1995	8
	INVERTEBRATE	EPIOBLASMA TRIQUETRA	SNUFFBOX		END	S1	G3	1995	8
	INVERTEBRATE	EUPHYES DION	DION SKIPPER		SC/N	S3	G4	1991	6
	INVERTEBRATE	PARAMELETUS CHELIFER	A PRIMITIVE MINNOW MAYFLY		SC/N	S1?	G?	1993	1
	INVERTEBRATE	PLEUROBEMA SINTOXIA	ROUND PIGTOE		SC/H	S3	G4	1995	6
	INVERTEBRATE	SIMPSONAIAS AMBIGUA	SALAMANDER MUSSEL		THR	S2S3	G3	1989	3
	INVERTEBRATE	TRITOGONIA VERRUCOSA	BUCKHORN		THR	S2	G4	1995	6
	PLANT	CAREX FORMOSA	HANDSOME SEDGE		THR	S1	G4	1949	4
	PLANT	GENTIANA ALBA	YELLOW GENTIAN		THR	S2	G4	1948	4
	PLANT	LITHOSPERMUM LATIFOLIUM	AMERICAN GROMWELL		SC	S2	G4	1995	3
	PLANT	MEDEOLA VIRGINIANA	INDIAN CUCUMBER-ROOT		SC	S3	G5	1968	5
	PLANT	ONOSMODIUM MOLLE	MARBLESEED		SC	S3	G4G5	1970	1
	PLANT	TRILLIUM NIVALE	SNOW TRILLIUM		THR	S2	G4	1989	1
	PLANT	CAREX GYNOCRATES	NORTHERN BOG SEDGE		SC	S2	G5	1931	3
	PLANT	CYPRIPEDIUM ARIETINUM	RAM'S-HEAD LADY'S-SLIPPER		THR	S1	G3	1928	7
	PLANT	CYPRIPEDIUM CANDIDUM	SMALL WHITE LADY'S-SLIPPER		THR	S3	G4	1890	9
	PLANT	CYPRIPEDIUM PARVIFLORUM	SMALL YELLOW LADY'S-SLIPPER		SC	S2S3	G5	1890	7
	PLANT	CYPRIPEDIUM REGINAE	SHOWY LADY'S-SLIPPER		SC	S2S3	G4	1916	10
	PLANT	VALERIANA SITCHENSIS SSP ULIGINOSA	MARSH VALERIAN		THR	S1	G4G5T4	1928	7
	TURTLE	CLEMMYS INSCULPTA	WOOD TURTLE		THR	S3	G4	1987	3
Shawano	BIRD	BUTEO LINEATUS	RED-SHOULDERED HAWK		THR	S1N;S3S4B	G5	1981	8
(61 species)	BIRD	HALIAEETUS LEUCOCEPHALUS	BALD EAGLE	LT	SC/FL	S2N;S3B	G4	1992	5
	COMMUNITY	NORTHERN DRY FOREST	NORTHERN DRY FOREST		NA	S3	G3?	1982	1
	COMMUNITY	NORTHERN DRY-MESIC FOREST	NORTHERN DRY-MESIC FOREST		NA	S3	G4	1981	10
	COMMUNITY	NORTHERN MESIC FOREST	NORTHERN MESIC FOREST		NA	S4	G4	1982	25
	COMMUNITY	PINE BARRENS	PINE BARRENS		NA	S2	G2	1982	1
	COMMUNITY	SOUTHERN DRY-MESIC FOREST	SOUTHERN DRY-MESIC FOREST		NA	S3	G4	1991	1
	COMMUNITY	SOUTHERN MESIC FOREST	SOUTHERN MESIC FOREST		NA	S3	G3?	1979	2
	COMMUNITY	ALDER THICKET	ALDER THICKET		NA	S4	G4	1981	9
	COMMUNITY	EMERGENT AQUATIC	EMERGENT AQUATIC		NA	S4	G4	1981	2
	COMMUNITY	FLOODPLAIN FOREST	FLOODPLAIN FOREST		NA	S3	G3?	1980	2

Table NR-17: Endangered and Threatened Resources within the East Central Region (cont'd)

	COMMUNITY	LAKE--DEEP; SOFT; SEEPAGE	LAKE--DEEP; SOFT; SEEPAGE		NA	S3	GU	9999	3
	COMMUNITY	LAKE--HARD BOG	LAKE--HARD BOG		NA	S2	GU	1981	3
	COMMUNITY	LAKE--SHALLOW; HARD; SEEPAGE	LAKE--SHALLOW; HARD; SEEPAGE		NA	SU	GU	1981	3
	COMMUNITY	LAKE--SHALLOW; SOFT; DRAINAGE	LAKE--SHALLOW; SOFT; DRAINAGE		NA	S3	GU	1981	1
	COMMUNITY	LAKE--SHALLOW; SOFT; SEEPAGE	LAKE--SHALLOW; SOFT; SEEPAGE		NA	S4	GU	1981	3
	COMMUNITY	LAKE--SOFT BOG	LAKE--SOFT BOG		NA	S4	GU	1981	1
	COMMUNITY	NORTHERN SEDGE MEADOW	NORTHERN SEDGE MEADOW		NA	S3	G4	1982	14
	COMMUNITY	NORTHERN WET FOREST	NORTHERN WET FOREST		NA	S4	G4	1982	14
	COMMUNITY	NORTHERN WET-MESIC FOREST	NORTHERN WET-MESIC FOREST		NA	S3S4	G3?	1981	15
	COMMUNITY	OPEN BOG	OPEN BOG		NA	S4	G5	1981	6
	COMMUNITY	SPRING POND	SPRING POND		NA	S3	GU	1981	2
	COMMUNITY	SPRINGS AND SPRING RUNS; HARD	SPRINGS AND SPRING RUNS; HARD		NA	S4	GU	1980	1
	COMMUNITY	STREAM--FAST; HARD; COLD	STREAM--FAST; HARD; COLD		NA	S4	GU	1981	16
	FISH	ACIPENSER FULVESCENS	LAKE STURGEON		SC/H	S3	G3	9999	17
	FISH	ERIMYZON SUCETTA	LAKE CHUBSUCKER		SC/N	S3?	G5	1975	1
	FISH	ETHEOSTOMA CLARA	WESTERN SAND DARTER		SC/N	S3?	G3	1994	2
	FISH	ETHEOSTOMA MICROPERCA	LEAST DARTER		SC/N	S3	G5	1971	1
	FISH	FUNDULUS DIAPHANUS	BANDED KILLIFISH		SC/N	S3	G5	1995	3
	FISH	LEPOMIS MEGALOTIS	LONGEAR SUNFISH		THR	S2	G5	1926	1
	FISH	LYTHRURUS UMBRATILIS	REDFIN SHINER		THR	S3	G5	1926	1
	FISH	MOXOSTOMA CARINATUM	RIVER REDHORSE		THR	S2S3	G4	1982	1
	FISH	NOTROPIS ANOGENUS	PUGNOSE SHINER		THR	S2S3	G3	1971	2
	FISH	NOTROPIS TEXANUS	WEED SHINER		SC/N	S2S3	G5	1931	1
	FISH	OPSOPOEODUS EMILIAE	PUGNOSE MINNOW		SC/N	S3?	G5	1973	1
	INVERTEBRATE	CICINDELA PATRUELA PATRUELA	A TIGER BEETLE		SC/N	S3	G3T3	9999	2
	INVERTEBRATE	LYCAEIDES MELISSA SAMUELIS	KARNER BLUE BUTTERFLY	LE	SC/N	S2S3	G5T2	1921	5
	INVERTEBRATE	ALASMIDONTA MARGINATA	ELKTOE		SC/H	S4	G4	1995	23
	INVERTEBRATE	ALASMIDONTA VIRIDIS	SLIPPERSHELL MUSSEL		THR	S2	G4G5	1991	10
	INVERTEBRATE	EPIOBLASMA TRIQUETRA	SNUFFBOX		END	S1	G3	1995	12
	INVERTEBRATE	GOMPHURUS LINEATIFRONS	SPLENDID CLUBTAIL		SC/N	S3	G4	1991	6
	INVERTEBRATE	GOMPHUS VIRIDIFRONS	GREEN-FACED CLUBTAIL		SC/N	S3	G3	1997	2
	INVERTEBRATE	OPHIOGOMPHUS HOWEI	PYGMY SNAKETAIL		THR	S3	G3	1992	5
	INVERTEBRATE	PARACLOEODES MINUTUS	A SMALL MINNOW MAYFLY		SC/N	S1?	G?	1992	1
	INVERTEBRATE	PLEUROBEMA SINTOXIA	ROUND PIGTOE		SC/H	S3	G4	1995	19
	INVERTEBRATE	SIMPSONAIAS AMBIGUA	SALAMANDER MUSSEL		THR	S2S3	G3	1992	13
	INVERTEBRATE	TRITOGONIA VERRUCOSA	BUCKHORN		THR	S2	G4	1995	8
	PLANT	ARABIS MISSOURIENSIS VAR DEAMII	DEAM'S ROCKCRESS		SC	S3	G4?QT3?Q	1959	1
	PLANT	MEDEOLA VIRGINIANA	INDIAN CUCUMBER-ROOT		SC	S3	G5	1992	16
	PLANT	PLATANTHERA HOOKERI	HOOKER ORCHIS		SC	S3	G5	1916	1
	PLANT	BARTONIA VIRGINICA	YELLOW SCREWSTEM		SC	S3	G5	1916	3
	PLANT	CYPRIPEDIUM REGINAE	SHOWY LADY'S-SLIPPER		SC	S2S3	G4	1972	5

Table NR-17: Endangered and Threatened Resources within the East Central Region (cont'd)

	PLANT	ELEOCHARIS QUADRANGULATA	SQUARESTEM SPIKERUSH		END	SH	G4	0	4
	PLANT	GLYCYRRHIZA LEPIDOTA	WILD LICORICE		SC	S2	G5	1915	1
	PLANT	JUNCUS VASEYI	VASEY RUSH		SC	S3	G5?	1916	3
	PLANT	LITTORELLA AMERICANA	AMERICAN SHORE-GRASS		SC	S2	G5	1931	6
	SNAIL	CATINELLA GELIDA	A LAND SNAIL		SC/N	S1S2	G2	1997	1
	SNAIL	COCHLICOPA MORSEANA	APPALACHIAN PILLAR			S2	G4G5	1997	1
	SNAIL	GLYPHYALINIA RHOADSI	SCULPTED GLYPH		SC/N	S2	G5	1997	1
	TURTLE	CLEMMYS INSCULPTA	WOOD TURTLE		THR	S3	G4	1989	3
	TURTLE	EMYDOIDEA BLANDINGII	BLANDING'S TURTLE		THR	S3	G4	1992	4
Waupaca	BIRD	COCCYZUS AMERICANUS	YELLOW-BILLED CUCKOO		SC/M	S3B;SZN	G5	1984	1
(81 species)	BIRD	DENDROICA CERULEA	CERULEAN WARBLER		THR	S2S3B;SZN	G4	1984	1
	BIRD	MELANERPES ERYTHROCEPHALUS	RED-HEADED WOODPECKER		SC/M	S3BSZN	G5	1984	1
	BIRD	PROTONOTARIA CITREA	PROTHONOTARY WARBLER		SC/M	S3B;SZN	G5	1985	2
	BIRD	TYTO ALBA	BARN OWL		END	S1B;S1N	G5	1981	1
	BIRD	BOTAURUS LENTIGINOSUS	AMERICAN BITTERN		SC/M	S3B;SZN	G4	1984	1
	BIRD	BUTEO LINEATUS	RED-SHOULDERED HAWK		THR	S1N;S3S4B	G5	1984	13
	BIRD	CHLIDONIAS NIGER	BLACK TERN		SC/M	S3B;SZN	G4	1984	1
	BIRD	NYCTANASSA VIOLACEA	YELLOW-CROWNED NIGHT-HERON		THR	S1B;SZN	G5	1984	1
	BUTTERFLY	ERYNNIS PERSIUS	PERSIUS DUSKY WING		SC/N	S2	G4	1994	1
	BUTTERFLY	LYCAEIDES MELISSA SAMUELIS	KARNER BLUE BUTTERFLY	LE	SC/N	S2S3	G5T2	1994	9
	BUTTERFLY	POANES MASSASOIT	MULBERRY WING		SC/N	S3	G4	1987	1
	COMMUNITY	DRY PRAIRIE	DRY PRAIRIE		NA	S3	G3	1978	3
	COMMUNITY	MOIST CLIFF	MOIST CLIFF		NA	S4		1978	4
	COMMUNITY	NORTHERN DRY FOREST	NORTHERN DRY FOREST		NA	S3	G3?	1978	4
	COMMUNITY	NORTHERN DRY-MESIC FOREST	NORTHERN DRY-MESIC FOREST		NA	S3	G4	1980	4
	COMMUNITY	NORTHERN MESIC FOREST	NORTHERN MESIC FOREST		NA	S4	G4	1980	8
	COMMUNITY	PINE BARRENS	PINE BARRENS		NA	S2	G2	1978	1
	COMMUNITY	SOUTHERN DRY-MESIC FOREST	SOUTHERN DRY-MESIC FOREST		NA	S3	G4	1980	2
	COMMUNITY	SOUTHERN MESIC FOREST	SOUTHERN MESIC FOREST		NA	S3	G3?	1979	1
	COMMUNITY	ALDER THICKET	ALDER THICKET		NA	S4	G4	1983	4
	COMMUNITY	CALCAREOUS FEN	CALCAREOUS FEN		NA	S3	G3	1978	2
	COMMUNITY	EMERGENT AQUATIC	EMERGENT AQUATIC		NA	S4	G4	1983	9
	COMMUNITY	FLOODPLAIN FOREST	FLOODPLAIN FOREST		NA	S3	G3?	1986	5
	COMMUNITY	LAKE--DEEP; HARD; DRAINAGE	LAKE--DEEP; HARD; DRAINAGE		NA	S3	GU	1986	4
	COMMUNITY	LAKE--DEEP; HARD; SEEPAGE	LAKE--DEEP; HARD; SEEPAGE		NA	S2	GU	1987	2
	COMMUNITY	LAKE--HARD BOG	LAKE--HARD BOG		NA	S2	GU	1977	1
	COMMUNITY	LAKE--OXBOW	LAKE--OXBOW		NA	SU		1978	3
	COMMUNITY	LAKE--SHALLOW; HARD; DRAINAGE	LAKE--SHALLOW; HARD; DRAINAGE		NA	SU	GU	1979	4
	COMMUNITY	LAKE--SHALLOW; HARD; SEEPAGE	LAKE--SHALLOW; HARD; SEEPAGE		NA	SU	GU	1988	3
	COMMUNITY	NORTHERN SEDGE MEADOW	NORTHERN SEDGE MEADOW		NA	S3	G4	1983	5

Table NR-17: Endangered and Threatened Resources within the East Central Region (cont'd)

	COMMUNITY	NORTHERN WET FOREST	NORTHERN WET FOREST		NA	S4	G4	1983	8
	COMMUNITY	NORTHERN WET-MESIC FOREST	NORTHERN WET-MESIC FOREST		NA	S3S4	G3?	1980	4
	COMMUNITY	SHRUB-CARR	SHRUB-CARR		NA	S4	G5	1978	4
	COMMUNITY	STREAM--FAST; HARD; COLD	STREAM--FAST; HARD; COLD		NA	S4	GU	1983	3
	COMMUNITY	TAMARACK FEN	TAMARACK FEN		NA	S3	G3	1991	1
	DRAGONFLY	ENALLAGMA ANNA	RIVER BLUET		SC/N	S2	G5	1986	1
	FISH	ACIPENSER FULVESCENS	LAKE STURGEON		SC/H	S3	G3	9999	22
	FISH	ERIMYZON SUCETTA	LAKE CHUBSUCKER		SC/N	S3?	G5	1981	8
	FISH	ETHEOSTOMA CLARA	WESTERN SAND DARTER		SC/N	S3?	G3	1994	9
	FISH	ETHEOSTOMA MICROPERCA	LEAST DARTER		SC/N	S3	G5	1979	3
	FISH	LYTHRURUS UMBRATILIS	REDFIN SHINER		THR	S3	G5	1979	3
	FISH	MOXOSTOMA CARINATUM	RIVER REDHORSE		THR	S2S3	G4	1981	1
	FISH	MOXOSTOMA VALENCIENNESI	GREATER REDHORSE		THR	S2S3	G3	1994	5
	FISH	NOTROPIS ANOGENUS	PUGNOSE SHINER		THR	S2S3	G3	1979	6
	FISH	NOTROPIS TEXANUS	WEED SHINER		SC/N	S2S3	G5	1979	3
	FISH	OPSOPOEODUS EMILIAE	PUGNOSE MINNOW		SC/N	S3?	G5	1981	4
	FROG	ACRIS CREPITANS BLANCHARDI	BLANCHARD'S CRICKET FROG		END	S1	G5T5	1983	1
	GRASSHOPPER	TRIMEROTROPIS MARITIMA	SEASIDE GRASSHOPPER		SC/N	S2	G?	1998	1
	INVERTEBRATE	ALASMIDONTA MARGINATA	ELKTOE		SC/H	S4	G4	1995	2
	INVERTEBRATE	EPIOBLASMA TRIQUETRA	SNUFFBOX		END	S1	G3	1995	6
	INVERTEBRATE	OPHIOGOMPHUS CAROLUS	RIFFLE SNAKETAIL		SC/N	S3	G5	1979	4
	INVERTEBRATE	OPHIOGOMPHUS HOWEI	PYGMY SNAKETAIL		THR	S3	G3	1998	10
	INVERTEBRATE	PENTAGENIA VITTIGERA	AN EPHEMERID MAYFLY		SC/N	S2?	G4G5	1992	1
	INVERTEBRATE	PLEUROBEMA SINTOXIA	ROUND PIGTOE		SC/H	S3	G4	1995	5
	INVERTEBRATE	PSEUDIRON CENTRALIS	A HEPTAGENIID MAYFLY		SC/N	S3	G?	1992	2
	INVERTEBRATE	SIMPSONAIAS AMBIGUA	SALAMANDER MUSSEL		THR	S2S3	G3	1989	1
	INVERTEBRATE	STYLURUS NOTATUS	ELUSIVE CLUBTAIL		SC/N	S2S3	G3G4	1992	2
	INVERTEBRATE	TRITOGONIA VERRUCOSA	BUCKHORN		THR	S2	G4	1995	5
	MAMMAL	REITHRODONTOMYS MEGALOTIS	WESTERN HARVEST MOUSE		SC/N	S2	G5	1976	3
	MOTH	SCHINIA BINA	BINA FLOWER MOTH		SC/N	S2S3	G4	9999	1
	PLANT	ARABIS MISSOURIENSIS VAR DEAMII	DEAM'S ROCKCRESS		SC	S3	G4?QT3?Q	1965	2
	PLANT	BOTRYCHIUM ONEIDENSE	BLUNT-LOBE GRAPE-FERN		SC	S2	G4Q	1978	1
	PLANT	CARDAMINE PRATENSIS	CUCKOOFLOWER		SC	S3	G5	1949	1
	PLANT	MEDEOLA VIRGINIANA	INDIAN CUCUMBER-ROOT		SC	S3	G5	1968	2
	PLANT	MINUARTIA DAWSONENSIS	ROCK STITCHWORT		SC	S2	G5	1965	2
	PLANT	OPUNTIA FRAGILIS	BRITTLE PRICKLY-PEAR		THR	S3	G4G5	1986	1
	PLANT	PLATANTHERA ORBICULATA	LARGE ROUNDLEAF ORCHID		SC	S2S3	G5?	1931	2
	PLANT	VIBURNUM CASSINOIDES	NORTHERN WILD-RAISIN		SC	S2	G5	1973	1
	PLANT	VIOLA ROSTRATA	LONG-SPUR VIOLET		SC	S2	G5	1979	1
	PLANT	CAREX GYNOCRATES	NORTHERN BOG SEDGE		SC	S2	G5	1931	2
	PLANT	CYPRIPEDIUM ARIETINUM	RAM'S-HEAD LADY'S-SLIPPER		THR	S1	G3	1931	1

Table NR-17: Endangered and Threatened Resources within the East Central Region (cont'd)

	PLANT	CYPRIPEDIUM REGINAE	SHOWY LADY'S-SLIPPER		SC	S2S3	G4	1988	5
	PLANT	ELEOCHARIS OLIVACEA	CAPITATE SPIKERUSH		SC	S2	G5	1977	1
	PLANT	ELEOCHARIS QUINQUEFLORA	FEW-FLOWER SPIKERUSH		SC	S2	G5	1977	1
	PLANT	PLATANTHERA DILATATA	LEAFY WHITE ORCHIS		SC	S3	G5	1931	4
	PLANT	PSILOCARYA SCIRPOIDES	LONG-BEAKED BALDRUSH		THR	S1	G4	1932	1
	PLANT	VALERIANA SITCHENSIS SSP ULIGINOSA	MARSH VALERIAN		THR	S1	G4G5T4	1991	1
	PLANT	VALERIANA SITCHENSIS SSP ULIGINOSA	MARSH VALERIAN		THR	S1	G4G5T4	1944	3
	TURTLE	CLEMMYS INSCULPTA	WOOD TURTLE		THR	S3	G4	1988	13
	TURTLE	EMYDOIDEA BLANDINGII	BLANDING'S TURTLE		THR	S3	G4	1992	14
Waushara	BIRD	TYMPANUCHUS CUPIDO	GREATER PRAIRIE-CHICKEN		THR	S2B;S2N	G4	1979	15
(78 species)	BUTTERFLY	CHLOSYNE GORGONE	GORGONE CHECKER SPOT		SC/N	S3	G4	1996	1
	BUTTERFLY	LYCAEIDES MELISSA SAMUELIS	KARNER BLUE BUTTERFLY	LE	SC/N	S2S3	G5T2	1996	27
	COMMUNITY	DRY PRAIRIE	DRY PRAIRIE		NA	S3	G3	1979	5
	COMMUNITY	NORTHERN DRY-MESIC FOREST	NORTHERN DRY-MESIC FOREST		NA	S3	G4	1979	3
	COMMUNITY	NORTHERN MESIC FOREST	NORTHERN MESIC FOREST		NA	S4	G4	1978	1
	COMMUNITY	OAK BARRENS	OAK BARRENS		NA	S2	G2?	1990	3
	COMMUNITY	PINE BARRENS	PINE BARRENS		NA	S2	G2	1978	1
	COMMUNITY	SOUTHERN DRY FOREST	SOUTHERN DRY FOREST		NA	S3	G4	1983	3
	COMMUNITY	SOUTHERN DRY-MESIC FOREST	SOUTHERN DRY-MESIC FOREST		NA	S3	G4	1979	2
	COMMUNITY	SOUTHERN MESIC FOREST	SOUTHERN MESIC FOREST		NA	S3	G3?	1978	2
	COMMUNITY	ALDER THICKET	ALDER THICKET		NA	S4	G4	1978	2
	COMMUNITY	CALCAREOUS FEN	CALCAREOUS FEN		NA	S3	G3	1984	5
	COMMUNITY	COASTAL PLAIN MARSH	COASTAL PLAIN MARSH		NA	S1	G2?	1978	1
	COMMUNITY	EMERGENT AQUATIC	EMERGENT AQUATIC		NA	S4	G4	1979	12
	COMMUNITY	FLOODPLAIN FOREST	FLOODPLAIN FOREST		NA	S3	G3?	1983	1
	COMMUNITY	LAKE--DEEP; HARD; SEEPAGE	LAKE--DEEP; HARD; SEEPAGE		NA	S2	GU	1983	4
	COMMUNITY	LAKE--SHALLOW; HARD; SEEPAGE	LAKE--SHALLOW; HARD; SEEPAGE		NA	SU	GU	1978	1
	COMMUNITY	LAKE--SHALLOW; SOFT; SEEPAGE	LAKE--SHALLOW; SOFT; SEEPAGE		NA	S4	GU	1978	1
	COMMUNITY	NORTHERN SEDGE MEADOW	NORTHERN SEDGE MEADOW		NA	S3	G4	1978	2
	COMMUNITY	NORTHERN WET FOREST	NORTHERN WET FOREST		NA	S4	G4	1979	7
	COMMUNITY	NORTHERN WET-MESIC FOREST	NORTHERN WET-MESIC FOREST		NA	S3S4	G3?	1978	1
	COMMUNITY	SHRUB-CARR	SHRUB-CARR		NA	S4	G5	1983	3
	COMMUNITY	SOUTHERN SEDGE MEADOW	SOUTHERN SEDGE MEADOW		NA	S3	G4	1983	5
	COMMUNITY	SPRING POND	SPRING POND		NA	S3	GU	1978	4
	COMMUNITY	SPRINGS AND SPRING RUNS; HARD	SPRINGS AND SPRING RUNS; HARD		NA	S4	GU	1979	6
	COMMUNITY	STREAM--FAST; HARD; COLD	STREAM--FAST; HARD; COLD		NA	S4	GU	1978	2
	DRAGONFLY	AESHNA TUBERCULIFERA	BLACK-TIPPED DARNER		SC/N	S3	G4	1985	1
	DRAGONFLY	AESHNA VERTICALIS	GREEN-STRIPED DARNER		SC/N	S3	G5	1985	1
	FISH	ACIPENSER FULVESCENS	LAKE STURGEON		SC/H	S3	G3	1991	1
	FISH	ERIMYZON OBLONGUS	CREEK CHUBSUCKER			SX	G5	9999	2

Table NR-17: Endangered and Threatened Resources within the East Central Region (cont'd)

	FISH	ERIMYZON SUCETTA	LAKE CHUBSUCKER		SC/N	S3?	G5	1979	4
	FISH	ETHEOSTOMA MICROPERCA	LEAST DARTER		SC/N	S3	G5	1979	1
	FISH	FUNDULUS DIAPHANUS	BANDED KILLIFISH		SC/N	S3	G5	1995	11
	FISH	LEPOMIS MEGALOTIS	LONGEAR SUNFISH		THR	S2	G5	1979	1
	FISH	LUXILUS CHRYSOCEPHALUS	STRIPED SHINER		END	S1	G5	0	2
	FISH	LYTHRURUS UMBRATILIS	REDFIN SHINER		THR	S3	G5	1979	2
	FISH	MOXOSTOMA VALENCIENNESI	GREATER REDHORSE		THR	S2S3	G3	1974	3
	FISH	NOTROPIS ANOGENUS	PUGNOSE SHINER		THR	S2S3	G3	1979	3
	FISH	NOTROPIS TEXANUS	WEED SHINER		SC/N	S2S3	G5	1979	4
	FISH	OPSOPOEODUS EMILIAE	PUGNOSE MINNOW		SC/N	S3?	G5	1978	2
	FROG	ACRIS CREPITANS BLANCHARDI	BLANCHARD'S CRICKET FROG		END	S1	G5T5	1971	1
	LIZARD	OPHISAURUS ATTENUATUS	WESTERN SLENDER GLASS LIZARD		END	S2	G5	1991	4
	MAMMAL	MICROTUS OCHROGASTER	PRAIRIE VOLE		SC/N	S2	G5	1898	4
	MAMMAL	SOREX ARCTICUS	ARCTIC SHREW		SC/N	S2	G5	1974	3
	MOTH	MEROPLEON AMBIFUSCA	NEWMAN'S BROCADE		SC/N	S3	GU	1997	1
	OTHER	MIGRATORY BIRD CONCENTRATION SITE	MIGRATORY BIRD CONCENTRATION SITE		SC	SU		1979	1
	PLANT	ARABIS MISSOURIENSIS VAR DEAMII	DEAM'S ROCKCRESS		SC	S3	G4?QT3?Q	1958	3
	PLANT	ASCLEPIAS PURPURASCENS	PURPLE MILKWEED		END	S2	G4G5	1984	1
	PLANT	CALYLOPHUS SERRULATUS	YELLOW EVENING PRIMROSE		SC	S3	G5	1915	1
	PLANT	CARDAMINE PRATENSIS	CUCKOOFLOWER		SC	S3	G5	1960	1
	PLANT	MINUARTIA DAWSONENSIS	ROCK STITCHWORT		SC	S2	G5	1962	1
	PLANT	OPHIOGLOSSUM VULGATUM	ADDER'S-TONGUE		SC	S3	G5	1956	1
	PLANT	OPUNTIA FRAGILIS	BRITTLE PRICKLY-PEAR		THR	S3	G4G5	1972	1
	PLANT	PENSTEMON PALLIDUS	PALE BEARDTONGUE		SC	S3	G5	1965	1
	PLANT	PLATANTHERA FLAVA VAR HERBIOLA	PALE GREEN ORCHID		THR	S1	G4T4Q	1970	1
	PLANT	TALINUM RUGOSPERMUM	PRAIRIE FAME-FLOWER		SC	S3S4	G3?	1991	1
	PLANT	BARTONIA VIRGINICA	YELLOW SCREWSTEM		SC	S3	G5	1913	1
	PLANT	CAREX CRAWEI	CRAWE SEDGE		SC	S2	G5	1942	4
	PLANT	CAREX SYCHNOCEPHALA	MANY-HEADED SEDGE		SC	S2	G4	1977	7
	PLANT	DESCHAMPSIA CESPITOSA	TUFTED HAIRGRASS		SC	S3	G5	1978	4
	PLANT	ELEOCHARIS COMPRESSA	FLAT-STEMMED SPIKE-RUSH		SC	SU	G4	1995	1
	PLANT	ELEOCHARIS OLIVACEA	CAPITATE SPIKERUSH		SC	S2	G5	1963	2
	PLANT	ELEOCHARIS QUINQUEFLORA	FEW-FLOWER SPIKERUSH		SC	S2	G5	1962	3
	PLANT	MALAXIS BRACHYPODA	WHITE ADDER'S-MOUTH		SC	S2	G4Q	1918	2
	PLANT	OXYTROPIS CAMPESTRIS VAR CHARTACEA	FASSETT'S LOCOWEED	LT	END	S1	G5T1	1969	2
	PLANT	OXYTROPIS CAMPESTRIS VAR CHARTACEA	FASSETT'S LOCOWEED	LT	END	S1	G5T1	1999	6
	PLANT	POLYGALA CRUCIATA	CROSSLEAF MILKWORT		SC	S2	G5	1969	1
	PLANT	PSILOCARYA SCIRPOIDES	LONG-BEAKED BALDRUSH		THR	S1	G4	1978	1
	PLANT	RHEXIA VIRGINICA	VIRGINIA MEADOW-BEAUTY		SC	S2	G5	1963	2
	PLANT	TOFIELDIA GLUTINOSA	STICKY FALSE-ASPHODEL		THR	S3	G5	1979	1
	PLANT	TRIGLOCHIN PALUSTRE	SLENDER BOG ARROW-GRASS		SC	S3	G5	1979	1

Table NR-17: Endangered and Threatened Resources within the East Central Region (cont'd)

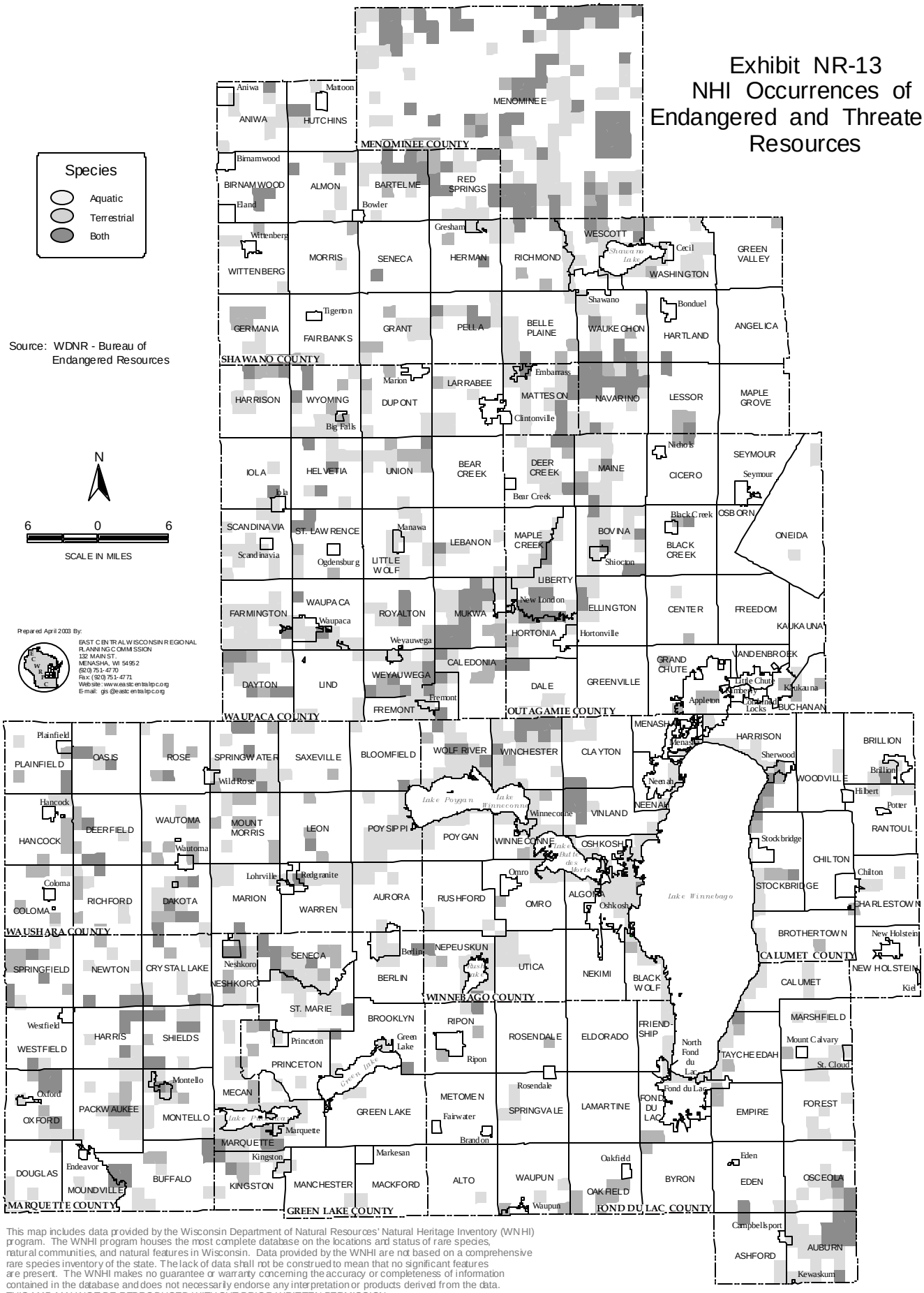
	PLANT	UTRICULARIA PURPUREA	PURPLE BLADDERWORT		SC	S3	G5	1975	1
	SNAIL	CATINELLA EXILE	PLEISTOCENE CATINELLA		SC/N	S2	G1G2	1997	1
	SNAIL	STROBILOPS AFFINIS	EIGHTFOLD PINECONE		SC/N	S3	G?	1997	1
	SNAIL	VERTIGO ELATIOR	TAPERED VERTIGO		SC/N	S3	G?	1997	1
	SNAIL	VERTIGO MORSEI	SIX-WHORL VERTIGO		SC/N	S1	G?	1997	1
	TURTLE	EMYDOIDEA BLANDINGII	BLANDING'S TURTLE		THR	S3	G4	1992	1
Winnebago	BIRD	AECHMOPHORUS OCCIDENTALIS	WESTERN GREBE		SC/M	SAB;SZN	G5	1990	5
(45 species)	BIRD	CHLIDONIAS NIGER	BLACK TERN		SC/M	S3B;SZN	G4	1990	5
	BIRD	GALLINULA CHLOROPUS	COMMON MOORHEN		SC/M	S3B;SZN	G5	1990	5
	BIRD	IXOBRYCHUS EXILIS	LEAST BITTERN		SC/M	S3B;SZN	G5	1990	5
	BIRD	NYCTICORAX NYCTICORAX	BLACK-CROWNED NIGHT-HERON		SC/M	S2B;SZN	G5	1990	1
	BIRD	PODICEPS GRISEGENA	RED-NECKED GREBE		END	S1B;SZN	G5	1997	2
	BIRD	STERNA CASPIA	CASPIAN TERN		END	S1B;S2N	G5	1990	5
	BIRD	STERNA FORSTERI	FORSTER'S TERN		END	S2B;SZN	G5	1997	10
	BIRD	STERNA HIRUNDO	COMMON TERN		END	S1B;S2N	G5	1997	1
	BUTTERFLY	CHLOSYNE GORGONE	GORGONE CHECKER SPOT		SC/N	S3	G4	1991	2
	BUTTERFLY	POANES VIATOR	BROAD-WINGED SKIPPER		SC/N	S3	G5	1991	2
	BUTTERFLY	POANES MASSASOIT	MULBERRY WING		SC/N	S3	G4	1991	2
	COMMUNITY	MESIC PRAIRIE	MESIC PRAIRIE		NA	S1	G2	1987	4
	COMMUNITY	NORTHERN DRY-MESIC FOREST	NORTHERN DRY-MESIC FOREST		NA	S3	G4	1979	2
	COMMUNITY	OAK OPENING	OAK OPENING		NA	S1	G1	1987	1
	COMMUNITY	SOUTHERN DRY-MESIC FOREST	SOUTHERN DRY-MESIC FOREST		NA	S3	G4	1979	3
	COMMUNITY	EMERGENT AQUATIC	EMERGENT AQUATIC		NA	S4	G4	1988	3
	COMMUNITY	FLOODPLAIN FOREST	FLOODPLAIN FOREST		NA	S3	G3?	1979	5
	COMMUNITY	NORTHERN WET-MESIC FOREST	NORTHERN WET-MESIC FOREST		NA	S3S4	G3?	1978	2
	COMMUNITY	SOUTHERN SEDGE MEADOW	SOUTHERN SEDGE MEADOW		NA	S3	G4	1987	7
	COMMUNITY	WET PRAIRIE	WET PRAIRIE		NA	SU	G3	1984	1
	COMMUNITY	WET-MESIC PRAIRIE	WET-MESIC PRAIRIE		NA	S2	G2	1991	4
	FISH	ACIPENSER FULVESCENS	LAKE STURGEON		SC/H	S3	G3	9999	19
	FISH	ERIMYZON OBLONGUS	CREEK CHUBSUCKER			SX	G5	9999	14
	FISH	ERIMYZON SUCETTA	LAKE CHUBSUCKER		SC/N	S3?	G5	1979	9
	FISH	FUNDULUS DIAPHANUS	BANDED KILLIFISH		SC/N	S3	G5	1974	19
	FISH	LUXILUS CHRYSOCEPHALUS	STRIPED SHINER		END	S1	G5	0	12
	FISH	MOXOSTOMA VALENCIENNESI	GREATER REDHORSE		THR	S2S3	G3	1974	13
	FISH	NOTROPIS ANOGENUS	PUGNOSE SHINER		THR	S2S3	G3	1963	12
	FISH	OPSOPOEODUS EMILIAE	PUGNOSE MINNOW		SC/N	S3?	G5	1981	13
	HERPTILE	CLEMMYS INSCULPTA	WOOD TURTLE		THR	S3	G4	1948	4
	INVERTEBRATE	PLEUROBEMA SINTOXIA	ROUND PIGTOE		SC/H	S3	G4	1995	2
	INVERTEBRATE	TRITOGONIA VERRUCOSA	BUCKHORN		THR	S2	G4	1995	2
	MAMMAL	SOREX ARCTICUS	ARCTIC SHREW		SC/N	S2	G5	1999	1

Table NR-17: Endangered and Threatened Resources within the East Central Region (cont'd)

	MAMMAL	SOREX HOYI	PIGMY SHREW		SC/N	S2	G5	1975	3
	OTHER	BIRD ROOKERY	BIRD ROOKERY		SC	SU		1990	1
	PLANT	ASCLEPIAS PURPURASCENS	PURPLE MILKWEED		END	S2	G4G5	1941	11
	PLANT	GYMNOCLADUS DIOICUS	KENTUCKY COFFEE-TREE		SC	S3	G5	1993	1
	PLANT	MEDEOLA VIRGINIANA	INDIAN CUCUMBER-ROOT		SC	S3	G5	1992	1
	PLANT	CYPRIPEDIUM CANDIDUM	SMALL WHITE LADY'S-SLIPPER		THR	S3	G4	1890	8
	PLANT	CYPRIPEDIUM CANDIDUM	SMALL WHITE LADY'S-SLIPPER		THR	S3	G4	1992	2
	PLANT	PLATANTHERA LEUCOPHAEA	PRAIRIE WHITE-FRINGED ORCHID	LT	END	S1	G2	1993	4
	PLANT	POA PALUDIGENA	BOG BLUEGRASS		THR	S2	G3	1986	1
	PLANT	THALICTRUM REVOLUTUM	WAXLEAF MEADOWRUE		SC	S2	G5	1971	3
	TURTLE	EMYDOIDEA BLANDINGII	BLANDING'S TURTLE		THR	S3	G4	1982	4

Source: WDNR, 2002

Exhibit NR-13
NHI Occurrences of Endangered and Threatened Resources



This map includes data provided by the Wisconsin Department of Natural Resources' Natural Heritage Inventory (WNHI) program. The WNHI program houses the most complete database on the locations and status of rare species, natural communities, and natural features in Wisconsin. Data provided by the WNHI are not based on a comprehensive rare species inventory of the state. The lack of data shall not be construed to mean that no significant features are present. The WNHI makes no guarantee or warranty concerning the accuracy or completeness of information contained in the database and does not necessarily endorse any interpretation or products derived from the data.
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