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A Regional Land Use Plan for Southeastern Wisconsin: 2020 (SEWRPC, 1997)
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A REGIONAL LAND USE PLAN FOR SOUTHEASTERN WISCONSIN: 2020

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PLANNING REPORT NUMBER 45

A REGIONAL LAND USE PLAN FOR SOUTHEASTERN WISCONSIN: 2020

Prepared by the

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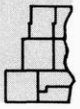

STATEMENT OF THE CHAIRMAN

After careful evaluation and public review of alternatives, the Regional Planning Commission in 1966 adopted a regional land use plan for the design year 1990 as a guide for growth and development in the seven-county Southeastern Wisconsin Region. Major reevaluations of the plan were completed in 1977 and 1992. These efforts culminated in the preparation and adoption of new land use plans embodying the basic principles and concepts of the initial plan, with the plan design period extended, first to the year 2000 and then to the year 2010.

In December 1997, the Commission completed the work necessary to extend the regional land use plan 10 years further into the future. The new plan accommodates population, household, and employment levels anticipated in the Region through the year 2020. As it was extended in time, the plan was reviewed and revised to reflect development which had occurred or which had been committed to in the Region since completion of the year 2010 plan, and to reflect as well recently completed county and municipal land use plans which serve to refine and detail the regional plan.

The year 2020 regional land use plan incorporates the basic principles and concepts of the previously adopted plans. The plan promotes a compact, centralized regional settlement pattern, with urban development recommended to occur within, and along the periphery of, existing urban centers; promotes the location of new urban development in areas which are physically suitable for such development and which may be readily served by basic urban services, including sanitary sewer, water supply, and public transit services; and seeks to preserve the environmentally sensitive lands and the most productive farmlands in the Region. Like the previous plans, the new plan is advisory in nature. Plan implementation will depend largely upon the willingness of county and local governments to use land use controls to shape development patterns in the regional interest.

With the plan design period extended to the year 2020, the regional land use plan will continue to provide a sound regional development framework needed in support of transportation and other public facility planning at the regional level, and in support of the preparation of comprehensive plans and related plan implementation efforts by local units of government in the Region.

Very truly yours,

Thomas H. Buestrin
Chairman

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Chapter I

INTRODUCTION

The Southeastern Wisconsin Regional Planning Commission is charged by law with the function and duty of "making and adopting a master plan for the physical development of the [R]egion." The permissible scope and content of this plan, as outlined in the enabling legislation, extend to all phases of regional development, implicitly emphasizing, however, the preparation of spatial designs for the use of land and for supporting transportation and utility facilities.

The scope and complexity of areawide development prohibit the making and adopting of an entire comprehensive development plan at one time. The Commission has, therefore, determined to proceed with the preparation of individual plan elements which together form the comprehensive plan. Each element is intended to deal with an identified areawide developmental or environmental objective. The individual elements are coordinated by being related to an areawide land use plan. Thus, the land use plan constitutes the most basic regional plan element, the element on which other elements are based.

The Regional Planning Commission first adopted a regional land use plan in 1966. That plan had a design year of 1990. Following a period of about 10 years, the design year 1990 plan underwent a major review and reevaluation, including an analysis of land development trends and their conformance to, and departure from, the year 1990 land use plan. This plan reappraisal was supported by 1970 and 1975 regional land use inventory data and 1970 U. S. Bureau of the Census population and household data. This major plan reappraisal resulted in a determination that the basic principles and concepts of the 1990 land use plan should be carried forward into a design year 2000 land use plan, which was adopted by the Commission in 1977. Similarly, following a period of about 10 years, another major review and reevaluation effort was undertaken using 1980, 1985, and 1990 land use inventory data and 1980 and 1990 U. S. Bureau of the Census population and household data. The basic principles and concepts of the plan were again carried forward, into a design year 2010 land use plan, adopted by the Commission in 1992. These plans are respectively documented in SEWRPC Planning Reports Nos. 7, 25, and 40.[1]

In 1997, the Regional Planning Commission undertook a project intended to extend the design year 2010 plan 10 years further into the future, to a new design year of 2020. Because of the short period of time since adoption of the design year 2010 plan and because new land use, population, and household data were not available, a major plan reevaluation effort was not possible. This report documents the planning process applied to extend the year 2010 plan to the design year 2020, and presents the resulting regional land use plan for that design year.

THE REGION

The Southeastern Wisconsin Region, as shown on Map 1, consists of Kenosha, Milwaukee, Ozaukee, Racine, Walworth, Washington, and Waukesha Counties. Exclusive of Lake Michigan, these seven counties have a total area of 2,689 square miles, or about 5 percent of the total area of Wisconsin. These counties, nevertheless, account for about 37 percent of the total population of the State, about 38 percent of all jobs in the State, and about 40 percent of the total tangible wealth of the State as measured by equalized property value. Exclusive of school and other special-purpose districts, the Region contains 154 local units of government, all of which participate in the work of the Commission.

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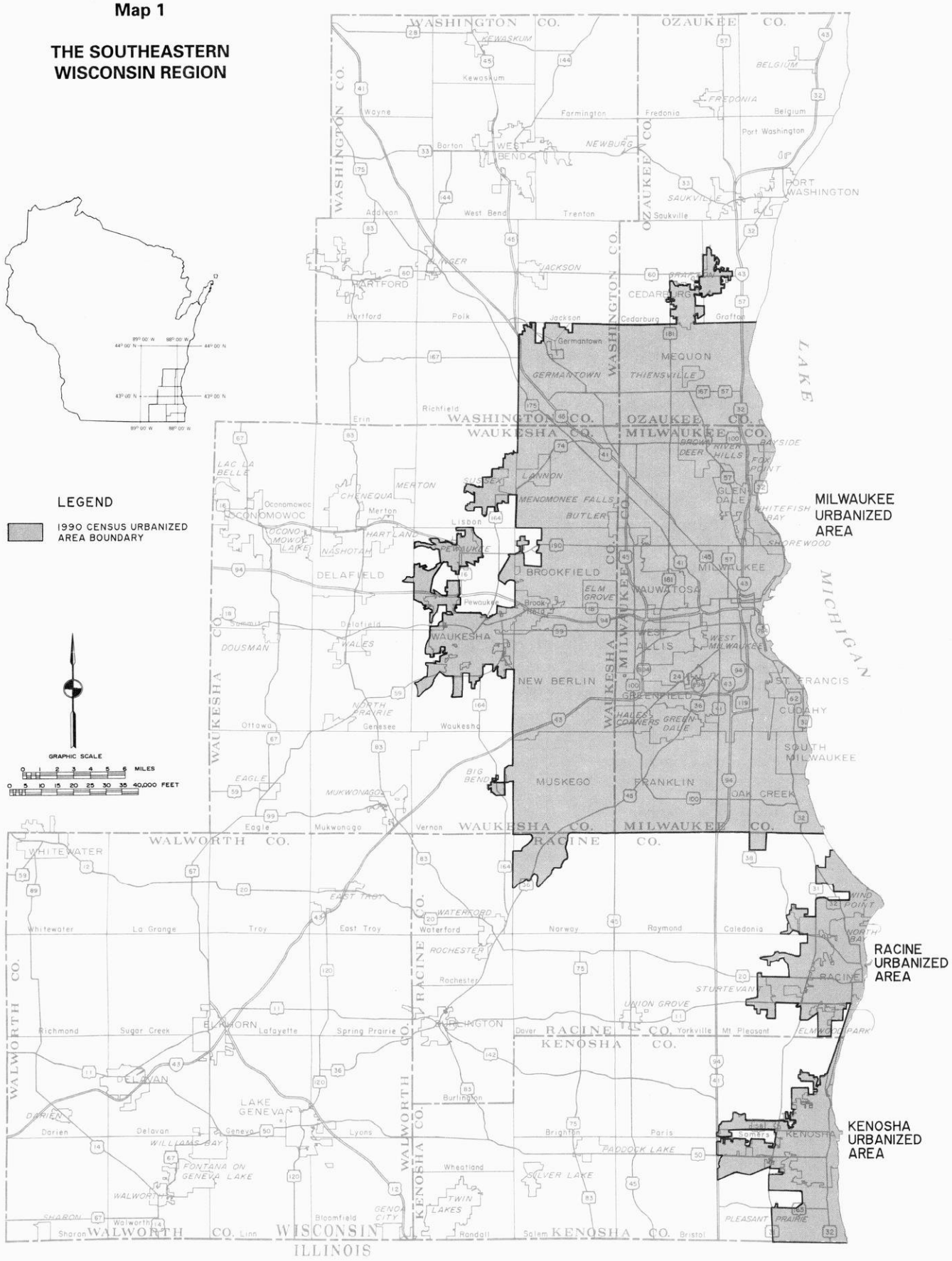
[1] *The first regional land use plan is documented in SEWRPC Planning Report No. 7,* Land Use-Transportation Study, *Volume One,* Inventory Findings: 1963, *May 1965; Volume Two,* Forecasts and Alternative Plans: 1990, *June 1966; and Volume Three,* Recommended Regional Land Use and Transportation Plans: 1990, *November 1966. The second regional land use plan is documented in SEWRPC Planning Report No. 25,* A Regional Land Use Plan and a Regional Transportation Plan for Southeastern Wisconsin—2000, *Volume One,* Inventory Findings, *April 1975, and Volume Two,* Alternative and Recommended Plans, *May 1978. The third regional land use plan is documented in SEWRPC Planning Report No. 40,* A Regional Land Use Plan for Southeastern Wisconsin—2010, *January 1992.*

Map 1

THE SOUTHEASTERN WISCONSIN REGION



The Southeastern Wisconsin Region, consisting of Kenosha, Milwaukee, Ozaukee, Racine, Walworth, Washington, and Waukesha Counties, encompasses an area of 2,689 square miles, or about 5 percent of the total area of the State of Wisconsin. These counties, nevertheless, account for about 37 percent of the total population of the State, about 38 percent of all jobs in the State, and about 40 percent of the tangible wealth of the State as measured by equalized property value. There are 154 general-purpose local units of government in the seven-county Region.

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

Geographically, the Region is located in a relatively good position with regard to continued growth and development. It is bounded on the east by Lake Michigan, which provides an ample supply of fresh water for both domestic and industrial uses and is an integral part of a major international transportation network. It is bounded on the south by the rapidly expanding metropolitan region of northeastern Illinois and on the west and north by the fertile agricultural lands and desirable recreation areas of the rest of the State of Wisconsin.

THE EVOLVING REGIONAL LAND USE PLAN

The regional land use plan is an evolving guide for development in Southeastern Wisconsin. The current plan—the design year 2010 plan adopted in 1992—is a plan which builds upon the findings and recommendations of previous regional land use planning studies. While the regional land use plan has evolved, the basic concepts of that plan have remained essentially the same since the initial plan was adopted in 1966. The historical development of those concepts is described below.

Design Year 1990 Regional Land Use Plan

In the initial regional land use planning study, a concerted effort was made to prepare and present for public evaluation the full range of alternatives that were practically available to the Region with respect to future land use development. Three alternative land use plans proposing distinctly different settlement patterns for the Region—referred to as a "corridor" plan, a "satellite city" plan, and a "controlled existing trend" plan—were prepared and evaluated. A fourth alternative, essentially an unplanned alternative, was also considered.[2]

Technical evaluation indicated that the controlled existing trend plan was the best of the alternatives considered, and that alternative was the most favorably received by public officials and citizens of the Region during an extensive public review process. Accordingly, the controlled existing trend plan was adopted by the Commission in 1966 as the recommended regional land use plan for the year 1990.

The first regional land use plan placed heavy emphasis on the continued effect of the urban land market in determining the location, intensity, and character of future urban development in the Region. The plan, however, recommended that the development trends be altered in the following significant ways in order to achieve a more healthful and attractive, as well as more efficient, regional settlement pattern:

- Encouraging a centralized settlement pattern with new urban development proposed to occur at medium urban densities as infill in existing urban centers and along the periphery of, and outward from, existing urban centers, particularly in areas which can be readily served by public sanitary sewer, water supply, and transit services; which are covered by soils suitable for development; and which are not subject to special hazards such as flooding and erosion.

- Stabilizing and revitalizing existing urban centers, halting the historical loss in population and jobs in those centers, and promoting a return to growth, particularly in employment centers such as the Milwaukee central business district.

- Preserving in essentially natural, open uses the identified primary environmental corridors—that is, linear areas in the landscape that encompass the most important elements of the natural resource base, including lakes, rivers, and streams, and their associated floodlands and shorelands; wetlands; woodlands; prairies; wildlife habitat areas; and rugged terrain and high-relief topography.

- Preserving most of the remaining prime agricultural lands—the most productive farmland in the Region—for agricultural use.

Design Year 2000 Regional Land Use Plan

In the second regional land use planning study, two variations of the controlled existing trend plan—a "controlled centralization" plan and a "controlled decentralization" plan—were considered. Under the former, the basic development concept emphasized was one of centralization, with most new development occurring in planned neighborhoods as infill within existing urban centers, and along the periphery of existing urban centers within areas which may be readily served by centralized public sanitary sewer and water supply facilities. Conversely, the controlled decentralization plan placed greater emphasis on more diffuse, lower-density urban develop-

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[2] *The corridor, satellite city, and controlled existing trend alternative plans for the year 1990 are described in Chapter V of SEWRPC Planning Report No. 7, Volume Two. The unplanned alternative for the year 1990 is described in Chapter IV of SEWRPC Planning Report No. 7, Volume Three.*

ment, with greater reliance on private soil absorption sewage disposal systems and private wells.[3]

After careful review and evaluation of the alternatives and following public hearings, the Commission adopted the controlled centralization alternative as the recommended regional land use plan for the year 2000. In so doing, the Commission reaffirmed the basic principles and concepts of the first-generation plan, including, importantly, the centralization of urban development and the location of new urban development in areas which may be readily provided with basic urban services and facilities; the preservation of primary environmental corridors; and the preservation of prime agricultural lands.

Design Year 2010 Regional Land Use Plan

In the third regional land use planning study, the second regional land use plan was revised and extended to the year 2010. In view of the extensive work in the preparation and evaluation of alternative land use designs conducted in the first and second regional land use planning studies, and the finding in each case that a controlled existing trend plan emphasizing a centralized settlement pattern could best meet agreed-upon regional land use objectives, it was determined that additional design alternatives need not be analyzed. Rather, it was determined that the basic concepts of the prior plans would be brought forward and incorporated into the year 2010 plan. Thus, the year 2010 regional land use plan proposes a centralized development pattern consistent with the efficient and economical provision of public facilities and services and with the preservation of primary environmental corridors and prime agricultural lands. That plan is graphically summarized on Map 2. Key features of the plan are set forth in Table 1.

In response to increased uncertainty regarding future trends in population and economic activity in the Region, under the third regional land use planning study, four land use plans for "alternative future" scenarios of growth and change in the Region, conceptually bracketing the recommended year 2010 regional land use plan, were also prepared. The alternative future land use plans were intended to represent reasonable extremes of possible future conditions with respect to population, employment, and urban land use in the Region through the year 2010. The alternative plans, in conjunction with the recommended regional land use plan, represent a range of possible future conditions within the Region through the year 2010, within which planning and decision making regarding development matters may be carried out.[4]

NEED FOR PLAN REVISION AND EXTENSION

To remain vital, the regional land use plan must be periodically reviewed, revised as appropriate, and extended in time. The principal reason that the year 2010 plan needed to be extended to the design year 2020, and revised and updated as part of such an extension, was to support ongoing regional and local public facility planning. The regional land use plan provides a framework for transportation, utility, outdoor recreation, and other public facility planning at the regional, county, and local levels. The planning period covered by the regional land use plan should be consistent with the planning periods used in such facility planning. In facility planning, the planning period is usually established by the expected life of the first facilities to be constructed as the plan is implemented, and typically is about 20 years. By 1997, the year 2010 regional land use plan had a remaining planning period of 13 years. If the regional land use plan is to continue to serve as a sound basis for long-range public facility planning at the regional, county, and local levels, the design year of the plan must be extended to the year 2020. The next anticipated extension would occur in 2004 to the year 2030, and would involve another major reappraisal of the regional land use plan based upon year 1995 and year 2000 land use inventories, year 2000 U. S. Bureau of the Census population and household data, and year 2000 employment data.

As the design year of the regional land use plan is extended from 2010 to 2020, the plan will be reviewed and amended to reflect development which has occurred or which has been committed to since completion of the 2010 plan. The plan will incorporate recently completed county and municipal land use plans which have served to refine and detail the regional land use plan, and which are consistent with adopted regional land use development objectives, principles, and standards.

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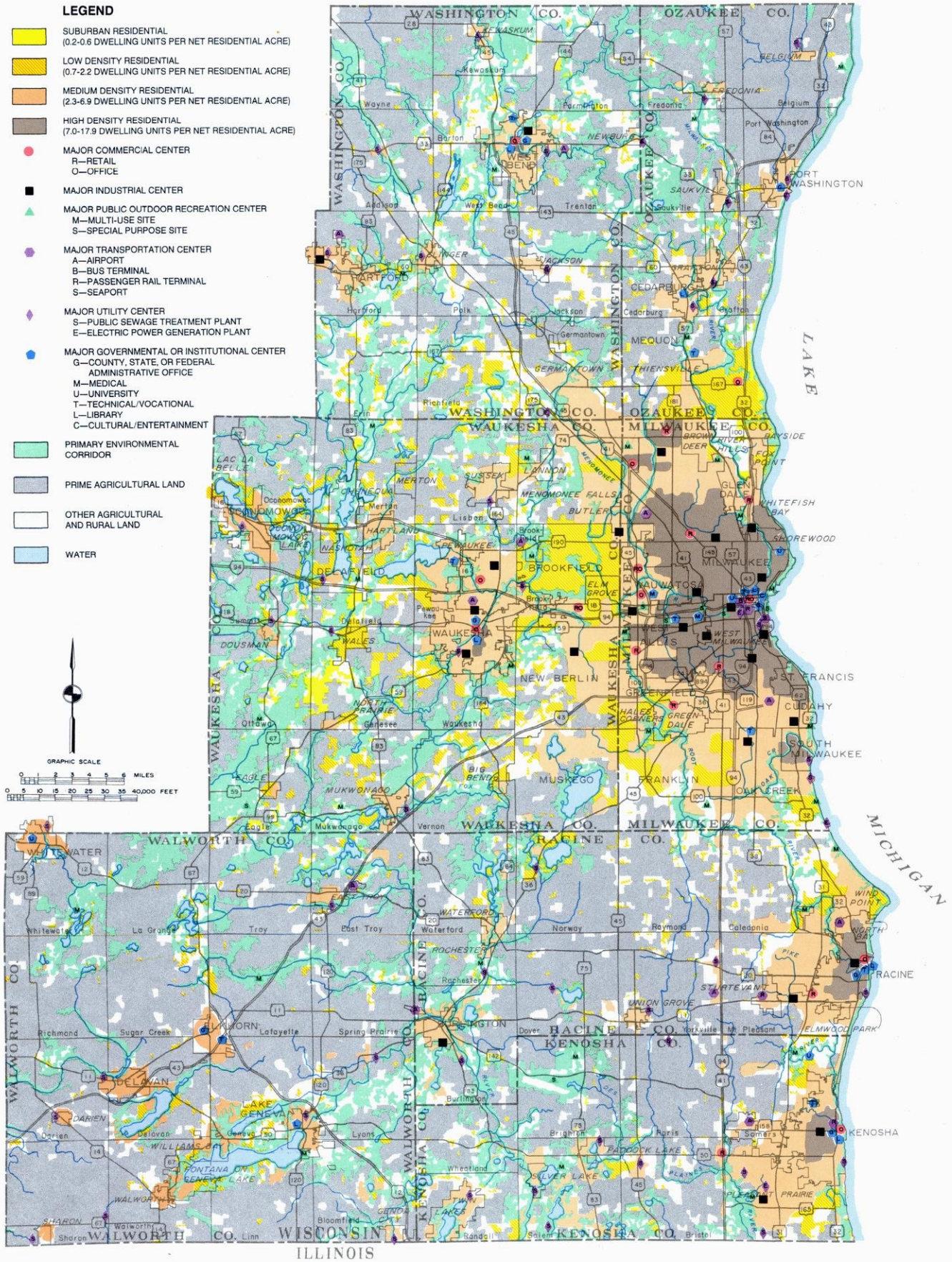
[3] *The controlled centralization and controlled decentralization alternative land use plans for the year 2000 are described in Chapter V of SEWRPC Planning Report No. 25, Volume Two.*

[4] *The recommended year 2010 regional land use plan is described in Chapter X of SEWRPC Planning Report No. 40. The associated alternative future plans are presented in Chapter XI of that report.*

Map 2

ADOPTED LAND USE PLAN FOR THE SOUTHEASTERN WISCONSIN REGION: 2010



The design year 2010 regional land use plan adopted by the Commission in 1992 places heavy emphasis on the continued effect of the urban land market on determining the location, intensity, and character of future development. The plan seeks to influence the operation of the urban land market in three important ways. First, the plan recommends that intensive urban development occur only in those areas of the Region which are covered by soils suitable for such development, which are not subject to special hazards such as flooding and erosion, and which can be readily served by essential urban facilities and services. Second, the plan recommends the preservation in essentially natural, open uses of the remaining primary environmental corridors—linear areas in the landscape encompassing the most important features of the natural resource base. Third, the plan recommends the preservation, to the extent practicable, of the most productive farmland in the Region.

Source: SEWRPC.

Table 1

SUMMARY OF THE REGIONAL LAND USE PLAN FOR SOUTHEASTERN WISCONSIN: 2010

Population, Households, and Employment • Accommodate growth in the resident population from 1,743,000 persons in 1985 to 1,911,000 persons in the year 2010, an increase of 168,000 persons, or 10 percent • Accommodate growth in resident households from 644,000 households in 1985 to 774,000 households in the year 2010, an increase of 130,000 households, or 20 percent • Accommodate growth in regional employment from 944,000 jobs in 1985 to 1,180,000 jobs in the year 2010, an increase of 236,000 jobs, or 25 percent
Urban Areas • Expand the urban land area of the Region by 86 square miles, or 14 percent, from 605 square miles in 1985 to 691 square miles in 2010 • Encourage a centralized pattern of urban land use, with new urban development proposed to occur as infill in existing urban centers and along the periphery of, and outward from, existing urban centers, particularly in areas which can be readily served by public sanitary sewer, water supply, and transit services; which are covered by soils suitable for development; and which are not subject to special hazards such as flooding and erosion • Encourage new urban residential development to occur in planned neighborhood units which can be served with basic facilities and services needed by households in daily life • Encourage new commercial and industrial development to occur in planned centers, including 19 major commercial centers and 25 major industrial centers • Provide opportunities for participation in outdoor recreational activities, particularly through the development and maintenance of 31 major park sites
Environmentally Sensitive Areas • Preserve in essentially natural, open uses the remaining primary environmental corridors—linear areas in the landscape which contain concentrations of the most important remaining features of the natural resource base. Plan recommendations include limiting development to that necessary to accommodate required transportation and utility facilities, compatible outdoor recreational facilities, and, on a limited basis, rural-density residential use at a rate of no more than one dwelling unit per five acres. Under planned conditions, primary environmental corridors would encompass 474 square miles, or 18 percent, of the total area of the Region • Preserve, to the extent practicable, other environmentally sensitive areas identified as secondary environmental corridors and isolated natural resource areas. The preservation of such areas should be considered in county and local planning undertaken to refine and detail the regional plan
Agricultural and Other Rural Lands • Preserve most of the remaining prime agricultural lands—the most productive farmland in the Region—for agricultural use, limiting residential development in such areas to one dwelling per 35 acres. Under planned conditions, prime agricultural lands would encompass 1,031 square miles, or 38 percent, of the total area of the Region • Retain other agricultural lands located beyond planned urban service areas in rural use. Provide opportunities for continued farming and maintain overall rural character insofar as practicable, particularly by limiting new development primarily to rural-density residential use at a rate of no more than one dwelling unit per five acres

Source: SEWRPC.

The process of planning for the physical development of the Region is properly viewed as cyclical in nature, alternating between systems, or regional, planning and local planning. With respect to land use planning, under this planning cycle, an overall regional land use plan design is initially prepared, followed by attempts to implement the plan recommendations through county and local land use planning and zoning. If, for whatever reasons, a particular feature of the regional plan cannot be implemented at the local level, such a determination needs to be taken into account in the next phase of systems-level planning. There has been considerable county and local land use planning activity in the Region during the past decade. Two examples of recently completed plans undertaken as local refinements of the regional land use plan include the Waukesha County development plan and the comprehensive plan for the Kenosha Urban Planning District. Under the Waukesha County development plan, new approaches to farmland preservation and the curbing of urban sprawl are encouraged. For example, because

of urban encroachment into agricultural lands, a limited number of larger blocks of prime farmland remain in the County. In order to maintain an agricultural resource base, the plan encourages application of the concept of community-supported agriculture (CSA). Community-supported agriculture involves a close relationship between farming operations and households in a local market area that become direct consumers of products from the farms. Under a CSA arrangement, households in the vicinity of a farm operation pay an annual subscription fee for the right to share in the produce, typically fruits and vegetables, produced on the farm over the course of a growing season. CSA arrangements provide for the convenient distribution of quality produce to participating households; may provide a good return to the farmer and provide additional stability to farming operations, since the risks of a poor growing season are shared by the participating households; and provide an alternative form of agriculture, particularly on smaller farms where dairy farming and large-scale cash grain operations are no longer feasible. The Waukesha County development plan also seeks to curb urban sprawl by encouraging rural-density residential development in certain portions of the County, thus accommodating limited residential uses while maintaining the rural character that still exists in those areas of the County.

Numerous other local land use plans have been prepared for cities, villages, and towns in the Region. In order to continue the planning cycle, this body of new local plans should be appropriately incorporated into the design year 2020 regional land use plan.

THE PLANNING PROCESS

The new regional land use plan was prepared through a seven-step planning process adhered to by the Regional Planning Commission in all of its regional planning studies. This process—study design, formulation of objectives and standards, inventory, analysis and forecast, plan design, plan evaluation, and plan refinement and adoption—is described in detail in the aforementioned SEWRPC Planning Reports Nos. 7, 25, and 40.

In the most basic sense, the year 2020 regional land use plan was prepared as a revision and extension of the prior land use plan. The underlying principles and basic design concepts of the year 2010 plan were brought forward into the new plan. The new plan was designed to accommodate anticipated population, household, and employment levels in the Region through the year 2020.

In the preparation of the regional land use plan, the amount of new urban development which should be accommodated is determined, in large measure, by the population, household, and employment levels selected for the plan design year. Under the continuing regional planning program, the Commission prepared new population, household, and employment projections for the Region for the year 2020.[5] In response to the considerable uncertainty which surrounds future rates of population and employment growth within the Region, the Commission prepared three sets of population, household, and employment projections. Two sets of projections, the "high-growth" and "low-growth" projections, are intended to identify reasonable upper and lower limits of population, household, and employment levels within the Region. The high-growth and low-growth projections bracket "intermediate-growth" population, household, and employment projections, which are intended to be most representative of probable future conditions.

The recommended regional land use plan presented in this report was designed to accommodate population, household, and employment levels for the year 2020 projected under an intermediate-growth scenario. In order to provide a basis for the continued application of the "alternative futures" approach to planning utilized by the Commission, two alternative land use plans accommodating population, household, and employment levels projected under a high-growth scenario were also prepared. Within the context of the alternative futures planning approach, the high-growth land use plans are intended to be used, together with the recommended land use plan, in the development and evaluation of transportation and other public facility plans where it is necessary to consider a range of future population and employment levels.

ORGANIZATIONAL ARRANGEMENTS FOR THE STUDY

The work leading to the preparation of the year 2020 regional land use plan was carried out by the staff of the Commission under the guidance of the Commission's Technical Coordinating and Advisory Committee on Regional Land Use Planning. Membership on that Committee includes representatives from the U. S. Department of Agriculture, Natural Resources Conservation Service; from the Wisconsin Departments of Natural Resources, Administration, and Agriculture, Trade and Consumer Protection; from the university community; from municipal and county planning and public works departments;

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[5]*See SEWRPC Technical Report No. 10 (3rd Edition),* The Economy of Southeastern Wisconsin, *and SEWRPC Technical Report No. 11 (3rd Edition),* The Population of Southeastern Wisconsin, *both dated October 1995.*

from private utilities; and from environmental organizations. A complete membership list of the Advisory Committee is provided on the inside front cover of this report.

SCHEME OF PRESENTATION

The findings and recommendations of the year 2020 regional land use planning study are documented in this report. Following this introductory chapter, Chapter II presents updated information regarding existing land use, public utility service areas, and environmental corridors in the Region; and Chapter III presents updated information regarding population, households, and employment levels in the Region, along with a set of population, household, and employment projections for the year 2020. Chapter IV presents the results of a review of the regional land use development objectives and standards adopted under the previous land use plans, along with any recommended changes growing out of that review process. Chapter V presents a recommended regional land use plan designed to accommodate population, household, and employment levels for the year 2020 projected under an intermediate-growth scenario. Population levels envisioned under the two alternative land use plans designed to accommodate year 2020 population, household, and employment levels anticipated under a high-growth scenario are presented in appendices. Chapter VI describes the actions which should be taken by the various units and agencies of government concerned to facilitate implementation of the recommended plan. Chapter VII provides an overall summary of the major findings and recommendations of this fourth regional land use planning study.

Chapter II

LAND USE AND NATURAL RESOURCES

INTRODUCTION

The regional land use plan for Southeastern Wisconsin has been developed based upon an extensive data base of the physical characteristics of the Region which has been compiled by the Commission over the past 35 years. Under the regional planning program, the Commission has assembled a broad data base regarding the built and natural environments of the Region, collating data from secondary sources where feasible and undertaking primary data collection activities as necessary. Information in this data base regarding the natural environment which guided the preparation of the year 2020 regional land use plan includes data pertaining to the Region's climate, air quality, surface-water and groundwater resources, physiography and topography, geology, mineral and organic resources, soils, vegetation including woodlands and wetlands, fish and wildlife resources, natural hazards including floodlands, environmental corridors, and natural areas. With respect to soils data, it should be noted that pending changes to the Wisconsin Administrative Code pertaining to the allowable types, siting, and design of onsite sewage disposal systems will, contrary to sound land use planning practice, tend to foster, rather than discourage, the use of such systems. Soils limitations will thus no longer pose a significant constraint to residential development in rural portions of the Region. Information regarding the built environment of the Region which guided preparation of the year 2020 regional land use plan study includes data pertaining to existing and historical urban growth, land use, housing stock, outdoor park and open space sites, historic sites, public utility systems and service areas including sanitary sewerage and water supply systems, the arterial street and highway system, and public transit systems.

This data base of the Region's built and natural environments used to guide the preparation of the regional land use plan has been extensively documented in Commission reports, including SEWRPC Planning Report No. 40, *A Regional Land Use Plan for Southeastern Wisconsin—2010*, January 1992; SEWRPC Planning Report No. 41, *A Regional Transportation System Plan for Southeastern Wisconsin: 2010*, December 1994; SEWRPC Planning Report No. 42, *A Regional Natural Areas and Critical Species Habitat Protection and Management Plan for Southeastern Wisconsin*, September 1997; SEWRPC Planning Report No. 30, *A Regional Water Quality Management Plan for Southeastern Wisconsin: 2000*, a three-volume report completed in June 1979; and a series of SEWRPC Community Assistance Planning Reports presenting refined planned sanitary sewer service areas and environmental corridors within those areas.

The summary presentation of inventory data in this chapter is limited to those data most basic to the preparation of the year 2020 regional land use plan, including information on existing and historical land use, public utility service areas, and environmental corridors in the Region.

LAND USE

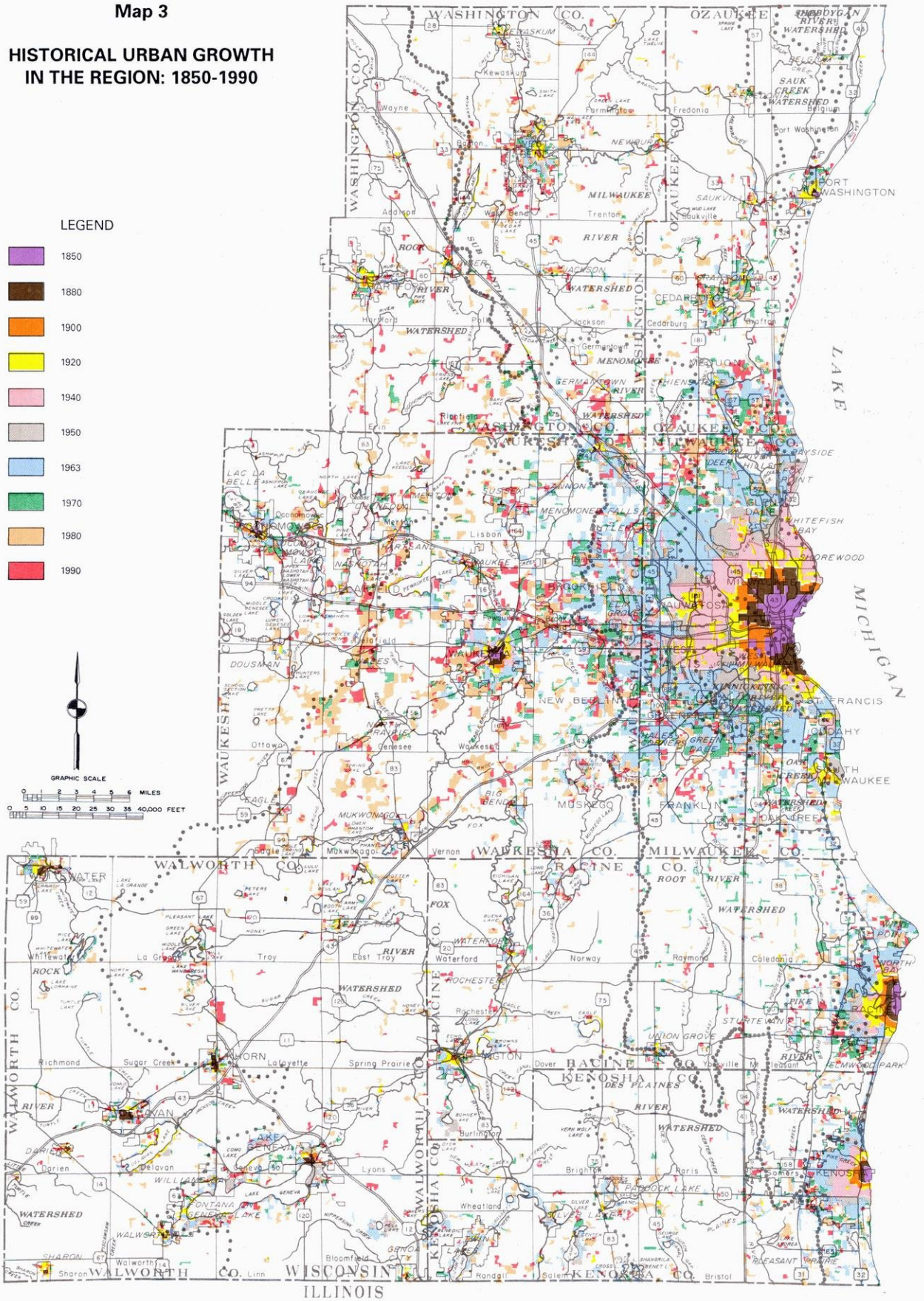
The Commission relies on two types of inventories and analyses in order to monitor urban growth and development in the Region: an urban growth ring analysis and a land use inventory. The urban growth ring analysis delineates the outer limits of concentrations of urban development. The growth rings encompass concentrations of land developed for urban use and open lands being preserved for resource conservation and outdoor recreational purposes within such urban concentrations. When related to urban population levels, the urban growth ring analysis provides a good basis for calculating urban population densities. By contrast, the Commission land use inventory is a "land cover" inventory. As such, it identifies as urban all lands which have been developed for residential, commercial, industrial, institutional, transportation, and other similar uses regardless of location. Both the urban growth ring analysis and the land use inventory for the Region have been updated to the year 1990 under the continuing regional planning program.

Urban Growth Ring Analysis

The urban growth ring analysis is intended to set forth a generalized graphical and quantitative depiction of the historical pattern of urban settlement, growth, and development of the Region since 1850 for selected points in time (see Map 3 and Table 2). Areas considered "urban" under this time series analysis include areas of the Region where residential structures or other buildings have been constructed in relatively compact groups, thereby indicating concentrations of residential, commercial, industrial, governmental, institutional, or other urban land uses. In addition, the urban growth areas encompass certain lands

Map 3

HISTORICAL URBAN GROWTH IN THE REGION: 1850-1990



Until about 1950, urban development within the Region occurred in a fairly compact pattern, marked by concentric rings of relatively high-density urban development contiguous to existing urban areas and readily serviced by long-established transit, utility, and community facility systems. Soon after World War II, however, the character of urban growth in the Region began to change to a much more diffused pattern of development. Much of the new development occurred at relatively low densities in isolated urban enclaves to which the provision of urban services is difficult and costly. This urban sprawl pattern of development resulted in environmental and developmental problems which transcend the geographic limits and the fiscal capabilities of individual local units of government and therefore require the cooperation of all concerned units and agencies of government for sound resolution.

Source: SEWRPC.

Table 2

HISTORICAL URBAN GROWTH IN THE REGION: 1850-1990

Year	Urban Area[a]	
	Square Miles	Average Annual Change from Previous Year (square miles)
1850	4	--
1880	18	0.5
1900	37	1.0
1920	56	1.0
1940	90	1.7
1950	146	5.6
1963	282	10.5
1970	338	8.0
1980	444	10.6
1990	513	6.9

[a]*Based upon the Regional Planning Commission urban growth ring analysis.*

Source: SEWRPC.

committed to urban use but not yet in such use, as well as open space lands, such as urban parks and lands being preserved for resource conservation purposes within the urban areas. It should also be noted that the aforementioned definition of "urban" lands includes not only high-density urban areas of central cities, but also areas generally perceived as "suburban" within both incorporated cities and villages and portions of towns that are generally perceived as rural. The urban growth analysis is utilized to provide insight into the patterns of urban development in the Region, especially prior to 1963—the date of the first Commission land use inventory—and as a basis for calculating historical urban population densities in the Region.

The location and areal extent of urban development for the years 1850, 1880, 1900, and 1920 were identified using a variety of sources, including the records of local historical societies, land subdivision plat records, farm plat maps, U. S. Geological Survey maps, and Wisconsin Geological and Natural History Survey records. The location and areal extent of urban development for the years 1940, 1950, 1963, 1970, 1980, and 1990 were identified using aerial photographs. Because of limitations inherent in the source materials, information presented for the years 1850, 1880, 1900, and 1920 represents the extent of urban development at approximately those points in time, whereas the information presented for later years can be considered precisely representative of those respective points in time.

In 1850, the urbanized portion of the Region was concentrated primarily in the larger urban centers located at Burlington, Kenosha, Milwaukee, Racine, Waukesha, and West Bend, along with many smaller settlements throughout the Region. Over the 100-year period from 1850 to 1950, urban development in the Region occurred in what could be considered concentric rings around existing urban centers, resulting in a relatively compact regional settlement pattern, and the developed urban area of the Region increased at an average rate of about 1.4 square miles per year (see Table 2). After 1950, there was a significant change in the pattern of and rate of increase in urban development in the Region. While substantial amounts of development continued to occur adjacent to established urban centers, considerable development also occurred in isolated enclaves in outlying areas of the Region, resulting in a dramatic increase in the amount of urban development in the Region since 1950.

The change in population density in the Region is presented in Table 3 and Figure 1. Between 1850 and 1970, the regional population increased more than 15-fold, from about 113,400 persons in 1850 to about 1,756,100 persons in 1970. As a result, the overall population density of the Region increased steadily from 42 persons per square mile in 1850 to 653 persons per square mile in 1970. Owing to the relative stability of the regional population since 1970, there was little change in the overall population density of the Region between 1970 and 1990, that density approximating 673 persons per square mile in 1990.

Population densities in urban areas of the Region, however, have followed a different trend. The population density of the urban area of the Region increased from about 7,156 persons per square mile in 1850 to its highest level of 11,346 persons per square mile in 1920. After 1920, the population density of the urban area of the Region began a steady decline. In 1950, the urban population density in the Region was 8,076 persons per square mile. The urban population density subsequently declined to 5,795 persons per square mile in 1963 and to 5,115 persons per square mile in 1970. Since 1970, the urban population density has continued to decline, dropping to 3,510 persons per square mile in 1990. Continued reductions in urban population density have important implications for regional transportation system planning, particularly with respect to public transit, because lower urban population densities tend to increase dependency on automobiles while decreasing the feasibility of transit systems.

Table 3

POPULATION DENSITY TRENDS IN THE REGION: SELECTED YEARS, 1850-1990

Year	Urban Population		Rural Population		Total Population	Area (square miles)		Persons per Square Mile	
	Number	Percent of Total	Number	Percent of Total		Urban[a]	Total	Urban	Total
1850	28,623	25.2	84,766	74.8	113,389	4	2,689	7,156	42.2
1880	139,509	50.3	137,610	49.7	277,119	18	2,689	7,751	103.1
1900	354,082	70.6	147,726	29.4	501,808	37	2,689	9,570	186.6
1920	635,376	81.1	148,305	18.9	783,681	56	2,689	11,346	291.4
1940	991,535	92.9	76,164	7.1	1,067,699	90	2,689	11,017	397.1
1950	1,179,084	95.0	61,534	5.0	1,240,618	146	2,689	8,076	461.4
1963	1,634,200	97.6	40,100	2.4	1,674,300	282	2,689	5,795	622.6
1970	1,728,946	98.5	27,137	1.5	1,756,083	338	2,689	5,115	653.1
1980	1,749,238	99.1	15,558	0.9	1,764,796	444	2,689	3,940	656.3
1990	1,800,751	99.5	9,613	0.5	1,810,364	513	2,689	3,510	673.2

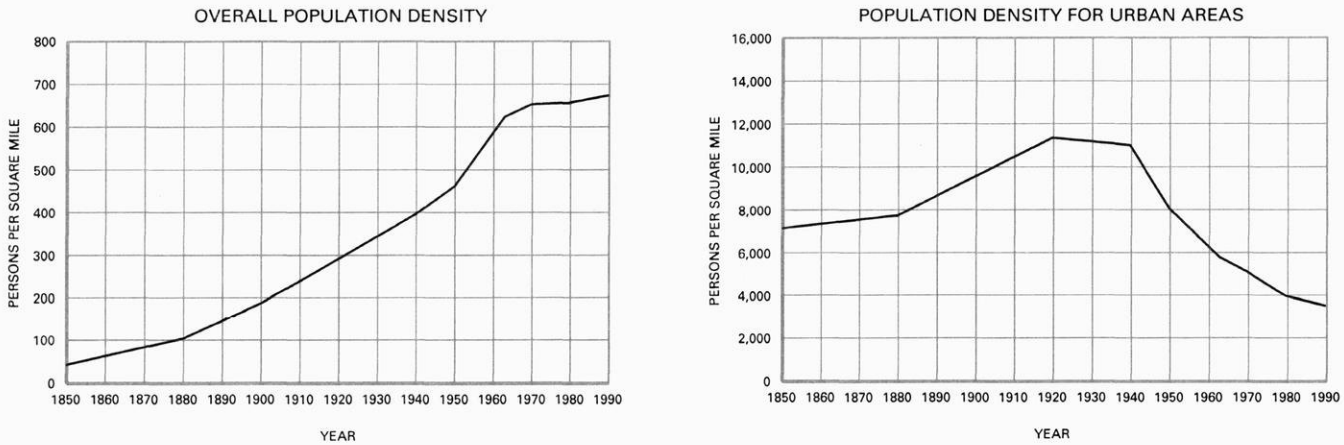
NOTE: Beginning in 1940, the "rural nonfarm" population is included in the urban total.

[a] *Based upon the Regional Planning Commission urban growth ring analysis.*

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

Figure 1

POPULATION DENSITY IN THE REGION: 1850-1990



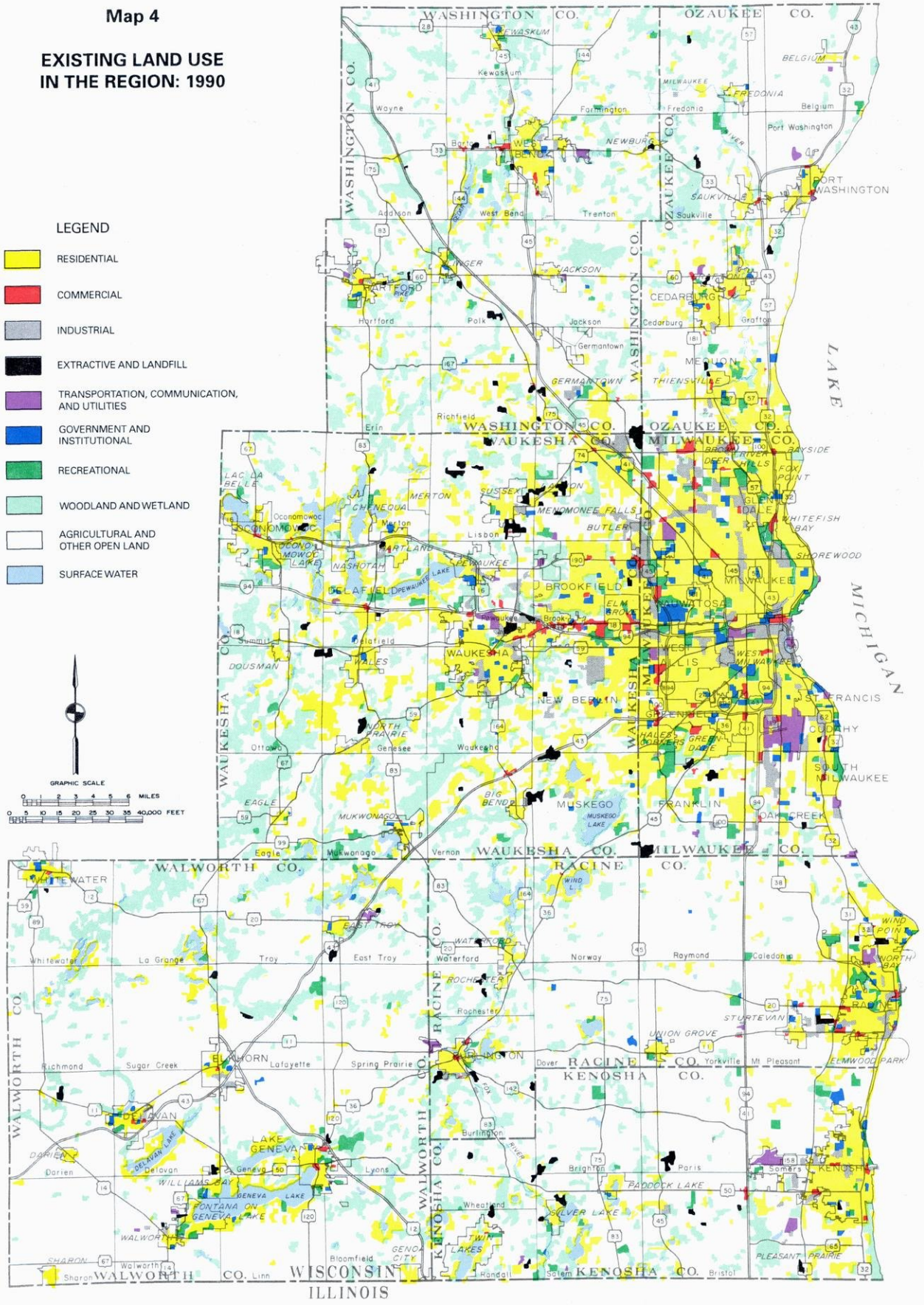
Source: SEWRPC.

Land Use Inventory

The land use inventory is intended to serve as a relatively precise, high-quality record of "land cover" in the Region at selected points in time (see Map 4 and Table 4). The classification system for the land use inventory consists of nine major categories which are divisible into 66 minor categories, making the inventory suitable for both land use and transportation planning; adaptable to stormwater drainage, public utility, and community facility planning; and compatible with other land use classification systems.

Map 4

EXISTING LAND USE IN THE REGION: 1990



This map summarizes the spatial distribution of the various land uses existing within the Region in 1990. Urban land uses—consisting of lands devoted to residential, commercial, industrial, recreational, governmental and institutional, and transportation, communication, and utility uses—occupied a total of about 637 square miles, or about 24 percent of the area of the Region, in 1990. Nonurban land uses—consisting of agricultural lands, wetlands, woodlands, surface water, extractive and landfill sites, and unused rural lands—totaled 2,053 square miles, or about 76 percent of the Region. While urban land uses encompassed less than one-quarter of the Region, those uses were diffused throughout the Region, creating an impression of widespread urbanization.

Source: SEWRPC.

Table 4

LAND USE IN THE SOUTHEASTERN WISCONSIN REGION: 1963, 1970, 1980, AND 1990

Land Use Category	Existing Land Use											
	1963			1970			1980			1990		
	Square Miles	Percent of Urban/ Nonurban	Percent of Total	Square Miles	Percent of Urban/ Nonurban	Percent of Total	Square Miles	Percent of Urban/ Nonurban	Percent of Total	Square Miles	Percent of Urban/ Nonurban	Percent of Total
Urban												
Residential	191.5	43.2	7.1	223.0	44.1	8.3	281.0	47.5	10.4	307.7	48.3	11.4
Commercial	8.8	2.0	0.3	10.5	2.1	0.4	12.8	2.2	0.5	15.2	2.4	0.6
Industrial	11.4	2.6	0.4	14.3	2.8	0.5	17.5	3.0	0.7	20.5	3.2	0.8
Transportation, Communication, and Utilities[a]	143.2	32.3	5.3	162.0	32.1	6.0	183.9	31.1	6.8	194.9	30.6	7.2
Governmental and Institutional	20.4	4.6	0.8	24.8	4.9	0.9	26.6	4.5	1.0	27.0	4.3	1.0
Recreational	26.2	5.9	1.0	33.2	6.6	1.2	38.0	6.4	1.4	40.9	6.4	1.5
Unused Urban Land	41.7	9.4	1.6	37.5	7.4	1.4	31.1	5.3	1.2	30.5	4.8	1.1
Urban Subtotal	443.2	100.0	16.5	505.3	100.0	18.7	590.9	100.0	22.0	636.7	100.0	23.6
Nonurban												
Natural Areas												
Surface Water	71.6	3.2	2.7	74.0	3.4	2.7	76.2	3.6	2.8	76.9	3.7	2.9
Wetlands	274.3	12.2	10.2	270.3	12.4	10.1	266.6	12.7	9.9	268.7	13.1	10.0
Woodlands	186.8	8.3	6.9	184.3	8.4	6.9	181.9	8.7	6.8	185.9	9.1	6.9
Subtotal	532.7	23.7	19.8	528.6	24.2	19.7	524.7	25.0	19.5	531.5	25.9	19.8
Agricultural	1,637.1	72.9	60.9	1,564.7	71.7	58.2	1,475.4	70.3	54.8	1,395.4	68.0	51.9
Unused Rural and Other Open Land	76.3	3.4	2.8	90.4	4.1	3.4	98.4	4.7	3.7	125.9	6.1	4.7
Nonurban Subtotal	2,246.1	100.0	83.5	2,183.7	100.0	81.3	2,098.5	100.0	78.0	2,052.8	100.0	76.4
Total	2,689.3	--	100.0	2,689.0	--	100.0	2,689.4	--	100.0	2,689.5	--	100.0

Land Use Category	Change in Land Use							
	1963-1970		1970-1980		1980-1990		1963-1990	
	Square Miles	Percent	Square Miles	Percent	Square Miles	Percent	Square Miles	Percent
Urban								
Residential	31.5	16.4	58.0	26.0	26.7	9.5	116.2	60.7
Commercial	1.7	19.3	2.3	21.9	2.4	18.7	6.4	72.7
Industrial	2.9	25.4	3.2	22.4	3.0	17.1	9.1	79.8
Transportation, Communication, and Utilities[a]	18.8	13.1	21.9	13.5	11.0	6.0	51.7	36.1
Governmental and Institutional	4.4	21.6	1.8	7.3	0.4	1.5	6.6	32.4
Recreational	7.0	26.7	4.8	14.5	2.9	7.6	14.7	56.1
Unused Urban Land	-4.2	-10.1	-6.4	-17.1	-0.6	-1.9	-11.2	-26.9
Urban Subtotal	62.1	14.0	85.6	16.9	45.8	7.8	193.5	43.7
Nonurban								
Natural Areas								
Surface Water	2.4	3.4	2.2	3.0	0.7	0.9	5.3	7.4
Wetlands	-4.0	-1.5	-3.7	-1.4	2.1	0.8	-5.6	-2.0
Woodlands	-2.5	-1.3	-2.4	-1.3	4.0	2.2	-0.9	-0.5
Subtotal	-4.1	-0.8	-3.9	-0.7	6.8	1.3	-1.2	-0.2
Agricultural	-72.4	-4.4	-89.3	-5.7	-80.0	-5.4	-241.7	-14.8
Unused Rural and Other Open Land	14.1	18.5	8.0	8.8	27.5	27.9	49.6	65.0
Nonurban Subtotal	-62.4	-2.8	-85.2	-3.9	-45.7	-2.2	-193.3	-8.6
Net Change in Total Area of Region	-0.3	0.0	0.4	0.0	0.1	0.0	0.2	0.0

NOTE: The change in the total area of the Region is the net effect of Lake Michigan shoreline erosion, accretion, and landfill activities.

[a] *Includes off-street parking areas with more than 10 spaces associated with various urban land uses.*

Source: SEWRPC.

Areas considered "urban" under the land use inventory include areas of any size and location which are covered by residential; commercial; industrial; transportation, communication, and utility; governmental and institutional; or intensive recreational uses; areas perceptibly committed to such uses but not yet in such uses; and unused urban lands.[1] The land use inventory, which was first completed in 1963, is utilized to precisely locate and quantify various land uses; precisely locate and quantify changes in land use between inventory years; and provide base data as the point of departure for land use plans.

The location and areal extent of land use for all of the Regional Planning Commission land use inventories were identified primarily using aerial photographs. With the exception of intensively developed urban areas, where field surveys were undertaken, the existing land uses were delineated on SEWRPC aerial photographs at a one-inch-equals-400-feet scale.

Urban Land Uses

Although Southeastern Wisconsin is an urban region, less than one-quarter of its total area is devoted to urban land uses. The trend in the various major categories of land use for selected years from 1963 to 1990, based upon the Commission land use inventories, is presented for the Region in Table 4. In 1990, urban land uses—consisting of residential, commercial, industrial, recreational, governmental and institutional, and transportation, communication, and utility uses—together with unused urban lands encompassed about 637 square miles, or about 24 percent of the total area of the Region. Residential land comprised the largest urban land use category, encompassing about 308 square miles, or about 48 percent of all urban land use and 11 percent of the total area of the Region. Commercial lands encompassed about 15 square miles, or 2.4 percent of all urban land use. Industrial lands encompassed about 21 square miles, or 3.2 percent of all urban land use. Land used for governmental and institutional purposes encompassed 27 square miles, or 4.3 percent of all urban land use. Lands devoted to intensive recreational uses encompassed about 41 square miles, or 6.4 percent of all urban land use. Lands devoted to transportation, communication, and utility uses—including areas used for streets and highways, railways, airports, and utility and communication facilities—totaled about 195 square miles, or about 31 percent of all urban land use and about 7 percent of the total area of the Region. Unused urban lands encompassed about 30 square miles, or 4.8 percent of all urban lands.

Between 1963 and 1990, urban land uses in the Region increased by about 193 square miles, or 44 percent (see Table 4). Lands in each of the major urban land use categories, with the exception of unused urban land, increased significantly during this time. The residential land area increased by 61 percent; the commercial land area increased by 73 percent; and the industrial land area increased by 80 percent. Lands in the transportation-communication-utilities, governmental-institutional, and recreational land use categories also increased significantly—by 36 percent, 32 percent, and 56 percent, respectively.

The amount of urban land use and changes in the amount of urban land use in the Region by county is shown in Table 5. In 1990, Milwaukee and Waukesha Counties encompassed the most urban land use among the seven counties in the Region, with 185 square miles and 168 square miles, respectively, of urban land use accounting collectively for about 55 percent of all urban land use in the Region. The remaining five counties in the Region each encompassed 46 to 65 square miles of urban land use, each representing 7 percent to 10 percent of all urban land use in the Region. From 1963 to 1990, Waukesha County experienced the largest absolute increase in urban land use among counties in the Region, an increase from about 95 square miles in 1963 to about 168 square miles in 1990. Washington County exhibited the largest percentage increase in the amount of urban land use between 1963 and 1990, with an increase of about 87 percent. This was followed closely by Ozaukee and Waukesha Counties, with urban land use in both counties increasing by about 76 percent over that period.

Nonurban Land Uses

Nonurban lands—consisting of agricultural lands, wetlands, woodlands, surface water, extractive and landfill sites, and unused rural lands—encompassed about 2,053 square miles in 1990, or about 76 percent of the total area of the Region. Agricultural land constituted the largest nonurban land use category, encompassing about 1,395 square miles, or about 68 percent of all nonurban land and 52 percent of the total area of the Region. Wetlands, woodlands, and surface water, in combination, encompassed about 532 square miles, representing about 26 percent of all nonurban lands and about 20 percent of the total area of the Region. Unused rural and other open lands, consisting of open lands other than surface water, wetlands, woodlands, and agricultural lands, encompassed about 126 square miles, representing about 6 percent of

[1] *Unused urban lands consist of open lands, other than wetlands and woodlands, which open lands are located in urban areas but which have not yet been developed for or committed to a particular use.*

Table 5

URBAN LAND IN THE REGION BY COUNTY: 1963, 1970, 1980, AND 1990

County	Urban Land[a]							
	1963		1970		1980		1990	
	Square Miles	Percent of Region	Square Miles	Percent of Region	Square Miles	Percent of Region	Square Miles	Percent of Region
Kenosha	37.4	8.4	41.5	8.2	48.6	8.2	52.3	8.2
Milwaukee	163.7	36.9	172.6	34.1	180.1	30.5	185.2	29.1
Ozaukee	25.9	5.9	32.8	6.5	41.5	7.0	45.6	7.2
Racine	46.2	10.4	54.6	10.8	61.8	10.5	65.0	10.2
Walworth	43.1	9.7	48.9	9.7	58.5	9.9	61.3	9.6
Washington	31.8	7.2	38.3	7.6	50.5	8.5	59.5	9.3
Waukesha	95.1	21.5	116.6	23.1	149.9	25.4	167.8	26.4
Region	443.2	100.0	505.3	100.0	590.9	100.0	636.7	100.0

County	Change in Urban Land							
	1963-1970		1970-1980		1980-1990		1963-1990	
	Square Miles	Percent	Square Miles	Percent	Square Miles	Percent	Square Miles	Percent
Kenosha	4.1	11.0	7.1	17.1	3.7	7.6	14.9	39.8
Milwaukee	8.9	5.4	7.5	4.3	5.1	2.8	21.5	13.1
Ozaukee	6.9	26.6	8.7	26.5	4.1	9.9	19.7	76.1
Racine	8.4	18.2	7.2	13.2	3.2	5.2	18.8	40.7
Walworth	5.8	13.5	9.6	19.6	2.8	4.8	18.2	42.2
Washington	6.5	20.4	12.2	31.9	9.0	17.8	27.7	87.1
Waukesha	21.5	22.6	33.3	28.6	17.9	11.9	72.7	76.4
Region	62.1	14.0	85.6	16.9	45.8	7.8	193.5	43.7

[a] *Urban land includes residential; commercial; industrial; transportation, communication, and utility; governmental and institutional; recreational; and unused urban lands.*

Source: SEWRPC.

all nonurban lands and about 5 percent of the total area of the Region.

Nonurban lands in the Region decreased by about 193 square miles, or about 9 percent, between 1963 and 1990. Most of this loss resulted from the conversion of agricultural land to urban use. As shown in Table 4, losses in wetlands and woodlands also occurred during this time. The wetland area declined by 5.6 square miles, or about 2 percent, between 1963 and 1990, while the woodland area declined by 0.9 square mile, or less than 1 percent. The change in wetland and woodland areas between 1963 and 1990, like the changes in all land use categories, represents net change within the Region. Thus, the change in the wetland area reported between two inventory years is the net result of decreases in certain areas of the Region—due, for example, to drainage or filling activity—and increases in other areas—due, for example, to the abandonment of agricultural drainage systems or to planned wetland restoration efforts. Similarly, the change in the woodland area between two inventory years reflects the net effect of the clearing of woodlands in certain areas and the reforestation of other areas.

PUBLIC UTILITY SERVICE AREAS

Utility systems are among the most important and permanent elements of urban growth and development, as urban development is highly dependent upon utility systems providing electricity, natural gas, communications, water, and sewerage. Sanitary sewerage and water supply utilities are particularly important to land use planning because the location and density of urban development influences the need for such facilities and, conversely, the existence of such facilities influences the location and density of new urban development. Proper land use planning can serve to discourage development to prevent the need to serve some areas, while encouraging development to make serving other areas more feasible—in both cases minimizing environmental impacts and public expenditures. Lack of proper land use planning, such as was the

case around many lakes in the Region beginning in the 1940s, can serve to inadvertently create a need for sewerage utilities, water supply utilities, or both where such a need could have been avoided through more appropriate development. The extent and location of areas served by existing sanitary sewerage and water supply utilities are thus important considerations in any land use planning effort.

The majority of sewerage and water supply utilities in the Region are organized as sewer and water departments of incorporated municipalities, and serve largely those areas within the respective political boundaries of the municipalities. Where sanitary districts have been organized, sewer and water service area limits may not be coterminous, although the individual service areas will often tend to approximate one another. Therefore, a general pattern of sewer and water service areas following political boundaries rather than natural topographic boundaries, such as watershed boundaries, exists within the Region.

Sanitary Sewer Service

Areas served by public sanitary sewers in 1990 encompassed about 433 square miles, or about 16 percent of the total area of the Region (see Map 5). As indicated in Table 6, these areas were inhabited by about 1,594,300 persons in 1990, or about 88 percent of the total resident population of the Region. Among the seven counties in the Region, Milwaukee County had the largest amount and proportion of land and population served by public sanitary sewers in 1990, with 191 square miles, or 79 percent of the County area, served, and 954,600 persons, or nearly 100 percent of the County population, served. Washington County had both the smallest amount of land served and the smallest proportion of population served by public sanitary sewers in 1990, with 18 square miles, or 4 percent of the County area, served, and 53,300 persons, or 56 percent of the County population, served.

Comparable data pertaining to area and population served by public sanitary sewers for 1970 are also presented in Table 6, and indicate that about 309 square miles, or about 12 percent of the total area of the Region, were served by public sanitary sewers in 1970. As indicated in Table 6, these areas were inhabited by about 1,488,700 persons in 1970, or about 85 percent of the total resident population of the Region at that time. Among the seven counties in the Region, Milwaukee County had the largest amount and proportion of land and population served by public sanitary sewers in 1970, with 179 square miles, or 74 percent of the County area, served, and 1,034,700 persons, or 98 percent of the County population, served. Washington County had the smallest amount of land and amount and proportion of population served by public sanitary sewers in 1970, with 9.4 square miles, or 2 percent of the County area, served, and 30,200 persons, or 47 percent of the County population, served.

Water Supply Service

Areas served by public water utilities in 1990 encompassed about 344 square miles, or about 13 percent of the total area of the Region (see Map 6). As indicated in Table 7, these areas were inhabited by about 1,484,600 persons in 1990, or about 82 percent of the total resident population of the Region. Among the seven counties in the Region, Milwaukee County had the largest amount and proportion of land and population served by public water utilities in 1990, with 177 square miles, or 73 percent of the County area, served, and 942,500 persons, or 98 percent of the County population, served. Ozaukee County exhibited the smallest amount of land served and the smallest amount and proportion of population served by public water utilities in 1990, with 12 square miles, or 5 percent of the County area, served, and 35,900 persons, or 49 percent of the County population, served.

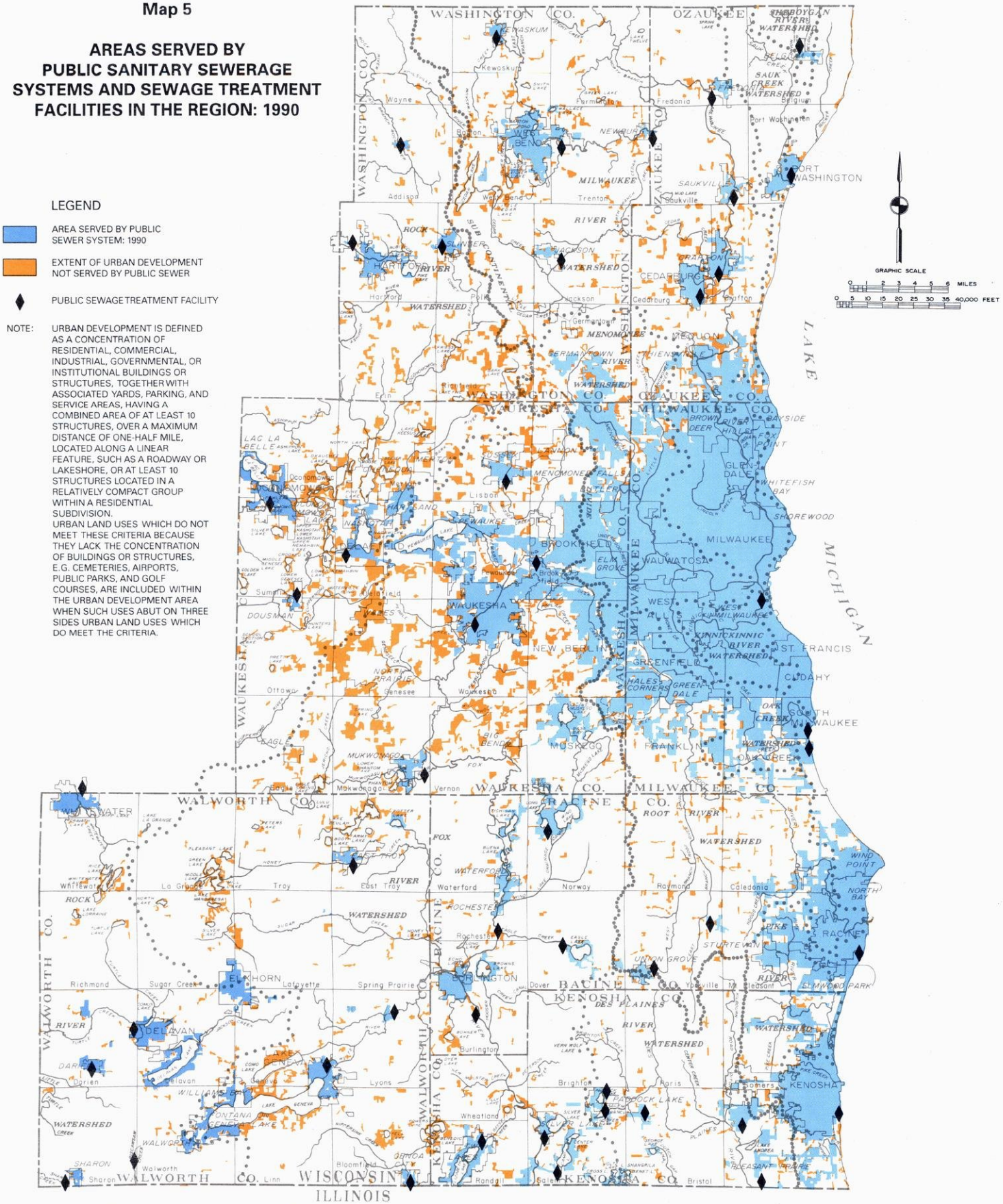
Comparable data pertaining to area and population served by public water utilities for 1970 are also presented in Table 7, and indicate that about 259 square miles, or about 10 percent of the total area of the Region, were served by water utilities in 1970. As indicated in Table 7, these areas were inhabited by about 1,390,500 persons in 1970, or about 79 percent of the total resident population of the Region at that time. Among the seven counties in the Region, Milwaukee County had the largest amount and proportion of land and population served by public water utilities in 1970, with 165 square miles, or 68 percent of the County area, served, and 1,013,900 persons, or 96 percent of the County population, served. Ozaukee County had the smallest amount of land and population served by public water utilities in 1970, with seven square miles, or 3 percent of the County area, served, and 25,700 persons, or 47 percent of the County population, served. Washington County exhibited the smallest proportion of area served by public water utilities in 1970, with just under 2 percent of the County area served; and Waukesha County had the smallest proportion of population served by public water utilities in 1970, with about 37 percent of the County population served.

ENVIRONMENTAL CORRIDORS AND ISOLATED NATURAL RESOURCE AREAS

One of the most important tasks completed under the regional planning program for Southeastern Wisconsin has been the identification and delineation of those areas

Map 5

AREAS SERVED BY PUBLIC SANITARY SEWERAGE SYSTEMS AND SEWAGE TREATMENT FACILITIES IN THE REGION: 1990



Centralized public sanitary sewer service in the Region was provided to an area of about 433 square miles, or about 16 percent of the total area of the Region, in 1990. About 1.59 million persons, or about 88 percent of the total resident population of the Region at that time, were then served by sanitary sewers. The remaining 12 percent of the resident population, or about 216,000 persons, relied on private onsite sewage disposal systems or holding tanks. A relatively small portion of these, about 10,000 persons, lived on farms. The remaining 206,000 persons were urban dwellers generally living in scattered fashion throughout the rural and rural-urban fringe areas of the Region.

Source: SEWRPC.

Table 6

AREA AND POPULATION SERVED BY PUBLIC SANITARY SEWERS IN THE REGION BY COUNTY: 1970 AND 1990

County	Area Served by Public Sanitary Sewers				Population Served by Public Sanitary Sewers			
	1970		1990		1970		1990	
	Square Miles	Percent of Area	Square Miles	Percent of Area	Persons	Percent of Population	Persons	Percent of Population
Kenosha	23.8	8.6	40.6	14.6	94,000	79.7	111,900	87.3
Milwaukee	179.0	73.9	190.7	78.6	1,034,700	98.2	954,600	99.5
Ozaukee	17.3	7.4	22.3	9.5	36,300	66.7	54,900	75.4
Racine	29.5	8.7	52.3	15.4	135,900	79.6	154,900	88.5
Walworth	11.9	2.1	20.5	3.6	35,500	56.0	45,200	60.2
Washington	9.4	2.2	18.0	4.1	30,200	47.3	53,300	55.9
Waukesha	38.5	6.6	88.5	15.2	122,100	52.8	219,500	72.0
Region	309.4	11.5	432.9	16.1	1,488,700	84.8	1,594,300	88.1

Source: SEWRPC.

of the Region in which concentrations of the best remaining elements of the natural resource base occur. It was recognized that preservation of such areas is essential to both the maintenance of the overall environmental quality of the Region and to the continued provision of amenities required to maintain a high quality of life for the resident population, especially where these elements are concentrated in identifiable geographic areas.

Under the regional planning program, seven elements of the natural resource base have been considered essential to the maintenance of the ecological balance, natural beauty, and overall quality of life in Southeastern Wisconsin: 1) lakes, rivers, and streams, and their associated shorelands and floodlands; 2) wetlands; 3) woodlands; 4) prairies; 5) wildlife habitat areas; 6) wet, poorly drained, and organic soils; and 7) rugged terrain and high-relief topography. In addition, there are certain other features which, although not part of the natural resource base per se, are closely related to, or centered upon, that base and are a determining factor in identifying and delineating areas with recreational, aesthetic, ecological, and cultural value. These five additional elements are: 1) existing park and open space sites; 2) potential park and open space sites; 3) historic sites; 4) scenic areas and vistas; and 5) natural areas and critical species habitat sites.

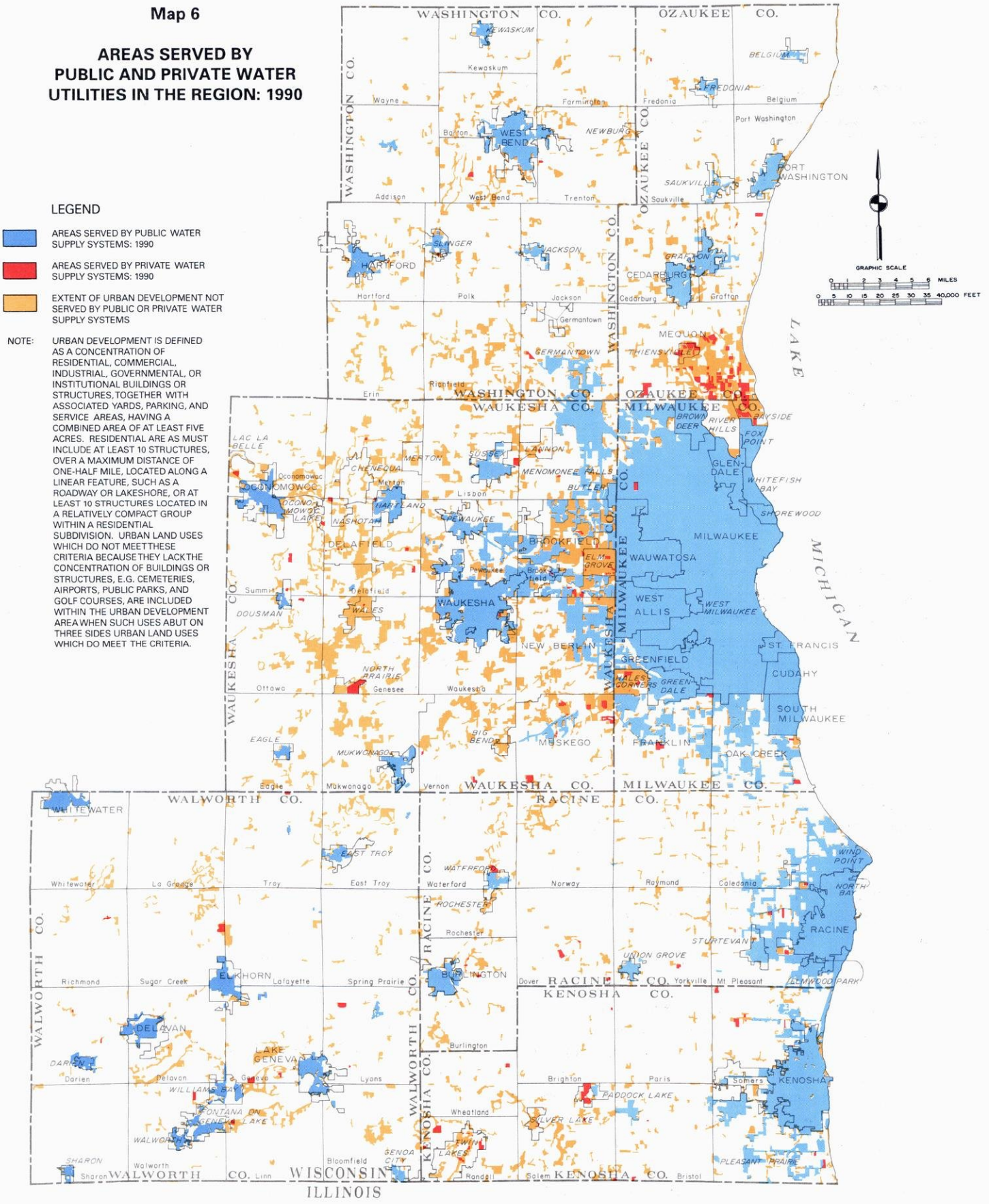
The delineation of these 12 natural resource and natural-resource-related elements on maps results, in most areas of the Region, in an essentially linear pattern of relatively narrow, elongated areas which have been termed "environmental corridors" by the Regional Planning Commission.[2] Primary environmental corridors include a wide variety of the aforementioned important natural resource and resource-related elements and are at least 400 acres in size, two miles in length, and 200 feet in width. Secondary environmental corridors generally connect with the primary environmental corridors and are at least 100 acres in size and one mile in length. In addition, smaller concentrations of natural resource base elements that are separated physically from the environmental corridors by intensive urban or agricultural land uses have also been identified. These areas, which are at least five acres in size, are referred to as isolated natural resource areas.

In any consideration of environmental corridors and important natural features, it is important to note that the preservation of such features can assist in floodflow attenuation, water pollution abatement, noise pollution abatement, glare reduction, and favorable climate modification. In addition, because of the many interacting relationships existing between living organisms and their environment, the destruction or deterioration of one important element of the total environment may lead to a chain reaction of deterioration and destruction of other elements. The drainage of wetlands, for example, may destroy fish

[2] *A detailed description of the process of refining the delineation of environmental corridors in Southeastern Wisconsin is presented in the March 1981 issue (Vol. 4, No. 2) of the SEWRPC* Technical Record, *pp. 1-21.*

Map 6

AREAS SERVED BY PUBLIC AND PRIVATE WATER UTILITIES IN THE REGION: 1990



Public water supply service was provided to an area of about 344 square miles, or about 13 percent of the total area of the Region, in 1990. About 1.48 million persons, or about 82 percent of the resident population of the Region at that time, were then served by public water supply systems. In addition to publicly owned utilities, there were numerous private or cooperatively owned water utilities in the Region in 1990, serving residential subdivisions, apartment developments, mobile-home parks, and institutions. These private or cooperatively owned water supply systems served areas encompassing about 11 square miles, having a population of about 35,000 persons, in 1990.

Source: SEWRPC.

Table 7

AREA AND POPULATION SERVED BY PUBLIC WATER UTILITIES IN THE REGION BY COUNTY: 1970 AND 1990

County	Area Served by Public Water Utilities				Population Served by Public Water Utilities			
	1970		1990		1970		1990	
	Square Miles	Percent of Area	Square Miles	Percent of Area	Persons	Percent of Population	Persons	Percent of Population
Kenosha	16.4	5.9	26.7	9.6	81,000	68.7	97,000	75.6
Milwaukee	165.2	68.1	176.5	72.8	1,013,900	96.2	942,500	98.2
Ozaukee	7.2	3.1	11.5	4.9	25,700	47.2	35,900	49.3
Racine	25.2	7.4	38.0	11.2	120,900	70.8	142,700	81.5
Walworth	12.7	2.2	16.1	2.8	36,300	57.2	40,900	54.5
Washington	8.1	1.9	15.6	3.6	28,300	44.4	50,900	53.4
Waukesha	24.6	4.2	59.1	10.2	84,400	36.5	174,700	57.4
Region	259.4	9.6	343.5	12.8	1,390,500	79.2	1,484,600	82.0

NOTE: In addition to publicly owned water utilities, there were numerous private or cooperatively owned water utilities in the Region in 1990 serving residential subdivisions, apartment developments, mobile-home parks, and institutions. For purposes of this study, private water supply systems are defined as those nonpublic systems which have at least 15 service connections used by year-round residents or which regularly serve at least 25 year-round residents. These private or cooperatively owned water supply systems served areas encompassing about 11 square miles, with a population of about 35,000 persons, in the Region in 1990.

Source: SEWRPC.

spawning areas, wildlife habitat, groundwater recharge areas, and natural filtration and floodwater storage areas of interconnecting stream systems. The resulting deterioration of surface-water quality may, in turn, lead to a deterioration of the quality of the groundwater which serves as a source of domestic, municipal, and industrial water supply, and upon which low flows of rivers and streams may depend. In addition, the intrusion of intensive urban land uses into such areas may result in the creation of serious and costly problems, such as failing foundations for pavements and structures, wet basements, excessive operation of sump pumps, excessive clear-water infiltration into sanitary sewerage systems, and poor drainage. Similarly, destruction of ground cover may result in soil erosion, stream siltation, more rapid runoff, and increased flooding, as well as the destruction of wildlife habitat.

Although the effect of any one of these environmental changes may not in and of itself be overwhelming, the combined effects must eventually lead to a serious deterioration of the underlying and sustaining natural resource base and of the overall quality of the environment for life. The need to maintain the integrity of the remaining environmental corridors and isolated natural resource areas in the Southeastern Wisconsin Region should thus be apparent. The location and extent of the environmental corridors and isolated natural resource areas in the Region in 1990 is shown on Map 7.

Primary Environmental Corridors

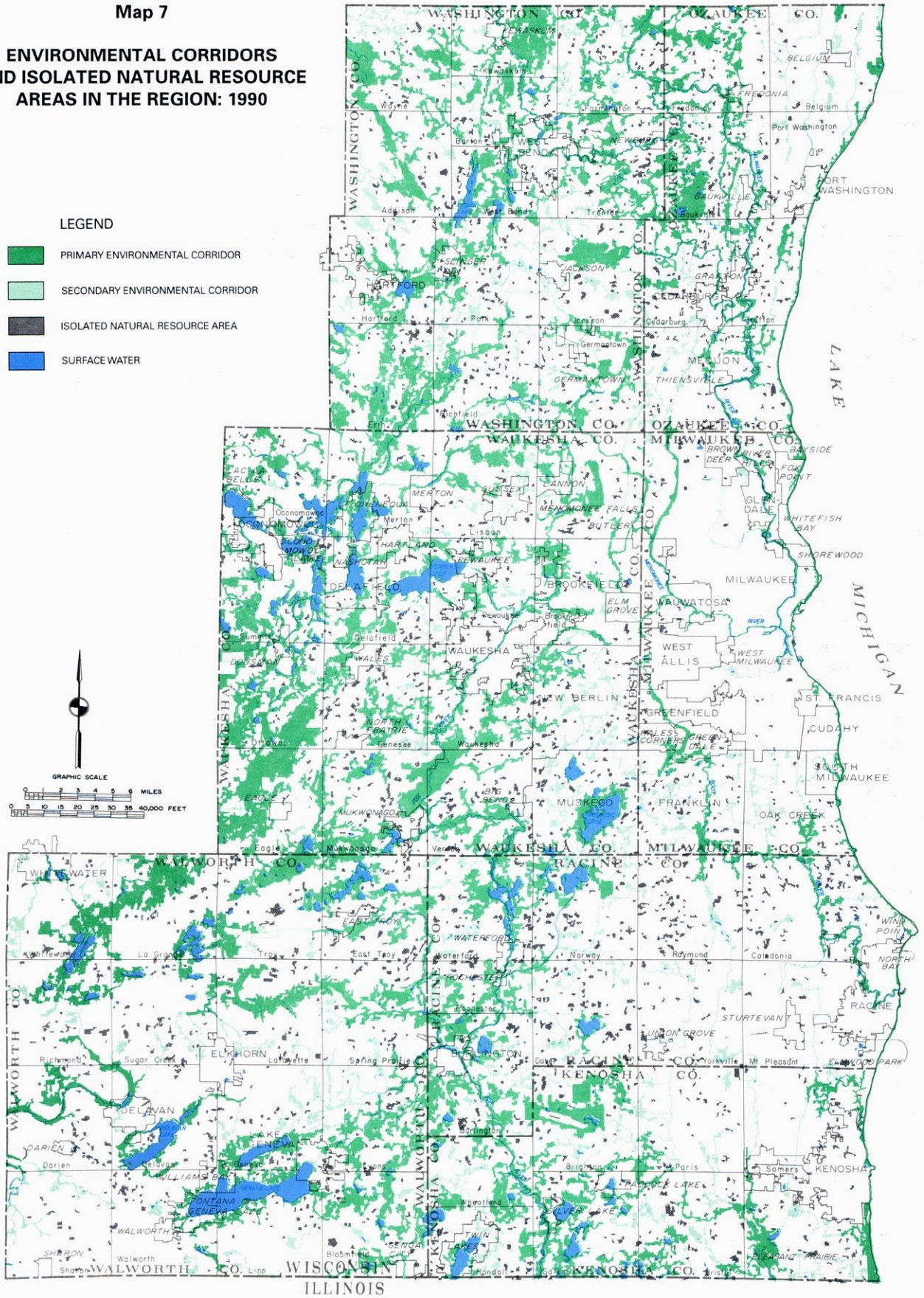
As shown on Map 7, the primary environmental corridors in the Region are primarily located along major stream valleys, around major lakes, and along the Kettle Moraine. These primary environmental corridors contain almost all of the best remaining woodlands, wetlands, and wildlife habitat areas in the Region, and represent a composite of the best remaining elements of the natural resource base. The protection of the primary environmental corridors from additional intrusion by incompatible land uses, degradation, and destruction is one of the principal objectives of the regional land use plan. Their preservation in an essentially open, natural state, including park and open space uses, will serve to maintain a high level of environmental quality in the Region, protect the remaining natural beauty, and provide valuable recreational opportunities. As indicated in Table 8, primary environmental corridors encompassed about 464 square miles, or about 17 percent of the total area of the Region, in 1990.

Secondary Environmental Corridors

As further shown on Map 7, secondary environmental corridors are generally located along the small perennial and intermittent streams within the Region. These secondary environmental corridors also contain a variety of resource elements, often remnant resources from primary environmental corridors which have been developed for intensive urban or agricultural purposes. Secondary environmental corridors facilitate surface-water drainage, maintain pockets of natural resource features, and provide corridors for the movement of wildlife, as well as for the movement and dispersal of seeds for a variety of plant species. Such corridors should also be preserved in essentially natural, open uses as development proceeds within the Region, particularly when the opportunity is presented

Map 7

ENVIRONMENTAL CORRIDORS AND ISOLATED NATURAL RESOURCE AREAS IN THE REGION: 1990



The most important elements of the natural resource base of the Region—lakes, rivers and streams, wetlands, woodlands, prairies, wildlife habitat areas, and steeply sloped areas—are found in the environmental corridors and isolated natural resource areas identified on this map. The preservation of these areas in natural, open uses will help maintain the overall quality of the environment of the Region; preserve its natural beauty; and provide opportunities for recreational, educational, and scientific pursuits. Moreover, because these areas are generally poorly suited for urban development, their preservation will help to avoid the creation of new environmental and developmental problems.

Source: SEWRPC.

Table 8

ENVIRONMENTAL CORRIDORS AND ISOLATED NATURAL RESOURCE AREAS IN THE REGION BY COUNTY: 1990

County	Primary Environmental Corridors		Secondary Environmental Corridors		Isolated Natural Resource Areas		Total Environmental Corridors and Isolated Natural Resource Areas		Area outside of Environmental Corridors and Isolated Natural Resource Areas		Total Area	
	Square Miles	Percent of Area	Square Miles	Percent of Area	Square Miles	Percent of Area	Square Miles	Percent of Area	Square Miles	Percent of Area	Square Miles	Percent of Area
Kenosha	44.2	15.9	9.9	3.5	5.8	2.1	59.9	21.5	218.5	78.5	278.4	100.0
Milwaukee	14.5	6.0	5.3	2.2	3.5	1.4	23.3	9.6	219.3	90.4	242.6	100.0
Ozaukee	32.0	13.6	7.6	3.2	5.4	2.3	45.0	19.1	190.1	80.9	235.1	100.0
Racine	36.2	10.6	11.0	3.2	11.7	3.5	58.9	17.3	281.6	82.7	340.5	100.0
Walworth	99.1	17.2	14.6	2.5	13.0	2.3	126.7	22.0	449.8	78.0	576.5	100.0
Washington	93.4	21.4	15.4	3.5	10.2	2.4	119.0	27.3	316.7	72.7	435.7	100.0
Waukesha	144.9	24.9	12.0	2.1	13.1	2.3	170.0	29.3	410.6	70.7	580.6	100.0
Region	464.3	17.3	75.8	2.8	62.7	2.3	602.8	22.4	2,086.6	77.6	2,689.4	100.0

Source: SEWRPC.

to incorporate secondary environmental corridors into urban stormwater retention and detention basins, associated drainageways, and neighborhood parks. In 1990, secondary environmental corridors encompassed about 76 square miles, or about 3 percent of the total area of the Region (see Table 8).

Isolated Natural Resource Areas

In addition to the primary and secondary environmental corridors, other smaller pockets or concentrations of natural resource base elements exist within the Region. These pockets are isolated from the environmental corridors by urban development or agricultural use, and although separated from the environmental corridor network, these isolated natural resource areas have significant value. They provide the only available wildlife habitat in an area, usually provide good locations for local parks, and lend unique aesthetic character and natural diversity to an area. The isolated natural resource areas in the Region are shown on Map 7 and include isolated wetlands, woodlands, and wildlife habitat areas. In 1990, isolated natural resource areas encompassed about 63 square miles, or about 2 percent of the total area of the Region (see Table 8).

Natural Areas and Critical Species Habitat Sites

The Commission recently completed an areawide study to identify and plan for the protection and management of the best remaining natural areas and critical species habitat sites in Southeastern Wisconsin. That study is documented in SEWRPC Planning Report No. 42, *A Regional Natural Areas and Critical Species Habitat Protection and Management Plan for Southeastern Wisconsin*, September 1997. For purposes of that study, "natural areas" were defined as those tracts of land or water so little modified by human activity, or which have sufficiently recovered from the effects of such activity, that they contain intact native plant and animal communities believed to be representative of the pre-European-settlement landscape. "Critical species habitats" were defined as those additional tracts of land or water which support endangered, threatened, or rare plant or animal species. The study identified a total of 447 natural areas in the Region encompassing about 90 square miles and a total of 141 critical species habitat sites supporting endangered, threatened, or rare plants or animals.

SUMMARY

This chapter has provided an overview of development trends in Southeastern Wisconsin since 1850, along with a description of the existing 1990 land use base in the Region and changes in land use since 1963. This chapter has also provided a description of existing water supply and public sanitary sewerage utility service areas in the Region. Finally, this chapter has described the environmental corridors in the Region, or those areas of the Region in which concentrations of the best remaining elements of the natural resource base are located. The following findings have particular significance for regional land use planning:

1. Although urban development in the Region has been continuous since 1850, the character of this development changed dramatically after 1950. The earlier form of compact, concentric urban development was supplanted by a much more scattered pattern of areawide development, and the conversion of land to urban use occurred at a much faster rate. Between 1850 and 1950, the developed urban area of the Region increased at an average rate of about 1.4 square miles per year; between 1950 and

1990, the developed urban area of the Region increased at an average rate of about 9.2 square miles per year. These changes in the nature of urban development have been accompanied by dramatic reductions in the population density of urbanized areas. The urban population density of the Region decreased from about 8,100 persons per square mile in 1950 to about 3,500 persons per square mile in 1990.

2. Although Southeastern Wisconsin is an urban region, less than one-quarter of its total area is devoted to urban land uses. In 1990, urban land uses encompassed about 637 square miles, or about 24 percent of the total area of the Region, with residential land use constituting the largest urban land use category, encompassing about 308 square miles, or about 48 percent of all urban land and 11 percent of the total area of the Region. Milwaukee and Waukesha Counties encompassed the most urban land among counties in the Region in 1990, with 185 square miles and 168 square miles, respectively, of urban land use. The two Counties collectively accounted for about 55 percent of all urban land use in the Region. Between 1963 and 1990, urban land uses in the Region increased by about 193 square miles, or 44 percent. Waukesha County experienced the largest absolute increase in urban land use among counties in the Region during that time, an increase from about 95 square miles in urban use in 1963 to about 168 square miles in urban use in 1990.

3. Nonurban lands encompassed about 2,053 square miles of the Region in 1990, or about 76 percent of the total area of the Region, with agricultural land use constituting the largest nonurban land use category, encompassing about 1,395 square miles, or about 68 percent of all nonurban land and 52 percent of the total area of the Region. Nonurban lands in the Region decreased by about 193 square miles, or about 9 percent, between 1963 and 1990. Most of this loss resulted from the conversion of agricultural land to urban use. Some losses in wetlands and woodlands also occurred during this time.

4. Water supply and sanitary sewerage utilities are particularly important to land use planning because the location and density of urban development influences the need for such facilities and, conversely, the existence of such facilities influences the location and density of new urban development. Areas served by public sanitary sewers in 1990 encompassed about 433 square miles, or about 16 percent of the total area of the Region. These areas were inhabited by about 1,594,300 persons, or about 88 percent of the total resident population of the Region. Areas served by public water supply utilities in 1990 encompassed about 344 square miles, or about 13 percent of the total area of the Region. These areas were inhabited by about 1,484,600 persons, or about 82 percent of the total resident population of the Region. Among the seven counties in the Region, Milwaukee County had the largest amount and proportion of land and population served by sewerage and water supply utilities in 1990.

5. The most important elements of the natural resource base and features closely related to that base—including wetlands, woodlands, prairies, wildlife habitat, major lakes and streams and associated shorelands and floodlands, and historic, scenic, and recreational sites—when combined result essentially in elongated lineal patterns referred to by the Commission as "environmental corridors." "Primary" environmental corridors, which are the longest and widest type of environmental corridors, are generally located along major stream valleys, around major lakes, and along the Kettle Moraine, and encompassed about 464 square miles, or about 17 percent of the total area of the Region, in 1990. "Secondary" environmental corridors are generally located along small perennial and intermittent streams, and encompassed about 76 square miles, or about 3 percent of the total area of the Region, in 1990. "Isolated natural resource areas," which consist of small pockets or concentrations of natural resource base elements separated physically from the lineal environmental corridors, encompassed about 63 square miles, or about 2 percent of the total area of the Region, in 1990. Primary and secondary environmental corridors and isolated natural resource areas combined thus encompassed a total of 603 square miles, or about 22 percent of the total area of the Region, in 1990.

Chapter III

DEMOGRAPHIC AND ECONOMIC ACTIVITY

INTRODUCTION

Current and historical information concerning the size and characteristics of the resident population and the size and structure of the economy are essential to comprehensive land use planning for the Region, as are soundly conceived projections of future regional population and economic activity levels. Under the continuing regional planning program, the Commission periodically undertakes intensive studies of the regional population and economy, initiating such studies after the release of all required data from the most recent U. S. Census of Population. These studies culminate in the preparation of revised long-range projections of population, household, and employment levels for the Region, with the projection period extended in time under each successive study.

The most recent regional demographic study completed by the Commission described and analyzed trends in population and household levels and characteristics through the year 1990, the year of the most recent U. S. Census of Population, and culminated in the preparation of new projections of population and household levels for the Region through the year 2020. A related economic study described and analyzed trends in the level and type of employment opportunities, or jobs, provided within the Region through the year 1990, and culminated in the preparation of a corresponding set of year 2020 employment projections for the Region.

The findings and projections of the Commission's demographic and economic studies are presented, respectively, in SEWRPC Technical Report No. 11 (3rd Edition), *The Population of Southeastern Wisconsin*, and SEWRPC Technical Report No. 10 (3rd Edition), *The Economy of Southeastern Wisconsin*, both dated October 1995. Reference should be made to those reports for a detailed description of the characteristics of the regional population and the regional economy.[1] This chapter summarizes information from those reports that is most relevant to the preparation of a new regional land use plan. Presented in this chapter are a brief description of the methodology used in the preparation of population, household, and employment projections; historical trends in population, household, and employment levels in the Region through 1990; and projections of population, household, and employment levels in the Region for the year 2020.

FORECAST METHODOLOGY

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

It has long been recognized that regional population, household, and employment levels are interdependent. Certain characteristics of the population, such as the number of school-age children, number of households, and size and character of the labor force, have a marked impact on the employment patterns of many industries. Similarly, the economic vitality of the Region is a

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[1] *Chapter III of SEWRPC Technical Report No. 11 (3rd Edition) presents a descriptive analysis of the regional population, providing information regarding the age composition, sex composition, marital status, educational attainment level, occupational status, mobility, racial composition, and ethnic composition of the regional population and changes in those characteristics over time. Chapter IV of that report presents a descriptive analysis of the components of change—that is, natural increase and migration—in the regional population over time. Chapter II of SEWRPC Technical Report No. 10 (3rd Edition) presents a descriptive analysis of the size and composition of the resident labor force and changes in the labor force size and composition over time. Chapter III of that report presents a descriptive analysis of dominant and subdominant industries in the Region, providing current and historical trend information on employment levels in those industries.*

major determinant of the level of migration that in turn is an important determinant of population levels. Projections of population, household, and employment levels for the Region were thus prepared and evaluated concurrently using internally consistent and mutually supportive methodologies.

To deal with the uncertainties inherent in making long-range projections, the Commission prepared alternative high-growth, intermediate-growth, and low-growth projections of population, household, and employment levels to reflect a reasonable range of demographic and economic activity. This range of projections is useful for the development of robust system plans at the regional level, as well as facility plans at the local level. Plans developed using the range of projections may be expected to remain viable under greatly varying future conditions.

Population Projections

The technique selected by the Commission for developing population projections is known as the cohort survival technique. This technique takes into consideration base year population and future rates of birth, death, and migration. Three different projections were made using different combinations of assumed fertility, mortality, and migration rates in an attempt to determine the population of the Region under a range of possible future conditions.

Although fertility rates exhibited a moderate increase during the 1980s, age-specific fertility rates in the Region, State, and Nation are currently at some of the lowest levels ever observed, and the total fertility rate is currently below the replacement level in all three of these geographic areas. While most demographers do not anticipate a return to the high fertility levels observed in the period from 1945 to 1965, there is uncertainty about whether fertility will remain at its current low level, continue to increase, or begin again to decrease. It was assumed that fertility rates would continue to increase gradually under a high-growth scenario; remain virtually constant under an intermediate-growth scenario; and decrease gradually under a low-growth scenario.

The mortality rates used in all of the projections are based upon the U. S. Social Security Administration life-expectancy tables, with survival rates adjusted to account for any differences in survival rates between Wisconsin and the Nation. The survival rates utilized in the year 2020 population projections assume continuation of recent trends toward slightly decreased mortality, particularly in some of the older age groups, and are reflective of longer life expectancies.

Migration is linked to both demographic and economic factors, the latter including job availability, personal income levels, and labor force participation rates. The complex interrelationship between migration and other demographic and economic factors is only partially understood, and the determination of future migration levels and patterns is always an uncertain process for areas such as the Southeastern Wisconsin Region. Three different regional net migration rates, based upon the high-growth, intermediate-growth, and low-growth economic projections for the Region, combined with factors such as the rate of multiple job holding, assumed future unemployment rates, and assumed future labor force participation rates, were considered in the range of population projections for the Region.

Household Projections

Accompanying the changes in the size of the resident population of the Region under three alternative population projections are changes in the number and average size of households in the Region. Household sizes have been decreasing in the Region since 1950 owing to stable or low fertility rates, increases in the number of single-parent families, and changes in the age composition of the population. Under the high-growth regional population scenario, it is assumed that "traditional" households consisting of couples with children will constitute the dominant type of household. Under the intermediate-growth scenario, it is assumed that traditional households will be less dominant, and that single-parent and single-person households will be more prevalent than under the high-growth scenario. Under the low-growth scenario, it is assumed that traditional households will continue to decrease as a proportion of total households, and that single-parent and single-person households will continue to increase as a proportion of total households as they have done historically.

Employment Projections

The regional employment projections for the year 2020 were developed using the dominant/subdominant-industry methodology, which is a disaggregate technique dealing separately with various components, or industries, of the economic system. Under this approach, separate projections were made for each of the dominant and subdominant industry groups[2] within the Region. Employment outside of those industry groups not accorded

[2] *Dominant industry groups, as defined by the Regional Planning Commission, account for 4 percent or more of total regional employment, while subdominant industry groups account for 2 percent to 3.9 percent of total regional employment.*

Table 9

POPULATION IN THE REGION, WISCONSIN, AND THE UNITED STATES: 1950-1990

Year	Region			Wisconsin			United States			Regional Population as a Percentage of Population of:	
		Change from Preceding Census			Change from Preceding Census			Change from Preceding Census			
	Population	Absolute	Percent	Population	Absolute	Percent	Population	Absolute	Percent	Wisconsin	United States
1950	1,240,618	--	--	3,434,575	--	--	151,325,798	--	--	36.1	0.82
1960	1,573,614	332,996	26.8	3,951,777	517,202	15.1	179,323,175	27,997,377	18.5	39.8	0.88
1970	1,756,083	182,469	11.6	4,417,821	466,044	11.8	203,302,031	23,978,856	13.4	39.7	0.86
1980	1,764,796	8,713	0.5	4,705,642	287,821	6.5	226,504,825	23,202,794	11.4	37.5	0.78
1990	1,810,364	45,568	2.6	4,891,769	186,127	4.0	249,632,692	23,127,867	10.2	37.0	0.73

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

dominant or subdominant status was analyzed as a single aggregate grouping.

The employment projections for the dominant and subdominant industry groups for the year 2020 were developed utilizing a series of reports and analyses, including historical-trends data; mathematical projections; economic and industry outlooks from various State and Federal agencies, academic institutions, and corporations; and trends in the relationship between regional and national employment for each industry group from 1969 to 1990. Various employment growth patterns embodied in these reports and analyses were examined and were extended and applied to data for the Southeastern Wisconsin Region to form composite projections for each dominant or subdominant industry. The results can be considered consensus projections reflecting high-growth, intermediate-growth, and low-growth scenarios for each dominant or subdominant industry.

Other employment, consisting of self-employment and any industry groups not accorded dominant or subdominant status, collectively accounted for about one-quarter of the Region's total employment in 1990. Slight increases in other employment were envisioned under the high-growth and intermediate-growth scenarios, while no change was deemed appropriate under the low-growth scenario. The projected total employment levels under the three scenarios for the year 2020 are the result of aggregating the separate projections developed for each dominant or subdominant industry category, along with the projection for "other" employment not accorded dominant or subdominant industry status.

Projected levels of population, households, and employment under high-, intermediate-, and low-growth scenarios for the year 2020 are presented in the following sections of this chapter, along with existing 1990 and historical levels of population, households, and employment in the Region.

POPULATION

Historical Trends

Regional Population Growth

Resident population levels and rates of population change for the Southeastern Wisconsin Region, Wisconsin, and the United States for the period from 1950 to 1990, as enumerated in U. S. Censuses of Population, are presented in Table 9. The 1990 population of the Region was about 1,810,400, an increase of about 569,800, or 46 percent, over the 1950 population of about 1,240,600.

The population of the Region increased significantly during the 1950s and 1960s, with increases of 27 percent and 12 percent, respectively, occurring during those decades. The population growth rate in the Region over those two decades combined exceeded the respective growth rates for both the State and the Nation. During the 1970s and 1980s, however, the population of the Region increased by only 3 percent, while the State's population increased by 11 percent and the Nation's population increased by 23 percent. Over the entire period from 1950 to 1990, the population of the Region increased by about 46 percent, compared to 42 percent for the State and 65 percent for the Nation. Because of this difference in population growth rates, the population of the Region as a proportion of the State population increased from 36.1 percent in 1950 to 37.0 percent in 1990, and as a proportion of the Nation's population decreased from 0.82 percent in 1950 to 0.73 percent in 1990. The population of the Region was estimated at about 1,879,200 persons in 1995—about 68,800 persons, or 3.8 percent, above the 1990 level.

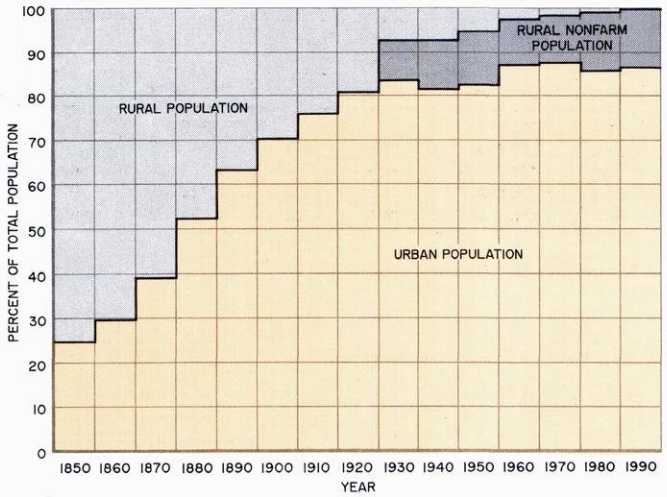
Urban-Rural Composition

The urban-rural composition of the Region's population, like that of most metropolitan regions in the United States, has become increasingly urban—as measured in terms of urban and rural place-of-residence data enumerated in the

U. S. Censuses of Population. As indicated in Figure 2, the population of the Region was approximately 76 percent rural and 24 percent urban in 1850. By 1910, this relationship had reversed to 24 percent rural and 76 percent urban. In response to increasing suburbanization occurring nationwide since the early 1900s, the rural category was split into rural-farm and rural-nonfarm categories beginning with the 1930 U. S. Census of Population. The rural-nonfarm classification consists of persons living in rural areas but generally employed in urban occupations, and whose socio-economic characteristics are urban rather than rural. As shown in Figure 2, the proportion of total rural population in the Region has not changed substantially since 1930. However, the rural farm proportion of the regional population decreased from about 7 percent in 1930 to nearly zero by 1990, whereas the nonfarm proportion increased from 9 percent in 1930 to about 13 percent in 1990. In 1990, the population of the Region was 87 percent urban and 13 percent rural.

Figure 2

URBAN AND RURAL POPULATION IN THE REGION: 1850-1990



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

Population Distribution

The population levels and rates of change for each county in the Region from 1950 to 1990 are shown in Table 10. The greatest rates of population growth over the period from 1950 to 1990 occurred in Ozaukee, Washington, and Waukesha Counties, with population increases of 212 percent, 181 percent, and 255 percent, respectively. Kenosha, Racine, and Walworth Counties experienced population increases of between 60 and 80 percent between 1950 and 1990, while the Milwaukee County population increased by 10 percent. The largest absolute increases in population during the 1960s, 1970s, and 1980s occurred in Waukesha County. Milwaukee County experienced a population loss of about 95,000 persons from 1970 to 1990.

The proportional distribution of population in the Region by county for the years 1950, 1970, and 1990 is presented in Figure 3. Population growth has not been uniformly distributed throughout the Region since 1950, and varying rates of population growth have resulted in significant shifts in population among the seven counties. Most notably, the Milwaukee County share of the regional population decreased from about 70 percent in 1950 to about 53 percent in 1990, and the Waukesha County share increased from about 7 percent in 1950 to about 17 percent in 1990. Much smaller but nevertheless positive changes in the proportion of regional population also occurred in Kenosha, Ozaukee, Racine, Walworth, and Washington Counties from 1950 to 1990, ranging from a gain of 2.6 percentage point for Washington County to a gain of 0.7 percentage point for Walworth County. Map 8 provides a visual perspective on the population distribution of the Region for the years 1963 and 1990. The decentralization of population in the Region away from the older, established urban centers of Kenosha, Milwaukee, and Racine from 1963 to 1990 is evident on Map 8.

Projected Population Levels

Commission population projections for the Region and its constituent counties under three regional growth scenarios are set forth in Table 11 and Figure 4. Under a high-growth scenario, the resident population of the Region would increase by about 556,600 persons, or about 31 percent, from 1,810,400 persons in 1990 to 2,367,000 persons by the year 2020. Under this scenario, the largest absolute population increase, 160,700 persons, would occur in Milwaukee County, while the largest proportional increase, about 68 percent, would occur in Washington County. The absolute increases in population outside of Milwaukee County would range from 38,200 persons in Ozaukee County to 155,300 persons in Waukesha County. The proportional increases in population outside of Washington County would range from 17 percent in Milwaukee County to 53 percent in Ozaukee and Walworth Counties.

Under an intermediate-growth scenario, the resident population of the Region would increase by about 267,500 persons, or about 15 percent, from 1,810,400 persons in 1990 to 2,077,900 persons by the year 2020. Under this scenario, the largest absolute population increase, 86,800 persons, would occur in Waukesha County, while

Table 10

POPULATION IN THE REGION BY COUNTY: 1950-1990

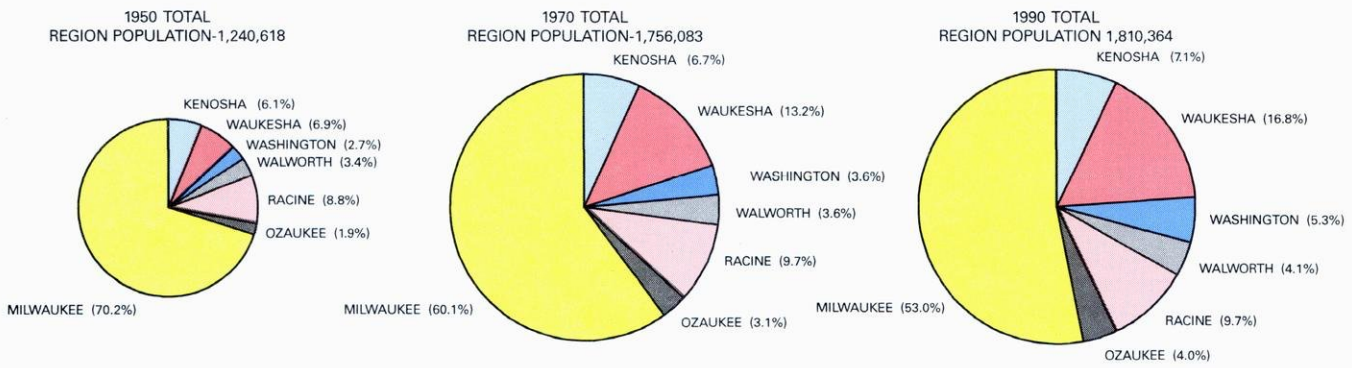
County	Population				
	1950	1960	1970	1980	1990
Kenosha	75,238	100,615	117,917	123,137	128,181
Milwaukee	871,047	1,036,041	1,054,249	964,988	959,275
Ozaukee	23,361	38,441	54,461	66,981	72,831
Racine	109,585	141,781	170,838	173,132	175,034
Walworth	41,584	52,368	63,444	71,507	75,000
Washington	33,902	46,119	63,839	84,848	95,328
Waukesha	85,901	158,249	231,335	280,203	304,715
Region	1,240,618	1,573,614	1,756,083	1,764,796	1,810,364

County	1950-1960 Change		1960-1970 Change		1970-1980 Change		1980-1990 Change		1950-1990 Change	
	Absolute	Percent	Absolute	Percent	Absolute	Percent	Absolute	Percent	Absolute	Percent
Kenosha	25,377	33.7	17,302	17.2	5,220	4.4	5,044	4.1	52,943	70.4
Milwaukee	164,994	18.9	18,208	1.8	-89,261	-8.5	-5,713	-0.6	88,228	10.1
Ozaukee	15,080	64.6	16,020	41.7	12,520	23.0	5,850	8.7	49,470	211.8
Racine	32,196	29.4	29,057	20.5	2,294	1.3	1,902	1.1	65,449	59.7
Walworth	10,784	25.9	11,076	21.2	8,063	12.7	3,493	4.9	33,416	80.4
Washington	12,217	36.0	17,720	38.4	21,009	32.9	10,480	12.4	61,426	181.2
Waukesha	72,348	84.2	73,086	46.2	48,868	21.1	24,512	8.7	218,814	254.7
Region	332,996	26.8	182,469	11.6	8,713	0.5	45,568	2.6	569,746	45.9

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

Figure 3

DISTRIBUTION OF POPULATION IN THE REGION BY COUNTY: 1950, 1970, AND 1990



Source: SEWRPC.

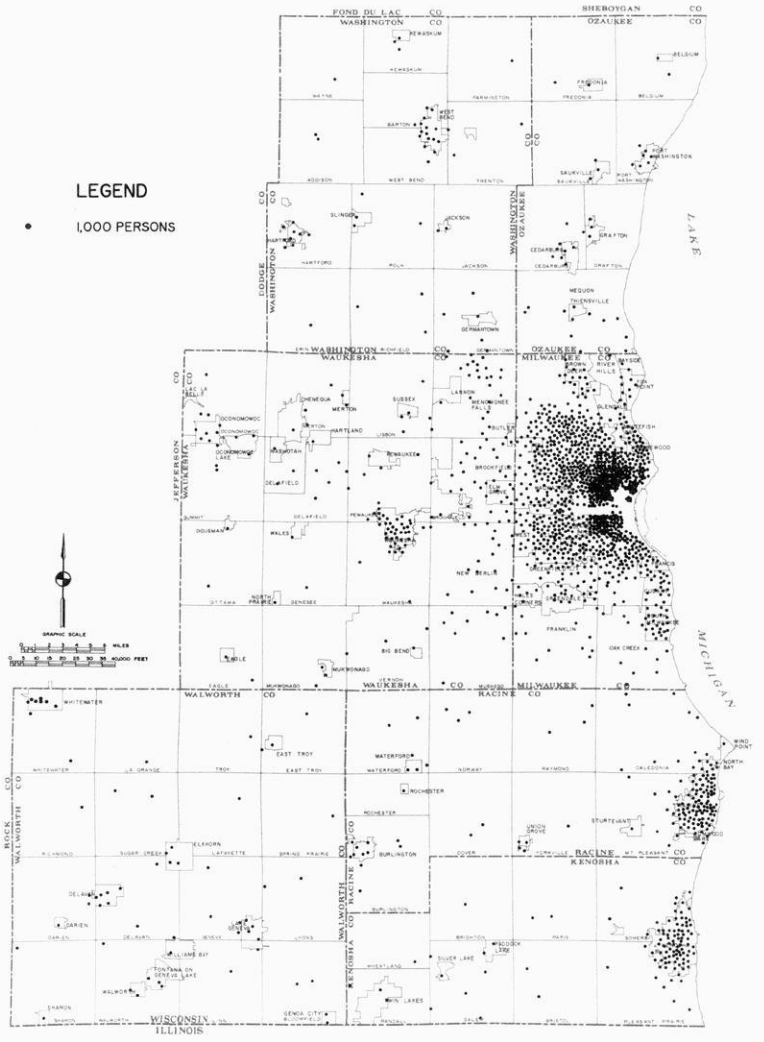
the largest proportional increase, about 38 percent, would occur in Washington County. The absolute increases in population outside of Waukesha County would range from 18,900 persons in Ozaukee County to 50,700 persons in Milwaukee County. The proportional increases in population outside of Washington County would range from 5 percent in Milwaukee County to 31 percent in Walworth County.

Under a low-growth scenario, the resident population of the Region would increase by about 114,600 persons, or about 6 percent, from 1,810,400 persons in 1990 to 1,925,000 persons by the year 2020. Under this scenario, the largest absolute population increase, 55,300 persons, would occur in Waukesha County, while the population of Milwaukee County would decline by 6,300 persons. The largest proportional increase, 26 percent, would occur in

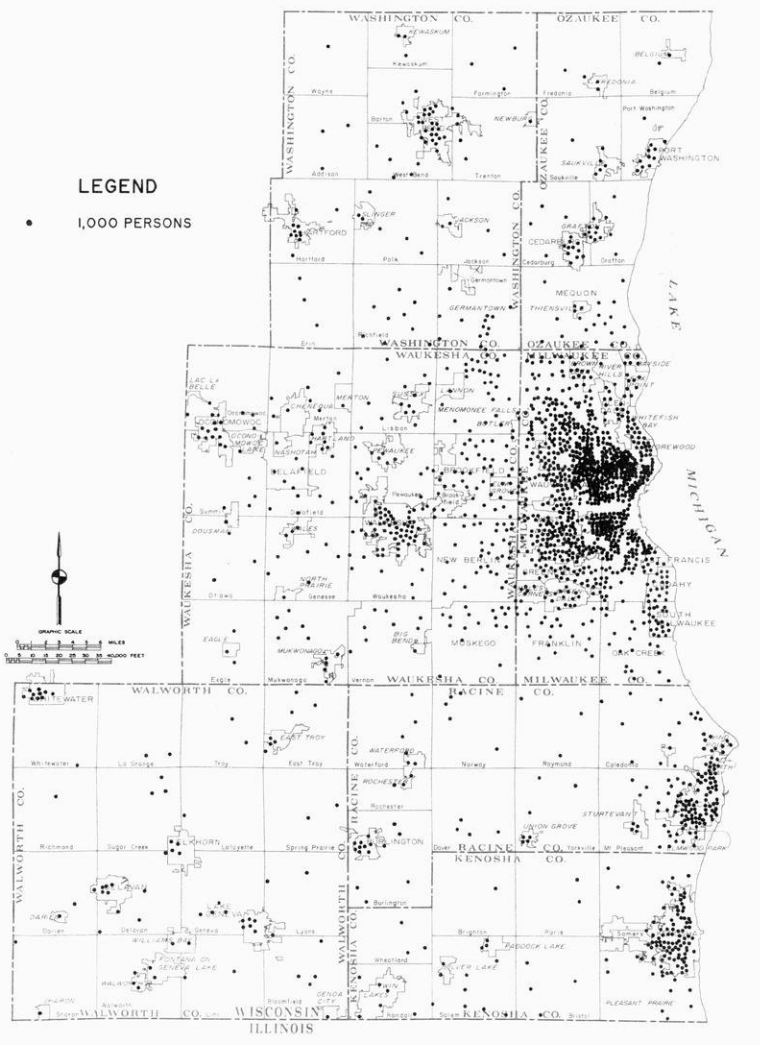
Map 8

POPULATION DISTRIBUTION IN THE REGION: 1963 AND 1990

1963



1990



The resident population of the Region increased from 1.67 million persons in 1963 to 1.81 million persons in 1990. Clearly evident on this map is a decentralization of regional population away from the Cities of Kenosha, Milwaukee, and Racine to suburban and rural areas of the Region. At the county level, the most notable changes in the relative distribution of the regional population occurred in Milwaukee and Waukesha Counties. Between 1963 and 1990, Milwaukee County's share of the regional population decreased from 65 to 53 percent, while Waukesha County's share increased from 11 to 17 percent.

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

Washington County. The absolute increases in population outside of Milwaukee and Waukesha Counties would range from 4,900 persons in Racine County to 24,700 persons in Washington County. The proportional changes in population outside of Washington County would range from -0.7 percent in Milwaukee County to 18 percent in Waukesha County.

HOUSEHOLDS

Historical Trends

Number of Households

Household levels and rates of change in the number of households for the Southeastern Wisconsin Region, Wisconsin, and the United States for the period from 1950 to 1990, as enumerated in U. S. Censuses of Population, are presented in Table 12. The number of households in the Region in 1990 was about 676,100, an increase of about 321,600, or 91 percent, over the 1950 level of about 354,500.

The number of households in the Region increased significantly during the 1950s, 1960s, and 1970s, with increases of 31 percent, 15 percent, and 17 percent, respectively, occurring during those decades. The growth rate in households for the Region during the 1950s and 1960s combined exceeded the corresponding growth rates for both the State and the Nation. During the 1970s and 1980s, however, the number of households in the Region increased by 26 percent, while the number of households in the State increased by 37 percent and in the Nation increased by 45 percent. Over the entire period from 1950 to 1990, the number of households in the Region increased by about 91 percent, compared to 88 percent for the State and 117 percent for the Nation. Because of this difference in growth rates in the number of households, the households in the Region as a proportion of households in the State increased from 36.6 percent in 1950 to 37.1 percent in 1990, and as a proportion of households in the Nation decreased from 0.84 percent in 1950 to 0.74 percent in 1990. The number of households in the Region was estimated at about 717,300 in 1995—about 41,200 households, or 6.1 percent, above the 1990 level.

Distribution of Households

The household levels and rates of change for each county in the Region from 1950 to 1990 are shown in Table 13. The greatest rates of growth in the number of households over the period from 1950 to 1990 occurred in Ozaukee, Washington, and Waukesha Counties, with increases in households of 290 percent, 251 percent, and 349 percent, respectively. The remaining four counties in the Region experienced increases of 50 percent to 123 percent in the number of households between 1950 and 1990. The largest absolute increases in the number of households during the 1950s and 1960s occurred in Milwaukee County, while the largest absolute increases during the 1970s and 1980s occurred in Waukesha County.

The proportional distribution of households in the Region by county for the years 1950, 1970, and 1990 is presented in Figure 5. Growth in the number of households has not been uniformly distributed throughout the Region since 1950, and varying rates of growth have resulted in significant changes in the proportions of total households in the Region among the seven counties. Most notably, the Milwaukee County share of regional households decreased from about 70 percent in 1950 to about 55 percent in 1990, and the Waukesha County share increased from about 7 percent in 1950 to about 16 percent in 1990. Much smaller changes in the proportion of regional households also occurred in Kenosha, Ozaukee, Racine, Walworth, and Washington Counties from 1950 to 1990—ranging from a gain of 2.3 percentage points for Washington County to a gain of 0.6 percentage point for Racine and Walworth Counties.

Household Size

From the foregoing discussions relating to population and households, it is evident that the number of households in the Region, State, and Nation increased at a rate nearly double that of the population between 1950 and 1990. During this time, household sizes decreased significantly. Between 1950 and 1990, the average household size in the Region decreased from 3.36 to 2.62 persons, or by 22 percent. Rates of decrease in the average household size among the counties in the Region over that period ranged from 19 to 25 percent. In 1970, all of the counties in the Region exhibited average household sizes greater than 3.00 persons, whereas in 1990 all of the counties exhibited average household sizes smaller than 3.00 persons (see Table 14).

One reason for this decrease in household size relates to large increases in the number of single-person households since 1970. The increased incidence of divorce, the desire of many elderly persons to remain alone in their households, and the desire of many young unmarried persons to form their own households have been important contributing factors to the increase in single-person households. The types and sizes of households have important implications for land use and facilities planning. The household represents a basic consuming unit and generates much of the demand for urban land, and is an important

Table 11

EXISTING AND PROJECTED POPULATION IN THE REGION BY COUNTY: 1990-2020

County	Actual 1990 Population Level	Projected Population Levels				Projected Change 1990-2020	
		Scenario	2000	2010	2020	Number	Percent
Kenosha	128,200	Low-Growth	136,900	141,100	143,000	14,800	11.5
		Intermediate-Growth	146,700	155,600	159,600	31,400	24.5
		High-Growth	158,700	173,300	180,000	51,800	40.4
Milwaukee	959,300	Low-Growth	957,300	955,200	953,000	-6,300	-0.7
		Intermediate-Growth	975,600	992,300	1,010,000	50,700	5.3
		High-Growth	1,011,000	1,063,900	1,120,000	160,700	16.8
Ozaukee	72,800	Low-Growth	80,500	82,800	84,000	11,200	15.4
		Intermediate-Growth	85,800	89,700	91,700	18,900	26.0
		High-Growth	99,000	106,900	111,000	38,200	52.5
Racine	175,100	Low-Growth	177,400	178,800	180,000	4,900	2.8
		Intermediate-Growth	184,900	190,800	195,600	20,500	11.7
		High-Growth	197,200	210,400	221,000	45,900	26.2
Walworth	75,000	Low-Growth	80,000	82,800	85,000	10,000	13.3
		Intermediate-Growth	86,500	93,000	98,000	23,000	30.7
		High-Growth	94,900	106,300	115,000	40,000	53.3
Washington	95,300	Low-Growth	111,100	117,300	120,000	24,700	25.9
		Intermediate-Growth	118,500	127,500	131,500	36,200	38.0
		High-Growth	136,700	152,800	160,000	64,700	67.9
Waukesha	304,700	Low-Growth	341,600	353,800	360,000	55,300	18.1
		Intermediate-Growth	362,600	381,700	391,500	86,800	28.5
		High-Growth	408,300	442,500	460,000	155,300	51.0
Region	1,810,400	Low-Growth	1,884,800	1,911,800	1,925,000	114,600	6.3
		Intermediate-Growth	1,960,600	2,030,600	2,077,900	267,500	14.8
		High-Growth	2,105,800	2,256,100	2,367,000	556,600	30.7

NOTE: The 1997 population of the Southeastern Wisconsin Region is estimated by the Wisconsin Department of Administration to be 1,899,200. At the county level, the estimates are: Kenosha, 140,100; Milwaukee, 958,400; Ozaukee, 79,400; Racine, 186,400; Walworth, 82,900; Washington, 110,600; and Waukesha, 341,400. These estimates are based upon tracking by State agencies of symptomatic indicators of changes in population reflected in such items as births, deaths, employment, income-tax filings, and vehicle registrations, using the most recent decennial U. S. Census of Population year as the base year.

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

Table 12

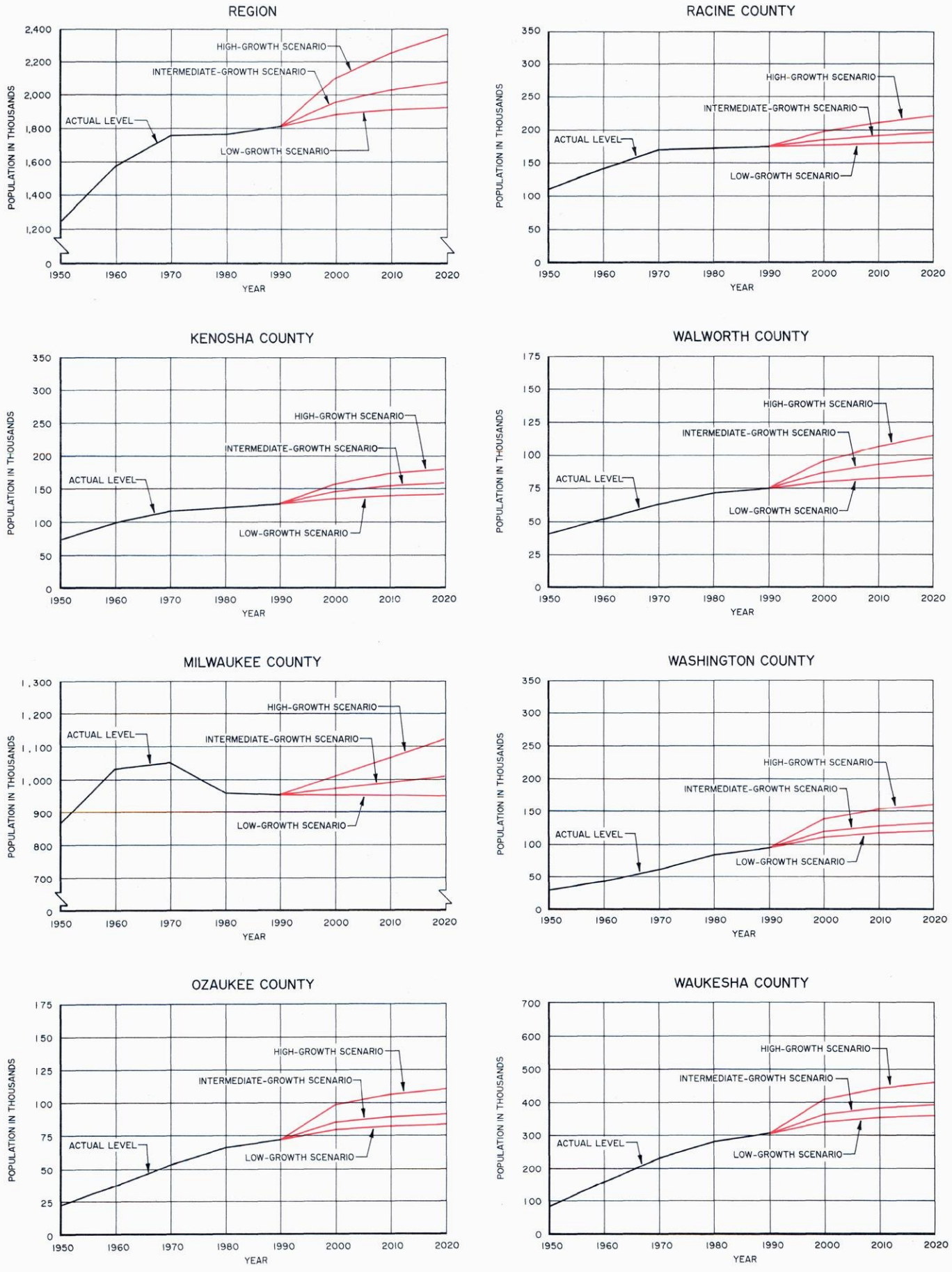
HOUSEHOLDS IN THE REGION, WISCONSIN, AND THE UNITED STATES: 1950-1990

Year	Region			Wisconsin			United States			Regional Households as a Percentage of Total Households in:	
	Households	Change from Preceding Census		Households	Change from Preceding Census		Households	Change from Preceding Census		Wisconsin	United States
		Absolute	Percent		Absolute	Percent		Absolute	Percent		
1950	354,544	--	--	967,448	--	--	42,394,320	--	--	36.6	0.84
1960	465,913	111,369	31.4	1,146,040	178,592	18.5	53,021,061	10,626,741	25.1	40.7	0.88
1970	536,486	70,573	15.1	1,328,804	182,764	15.9	63,449,747	10,428,686	19.7	40.4	0.85
1980	627,955	91,469	17.0	1,652,261	323,457	24.3	80,389,673	16,939,926	26.7	38.0	0.78
1990	676,107	48,152	7.7	1,822,118	169,857	10.3	91,947,410	11,557,737	14.4	37.1	0.74

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

Figure 4

EXISTING AND PROJECTED POPULATION IN THE REGION BY COUNTY: 1950-2020



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

Table 13

HOUSEHOLDS IN THE REGION BY COUNTY: 1950-1990

County	Households				
	1950	1960	1970	1980	1990
Kenosha	21,958	29,545	35,468	43,064	47,029
Milwaukee	249,232	314,875	338,605	363,653	373,048
Ozaukee	6,591	10,417	14,753	21,763	25,707
Racine	31,399	40,736	49,796	59,418	63,736
Walworth	12,369	15,414	18,544	24,789	27,620
Washington	9,396	12,532	17,385	26,716	32,977
Waukesha	23,599	42,394	61,935	88,552	105,990
Region	354,544	465,913	536,486	627,955	676,107

County	1950-1960 Change		1960-1970 Change		1970-1980 Change		1980-1990 Change		1950-1990 Change	
	Absolute	Percent	Absolute	Percent	Absolute	Percent	Absolute	Percent	Absolute	Percent
Kenosha	7,587	34.6	5,923	20.0	7,596	21.4	3,965	9.2	25,071	114.2
Milwaukee	65,643	26.3	23,730	7.5	25,048	7.4	9,395	2.6	123,816	49.7
Ozaukee	3,826	58.0	4,336	41.6	7,010	47.5	3,944	18.1	19,116	290.0
Racine	9,337	29.7	9,060	22.2	9,622	19.3	4,318	7.3	32,337	103.0
Walworth	3,045	24.6	3,130	20.3	6,245	33.7	2,831	11.4	15,251	123.3
Washington	3,136	33.4	4,853	38.7	9,331	53.7	6,261	23.4	23,581	251.0
Waukesha	18,795	79.6	19,541	46.1	26,617	43.0	17,438	19.7	82,391	349.1
Region	111,369	31.4	70,573	15.1	91,469	17.0	48,152	7.7	321,563	90.7

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

Table 14

HOUSEHOLD SIZE IN THE REGION BY COUNTY: 1950-1990

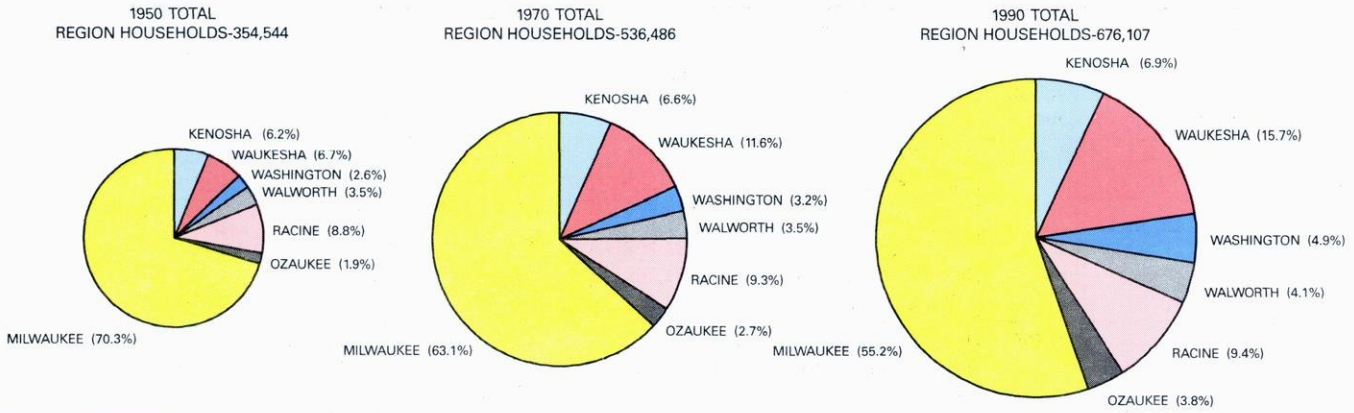
County	Average Persons per Household				
	1950	1960	1970	1980	1990
Kenosha	3.36	3.36	3.26	2.80	2.67
Milwaukee	3.34	3.21	3.04	2.59	2.50
Ozaukee	3.51	3.65	3.66	3.04	2.79
Racine	3.37	3.39	3.35	2.86	2.70
Walworth	3.25	3.28	3.16	2.74	2.60
Washington	3.55	3.64	3.63	3.14	2.86
Waukesha	3.51	3.66	3.66	3.11	2.83
Region	3.36	3.30	3.20	2.75	2.62

County	1950-1960 Change		1960-1970 Change		1970-1980 Change		1980-1990 Change		1950-1990 Change	
	Absolute	Percent	Absolute	Percent	Absolute	Percent	Absolute	Percent	Absolute	Percent
Kenosha	0.00	0.0	-0.10	-3.0	-0.46	-14.1	-0.13	-4.6	-0.69	-20.5
Milwaukee	-0.13	-3.9	-0.17	-5.3	-0.45	-14.8	-0.09	-3.5	-0.84	-25.1
Ozaukee	0.14	4.0	0.01	0.3	-0.62	-16.9	-0.25	-8.2	-0.72	-20.5
Racine	0.02	0.6	-0.04	-1.2	-0.49	-14.6	-0.16	-5.6	-0.67	-19.9
Walworth	0.03	0.9	-0.12	-3.7	-0.42	-13.3	-0.14	-5.1	-0.65	-20.0
Washington	0.09	2.5	-0.01	-0.3	-0.49	-13.5	-0.28	-8.9	-0.69	-19.4
Waukesha	0.15	4.3	0.00	0.0	-0.55	-15.0	-0.28	-9.0	-0.68	-19.4
Region	-0.06	-1.8	-0.10	-3.0	-0.45	-14.1	-0.13	-4.7	-0.74	-22.0

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

Figure 5

DISTRIBUTION OF HOUSEHOLDS IN THE REGION BY COUNTY: 1950, 1970, AND 1990



Source: SEWRPC.

component in the generation of the demand for many other types of urban facilities and services.

Projected Household Levels

Commission household projections for the Region and its constituent counties under three regional growth scenarios are set forth in Table 15 and Figure 6. Under a high-growth scenario, the average household size in the Region would decrease from 2.62 persons in 1990 to 2.55 persons by 2020. Under this scenario, the number of households in the Region would increase by about 229,000, or about 34 percent, from 676,100 households in 1990 to 905,100 households by the year 2020. The largest absolute increase, 64,100 households, would occur in Waukesha County, while the largest proportional increase, about 91 percent, would occur in Washington County. The absolute increases in the number of households outside of Waukesha County would range from 15,400 in Walworth County to 61,400 in Milwaukee County. The proportional increases in the number of households outside of Washington County would range from 17 percent in Milwaukee County to 65 percent in Ozaukee County.

Under an intermediate-growth scenario, the average household size in the Region would decrease from 2.62 persons in 1990 to 2.45 persons by 2020. Under this scenario, the number of households in the Region would increase by about 151,000, or about 22 percent, from 676,100 in 1990 to 827,100 by the year 2020. The largest absolute increase, 44,600 households, would occur in Waukesha County, while the largest proportional increase, 64 percent, would occur in Washington County. The absolute increases in the number of households outside of Waukesha County would range from 10,500 in Walworth County to 34,700 in Milwaukee County. The proportional increases in the number of households outside of Washington County would range from 9 percent in Milwaukee County to 42 percent in Ozaukee and Waukesha Counties.

Under a low-growth scenario, the average household size in the Region would decrease from 2.62 persons in 1990 to 2.35 persons by 2020. Under this scenario, the number of households in the Region would increase by about 123,000, or about 18 percent, from 676,100 in 1990 to 799,100 by the year 2020. The largest absolute increase, 38,400 households, would occur in Waukesha County, while the largest proportional increase, about 56 percent, would occur in Washington County. The absolute increases in the number of households outside of Waukesha County would range from 6,900 in Walworth County to 28,100 in Milwaukee County. The proportional increases in the number of households outside of Washington County would range from 8 percent in Milwaukee County to 36 percent in Ozaukee and Waukesha Counties.

EMPLOYMENT

Historical Trends

Regional Employment Growth

Employment levels and rates of employment change for the Southeastern Wisconsin Region, Wisconsin, and the United States for the period from 1950 to 1990 are presented in Table 16. The number of jobs in the Region in 1990 was about 1,067,200, an increase of about 493,700 jobs, or about 86 percent, over the 1950 level of about 573,500.

The number of available jobs in the Region increased significantly during the 1950s and 1960s, with increases of 17 percent occurring during each of those decades. The

Table 15

EXISTING AND PROJECTED HOUSEHOLDS IN THE REGION BY COUNTY: 1990-2020

County	Actual 1990 Household Level	Projected Household Levels				Projected Change 1990-2020	
		Scenario	2000	2010	2020	Number	Percent
Kenosha	47,000	Low-Growth	51,800	55,100	57,700	10,700	22.8
		Intermediate-Growth	54,800	59,200	61,800	14,800	31.5
		High-Growth	58,500	64,200	67,000	20,000	42.6
Milwaukee	373,100	Low-Growth	382,200	391,400	401,200	28,100	7.5
		Intermediate-Growth	384,300	395,700	407,800	34,700	9.3
		High-Growth	393,100	413,200	434,500	61,400	16.5
Ozaukee	25,700	Low-Growth	29,900	32,500	34,900	9,200	35.8
		Intermediate-Growth	31,500	34,300	36,600	10,900	42.4
		High-Growth	35,900	39,800	42,500	16,800	65.4
Racine	63,700	Low-Growth	67,500	71,200	75,100	11,400	17.9
		Intermediate-Growth	69,400	73,900	78,200	14,500	22.8
		High-Growth	73,100	79,400	84,900	21,200	33.3
Walworth	27,600	Low-Growth	30,400	32,500	34,500	6,900	25.0
		Intermediate-Growth	32,400	35,500	38,100	10,500	38.0
		High-Growth	35,100	39,500	43,000	15,400	55.8
Washington	33,000	Low-Growth	41,000	46,500	51,300	18,300	55.5
		Intermediate-Growth	43,200	49,200	54,000	21,000	63.6
		High-Growth	49,300	57,600	63,100	30,100	91.2
Waukesha	106,000	Low-Growth	124,400	135,100	144,400	38,400	36.2
		Intermediate-Growth	130,400	141,900	150,600	44,600	42.1
		High-Growth	144,900	160,300	170,100	64,100	60.5
Region	676,100	Low-Growth	727,200	764,300	799,100	123,000	18.2
		Intermediate-Growth	746,000	789,700	827,100	151,000	22.3
		High-Growth	789,900	854,000	905,100	229,000	33.9

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

employment growth rate in the Region over those two decades exceeded the growth rate for the State but was lower than that of the Nation. During the 1970s and 1980s, the number of jobs in the Region increased by 36 percent, while the State's employment increased by 46 percent and the Nation's employment increased by 55 percent. Over the entire period from 1950 to 1990, the number of jobs in the Region increased by about 86 percent, compared to 99 percent for the State and 120 percent for the Nation. Because of this difference in employment growth rates, the employment of the Region as a proportion of the State's employment decreased from 40.6 percent in 1950 to 38.0 percent in 1990, and as a proportion of the Nation's employment decreased from 0.93 percent in 1950 to 0.79 percent in 1990. Employment in the Region was estimated at about 1,132,400 jobs in 1995, about 65,200 jobs, or 6.1 percent, above the 1990 level.

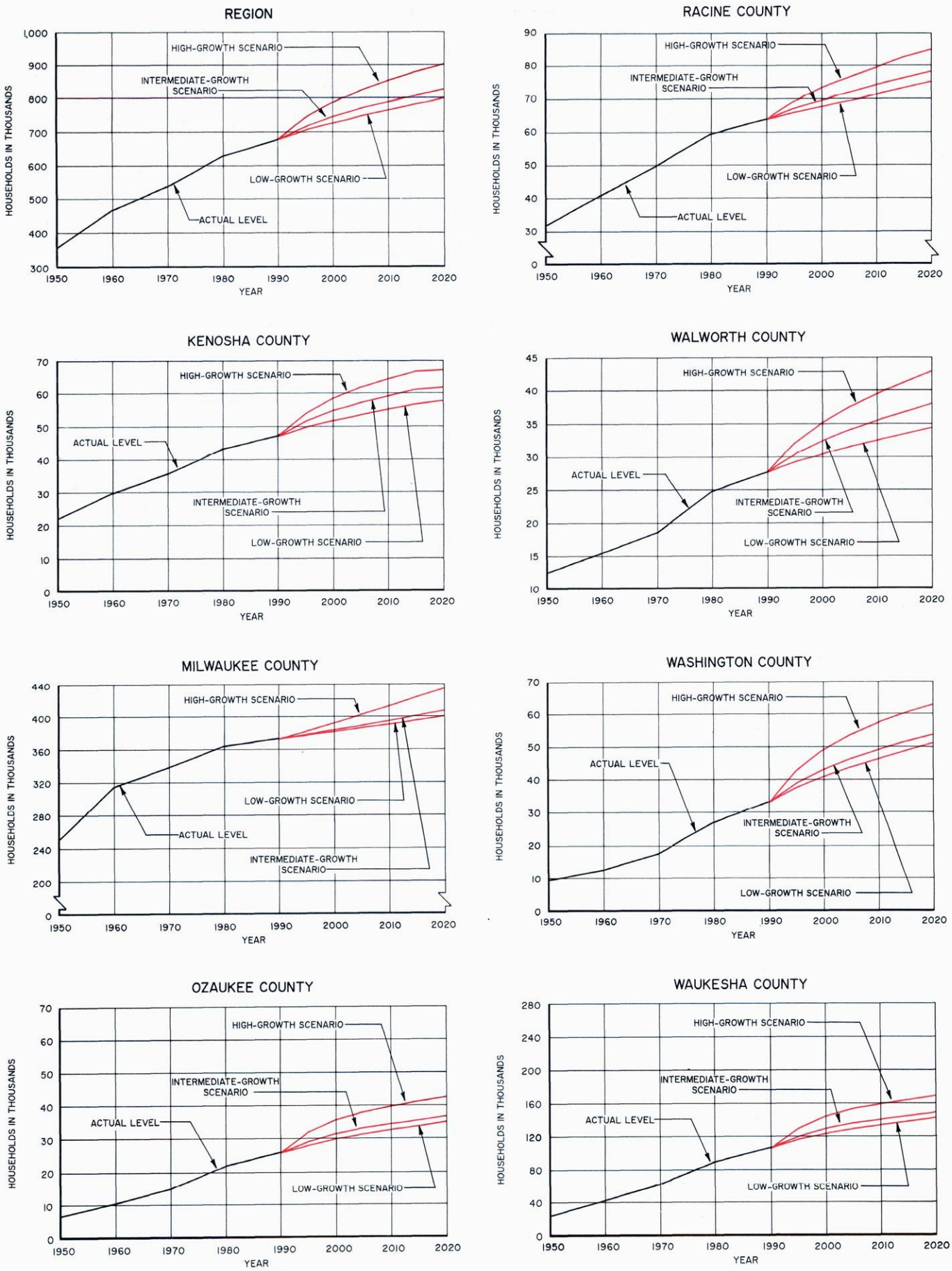
Distribution of Jobs

The employment levels and rates of change for each county in the Region from 1950 to 1990 are shown in Table 17. As indicated in Table 17, the greatest rates of job growth over the period from 1950 to 1990 occurred in Ozaukee, Washington, and Waukesha Counties, with employment increases of 452 percent, 352 percent, and 1,068 percent, respectively. The number of jobs approximately tripled in Walworth County, approximately doubled in Racine County, and increased in Kenosha and Milwaukee Counties by 75 percent and 35 percent, respectively. The largest absolute increases in the number of jobs during the 1950s and the 1970s occurred in Milwaukee County. The largest absolute increases in the number of jobs during the 1960s and the 1980s occurred in Waukesha County.

The proportional distribution of employment in the Region by county for the years 1950, 1970, and 1990 is presented in Figure 7. Job growth has not been uniformly distributed throughout the Region since 1950, and varying rates of growth have resulted in significant changes in the proportion of total employment in the Region among the seven counties. Most notably, the Milwaukee County share

Figure 6

EXISTING AND PROJECTED HOUSEHOLDS IN THE REGION BY COUNTY: 1950-2020



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

Table 16

EMPLOYMENT IN THE REGION, WISCONSIN, AND THE UNITED STATES: 1950-1990

Year	Region			Wisconsin			United States			Regional Employment as a Percentage of Total Employment in:	
	Employment (jobs)	Change from Preceding Period		Employment (jobs)	Change from Preceding Period		Employment (jobs)	Change from Preceding Period			
		Absolute	Percent		Absolute	Percent		Absolute	Percent	Wisconsin	United States
1950	573,500	--	--	1,413,400	--	--	61,701,200	--	--	40.6	0.93
1960	673,000	99,500	17.3	1,659,400	246,000	17.4	72,057,000	10,355,800	16.8	40.6	0.93
1970	784,100	111,100	16.5	1,926,700	267,300	16.1	87,861,200	15,804,200	21.9	40.7	0.89
1980	945,200	161,100	20.5	2,421,200	494,500	25.7	111,274,800	23,413,600	26.6	39.0	0.85
1990	1,067,200	122,000	12.9	2,808,100	386,900	16.0	135,902,800	24,628,000	22.1	38.0	0.79

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

Table 17

EMPLOYMENT IN THE REGION BY COUNTY: 1950-1990

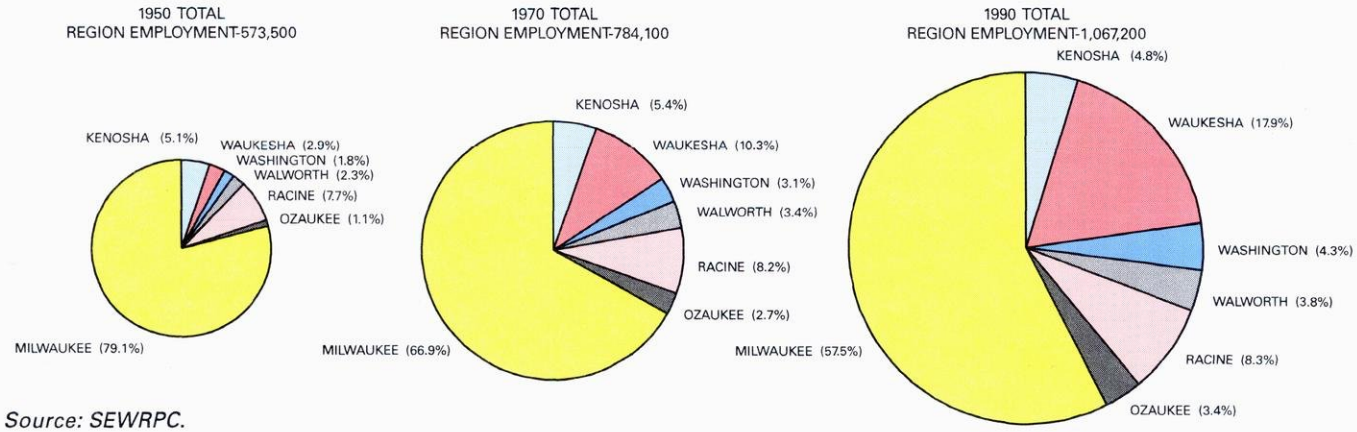
County	Employment (jobs)				
	1950	1960	1970	1980	1990
Kenosha	29,100	42,200	42,000	53,900	50,900
Milwaukee	453,500	503,300	524,900	581,700	613,300
Ozaukee	6,600	10,200	21,200	28,100	36,400
Racine	44,500	49,900	64,500	80,900	88,800
Walworth	13,200	19,600	26,300	33,400	40,200
Washington	10,200	15,200	24,300	35,000	46,100
Waukesha	16,400	32,600	80,900	132,200	191,500
Region	573,500	673,000	784,100	945,200	1,067,200

County	1950-1960 Change		1960-1970 Change		1970-1980 Change		1980-1990 Change		1950-1990 Change	
	Absolute	Percent	Absolute	Percent	Absolute	Percent	Absolute	Percent	Absolute	Percent
Kenosha	13,100	45.0	-200	-0.5	11,900	28.3	-3,000	-5.6	21,800	74.9
Milwaukee	49,800	11.0	21,600	4.3	56,800	10.8	31,600	5.4	159,800	35.2
Ozaukee	3,600	54.5	11,000	107.8	6,900	32.5	8,300	29.5	29,800	451.5
Racine	5,400	12.1	14,600	29.3	16,400	25.4	7,900	9.8	44,300	99.6
Walworth	6,400	48.5	6,700	34.2	7,100	27.0	6,800	20.4	27,000	204.5
Washington	5,000	49.0	9,100	59.9	10,700	44.0	11,100	31.7	35,900	352.0
Waukesha	16,200	98.8	48,300	148.2	51,300	63.4	59,300	44.9	175,100	1,067.7
Region	99,500	17.3	111,100	16.5	161,100	20.5	122,000	12.9	493,700	86.1

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

Figure 7

DISTRIBUTION OF EMPLOYMENT IN THE REGION BY COUNTY: 1950, 1970, AND 1990



Source: SEWRPC.

of regional employment decreased from about 79 percent in 1950 to about 58 percent in 1990, and the Waukesha County share increased from about 3 percent in 1950 to about 18 percent in 1990. Much smaller changes in the proportion of regional employment occurred in Ozaukee, Racine, Walworth, and Washington Counties from 1950 to 1990, ranging from a gain of 0.6 percentage point for Racine County to a gain of 2.5 percentage points for Washington County. Kenosha County lost 0.3 percentage point in its share of total regional employment between 1950 and 1990.

Map 9 provides a visual perspective on the distribution of jobs in the Region for the years 1963 and 1990. The decentralization of employment in the Region away from the older, established urban centers of Kenosha, Milwaukee, and Racine from 1963 to 1990 is evident on Map 9.

While the overall economy of the Region has evidenced stability, a general shift in employment has occurred between the service and trade sectors and the manufacturing sector. The dominant and subdominant manufacturing industry groups accounted for about 20 percent of total regional employment in 1950, but only about 12 percent in 1990. Conversely, the dominant and subdominant retail and service-oriented industry groups increased from about 25 percent of total regional employment in 1950 to about 41 percent in 1990.

Projected Employment Levels

Commission employment projections for the Region and its constituent counties under three regional growth scenarios are set forth in Table 18 and Figure 8. Under a high-growth scenario, the number of available jobs in the Region would increase by about 295,400, or about 28 percent, from 1,067,200 jobs in 1990 to 1,362,600 jobs by the year 2020. Under this scenario, the largest absolute employment increase, 94,700 jobs, would occur in Waukesha County, while the largest proportional increase, about 63 percent, would occur in Walworth County. The absolute increases in employment outside of Waukesha County would range from 18,100 jobs in Ozaukee County to 84,400 jobs in Milwaukee County. The proportional increases in employment outside of Walworth County would range from 14 percent in Milwaukee County to 50 percent in Ozaukee and Waukesha Counties.

Under an intermediate-growth scenario, the number of available jobs in the Region would increase by about 209,900, or about 20 percent, from 1,067,200 jobs in 1990 to 1,277,100 jobs by the year 2020. Under this scenario, the largest absolute employment increase, 76,700 jobs, would occur in Waukesha County, while the largest proportional increase, about 53 percent, would occur in Walworth County. The absolute increases in employment outside of Waukesha County would range from 14,700 jobs in Ozaukee County to 40,600 jobs in Milwaukee County. The proportional increases in employment outside of Walworth County would range from 7 percent in Milwaukee County to 40 percent in Ozaukee and Waukesha Counties.

Under a low-growth scenario, the number of available jobs in the Region would increase by about 149,700, or about 14 percent, from 1,067,200 jobs in 1990 to 1,216,900 jobs by the year 2020. Under this scenario, the largest absolute employment increase, 64,100 jobs, would occur in Waukesha County, while the largest proportional increase, 45 percent, would occur in Walworth County. The absolute increases in employment outside of Waukesha County would range from 9,800 jobs in Milwaukee County to 18,200 jobs in Walworth County. The proportional increases in employment outside of Walworth County would range from 2 percent in Milwaukee County to 34 percent in Ozaukee and Waukesha Counties.

SUMMARY

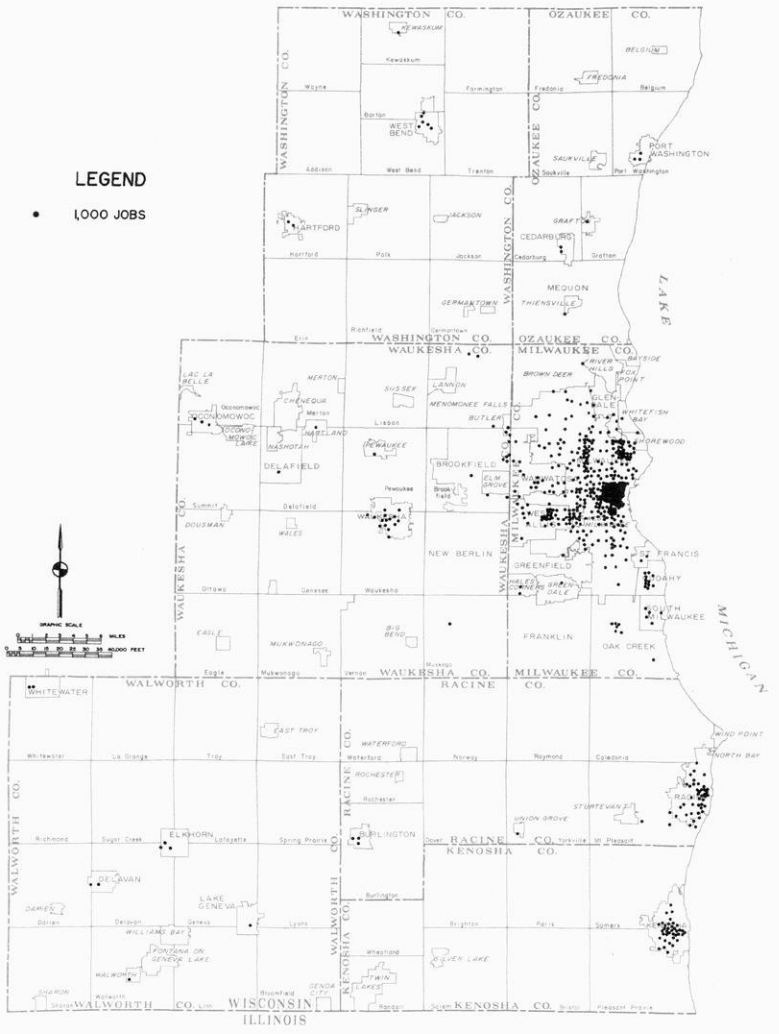
This chapter has presented the findings of demographic and economic inventories and projections conducted in support of the preparation of a regional land use plan for Southeastern Wisconsin for the year 2020. The most important findings set forth in this chapter can be summarized as follows:

1. In any long-range areawide planning effort, future population, household, and employment levels must be forecast. To deal with the uncertainties inherent in long-range forecasts, the Commission prepared alternative high-growth, intermediate-growth, and low-growth projections of regional population, household, and employment levels for the year 2020. Three different population projections were thus made using different combinations of assumed fertility, mortality, and migration rates with the cohort survival technique in an attempt to determine the population of the Region under a range of possible future conditions. In addition, three alternative projections for the number and average size of households in the Region accompanied the projections for the resident population of the Region. Projections of total employment levels in the Region under three scenarios for the year 2020 were made by aggregating separate projections developed for each dominant or subdominant industry category,

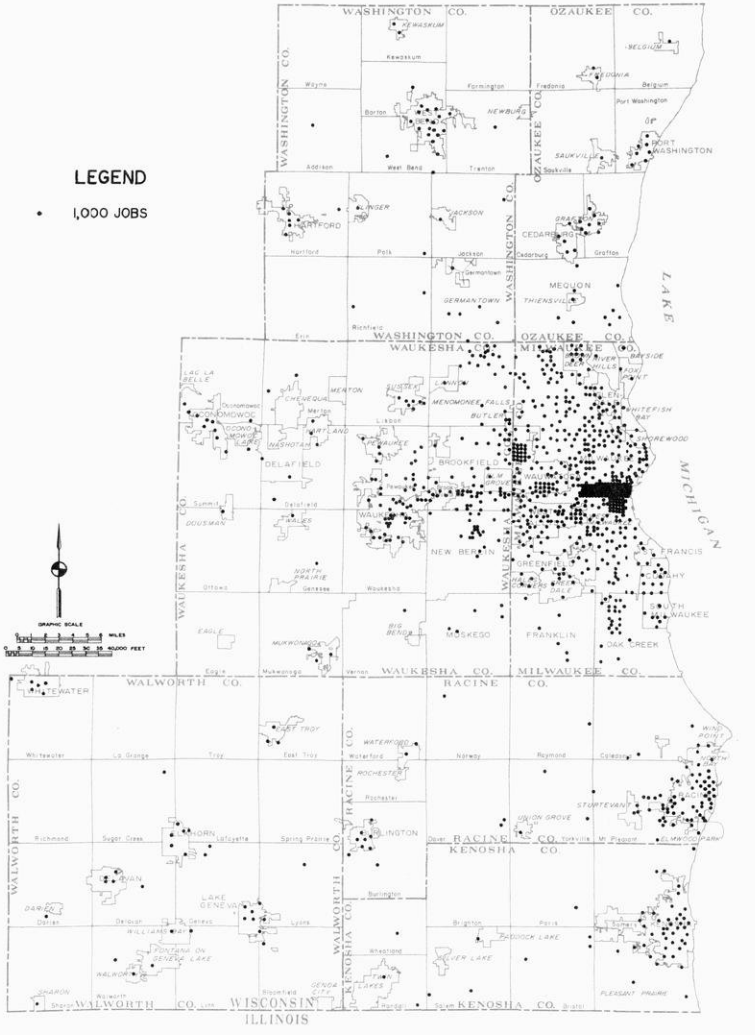
Map 9

EMPLOYMENT DISTRIBUTION IN THE REGION: 1963 AND 1990

1963



1990



Total employment in the Region increased from about 655,500 jobs in 1963 to 1,067,000 jobs in 1990. This employment growth has been accompanied by a change in the distribution of jobs in the Region, including a decentralization of jobs away from the central areas of the Cities of Kenosha, Milwaukee, and Racine to suburban and outlying areas of the Region. Many of the new job centers are considerably removed from the largest concentrations of the Region's labor force.

Source: Wisconsin Department of Industry, Labor and Human Relations; Classified Directory of Wisconsin Manufacturers*; and SEWRPC.*

along with a projection for employment not accorded dominant or subdominant industry status.

2. The 1990 population of the Region was about 1,810,400, an increase of about 569,800, or 46 percent, over the 1950 population of about 1,240,600. The population of the Region increased significantly during the 1950s and 1960s, with increases of 27 percent and 12 percent, respectively, occurring during those decades. During the 1970s and 1980s, however, the population of the Region increased by only 3 percent. Over the entire period from 1950 to 1990, the population of the Region increased by about 46 percent, compared to 42 percent for Wisconsin and 65 percent for the United States. The greatest rates of population growth over the period from 1950 to 1990 occurred in Ozaukee, Washington, and Waukesha Counties, with population increases of 212 percent, 181 percent, and 255 percent, respectively.

   Varying rates of population growth have resulted in significant shifts in population among the seven counties. Most notably, the Milwaukee County share of the regional population decreased from about 70 percent in 1950 to about 53 percent in 1990, and the Waukesha County share increased from about 7 percent in 1950 to about 17 percent in 1990.

   The urban-rural composition of the Region's population, like that of most metropolitan regions in the United States, has become increasingly urban—as measured in terms of urban and rural place-of-residence data enumerated in the U. S. Censuses of Population. The population of the Region was approximately 76 percent rural and 24 percent urban in 1850. By 1910, this relationship had reversed to 24 percent rural and 76 percent urban. In 1990, the population of the Region was 87 percent urban and 13 percent rural.

3. Under a high-growth scenario, the resident population of the Region would increase by about 556,600 persons, or about 31 percent, from 1,810,400 persons in 1990 to 2,367,000 persons by the year 2020. Under an intermediate-growth scenario, the resident population of the Region would increase by about 267,500 persons, or about 15 percent, to 2,077,900 persons by the year 2020. Under a low-growth scenario, the resident population of the Region would increase by about 114,600 persons, or about 6 percent, to 1,925,000 persons by the year 2020. Under the high-growth projection, Milwaukee County would experience the largest absolute increase in population; under the intermediate- and low-growth projections, Waukesha County would experience the largest absolute increases in population.

4. The number of households in the Region in 1990 was about 676,100, an increase of about 321,600, or 91 percent, over the 1950 level of about 354,500. The number of households in the Region increased significantly during the 1950s, 1960s, and 1970s, with increases of 31 percent, 15 percent, and 17 percent, respectively, occurring during those decades. During the 1980s, however, that rate of growth slowed to about 8 percent. Over the entire period from 1950 to 1990, the number of households in the Region increased by about 91 percent, compared to 88 percent for the State and 117 percent for the Nation. The greatest rates of growth in the number of households over the period from 1950 to 1990 occurred in Ozaukee, Washington, and Waukesha Counties, with increases in households of 290 percent, 251 percent, and 349 percent, respectively.

   Varying rates of growth have resulted in significant changes in the proportional distribution of total households in the Region among the seven counties. Most notably, the Milwaukee County share of regional households decreased from about 70 percent in 1950 to about 55 percent in 1990, and the Waukesha County share increased from about 7 percent in 1950 to about 16 percent in 1990.

   The number of households in the Region, State, and Nation increased at a rate nearly double that of the population between 1950 and 1990. Between 1950 and 1990, the average household size in the Region decreased from 3.36 to 2.62 persons, or by 22 percent. In 1990, all of the counties in the Region exhibited average household sizes of less than 3.00 persons per household.

5. Under a high-growth scenario, the number of households in the Region would increase by about 229,000, or about 34 percent, from 676,100 households in 1990 to 905,100 households by the year 2020. Under an intermediate-growth scenario, the number of households in the Region would increase by about 151,000, or about 22 percent, to 827,100 by the year 2020. Under a low-growth scenario, the number of households in the Region would

Table 18

EXISTING AND PROJECTED EMPLOYMENT IN THE REGION BY COUNTY: 1990-2020

County	Actual 1990 Employment Level (jobs)	Projected Employment Levels (jobs)				Projected Change 1990-2020	
		Scenario	2000	2010	2020	Number	Percent
Kenosha	50,900	Low-Growth	56,800	62,500	66,900	16,000	31.4
		Intermediate-Growth	58,400	64,900	70,200	19,300	37.9
		High-Growth	60,700	68,000	74,900	24,000	47.2
Milwaukee	613,300	Low-Growth	620,800	629,800	623,100	9,800	1.6
		Intermediate-Growth	639,000	654,000	653,900	40,600	6.6
		High-Growth	663,600	685,600	697,700	84,400	13.8
Ozaukee	36,400	Low-Growth	40,800	45,200	48,700	12,300	33.8
		Intermediate-Growth	42,000	46,900	51,100	14,700	40.4
		High-Growth	43,600	49,200	54,500	18,100	49.7
Racine	88,800	Low-Growth	94,900	100,300	103,400	14,600	16.4
		Intermediate-Growth	97,700	104,100	108,600	19,800	22.3
		High-Growth	101,400	109,200	115,800	27,000	30.4
Walworth	40,200	Low-Growth	52,700	56,200	58,400	18,200	45.3
		Intermediate-Growth	54,200	58,400	61,300	21,100	52.5
		High-Growth	56,300	61,200	65,400	25,200	62.7
Washington	46,100	Low-Growth	51,500	56,700	60,800	14,700	31.9
		Intermediate-Growth	53,000	58,900	63,800	17,700	38.4
		High-Growth	55,000	61,700	68,100	22,000	47.7
Waukesha	191,500	Low-Growth	214,700	237,400	255,600	64,100	33.5
		Intermediate-Growth	221,000	246,500	268,200	76,700	40.1
		High-Growth	229,400	258,400	286,200	94,700	49.5
Region	1,067,200	Low-Growth	1,132,200	1,188,100	1,216,900	149,700	14.0
		Intermediate-Growth	1,165,300	1,233,700	1,277,100	209,900	19.7
		High-Growth	1,210,000	1,293,300	1,362,600	295,400	27.7

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

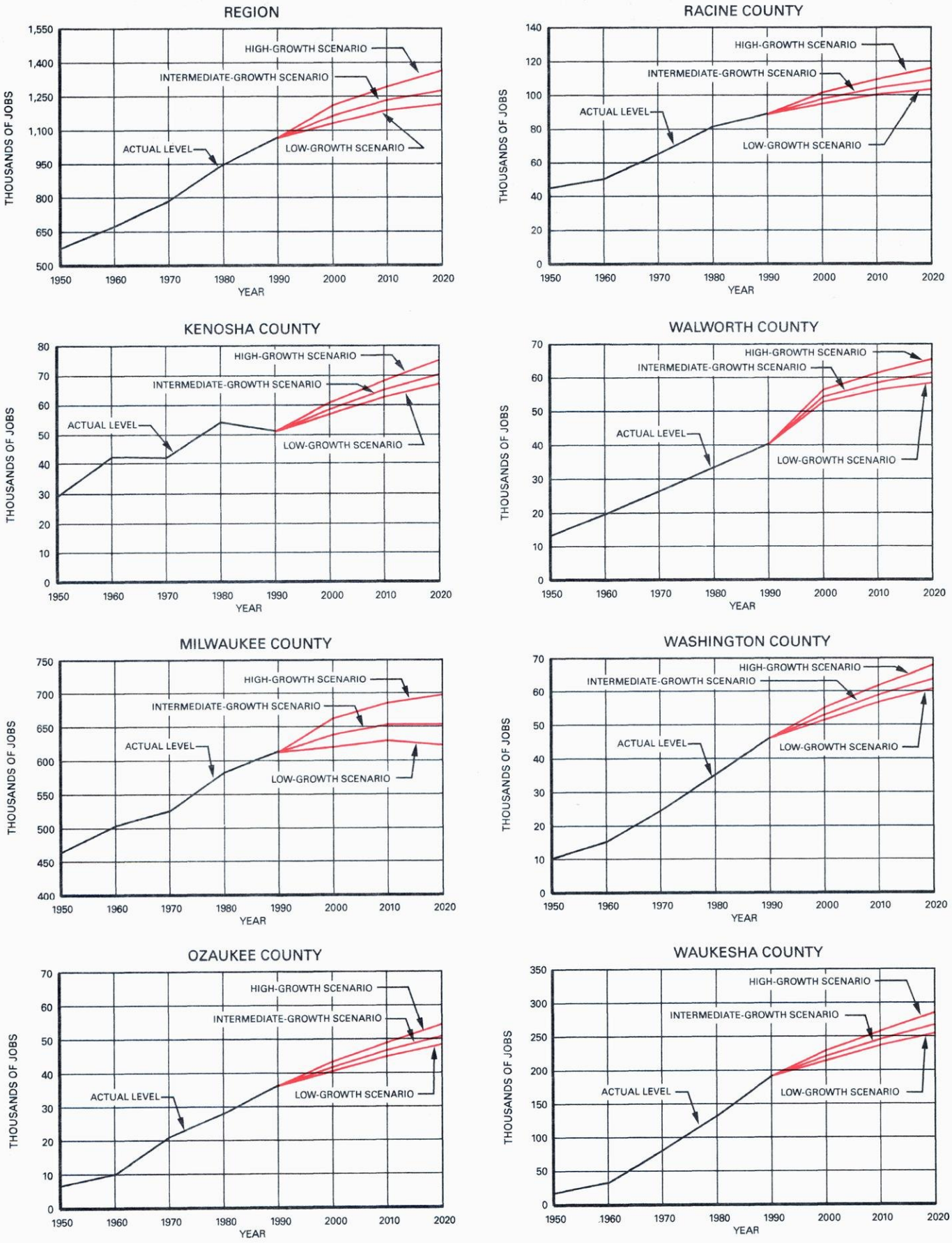
increase by about 123,000, or about 18 percent, to 799,100 by the year 2020. Under all of the household projections, Waukesha County would experience the largest absolute increases in the number of households.

6. The number of jobs in the Region in 1990 was about 1,067,200, an increase of about 493,700 jobs, or about 86 percent, over the 1950 level of about 573,500. The number of available jobs in the Region increased significantly during the 1950s, 1960s, 1970s, and 1980s, although not at as high a rate as those of the State and the Nation. Over the entire period from 1950 to 1990, the number of jobs in the Region increased by about 86 percent, compared to 99 percent for the State and 120 percent for the Nation. The greatest rates of job growth over the period from 1950 to 1990 occurred in Ozaukee, Washington, and Waukesha Counties, with employment increases of 452 percent, 352 percent, and 1,068 percent, respectively. The largest absolute increases in the number of jobs during the 1950s and the 1970s occurred in Milwaukee County. The largest absolute increases in the number of jobs during the 1960s and the 1980s occurred in Waukesha County.

Varying rates of growth have resulted in significant changes in the proportional distribution of total employment in the Region among the seven

Figure 8

EXISTING AND PROJECTED EMPLOYMENT IN THE REGION BY COUNTY: 1950-2020



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

counties. Most notably, the Milwaukee County share of regional employment decreased from about 79 percent in 1950 to about 58 percent in 1990, and the Waukesha County share increased from about 3 percent in 1950 to about 18 percent in 1990.

7. Under a high-growth scenario, the number of available jobs in the Region would increase by about 295,400, or about 28 percent, from 1,067,200 jobs in 1990 to 1,362,600 jobs by the year 2020. Under an intermediate-growth scenario, the number of available jobs in the Region would increase by about 209,900, or about 20 percent, to 1,277,100 jobs by the year 2020. Under a low-growth scenario, the number of available jobs in the Region would increase by about 149,700, or about 14 percent, to 1,216,900 jobs by the year 2020. Under all of the employment projections, Waukesha County would experience the largest absolute increases in employment.

Chapter IV

OBJECTIVES, PRINCIPLES, AND STANDARDS

INTRODUCTION

Planning is a rational process for formulating and meeting objectives. Consequently, the formulation of objectives is an essential task that must be undertaken before plans can be prepared. This chapter presents a set of land use objectives along with supporting principles and related standards recommended by the Technical Coordinating and Advisory Committee on Regional Land Use Planning as a basis for the preparation and evaluation of the year 2020 regional land use plan.

BASIC CONCEPTS AND DEFINITIONS

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

1. Objective: a goal or end toward the attainment of which plans and policies are directed.

2. Principle: a fundamental, primary, or generally accepted tenet used to support objectives and prepare standards and plans.

3. Standard: a criterion used as a basis of comparison to determine the adequacy of plan proposals to attain objectives.

4. Plan: a design which seeks to achieve agreed-upon objectives.

5. Policy: a rule or course of action used to ensure plan implementation.

6. Program: a coordinated series of policies and actions to carry out a plan.

HISTORICAL DEVELOPMENT OF THE LAND USE OBJECTIVES, PRINCIPLES, AND STANDARDS

One of the most important tasks accomplished as part of the first regional land use planning study in the mid-1960s was the formulation of a set of objectives, principles, and standards expressing the desired direction, magnitude, and quality of future development within the Region. Formulated under the guidance of a broad-based Technical Coordinating and Advisory Committee, these objectives provided the basis for the development of the first regional land use plan—the design year 1990 plan adopted by the Commission in 1966. About 10 years later, the initial objectives, principles, and standards were carefully reviewed and evaluated by the Technical Coordinating and Advisory Committee and the Commission. In that review, consideration was given to the degree of attainment of each of the objectives since their initial adoption, as well as to both adverse and favorable public reaction to plan implementation proposals. The objectives, principles, and standards were subsequently reaffirmed, with only minor modification, and recommended for use as a basis for the preparation of the second regional land use plan—the design year 2000 plan adopted by the Commission in 1977. Subsequently, the adopted objectives, principles, and standards were reviewed and evaluated in a similar manner; were again reaffirmed with only minor modification; and were recommended for use in the preparation of the third regional land use plan—the design year 2010 plan adopted by the Commission in 1992.

Under the current effort to extend the regional land use plan to the year 2020, the land use objectives, principles, and standards were again reviewed and evaluated by the Technical Coordinating and Advisory Committee. Following that review and evaluation, the Advisory Committee recommended that the land use objectives adopted as part of the year 2010 regional land use plan be incorporated without change into the year 2020 plan. The Advisory Committee reaffirmed the principles and standards of the year 2010 plan, with only minor change, for use in the preparation of the year 2020 plan. The balance of this

chapter presents the objectives, principles, and standards recommended by the Technical Coordinating and Advisory Committee for use in the preparation of the year 2020 regional land use plan.

OBJECTIVES

The Commission has identified and recommended both general and specific land use development objectives. General development objectives—often referred to by other agencies as "goals"—are by their very nature either qualitative or difficult to relate directly to development plans in a quantitative manner. Conversely, specific development objectives can be directly related to development plans and at least crudely quantified.

General Development Objectives

The general development objectives which follow are proposed as goals which public policy within the Region should promote over time. They are necessarily general but, nevertheless, provide the broad framework within which regional planning can take place and the more specific goals for the various functional elements and component parts of the Region can be stated and pursued. With respect to the application of these objectives, it is sufficient that there be a consensus within the Advisory Committee and the Commission itself that plan proposals support, or at least do not conflict with, the objectives. Such consensus represents the most practical evaluation of the ability of plan proposals to meet the general development objectives.

The following general development objectives, previously adopted as part of the year 2010 regional land use plan, have been reaffirmed by the Advisory Committee for use in the preparation of the year 2020 land use plan; no ranking is implied by the order in which these objectives are listed:

1. Economic growth at a rate consistent with regional resources, including land, labor, and capital, and primary dependence on free enterprise in order to provide needed employment opportunities for the expanding labor force of the Region.

2. A wide range of employment opportunities through a broad, diversified economic base.

3. Preservation and protection of desirable existing residential, commercial, industrial, and agricultural development in order to maintain desirable social and economic values; renewal of obsolete and deteriorating areas in the rural as well as in the urban areas of the Region; and prevention of slums and blight.

4. A broad range of choice among housing designs, sizes, types, and costs, recognizing changing trends in age-group composition, income, and family living habits.

5. An adequate, flexible, and balanced level of community services and facilities.

6. An efficient and equitable allocation of fiscal resources within the public sector of the economy.

7. An attractive and healthful physical and social environment with ample opportunities for high-quality education, cultural activities, and outdoor recreation.

8. Protection, sound use, and enhancement of the natural resource base.

9. Development of communities having distinctive individual character, based on physical conditions, historical factors, and local desires.

Specific Development Objectives

Within the framework established by the general development objectives, a secondary set of more specific objectives which is directly relatable to physical development plans and which can be at least crudely quantified has been postulated. The specific development objectives are largely self-descriptive. They are concerned primarily with spatial allocation to, and distribution of, the various land uses; land use compatibility; resource protection; and accessibility. Their application is facilitated by complementing each objective with a set of quantifiable planning standards which are, in turn, directly relatable to a planning principle which supports the chosen objective.

The following specific development objectives, previously adopted as part of the year 2010 regional land use plan, have been reaffirmed by the Advisory Committee for use in the preparation of the year 2020 land use plan; no ranking is implied by the order in which these objectives are listed:

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

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

3. A spatial distribution of the various land uses which maintains biodiversity and which will result in the protection and wise use of the natural resources of the Region, including its soils, inland lakes and streams, groundwater, wetlands, woodlands, prairies, wildlife, and natural areas and critical species habitats.

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

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

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

7. The preservation and provision of open space to enhance the total quality of the regional environment, maximize essential natural resource availability, give form and structure to urban development, and facilitate the ultimate attainment of a balanced year-round public outdoor recreational program providing a full range of facilities for all age groups.

8. The preservation of land areas to provide for agriculture, provide a reserve or holding area for future urban and rural needs, and ensure the preservation of those rural areas which provide wildlife habitat and which are essential to shape and order urban development.

The foregoing represent systems-level objectives which the regional land use plan should seek to achieve. They are concerned with the proper allocation of space to the various categories of land use and the proper arrangement of land use at the systems level of planning. While the objectives and standards include guidelines for neighborhood development and the development of commercial and industrial areas, detailed site design considerations are properly addressed at the local level of planning, and it is the function of local planning to ensure good design at individual development sites. It is in the local planning process that the ultimate responsibility lies to ensure the development of properly designed neighborhood units and properly designed commercial and industrial areas served by public utilities and having adequate parking and good access to the arterial street and transit systems.

PRINCIPLES AND STANDARDS

Complementing each of the foregoing specific land use development objectives are one or more planning principles and a set of planning standards. Each set of standards is directly related to a planning principle, as well as to the objective, and serves to facilitate quantitative application of the objectives in plan design, testing, and evaluation. The planning principles support the specific objectives by asserting their validity.

The planning principles and standards recommended by the Advisory Committee as a basis for the preparation of the year 2020 regional land use plan are set forth in Table 19. Most of the principles and standards were incorporated without change from the year 2010 regional land use plan. One standard from the year 2010 plan has been revised and one new standard has been added, as indicated below.

Objective No. 8, Standard No. 1
Standard No. 1 under Objective No. 8 calls for the preservation of prime agricultural lands. Under the year 2010 regional land use plan, the delineation of prime agricultural lands was based upon consideration of soil productivity, the size of individual farms, and the size and extent of the contiguous area being farmed. With the advent of the Wisconsin Farmland Preservation Program, a tax-credit program, counties were given the legal responsibility for defining prime agricultural lands. Consequently, the precise definition of such lands may be expected to vary from county to county and to change over time. Accordingly, the Advisory Committee determined that the 2020 regional land use plan should focus on the preservation of the most basic element of the agricultural resource base, namely the most fertile and productive soils—those identified by the U. S. Natural Resources Conservation Service as comprising agricultural soil capability Classes I and II. Standard No. 1 under Objective No. 8 has been appropriately revised to reflect this determination.

Objective No. 3, Standard No. 6
Objective No. 3 is concerned with the protection and wise use of the natural resources of the Region and the maintenance of biodiversity. Existing standards under this objective address individual elements of the natural resource base, including soils, inland lakes and streams, groundwater, wetlands, woodlands, prairies, and wildlife. For purposes of the year 2020 land use plan, a new

standard has been added under Objective No. 3, dealing specifically with the preservation of natural areas—essentially, areas representative of the pre-European-settlement landscape—and habitat areas for endangered, threatened, or rare plants and animals.

The urbanization of the Southeastern Wisconsin Region combined with historical agricultural activity has greatly diminished the remaining undisturbed, natural areas of the Region. Only remnants of the pre-European-settlement landscape remain intact. The continued urbanization of the Region threatens to disturb or destroy the remaining natural areas and the associated—in many cases, unique—plant and animal habitat which they afford. Disturbance or destruction of these areas results in reduced biodiversity and the loss of important opportunities for educational, scientific, and recreational pursuits.

The proposed new standard calls for the preservation of the remaining "natural areas" and "critical species habitat sites" in the Region. "Natural areas" are defined as tracts of land or water so little modified by human activity, or which have sufficiently recovered from the effects of such activity, that they contain intact native plant and animal communities believed to be representative of the pre-European-settlement landscape. "Critical species habitats" are defined as those tracts of land or water which support federally listed or State-listed endangered, threatened, or rare plant or animal species.

A comprehensive inventory of natural areas and critical species habitat sites within the Region was completed by the Commission in 1994. Recommendations with respect to the protection and preservation of these sites, including recommendations regarding protective public or private ownership, are set forth in a natural areas and critical species habitat protection and management plan for Southeastern Wisconsin adopted by the Regional Planning Commission in 1997.[1]

OVERRIDING CONSIDERATIONS

In applying the planning standards and in preparing the regional land use plan, several overriding considerations must be taken into account. First, it must be recognized that it is unlikely that any one plan proposal can meet all of the standards completely; the extent to which each standard is met, exceeded, or violated must serve as a measure of the ability of the plan proposal to achieve the specific objectives which the given standard complements.

Second, it must be recognized that some objectives may be complementary, with the achievement of one objective supporting the achievement of others. For example, the concentration of new urban residential development within planning units served by public sanitary sewers, water supply service, and other urban services and facilities, as called for in Standard No. 1 under Objective No. 2, is consistent with and would support the protection of the natural resources of the Region, as called for under Objective No. 3. Conversely, some objectives may be conflicting, requiring reconciliation through compromise. For example, the preservation of agricultural and other open space lands, as called for under Objectives Nos. 7 and 8, must be reconciled with the required allocation of land to the various urban uses, as called for in Objective No. 1, in the plan design process.

Third, it must be recognized that the standards must be very judiciously applied to areas or facilities which are already partially or fully developed, since full attainment of certain standards may require extensive renewal or reconstruction programs. It should be noted in this respect that the land use standards which are concerned with natural resource protection, use, or development or with neighborhood and community development relate primarily to those areas of the Region where the resource base has not as yet been significantly deteriorated, depleted, or destroyed and where neighborhood and community development has not yet been significantly disrupted. In areas where such disruption, deterioration, depletion, or destruction has already occurred, application of the standards may make it necessary to inaugurate programs which would restore neighborhoods and the resource base to a higher level of both quality and quantity. Such programs are specifically recommended for surface-water resources in the adopted comprehensive watershed plans and in the regional water quality management plan; for air resources in the regional air quality attainment and maintenance plan; and for certain recreational resources in the regional park and open space plan.

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[1] *SEWRPC Planning Report No. 42,* A Regional Natural Areas and Critical Species Habitat Protection and Management Plan for Southeastern Wisconsin, *September 1997.*

Table 19

LAND USE DEVELOPMENT OBJECTIVES, PRINCIPLES, AND STANDARDS

OBJECTIVE NO. 1

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

PRINCIPLE

The planned supply of land set aside for any given use should approximate the known and anticipated demand for that use.

STANDARDS

1. For each additional 100 dwelling units to be accommodated within the Region at each residential density, the following minimum amounts of residential land should be set aside:

Residential Density Category	Net Area[a] (acres per 100 dwelling units)	Gross Area[b] (acres per 100 dwelling units)
High-Density Urban[c]	8	13
Medium-Density Urban[c]	23	32
Low-Density Urban[c]	83	109
Suburban[d]	167	204
Rural[d]	500	588

2. For each additional 1,000 persons to be accommodated within the Region, the following minimum amounts of public park and recreational land should be set aside:

Public Park and Recreational Land Category	Net Area[e] (acres per 1,000 persons)	Gross Area[f] (acres per 1,000 persons)
Major	4	5
Other	8	9

3. For each additional 100 industrial employees to be accommodated within the Region, the following minimum amounts of industrial land should be set aside:

Industrial Land Category	Net Area[a] (acres per 100 employees)	Gross Area[g] (acres per 100 employees)
Major and Other	7	9

4. For each additional 100 commercial employees to be accommodated within the Region, the following minimum amounts of commercial land should be set aside:

Commercial Land Category	Net Area[a] (acres per 100 employees)	Gross Area[g] (acres per 100 employees)
Retail and Service		
Major	1	3
Other	2	6
Office		
Major and Other	1	2

5. For each additional 1,000 persons to be accommodated within the Region, the following minimum amounts of governmental and institutional land should be set aside:

Governmental and Institutional Land Category	Net Area[a] (acres per 1,000 persons)	Gross Area[h] (acres per 1,000 persons)
Major and Other	9	12

OBJECTIVE NO. 2

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

PRINCIPLE

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

STANDARDS

1. Urban high-, medium-, and low-density residential uses should be located within planning units which are served with centralized public sanitary sewerage and water supply facilities and contain, within a reasonable walking distance, necessary supporting local service uses, such as neighborhood park, local commercial, and elementary-school facilities, and should have reasonable access through the appropriate component of the transportation system to employment, commercial, cultural, and governmental centers, and secondary-school and higher educational facilities.

2. Rural- and suburban-density residential uses should have reasonable access through the appropriate component of the transportation system to local service uses; employment, commercial, cultural, and governmental centers; and secondary-school and higher educational facilities.

3. Industrial uses should be located to have direct access to arterial street and highway facilities and reasonable access through an appropriate component of the transportation system to residential areas and to railway, seaport, and airport facilities, and should not be intermixed with commercial, residential, governmental, recreational, or institutional land uses.

4. Major commercial uses should be located in centers of concentrated activity on only one side of an arterial street and should be afforded direct access[i] to the arterial street system.

OBJECTIVE NO. 3

A spatial distribution of the various land uses which maintains biodiversity and which will result in the protection and wise use of the natural resources of the Region, including its soils, inland lakes and streams, groundwater, wetlands, woodlands, prairies, wildlife, and natural areas and critical species habitats.

PRINCIPLE

The proper allocation of uses to land can assist in maintaining an ecological balance between the activities of humans and the natural environment which supports them.

1. SOILS

PRINCIPLE

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

STANDARDS

a. Sewered urban development, particularly for residential use, should not be located in areas covered by soils identified in the regional detailed operational soil survey as having severe limitations for such development.

b. Unsewered suburban residential development should not be located in areas covered by soils identified in the regional detailed operational soil survey as unsuitable for such development.

c. Rural development, including agricultural and rural residential development, should not be located in areas covered by soils identified in the regional detailed operational soil survey as unsuitable for such uses.

2. INLAND LAKES AND STREAMS

PRINCIPLE

Inland lakes and streams contribute to the atmospheric water supply through evaporation; provide a suitable environment for desirable and sometimes unique plant and animal life; provide the population with opportunities for certain scientific, cultural, and educational pursuits; constitute prime recreational areas; provide a desirable aesthetic setting for certain types of land use development; serve to store and convey floodwaters; and provide certain water withdrawal requirements.

STANDARDS

a. A minimum of 25 percent of the perimeter or shoreline frontage of lakes having a surface area in excess of 50 acres should be maintained in a natural state.

b. Not more than 50 percent of the length of the shoreline of inland lakes having a surface area in excess of 50 acres should be allocated to urban development, except for park and outdoor recreational uses.

c. A minimum of 10 percent of the shoreline of each inland lake having a surface area in excess of 50 acres should be maintained for public uses, such as a beach area, pleasure-craft marina, or park.

d. It is desirable that 25 percent of the shoreline of each inland lake having a surface area of less than 50 acres be maintained in either a natural state or some low-intensity public use, such as parkland.

e. A minimum of 25 percent of both banks of all perennial streams should be maintained in a natural state.

f. Not more than 50 percent of the length of perennial streams should be allocated to urban development, except for park and outdoor recreational uses.

g. Floodlands[j] should not be allocated to any urban development[k] which would cause or be subject to flood damage.

h. No unauthorized structure or fill should be allowed to encroach upon and obstruct the flow of water in perennial stream channels[l] and floodways.[m]

3. WETLANDS

PRINCIPLE

Wetlands[n] support a wide variety of desirable and sometimes unique plant and animal life; assist in the stabilization of lake levels and streamflows; trap and store plant nutrients in runoff, thus reducing the rate of enrichment of surface waters and noxious weed and algae growth; contribute to the atmospheric oxygen supply; contribute to the atmospheric water supply; reduce stormwater runoff by providing area for floodwater impoundment and storage; trap soil particles suspended in runoff and thus reduce stream sedimentation; provide opportunities for certain scientific, educational, and recreational pursuits; and may serve as groundwater recharge and discharge areas.

STANDARDS

a. All wetlands adjacent to streams or lakes, all wetlands within areas having special wildlife or other natural values, and all wetlands having an area of five acres or greater should not be allocated to any urban development except limited recreational use, and should not be drained or filled. In addition, county and local units of government may choose to preserve all wetlands.

b. Open lands surrounding particularly important wetlands, including wetlands adjacent to streams or lakes, wetlands having special wildlife or other natural values, and wetlands having an area in excess of 50 acres, should be kept in open space uses such as agricultural or limited recreational uses.

4. WOODLANDS

PRINCIPLE

Woodlands[o] assist in maintaining unique natural relationships between plants and animals; reduce stormwater runoff; contribute to the atmospheric oxygen supply; contribute to the atmospheric water supply through transpiration; aid in reducing soil erosion and stream sedimentation; provide the resource base for the forest product industries; provide the population with opportunities for certain scientific, educational, and recreational pursuits; and provide a desirable aesthetic setting for certain types of land use development.

STANDARDS

a. A minimum of 10 percent of the land area of each watershed[p] within the Region should be devoted to woodlands.

b. For demonstration and educational purposes, the woodland cover within each county should include a minimum of one 40-acre or larger woodlot devoted to each major forest type: dry, mesic, or lowland forest. In addition, the best remaining examples of the native forest vegetation types representative of the pre-settlement vegetation should be maintained in a natural condition and be made available for research and educational use.

c. A minimum regional aggregate of five acres of woodland per 1,000 population should be maintained for recreational pursuits.

5. PRAIRIES

PRINCIPLE

Prairies,[q] including savannas, assist in maintaining unique natural relationships between plants and animals; reduce stormwater runoff; contribute to the atmospheric oxygen supply; contribute to the atmospheric water supply through transpiration; aid in reducing soil erosion; and provide opportunities for scientific, educational, and recreational pursuits.

STANDARD

a. All remaining native prairies representative of the pre-settlement vegetation should be maintained in a natural condition and be made available for research and educational use.

6. NATURAL AREAS AND CRITICAL SPECIES HABITATS

PRINCIPLE

Natural areas[r] and critical species habitats[s] are important in a number of ways—including economically, insofar as they support advances in agriculture and medicine; functionally, insofar as they enhance surface-water and groundwater quality, minimize erosion, and enhance air quality; educationally; recreationally; aesthetically; in basic scientific research; and in maintaining biological and genetic diversity. In a less tangible but equally important way, natural areas and critical species habitats contribute to mental well-being and to the overall quality of human life.

STANDARD

a. The remaining natural areas and critical species habitat areas should be preserved.

7. WILDLIFE

PRINCIPLE

Wildlife, when provided with a suitable habitat, will supply the population with opportunities for certain scientific, educational, and recreational pursuits; comprises an integral component of the life systems which are vital to beneficial natural processes, including the control of harmful insects and other noxious pests and the promotion of plant pollination; provides a food source; offers an economic resource for the recreation industries; and serves as an indicator of environmental health.

STANDARDS

a. The most suitable habitat for wildlife, the area wherein fish, game, and nongame species can best be fed, sheltered, and reproduced, is a natural habitat. Since the natural habitat for wildlife can best be achieved by preserving or maintaining in a wholesome state other resources such as water, wetlands, prairies, and woodlands, the standards for each of these other resources, if met, would ensure the preservation of a suitable wildlife habitat and population.

b. Wildlife populations should be maintained in balance with the holding capacity of the land.

OBJECTIVE NO. 4

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

PRINCIPLE

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

STANDARDS

1. Urban development should be located and designed so as to maximize the use of existing transportation and utility systems.

2. The transportation system should be located and designed to provide access not only to all land presently devoted to urban development but to land planned to be used for such urban development.

3. All land developed or planned to be developed for urban medium-, high-, and low-density residential use should be located in areas serviceable by an existing or planned public sanitary sewerage system and preferably within the gravity drainage area tributary to such systems.

4. All land developed or planned to be developed for urban medium-, high-, and low-density residential use should be located in areas serviceable by an existing or planned public water supply system.

5. All land developed or planned to be developed for urban medium- and high-density residential use should be located in areas serviceable by existing or planned public transit facilities.

6. The transportation system should be located and designed to minimize the penetration of existing and planned residential neighborhood units by through traffic.

7. Transportation terminal facilities, such as off-street parking, off-street truck loading, and mass transit loading facilities, should be located in close proximity to the principal land uses to which they are accessory.

8. In the absence of public sanitary sewer service, onsite sewage disposal systems should be utilized only in accordance with the following:

a. Onsite soil absorption sewage disposal systems should be utilized only in areas covered by soils which are suitable for the system being considered.

b. The use of onsite sewage disposal systems should be limited to the following types of development:

- Rural residential development.
- Suburban-density residential development, limited, however, to areas already committed to such use.[t]
- Urban land uses which may be required in unsewered areas such as transportation-related businesses, agriculture-related businesses, communication facilities, utility installations, and park and recreation sites.

c. Use of the various types of onsite sewage disposal systems should be in accordance with the following:

- New development in unsewered areas should be designed to be served by conventional onsite soil absorption sewage disposal systems.
- Alternative onsite soil absorption sewage disposal systems should only be utilized to remedy failing conventional onsite sewage disposal systems or on lots or parcels of record that cannot support conventional systems.
- Holding tanks should only be used as a last resort as a replacement for failing conventional or alternative onsite sewage disposal systems.

d. New urban development served by onsite sewage disposal systems in areas planned to receive sanitary sewer service should be discouraged. Where such development is permitted, it should be designed so that the public and private costs of conversion to public sanitary sewer service are minimized.

OBJECTIVE NO. 5

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

PRINCIPLE

Residential areas developed in designed neighborhood units can assist in stabilizing community property values, preserving residential amenities, and promoting efficiency in the provision of public and community service facilities; can best provide a desirable environment for family life; and can supply the population with improved levels of safety and convenience. Utilization of the cluster design concept for new residential development of all densities can help achieve better site design through greater flexibility, help preserve significant natural features and environmentally sensitive lands, preserve a greater amount of open space, and increase the efficiency of infrastructure development.

STANDARDS

1. Urban high-, medium-, and low-density residential development should be located in well-planned neighborhood units which are physically self-contained within clearly defined and relatively permanent recognizable boundaries, such as arterial streets and highways, major park and open space reservations, or significant natural features, such as rivers, streams, or hills. Neighborhood unit sizes assumed for these residential density categories are 160 acres for urban high-density; 640 acres for urban medium-density; and 2,560 acres for urban low-density.

2. Urban residential neighborhood units should contain enough area to provide the following: housing for the population served by one elementary school and one neighborhood park; an internal street system which provides multiple pathways for access and circulation; and all the community and commercial facilities necessary to meet the day-to-day living requirements of the family within the immediate vicinity of its dwelling unit.

3. Suburban- and rural-density residential development should be located in areas where onsite soil absorption sewage disposal systems and private wells can be accommodated and access to other services and facilities can be provided through appropriate components of the transportation system at the community or regional level, thereby properly relating such development to a rural environment. The cluster design concept should be encouraged in suburban- and rural-density residential developments. No more than one acre per housing

unit should be allocated to the intensive-use areas of the site, thereby preserving a greater proportion of open space, reducing the visual impacts of urban sprawl, and preserving the rural character of the landscape for those developments in more rural locations of the Region.

To meet the foregoing standards, land should be allocated in each urban and rural development category as follows:

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

4. To the extent practicable, efforts directed at the conservation and renewal of existing residential areas should be undertaken on a neighborhood basis and should seek to preserve those cultural features which contribute to the promotion of neighborhood identity within the larger urban complex.

OBJECTIVE NO. 6

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

PRINCIPLE

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

STANDARDS

1. Major industrial development[u] should be located in planned industrial districts which meet the following standards:

   a. Direct access to the arterial street and highway system and access within two miles to the freeway system.

   b. Direct access to railway facilities, if required by the industries located within the district.

   c. Direct access to public rapid, express, and local transit service.

   d. Access to a General Utility-Stage II airport within a maximum travel time of 30 minutes, and access to seaport facilities with a maximum travel time of 60 minutes.

   e. Available adequate water supply.

   f. Available adequate public sanitary sewer service.

   g. Available adequate stormwater drainage facilities.

   h. Available adequate power supply.

   i. Site covered by soils identified in the regional soils survey as having slight or moderate limitations for industrial development.

In addition to the above minimum standards, the following site development standards are desirable:

   j. Lands with slopes generally exceeding 6 percent may not be suitable for industrial development. Desirably, the maximum grade of any street in an industrial area should not exceed 3 percent.

k. Provision of adequate off-street parking and loading facilities.

l. Provision of properly located points of ingress and egress which are controlled to prevent traffic congestion on adjacent arterial streets.

m. Provision of adequate buffer between the industrial and adjacent nonindustrial uses.

n. Provision of adequate setbacks from major arterial streets and highways.

2. Major retail development[V] should be concentrated in commercial centers which meet the following minimum standards:

a. Direct access to the arterial street system.

b. Direct access to the rapid, express, and local public transit service.

c. Available adequate water supply.

d. Available adequate public sanitary sewer service.

e. Available adequate stormwater drainage facilities.

f. Available adequate power supply.

g. Site covered by soils identified in the regional soils survey as having slight or moderate limitations for commercial development.

In addition to the above minimum standards, the following site development standards are desirable:

h. Provision of adequate off-street parking and loading facilities.

i. Provision of properly located points of ingress and egress which are controlled to prevent traffic congestion on adjacent arterial streets.

j. Provision of adequate buffer between the retail use and adjacent nonretail uses.

k. Provision of adequate building setbacks from major arterial streets and highways.

3. Major office development[W] should be concentrated in commercial centers which meet the following minimum standards:

a. Direct access to the arterial street system and access within two miles to the freeway system.

b. Direct access to rapid, express, and local public transit service.

c. Available adequate water supply.

d. Available adequate public sanitary sewer service.

e. Available adequate stormwater drainage facilities.

f. Available adequate power supply.

g. Site covered by soils identified in the regional soils survey as having slight or moderate limitations for commercial development.

h. Access to a General Utility-Stage II airport within a maximum travel time of 30 minutes.

In addition to the above minimum standards, the following site development standards are desirable:

i. Provision of adequate off-street parking and loading facilities.

j. Provision of properly located points of ingress and egress which are controlled to prevent traffic congestion on adjacent arterial streets.

k. Provision of adequate buffer between the office use and adjacent nonoffice uses.

l. Provision of adequate building setbacks from major arterial streets and highways.

4. Other industrial development should be located in planned industrial districts which meet the following standards:

a. Ready access to the arterial street and highway system.

b. Direct access to mass transit facilities.

c. Available adequate water supply.

d. Available adequate public sanitary sewer service.

e. Available adequate stormwater drainage facilities.

f. Available adequate power supply.

g. Site covered by soils identified in the regional soils survey as having slight or moderate limitations for industrial development.

5. Other commercial development, which includes activities primarily associated with the sale of convenience goods and services, should be contained within the residential planning units, the total minimum area devoted to the commercial use varying with the residential density as follows:

a. In low-density urban areas, land devoted to local commercial centers should comprise at least 0.5 percent of the total gross neighborhood area, or about 3.2 acres per square mile of gross neighborhood area.

b. In medium-density urban areas, land devoted to local commercial centers should comprise at least 1.0 percent of the total gross neighborhood area, or about 6.4 acres per square mile of gross neighborhood area.

c. In high-density urban areas, land devoted to local commercial centers should comprise at least 1.5 percent of the total gross neighborhood area, or about 9.6 acres per square mile of gross neighborhood area.

OBJECTIVE NO. 7

The preservation and provision of open space[X] to enhance the total quality of the regional environment, maximize essential natural resource availability, give form and structure to urban development, and facilitate the ultimate attainment of a balanced year-round public outdoor recreational program providing a full range of facilities for all age groups.

PRINCIPLE

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

STANDARDS[Y]

1. Major park and recreation sites providing opportunities for a variety of resource-oriented outdoor recreational activities should be provided within a 10-mile service radius of every dwelling unit in the Region, and should have a minimum gross site area of 250 acres.

2. Other park and recreation sites should be provided within a maximum service radius of one mile of every dwelling unit in an urban area, and should have a minimum gross site area of five acres.

3. Areas having unique scientific, cultural, scenic, or educational value should not be allocated to any urban or agricultural land uses; adjacent surrounding areas should be retained in open space use, such as agricultural or limited recreational uses.

4. As appropriate, open space located in cluster design and planned unit development projects, or accompanying development of privately owned recreation facilities, should be made accessible to the public.

OBJECTIVE NO. 8

The preservation of land areas to provide for agriculture, provide a reserve or holding area for future urban and rural needs, and ensure the preservation of those rural areas which provide wildlife habitat and which are essential to shape and order urban development.

PRINCIPLE

Agricultural areas, in addition to providing food and fiber, can supply significant wildlife habitat; contribute to maintaining an ecological balance between plants and animals; offer locations proximal to urban centers for the production of certain food commodities which may require nearby population concentrations for an efficient production-distribution relationship; provide opportunities for agricultural and

agriculture-related employment, thus supporting an important component of the economic base of the Region; and provide open spaces which give form and structure to urban development.

STANDARDS

1. The most productive soils, those designated by the U. S. Natural Resources Conservation Service as comprising agricultural soil capability Classes I and II, should be preserved for agricultural use.

2. All agricultural lands surrounding adjacent high-value scientific, educational, and recreational resources should be preserved.

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[a]*Net land use area is defined as the actual site area devoted to a given use, and consists of the ground floor site area occupied by any buildings plus the required yards and open spaces.*

[b]*Gross residential land use area is defined as the net area devoted to this use plus the area devoted to all supporting land uses, including streets, neighborhood parks and playgrounds, elementary schools, and neighborhood institutional and commercial uses, but not including freeways and expressways and other community and areawide uses.*

[c]*Areas which are served, proposed to be served, or required to be served by public sanitary sewerage and water supply facilities and which require neighborhood facilities.*

[d]*Areas which are not served, not proposed to be served, nor required to be served by public sanitary sewerage and water supply facilities and which do not require neighborhood facilities.*

[e]*This category includes areas developed for active recreational use.*

[f]*Gross public park and recreational area is defined as the net area devoted to active or intensive recreational use plus the adjacent lands devoted to supporting land uses such as roads and parking areas. This area does not include surface water, woodlands, wetlands, or other natural resources.*

[g]*Gross commercial and industrial area is defined as the net area devoted to these uses plus the area devoted to supporting land uses, such as off-street parking.*

[h]*Gross governmental and institutional area is defined as the net area devoted to governmental and institutional use plus the area devoted to supporting land uses, such as off-street parking.*

[i]*Direct access implies adjacency or immediate proximity.*

[j]*Floodlands are herein defined as those lands inundated by a flood having a recurrence interval of 100 years where hydrologic and hydraulic engineering data are available, and as those lands inundated by the maximum flood of record where such data are not available.*

[k]*Urban development, as used herein, refers to all land uses except agriculture, water, woodlands, wetlands, open lands, and quarries.*

[l]*A stream channel is herein defined as that area of the floodplain lying either within legally established bulkhead lines or within sharp and pronounced banks marked by an identifiable change in flora and normally occupied by the stream under average annual high-flow conditions.*

[m]*Floodway lands are herein defined as those designated portions of the floodlands that will safely convey the 100-year recurrence interval flood discharge with small, acceptable upstream and downstream stage increases.*

[n]*Wetlands are defined as areas that are inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.*

[o]*Woodlands are defined as those upland areas having 17 or more deciduous trees per acre each measuring at least four inches in diameter at breast height and having at least a 50 percent canopy cover. In addition, coniferous tree plantations and reforestation projects are defined as woodlands. It is also important to note that all lowland wooded areas, such as tamarack swamps, are defined as wetlands because the water table in such areas is located at, near, or above the land surface and because such areas are generally characterized by hydric soils which support hydrophitic trees and shrubs.*

[p]*A watershed is defined as an area 25 square miles or larger in size occupied by a surface drainage system discharging all surface-water runoff to a common outlet.*

[q]*Prairies are defined as open, generally treeless areas which are dominated by native grasses. In Southeastern Wisconsin, there are three types of prairies corresponding to soil moisture conditions: dry prairies, mesic prairies, and wet prairies. In addition, it is important to note that, for purposes of this report, savannas, which are defined as areas dominated by native grasses but having between one and 17 trees per acre, are classified as prairies. In Southeastern Wisconsin, there are two types of savannas: oak openings and cedar glades.*

[r]Natural areas are defined as tracts of land or water so little modified by human activity, or which have sufficiently recovered from the effects of such activity, that they contain intact native plant and animal communities believed to be representative of the pre-European-settlement landscape.

[s]Critical species habitats are defined as those tracts of land or water which support federally listed or State-listed endangered, threatened, or rare plant or animal species.

[t]Onsite sewage disposal systems should not accommodate new suburban residential development, but should be provided to serve only those lands already committed to such development, namely platted but currently undeveloped lots of record or lots created by certified survey maps.

[u]Major industrial development is defined as an industrial area having a minimum of 3,500 industrial employees.

[v]Major retail development is defined as a retail area having a minimum of 2,000 retail employees.

[w]Major office development is defined as an office area having a minimum of 3,500 office and service-related employees.

[x]Open space is defined as land or water areas which are generally undeveloped for urban residential, commercial, or industrial uses and which are or can be considered relatively permanent in character. It includes areas devoted to park and recreational uses and to large land-consuming institutional uses, as well as areas devoted to agricultural use and to resource conservation, whether publicly or privately owned.

[y]It was deemed impractical to establish spatial distribution standards for open space per se. Open spaces which are not included in the spatial distribution standards are forest preserves and arboretums; major river valleys; lakes; zoological and botanical gardens; stadia; woodland, wetland, and wildlife areas; scientific areas; and agricultural lands whose location must be related to, and determined by, the natural resource base.

Source: SEWRPC.

Chapter V

RECOMMENDED LAND USE PLAN

INTRODUCTION

The regional land use plan for Southeastern Wisconsin is an evolving plan which, like all physical development plans, must be periodically reviewed, updated, and revised as appropriate, and extended in time, if it is to remain vital. The initial, design year 1990 regional land use plan was adopted by the Regional Planning Commission in 1966. A second regional land use plan, a design year 2000 plan, was adopted in 1977, and a third plan, a design year 2010 plan, was adopted in 1992. The second and third plans were prepared following extensive reappraisal processes which reaffirmed the basic principles and concepts of the design year 1990 plan. While the regional land use plan has evolved over time, having been adjusted to take into account changing conditions and having been extended in time to new plan design years, the basic concepts of that plan remain essentially unchanged.

This chapter presents the fourth regional land use plan for Southeastern Wisconsin. It was prepared as an extension in time of the currently adopted year 2010 plan, with the plan design year extended to the year 2020. The plan reflects new forecasts of population, households, and employment for the Region through the year 2020. As it was extended in time, the plan was reviewed and amended to reflect development which has occurred or which has been committed to since completion of the year 2010 plan, and to reflect as well recently completed county and municipal land use plans which serve to refine and detail the regional land use plan.

Like the currently adopted plan, the design year 2020 regional land use plan is intended to guide county and local units of government and private interests in decision making regarding development in the Region. Moreover, like the adopted plan, the year 2020 plan is intended to serve as a basis for transportation, utility—including public sewer and water supply—outdoor recreation, and other public facility planning at the regional level, as well as a point of departure for other areawide, county, and local plans. The extended time frame of the new regional land use plan is intended to be consistent with the planning periods—typically at least 20 years—used in such facility planning.

The year 2020 regional land use plan incorporates the basic principles and concepts of the adopted year 2010 plan. Like the adopted plan, the new plan recommends a relatively compact, centralized regional settlement pattern, with urban development occurring generally in concentric rings along the periphery of, and outward from, existing urban centers in the Region. The proposed plan places heavy emphasis on the continued impact of the urban land market in determining the location, intensity, and character of future development. Like the adopted plan, the proposed plan seeks to influence the operation of the urban land market in several important ways in order to achieve a more healthful, attractive, and efficient settlement pattern. In this regard, the proposed plan recommends that new urban development occur primarily in those areas of the Region which are covered by soils suitable for such development and in those areas which can be readily served by essential municipal facilities and services, including public sanitary sewerage, water supply, and mass transit facilities and services. The plan recommends the preservation in essentially natural, open uses of the identified primary and secondary environmental corridors and isolated natural resource areas, and the preservation in agricultural use of the most productive soils in the Region. Recognizing plan refinements at the county and local levels, the new regional land use plan also accommodates rural-density residential development, preferably in cluster-style development projects which help to preserve the rural character of the landscape.

The balance of this chapter describes the design year population, household, and employment levels used as a basis for extending the regional land use plan to the year 2020, describes the methodology used in extending the plan, and presents the resulting design year 2020 regional land use plan.[1]

DESIGN YEAR POPULATION, HOUSEHOLD, AND EMPLOYMENT LEVELS

The future demand for land use and natural resources in the Region will depend, to a large extent, upon future

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[1] *A public hearing on the year 2020 regional land use plan, as described in this chapter, was held in the City of Milwaukee on November 6, 1997. No substantive concerns regarding the year 2020 regional land use plan were raised at that hearing.*

population, household, and employment levels. Control of changes in population, households, and employment lies largely outside the scope of the planning process. Within the planning process, future population, household, and employment levels can only be projected. Projections of future population, household, and employment levels are thus required to establish the overall scale of growth and development which the land use plan must seek to accommodate.

In response to the increased uncertainty surrounding future social and economic conditions in the Region, the Commission has incorporated an "alternative futures" approach into the regional planning program. Under this approach, three alternative future regional growth scenarios have been postulated, two intended to represent low and high extremes of possible future growth and change and the third intended to represent an intermediate future lying between the extremes. A set of population, household, and employment projections for the year 2020 was developed for each scenario. These projections are presented in Chapter III of this report.

As a practical matter, the preparation of a land use plan must be targeted toward a single set of population, household, and employment projections. It was the collective judgment of the Technical Coordinating and Advisory Committee on Regional Land Use Planning that future population, household, and employment levels within the Region would be most closely approximated by the intermediate-growth scenario. Accordingly, the Committee directed that the year 2020 land use plan be prepared to accommodate population, household, and employment levels projected for the Region under the intermediate-growth scenario. Under that scenario, the resident population of the Region would increase by 267,500 persons, or 15 percent, from 1,810,400 persons in 1990 to 2,077,900 persons in 2020. The number of households would increase by 151,000, or 22 percent, from 676,100 households in 1990 to 827,100 households in 2020. Total employment in the Region would increase by 209,900 jobs, or 20 percent, from 1,067,200 jobs in 1990 to 1,277,100 jobs in 2020.

While selecting the intermediate-growth scenario as a basis for extending the land use plan to the year 2020, the Advisory Committee did recommend an adjustment of the county-level population, household, and employment projections attendant to the intermediate-growth scenario in order to promote a more centralized urban land use development pattern within the Region. The Committee determined that the year 2020 regional land use plan, like the 2010 land use plan, should seek to moderate the historical decentralization of population and employment, and support and preserve urban development in the older urban centers of the Region. The adjustments to the county-level projections made in this respect included the allocation of greater levels of population and households to Milwaukee County than initially projected, with corresponding reductions in design year population and household levels for Ozaukee, Walworth, Washington, and Waukesha Counties. In Kenosha and Racine Counties, the planned population and household distributions were centralized around the Kenosha and Racine urbanized areas. The planned distribution of employment within the Region was also centralized.

The centralization of development which these adjustments seek to achieve would work toward the attainment of a number of regional land use development objectives. It would facilitate the efficient and economical provision of urban services and facilities, including public transit, to urban areas; maximize the use of existing infrastructure; promote the conservation and renewal of existing residential, commercial, and industrial areas; help protect the underlying and sustaining natural resource base; and help to avoid the costly developmental and environmental problems attendant to urban sprawl.

LAND USE PLAN DESIGN METHODOLOGY

The process of extending the land use plan to the year 2020 followed the methodology applied in the preparation of the year 2010 land use plan. The methodology used is a design-oriented mapping activity concerned with the spatial distribution of proposed land uses within the Region, carefully relating such uses to existing development and to the natural resource base through application of well-established physical planning and engineering principles. The amount of land allocated to the various urban uses was determined based upon anticipated increases in population, households, and employment.

Plan Design Concepts

The proposed year 2020 regional land use plan is conceptually similar to the adopted year 2010 land use plan. The following guidelines, which were used in the design of the year 2010 land use plan, were also used in the design of the proposed year 2020 plan:

- The planned increment of urban development would be allocated so as to achieve a centralized settlement pattern, with such development proposed either as infill development in existing urban centers, or as new development along the periphery of, and outward from, existing urban centers. The new

urban development would be directed toward areas which can be readily served by public sanitary sewer, water supply, and transit services; which are covered by soils suitable for development; and which are not subject to special hazards such as flooding and erosion. The new urban residential development would occur largely at medium densities in planned neighborhood units.

- No new urban development would be allocated to the delineated primary environmental corridors in order to preserve the best remaining elements of the natural resource base. New urban development would also be discouraged from occurring within secondary environmental corridors and isolated natural resource areas.

- The allocation of new urban development to the most productive agricultural lands would be discouraged insofar as practicable, thus preserving highly productive farmland for the continued production of food and fiber, as well as maintaining land in open space uses.

- New rural-density residential development would be allocated to the least productive agricultural lands or to the extent possible carefully integrated at the fringes of upland environmental corridor areas using appropriate site design, such as cluster development techniques. Any new rural residential development within upland portions of the corridor should be located so as to minimize the disturbance of the existing natural vegetation; avoid areas of steep slopes or soils with limitations for residential development; and seek to maintain the natural drainage conditions of the site.

Residential Density Categories

The plan would accommodate a full range of residential densities within the Region. Under the plan, a basic distinction is drawn between "urban-density" and "rural-density" residential development. For purposes of the plan, "urban-density" residential development is defined as residential development at a density of more than one dwelling unit per five acres. Four urban residential density ranges have been defined: high-density, defined as 7.0 to 17.9 dwelling units per net residential acre; medium-density, defined as 2.3 to 6.9 dwelling units per acre; low-density, defined as 0.7 to 2.2 dwelling units per acre; and suburban-density, defined as 0.2 to 0.6 dwelling unit per acre.

The standards set forth in Table 19 in Chapter IV of this report (see pages 49 through 58) envision that new high-, medium-, and low-density residential development would occur in planned neighborhood units which are served by centralized public sanitary sewerage and water supply facilities and contain within a reasonable walking distance supporting facilities, such as a neighborhood park and elementary school. Suburban-density development generally would not occur in planned neighborhood units, and only minimal public services, such as public safety services, would be provided.

For purposes of the plan, "rural-density" residential development is defined as residential development at a density of no more than one dwelling unit per five acres. Such development would generally occur beyond planned urban service areas,[2] outside prime agricultural lands and environmentally sensitive areas. The very low recommended density is intended to maintain rural character and foster the preservation of open space. New rural-density residential development would be provided with only minimal public services, such as public safety services. While rural-density residential development may occur in the form of large estate-type lots, the use of cluster designs to meet the five-acre density guideline is encouraged under the plan.

Specific Design Methodology

The specific procedures utilized in preparing the year 2020 land use plan were similar to those used in the preparation of the year 2010 plan:

1. A determination was made of the amount of "developable" land located within each U. S. Public Land Survey quarter section.[3] Developable land was defined as land which, while not presently developed for urban use, was suitable for, and could be considered available for, such use. Operationally, the developable land area was determined for each quarter section by subtracting from the total area of the quarter section the area included in environmentally significant lands and floodlands and the area covered by existing urban development.

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[2] *Urban service areas are concentrations of residential—low-, medium-, and high-density—uses and associated commercial, governmental, and institutional lands provided or envisioned to be provided with public sanitary sewer and water supply facilities.*

[3] *The U. S. Public Land Survey quarter section is the basic geographic data collection and analysis unit used in the regional planning program. Land survey quarter sections each approximate 160 acres in area. There are about 10,800 such quarter sections in the Region.*

2. An identification was made of those quarter sections served by public sanitary sewerage facilities in 1990 and those planned to be served by such facilities in the adopted regional water quality management plan and in locally prepared refinements of that plan. These quarter sections in combination comprised the planned urban service area within the Region.

3. A determination by quarter section was made of the location of all proposed major regional land uses, including major multi-purpose commercial centers, major industrial centers, major parks, major governmental and institutional centers, and major transportation and utility centers. The quarter-section locations of these major land uses were developed taking into account the existing land use pattern and supporting transportation and utility systems, existing and planned population and employment levels, existing community plans and zoning, and the recommendations of other regional plan elements, including the regional transportation system plan, the regional water quality management plan, and the regional airport system plan.

4. Urban land was allocated to quarter sections within the proposed urban service areas, following the aforementioned general development guidelines. Urban land was allocated as follows:

   a. Urban residential development was allocated, first, to vacant lots in existing residential subdivisions. New residential development was then allocated to unplatted, developable land—for the most part at medium densities—in accordance with county and local plans and zoning ordinances. In certain locations, low-density and high-density residential development was allocated as warranted by county and local plans and zoning ordinances.

   b. Under the assumption that new low-, medium-, and high-density residential development would occur in planned neighborhood units, an allocation of supporting neighborhood land uses was made to those quarter sections to which such residential development was assigned. This allocation was made in accordance with the neighborhood standards set forth in Table 19 in Chapter IV of this report (see pages 49 through 58), and included neighborhood commercial, governmental and institutional, recreational, and transportation (primarily neighborhood street) land uses.

   c. In addition to supporting neighborhood uses, land for community-level commercial, industrial, and recreational centers was allocated based on the need for additional centers in the urbanizing areas, taking into account sites proposed for such development in community plans and zoning ordinances.

5. Low- and suburban-density residential development was allocated to vacant lots located beyond the planned urban service areas, in areas already committed to such development on approved subdivision plats.

6. Rural-density residential development was allocated to developable lands located beyond the planned urban service areas. Increasingly common in other areas of the country, rural-density residential development, particularly in cluster designs, is a relatively new form of development in Southeastern Wisconsin and other areas of the Midwest. To date, clustered rural-density residential development has occurred only on a very limited basis in the Region, and the future demand for such development is not known. For purposes of developing the plan, it was assumed that rural residential development would occur on a limited basis, accommodating 1 percent of the increase in population anticipated between 1990 and 2020.

The aforementioned steps resulted in the creation of a regional land use plan map for the year 2020 and a corresponding plan data file including, for each quarter section, the planned acreages for the major categories of land use and planned population, household, and employment levels.

PLAN DESCRIPTION

Under the proposed land use plan, the population of the Southeastern Wisconsin Region may be expected to reach a level of about 2,077,900 persons by the year 2020, an increase of 267,500 persons, or 15 percent, over the 1990 level; the number of households may be expected to reach about 827,100 by the year 2020, an increase of 151,000 households, or 22 percent, over the 1990 level; and total employment may be expected to reach about 1,277,100 jobs, an increase of 209,900 jobs, or 20 percent, over the 1990 level. The plan proposes to accommodate this growth in population, households, and employment through the conversion of about 100 square miles of land from rural to urban use. While an increase of 100 square miles, or 16 percent, would represent a significant addition to the Region's stock of urban land over the 30-year planning

period, that increase compares favorably with a similar increase of about 193 square miles, or 44 percent, in the 27 years between 1963 and 1990 preceding the present planning period. The future land use pattern proposed by the plan is shown on Map 10 and is summarized for the Region overall in Table 20.

Urban Land Use

For purposes of the plan, urban lands are defined as lands devoted to urban-density residential, commercial, industrial, intensive recreational, governmental and institutional, and transportation, communication, and utility uses. Under the plan, the combined area in these urban land use categories would increase from about 637 square miles in 1990 to about 737 square miles in the year 2020, an increase of 100 square miles, or 16 percent (see Table 21). Urban lands would account for about 27 percent of the total area of the Region in 2020, compared to 24 percent in 1990. Nearly all of the proposed increase in urban lands would occur within planned urban service areas. It should be noted that nearly half of the new urban development occurring in the Region between 1970 and 1985, primarily low-density residential development, was located outside of planned urban service areas. Moreover, this trend has continued into the 1990s. The pattern of new urban land use proposed under the plan—directing virtually all new urban development to planned urban service areas—thus represents a significant departure from past and existing land use development trends in the Region.

Urban Residential Land Use

Under the land use plan, most of the housing needs of the growing regional population would be accommodated through the maintenance of existing urban residential areas and, as needed, the outward expansion of those areas. The future intensity and distribution of residential development would continue to be established largely through the operation of the urban land market, guided in the public interest, however, to adapt to certain physiographic and cultural features of the Region, particularly primary environmental corridors, secondary environmental corridors, and isolated natural resource areas, and the sanitary sewer service areas identified in the adopted regional water quality management plan and in local refinements of that plan. The land use plan discourages scattered "leapfrog" urban development in outlying rural areas of the Region, counter to past and existing trends and market forces driving such development. As an alternative, the plan proposes maintenance of rural development densities—that is, densities of no more than one dwelling unit per five acres—in rural areas and higher-density development in those areas of the Region that can be most readily served by essential urban services. The plan also encourages use of infill and "brownfield"[4] development, including development for residential use in the older urban centers of the Region.

Under the plan, most new housing would be developed at urban densities—that is, at high, medium, low, or suburban density. The plan envisions that the urban residential land area, excluding related parking areas, would increase by about 66 square miles, or 21 percent, from about 308 square miles in 1990 to about 374 square miles in 2020 (see Table 22). The bulk of the new urban residential land—75 percent—would consist of medium-density development, with a typical single-family lot size of one-quarter acre and a typical multiple-family development averaging about 10 dwelling units per net acre. Under the plan, medium-density residential land would increase by about 49 square miles, or 53 percent; high-density residential land would increase by about six square miles, or 13 percent; low-density residential land would increase by about eight square miles, or 5 percent; and suburban-density residential land would increase by about three square miles, or 22 percent. Among the seven counties in the Region, Waukesha County would experience the largest absolute increase in urban residential land, about 24 square miles, under the plan. For the other six counties in the Region, the proposed increases in urban residential land range from four square miles in Walworth County to 10 square miles in Washington County.

The plan encourages the development of new low-, medium-, and high-density residential land in planned neighborhoods. Insofar as possible, each neighborhood should be bounded by arterial streets; major park, parkway, or institutional lands; bodies of water; or other natural or cultural features which serve to physically separate each neighborhood from the surrounding neighborhoods. Each neighborhood should provide, within the overall density limitations, a full range of housing types and lot sizes; those public and semipublic facilities needed by the household in the vicinity of its dwelling, such as a public elementary school, local park, and local shopping facilities; convenient and reasonably direct access to the arterial street and public transit system as a means of access to those activities located outside the neighborhood; and convenient and reasonably direct pedestrian, bicycle, and vehicle access within the neighborhood.

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[4] *Brownfields are defined by the Wisconsin Department of Natural Resources as properties which are underused or abandoned due to known or suspected environmental contamination. These sites usually exist on lands formerly occupied by industrial uses.*

Table 20

EXISTING AND PROPOSED LAND USE IN THE REGION: 1990 AND 2020 RECOMMENDED REGIONAL LAND USE PLAN

Land Use Category	Existing 1990		Planned Increment 1990-2020		Total 2020	
	Square Miles	Percent of Total	Square Miles	Percent	Square Miles	Percent of Total
Urban						
Residential						
Urban High-Density[a]	43.8	1.6	5.5	12.6	49.3	1.8
Urban Medium-Density[b]	92.0	3.4	49.1	53.4	141.1	5.2
Urban Low-Density[c]	156.0	5.8	7.7	4.9	163.7	6.1
Suburban-Density[d]	15.9	0.6	3.5	22.0	19.4	0.7
Subtotal	307.7	11.4	65.8	21.4	373.5	13.8
Commercial	15.2	0.6	3.2	21.1	18.4	0.7
Industrial	20.5	0.8	12.5	61.0	33.0	1.2
Transportation, Communication, and Utilities[e]	194.9	7.2	25.3	13.0	220.2	8.2
Governmental and Institutional	27.0	1.0	1.9	7.0	28.9	1.1
Recreational[f]	40.9	1.5	6.0[g]	14.7	46.9	1.7
Unused Urban Land	30.5	1.1	-14.5	-47.5	16.0	0.6
Urban Subtotal	636.7	23.6	100.2	15.7	736.9	27.3
Nonurban						
Agricultural and Rural-Density Residential Land	1,395.4	51.9	-63.1	-4.5	1,332.3	49.6
Other Open Land[h]	657.4	24.5	-37.1	-5.6	620.3	23.1
Nonurban Subtotal	2,052.8	76.4	-100.2	-4.9	1,952.6	72.7
Total	2,689.5	100.0	0.0	0.0	2,689.5	100.0

[a] *7.0-17.9 dwelling units per net residential acre.*

[b] *2.3-6.9 dwelling units per net residential acre.*

[c] *0.7-2.2 dwelling units per net residential acre.*

[d] *0.2-0.6 dwelling unit per net residential acre.*

[e] *Includes off-street parking areas.*

[f] *Includes only that land which is intensively used for recreational purposes.*

[g] *Includes only that increment which is for public recreational purposes.*

[h] *Includes woodlands, water, wetlands, landfill sites, quarries, and unused rural lands.*

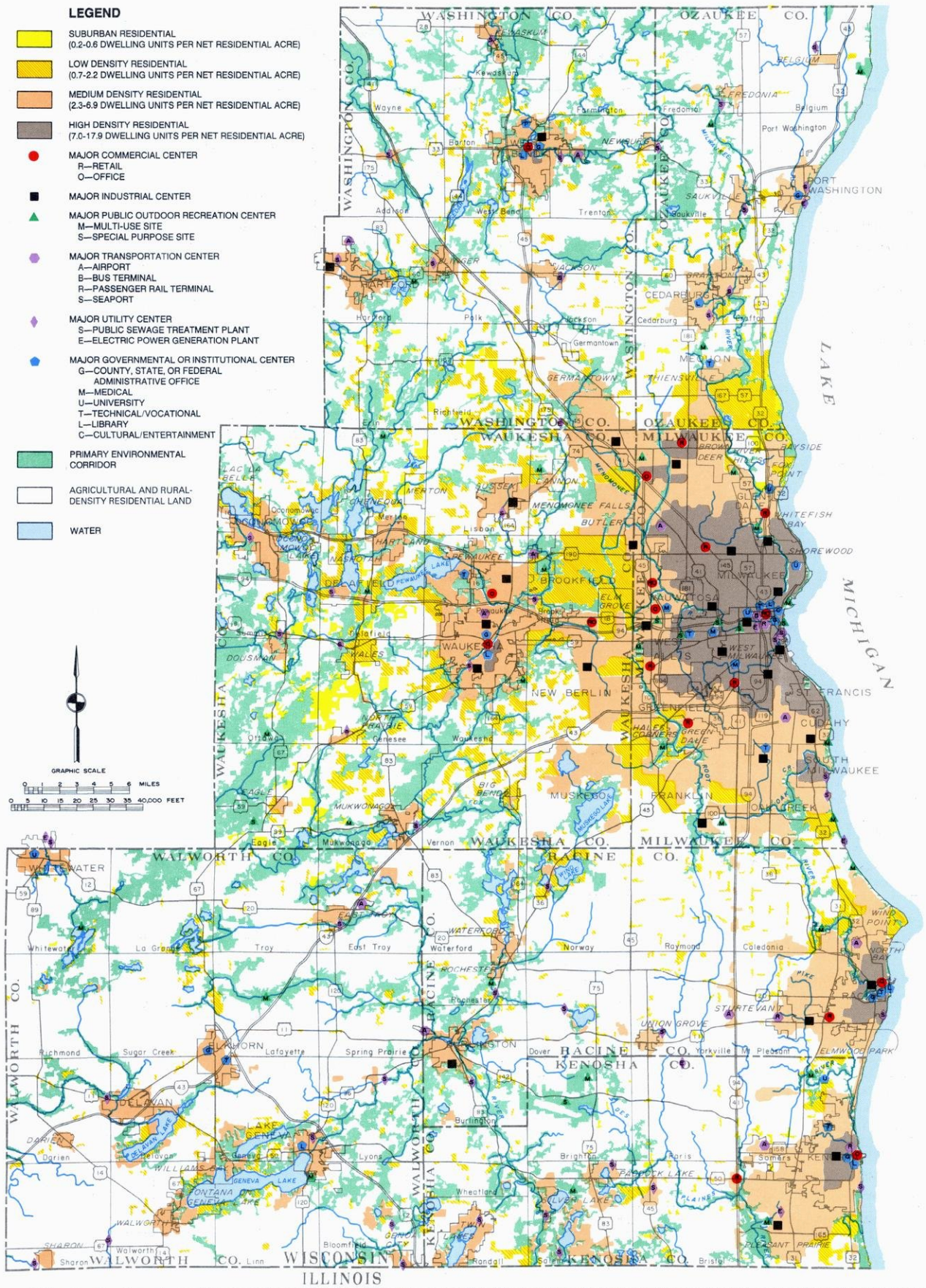
Source: SEWRPC.

Through the use of the planned residential development unit, the regional land use plan seeks to assure the long-term stability of residential areas. The need to develop an urban area as a number of recognizable neighborhoods is partly a matter of aesthetics, partly a matter of convenience in living and traveling within an urban area, partly a matter of efficiency in organizing and supplying public facilities and services, and partly a matter of bringing the size of the area in which an individual lives into a scale within which the individual can feel at home and take an active part in community affairs. The need to develop an urban area as a number of cellular units is also a matter of facilitating good design. The proper relationship of individual land subdivisions to external features of areawide concern and to existing and proposed land uses, including other land subdivisions, can best be achieved with the framework of the planned residential development unit.

While this section has been primarily concerned with new residential development, the importance of conserving and enhancing existing residential areas within the Region cannot be overemphasized. Attainment of a centralized

Map 10

RECOMMENDED LAND USE PLAN FOR THE SOUTHEASTERN WISCONSIN REGION: 2020



The design year 2020 regional land use plan envisions a need to convert about 100 square miles of land from rural to urban use to accommodate an anticipated population increase of about 267,500 persons and an anticipated employment increase of about 209,900 jobs in the Region between 1990 and 2020. Like the previously adopted plans, the new plan recommends a relatively compact, centralized regional settlement pattern, with urban development generally occurring within, and along the periphery of, existing urban centers in the Region. The plan recommends that new urban development occur primarily in those areas of the Region which are physically well suited for urban use and which can be readily served by basic municipal facilities and services, including public sanitary sewerage, water supply, and mass transit facilities and services. The plan recommends the preservation of environmentally sensitive areas and the preservation of the most productive farmlands in the Region.

Source: SEWRPC.

Table 21

EXISTING AND PROPOSED URBAN LAND USE IN THE REGION BY COUNTY: 1990 AND 2020 RECOMMENDED LAND USE PLAN

County	Urban Land Use[a]					
	Existing 1990		Planned Increment: 1990-2020		Total 2020	
	Square Miles	Percent of Total	Square Miles	Percent	Square Miles	Percent of Total
Kenosha	52.3	8.2	11.5	22.0	63.8	8.7
Milwaukee	185.2	29.1	10.2	5.5	195.4	26.5
Ozaukee	45.6	7.2	9.1	20.0	54.7	7.4
Racine	65.0	10.2	10.8	16.6	75.8	10.3
Walworth	61.3	9.6	7.7	12.6	69.0	9.4
Washington	59.5	9.3	15.0	25.2	74.5	10.1
Waukesha	167.8	26.4	35.9	21.4	203.7	27.6
Region	636.7	100.0	100.2	15.7	736.9	100.0

[a]*Includes the following land use categories: urban-density residential; commercial; industrial; intensive recreational; governmental and institutional; transportation, communication, and utilities; and unused urban land.*

Source: SEWRPC.

Table 22

EXISTING AND PROPOSED URBAN RESIDENTIAL LAND USE IN THE REGION BY COUNTY: 1990 AND 2020 RECOMMENDED LAND USE PLAN

County	Urban Residential Land Use											
	High-Density				Medium-Density				Low-Density			
	Existing 1990 (square miles)	Planned Increment 1990-2020		Total 2020 (square miles)	Existing 1990 (square miles)	Planned Increment 1990-2020		Total 2020 (square miles)	Existing 1990 (square miles)	Planned Increment 1990-2020		Total 2020 (square miles)
		Square Miles	Percent			Square Miles	Percent			Square Miles	Percent	
Kenosha	2.5	0.5	20.0	3.0	11.0	6.7	60.9	17.7	10.6	-0.2	-1.9	10.4
Milwaukee	35.9	3.4	9.5	39.3	26.5	5.8	21.9	32.3	12.4	-1.4	-11.3	11.0
Ozaukee	--[a]	0.1	--	0.1	6.4	3.8	59.4	10.2	15.2	2.2	14.5	17.4
Racine	3.8	0.2	5.3	4.0	11.5	5.8	50.4	17.3	15.9	1.3	8.2	17.2
Walworth	0.0	0.2	--	0.2	8.6	3.1	36.0	11.7	17.8	0.8	4.5	18.6
Washington	0.5	0.4	80.0	0.9	6.2	7.5	121.0	13.7	21.2	1.2	5.7	22.4
Waukesha	1.1	0.7	63.6	1.8	21.8	16.4	75.2	38.2	62.9	3.8	6.0	66.7
Region	43.8	5.5	12.6	49.3	92.0	49.1	53.4	141.1	156.0	7.7	4.9	163.7

County	Urban Residential Land Use							
	Suburban-Density				Total			
	Existing 1990 (square miles)	Planned Increment 1990-2020		Total 2020 (square miles)	Existing 1990 (square miles)	Planned Increment 1990-2020		Total 2020 (square miles)
		Square Miles	Percent			Square Miles	Percent	
Kenosha	0.6	-0.1	-16.7	0.5	24.7	6.9	27.9	31.6
Milwaukee	1.5	0.1	6.7	1.6	76.3	7.9	10.4	84.2
Ozaukee	1.7	-0.1	-5.9	1.6	23.3	6.0	25.8	29.3
Racine	0.1	0.0	0.0	0.1	31.3	7.3	23.3	38.6
Walworth	0.8	0.1	12.5	0.9	27.2	4.2	15.4	31.4
Washington	1.7	0.7	41.2	2.4	29.6	9.8	33.1	39.4
Waukesha	9.5	2.8	29.5	12.3	95.3	23.7	24.9	119.0
Region	15.9	3.5	22.0	19.4	307.7	65.8	21.4	373.5

[a]*Less than 0.1 square mile.*

Source: SEWRPC.

regional settlement pattern, as proposed in the land use plan, depends upon the conservation and renewal of existing residential areas. The importance of such conservation and renewal is evident given that of the 374 square miles of urban residential land envisioned by the year 2020, 82 percent, or 308 square miles, already was in urban residential use in 1990.

To the maximum extent practicable, efforts directed at the conservation and renewal of existing residential areas should also be undertaken on a neighborhood basis and should preserve those cultural features which provide for neighborhood identity within the larger urban complex. Redevelopment and renewal efforts should maximize opportunities for the provision of living environments that are unique to the city, such as "downtown" housing and housing on or near urban waterfronts. The development of housing should also be considered as a potential "brownfield" redevelopment strategy.

Commercial Land Use

The recommended plan proposes the development of about three square miles of new commercial land within the Region, excluding related off-street parking, over the plan design period, increasing the total commercial land area of the Region from about 15 square miles in 1990 to about 18 square miles by the year 2020, or by 21 percent. The planned distribution of commercial land among the seven counties in the Region is indicated in Table 23.

The proposed increase in commercial land would meet the area requirements of the anticipated increase in retail and service employment and the demands associated with the growth and redistribution of the population within the Region. The new commercial lands would be distributed so as to make the operation of business and the provision of goods and services to the people of the Region both efficient and convenient. This is proposed to be accomplished through the development of planned, integrated commercial centers properly located with respect to the existing and proposed transportation system and residential areas; through the discouragement of "strip" commercial development along major streets and highways; through the encouragement of the provision of adequate off-street parking and loading facilities; and through the efficient provision of adequate utility services.

The largest commercial areas, in terms of employment levels, anticipated under the plan are identified as major commercial centers. Two types of major commercial centers—major retail centers and major office centers—have been defined. To qualify as a major retail center, a site must accommodate at least 2,000 retail jobs. To qualify as a major office center, a site must accommodate at least 3,500 office and service-related jobs. Classification of commercial areas in this manner is useful for areawide land use planning insofar as it provides an indication of the scale of development and the predominant type of activity. It should be recognized, however, that many sites accommodate a mixture of retail, service, and office uses. Indeed, several major commercial sites in the Region meet both the retail and office employment criteria for major centers. The major commercial centers proposed under the year 2020 land use plan are identified on Map 11. The U. S. Public Land Survey quarter sections which approximate these centers are shown in Appendix C of this report.

There were 14 major commercial centers in the Region in 1990. Under the plan, all 14 sites would be retained as major commercial centers through the year 2020. Seven of these sites have been identified as major retail centers: the Bayshore, Capitol Court, Northridge, Southridge, and Southgate-Loomis Centre shopping centers and the West Allis shopping area along STH 100, all in Milwaukee County, and the Regency Mall shopping center in Racine County. Three existing sites have been identified as major office centers, including the central business districts of the Cities of Kenosha, Racine, and Waukesha. Four existing sites have been identified as both major office and major retail centers, including the City of Milwaukee central business district; the Mayfair commercial area in the City of Wauwatosa; the West Bend central business district and other retail and office development along Main Street to the south; and the Blue Mound Road commercial area, consisting of the Brookfield Square shopping center and other retail and office development along Blue Mound Road in eastern Waukesha County.

The plan proposes to add four new major commercial centers by the year 2020, including one retail center and three office centers. The proposed retail center is the shopping area located near the intersection of IH 94 and STH 50 in Kenosha County, which area was partially developed in 1990. The proposed office centers include Park Place in northwestern Milwaukee County and an office center located near the IH 94-CTH J interchange in Waukesha County, both of which were partially developed in 1990; and the Milwaukee County Research Park in western Milwaukee County, which was in the initial stages of development in 1997.

The central business districts of the largest freestanding communities in the Region, Kenosha, Racine, and Waukesha, are included in the plan as major commercial centers because of their importance as centers of government as well as private office and service centers. For these centers, the total municipal, county, and State government employment in combination with private service employ-

Table 23

EXISTING AND PROPOSED COMMERCIAL LAND USE IN THE REGION BY COUNTY: 1990 AND 2020 RECOMMENDED LAND USE PLAN

County	Commercial Land Use[a]					
	Existing 1990		Planned Increment: 1990-2020		Total 2020	
	Square Miles	Percent of Total	Square Miles	Percent	Square Miles	Percent of Total
Kenosha	1.1	7.2	0.5	45.5	1.6	8.7
Milwaukee	5.9	38.8	0.4	6.8	6.3	34.2
Ozaukee	0.8	5.3	0.2	25.0	1.0	5.4
Racine	1.6	10.5	0.3	18.7	1.9	10.3
Walworth	1.3	8.6	0.2	15.4	1.5	8.2
Washington	1.0	6.6	0.1	10.0	1.1	6.0
Waukesha	3.5	23.0	1.5	42.9	5.0	27.2
Region	15.2	100.0	3.2	21.1	18.4	100.0

[a]*Excludes off-street parking areas. The area of off-street parking is included in the transportation, communication, and utility land use category, and is reflected in the data set forth in Table 26.*

Source: SEWRPC.

ment warrants designation as major office centers. These older urban areas may be expected to continue to rank as major centers, however, only with continued urban conservation and renewal efforts.

The year 2020 regional land use plan envisions one less major commercial site than does the adopted year 2010 plan. A proposal for the development of a major office center along IH 43 in the City of Mequon made in the year 2010 plan is not included in the year 2020 plan. A major center at that location is not reflected in local plans formulated subsequent to the preparation of the year 2010 regional land use plan. The regional land use plan has been adjusted to reflect revised local development objectives for this area.

The year 2020 regional land use plan also recognizes the concentration of retail development in the West Bend central business district and in the area along Main Street to the south as a major retail center. Retail employment growth in that area has exceeded that envisioned under the year 2010 plan, and the area now qualifies as a major retail center. The West Bend central business district had been identified in the 2010 plan as a major office center, as warranted by total government and private-sector office employment. Under the year 2020 plan, West Bend is proposed to be retained as both a major retail and a major office center.

Aside from major commercial centers, a significant amount of additional land would also be allocated to neighborhood and community commercial areas having less than 2,000 retail jobs. A neighborhood commercial area serves approximately 4,000 to 10,000 persons and encompasses a gross site area ranging from five to 15 acres. A community commercial area serves approximately 10,000 to 75,000 persons and encompasses a gross site area ranging from 15 to 40 acres.

Industrial Land Use

The recommended plan proposes the development of about 13 square miles of new industrial land within the Region, excluding related off-street parking, over the plan design period, increasing the total industrial land area of the Region from about 20 square miles in 1990 to 33 square miles by the year 2020, or by 61 percent. The planned distribution of industrial land among the seven counties in the Region is indicated in Table 24.

The proposed increase in industrial land would meet the requirements of the anticipated increases in manufacturing and wholesaling activity within the Region and would be so distributed as to protect and enhance the continued efficient operation of these important components of the economic base of the Region. This is proposed to be accomplished through the development of planned industrial centers properly located with respect to the existing and proposed transportation system; through the protection and enhancement of existing industrial areas, including the addressing of those environmental contamination problems found at such sites; and through the efficient provision of adequate utility services. The plan provides

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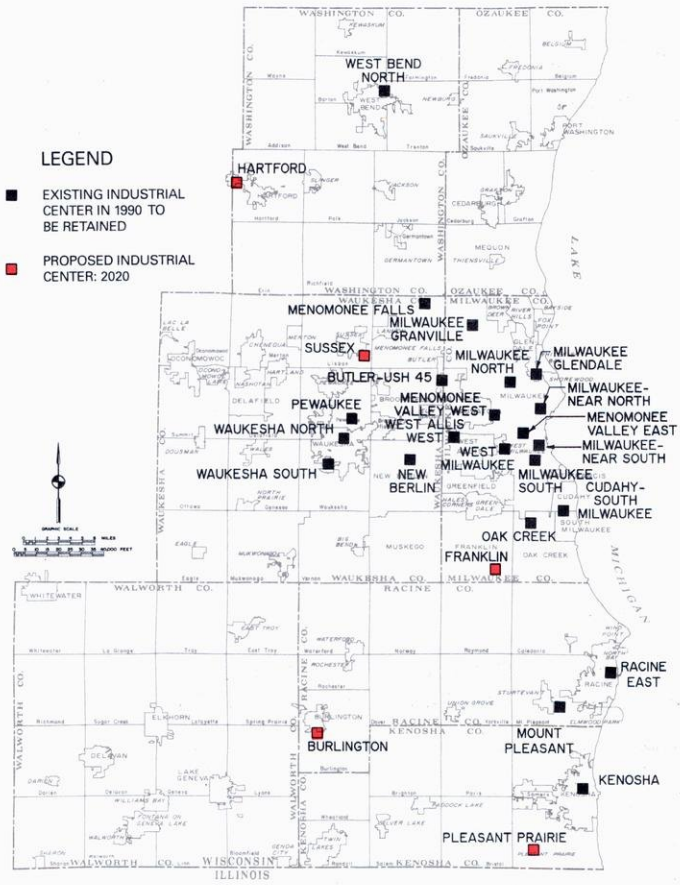
Map 12

MAJOR INDUSTRIAL CENTERS IN THE REGION: 2020 RECOMMENDED LAND USE PLAN



The year 2020 regional land use plan envisions a total of 27 major industrial centers to serve the needs of the Region through the plan design year. Twenty-two of these sites existed in 1990 and are recommended to be retained through the year 2020. Under the plan, five other sites, which were in varying states of development in 1997, would be further developed, achieving major industrial center status by the year 2020.

Source: SEWRPC.

Transportation, Communication, and Utility Land Use

The recommended plan proposes the development of about 25 square miles of new transportation, communication, and utility land within the Region over the plan design period, increasing the total area of such land from about 195 square miles in 1990 to about 220 square miles in the year 2020, or by 13 percent. The planned distribution of transportation, communication, and utility land among the seven counties in the Region is indicated in Table 26.

Most of the additional land in this category would be required for rights-of-way for new or improved arterial, collector, and minor streets needed to serve new urban development or to provide adequate transportation service to existing urban development. Some of the additional land would be required for planned airport expansions, as recommended in the regional airport system plan. Minor amounts of land would also be required for the planned expansion of existing, or construction of new, public sanitary sewage treatment facilities, as recommended in the regional water quality management plan.

Major transportation and utility facilities envisioned under the year 2020 land use plan—including public sewage treatment plants, major electric power generation plants, major airports, major bus and railway passenger stations, and the Milwaukee seaport—are shown on Map 14. The plan recognizes the development of two new electric power generation plants during the planning period—a plant in the Town of Paris, which went into service in 1995, and a plant located on the north side of the City of Whitewater, which was scheduled to begin operation in 1997. The plan also envisions three new public sewage treatment plants serving the Village of Wales and Village of North Prairie in Waukesha County and the Pell Lake area in Walworth County.

Recreational Land Use

The recommended plan proposes the development of six square miles of new recreational land within the Region, increasing the total recreational land area of the Region from about 41 square miles in 1990 to about 47 square miles by the year 2020, or by 15 percent. The planned distribution of recreational land among the seven counties in the Region is indicated in Table 27. The data in Table 27 pertain to "intensive-use" areas—that is, land actually developed, or anticipated to be developed, as outdoor recreational facility areas. The planned increase in recreational land indicated in that table represents only the increase in land developed for public recreational use.

The planned increases in recreational land envisioned under the plan are based in part on neighborhood development standards, which seek to provide adequate neighborhood parkland in developing residential areas. The increases also reflect specific park site acquisition and development proposals set forth in the regional park and open space plan and in county park and open space plans which refine the regional plan.

The land use plan proposes a system of 30 major parks of regional size and significance to serve the needs of the Region through the year 2020. Such parks each have an area of at least 250 acres and provide opportunities for a variety of resource-oriented outdoor recreational activities. All of the proposed park sites were at least partially acquired as of 1997.

Table 25

EXISTING AND PROPOSED GOVERNMENTAL AND INSTITUTIONAL LAND USE IN THE REGION BY COUNTY: 1990 AND 2020 RECOMMENDED LAND USE PLAN

County	Governmental and Institutional Land Use[a]					
	Existing 1990		Planned Increment: 1990-2020		Total 2020	
	Square Miles	Percent of Total	Square Miles	Percent	Square Miles	Percent of Total
Kenosha	2.1	7.8	0.1	4.8	2.2	7.6
Milwaukee	11.1	41.1	0.3	2.7	11.4	39.5
Ozaukee	1.7	6.3	0.1	5.9	1.8	6.2
Racine	2.9	10.7	0.1	3.4	3.0	10.4
Walworth	1.9	7.0	0.3	15.8	2.2	7.6
Washington	1.7	6.3	0.3	17.6	2.0	6.9
Waukesha	5.6	20.8	0.7	12.5	6.3	21.8
Region	27.0	100.0	1.9	7.0	28.9	100.0

[a]*Excludes off-street parking areas. The area of off-street parking is included in the transportation, communication, and utility land use category, and is reflected in the data set forth in Table 26.*

Source: SEWRPC.

Table 26

EXISTING AND PROPOSED TRANSPORTATION, COMMUNICATION, AND UTILITY LAND USE IN THE REGION BY COUNTY: 1990 AND 2020 RECOMMENDED LAND USE PLAN

County	Transportation, Communication, and Utility Land Use					
	Existing 1990		Planned Increment: 1990-2020		Total 2020	
	Square Miles	Percent of Total	Square Miles	Percent	Square Miles	Percent of Total
Kenosha	16.5	8.5	3.3	20.0	19.8	9.0
Milwaukee	57.9	29.7	3.7	6.4	61.6	28.0
Ozaukee	14.2	7.3	2.0	14.1	16.2	7.4
Racine	20.7	10.6	2.6	12.6	23.3	10.6
Walworth	23.1	11.9	1.6	6.9	24.7	11.2
Washington	21.1	10.8	3.2	15.2	24.3	11.0
Waukesha	41.4	21.2	8.9	21.5	50.3	22.8
Region	194.9	100.0	25.3	13.0	220.2	100.0

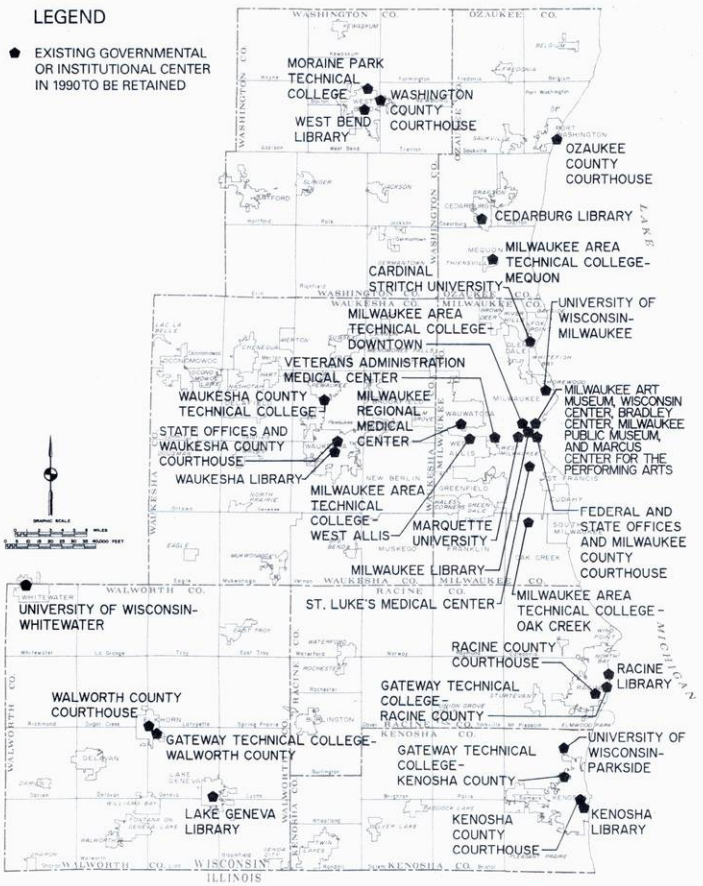
NOTE: About 23 square miles, or about 12 percent of the transportation, communication, and utility land use in the Region in 1990, were encompassed by off-street parking areas associated with various other urban land uses. Under the recommended land use plan, about 32.5 square miles, or about 15 percent of the transportation, communication, and utility land use in the Region in 2020, would then be encompassed by such off-street parking areas.

Source: SEWRPC.

The year 2020 regional land use plan envisions one less major park site than does the adopted year 2010 plan. A proposal for the development of a major park at Lucas Lake in Washington County, initially made in the year 1990 regional land use plan and reaffirmed in the year 2000 and year 2010 plans, is not included in the year 2020 plan. The proposal for the development of a major park at Lucas Lake was reconsidered in the recent update of

Map 13

MAJOR GOVERNMENTAL AND INSTITUTIONAL CENTERS IN THE REGION: 2020 RECOMMENDED LAND USE PLAN

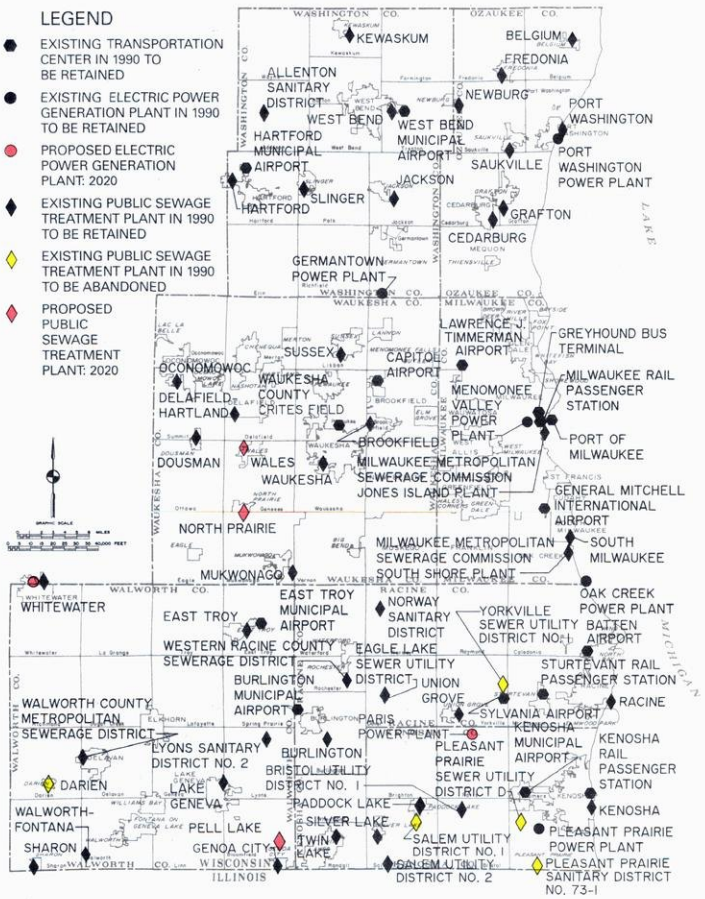


The map above shows the locations of the major governmental and institutional centers—including county courthouses, major State and Federal office buildings, major medical complexes, universities, technical colleges, major public libraries, and major cultural centers—envisioned under the year 2020 regional land use plan. No new major governmental or institutional centers are proposed. Additional development at the existing major centers would be limited to that necessary to meet the needs of the growing population.

Source: SEWRPC.

Map 14

MAJOR TRANSPORTATION AND UTILITY CENTERS IN THE REGION: 2020 RECOMMENDED LAND USE PLAN



Major transportation and utility centers envisioned under the year 2020 regional land use plan—including public sewage treatment plants, major electric power generation plants, major airports, major bus and railway passenger stations, and the Milwaukee seaport—are shown on this map. The plan envisions the development of three new public sewage treatment plants as well as the abandonment of five existing public sewage treatment plants and the connection of the associated collection systems to regional sewerage systems. The plan also recognizes the development since 1990 of two new electric power generation plants serving the Region.

Source: SEWRPC.

the Washington County park and open space plan.[8] The owner of the site, the Girl Scouts of the U.S.A., has indicated that it has no intention of selling that site in the foreseeable future. Consequently, the Washington County park plan omitted the proposal for the Lucas Lake park and recommended that the recreational facilities previously proposed for development at Lucas Lake be provided at other County park sites in the vicinity. The design year 2020 regional land use plan has been revised to reflect the County park and open space plan. It should be noted that lands surrounding Lucas Lake have been identified as natural areas under the regional natural areas and critical species habitat protection and management plan. Under that plan, natural areas located adjacent to property held by the Girl Scouts are recommended for acquisition by the Wisconsin Department of Natural

[8] *SEWRPC Community Assistance Planning Report No. 136 (2nd Edition)*, A Park and Open Space Plan for Washington County, *August 1997.*

Table 27

EXISTING AND PROPOSED RECREATIONAL LAND USE IN THE REGION
BY COUNTY: 1990 AND 2020 RECOMMENDED LAND USE PLAN

County	Recreational Land Use[a]					
	Existing 1990		Planned Increment: 1990-2020[b]		Total 2020	
	Square Miles	Percent of Total	Square Miles	Percent	Square Miles	Percent of Total
Kenosha	4.3	10.5	0.4	9.3	4.7	10.0
Milwaukee	11.4	27.9	0.8	7.0	12.2	26.0
Ozaukee	2.8	6.8	0.9	32.1	3.7	7.9
Racine	3.9	9.5	0.1	2.6	4.0	8.5
Walworth	5.4	13.2	0.6	11.1	6.0	12.8
Washington	3.3	8.1	1.0	30.3	4.3	9.2
Waukesha	9.8	24.0	2.2	22.4	12.0	25.6
Region	40.9	100.0	6.0	14.7	46.9	100.0

[a] *Includes only that land which is intensively used for recreational purposes. Excludes off-street parking areas. The area of off-street parking is included in the transportation, communication, and utility land use category, and is reflected in the data set forth in Table 26.*

[b] *Includes only that increment which is for public recreational uses.*

Source: SEWRPC.

Resources for resource preservation purposes. Should the lands now held by the Girl Scouts become available for purchase, the Wisconsin Department of Natural Resources should also purchase the natural areas located within that site for resource preservation purposes.

The recommended major park sites, along with existing major special-use outdoor recreation sites in the Region, are shown on Map 15. The area denoted on this map as "Lake Michigan North" includes Back Bay, Juneau, Lake, McKinley, O'Donnell, and Veterans Parks and Bradford Beach. The area denoted as "Lake Michigan South" includes Bay View, Grant, Sheridan, South Shore, and Warnimont Parks.

Nonurban Land Use

As a result of the continued growth and development envisioned under the land use plan, the nonurban land area of the Region would decrease from about 2,053 square miles in 1990 to about 1,953 square miles in the year 2020, a decrease of 100 square miles, or 5 percent (see Table 28). Nonurban lands would account for about 73 percent of the total area of the Region in 2020, compared to 76 percent in 1990. While a substantial amount of nonurban land would be required to be converted to urban use to accommodate the anticipated growth in population and economic activity, the recommended plan seeks to avoid the loss of environmentally sensitive lands, particularly the primary environmental corridors, and to minimize the loss of prime agricultural lands.

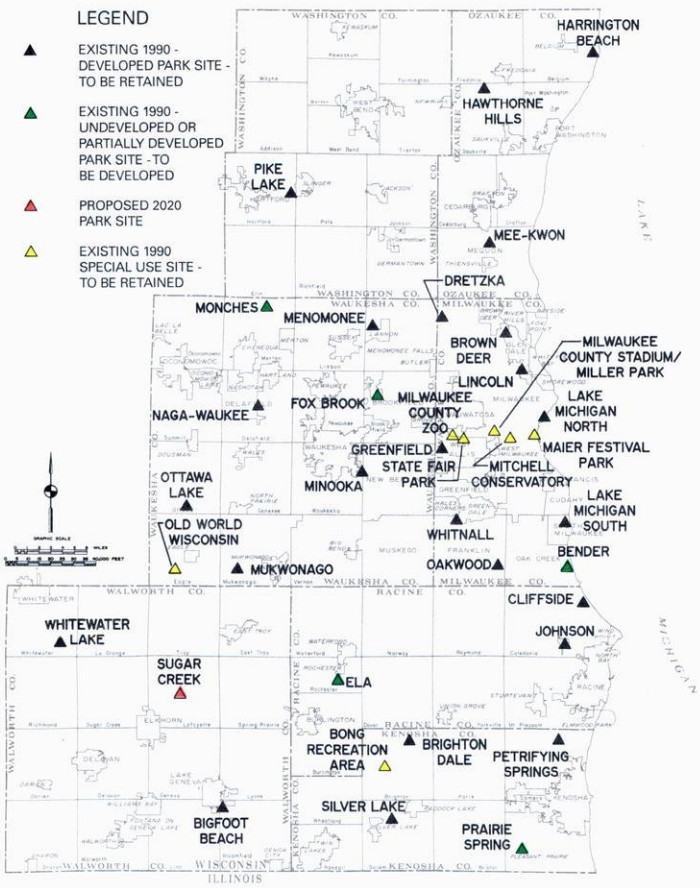
Environmentally Sensitive Areas

The most important elements of the natural resource base of the Region, including the best remaining woodlands, wetlands, prairies, wildlife habitat, surface water and associated shorelands and floodlands, and related features, including historic, scenic, and scientific sites, have been found to occur in linear patterns in the regional landscape. These linear patterns of prime natural resources concentrations have been termed "primary environmental corridors." By definition, primary environmental corridors are at least two miles long, 200 feet wide, and 400 acres in area. These corridors are generally located along major stream valleys, along the Lake Michigan shoreline, around major inland lakes, and in the Kettle Moraine. The preservation of these corridors is considered essential to the maintenance of the overall environmental quality of the Region and preservation of its unique cultural and natural heritage and natural beauty. Because these corridors are generally poorly suited for urban development owing to soil limitations, steep slopes, or flooding potential, their preservation will also help to avoid the creation of new environmental and development problems.

The regional land use plan recommends that primary environmental corridors be preserved in natural, open uses.

Map 15

MAJOR PUBLIC OUTDOOR RECREATION CENTERS IN THE REGION: 2020 RECOMMENDED LAND USE PLAN



The year 2020 regional land use plan envisions a total of 30 major parks of regional size and significance to serve the needs of the Region through the year 2020. Such parks each have an area of at least 250 acres and provide opportunities for a variety of resource-oriented outdoor recreational activities. All of the proposed sites were at least partially acquired for park purposes as of 1997. In addition to the 30 major parks, the plan envisions that all seven of the major special-use recreation sites in the Region identified on the above map would be retained through the plan design year.

Source: SEWRPC.

Under the plan, development within the corridors would be limited to essential transportation and utility facilities, compatible outdoor recreational facilities, and, on a limited basis, rural-density residential use. Rural-density development should, to the extent practicable, be carefully integrated at the fringes of upland environmental corridor areas using appropriate site design, such as cluster development techniques.

Under the plan, the existing configuration of primary environmental corridors would be modified slightly. Existing upland environmental corridor lands which have been committed to urban use in subdivision plats or sanitary sewer service area amendments to the regional water quality management plan are proposed to be allowed to be developed in urban use; these lands are not included in the planned environmental corridors shown on Map 10. Certain floodlands presently in agricultural use—those located adjacent to primary environmental corridors in planned urban service areas—are proposed for eventual restoration to a natural condition; these lands are included in the planned environmental corridor network. The net effect of these changes would be an increase in the primary environmental corridor area, from about 464 square miles in 1990 to about 474 square miles in 2020 (see Table 29).

In addition to the primary environmental corridors, other concentrations of natural resources have been identified which warrant consideration for preservation in county and local planning efforts. "Secondary environmental corridors" contain a variety of resource features and are by definition at least one mile long and 100 acres in area. "Isolated natural resource areas" are concentrations of natural resources of at least five acres in size that have been separated from the environmental corridors by intensive urban or agricultural uses. Secondary environmental corridors and isolated natural resource areas in the Region are identified on Map 7 in Chapter II of this report (see page 22). These areas should be retained as part of the natural drainage system, incorporated into local parks or open space reserves, as determined in county and local land use plans, or preserved in other open space uses insofar as practicable.

Under the plan, the secondary environmental corridor area would decrease by about one square mile, from about 76 square miles in 1990 to about 75 square miles in 2020; and isolated natural resource areas would decrease by about one square mile, from about 63 square miles in 1990 to about 62 square miles in 2020 (see Table 29). It should be noted that the envisioned decrease in secondary environmental corridors is due primarily to the expansion of such areas by inclusion of floodlands currently in agricultural use, and subsequent reclassification to primary environmental corridors. The decrease in isolated natural resource areas is primarily due to commitments to urban use inherent in locally adopted land use plans.

Agricultural and Rural-Density Residential Land

Under the plan, those areas which are designated neither for future urban use nor recommended for preservation as

Table 28

EXISTING AND PROPOSED NONURBAN LAND USE IN THE REGION BY COUNTY: 1990 AND 2020 RECOMMENDED LAND USE PLAN

County	Nonurban Land Use[a]					
	Existing 1990		Planned Increment: 1990-2020		Total 2020	
	Square Miles	Percent of Total	Square Miles	Percent	Square Miles	Percent of Total
Kenosha	226.1	11.0	-11.5	-5.1	214.6	11.0
Milwaukee	57.4	2.8	-10.2	-17.8	47.2	2.4
Ozaukee	189.5	9.2	-9.1	-4.8	180.4	9.2
Racine	275.6	13.4	-10.8	-3.9	264.8	13.6
Walworth	515.2	25.1	-7.7	-1.5	507.5	26.0
Washington	376.2	18.4	-15.0	-4.0	361.2	18.5
Waukesha	412.8	20.1	-35.9	-8.7	376.9	19.3
Region	2,052.8	100.0	-100.2	-4.9	1,952.6	100.0

[a]*Includes the following: agricultural and rural-density residential land, woodlands, wetlands, surface water, landfill sites, quarries, and unused rural lands.*

Source: SEWRPC.

environmentally sensitive areas[9] are identified as "agricultural and rural-density residential land." There were about 1,395 square miles of such lands, representing about 52 percent of the total area of the Region, in 1990. These areas would encompass about 1,332 square miles, or about 50 percent of the total area of the Region, in the year 2020 (see Table 30). The plan recommends that these areas be maintained in rural use. The plan encourages the continuation of agricultural uses in these areas. In particular, the plan seeks to preserve, insofar as practicable, the most productive soils within these areas, namely U. S. Natural Resources Conservation Service capability Class I and Class II soils. Under the plan, the conversion of farmlands covered by Class I and Class II soils to urban use would be limited to lands located in proximity to existing urban service areas as necessary for the orderly growth and development of those urban areas, as well as to lands located beyond the urban service areas which have been committed to urban development on already approved subdivision plats. As indicated in Table 31 and shown on Map 16, agricultural lands covered by these soils encompassed about 1,066 square miles, or about 76 percent of the agricultural and rural residential lands in the Region, in 1990. Under the recommended plan, about 1,019 square miles, or about 96 percent of the agricultural lands covered by Class I and Class II soils, would be retained in agricultural use through the year 2020.

The regional plan recognizes that under the provisions of the Wisconsin Statutes creating the Wisconsin Farmland Preservation Program, counties in the State are responsible for the identification of prime agricultural lands and further recognizes that the criteria used to identify prime agricultural lands may differ from county to county. Counties in the Region are encouraged to prepare and adopt updated farmland preservation plans which identify prime agricultural lands. Such plans should seek to preserve Class I and Class II soils insofar as practicable and should establish the presence of Class I and Class II soils as a key determinant in the identification of prime agricultural land. Counties may choose to include other classes of soils in the definition of prime agricultural land and may incorporate other criteria, such as size of farm units or size of the contiguous farming area, into the definition of prime agricultural land. Prime agricultural lands identified in county farmland preservation plans should be placed in exclusive agricultural zoning districts which specify a minimum parcel size of 35 acres.

In addition to maintaining agricultural resources for future generations, the preservation of agricultural land as recommended under the plan serves a number of other important public purposes. Such preservation helps to prevent scattered, incomplete neighborhoods which are

[9]*Environmentally sensitive areas include primary environmental corridors recommended for preservation in the regional land use plan along with secondary environmental corridors and isolated natural resource areas which are encouraged to be recommended for preservation in county and local land use plans.*

Table 29

EXISTING AND PROPOSED ENVIRONMENTAL CORRIDORS AND ISOLATED NATURAL RESOURCE AREAS IN THE REGION BY COUNTY: 1990 AND 2020 RECOMMENDED LAND USE PLAN

County	Primary Environmental Corridors					
	Existing 1990		Planned Increment: 1990-2020		Total 2020	
	Square Miles	Percent of Total	Square Miles	Percent	Square Miles	Percent of Total
Kenosha	44.2	9.5	0.1	0.2	44.3	9.3
Milwaukee	14.5	3.1	2.3	15.9	16.8	3.5
Ozaukee	32.0	6.9	0.9	2.8	32.9	6.9
Racine	36.2	7.8	0.7	1.9	36.9	7.8
Walworth	99.1	21.4	0.4	0.4	99.5	21.0
Washington	93.4	20.1	2.2	2.4	95.6	20.2
Waukesha	144.9	31.2	3.6	2.5	148.5	31.3
Region	464.3	100.0	10.2	2.2	474.5	100.0

County	Secondary Environmental Corridors					
	Existing 1990		Planned Increment: 1990-2020		Total 2020	
	Square Miles	Percent of Total	Square Miles	Percent	Square Miles	Percent of Total
Kenosha	9.9	13.1	--[a]	0.0	9.9	13.3
Milwaukee	5.3	7.0	-0.4	-7.5	4.9	6.6
Ozaukee	7.6	10.0	0.2	2.6	7.8	10.5
Racine	11.0	14.5	0.2	1.8	11.2	15.0
Walworth	14.6	19.3	-0.3	-2.1	14.3	19.2
Washington	15.4	20.3	--[a]	0.0	15.4	20.7
Waukesha	12.0	15.8	-1.0	-8.3	11.0	14.7
Region	75.8	100.0	-1.3	-1.7	74.5	100.0

County	Isolated Natural Resource Areas					
	Existing 1990		Planned Increment: 1990-2020		Total 2020	
	Square Miles	Percent of Total	Square Miles	Percent	Square Miles	Percent of Total
Kenosha	5.8	9.2	--[a]	0.0	5.8	9.4
Milwaukee	3.5	5.6	--[a]	0.0	3.5	5.7
Ozaukee	5.4	8.6	-0.3	-5.6	5.1	8.2
Racine	11.7	18.7	--[a]	0.0	11.7	19.0
Walworth	13.0	20.7	0.1	0.7	13.1	21.3
Washington	10.2	16.3	-0.1	-1.0	10.1	16.4
Waukesha	13.1	20.9	-0.8	-6.1	12.3	20.0
Region	62.7	100.0	-1.1	-1.8	61.6	100.0

[a] *Less than 0.05 square mile.*

Source: SEWRPC.

difficult to provide with basic public services and facilities, and can thus help to control local public expenditures. The preservation of farmland would, moreover, help maintain the natural beauty and cultural heritage of the Region.

Other lands in this category—lands which are not identified as prime agricultural lands under county farmland preservation plans—are recommended to be retained in rural use. The regional plan encourages the continuation of agricultural activity in these areas, recognizing that such activity may occur in the form of smaller farms such as horse farms, hobby farms, or community-supported agricultural operations. Under the plan, development in these areas would be limited to rural-density residential

Table 30

EXISTING AND PROPOSED AGRICULTURAL AND RURAL-DENSITY RESIDENTIAL LANDS IN THE REGION BY COUNTY: 1990 AND 2020 RECOMMENDED LAND USE PLAN

County	Agricultural and Rural-Density Residential Land					
	Existing 1990		Planned Increment: 1990-2020		Total 2020	
	Square Miles	Percent of Total	Square Miles	Percent	Square Miles	Percent of Total
Kenosha	160.0	11.5	-7.5	-4.7	152.5	11.4
Milwaukee	29.3	2.1	-5.6	-19.1	23.7	1.8
Ozaukee	139.7	10.0	-6.1	-4.4	133.6	10.0
Racine	210.1	15.1	-7.2	-3.4	202.9	15.2
Walworth	386.0	27.7	-4.5	-1.2	381.5	28.6
Washington	247.7	17.7	-10.1	-4.1	237.6	17.8
Waukesha	222.6	15.9	-22.1	-9.9	200.5	15.2
Region	1,395.4	100.0	-63.1	-4.5	1,332.3	100.0

Source: SEWRPC.

Table 31

EXISTING AND PROPOSED AGRICULTURAL LANDS COVERED BY U. S. NATURAL RESOURCES CONSERVATION SERVICE SOIL CAPABILITY CLASS I AND CLASS II SOILS: 1990 AND 2020 RECOMMENDED LAND USE PLAN

County	Agricultural Land Covered by Class I and Class II Soils					
	Existing 1990		Planned Increment: 1990-2020		Total 2020	
	Square Miles	Percent of Total	Square Miles	Percent	Square Miles	Percent of Total
Kenosha	133.3	12.5	-6.3	-4.7	127.0	12.5
Milwaukee	26.5	2.5	-5.1	-19.1	21.4	2.1
Ozaukee	104.8	9.8	-4.6	-4.4	100.2	9.8
Racine	170.8	16.0	-5.8	-3.4	165.0	16.2
Walworth	312.7	29.3	-3.8	-1.2	308.9	30.3
Washington	165.7	15.6	-6.8	-4.1	158.9	15.6
Waukesha	152.5	14.3	-15.1	-9.9	137.4	13.5
Region	1,066.3	100.0	-47.5	-4.5	1,018.8	100.0

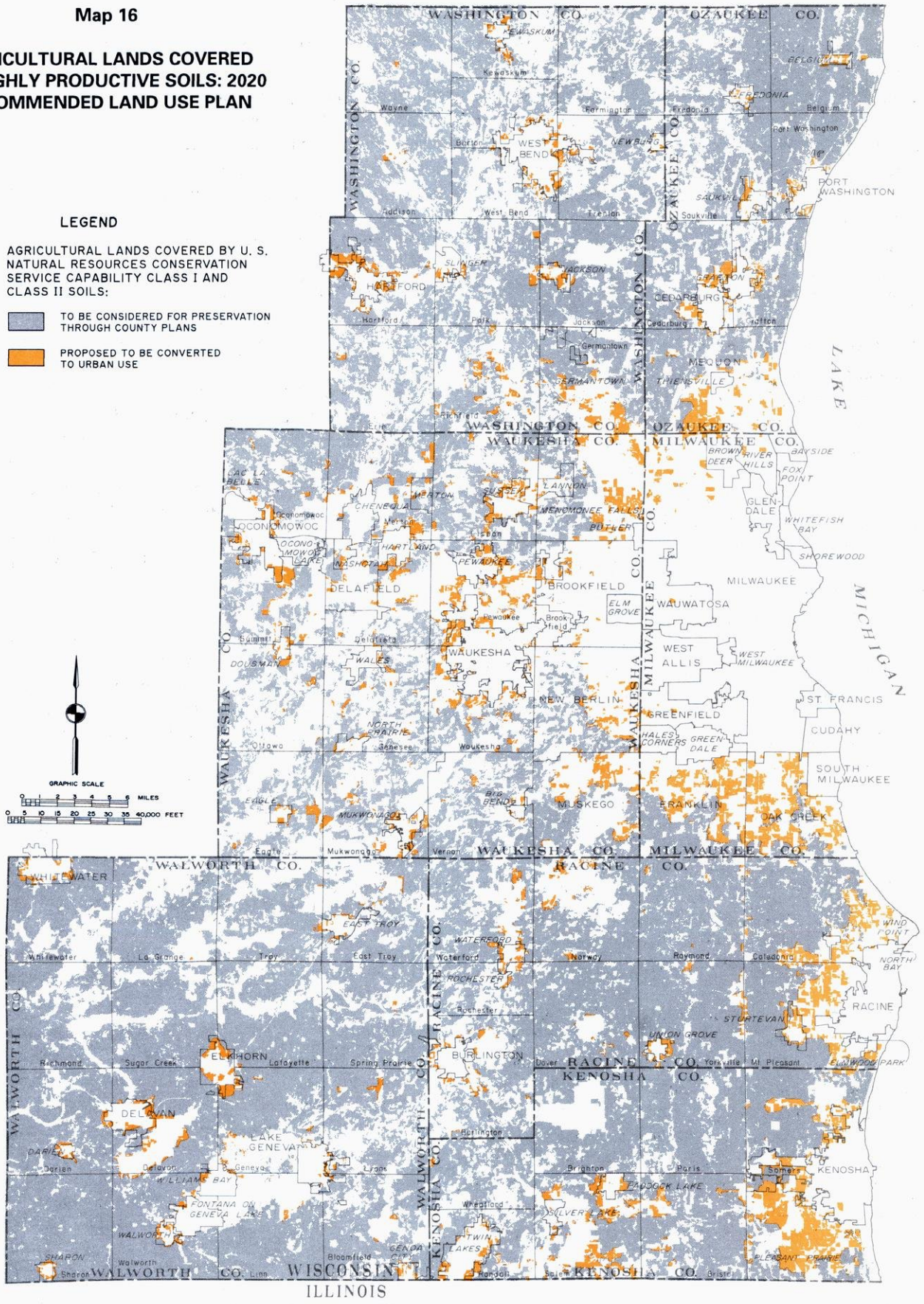
Source: U. S. Natural Resources Conservation Service and SEWRPC.

development, defined as development at densities of no more than one dwelling unit per five acres. Where rural residential development is accommodated, the plan encourages the use of residential cluster designs, with dwelling units developed in clusters surrounded by agricultural and other open space sufficient to maintain the maximum recommended density of no more than one dwelling unit per five acres. Other than to accommodate clustering—or, alternatively, development involving "lot averaging"[10]— land parcels should be at least five acres in

[10] *"Lot averaging" refers to designs which involve reductions in the area of a lot below the minimum required under zoning, provided that the area by which it is reduced is added to another lot in the proposed development.*

Map 16

AGRICULTURAL LANDS COVERED BY HIGHLY PRODUCTIVE SOILS: 2020 RECOMMENDED LAND USE PLAN



The regional land use plan seeks to preserve, insofar as practicable, the soils considered most productive for agricultural purposes—namely, U. S. Natural Resources Conservation Service capability Class I and Class II soils. Under the plan, the conversion of farmland covered by Class I and Class II soils to urban use would be limited to lands needed for the orderly expansion of existing urban service areas and lands located beyond planned urban service areas which have already been effectively committed to urban use. Under the plan, agricultural land covered by Class I and Class II soils in the Region would decrease from 1,066 square miles in 1990 to 1,019 square miles in the year 2020.

Source: U. S. Natural Resources Conservation Service and SEWRPC.

area, and larger parcel sizes are encouraged. The intent of these recommendations is to preserve rural character and the open space environment; to minimize additional scattered urban development, which tends to destroy rural character; to avoid environmental problems attendant to the widespread use of onsite wells and sewage disposal systems; to minimize disturbance of natural drainage systems; to minimize infrastructure installation and maintenance costs; and, at the same time, to accommodate, on a limited basis, the likely continued demand for housing in outlying areas of the Region.

Distribution of Population, Households, and Employment

Under the intermediate regional growth scenario, used as a basis for the preparation of the year 2020 land use plan, the resident population of the Region would increase by about 267,500 persons, or about 15 percent, from 1,810,400 persons in 1990 to 2,077,900 persons by the year 2020. Under the proposed land use plan, the year 2020 regional population would be distributed among the seven counties as shown in Table 32. Under the plan, Waukesha County would experience the largest absolute increase in population, about 83,000 persons, while the absolute increases in population among the remaining six counties would range from 16,100 persons in Ozaukee County to 63,200 persons in Milwaukee County.

Under the plan, the number of households in the Region would increase from 676,100 in 1990 to 827,100 in 2020, an increase of about 151,000 households, or 22 percent. In relative terms, the number of households would continue to grow at a faster rate than the regional population. As indicated in Table 33, under the plan, each county in the Region would experience a significant increase in the number of households between 1990 and 2020, ranging from 9,300 households in Walworth County to 43,100 households in Waukesha County.

Under the plan, the number of jobs in the Region would increase from 1,067,200 in 1990 to 1,277,100 in 2020, an increase of about 209,900 jobs, or 20 percent. The distribution of jobs among the seven counties is shown in Table 34. Under the plan, each county would gain a significant number of jobs between 1990 and 2020. Under the plan, Waukesha County would experience the largest absolute increase in jobs, over 73,000, while the increases in jobs among the remaining six counties would range from 13,600 jobs in Ozaukee County to 46,300 jobs in Milwaukee County.

As indicated in Tables 32, 33, and 34, as a result of anticipated differences in growth rates among the seven counties, the relative distribution of population, households, and employment among the counties in the Region would change somewhat over the next three decades. While the regional land use plan seeks to centralize new urban development in the Region to the extent practicable, Milwaukee County's share of population, households, and employment would continue to decline somewhat. Waukesha County would experience the greatest increase in the share of total regional population, households, and employment.

Urban Population Density

The population density of the developed area of the Region has decreased dramatically since 1920 (see Table 35 and Figure 9). Under the plan, the urban population density would continue to decline, but at a reduced rate, from 3,510 persons per square mile in 1990 to 2,922 persons per square mile in 2020. The plan seeks to moderate, to the extent practicable, the long-term trend toward lower development densities. The plan emphasizes development at medium densities within planned urban service areas and seeks to minimize new low- and suburban-density residential development beyond the planned urban service areas.

The moderation of the trend toward lower development densities as recommended under the land use plan is important from a number of perspectives. Higher development densities reduce the amount of agricultural and other open land needed to be converted to urban use. Higher densities serve to minimize the cost of installing, operating, and maintaining basic urban facilities, including streets and sanitary sewerage and water supply facilities. The density of development is a particularly critical factor in the provision of local transit service. In general, the provision of local fixed-route bus service is efficient and cost-effective only when there is a density of at least five dwelling units per acre, approximately the middle of the medium-density range envisioned under the regional land use plan. The provision of such service to low- and suburban-density residential areas is generally infeasible.

Public Sanitary Sewer and Water Supply Service

Under the recommended land use plan, all proposed new urban development within the Region would be served with public sanitary sewer and water supply facilities.[11] In addition, public sanitary sewer and water supply service would be extended to certain existing urban areas lacking these facilities. Areas of the Region which would be

[11] *It is recognized that existing vacant lots in urban-density residential subdivisions located beyond the planned urban service areas will be developed utilizing onsite sewage disposal systems and private wells.*

Table 32

EXISTING AND PROPOSED POPULATION IN THE REGION
BY COUNTY: 1990 AND 2020 RECOMMENDED LAND USE PLAN

County	Population					
	Existing 1990		Planned Increment: 1990-2020		Total 2020	
	Persons	Percent of Total	Persons	Percent	Persons	Percent of Total
Kenosha	128,200	7.1	31,400	24.5	159,600	7.7
Milwaukee	959,300	53.0	63,200	6.6	1,022,500	49.2
Ozaukee	72,800	4.0	16,100	22.1	88,900	4.3
Racine	175,100	9.7	20,500	11.7	195,600	9.4
Walworth	75,000	4.1	20,000	26.7	95,000	4.6
Washington	95,300	5.3	33,500	35.2	128,800	6.2
Waukesha	304,700	16.8	82,800	27.2	387,500	18.6
Region	1,810,400	100.0	267,500	14.8	2,077,900	100.0

Source: SEWRPC.

Table 33

EXISTING AND PROPOSED HOUSEHOLDS IN THE REGION
BY COUNTY: 1990 AND 2020 RECOMMENDED LAND USE PLAN

County	Households					
	Existing 1990		Planned Increment: 1990-2020		Total 2020	
	Households	Percent of Total	Households	Percent	Households	Percent of Total
Kenosha	47,000	6.9	14,800	31.5	61,800	7.5
Milwaukee	373,100	55.2	40,200	10.8	413,300	50.0
Ozaukee	25,700	3.8	9,800	38.1	35,500	4.3
Racine	63,700	9.4	14,500	22.8	78,200	9.4
Walworth	27,600	4.1	9,300	33.7	36,900	4.5
Washington	33,000	4.9	19,300	58.5	52,300	6.3
Waukesha	106,000	15.7	43,100	40.7	149,100	18.0
Region	676,100	100.0	151,000	22.3	827,100	100.0

Source: SEWRPC.

served with public sanitary sewer and water supply facilities under the plan are shown on Map 17. In 1990, about 322 square miles, or 63 percent of the total developed urban area of the Region, and about 1.6 million persons, or 88 percent of the resident population of the Region, were served by public sanitary sewer facilities (see Table 36). About 265 square miles, or 52 percent of the developed area of the Region, and about 1.5 million persons, or 82 percent of the resident population, were served by public water supply facilities. Under the recommended plan, about 594 square miles, or 84 percent of the developed urban area, and about 1.9 million persons, or 91 percent of the resident population, would be served by public sanitary sewer and water supply facilities by the plan design year. Public water supply service would be provided in several small communities for which public sanitary sewer service is not envisioned.

The developed urban area and population level which would be served by public sanitary sewer and water supply facilities under the recommended plan are summarized by county in Table 37. The proportion of developed area so served would range from 56 percent in Washington County to nearly 100 percent in Milwaukee County. The

Table 34

EXISTING AND PROPOSED EMPLOYMENT IN THE REGION BY COUNTY: 1990 AND 2020 RECOMMENDED LAND USE PLAN

County	Employment					
	Existing 1990		Planned Increment: 1990-2020		Total 2020	
	Jobs	Percent of Total	Jobs	Percent	Jobs	Percent of Total
Kenosha	50,900	4.8	20,100	39.5	71,000	5.6
Milwaukee	613,300	57.5	46,300	7.5	659,600	51.7
Ozaukee	36,400	3.4	13,600	37.4	50,000	3.9
Racine	88,800	8.3	19,900	22.4	108,700	8.5
Walworth	40,200	3.8	19,800	49.3	60,000	4.7
Washington	46,100	4.3	16,900	36.7	63,000	4.9
Waukesha	191,500	17.9	73,300	38.3	264,800	20.7
Region	1,067,200	100.0	209,900	19.7	1,277,100	100.0

Source: SEWRPC.

Table 35

POPULATION DENSITY IN THE REGION: SELECTED YEARS, 1850-1990, AND 2020 RECOMMENDED LAND USE PLAN

Year	Urban Population		Rural Population		Total Population	Area (square miles)		Persons per Square Mile	
	Number	Percent of Total	Number	Percent of Total		Urban[a]	Total	Urban	Total
1850	28,623	25.2	84,766	74.8	113,389	4	2,689	7,156	42.2
1880	139,509	50.3	137,610	49.7	277,119	18	2,689	7,751	103.1
1900	354,082	70.6	147,726	29.4	501,808	37	2,689	9,570	186.6
1920	635,376	81.1	148,305	18.9	783,681	56	2,689	11,346	291.4
1940	991,535	92.9	76,164	7.1	1,067,699	90	2,689	11,017	397.1
1950	1,179,084	95.0	61,534	5.0	1,240,618	146	2,689	8,076	461.4
1963	1,634,200	97.6	40,100	2.4	1,674,300	282	2,689	5,795	622.6
1970	1,728,946	98.5	27,137	1.5	1,756,083	338	2,689	5,115	653.1
1980	1,749,238	99.1	15,558	0.9	1,764,796	444	2,689	3,940	656.3
1990	1,800,751	99.5	9,613	0.5	1,810,364	513	2,689	3,510	673.2
2020	2,071,667	99.7	6,233	0.3	2,077,900	709	2,689	2,922	772.7

[a]*Based upon urban growth ring analysis.*

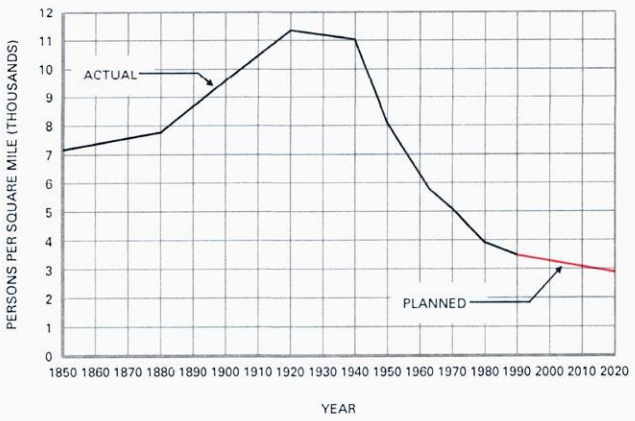
Source: U. S. Bureau of the Census and SEWRPC.

proportion of the resident population served would range from a low of 69 percent in Washington County to a high of nearly 100 percent in Milwaukee County.

The recommended plan seeks to discourage the development of urban-density residential areas which depend upon onsite sewage disposal systems and private wells and to encourage development served by gravity-drainage centralized sanitary sewer facilities tributary to existing sewerage systems and by public water supply systems. Implementation of the land use plan, along with the sanitary sewerage system recommendations of the regional water quality management plan, should serve to reduce and control the amount of untreated and partially treated domestic and industrial waste discharged into the streams, rivers, lakes, and groundwater reserves of the Region; to permit a better adjustment of waste treatment and disposal facilities to the assimilation capacity of the streams and rivers; and to assure a pure supply of water within the Region.

Figure 9

POPULATION DENSITY OF URBAN AREAS IN THE REGION ACTUAL 1850-1990 AND 2020 RECOMMENDED LAND USE PLAN



Source: SEWRPC.

LAND USE PLANS FOR A HIGH-GROWTH SCENARIO

The recommended regional land use plan for the year 2020 presented in this chapter may be characterized as an "intermediate-growth centralized" plan. The plan accommodates population and employment growth which may be expected under an intermediate-growth scenario for the Region through the year 2020. The plan seeks to moderate, to the extent practicable, the historical decentralization of population and employment and associated urban development away from the older urban centers of the Region.

In order to facilitate application of the alternative futures approach to planning—an approach which considers a range of possible future conditions and which is particularly important in public facility planning—two alternative land use plans for the year 2020 have also been prepared. These plans are designed to accommodate population, household, and employment levels which may be expected under a high-growth scenario for the Region. Year 2020 population, household, and employment levels projected under a high-growth scenario are greater—by 14 percent, 9 percent, and 7 percent, respectively—than levels projected under an intermediate-growth scenario. Two high-growth plans have been prepared; one anticipates a continued decentralization of population and employment and associated urban development away from the older urban centers of the Region, while the other envisions a reversal of past trends and emphasizes a centralized development pattern for the Region. The high-growth land use plans provide an upper bracket for future population, employment, and urban land use development within the Region. Together, the recommended land use plan and the high-growth plans provide a range of possible future conditions which may be considered in regional and local transportation and other public facility planning as well as in the preparation of local land use plans intended to refine and detail the regional plan.

The population, household, and employment levels envisioned under the high-growth plans are presented in summary form in Appendices D and E of this report.

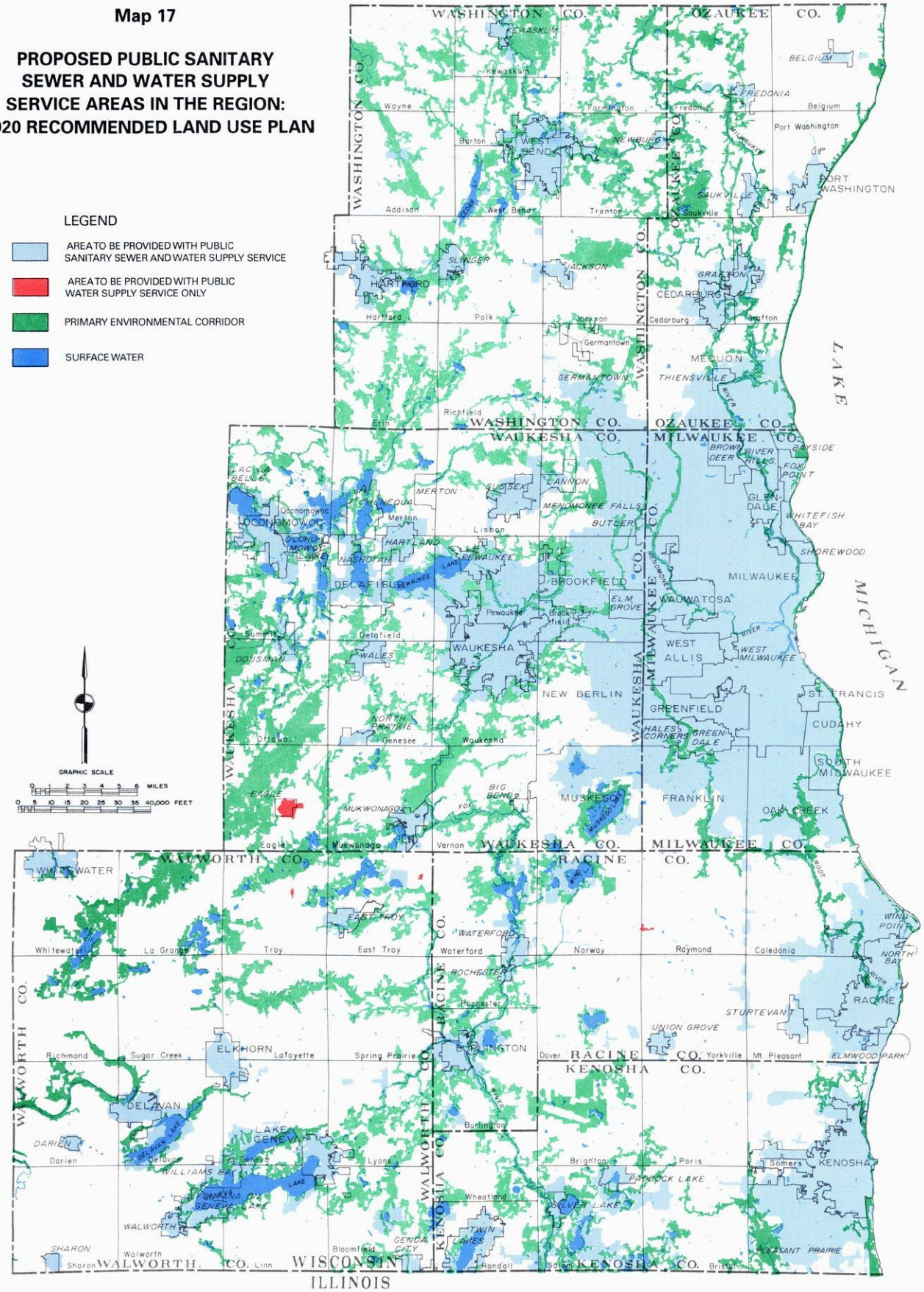
SUMMARY

This chapter has described the recommended land use plan for Southeastern Wisconsin for the year 2020. The plan was prepared as an extension to the year 2020 of the year 2010 regional land use plan adopted by the Commission in 1992. As it was extended in time, the plan was reviewed and amended to reflect development which has occurred or which has been committed to since completion of the year 2010 land use plan. The new plan was designed to accommodate new forecasts of population, households, and employment in the Region through the year 2020.

The year 2020 regional land use plan incorporates the basic principles and concepts of the adopted year 2010 plan. Like the adopted plan, the new plan recommends a relatively compact, centralized regional settlement pattern, with urban development occurring generally in concentric rings along the periphery of, and outward from, existing urban centers in the Region. The proposed plan places heavy emphasis on the continued impact of the urban land market in determining the location, intensity, and character of future development. Like the adopted plan, the proposed plan seeks to influence the operation of the urban land market in several important ways in order to achieve a more healthful, attractive, and efficient settlement pattern. In this regard, the proposed plan recommends that new urban development occur primarily in those areas of the Region which are covered by soils suitable for such development and in those areas which can be readily served by essential municipal facilities and services, including public sanitary sewerage, water supply, and mass transit facilities and services. The plan recommends the preservation of the identified primary environmental corridors and the preservation in agricultural and related use of the most productive soils in the Region.

Map 17

PROPOSED PUBLIC SANITARY SEWER AND WATER SUPPLY SERVICE AREAS IN THE REGION: 2020 RECOMMENDED LAND USE PLAN



Under the year 2020 regional land use plan, all proposed new urban development would be served by public sanitary sewer and water supply facilities. In addition, public sanitary sewer and water supply service would be extended to certain existing urban areas currently lacking these facilities. About 594 square miles, or 84 percent of the developed urban area of the Region, and about 1.89 million persons, or about 91 percent of the total regional population, would be served by public sanitary sewer and water supply facilities by the year 2020. As shown above, public water supply service would be provided in several outlying communities for which public sanitary sewer service is not planned.

Source: SEWRPC.

Table 36

EXISTING AND PROPOSED DEVELOPED AREA AND POPULATION SERVED BY PUBLIC SANITARY SEWER AND WATER SUPPLY SERVICE IN THE REGION: 1990 AND 2020 RECOMMENDED LAND USE PLAN

Area and Population	Existing Service: 1990		Planned Service Increment 1990-2020		Total Service: 2020	
	Public Sanitary Sewer	Public Water Supply	Public Sanitary Sewer	Public Water Supply	Public Sanitary Sewer	Public Water Supply
Developed Area[a]						
Total Square Miles	512.7	512.7	196.0	196.0	708.7	708.7
Square Miles Served	322.1	265.2	271.7	331.0	593.8	596.2
Percent of Total Served	62.8	51.7	--	--	83.8	84.1
Population						
Total Population	1,810,400	1,810,400	267,500	267,500	2,077,900	2,077,900
Population Served	1,594,300	1,484,600	299,400	411,100	1,893,700	1,895,700
Percent of Total Served	88.1	82.0	--	--	91.1	91.2

NOTE: Public sanitary sewer and water supply service areas presented in this table do not include lands that are located adjacent to, but outside, the Region, including 1.2 square miles of land in the Jefferson County portion of the Whitewater urban service area, 0.5 square mile of land in the Jefferson County portion of the Oconomowoc urban service area, and 0.9 square mile of land in the Dodge County portion of the Hartford urban service area.

[a]*Based on urban growth ring analysis.*

Source: SEWRPC.

Table 37

EXISTING AND PROPOSED DEVELOPED AREA AND POPULATION SERVED BY PUBLIC SANITARY SEWER AND WATER SUPPLY SERVICE IN THE REGION BY COUNTY: 1990 AND 2020 RECOMMENDED LAND USE PLAN

County	Existing 1990									Planned 2020				
		Public Sewer Service				Public Water Supply Service					Public Sewer and Water Supply Service			
		Developed Area Served		Population Served		Developed Area Served		Population Served			Developed Area Served		Population Served	
	Developed Area[a] (square miles)	Square Miles	Percent of County or Region	Persons	Percent of County or Region	Square Miles	Percent of County or Region	Persons	Percent of County or Region	Developed Area (square miles)	Square Miles	Percent of County or Region	Persons	Percent of County or Region
Kenosha	37.4	25.1	67.1	111,900	87.3	17.8	47.6	97,000	75.7	70.7	65.7	92.9	146,700	91.9
Milwaukee	170.8	162.6	95.2	954,600	99.5	155.5	91.0	942,500	98.3	204.0	202.5	99.3	1,020,600	99.8
Ozaukee	32.5	17.3	53.3	54,900	75.4	8.4	25.9	35,900	49.3	47.6	41.2	86.6	72,900	82.0
Racine	51.2	34.1	66.7	154,900	88.5	24.6	48.1	142,700	81.5	73.1	64.2	87.8	178,300	91.2
Walworth	35.3	13.9	39.3	45,200	60.3	11.6	32.8	40,900	54.5	49.8	34.5	69.3	67,600	71.2
Washington	41.1	11.3	27.5	53,300	55.9	11.0	26.8	50,900	53.4	61.8	34.8	56.3	89,300	69.3
Waukesha	144.4	57.8	40.0	219,500	72.0	36.3	25.1	174,700	57.3	201.7	150.9	74.8	318,300	82.1
Region	512.7	322.1	62.8	1,594,300	88.1	265.2	51.7	1,484,600	82.0	708.7	593.8	83.8	1,893,700	91.1

NOTE: Public sanitary sewer and water supply service areas presented in this table do not include lands that are located adjacent to, but outside, the Region, including 1.2 square miles of land in the Jefferson County portion of the Whitewater urban service area, 0.5 square mile of land in the Jefferson County portion of the Oconomowoc urban service area, and 0.9 square mile of land in the Dodge County portion of the Hartford urban service area.

[a]*Based on historical urban growth analysis.*

Source: SEWRPC.

The key features of the land use plan are summarized as follows:

1. The land use plan was designed to accommodate an intermediate-growth scenario for Southeastern Wisconsin through the year 2020. Under the plan, the resident population of the Region would increase by 267,500 persons, or 15 percent, from 1,810,400 persons in 1990 to 2,077,900 persons in 2020. The number of households would increase by 151,000, or 22 percent, from 676,100 households in 1990 to 827,100 households in 2020. Total employment in the Region would increase by 209,900 jobs, or 20 percent, from 1,067,200 jobs in 1990 to 1,277,100 jobs in 2020.

2. Under the plan, lands in urban uses—including urban-density residential, commercial, industrial, intensive recreational, governmental and institutional, and transportation, communication, and utility uses—would increase from 637 square miles in 1990 to 737 square miles by the year 2020, an increase of 100 square miles, or 16 percent. By the year 2020, lands in urban use would account for 27 percent of the total area of the Region, compared to 24 percent in 1990.

3. Under the plan, most new residential land would be developed at urban densities—defined as densities of more than one dwelling unit per five acres. The plan envisions that the urban residential land area would increase by 66 square miles, or 21 percent, from 308 square miles in 1990 to 374 square miles in 2020. The bulk of the new urban residential land area—75 percent—would consist of medium-density development, with a typical single-family lot size of one-quarter acre and a typical multiple-family development averaging about 10 dwelling units per net acre. The plan recommends that new urban residential development occur in planned neighborhood units served by public sanitary sewer and water supply facilities, public transit service, and other basic services and facilities.

4. The plan envisions a total of 18 major commercial centers and 27 major industrial centers in the Region by the plan design year, including four new commercial centers and five new industrial centers. All of the proposed sites were in various stages of development as of 1997. The plan further envisions a total of 30 major park sites. All of the proposed new park sites were at least partially acquired as of 1997.

5. The population density of the developed area of the Region has decreased dramatically since 1920. Under the plan, the urban population density would continue to decline, but at a reduced rate, from 3,510 persons per square mile in 1990 to 2,922 persons per square mile in 2020. The plan seeks to moderate, to the extent practicable, the long-term trend toward lower development densities. The plan emphasizes development at medium densities within planned urban service areas and seeks to minimize new low- and suburban-density residential development beyond the planned urban service areas.

6. Under the plan, all proposed new urban development would be served by public sanitary sewer and water supply facilities. In addition, public sanitary sewer and water supply service would be extended to certain existing urban areas lacking these facilities. Under the recommended plan, about 594 square miles, or 84 percent of the developed urban area, and about 1.9 million persons, or 91 percent of the resident population, would be served by public sanitary sewer and water supply facilities by the year 2020. Public water supply service would be provided in several small communities for which public sanitary sewer service is not envisioned.

7. The plan recommends the preservation in natural, open uses of the remaining primary environmental corridors in the Region—elongated areas in the landscape encompassing concentrations of the most important remaining natural resource features in the Region. The planned environmental corridors encompass 474 square miles, or 18 percent of the total area of the Region. The preservation of these corridors is considered essential to the maintenance of the overall environmental quality of the Region and the preservation of its unique cultural and natural heritage and natural beauty. Under the plan, development within the corridors would be limited to essential transportation and utility facilities, compatible outdoor recreational facilities, and, on a limited basis, rural-density residential development.

8. Under the plan, those areas which are neither designated for future urban use nor recommended for preservation as environmentally sensitive areas are identified as "agricultural and rural-density residential land." These areas would encompass about 1,332 square miles, or about 50 percent of the total area of the Region, in the year 2020. The plan recommends that these areas be maintained in rural use. The plan encourages the continuation of agri-

cultural uses; in particular, the plan seeks to preserve, insofar as practicable, the most productive soils in these areas. Under the plan, the agricultural lands covered by the most productive soils would encompass about 1,019 square miles, or about 38 percent of the area of the Region, in the year 2020. The conversion of these lands to urban use would be limited to lands located in proximity to existing urban service areas as necessary for the orderly growth and development of those urban areas as well as to lands located beyond the urban service areas which have been committed to urban development on already approved subdivision plats. Other agricultural and related uses accommodated in this category would include smaller farms such as horse farms, hobby farms, or community-supported agricultural operations. New residential uses in these areas would be limited to rural-density residential development, defined as development at densities of no more than one dwelling unit per five acres. Where rural-density residential development is accommodated, the plan encourages the use of cluster designs, with dwelling units developed in clusters surrounded by agricultural and other open space sufficient to maintain the maximum recommended density of no more than one dwelling unit per five acres.

Chapter VI

PLAN IMPLEMENTATION

INTRODUCTION

The recommended regional land use plan described in Chapter V of this report provides a design for the attainment of the specific regional land use development objectives set forth in Chapter IV. In a practical sense, however, the plan is not complete until the steps required to implement the plan—that is, to convert the plan into action policies and programs—are specified. This chapter is therefore presented as a guide for use in the implementation of the recommended land use plan. It outlines the actions which must be taken by the various levels and agencies of government concerned if the recommended land use plan is to be fully carried out.

Implementation of the regional land use plan involves a number of plan implementation measures and requires close cooperation among the local units of government and the areawide, State, and Federal agencies involved in the application of those measures. This chapter identifies the concerned plan implementation agencies; recommends appropriate adoption of the land use plan; and describes the various plan implementation measures available and the appropriate application of those measures to achieve the regional land use plan objectives. Those measures include additional land use planning at the county and local levels to refine and detail the regional plan; regulatory measures, such as zoning, official mapping, and land division regulation; and nonregulatory measures—such as park and open space land acquisition, rural cluster development, municipal boundary and utility service extension agreements, and capital improvement programming—which can promote plan implementation.

This chapter draws upon the findings made in a special assessment of the status of regional land use plan implementation completed by the Commission at the request of the Wisconsin Department of Transportation in 1993. The purpose of the study was to determine the extent to which actual development in the Region has conformed with, or departed from, the adopted regional land use plan and, as appropriate, to recommend means by which plan implementation might be strengthened. The study identified a need for strengthened efforts to implement four recommendations contained in the regional land use plan: 1) the preservation of prime agricultural lands; 2) the promotion of compact, contiguous urban growth; 3) the preservation of upland environmentally sensitive areas; and 4) the maintenance of older major industrial centers in the face of the current decentralization of economic activity within the Region. Under the study, specific proposals were formulated to strengthen plan implementation in each of these areas. Some of these proposals would involve an increased State role in plan implementation, beginning with adoption by the State of a formal policy promoting and encouraging more compact urban development. The recommendations of the plan implementation study were considered by the Technical Coordinating and Advisory Committee on Regional Land Use Planning and were reaffirmed or modified as documented in this chapter.[1]

PLAN IMPLEMENTATION AGENCIES

Successful implementation of the regional land use plan depends upon the cooperative efforts of a number of units and agencies of government. Units and agencies of government concerned with plan implementation are listed by level of government in Table 38. In view of their important role in open space acquisition, private conservancy organizations are also listed among the plan implementation organizations in this table.[2]

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[1] *The findings and recommendations of the plan implementation study are documented in SEWRPC Memorandum Report No. 68,* Regional Land Use Plan Implementation in Southeastern Wisconsin: Status and Needs, *May 1993.*

[2] *Certain changes have occurred with regard to State and Federal agencies having functions and duties germane to regional land use plan implementation since the completion of the year 2010 land use plan. At the State level, the Department of Commerce, formerly the Department of Development, has assumed the responsibilities of the Safety and Buildings Division of the former Department of Industry, Labor and Human Relations, and is thus responsible for the regulation of onsite sewage disposal systems. Within the U. S. Department of Agriculture, the former Farmers Home Administration, Agricultural Stabilization and Conservation Service, and Federal Cropland Insurance Agency have been consolidated into the Farm Service Agency; and the former Soil Conservation Service has been renamed the Natural Resources Conservation Service.*

Table 38

SUMMARY OF REGIONAL LAND USE PLAN IMPLEMENTATION RESPONSIBILITIES

Agency(ies)	Plan Adoption/ Endorsement and Integration	Preparation of Local Refinements of Regional Plan	Administration of General Zoning, Land Division Regulations, and Official Mapping	Administration of Other Regulatory Mechanisms[a]	Coordination of Public Utilities/ Facilities	Park and Open Space Acquisition	Urban Revitalization: Planning and Administration of Related Support Programs	Planning-Related Financial and Technical Assistance	Planning-Related Education	Formulation of State Urban Growth Policy	Administration of State Farmland Preservation Program
Local-Level Agencies											
County Boards of Supervisors	X	X	X	X	X	X	X	X	X	--	--
County Planning Committees and Park and Planning Commissions	X	X	X	X	X	X	X	X	X	--	--
County Land Conservation Committees	X	--	--	--	--	--	--	X	--	--	--
City Councils, Village Boards, and Town Boards	X	X	X	X	X	X	X	--	--	--	--
City, Village, and Town Plan Commissions	X	X	X	X	--	--	X	--	--	--	--
County Drainage Boards and Drainage Districts	X	--	--	--	X	--	--	--	--	--	--
Sanitary and Utility Districts	X	--	--	--	X	--	--	--	--	--	--
Community Development Authorities	X	--	--	--	--	--	X	--	--	--	--
Lake Management Districts	X	--	--	--	--	X	--	--	--	--	--
County Economic Development Corporations	X	--	--	--	--	--	X	X	--	--	--
Areawide Agencies											
Metropolitan Sewerage Districts	X	--	--	--	X	--	--	X	--	--	--
Cooperative Contract Commissions	X	--	--	--	X	--	--	--	--	--	--
Regional Planning Commission	X	--	--	--	X	--	--	X	X	--	--
State-Level Agencies											
University of Wisconsin-Extension	X	--	--	--	--	--	--	X	X	--	--
Wisconsin Department of Administration	X	--	--	--	--	--	--	--	--	X	--
Wisconsin Department of Agriculture, Trade and Consumer Protection	X	--	--	--	--	--	--	--	--	--	X
Wisconsin Department of Commerce	X	--	--	X	X	--	--	--	--	--	--
Wisconsin Department of Natural Resources	X	--	--	X	X	X	X	X	--	--	--
Wisconsin Department of Transportation	X	--	--	--	X	--	--	--	--	--	--
Wisconsin Land Council	X	--	--	--	--	--	--	X	X	X	--
Federal-Level Agencies											
U. S. Department of Agriculture, Natural Resources Conservation Service	X	--	--	--	--	--	--	X	--	--	--
U. S. Department of Agriculture, Farm Service Agency	X	--	--	--	--	--	--	--	--	--	--
U. S. Department of Commerce, Economic Development Administration	X	--	--	--	--	--	X	--	--	--	--
U. S. Department of Housing and Urban Development	X	--	--	--	--	--	X	--	--	--	--
U. S. Army Corps of Engineers	X	--	--	X	--	--	--	--	--	--	--
Federal Emergency Management Agency	X	--	--	--	--	--	--	--	--	--	--
Private Conservancy Organizations	X	--	--	--	--	X	--	--	--	--	--

[a] *Includes State-local floodland and shoreland zoning; State-local oversight of public sanitary sewerage facilities and private sewage systems; and the Federal wetland regulatory program.*

Source: SEWRPC.

PLAN ADOPTION

Upon adoption of the new regional land use plan by formal resolution of the Southeastern Wisconsin Regional Planning Commission, in accordance with Section 66.945(10) of the Wisconsin Statutes, the Commission will transmit a certified copy of the resolution and adopted plan to all local legislative bodies within the Region and to all concerned State, local, areawide, and Federal agencies.

Endorsement, adoption, or formal acknowledgment and integration of the plan by local legislative bodies and the existing local-, areawide-, State-, and Federal-level agencies involved is highly desirable, and in some cases

necessary, to assure a common understanding among the several governmental levels and agencies and to enable their staffs to program the necessary plan implementation work. The following is recommended:

1. It is recommended that the seven county boards within the Region formally adopt the recommended regional land use plan as it affects each county, as authorized by Section 66.945(12) of the Wisconsin Statutes, after recommendation by the respective county planning committees or park and planning commissions, as a guide to future land use development within the county.

2. It is recommended that the plan commissions of cities, villages, and towns in the Region adopt the recommended regional land use plan. The plan should be adopted by the local plan commissions as local master plans pursuant to Section 62.23(3)(b) of the Wisconsin Statutes. It is further recommended that city councils, village boards, and town boards in the Region adopt the regional land use plan as a matter of endorsing the local plan commission action.

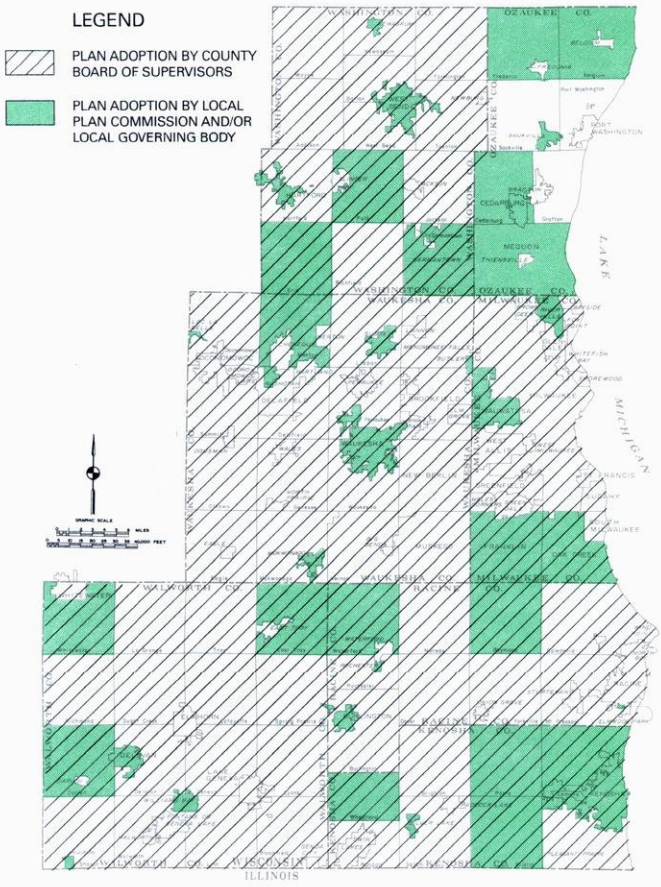
3. It is recommended that other local, areawide, State, and Federal agencies and units of government identified in Table 38 as having plan implementation responsibilities endorse or acknowledge the plan as appropriate. In combination, those agencies and units of government have a wide range of responsibilities related to the protection of soil and water resources and air quality; the provision of sanitary sewer, water supply, and stormwater drainage facilities; the provision of transportation facilities and transit service; the provision of park and open space sites; and the conservation and renewal of existing urban development. After endorsing or acknowledging the regional land use plan, each of the concerned agencies should consider the plan recommendations in carrying out its various programs and activities.

While the Wisconsin Statutes do not specify a time frame for adoption or endorsement of the regional plan, it is recommended that the concerned units and agencies of government adopt or endorse the plan within six months of their receipt of the certified plan.

Many units of government have acted to formally adopt the design year 1990, 2000, and/or 2010 plans. Adoption of the year 1990, 2000, and 2010 plans by counties, cities, villages, and towns in the Region is indicated on Maps 18 through 20 and in Table 39. On Maps 18 through 20 and in Table 39, adopting cities, villages, and towns include those cities, villages, and towns which have adopted the certified regional land use plan and those cities, villages, and towns which, in lieu of such adoption, have prepared in cooperation with the Commission and adopted a community-level land use plan which refined and detailed the regional plan. Adoption of the new land use plan by units and agencies of government that have adopted the design year 1990, 2000, or 2010 plans will serve to substitute the new plan for the old.

Map 18

COUNTY AND LOCAL ADOPTION OF THE YEAR 1990 REGIONAL LAND USE PLAN

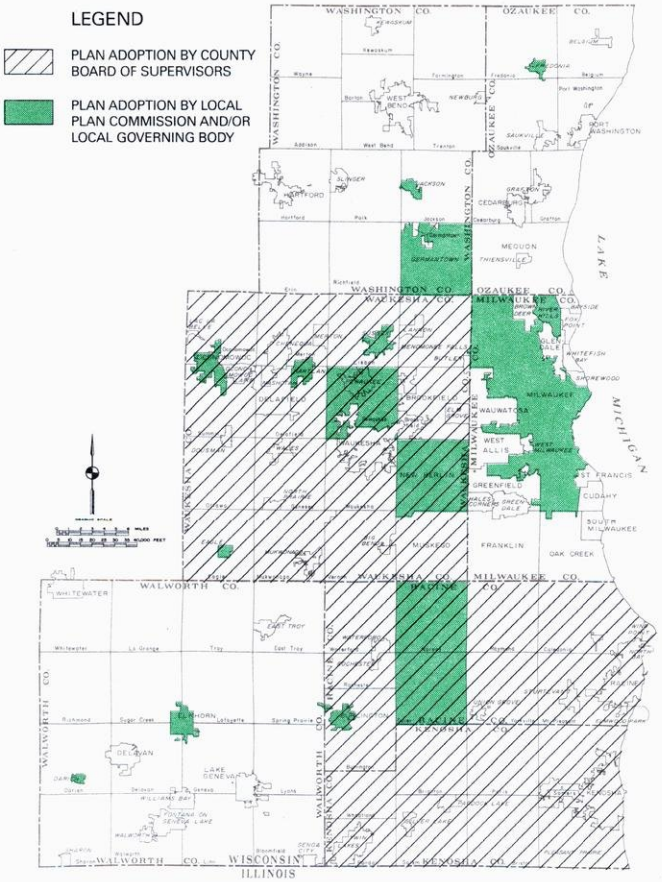


The year 1990 regional land use plan was formally adopted by six of the seven counties in the Region. In addition, 40 cities, villages, and towns in the Region acted to adopt that plan, or, in lieu of such adoption, prepared in cooperation with the Commission and adopted a community-level land use plan which refined and detailed the regional plan.

Source: SEWRPC.

Map 19

COUNTY AND LOCAL ADOPTION OF THE YEAR 2000 REGIONAL LAND USE PLAN

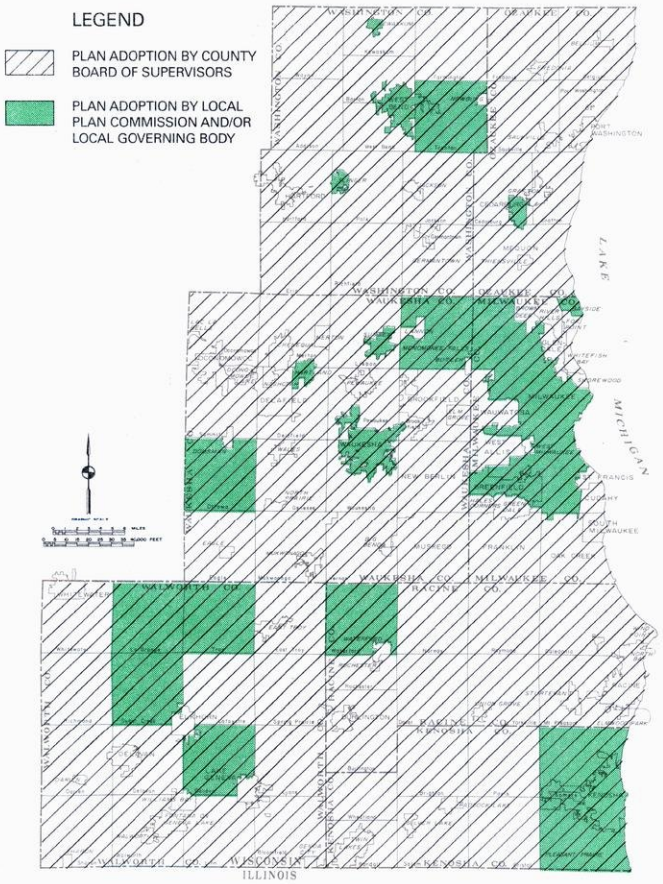


The year 2000 regional land use plan was formally adopted by three of the seven counties in the Region. In addition, 17 cities, villages, and towns in the Region acted to adopt that plan, or, in lieu of such adoption, prepared in cooperation with the Commission and adopted a community-level land use plan which refined and detailed the regional plan.

Source: SEWRPC.

Map 20

COUNTY AND LOCAL ADOPTION OF THE YEAR 2010 REGIONAL LAND USE PLAN



The year 2010 regional land use plan was formally adopted by all seven counties in the Region. In addition, 21 cities, villages, and towns in the Region acted to adopt that plan, or, in lieu of such adoption, prepared in cooperation with the Commission and adopted a community-level land use plan which refined and detailed the regional plan. As shown on this map and the two previous maps, along with the seven counties, a total of 64 cities, villages, and towns in the Region adopted at least one of the three regional land use plans—the year 1990 plan, year 2000 plan, or year 2010 plan—or adopted a local refinement of the regional plan prepared in cooperation with the Commission.

Source: SEWRPC.

PLAN IMPLEMENTATION

Implementation of the regional land use plan depends upon the judicious application of a variety of plan implementation measures and the utmost in cooperation among the local units of government and the areawide, State, and Federal agencies involved in the application of those measures. The most important land use plan implementation measures are summarized in this section. For convenience in presentation and use, this section has been divided into the following subject areas:

- Local refinement of the regional plan
  - — Planning in urban areas
  - — Planning in rural areas
- Local regulatory measures
  - — Zoning ordinances
    - – Zoning in planned urban areas

  - Zoning in planned rural areas
  - Zoning in environmentally sensitive areas
  - Zoning and regional plan implementation to date
- Land division controls
- Official mapping

- State and Federal regulatory measures
  - State-local zoning of environmentally sensitive areas
  - Federal wetland regulatory program
  - Regulation of public sanitary sewerage systems
  - Regulation of private sewage disposal systems
- Park and open space acquisition
- Rural cluster development
- Purchase or transfer of development rights
  - Purchase of development rights
  - Transfer of development rights
- Municipal boundary and utility extension agreements
- Capital improvement programming
- Development design standards
- Brownfields redevelopment
- Educational activities
- Technical and financial assistance
- Other recommendations from the 1993 regional land use plan implementation study
  - Formulation of a State policy on the promotion of compact and efficient urban development patterns
  - Changes to the Wisconsin Farmland Preservation Program
  - Study of potential tax-base-sharing mechanism

Local Refinement of the Regional Plan

Subsequent to formal plan adoption, an important step in the implementation of the regional land use plan is the refinement and detailing of that plan through appropriate county and local planning efforts. Such planning provides a means for the proper integration of regional and local land use development objectives and provides a basis for the adjustment of local plan implementation devices in accordance with those regional and local objectives. The following steps are therefore recommended:

1. It is recommended that each county in the Region—except Milwaukee County, which is constituted entirely of cities and villages—refine and detail the regional plan as it pertains to the county's unincorporated areas. It should be noted that the Waukesha County Board of Supervisors adopted such a refined and detailed plan in 1996. The Kenosha County Board of Supervisors adopted such a plan for the area of the County east of IH 94 in 1996 and has directed that such a plan be prepared for the balance of the County.

2. It is recommended that cities, villages, and towns that have adopted village powers refine and detail the regional land use plan and existent county plans pursuant to Section 62.23 of the Wisconsin Statutes, incorporating objectives and standards which are consistent with those adopted in the regional plan and county refinements of the regional plan. Within the context of the regional and county plans, cities, villages, and towns should prepare community-level land use plans, supplementing such plans with neighborhood or special district plans, as appropriate.

Planning efforts needed to refine and detail the regional land use plan for both urban areas and rural areas are described below.

Planning in Urban Areas

The regional land use plan identifies urban service areas within the Region through the year 2020 (see Map 17 in Chapter V of this report, page 84). Community-level land use plans should refine and detail the regional plan recommendations for urban areas. Such plans should identify residential neighborhoods and special planning districts; recommend an overall density for each residential neighborhood; and identify general site locations for needed neighborhood and community facilities. Such plans should incorporate the environmentally sensitive

Table 39

ADOPTION OF THE REGIONAL LAND USE PLAN BY COUNTIES, CITIES, VILLAGES, AND TOWNS IN SOUTHEASTERN WISCONSIN

Unit of Government	1990 Regional Land Use Plan	2000 Regional Land Use Plan	2010 Regional Land Use Plan
Kenosha County	X	X	X
Cities			
Kenosha	X	--	X
Villages			
Paddock Lake	--	--	--
Pleasant Prairie	--	--	X
Silver Lake	X	--	--
Twin Lakes	--	--	--
Towns			
Brighton	--	--	--
Bristol	X	--	--
Paris	X	--	--
Randall	--	--	--
Salem	--	--	--
Somers	X	--	X
Wheatland	X	--	--
Milwaukee County	X	--	X
Cities			
Cudahy	--	--	--
Franklin	X	--	--
Glendale	--	--	--
Greenfield	--	--	X
Milwaukee	--	X	X
Oak Creek	X	--	--
St. Francis	--	--	--
South Milwaukee	--	--	--
Wauwatosa	X	--	--
West Allis	--	--	--
Villages			
Bayside	--	--	X
Brown Deer	--	--	--
Fox Point	--	--	--
Greendale	--	--	--
Hales Corners	--	--	--
River Hills	X	X	--
Shorewood	--	--	--
West Milwaukee	--	--	--
Whitefish Bay	--	--	--
Ozaukee County	--	--	X
Cities			
Cedarburg	X	--	X
Mequon	X	--	--
Port Washington	--	--	--
Villages			
Belgium	--	--	--
Fredonia	--	X	--
Grafton	--	--	--
Saukville	X	--	--
Thiensville	--	--	--
Towns			
Belgium	X	--	--
Cedarburg	X	--	--
Fredonia	X	--	--
Grafton	--	--	--
Port Washington	--	--	--
Saukville	--	--	--
Racine County	X	X	X
Cities			
Burlington	X	X	--
Racine	--	--	--
Racine County (continued)			
Villages			
Elmwood Park	X	--	--
North Bay	--	--	--
Rochester	X	--	--
Sturtevant	--	--	--
Union Grove	--	--	--
Waterford	--	--	--
Wind Point	--	--	--
Towns			
Burlington	--	--	--
Caledonia	--	--	--
Dover	--	X	--
Mt. Pleasant	--	--	--
Norway	--	X	--
Raymond	X	--	--
Rochester	--	--	--
Waterford	X	--	X
Yorkville	--	--	--
Walworth County	X	--	X
Cities			
Delavan	X	--	--
Elkhorn	--	X	--
Lake Geneva	--	--	--
Whitewater	--	--	--
Villages			
Darien	--	X	--
East Troy	--	--	--
Fontana-on-Geneva Lake	--	--	--
Genoa City	--	--	--
Sharon	X	--	--
Walworth	--	--	--
Williams Bay	X	--	--
Towns			
Bloomfield	--	--	--
Darien	X	--	--
Delavan	--	--	--
East Troy	X	--	--
Geneva	--	--	X
LaFayette	--	--	--
LaGrange	--	--	X
Linn	--	--	--
Lyons	--	--	--
Richmond	--	--	--
Sharon	--	--	--
Spring Prairie	--	--	--
Sugar Creek	--	--	X
Troy	--	--	X
Walworth	--	--	--
Whitewater	X	--	--
Washington County	X	--	X
Cities			
Hartford	X	--	--
West Bend	X	--	X
Villages			
Germantown	X	X	--
Jackson	--	X	--
Kewaskum	X	--	X
Newburg	--	--	--
Slinger	--	--	X

Table 39 (continued)

Unit of Government	1990 Regional Land Use Plan	2000 Regional Land Use Plan	2010 Regional Land Use Plan
Washington County (continued)			
Towns			
Addison	--	--	--
Barton	--	--	--
Erin	X	--	--
Farmington	--	--	--
Germantown	--	--	--
Hartford	--	--	--
Jackson	--	--	--
Kewaskum	--	--	--
Polk	X	--	--
Richfield	--	--	--
Trenton	--	--	X
Wayne	--	--	--
West Bend	--	--	--
Waukesha County	X	X	X
Cities			
Brookfield	--	--	--
Delafield	--	--	--
Muskego	--	--	--
New Berlin	--	X	--
Oconomowoc	--	X	--
Waukesha	X	--	X
Villages			
Big Bend	--	--	--
Butler	X	--	--
Chenequa	--	--	--
Dousman	--	--	--
Eagle	--	X	--
Elm Grove	--	--	--
Hartland	--	X	X
Lac La Belle	X	--	--
Lannon	--	--	--
Menomonee Falls	--	--	X
Merton	--	--	--
Mukwonago	X	--	--
Nashotah	X	--	--
North Prairie	--	--	--
Oconomowoc Lake	--	--	--
Pewaukee	--	X	--
Sussex	X	X	X
Wales	--	--	--
Towns			
Brookfield	--	--	--
Delafield	--	--	--
Eagle	--	--	--
Genesee	--	--	--
Lisbon	--	--	--
Merton	X	--	--
Mukwonago	--	--	--
Oconomowoc	--	--	--
Ottawa	--	--	X
Pewaukee	--	X	--
Summit	--	--	--
Vernon	--	--	--
Waukesha	--	--	--

NOTE: An "X" indicates formal adoption of the certified regional land use plan or, in lieu of such adoption, preparation in cooperation with the Commission and adoption of a community-level land use plan which refined and detailed the regional plan.

Source: SEWRPC.

lands preservation recommendations of the regional land use plan.

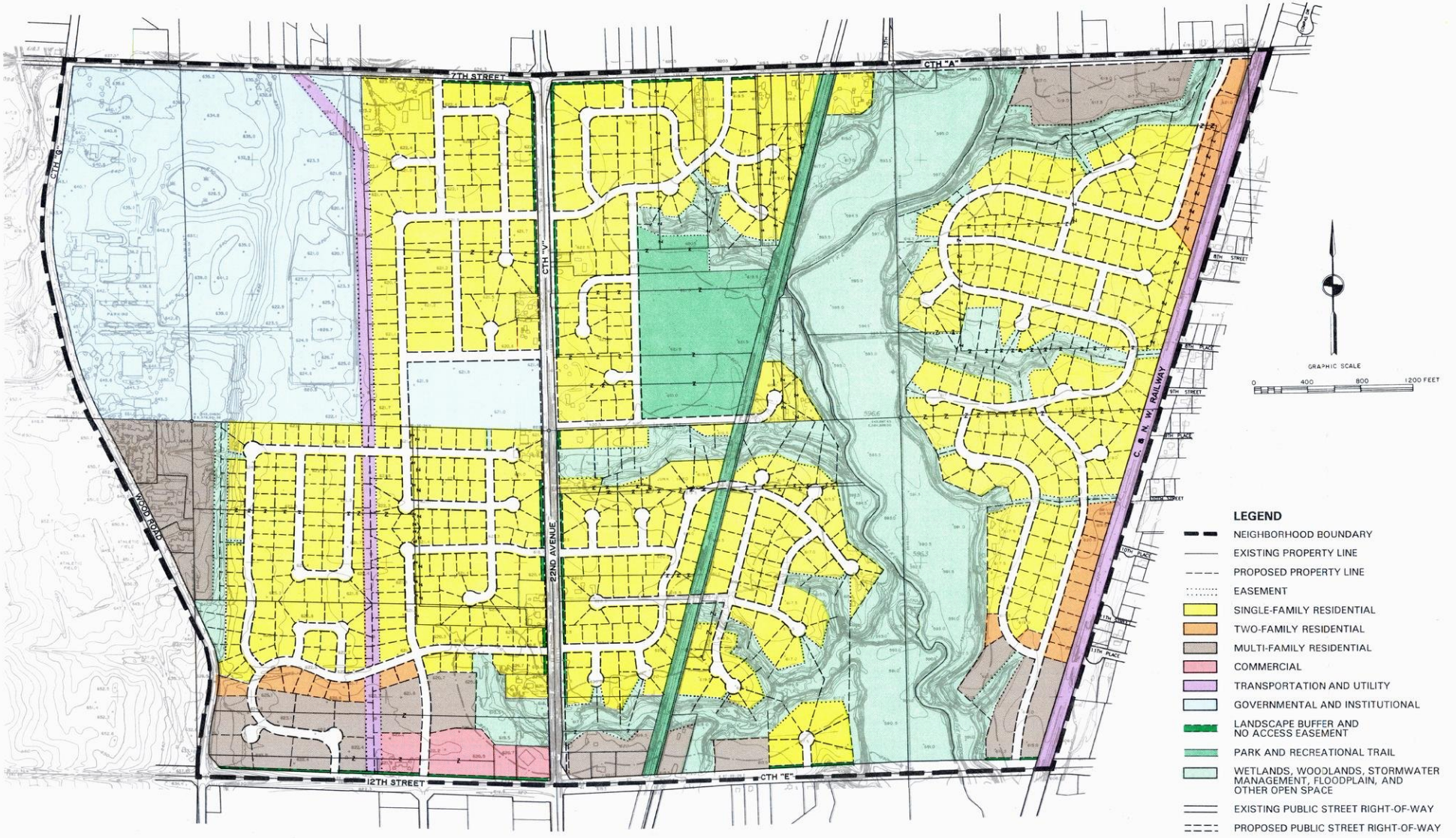
Within the context of a community-level land use plan, detailed neighborhood development plans should be prepared for each residential neighborhood or special district where significant growth or change is expected. Such plans should designate future collector and land access street locations and alignments, pedestrian paths and bicycle ways, and the configuration of individual blocks and lots. They should precisely identify areas to be protected from intensive urban development for environmental reasons and should indicate areas to be reserved for stormwater management and utility easements. Residential areas should be clearly identified as to structure type and density. Such plans should also identify specific sites for neighborhood parks, schools, and retail and service centers which are recommended on a general-site-location basis in the community-level land use plan. Map 21 graphically shows an example of a detailed neighborhood development plan.

Similarly, detailed redevelopment plans should be prepared for each neighborhood or special-purpose district showing signs of land use instability or deterioration. Such plans should identify areas recommended for redevelopment to a different use, areas recommended for rehabilitation, any local street realignments or improvements, and other public utility and facility improvements. Special consideration should be given in such planning to overcoming contamination problems at, and reuse of, brownfields. Redevelopment plans should seek to preserve those historic, cultural, and natural features and features of the urban landscape which provide for neighborhood identity within the larger urban complex. Such plans should maximize opportunities for the provision of living arrangements and amenities that are unique to older cities in the Region, such as "downtown" housing and urban waterfront development.

The regional land use plan seeks to maintain the viability of major industrial centers in the older urban areas of the Region and to moderate somewhat the historical loss in employment at these centers. Cities with aging industrial centers should undertake strategic and physical planning efforts for each center. Such planning should include a determination of the potential for assembling marketable sites and assessment of any contamination problems. Cities should make full use of—and assist private developers in securing—all State and Federal financial assistance available, be it for environmental cleanup, blight elimination, or other renewal activities, in support of the reuse and revitalization of these sites.

Map 21

EXAMPLE OF A NEIGHBORHOOD DEVELOPMENT PLAN: DEVELOPMENT PLAN FOR THE PARKSIDE EAST NEIGHBORHOOD IN THE TOWN OF SOMERS



The regional land use plan should be refined and detailed in community-level land use plans and, ultimately, in neighborhood development plans, an example of which is shown above. Neighborhood plans should be prepared for every neighborhood or special-purpose district where significant growth or change is expected. Such plans represent the most detailed level of planning. Plans for residential neighborhoods should designate future collector and land access streets; pedestrian paths; individual blocks and lots; environmentally sensitive areas to be preserved; areas to be reserved for stormwater and utility easements; and sites for a neighborhood park, school, and commercial center as appropriate.

Source: SEWRPC.

Planning in Rural Areas

Local planning is also necessary to refine and detail the recommendations of the regional land use plan for those lands which are located beyond the recommended urban service areas. Local plans for rural areas should incorporate regional plan recommendations concerning the preservation of environmentally sensitive lands. Local plans should encourage the preservation of farmland, particularly farmland covered by Class I and Class II soils, as recommended in the regional land use plan. Local plans may in addition seek to preserve farmland covered by Class III soils as well as other farmland covered by soils deemed to be of local significance.

Local planning for rural areas should also incorporate the farmland preservation recommendations of county farmland preservation plans. Prepared in accordance with Chapter 91 of the Wisconsin Statutes, these plans are required to enable owners of farmland to participate in and receive tax credits through the Wisconsin Farmland Preservation Program. Such plans have been adopted by Kenosha, Ozaukee, Racine, Walworth, Washington, and Waukesha Counties. In 1997, Waukesha County was in the process of revising its farmland preservation plan and, in so doing, seeking to provide for consistency between the farmland preservation plan and the new County development plan. The prime agricultural lands recommended for preservation under the county farmland preservation plans for Kenosha, Ozaukee, Racine, Walworth, and Washington Counties are shown on Map 22, along with the prime agricultural lands recommended for preservation in the Waukesha County development plan. Also shown on Map 22 are the prime agricultural lands in the City of Franklin, the only community in Milwaukee County where prime agricultural lands have been identified for the purposes of the Wisconsin Farmland Preservation Program. The specific criteria used to identify farmland preservation areas under the respective plans are indicated in Table 40.

Particular attention in local planning for rural areas should be directed to areas which have been neither recommended for preservation as environmental corridors in the regional land use plan nor identified as prime agricultural lands under county farmland preservation plans. The regional land use plan recommends that such lands be retained in rural use. It encourages continued agricultural activity in these areas—including the continuation of existing agricultural activity and the creation of smaller farms, including hobby farms, horse farms, or community-supported agricultural operations. Under the regional plan, additional residential development within such areas would be limited to rural-density residential development, defined as development at densities of between five acres and 35 acres per dwelling. Other development should generally be limited to uses which are consistent with the rural character of the area or otherwise essential to the area—including, among other uses, animal hospitals, veterinary clinics, and riding stables. In general, office, industrial, and institutional development and the types of retail and service uses that are provided as a matter of convenience and necessity in urban residential neighborhoods should not be considered appropriate within rural planning areas. Large-scale commercial, institutional, and industrial structures—which by their very mass can disrupt the rural landscape—should be avoided.

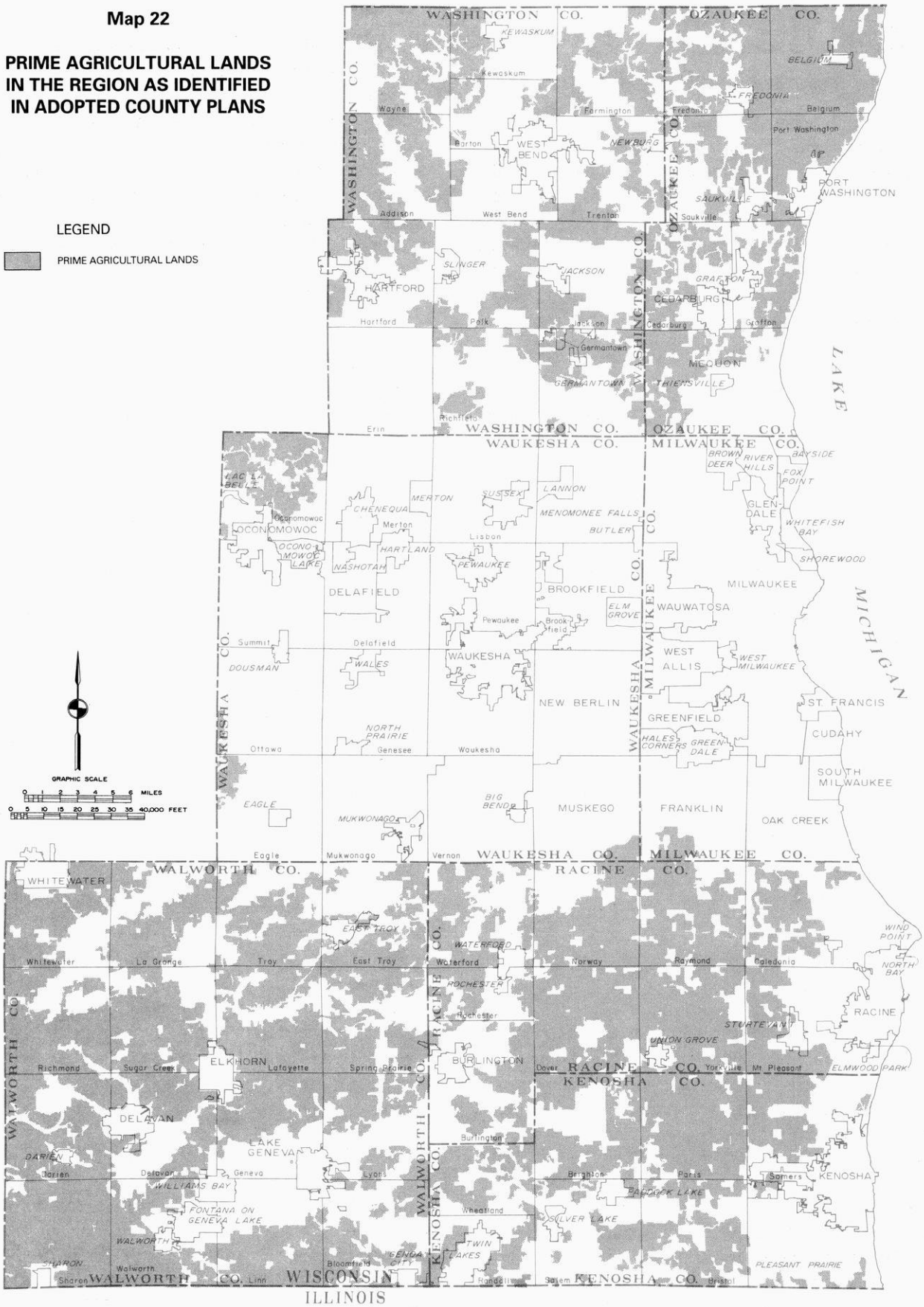
Within the aforementioned rural areas—those which have not been identified as environmentally sensitive lands or prime agricultural lands—local planning efforts should determine where agricultural activity should be retained and where rural-density residential development may be accommodated. This determination should be based upon a consideration of a number of factors, including soil productivity for agriculture, the integrity of the existing farming areas and their viability for continued agricultural use, proximity to existing urban development, and local land use objectives.

Where it is determined that residential development may be accommodated, a range of design options exists for achieving the recommended rural density. Rural residential development may occur in the form of large lots, each of which is at least five acres in area. Rural residential development may occur in designs which utilize "lot averaging"; such designs involve the creation of individual lots which vary in size but which, on average, achieve the recommended density—no more than one dwelling unit per five acres—for the tract concerned. Rural residential development may also occur in residential cluster designs, with dwelling units developed in clusters on relatively small lots surrounded by agricultural and other open space sufficient to achieve the overall recommended density. In such designs, the overall density is calculated based upon the total number of dwelling units accommodated and the total site area, including the open space area and the area developed for residential use.

Of the various design alternatives for rural-density residential development, cluster designs generally afford the greatest opportunity for preserving open space and maintaining the rural character of the landscape. Map 23 graphically presents an example of a detailed rural-area plan emphasizing clustered residential development. When properly designed, cluster development can minimize the visual impact of permitted residential development, preserve significant natural features and agricultural lands, create opportunities for nonpublic ownership of

Map 22

PRIME AGRICULTURAL LANDS IN THE REGION AS IDENTIFIED IN ADOPTED COUNTY PLANS



Under the provisions of the Wisconsin Statutes pertaining to the Wisconsin Farmland Preservation Program, county governments are responsible for the identification of prime agricultural lands. Shown above are the prime agricultural lands identified by Kenosha, Ozaukee, Racine, Walworth, and Washington Counties in farmland preservation plans adopted in the late 1970s and early 1980s, and prime agricultural lands identified in the Waukesha County development plan adopted by the County in 1996. This map also shows prime agricultural lands in the City of Franklin, the only municipality in Milwaukee County where such lands have been identified for the purposes of the Wisconsin Farmland Preservation Program. The regional land use plan recommends that counties in the Region prepare and adopt updated county farmland preservation plans, and, in developing those plans, seek to preserve the most productive agricultural soils—U. S. Natural Resources Conservation Service Class I and Class II soils—insofar as practicable.

Source: SEWRPC.

Table 40

CRITERIA USED IN THE DEFINITION OF PRIME AGRICULTURAL LAND UNDER ADOPTED COUNTY PLANS

County(ies)	Prime Agricultural Land Criteria		
	Soil Type[a]	Minimum Farm Parcel Size	Minimum Farm Block Size
Kenosha, Ozaukee, and Racine[b] Milwaukee[c] Walworth[d]	At least 50 percent National Prime or of Statewide Importance	35 acres	100 acres
Washington[e]	At least 50 percent National Prime or of Statewide Importance	35 acres	640 acres
Waukesha[f]	At least 50 percent National Prime	35 acres	five square miles

[a]*National Prime farmlands soils consist primarily of U. S. Natural Resources Conservation Service-designated Class I and Class II soils. Soils of Statewide Importance consist primarily of U. S. Natural Resources Conservation Service-designated Class III soils.*

[b]*Prime agricultural land criteria are those recommended in the Kenosha, Ozaukee, and Racine County farmland preservation plans.*

[c]*Prime agricultural land criteria are those used to delineate an exclusive agricultural zoning district in the City of Franklin, which encompasses the only remaining prime agricultural land in Milwaukee County.*

[d]*Prime agricultural land criteria are those used in the preparation of the Walworth County farmland preservation plan and as refined in the application of the exclusive agricultural zoning district in the County.*

[e]*Prime agricultural land criteria are those recommended in the Washington County farmland preservation plan.*

[f]*Prime agricultural land criteria are those recommended in the Waukesha County development plan.*

Source: SEWRPC.

open space, and increase the efficiency of infrastructure development. Local plans should encourage the use of cluster designs to accommodate rural residential development. The cluster development concept and the means for implementing cluster development are further described below in this chapter.

Local Regulatory Measures

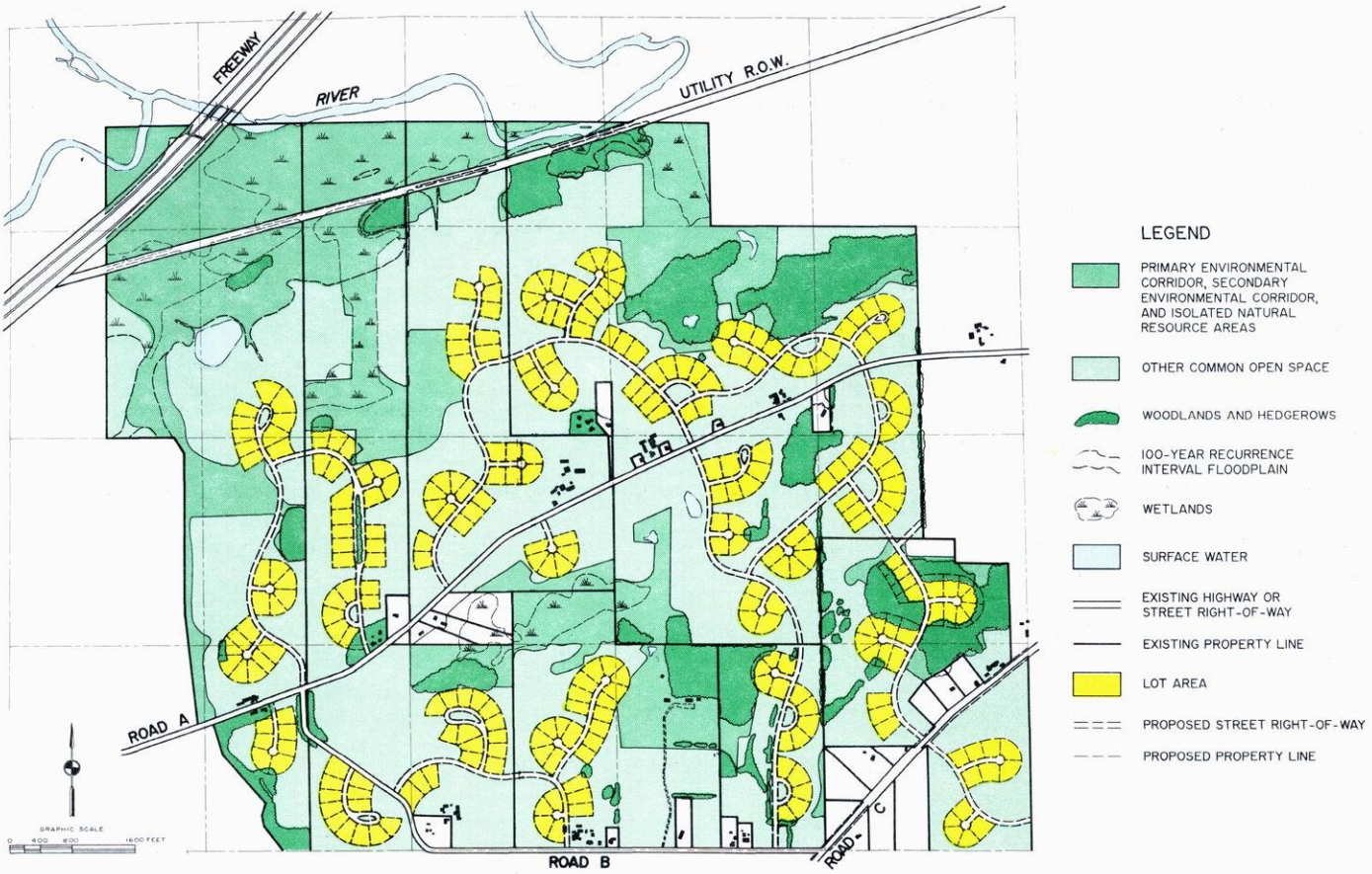
Zoning Ordinances

Of all the land use plan implementation devices presently available, perhaps the most important and most versatile is the application of local police power to control land use development through the adoption of appropriate zoning ordinances, including zoning district regulations and zoning district maps. Cities and villages are authorized under the Wisconsin Statutes to adopt and administer general zoning within their corporate limits. Counties are authorized to adopt and administer general zoning throughout their unincorporated areas; a county ordinance becomes effective within a given town only after approval by the town board. Towns which are not under county zoning may exercise village powers and thereby adopt and administer general zoning; however, in counties having a county zoning ordinance, no such town ordinance or ordinance amendment may be adopted unless approved by the county board. Towns in counties which have not enacted a county zoning ordinance may also adopt their own zoning ordinances under powers specifically granted to towns, provided that the town first petitions the county to enact a county ordinance and the county fails to do so.

The Wisconsin Statutes enable cities and villages to exercise extraterritorial zoning power within unincorporated town areas located within specified distances of their corporate limits—three miles from the corporate limits of a first-, second-, or third-class city, and one and one-half miles from the limits of a fourth-class city or a village. This extraterritorial zoning power must be exercised through a joint six-member committee composed equally of representatives of the city or village and the concerned town. By statute, the establishment of extraterritorial zoning district regulations and zoning district boundaries and any subsequent amendments requires the favorable vote of a majority of the joint extraterritorial zoning committee. The prescribed composition of the joint committee

Map 23

EXAMPLE OF A RURAL-AREA PLAN EMPHASIZING CLUSTERED RESIDENTIAL DEVELOPMENT



Detailed rural-area development plans should be prepared for those areas beyond the planned urban service areas of the Region where it is determined that rural-density residential development—development at a density of no more than one dwelling unit per five acres—may be accommodated. Such plans should encourage the use of residential cluster designs, an example of which is shown above. Cluster designs concentrate the permitted number of lots on a portion of the tract, leaving the remaining portion in open space. When properly designed, cluster development can minimize the visual impact of permitted residential development, help maintain the rural character of the landscape, and preserve significant natural features and smaller farming areas.

Source: SEWRPC.

ensures the consideration of town and city/village interests in extraterritorial zoning matters.

Each city, village, town, and county responsible for administering general zoning should review its existing zoning regulations and zoning district map and amend the regulations and map as necessary to implement the regional plan. To ensure their effectiveness, such zoning ordinance amendments should be preceded by local land use plans which refine and detail the regional plan, as recommended above.

General guidelines to be followed in the review and revision of existing zoning are set forth below. Guidelines are set forth for urban areas and for rural areas. Guidelines for the zoning of environmentally sensitive areas—which are found in both urban and rural areas—are treated separately below.

Zoning in Planned Urban Areas

Zoning in urban areas should be administered in accordance with county and local plans which refine the urban-area recommendations of the regional land use plan. Not all the areas shown on such plans should initially be placed in districts which allow urban development. The application of urban zoning districts in accordance with a long-range plan should proceed incrementally. The premature zoning of lands for urban use should be avoided so as to

prevent the creation of isolated urban enclaves and incomplete neighborhoods.

Accordingly, it is recommended that only existing urban areas and areas already committed to urban use, as well as those areas where development is imminent and can be economically served by municipal facilities and services, be placed in appropriate residential, commercial, industrial, governmental, recreational, and other urban zoning districts in accordance with the regional land use plan or county and local refinements of that plan. Other lands within the planned urban service area should be placed in zoning districts consistent with their existing use, or, alternatively, placed in an urban land holding district or transition district. The areas concerned should be rezoned into appropriate urban districts only when development has been proposed and approved, and where essential facilities and services can be readily provided in a timely manner. No land should be placed into an urban land holding district or transition district unless it is located within a planned urban area identified under the regional land use plan or local plan refinement.

Zoning ordinances should include provisions for planned unit developments. Typically applied as an overlay district, planned unit development provisions allow for flexibility in site design while achieving the overall density and use requirements for the site concerned as set forth in underlying basic zoning districts. Planned unit development provisions facilitate coordinated site planning, allowing for latitude in the location and type of structures and enabling a mixture of compatible residential, commercial, institutional, and open space uses.

Care should be taken to ensure that zoning ordinances do not preclude development projects advanced as "traditional neighborhood development" or "transit-oriented development." The term "traditional neighborhood development" generally refers to compact, pedestrian-oriented, mixed-use neighborhoods with residential densities maintained at levels capable of supporting a neighborhood school, shopping area, and other neighborhood amenities. Traditional neighborhood designs are typically characterized by a gridlike street system and street-oriented setbacks and building designs. The overall design, including the layout of streets and sidewalks, encourages walking and bicycling as alternatives to automobile transportation within the neighborhood. The term "transit-oriented development" generally refers to compact, mixed-use development whose internal design is intended to maximize access to a transit stop located within or adjacent to the development. Within the development, commercial uses and higher-density residential uses are located near the transit stop. The layout of streets and sidewalks provides convenient walking and bicycling access to the transit stop. Traditional neighborhood developments and transit-oriented developments may be accommodated as planned unit developments under local zoning ordinances.

It is important to recognize that residential zoning regulations may have a significant influence on housing costs and the supply of affordable housing. In order to enable the provision of affordable housing, all urban communities, especially "developing" communities, should incorporate provisions for a full range of residential structure types—single-family, two-family, and multi-family—as well as a reasonable range of housing sizes within their zoning ordinances. Moreover, urban communities should incorporate provisions for a full range of residential lot sizes and include one or more residential districts specifying lot sizes of no more than 7,200 square feet for single-family detached housing units and 8,000 square feet for two-family structures.

Zoning in Planned Rural Areas

Zoning in rural areas should be administered in accordance with county and local plans which refine the rural-area recommendations of the regional land use plan. The following is recommended:

- Prime agricultural lands identified in county-adopted farmland preservation plans should be placed into an exclusive agricultural zoning district which essentially permits only agricultural and agriculture-related uses. Such a district should provide for a minimum parcel size of 35 acres for a single-family dwelling and prohibit incompatible urban development.

- Other areas which are identified for continued agricultural use in county and local refinements of the regional plan should be placed into exclusive agricultural districts as defined above or into general agricultural districts with smaller minimum parcel sizes as may be appropriate for smaller agricultural operations, such as hobby farms or other specialty farms.

- Areas identified in county and local refinements of the regional plan as suitable locations for rural residential development should be placed into an exclusive agricultural district or general agricultural district as described above. Such areas should be rezoned into a district which accommodates rural-density residential development only after proposals for such development, designed to maintain rural

character in accordance with regional and local planning objectives, are advanced.

Zoning ordinances should include provisions which accommodate clustered residential development in rural areas. Options in this respect are described below in this chapter.

Zoning in Environmentally Sensitive Areas

Primary environmental corridors, secondary environmental corridors, and isolated natural resource areas occur in both urban and rural areas of the Region. Zoning ordinances provide an important means for protecting these environmentally sensitive areas in urban and rural settings.

Environmentally sensitive areas should be placed in one of several zoning districts, depending upon the type and character of the natural resource features to be preserved and protected. All lakes, rivers, and streams, wetlands, and associated undeveloped floodlands and shorelands should be placed in lowland conservancy or floodland protection districts. Upland wooded areas and areas of steep slope should be placed in appropriate upland conservancy or park and recreation districts which ensure preservation in accordance with regional and local plan objectives.

While seeking to preserve environmentally sensitive areas, the regional land use plan recognizes that certain transportation and utility facilities may of necessity have to be located within such areas and that certain limited residential and recreational uses may be accommodated in such areas without jeopardizing their overall integrity. Recommended guidelines pertaining to rural residential, recreational, and transportation and utility development within environmentally sensitive areas are set forth in Table 41. County and local units of government should ensure that regulations established in upland and lowland conservancy districts, park and recreation districts, and other zoning districts which are applied to environmentally sensitive areas are consistent with these guidelines.

Residential development within environmentally sensitive areas is not encouraged. If accommodated, residential development should be limited to rural-density single-family development in upland areas, excluding areas of steep slope. Preferably, residences and supporting roadways should be located on the fringes of the environmentally sensitive areas. Development plans should be carefully reviewed to ensure that site design and construction activities minimize disturbance of existing natural features.

When accommodated within environmentally sensitive areas, residential development may occur in the form of large estate-type lots or may occur in cluster designs, as long as an overall rural density is achieved. Desirably, the number of dwelling units to be accommodated at a given site should be limited to one dwelling unit per five acres of upland corridor. In any event, the number of dwelling units should not exceed one dwelling unit per five acres of lowland and upland corridor combined.

Zoning and Regional Plan Implementation to Date

The Regional Planning Commission periodically conducts a detailed analysis of zoning district regulations and zoning district maps adopted by counties, cities, villages, and towns in the Region and evaluates the pattern of existing zoning in terms of its conformance with, or departure from, the regional land use plan. The last regionwide analysis was conducted for zoning in effect in 1985. The findings of the analysis are set forth in SEWRPC Planning Report No. 40, *A Regional Land Use Plan for Southeastern Wisconsin—2010*, January 1992. The major findings of that analysis are summarized below.

The 1985 analysis concluded that progress had been made during the previous two decades in adjusting county and local zoning to reflect the development pattern recommended in the regional land use plan. This progress was most evident in a reduction in residential zoning in outlying rural towns in the Region; in an increased application of floodland and other conservancy zoning to protect environmentally sensitive areas, particularly the low-lying areas; and in an increase in the application of exclusive agricultural zoning to protect prime agricultural lands and an attendant reduction in the use of "nominal" agricultural districts which allow low-density residential development in addition to agricultural uses.

While noting progress, the 1985 zoning analysis concluded that much remained to be accomplished in terms of adjusting county and local zoning in accordance with regional development objectives. First, the analysis noted a continued need for efforts to bring the amount of land allocated to residential, commercial, and industrial uses under zoning into better accord with actual demand. The amount of land zoned for these uses substantially exceeded the amount warranted based upon a consideration of long-range population, household, and employment forecasts. Such overzoning can lead to premature development, creating scattered, incomplete residential neighborhoods and other urban enclaves far removed from existing urban service areas, and may generate serious and costly environmental problems.

Second, the 1985 analysis found that "strip" commercial zoning—that is, the zoning of strips of land abutting arterial streets and highways for commercial use—

Table 41

GUIDELINES FOR DEVELOPMENT CONSIDERED COMPATIBLE WITH ENVIRONMENTAL CORRIDORS

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

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

GENERAL DEVELOPMENT GUIDELINES

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

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

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

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

- Single-Family Residential Development: Limited single-family residential development within the environmental corridor may occur in various forms ranging from development on large rural estate lots to clustered single-family development. The maximum number of housing units accommodated at a proposed development site within the environmental corridor should be limited to the number determined by dividing the total corridor acreage within the site less the acreage covered by surface water and wetlands by five. Individual lots should contain a minimum of approximately one acre of land determined to be developable for each housing unit—with developable lands being defined to include upland wildlife habitat and woodlands, but to exclude areas of steep slope.

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

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

Lakes, Rivers, and Streams: Includes all lakes greater than five acres in area and all perennial and intermittent streams as shown on U. S. Geological Survey quadrangle maps.
Shoreline: Includes a band 50 feet in depth along both sides of intermittent streams; a band 75 feet in depth along both sides of perennial streams; a band 75 feet in depth around lakes; and a band 200 feet in depth along the Lake Michigan shoreline.
Floodplain: Includes areas, excluding stream channels and lake beds, subject to inundation by the 100-year recurrence interval flood event.
Wetlands: Includes areas one acre or more in size in which the water table is at, near, or above the land surface and which are characterized by both hydric soils and by the growth of sedges, cattails, and other wetland vegetation.
Wet Soils: Includes areas covered by wet, poorly drained, and organic soils.
Woodlands: Includes areas one acre or more in size having 17 or more deciduous trees per acre with at least a 50 percent canopy cover as well as coniferous tree plantations and reforestation projects; excludes lowland woodlands, such as tamarack swamps, which are classified as wetlands.
Wildlife Habitat: Includes areas devoted to natural open uses of a size and with a vegetative cover capable of supporting a balanced diversity of wildlife.
Steep Slope: Includes areas with land slopes of 12 percent or greater.
Prairies: Includes open, generally treeless areas which are dominated by native grasses.
Park: Includes public and nonpublic park and open space sites.
Historic Site: Includes sites listed on the National Register of Historic Places.
Scenic Viewpoint: Includes vantage points from which a diversity of natural features such as surface waters, wetlands, woodlands, and agricultural lands can be observed.
Scientific and Natural Area Sites: Includes tracts of land and water so little modified by human activity that they contain intact native plant and animal communities believed to be representative of the pre-settlement landscape.

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

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

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

[e] *It should be recognized that certain transportation facilities such as bridges may be constructed over such resources.*

[f] *It should be recognized that utility facilities such as sanitary sewers may be located in or under such resources.*

[g] *It should be recognized that electric power transmission lines and similar lines may be suspended over such resources.*

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

[i] *It should be recognized that bridges for trail facilities may be constructed over such resources.*

[j] *It should be recognized that streets and highways may cross such resources. Where this occurs, there should be no net loss of flood storage capacity or wetlands.*

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

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

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

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

Source: SEWRPC.

remained widespread in the Region. Such zoning is generally undesirable insofar as it tends to destroy aesthetic values along arterial streets; to encourage indiscriminate outdoor advertising: to create traffic hazards and congestion; and to promote scattered development.

Third, the 1985 analysis found that despite the substantial reduction noted above, many outlying areas of the Region—including areas of highly productive farmland—remained in agricultural zoning districts which permit residential development at a density of less than one dwelling unit per five acres. Low-density residential development in rural areas tends to be disruptive to farming operations, contributes to an urban sprawl pattern of development, and destroys rural character. The analysis concluded that continued efforts are needed to replace nominal agricultural districts which allow low-density residential development with exclusive agricultural zoning districts or rural-density residential districts which limit development to a density of no more than one dwelling unit per five acres.

Fourth, the 1985 analysis found that while most lowland areas within the environmental corridors and isolated natural resource areas have been effectively protected from incompatible urban development through floodland zoning, shoreland-wetland zoning, and other lowland conservancy zoning, many upland areas were not protected by zoning and remained vulnerable to urban encroachment. The analysis noted the need for efforts to increase the protection of upland environmentally sensitive areas.

Land Division Controls

Land division controls are of particular importance to plan implementation since decisions concerning the division of land are among the first official activities involving public policy as it applies to future development. Basic regulations governing the division of land are set forth in Chapter 236 of the Wisconsin Statutes. Chapter 236 defines the term "subdivision" as a division of a lot, parcel, or tract of land where the act of division creates five or more parcels or building sites of one and one-half acres each or less in area—or where five or more parcels or building sites of one and one-half acres each or less in area are created by successive divisions within a period of five years. Chapter 236 requires that any division of land which results in a subdivision shall be, and provides that any other division may be, surveyed and a plat thereof approved and recorded. Chapter 236 empowers cities, villages, towns, and counties which have established planning agencies to adopt land division ordinances which are more restrictive than the Wisconsin Statutes, enabling county and local units of government to regulate all land divisions.

Section 236.10 of the Wisconsin Statutes indicates that a plat may not be recorded unless approved by the following:

- If within a city or village: the governing body of the city or village.
- If within a town, outside the extraterritorial plat approval jurisdiction area of a city or village: the town board and the county planning agency, if there is one.
- If within a town, inside the extraterritorial plat approval jurisdiction area of a city or village: the town board; the governing body of the concerned city or village, if it has adopted a land division ordinance or an official map; and the county planning agency if that agency employs full-time staff for the purpose of administering zoning or other planning legislation.

Section 236.12 identifies certain other agencies as having the power to object to a plat. A plat may not be approved until any objections have been satisfied. Section 236.12 designates two State agencies, the Wisconsin Departments of Commerce and Transportation, as objecting agencies. County planning agencies are objecting agencies to plats located in cities and villages provided that they employ full-time staff for the purpose of administering planning legislation and provided further that they adopt a policy requiring submission of plats to the planning agency. County planning agencies review proposed plats for potential conflicts with parks, parkways, expressways, major highways, airports, drainage channels, schools, or other planned public developments.

As noted above, cities, villages, towns, and counties which have established planning agencies are authorized to adopt land division ordinances more restrictive than the provisions of Chapter 236. For example, county and local ordinances may adopt a more inclusive definition of the term "subdivision" and may require the recording of certified surveys for land divisions not defined as subdivisions. Such ordinances may establish design guidelines and public improvement requirements consistent with local development objectives. Local units of government may choose to integrate the local regulation of condominium developments, as defined under Chapter 703 of the Wisconsin Statutes, into comprehensive land division and land development control ordinances.

County and local units of government should use the regional land use plan and county and local refinements of that plan as a basis for the review of proposed land

subdivision plats and certified survey maps within their plat approval areas. Any proposed departures from such plans should be carefully considered and approved only if found to be in the public interest.

Official Mapping

Official mapping powers granted to cities under Section 62.23(6) of the Wisconsin Statutes, by reference under Section 61.35 to villages, and by reference under Section 60.22(3) to towns which have adopted village powers, provide a means for reserving land for future public use as streets, highways, waterways, railways, transit facilities, and parkways. The enabling statutes generally prohibit the issuance of building permits for the construction or enlarging of buildings within the limits of such areas as shown on the official map. However, the statutes include provision for issuance of building permits where it is demonstrated that the lands within the areas designated for future public use are not yielding a fair return. Official maps may show areas designated for future parks and playgrounds, but the enabling legislation does not mention them as protected mapped facilities. State law provides that cities and villages may extend official maps beyond their corporate limits to areas within which they have been granted extraterritorial subdivision plat approval power under Chapter 236 of the Wisconsin Statutes.[3]

Official mapping powers represent an effective means of reserving land for future public use in accordance with community and neighborhood plans which refine the regional land use plan. It is recommended that all cities, villages, and towns in the Region prepare and adopt official maps, showing thereon as proposed parkways those environmental corridors which may be proposed for public acquisition along with other proposed public lands as authorized by State statute.

Section 80.64 of the Wisconsin Statutes confers what are, in effect, limited official map powers on counties. County highway width maps adopted under Section 80.64 may be used to show the proposed widening of existing streets and highways and to show the location and width of proposed future streets and highways. Such maps must have the approval of the governing body of the municipality in which the mapped streets and highways are located. The scope of facilities to be mapped under this statute does not extend beyond streets and highways. This statute does not include the prohibitions on issuance of building permits which are established in the local official mapping statutes. County highway width maps can, nevertheless, help to ensure that planned arterial street and highway improvements are properly taken into account in county and local land use decision making.

State and Federal Regulatory Measures

State-Local Zoning of Environmentally Sensitive Areas

Section 87.30 of the Wisconsin Statutes mandates that cities and villages, as well as counties with respect to unincorporated areas, adopt appropriate floodland zoning regulations, basing such regulations on the hydrologic, hydraulic, and other engineering data required to appropriately define flood hazard areas. Minimum standards which city, village, and county floodland ordinances must meet are set forth in Chapter NR 116 of the Wisconsin Administrative Code. All such regulations must govern filling and development activity within the 100-year recurrence interval floodplain. Under minimum State requirements, local floodland zoning regulations must prohibit nearly all forms of development within the floodway—that is, the area of the floodplain required to convey the 100-year recurrence interval peak flood flow. Local regulation must also restrict filling and development within the flood fringe, or that portion of the floodplain located outside the floodway that would be covered by floodwater during a 100-year flood event.

Section 59.692 of the Wisconsin Statutes requires that counties in Wisconsin adopt special regulations governing development within shoreland areas. By statutory definition, shoreland areas are lands within 1,000 feet of a navigable lake, pond, or flowage, or within 300 feet of a navigable stream or to the landward side of the floodplain, whichever distance is greater. Minimum standards for county shoreland regulations are set forth in Chapter NR 115 of the Wisconsin Administrative Code. Shoreland regulations include minimum requirements for lot size and building setbacks as well as restrictions on removal of vegetation. In addition, the State regulations require that counties place all wetlands at least five acres in size lying in shoreland areas into a protective conservancy zoning district. Under Sections 62.321 and 61.351, respectively, of the Wisconsin Statutes, cities and villages in Wisconsin are also required to enact zoning regulations to protect wetlands five acres or greater in size lying in shoreland areas. Administrative rules pertaining to city and village shoreland-wetland conservancy zoning are set forth in Chapter NR 117 of the Wisconsin Administrative Code.

As noted above, under State statutes, shorelands are defined in terms of areas located within specified distances of "navigable" waters. In some instances, the navigability

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[3]*Official mapping powers and procedures are described in detail in SEWRPC Planning Guide No. 2 (2nd Edition),* Official Mapping Guide, *June 1996.*

status of streams, lakes, and ponds—and, therefore, the applicability of shoreland regulations to abutting lands—is not clear. Moreover, the administration of shoreland-wetland zoning provisions by counties, cities, and villages is sometimes encumbered by map-scale problems inherent in the Wisconsin Wetlands Inventory—the statewide wetlands-mapping effort completed by the Department of Natural Resources in the early 1980s as a basis for the shoreland-wetland regulatory program—and by real changes in wetlands since the conduct of that inventory. In order to assist counties, cities, and villages in the Region and throughout the State in carrying out their shoreland regulatory responsibilities, it is recommended that the Wisconsin Department of Natural Resources take the lead role in making navigability determinations for streams, lakes, and ponds; in the delineation of shorelands attendant to navigable waters; and in the definitive mapping of wetlands, where needed.

The floodland and shoreland regulations which have been adopted by counties, cities, and villages in accordance with State statutes and administrative rules, and by towns on their own initiative, embody many of the protections envisioned by the Regional Planning Commission when it recommended adoption of special regulations to protect floodland and shoreland areas in the first-generation, design year 1990 regional land use plan. The existing floodland and shoreland regulations provide considerable protection of wetlands and other low-lying areas within the environmental corridors identified in the regional land use plan.

The State-local zoning partnership described above does not extend to environmentally sensitive upland areas. Many environmentally sensitive upland areas—areas typically encompassing woodlands, steeply sloped lands, and significant wildlife habitat—are vulnerable to development and destruction, particularly through urban residential development utilizing onsite sewage disposal systems. To strengthen the protection of these areas, the 1993 regional land use plan implementation study recommended that the existing State-local zoning partnership, which currently applies to floodlands and shorelands, be broadened to apply to environmental corridors as a whole. This broadened zoning partnership would require the preparation and adoption of plans that identify environmental corridors based upon sound, definitive criteria, a step already completed in Southeastern Wisconsin. It would further require that county and local zoning jurisdictions, subject to the same type of State oversight that exists today relative to floodplain and shoreland zoning, adopt and enforce zoning ordinances which protect the entirety of the identified environmental corridors.

The proposal to expand the State-local zoning partnership to include the protection of environmentally sensitive upland areas has not received broad support among the counties within the Region. Without support from county and municipal governments, it is unlikely that the State would expand the existing zoning framework. Absent an increase in State involvement, it is incumbent upon counties, cities, villages, and towns to ensure the protection of environmentally sensitive upland areas. Such protection rests heavily on the application of upland conservancy zoning districts—established in general county and municipal zoning ordinances—to woodlands, areas of steep slope, and other environmentally sensitive uplands.

Federal Wetland Regulatory Program

Under Section 404 of the Clean Water Act as amended, the U. S. Congress has provided for the regulation of most of the wetlands of the Nation. That statute requires the U. S. Army Corps of Engineers, working in cooperation with the U. S. Environmental Protection Agency, to regulate the discharge of dredged and fill materials into the waters of the United States, including lakes, rivers, and wetlands. In carrying out this responsibility, the Corps of Engineers identifies waters of the United States, including wetlands, and determines when permits are required for the discharge of dredged and fill material.

Federal law provides for the involvement of states in the Section 404 program. The Wisconsin Department of Natural Resources may deny or grant certification of any proposed discharge of dredged or fill material into a wetland. In considering such certifications, the Department applies the wetland preservation policies and standards set forth in Section NR 1.95 and Chapter NR 103 of the Wisconsin Administrative Code. If the State denies certification, then Federal law requires that the U. S. Army Corps of Engineers deny the requested Section 404 permit.

The Section 404 regulatory program represents an important means for protecting and preserving wetlands. The continued steadfast administration of this program can contribute significantly to implementation of the regional land use plan recommendations regarding preservation of environmentally sensitive lands.

Regulation of Public Sanitary Sewerage Systems

In Wisconsin, the comprehensive water quality management planning program has led to the development of State regulations which have the effect of requiring the preparation of sanitary sewer service area plans for each public sewage treatment plant. In the Region, those sewer service area plans are prepared as refinements of the urban service areas identified in the regional land use plan. These

refinements define sewer service limits and delineate environmentally sensitive lands within those service limits to which service should not be provided. Chapter NR 110 and Chapter Comm 82 of the Wisconsin Administrative Code require that the Wisconsin Department of Natural Resources, with respect to public sanitary sewers, and the Wisconsin Department of Commerce, with respect to private sanitary sewers, make a finding that all proposed sanitary sewer extensions are in conformance with adopted areawide water quality management plans and the sanitary sewer service areas identified in such plans before approving such extensions.

While the recommended regional land use plan should be used as a basis for the delineation of appropriate sanitary sewer service areas, this delineation should be refined to take into consideration factors such as the location, type, and extent of existing and locally planned urban land use development; the location of areas where onsite soil absorption sewage disposal systems are known to be failing; the location and extent of gravity drainage areas tributary to the major sewerage system pumping stations or the sewage treatment facilities; the location and capacity of existing and planned trunk sewers; and the location of existing property-ownership boundaries.

The planning for local sewer service areas and the various components of the sewage collection and treatment system should consider the range of population forecasts envisioned for the area concerned as postulated in the regional planning effort. Consideration of the intermediate-growth population forecast as set forth in the recommended land use plan may be most appropriate for use in the design of those components of the system which are replaced or rebuilt at intervals of 15 to 25 years. Consideration of a high-growth scenario, including the delineation of a sewer service area necessary to accommodate a high-growth population forecast, may be appropriate in the planning for components of the sewerage system that have a longer service life. A sewer service area sized to accommodate a high-growth population forecast also provides flexibility to communities in determining the spatial distribution of new urban development and facilitates the operation of the urban land market. This flexibility is especially important to smaller communities in responding to proposed developments which are in accord with the principles and concepts of the regional land use plan but which may exceed the intermediate-growth-scenario population levels indicated in the recommended plan, and recognizes that the magnitude of specific increments of development, such as a new residential subdivision, cannot be precisely forecast. Indeed, failure to extend public sanitary sewer service in such situations may result in unsewered, "sprawl" development. Population levels anticipated under the recommended year 2020 regional land use plan along with population levels which could be expected under a high-growth scenario are presented by sewer service area in Appendix E of this report.

The existing link between State oversight of sanitary sewerage systems and the areawide water quality management plan serves to effectively protect many environmentally sensitive lands within planned sewer service areas. However, because the statutory basis whereby the Department of Natural Resources and the Department of Commerce may deny approval of proposed sanitary sewer extensions is limited primarily to adverse water quality impacts, upland environmentally sensitive areas are often unprotected. It is recommended that the Departments of Natural Resources and Commerce seek—through changes in administrative rules or, if necessary, legislation—to expand the basis for denial of sanitary sewer extensions to include other adverse environmental impacts, including impacts upon environmentally sensitive uplands which may not have a direct bearing on water quality.

It is further recommended that the Wisconsin Department of Commerce effect an administrative rule change which would eliminate a "loophole" whereby building sewers intended to serve certain residential and commercial structures are exempt from the water quality management plan conformance review process. At present, building sewers intended to serve buildings that have fewer than 54 drainage fixture units are exempt from review. This provision effectively eliminates from the water quality management plan conformance review process one- and two-family homes and some commercial buildings, potentially including large warehouses. The current rules could result in the construction of buildings in environmental corridors, contrary to plan recommendations.

Regulation of Private Sewage Disposal Systems

Low- and suburban-density residential development—that is, development on lots of one-half acre to five acres—in outlying areas of the Region, removed from established urban service areas and reliant upon onsite disposal systems or holding tanks for wastewater treatment and disposal, is in direct conflict with the regional land use plan. Such development was once constrained in many areas of the Region owing to soil limitations which prevented such systems from functioning properly. New onsite sewage disposal systems designed to operate in once-limiting soil conditions, along with regulatory changes favorable to the use of the new systems, have increased the area subject to unsewered residential development.

Under Sections 59.70 and 145.01 of the Wisconsin Statutes, all counties in Wisconsin except Milwaukee County are required to adopt and enforce a comprehensive private sewage system ordinance which governs the installation and maintenance of onsite sewage disposal systems and sewage holding tanks. Within Milwaukee County, this regulatory responsibility is assigned to cities and villages. Under State law, the county and local ordinances generally cannot be more restrictive than the State plumbing code. However, counties may choose to prohibit by ordinance the installation and use of holding tanks for new construction. If a county does not adopt an ordinance prohibiting the use of holding tanks for new construction, any city, village, or town in the county may do so.

It is recommended that a linkage be made between the regulation of private sewage systems and areawide water quality management plans. Under such a linkage, proposed private sewage systems would be reviewed for conformity with the land use element of areawide water quality management plans. In Southeastern Wisconsin, the regional land use plan constitutes the land use element of the areawide water quality management plan. This recommendation seeks to extend to private sewage systems the same regulatory and decision-making framework now in place with respect to the construction of sewage treatment plants and the extension of public and private sanitary sewers, as described above. The proposed linkage could be achieved in several ways. For example, the State Legislature could require the Wisconsin Department of Commerce to ensure that its actions or regulations with respect to the approval of private sewage systems are consistent with the State water quality management plan and its component areawide water quality management plans. Alternatively, the State Legislature could authorize counties to incorporate requirements for conformity with water quality management plans into their private sewage system ordinances.

In Southeastern Wisconsin, the expanded basis for review and approval of private sewage disposal systems should incorporate the guidelines for the use of such systems established in the regional land use objectives and standards set forth in Chapter IV of this report. These standards indicate that in the absence of public sanitary sewer service, onsite sewage disposal systems should be utilized only to serve the following: rural-density residential development; suburban-density residential development on existing lots of record; and urban land uses which may be required in unsewered areas, such as transportation-related businesses, agriculture-related businesses, communication facilities, utility installations, and park and recreation sites. Within this framework, the standards further recommend the following: that new development in unsewered areas be served only by conventional (septic tank) soil absorption sewage disposal systems; that alternative (mound and other) soil absorption sewage disposal systems be utilized only to remedy failing conventional systems or on lots of record which cannot support conventional systems; and that holding tanks be used only as a last resort as a replacement for failing conventional or alternative onsite sewage disposal systems.

Park and Open Space Acquisition

Achievement of the outdoor recreation and open space preservation objectives of the regional land use plan requires continued public acquisition of land for outdoor recreation and open space uses. Recommendations regarding land acquisition for park and open space preservation purposes by the Wisconsin Department of Natural Resources and by the seven counties in the Region are set forth in the regional park and open space plan, as refined and detailed in county park and open space plans.[4] Additional open space acquisition recommendations are set forth for the Department of Natural Resources, the seven counties, and cities, villages, and towns in the Region in the recently completed regional natural areas and critical species habitat protection and management plan.[5] Moreover, cities, villages, and towns may acquire other lands for park and open space purposes as recommended in local land use and park and open space plans prepared as refinements of the regional land use and park and open space plans. It should be noted that cities,

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[4]*SEWRPC Community Assistance Planning Report No. 131,* A Park and Open Space Plan for Kenosha County, *November 1987; SEWRPC Community Assistance Planning Report No. 132,* A Park and Open Space Plan for Milwaukee County, *November 1991; SEWRPC Community Assistance Planning Report No. 133,* A Park and Open Space Plan for Ozaukee County, *July 1987; SEWRPC Community Assistance Planning Report No. 134,* A Park and Open Space Plan for Racine County, *September 1988; SEWRPC Community Assistance Planning Report No. 135,* A Park and Open Space Plan for Walworth County, *February 1991; SEWRPC Community Assistance Planning Report No. 136 (2nd Edition),* A Park and Open Space Plan for Washington County: 2010, *August 1997; and Chapter XIII, "Park and Open Space Plan," of SEWRPC Community Assistance Planning Report No. 209,* A Development Plan for Waukesha County, Wisconsin, *August 1996.*

[5]*SEWRPC Planning Report No. 42,* A Regional Natural Areas and Critical Species Habitat Protection and Management Plan for Southeastern Wisconsin, *September 1997.*

villages, and towns are required to develop and adopt local comprehensive outdoor recreation plans, consistent with the regional plan, in order to be eligible for State and Federal outdoor recreation grant assistance. Each of the concerned units and agencies of government should continue or begin land acquisition programs in accordance with such plans. Private conservancy organizations are encouraged to supplement public open space acquisition efforts, as appropriate, to ensure the preservation of important natural areas.

Purchase of less than fee simple interest in park and open space lands may be less costly than acquisition of the entire interest. Acquisition of less than fee simple interest may include conservation easements ensuring that the land remains in open space use, easements permitting public access for recreational use, and easements permitting public site management. These devices should be used when acquisition of the entire fee simple interest is too costly or otherwise not practical.

Rural Cluster Development

The term "rural cluster development" refers to a form of residential development in rural areas that preserves open space while permitting development at densities no less than that permitted under conventional development in rural areas. Cluster designs concentrate the permitted number of lots on a portion of the tract, leaving the remaining portion in open space. When properly designed, cluster development can minimize the visual impact of permitted residential development, maintain the rural character of the landscape, preserve significant natural features and agricultural lands, create opportunities for nonpublic ownership of open space, and increase the efficiency of infrastructure development. For these reasons, the regional land use plan encourages the use of cluster designs as an alternative to conventional residential development as a means to accommodate rural-density residential development.

In the cluster development design process, open space preservation areas should be delineated first, with residential clusters designed around those areas. Designs for residential clusters should be integrated with topographic and other natural features, taking full advantage of the settings provided by those features without causing undue disturbance. Clustered residential development should be buffered from nearby agricultural and mineral-extraction lands, as appropriate, so as to minimize conflicts between farming or mining and residential uses. To the extent practicable, residential clusters should be located in areas which are visually screened from public roadways, so that existing rural open space vistas are maintained. Residential clusters should be located in areas covered by soils that are suitable for such development and which are not subject to special hazards such as flooding and erosion.

Management options for the open space preservation areas include, among others, preservation of existing natural features, restoration of natural conditions, and continued agricultural use. The open space may be owned by a homeowners' association, the local municipality, a private conservation organization, or the original landowner. Conservation easements and deed restrictions should be used to protect the common open space from future conversion to more intensive uses. Scenic easements may also be used to limit development for the purposes of preserving open space vistas.

The zoning ordinance is the primary means by which cluster development is permitted. There is considerable flexibility available in adapting zoning ordinances to permit cluster development: cluster provisions may be added to existing basic zoning districts with no change in the boundaries of the districts on the zoning map; a new basic zoning district may be created especially for cluster development and applied as appropriate; or an overlay district may be created permitting cluster development and applied over existing basic districts as appropriate.

While the zoning ordinance specifically authorizes cluster development, land division ordinances contain important related land division and land development regulations. Many of the regulations that are typically found in local land division ordinances are equally applicable to both cluster development and conventional development. However, some provisions may need to be modified or new provisions may need to be added to regulate cluster developments properly and to accommodate design standards which are unique to such developments.[6]

It should be noted that although rural cluster designs preserve open space while accommodating limited rural-density residential development, cluster development should not be considered a form of prime agricultural land preservation. With cluster development, as with conventional development, when people, houses, and traffic are accommodated in farming areas, some conflicts may occur and some farmland will be lost. Within the Region, prime farmland preservation efforts will con-

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[6] *For additional information regarding the rural residential cluster development concept and the manner in which it may be applied as a planning and zoning technique, see SEWRPC Planning Guide No. 7,* Rural Cluster Development Guide, *December 1996.*

tinue to rely upon exclusive agricultural zoning as the basic means for long-term protection of the most productive farmland.

Purchase or Transfer of Development Rights

Open space preservation techniques referred to as "purchase of development rights" (PDR) or "transfer of development rights" (TDR) are based upon the premise that development rights are distinct attributes of land ownership which can be sold or otherwise transferred, similar to other rights associated with land, such as mineral rights or air rights. No widespread agreement exists on the nature or extent of development rights that may be inherent in fee simple ownership of land. There is general agreement that landowners have the right to use their land within the limits set by public regulation. Such regulation must be defensible from a constitutional law standpoint, leaving landowners a reasonable use of their land so as not to constitute a public taking of the land without payment of just compensation.

Some individuals maintain that since zoning ordinances and other land use regulations may legally be, and indeed, historically have been, amended to become more restrictive, there are no development rights inherent in land ownership, the owner being entitled only to a continuation of the existing use. Others argue that where zoning and other public land use controls have been in place for a long period of time, a right to develop in accordance with such long-standing zoning regulations becomes effectively attached to the land and that removal of such development rights—rights which are commonly taken for granted by landowners—through "downzoning" would constitute a taking. While the latter position is frequently taken in a political context—as many local elected officials believe that such a position is fair and equitable—the Wisconsin Supreme Court has taken the position that a landowner has no vested right in zoning until proper development and/or building permit applications have been filed.

Ideally, land should be placed in zoning districts which allow urban development only where it is recommended in locally adopted land use plans and only at such time as the area concerned can be readily provided with basic urban facilities and services and a market demand for the proposed development is evident. Unfortunately, decades ago, many then-rural areas of the Region were placed in residential zoning districts, even though such "prezoning" constituted poor planning and zoning practice at that time. Some argue that the use of PDR or TDR techniques represents an inappropriate response to such poor planning and zoning practice of the past and that, with respect to the purchase of development rights, the governments involved should not "buy back" rights to develop land which were inappropriately held out under local zoning. Others view PDR and TDR as potential tools for dealing with expectations created by past zoning practice, particularly within areas that are experiencing significant market demand for development.

It should be noted that PDR programs may, but need not, involve government funding; they may be privately financed by land trusts or other private organizations having an interest in preserving agricultural and other open space lands. Arguments against government-funded PDR programs should not undermine privately financed programs.

Clearly, there is no widespread agreement on how, and under what circumstances, the principles underlying the PDR and TDR techniques should be used, if at all. These techniques, however, have been proposed by some for application in the Region to supplement traditional approaches to open space preservation. A description of these techniques is presented here, recognizing that ultimately their application, if permitted and encouraged by public actions, will be determined largely by the operation of the urban land market.

Purchase of Development Rights

Purchase-of-development-rights programs, or PDR programs, are intended to ensure the long-term preservation of agricultural lands. Under a PDR program, the owner of farmland receives a payment for relinquishing rights to development. Deed restrictions are used to ensure that the lands concerned remain in agricultural or other open use. Such restrictions are attached to the land and remain in effect regardless of future sale or other transfer of the land.

PDR programs may be administered and funded by State, county, or local units of government, land trusts and other private organizations, or combinations thereof. The amounts paid to farmland owners under PDR programs may be calculated on the basis of the number of dwelling units permitted under existing zoning, on the basis of the difference between the market value of the land and its value solely for agricultural purposes, or on some other basis. The primary drawback of PDR programs is the potentially high cost entailed.

PDR programs can provide assurance that farmland will be permanently retained in open use. Landowners receive a potentially substantial cash payment while retaining all other rights to the land, including the right to continue farming. The money paid to the landowner may be used for any purpose, such as debt reduction, capital improvement to the farm, or retirement income. Lands included in

a PDR program remain on the tax roll and continue to generate property taxes. Since the land remains in private ownership, the public sector does not incur any land management responsibilities.

Transfer of Development Rights

Under transfer-of-development-rights programs, or TDR programs, the right to develop a specified number of dwelling units under existing zoning may be transferred from one parcel, which would be maintained in open space use, to a different parcel, where the number of dwelling units permitted would be correspondingly increased. When the parcels are held by the same owner, the development rights are, in effect, simply transferred from one parcel to the other by the owner; when the parcels are held by different landowners, the transfer of development rights involves a sale of rights from one owner to another, at fair market value. In any event, the result is a shift in density away from areas proposed to be maintained in farming or other open use toward areas recommended for development.

The transfer of development rights may be implemented only if authorized under county or local zoning. To enable the transfer of development rights, the zoning ordinance must establish procedures by which the TDR technique will be administered, including the formula for calculating the number of residential dwelling units which may be transferred from the "sending" area to the "receiving" area. The zoning district map must identify the sending and receiving areas, or at least identify the districts within which development rights can be transferred from one parcel to another.

While the creation and administration of a TDR program is somewhat complicated, the technique remains a potentially effective means for preserving open space and maintaining rural densities, while directing development to areas where it may best be accommodated.

Municipal Boundary and Utility Extension Agreements

The recommendations of the regional land use plan concerning the location and density of new urban development are formulated without regard to the location of city, village, and town boundaries. Rather, those plan recommendations are based upon a consideration of such factors as the location of existing utility infrastructure, including public sanitary sewer and water supply systems; the location of environmentally sensitive lands; and the availability of lands considered to be suitable for urban development. Where cities and villages own and operate essential public utilities not provided by adjacent towns, the plan assumes that cities and villages will either annex unincorporated territory recommended in the plan for urban development and provide extensions of essential utility services to serve such development, or that the cities and villages will reach agreement with adjacent unincorporated towns on the extension of those essential services without the need for annexation and municipal boundary change.

There is broad authority in Section 66.30 of the Wisconsin Statutes for intergovernmental cooperative agreements that would enable neighboring incorporated and unincorporated civil divisions to reach agreement on the extension of public utilities with or without related annexation. In addition, Section 66.023 of the Wisconsin Statutes allows any combination of cities, villages, and towns to determine the boundary lines between themselves under a cooperative plan, subject to oversight by the Wisconsin Department of Commerce. Section 66.023 envisions the cooperative preparation of a comprehensive plan for the affected area by the concerned local units of government and prescribes in detail the contents of the cooperative plan. Importantly, the cooperative plan must identify any boundary change and any existing boundary that may not be changed during the planning period; identify any conditions that must be met before a boundary change may occur; include a schedule of the period during which a boundary change shall or may occur; and specify arrangements for the provision of urban services to the territory covered by the plan. Section 66.023 provides that a concerned town, city, or village may, if authorized by the other municipalities involved in a given cooperative plan, adopt zoning for all or a portion of the town territory covered by the plan. The new zoning would replace existing zoning in that portion of the town—except existing floodland zoning adopted under Section 87.30, shoreland zoning adopted under Section 59.692, and exclusive agricultural zoning adopted under Sections 91.71 to 91.78 of the Wisconsin Statutes.

Cooperative approaches to the identification of future corporate limits and the extension of urban services can contribute significantly to attainment of the compact, centralized urban growth recommended in the regional land use plan. Conversely, failure of neighboring civil divisions to reach agreement on boundary and service extension matters may result in development at variance with the regional plan—for example, by causing new development to leap past logical urban growth areas where corporate limits are contested, to outlying areas where sewer and water supply service are not available. Accordingly, it is recommended that neighboring incorporated and unincorporated communities cooperatively plan for future land use, civil division boundaries, and the provision of urban services, as provided for under the

Wisconsin Statutes, within the framework of the regional land use plan.

Capital Improvement Programming

The ability of county and local units of government to implement the regional land use plan as subsequently refined and detailed in county and community master plans depends in part upon the proper timing and coordination of major capital improvements, including major streets and highways, major utility facilities, parks, libraries, and other major public facilities. This can best be accomplished through systematic capital improvement programming, a process involving the scheduling of major public improvements over a specified period of time, taking into account the relative importance of, and need for, those improvements and the financial resources anticipated to be available. Although procedures vary, this process typically involves the preparation of a capital improvement budget for the next fiscal year and a capital improvement program indicating improvements planned for the following four or five years. It is common for the improvement budget to be prepared and the capital improvement program to be revised annually. As part of the capital improvement programming process, every effort should be made to relate major capital improvement to the development objectives set forth in county and local plans which refine the regional land use plan.

Development Design Standards

Achievement of a settlement pattern that is functional, safe, and attractive, as recommended in the regional plan, ultimately depends upon good design of individual development sites. Local units of government can promote good site design through the establishment of design standards to be adhered to in private-sector development. Adherence to soundly conceived design standards can enhance the visual character of the developed areas, contribute to the long-term stability of the developed areas and the maintenance of property values, and protect the public investment in supporting infrastructure systems.

Design standards should reflect both regional and local development objectives. Regional concerns that should be addressed in such standards include transit serviceability, proper access to arterial streets and highways, and protection of the natural resource base. Local concerns which may be addressed in such standards include, among others, the layout of lots and blocks; provision of off-street parking; building mass, facades, and materials; solar access; grading; drainage; screening or buffering of building appurtenances; landscaping; open space reserves; controlled outdoor lighting; pedestrian and bicycle circulation; and access to public transit. Some of the design standards may be quantitative in nature, so that compliance is directly measurable. Other standards may be qualitative in nature, so that determination of compliance involves experienced judgment.

Perhaps the best way to ensure compliance with design standards is to incorporate those standards into local land use controls—particularly zoning and land division control ordinances. Zoning ordinances can be expanded by requiring that site plans and building plans be prepared for each proposed development and by specifying the standards which the plans must meet. Land division control ordinances may be expanded to stipulate additional design standards required to be met in the land development process. Freestanding architectural control ordinances may also be used to codify building-related design standards.

It is recommended that each county and local unit of government in the Region consider the formulation of a comprehensive set of design standards reflecting regional and local development objectives and determine whether and how existing local land use controls should be amended to ensure adherence to those standards.

Brownfields Redevelopment

The Southeastern Wisconsin Region, like many urbanizing regions throughout the Nation, has experienced an increase in vacant or underutilized sites once devoted to industrial, commercial, and related uses. Factors contributing to the abandonment or underutilization of older commercial and industrial sites vary from site to site but often include structures which are obsolescent in terms of accommodating current manufacturing, warehousing, and office needs; inadequate site access to the freeway system; and insufficient site area for horizontally oriented structures, contemporary parking and loading requirements, and possible future plant expansion needs. Other contributing factors include locational preferences of owners and managers who favor suburban locations close to their places of residence; preferences for campuslike settings, which are more readily created in outlying areas; and public-sector support for new outlying sites, in the form of publicly sponsored industrial parks, tax-incremental finance techniques, and favorable zoning decisions.

Once abandoned, the reuse of former commercial and industrial sites is frequently constrained by contamination problems created by past industrial and commercial activities, giving rise to the term "brownfields"—sites which are underutilized or abandoned due to known or suspected environmental contamination. While brownfields tend to be concentrated in older central-city areas, they also occur in outlying urban areas. Redevelopment of brownfields is often hindered by high cleanup costs, and, even where contamination is only suspected, the

potential for high cleanup costs tends to dampen private-sector interest in redevelopment.

Maintaining the viability of existing urban areas of the Region as places to live and work, as recommended in the regional land use plan, will require special efforts to promote the reuse of brownfields. Local units of government should include the cleanup and reuse of brownfields as a key element in their planning for the revitalization of urban areas and promote such reuse through such tools as tax-incremental financing. Limited State and Federal financial assistance has been made available in support of the cleanup and reuse of contaminated sites. Local units of government should make full use of, and assist private developers in securing, available State and Federal financial assistance.

The reuse of brownfield sites need not be limited to industrial use, but may include residential, commercial, recreational, and other development, in accordance with local development objectives. Properly carried out, the cleanup and reuse of brownfields has many potential benefits in addition to the underlying environmental benefits: elimination of blight, increase in the property-tax base, expansion of the housing stock, provision of jobs in close proximity to concentrations of the labor force, and increased use of existing public infrastructure.

Educational Activities

Planning-related educational efforts directed at county and local units of government and private interests are important to regional land use plan implementation. Recognizing this, the Regional Planning Commission undertakes a variety of educational efforts to promote implementation of the regional land use plan. These efforts include the following: informational meetings and formal public hearings on the regional plan; presentations to county and local planning committees and commissions; classroom presentations; preparation of a series of planning guides intended to serve as manuals of sound planning practice; sponsorship of conferences and workshops related to special planning and plan implementation issues; publication of a bimonthly newsletter describing Commission planning programs and current issues in planning; publication of an annual report which includes an overview of current Commission planning activities and presents data gathered on an annual basis to help monitor regional plan implementation; and cooperation with the University of Wisconsin-Extension, including assignment of a full-time Extension agent to work directly with the Commission staff on activities relating to plan implementation.

The University of Wisconsin-Extension also undertakes a variety of planning-related educational activities which promote implementation of the regional plan and support local planning efforts to refine the regional plan. Such efforts, frequently undertaken in cooperation with the Regional Planning Commission, include sponsorship of planning conferences, publication of informational materials on various planning topics, and support of county and local planning activities through Extension community development agents and other specialists.

Implementation of the regional plan could, nevertheless, be strengthened if more resources were made available for planning-related educational efforts directed at elected officials, plan commissioners, professional planners, and developers and other private interests. It is recommended that the University of Wisconsin-Extension seek State funding for, and take the lead role in designing and implementing, a continuing educational program on planning in Wisconsin. In Southeastern Wisconsin, this program should be designed to accomplish the following: 1) increasing the awareness and understanding of the regional plan, including the benefits of implementing the plan and the consequences of failing to implement the plan; 2) increasing the understanding of the need for, and techniques which may be utilized in, the preparation of county and local plans which refine and detail the regional plan; and 3) increasing the understanding of the regulatory measures and other mechanisms available to county and local units of government in implementing the regional plan and county and local refinements of the regional plan.

The proposed educational program should make full use of existing planning-related educational resources, including, among others, the University of Wisconsin-Madison Department of Urban and Regional Planning, the University of Wisconsin-Milwaukee School of Architecture and Urban Planning, the Regional Planning Commission, county and local planning departments, and private planning firms. The educational activities should, moreover, be coordinated with any related activities of the recently created Wisconsin Land Council.

The educational program should be designed as an ongoing activity. This is important because the memberships of county and local governing bodies and plan committees and commissions—the key local land use decision-making bodies—change over time. A continuing educational program can, moreover, help keep local officials and plan commissioners informed of changes in planning legislation, developments in planning-related case law, innovative planning and design techniques, and other changes in the field of planning.

Technical and Financial Assistance

As noted above, an important step in the implementation of the regional land use plan is the refinement and detailing of that plan through the preparation of local land use plans. This should be followed by adjustment of zoning and other local land use controls and administration of such controls in accordance with the plan over time. A number of public agencies provide technical assistance to local units of government in support of such local planning efforts—including county planning agencies, the University of Wisconsin-Extension, and the Regional Planning Commission. Specialized technical assistance on natural resource base-related planning matters may be obtained from county land conservation departments and the U. S. Natural Resources Conservation Service. Limited guidance and assistance may be obtained without cost or for a nominal fee. In some cases, cities, villages, and towns may contract with an agency for extensive technical assistance services. In addition to the aforementioned public agencies, county and local units of government may turn to a number of qualified planning and engineering firms for technical assistance in support of local planning activities.

For the most part, county and local units of government must bear the costs of their local planning activities. There is no funding available from the State or Federal governments in support of local comprehensive planning. Within the Region, Waukesha County recently initiated a cost-share program which provides limited County funding in support of city, village, and town planning efforts in Waukesha County.

One of the functions of the recently created Wisconsin Land Council is to identify procedures for facilitating local land use planning efforts, including training and technical assistance for local units of government, and to recommend legislation to implement such procedures. It is recommended that in carrying out this charge, the Land Council seek State funding for, and take the lead role in administering, a program providing financial assistance in support of substate comprehensive planning in Wisconsin. Such a program should provide State funding in support of efforts to prepare or update comprehensive regional plans, to prepare or update county and local plans which refine and detail the regional plans, and to prepare new—or undertake major revisions of existing—zoning ordinances, land division ordinances, and official maps as needed to implement local refinements of regional plans.

Other Recommendations from the 1993 Regional Land Use Plan Implementation Study

The regional land use plan implementation study completed by the Regional Planning Commission in 1993 resulted in a series of recommendations intended to strengthen implementation of the regional land use plan. Those recommendations, formulated by the Commission's Technical and Intergovernmental Advisory Committee on Regional Land Use Plan Implementation, addressed four major areas: the preservation of prime agricultural lands, the promotion of a compact and contiguous urban development pattern, the protection and preservation of upland portions of environmental corridors, and the revitalization of older urban industrial centers. Several recommendations from that study—a recommendation calling for the expansion of the statutory basis for the review of sewer extensions to include impacts other than water quality impacts, a recommendation calling for a linkage between the regulation of private sewage disposal systems and the regional land use plan, and a recommendation for intensive local planning for the revitalization of aging major industrial centers—were reaffirmed by the Technical Coordinating and Advisory Committee on Regional Land Use Planning as indicated in previous sections of this chapter. Other recommendations from that study, not previously dealt with in this chapter, were considered by the Technical Coordinating and Advisory Committee and reaffirmed or modified as indicated below.

Formulation of a State Policy on the Promotion of Compact and Efficient Urban Development Patterns

The 1993 regional land use plan implementation study recommended that a formal State policy be developed which promotes and favors more compact, efficient urban development patterns. This would require State agencies—particularly, the Wisconsin Departments of Administration; Commerce; Natural Resources; Transportation; and Agriculture, Trade and Consumer Protection—to reflect that policy in the formulation and promulgation of administrative rules and in day-to-day regulatory and other decision making. The policy would complement existing State policies which are inherent in State programs intended to preserve prime agricultural lands and environmentally sensitive lands. The Technical Coordinating and Advisory Committee reaffirmed this recommendation, and, in so doing, recommended that the newly created Wisconsin Land Council serve as the lead agency in formulating the State policy.

Changes to the Wisconsin Farmland Preservation Program

The 1993 plan implementation study recommended that the State consider the following changes to the Wisconsin Farmland Preservation Program to increase the effectiveness of that program in preserving prime agricultural land: 1) requiring that county farmland preservation plans be updated and recertified periodically and requiring that all farmland preservation zoning actions and tax-credit decisions be directly related to such plans; 2) adopting a less inclusive definition of prime farmlands,

thereby focusing available tax credits on large contiguous blocks of the most productive farmland; and 3) providing direct property-tax credits to owners of farmland rather than providing property-tax relief indirectly through income-tax credits.

The Technical Coordinating and Advisory Committee reaffirmed the first of these recommendations, calling for the periodic updating and recertification of farmland preservation plans and requiring that all farmland preservation zoning and tax-credit decisions be directly related to such plans. The Committee also reaffirmed the third recommendation, calling for direct property-tax credits to owners of farmland, rather than providing property-tax relief indirectly in the form of State income-tax credits. Currently provided as a State income-tax credit, the amount of the farmland preservation program credit is inversely related to household income. With the proposed change, the amount of the farmland preservation program tax credit would be based upon the amount of the agricultural property tax levied on the farm, irrespective of household income, yielding significantly higher tax credits for many farmers.

The Technical Coordinating and Advisory Committee did not endorse the second recommendation above—a recommendation calling for State adoption of a less inclusive definition of prime farmlands—favoring, instead, the present approach which allows county governments significant latitude in the choice of criteria to be used in identifying prime agricultural lands.

Study of Potential Tax-Base-Sharing Mechanism

The 1993 plan implementation study recommended that a special regional study be undertaken to examine the causes of, and possible means for modifying, the present trend of industrial, commercial, and office job decentralization and possible means for ameliorating its effects. The study would explore the potential institution of some form of tax-base-sharing mechanism which would provide for the more equitable distribution in metropolitan areas of the benefits of the increased property-tax base that major new employment centers create and which would, furthermore, help reduce tax-base competition among communities—competition which can work against the best interests of the metropolitan area as a whole.

Since completion of the 1993 plan implementation study, the State Legislature has enacted legislation enabling two or more cities, villages, and/or towns to enter into revenue-sharing agreements, providing for the sharing of all or a specified part of revenues derived from taxes and special charges. Procedures for establishing municipal revenue-sharing agreements and basic requirements for such agreements are set forth in Section 66.028 of the Wisconsin Statutes. The agreements may address matters other than revenue sharing, including municipal services and municipal boundaries.

Recognizing the statutory authority granted under Section 66.028, the Technical Coordinating and Advisory Committee recommended that in lieu of the proposed regional study exploring the feasibility of a tax-base-sharing mechanism, the Regional Planning Commission take a lead role in promoting an awareness and understanding of the potential for municipal revenue sharing and of arrangements through which such revenue sharing may be carried out.

SUMMARY

The recommended regional land use plan described in Chapter V of this report provides a design for the attainment of the adopted regional land use development objectives. This chapter has been presented as a guide for use in the implementation of the recommended plan. It outlines the actions which must be taken if the land use plan is to be fully carried out.

Successful implementation of the regional land use plan depends upon the application of a variety of plan implementation measures and the utmost in cooperation among the local units of government and the areawide, State, and Federal agencies involved in the application of those measures. An overview of those plan implementation measures is provided in this summary; reference should be made to the appropriate sections of this chapter for details regarding the recommended application of specific plan implementation measures.

Implementation of the land use plan should begin with formal adoption of the plan by county and local units of government in the Region and endorsement of the plan by concerned State and Federal agencies. The seven county boards in the Region should formally adopt the plan as it respectively affects each county, after recommendation by the respective county planning agencies, as a guide to future land use development within each county. City, village, and town plan commissions should likewise adopt the recommended plan, and city councils, village boards, and town boards should adopt the plan as a matter of endorsing the local plan commission action. Other local, areawide, State, and Federal agencies and units of government identified in Table 38 as having plan implementation responsibilities should endorse or acknowledge the regional plan as appropriate and consider the plan recommendations in carrying out their various programs and activities.

Subsequent to formal plan adoption, an important step in the implementation of the regional land use plan is the refinement and detailing of that plan through appropriate county and local planning efforts. Such planning provides a means for the proper integration of regional and local land use development objectives and provides a basis for the adjustment of local plan implementation devices in accordance with those regional and local objectives. Planning should be undertaken for both urban and rural areas. Planning for urban areas should include the preparation of community-level land use plans as well as detailed development plans for neighborhoods where significant growth is expected and detailed redevelopment plans for neighborhoods showing signs of land use instability or deterioration. Detailed planning should likewise be carried out for rural areas, particularly for those areas where rural-density residential development is anticipated.

Successful implementation of the recommended regional land use plan requires the judicious application of a variety of land use regulatory measures in accordance with the objectives of the regional plan and local refinements of the regional plan. Counties, cities, villages, and towns should review and adjust as appropriate their general zoning ordinances to ensure that they implement plan recommendations for urban areas, rural areas, and environmentally sensitive areas. County and local units of government should use their land division approval authority to ensure that proposed land divisions are in accord with the plan. Cities, villages, and towns should use their official mapping powers to protect lands identified in the regional plan, as well as in local refinements of the regional plan, for future public use. In addition to county and local zoning, land division control, and official mapping powers, regulatory programs mandated or administered by the State—including State-local floodland and shoreland zoning and State regulation of public sanitary sewerage systems and private sewage disposal systems—play a key role in plan implementation. This chapter has recommended the strengthening of some aspects of these programs, including, first, a recommended expansion of the statutory basis for the State regulation of sanitary sewerage systems to include the consideration of development impacts upon environmentally sensitive upland areas and, second, the establishment of the regional water quality management plan—and the regional land use plan, as the land use element of the water quality plan—as a basis for review of proposed private sewage disposal systems. At the Federal level, it is envisioned that the wetland regulatory program established under Section 404 of the Clean Water Act will continue to be administered in support of the natural resource preservation objectives of the regional plan.

Also identified and described in this chapter are a number of nonregulatory measures available to county and local units of government in efforts to implement the regional plan and county and local plan refinements. These include open space acquisition in fee simple or less than fee simple interest for outdoor recreation and open space preservation purposes; rural cluster development; purchase of development rights; transfer of development rights; municipal boundary and utility extension agreements to facilitate orderly growth in areas which are of mutual interest to incorporated and unincorporated communities; capital improvement programming to ensure the provision of major capital improvements in accordance with the development objectives of the regional plan and county and local refinements of the regional plan; adoption of design standards consistent with local and regional development objectives; and local initiatives for the reuse of brownfields and other underused or unused lands in older areas of the Region.

This chapter has drawn upon the results of a special study on the status of regional land use plan implementation conducted by the Regional Planning Commission in 1993. This chapter describes and, based upon the collective judgment of the Technical Coordinating and Advisory Committee on Regional Land Use Planning, reaffirms or modifies proposals for strengthening plan implementation which grew out of that study. Recommendations reaffirmed by the Technical Coordinating and Advisory Committee include the aforementioned expansion of the statutory basis for the review of sanitary sewer extensions beyond primarily water quality considerations, and establishment of a linkage between the regulation of private sewage disposal systems and the regional land use plan. Other major recommendations growing out of the plan implementation study, and reaffirmed by the Advisory Committee, include, first, the formulation of a State policy promoting and favoring more compact, efficient urban development patterns, such policy being incorporated into administrative rules of and day-to-day decision making by the concerned State agencies, and, second, the making of certain changes in the Wisconsin Farmland Preservation Program intended to increase its effectiveness in the preservation of the most productive farmland. In lieu of a recommendation made in the 1993 plan implementation study calling for a regional study exploring a tax-base-sharing mechanism, the Technical Coordinating and Advisory Committee recommended that the Regional Planning Commission take a lead role in promoting an awareness and understanding of the potential for municipal revenue sharing and of arrangements through which such revenue sharing may be carried out in accordance with recently enacted State enabling legislation.

Chapter VII

SUMMARY

The Southeastern Wisconsin Regional Planning Commission is charged by law with the function and duty of making and adopting a master plan for the physical development of the Southeastern Wisconsin Region. The permissible scope and content of this plan, as outlined in the State enabling legislation, extend to all phases of regional development, implicitly emphasizing, however, the preparation of spatial designs for the use of land and for supporting transportation and utility facilities.

The scope and complexity of areawide development prohibit the making and adopting of an entire comprehensive development plan at one time. The Commission has therefore determined to proceed with the preparation of individual plan elements which together form the comprehensive plan. Each element is intended to deal with an identified areawide developmental or environmental objective. The individual elements—including the transportation system plan, water quality management plan, park and open space plan, and airport system plan—are coordinated by being related to an areawide land use plan. Thus, the land use plan constitutes the most basic regional plan element, the element on which other elements are based.

The Regional Planning Commission first adopted a regional land use plan in 1966. That plan had a design year of 1990. Following a period of about 10 years, the year 1990 plan underwent a major review and reevaluation, including an analysis of land development trends and their conformance to, and departure from, the year 1990 land use plan. This plan reappraisal was supported by 1970 and 1975 regional land use inventory data and 1970 U. S. Bureau of the Census population and household data. This major plan reappraisal resulted in a determination that the basic principles and concepts of the 1990 land use plan should be carried forward into a design year 2000 land use plan, which was adopted by the Commission in 1977. Similarly, following a period of about 10 years, another major review and reevaluation effort was undertaken using 1980, 1985, and 1990 land use inventory data and 1980 and 1990 U. S. Bureau of the Census population and household data. The basic principles and concepts of the plan were again carried forward and incorporated into a design year 2010 land use plan, adopted by the Commission in 1992. These plans are documented, respectively, in SEWRPC Planning Reports Nos. 7, 25, and 40.[1]

In 1997, the Regional Planning Commission undertook a project intended to extend the plan 10 years further into the future, to a new design year of 2020. Because of the short period of time since adoption of the design year 2010 plan and because new land use, population, and household data were not available, a major plan reevaluation effort was not possible. Prepared as an extension of the year 2010 plan, the year 2020 land use plan incorporates the same principles and concepts as does the previous plan. As it was extended in time, the regional land use plan was revised to reflect development which occurred or which has been committed to since completion of the year 2010 plan, recently completed county and municipal land use plans which are consistent with regional development objectives, and a new set of population, household, and employment forecasts for the Region through the year 2020.

The principal reason that the regional land use plan needed to be extended to the design year 2020, and revised and updated as part of such an extension, was to support ongoing regional and local public facility planning. The regional land use plan provides a framework for transportation, utility, outdoor recreation, and other public facility planning at the regional, county, and local levels. The planning period covered by the regional land use plan should be consistent with the planning periods used in

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[1] *The first regional land use plan is documented in SEWRPC Planning Report No. 7,* Land Use-Transportation Study, *Volume One,* Inventory Findings: 1963, *May 1965; Volume Two,* Forecasts and Alternative Plans: 1990, *June 1966; and Volume Three,* Recommended Regional Land Use and Transportation Plans: 1990, *November 1966. The second regional land use plan is documented in SEWRPC Planning Report No. 25,* A Regional Land Use Plan and a Regional Transportation Plan for Southeastern Wisconsin—2000, *Volume One,* Inventory Findings, *April 1975, and Volume Two,* Alternative and Recommended Plans, *May 1978. The third regional land use plan is documented in SEWRPC Planning Report No. 40,* A Regional Land Use Plan for Southeastern Wisconsin—2010, *January 1992.*

such facility planning. In facility planning, the planning period is usually established by the expected life of the first facilities to be constructed as the plan is implemented, and typically is about 20 years. By 1997, the year 2010 regional land use plan had a remaining planning period of 13 years. For the regional land use plan to continue to serve as a sound basis for long-range public facility planning at the regional, county, and local levels, the design year of the plan had to be extended to the year 2020.

The work leading to the preparation of the year 2020 regional land use plan was carried out by the staff of the Commission under the guidance of the Commission's Technical Coordinating and Advisory Committee on Regional Land Use Planning. Membership on that Committee includes representatives from the U. S. Department of Agriculture, Natural Resources Conservation Service; from the Wisconsin Departments of Natural Resources, Administration, and Agriculture, Trade and Consumer Protection; from the university community; from municipal and county planning and public works departments; from private utilities; and from environmental organizations. A complete membership list of the Advisory Committee is provided on the inside front cover of this report.

This report documents the planning process applied in extending the year 2010 plan to the design year 2020. It describes related inventory and analysis findings; presents forecasts of population, household, and employment levels which the new plan seeks to accommodate; sets forth the land use objectives, principles, and standards on which the plan is based; describes the resulting regional land use plan for the year 2020; and indicates steps which should be taken by local, county, areawide, State, and Federal agencies and units of government to implement the plan. The major findings and recommendations of the planning study are presented in summary form in this chapter.

INVENTORY FINDINGS

Land Use

Although urban development in the Region has been continuous since 1850, the character of this development changed dramatically after 1950. The earlier form of compact, concentric urban development was supplanted by a much more scattered pattern of areawide development, and the conversion of land to urban use occurred at a much faster rate. Between 1850 and 1950, the developed urban area of the Region increased at an average rate of about 1.4 square miles per year; between 1950 and 1990, the developed urban area of the Region increased at an average rate of about 9.2 square miles per year. These changes in the nature of urban development, coupled with significant reductions in average household sizes, have led to dramatic reductions in the population density of urbanized areas. The urban population density of the Region decreased from about 8,100 persons per square mile in 1950 to about 3,500 persons per square mile in 1990.

In 1990, lands in urban uses—consisting of lands devoted to residential, commercial, industrial, governmental and institutional, recreational, and transportation, communication, and utility uses—together with unused urban lands encompassed about 637 square miles, or about 24 percent of the total area of the Region. Between 1963, the base year of the initial regional land use inventory, and 1990, urban lands in the Region increased by about 193 square miles, or about 44 percent. This increase in urban land was distributed among the seven counties in the Region as follows: Kenosha, 14.9 square miles; Milwaukee, 21.5 square miles; Ozaukee, 19.7 square miles; Racine, 18.8 square miles; Walworth, 18.2 square miles; Washington, 27.7 square miles; and Waukesha, 72.7 square miles.

Nonurban lands encompassed about 2,053 square miles of the Region in 1990, or about 76 percent of the total area of the Region, with agricultural lands comprising the largest nonurban land use category, encompassing about 1,395 square miles, or about 68 percent of all nonurban land and 52 percent of the total area of the Region. Nonurban lands in the Region decreased by about 193 square miles, or about 9 percent, between 1963 and 1990. Most of this loss resulted from the conversion of agricultural land to urban use, with some losses in wetlands and woodlands also occurring.

Public Utilities

Sanitary sewer and water supply systems are particularly important to land use planning because the location and density of urban development influences the need for such facilities, and, conversely, the existence of such facilities influences the location and density of new urban development. Areas served by public sanitary sewers encompassed about 433 square miles, or about 16 percent of the total area of the Region, in 1990, compared to about 309 square miles, or 12 percent of the Region, in 1970. About 1.59 million persons, or about 88 percent of the total resident population of the Region, were served by public sanitary sewerage systems in 1990, compared to 1.49 million persons, or 85 percent of the resident population, in 1970.

Areas served by public water supply systems encompassed about 344 square miles, or about 13 percent of the total area of the Region, in 1990, compared to 259 square miles, or 10 percent of the Region, in 1970. About 1.48 million

persons, or about 82 percent of the total resident population of the Region, were served by public water supply systems in 1990, compared to about 1.39 million persons, or 79 percent of the resident population, in 1970.

Environmentally Sensitive Areas

The most important elements of the natural resource base and features closely related to that base—including wetlands, woodlands, prairies, wildlife habitat, major lakes and streams and associated shorelands and floodlands, and historic, scenic, and recreational sites—tend to be concentrated in elongated areas in the landscape of the Region. One of the most important tasks completed under the regional planning program has been the identification and delineation of these linear areas, which have been termed environmental corridors. The preservation of these corridors is essential to the overall quality of the environment, the maintenance of the natural beauty and cultural heritage of the Region, and the provision of opportunities for a range of educational and recreational pursuits. Moreover, since these areas are typically poorly suited for urban development, such preservation helps to avoid the creation of developmental and environmental problems.

"Primary" environmental corridors—which are by definition at least 400 acres in area, two miles long, and 200 feet in width—are located generally along major stream valleys, around major lakes, and along the Kettle Moraine. Primary environmental corridors encompassed about 464 square miles, or about 17 percent of the total area of the Region, in 1990. "Secondary" environmental corridors—which are by definition at least 100 acres in area and one mile long—are generally located along smaller perennial streams and intermittent streams in the Region. Secondary environmental corridors encompassed about 76 square miles, or about 3 percent of the total area of the Region, in 1990.

Under the regional planning program, certain smaller concentrations of natural resource base elements which have been separated from the environmental corridors by intensive urban or agricultural development have been identified as isolated natural resource areas. Isolated natural resource areas—which are by definition at least five acres in area—are found throughout the Region. These areas encompassed a total of about 63 square miles, or about 2 percent of the total area of the Region, in 1990. These areas may be the only available wildlife habitat in an area and lend aesthetic character and natural diversity to the surrounding area.

Population, Households, and Employment

The resident population of the Region stood at 1,810,400 persons in 1990, about 569,800 persons, or 46 percent, greater than the 1950 population. The population of the Region grew significantly—by about 333,000 persons, or 27 percent, during the 1950s and by about 182,500 persons, or 12 percent, during the 1960s. This rapid growth came to a halt in the 1970s, when the regional population increased by only about 8,700 persons, or 0.5 percent. Between 1980 and 1990, the population increased by about 45,600 persons, or 3 percent.

There was a total of about 676,100 resident households in the Region in 1990. The number of households in the Region increased at a faster rate than that of the resident population between 1950 and 1990. The number of households increased by about 111,300, or 31 percent, during the 1950s and by about 70,600, or 15 percent, during the 1960s. Despite almost no growth in the regional population during the 1970s, the number of households continued to rise, increasing by about 91,500, or 17 percent, during that decade. Between 1980 and 1990, the number of households rose by approximately an additional 48,200, or 8 percent. Overall, the number of households increased by about 321,600, or 91 percent, between 1950 and 1990—nearly twice the rate of increase in the resident population during that period. During that time, the average size of households in the Region decreased significantly, from 3.36 persons per household in 1950 to 2.62 persons per household in 1990.

The Region experienced a substantial increase in the number of jobs during each of the past four decades. Total employment increased by about 99,500 jobs, or 17 percent, during the 1950s; by about 111,100 jobs, or 17 percent, during the 1960s; by about 161,100 jobs, or 21 percent, during the 1970s; and by about 122,000 jobs, or 13 percent, during the 1980s. As a result, total employment in the Region stood at about 1,067,200 jobs in 1990, about 493,700 jobs, or 86 percent, higher than the 1950 employment level.

Varying rates of growth among the seven counties in the Region have resulted in significant changes in the relative distribution of population, households, and employment among the counties over the past four decades. The most notable changes in this respect occurred in Milwaukee and Waukesha Counties. Milwaukee County's share of total regional population, households, and employment decreased by 17, 15, and 21 percentage points, respectively, between 1950 and 1990. Waukesha County's share of total regional population, households, and employment, meanwhile, increased by 10, nine, and 15 percentage points, respectively, during this time.

ANTICIPATED GROWTH AND CHANGE

The future demand for land use and natural resources in the Region will depend, to a large extent, upon future population, household, and employment levels. Projections of future population, household, and employment levels are required to establish the overall scale of growth and development which the land use plan must seek to accommodate.

As part of the continuing regional planning program, the Regional Planning Commission undertakes intensive studies of the regional population and economy following each decennial U. S. Census. These studies culminate in the preparation of revised long-range projections of population, household, and employment levels for the Region, with the projection period extended in time under each successive study. The most recent demographic and economic studies resulted in the preparation of new projections of population, household, and employment levels for the Region through the year 2020.

In response to the increased uncertainty surrounding future social and economic conditions in the Region, the Commission has incorporated an "alternative futures" approach into the regional planning program. Under this approach, three alternative future regional growth scenarios have been postulated, two intended to represent low and high extremes of possible future growth and change, and the third intended to represent an intermediate future lying between the extremes. A set of regional and county-level population, household, and employment projections for the year 2020 was developed for each scenario. This approach enables the consideration of a range of future population, household, and employment levels in land use, transportation, and other public facility planning. It provides a basis for determining how plans will perform under a range of possible future conditions.

Year 2020 population, household, and employment levels attendant to the three growth scenarios vary considerably. Under the high-growth scenario, the resident population of the Region would increase by about 556,600 persons, or about 31 percent, from 1,810,400 persons in 1990 to 2,367,000 persons by the year 2020. The intermediate-growth scenario envisions that the regional population would increase by 267,500 persons, or about 15 percent, to 2,077,900 persons by the year 2020. The low-growth scenario envisions that the regional population would increase by 114,600 persons, or about 6 percent, to 1,925,000 persons by the year 2020.

Under a high-growth scenario, the number of households in the Region would increase by 229,000, or about 34 percent, from 676,100 households in 1990 to 905,100 households by the year 2020. Under an intermediate-growth scenario, the number of households would increase by 151,000, or 22 percent, to 827,100 households by the year 2020. Under a low-growth scenario, the number of households would increase by 123,000, or 18 percent, to 799,100 households by the year 2020.

Under a high-growth scenario, total employment in the Region would increase by 295,400 jobs, or about 28 percent, from 1,067,200 jobs in 1990 to 1,362,600 jobs by the year 2020. Under an intermediate-growth scenario, regional employment would increase by 209,900 jobs, or 20 percent, to 1,277,100 jobs by the year 2020. Under a low-growth scenario, regional employment would increase by 149,700 jobs, or 14 percent, to 1,216,900 jobs by the year 2020.

As a practical matter, the preparation of a land use plan must be targeted toward a single set of population, household, and employment projections. It was the collective judgment of the Technical Coordinating and Advisory Committee on Regional Land Use Planning that future population, household, and employment levels within the Region would be most closely approximated by the intermediate-growth scenario. Accordingly, the Committee directed that the year 2020 land use plan be prepared to accommodate population, household, and employment levels projected for the Region under the intermediate-growth scenario.

While selecting the intermediate-growth scenario as a basis for extending the land use plan to the year 2020, the Advisory Committee did recommend an adjustment of the county-level population, household, and employment projections attendant to the intermediate-growth scenario in order to promote a more centralized urban land use development pattern within the Region. The Committee determined that the year 2020 regional land use plan, like the 2010 land use plan, should seek to moderate the historical decentralization of population, households, and employment, and to support and preserve urban development in the older urban centers of the Region. The adjustments to the county-level projections made in this respect included the allocation of more population and households to Milwaukee County than initially projected, with corresponding reductions in design year population and household levels for Ozaukee, Walworth, Washington, and Waukesha Counties. In Kenosha and Racine Counties, the planned population and household distributions were centralized around the Kenosha and Racine urbanized areas. The planned distribution of employment within the Region was also centralized.

OBJECTIVES, PRINCIPLES, AND STANDARDS

One of the most important tasks accomplished as part of the first regional land use planning study in the mid-1960s was the formulation of a set of objectives, principles, and standards expressing the desired direction, magnitude, and quality of future development within the Region. Formulated under the guidance of a broad-based Technical Coordinating and Advisory Committee, those objectives, principles, and standards provided the basis for the development of the first regional land use plan—the design year 1990 plan adopted by the Commission in 1966. Those objectives, principles, and standards were subsequently reaffirmed with only minor modification in the year 2000 and the year 2010 regional land use plans.

In the effort to extend the regional land use plan to the year 2020, the land use objectives, principles, and standards were again reviewed and evaluated by the Technical Coordinating and Advisory Committee. Following that review and evaluation, the Advisory Committee recommended that the land use objectives adopted as part of the year 2010 regional land use plan be incorporated without change into the year 2020 plan. The Advisory Committee reaffirmed the principles and standards of the year 2010 plan, with only minor change, for use in the preparation of the year 2020 plan. One important change recommended by the Advisory Committee involved the addition of a principle and standard regarding the preservation of natural areas and critical species habitats identified in the recently completed regional natural areas and critical species habitat protection and management study. Another important change involved a revision of the agricultural land preservation standard. The agricultural land preservation standard adopted under the year 2010 regional land use plan called for the preservation, to the extent possible, of prime agricultural lands, defining such lands in terms of soil productivity, the size of individual farms, and the size of the contiguous area being farmed. The standard adopted as part of the year 2020 regional land use plan calls for the preservation of the most productive soils—soils designated by the U. S. Natural Resources Conservation Service as comprising agricultural capability Classes I and II. In making this change, the Advisory Committee recognized that under the Wisconsin Farmland Preservation Program, the responsibility for precisely identifying farmland preservation areas—which may include consideration of the size of farm units, the size of the contiguous farming area, and other factors in addition to soil productivity—has been assigned to counties and that the specific standards utilized in this respect may vary from county to county. At the same time, the Advisory Committee recommended that the Regional Planning Commission take a lead role in promoting regional perspectives and consistency on farmland preservation issues.

RECOMMENDED LAND USE PLAN

The recommended year 2020 regional land use plan incorporates the basic principles and concepts of the adopted year 2010 plan. Like the adopted plan, the new plan recommends a relatively compact, centralized regional settlement pattern, with urban development generally occurring within, and along the periphery of, existing urban centers in the Region. The proposed plan places heavy emphasis on the continued impact of the urban land market in determining the location, intensity, and character of future development. Like the adopted plan, the proposed plan seeks to influence the operation of the urban land market in several important ways in order to achieve a more healthful, attractive, and efficient settlement pattern. In this regard, the proposed plan recommends that new urban development occur primarily in those areas of the Region which are covered by soils suitable for such development and in those areas which can be readily served by essential municipal facilities and services, including public sanitary sewerage, water supply, and mass transit facilities and services. The plan recommends the preservation of environmentally sensitive areas and the preservation of the most productive farmlands in the Region.

The key features of the land use plan are summarized as follows:

- The land use plan was designed to accommodate an intermediate-growth scenario for Southeastern Wisconsin through the year 2020. Under the plan, the resident population of the Region would increase by 267,500 persons, or 15 percent, from 1,810,400 persons in 1990 to 2,077,900 persons in 2020. The number of households would increase by 151,000, or 22 percent, from 676,100 households in 1990 to 827,100 households in 2020. Total employment in the Region would increase by 209,900 jobs, or 20 percent, from 1,067,200 jobs in 1990 to 1,277,100 jobs in 2020.

- Under the plan, lands in urban uses—including urban-density residential, commercial, industrial, recreational, governmental and institutional, and transportation, communication, and utility uses—together with unused urban lands would increase from 637 square miles in 1990 to 737 square miles by the year 2020, an increase of 100 square miles, or 16 percent. By the year 2020, urban lands would

account for 27 percent of the total area of the Region, compared to 24 percent in 1990.

- Under the plan, most new residential land would be developed at urban densities—defined as densities of more than one dwelling unit per five acres. The plan envisions that the urban residential land area of the Region would increase by 66 square miles, or 21 percent, from 308 square miles in 1990 to 374 square miles in 2020. The bulk of the new urban residential land area—75 percent—would consist of medium-density development, with a typical single-family lot size of one-quarter acre and a typical multiple-family development averaging about 10 dwelling units per net acre. The plan recommends that new urban residential development occur in planned neighborhood units served by public sanitary sewer and water supply facilities, public transit service, and other basic services and facilities.

- The plan envisions a total of 18 major commercial centers and 27 major industrial centers in the Region by the plan design year, including four new commercial centers and five new industrial centers. All of the proposed sites were in various stages of development as of 1997. The plan further envisions a total of 30 major park sites. All of the proposed new park sites were at least partially acquired as of 1997.

- Under the plan, the population density of the developed urban area of the Region would continue to decline, but at a reduced rate, from about 3,500 persons per square mile in 1990 to about 2,900 persons per square mile in 2020. The plan seeks to moderate, to the extent practicable, the long-term trend toward lower development densities. The plan emphasizes development at medium densities within planned urban service areas and seeks to minimize new low- and suburban-density residential development beyond the planned urban service areas.

- Under the plan, all proposed new urban development would be served by public sanitary sewer and water supply facilities. In addition, public sanitary sewer and water supply service would be extended to certain existing urban areas lacking these facilities. Under the recommended plan, about 594 square miles, or 84 percent of the developed urban area of the Region, and about 1.9 million persons, or 91 percent of the resident population of the Region, would be served by public sanitary sewer and water supply facilities by the year 2020. Public water supply service would be provided in several small communities for which public sanitary sewer service is not envisioned.

- The land use plan encourages infill development and brownfield redevelopment to facilitate and maintain a compact, centralized urban land use pattern within the Region, thereby supporting as well the preservation of agricultural and environmentally significant lands.

- The plan recommends the preservation in natural, open uses of the remaining primary environmental corridors in the Region. Such preservation is considered essential to the maintenance of the overall quality of the environment; the preservation of natural habitats; the provision of opportunities for recreational, educational, and scientific pursuits; and the preservation of the unique cultural and natural heritage and natural beauty of the Region. Under the plan, development within the corridors would be limited to essential transportation and utility facilities, compatible outdoor recreational facilities, and, on a limited basis, rural-density residential development. Under the plan, the existing configuration of primary environmental corridors would be modified slightly. Existing upland corridor lands which have been committed to urban use on subdivision plats are proposed to be allowed to be developed in urban use, provided that there are no adverse water quality impacts. Conversely, certain floodlands presently in agricultural use—those located adjacent to primary environmental corridors within planned urban service areas— are proposed for eventual restoration to a natural condition, thus becoming part of the environmental corridor network. The net effect of these changes would be an increase in the primary environmental corridor area, from about 464 square miles in 1990 to about 474 square miles in 2020.

  In addition to the primary environmental corridors, the plan recommends the preservation of certain smaller but nevertheless significant concentrations of natural resources, identified as secondary environmental corridors and isolated natural resource areas. As part of county and local plans prepared as refinements of the regional land use plan, these areas should be retained as part of the natural drainage system, incorporated into local parks and open space reserves, or preserved in other open uses.

  Residential development within environmentally sensitive areas is not encouraged. If accommo-

dated, residential development should be limited to rural-density single-family development in upland areas, excluding areas of steep slope. Preferably, residences and supporting roadways should be located on the fringes of the environmentally sensitive areas. Development plans should be carefully reviewed to ensure that site design and construction activities minimize disturbance of existing natural features.

Where recreational, transportation, or utility development is proposed to be located within environmentally sensitive areas, site design and development should be sensitive to, and cause the least possible disturbance of, natural conditions.

- Under the plan, those areas which are neither designated for future urban use nor recommended for preservation as environmentally sensitive areas are identified as "agricultural and rural-density residential land." These areas would encompass about 1,332 square miles, or about 50 percent of the total area of the Region, in the year 2020. The plan recommends that these areas be maintained in rural use. The plan encourages the continuation of agricultural uses in these areas. In particular, the plan seeks to preserve, insofar as practicable, the most productive farmland, identified as farmland covered by U. S. Natural Resources Conservation Service agricultural capability Class I and Class II soils. Under the plan, the conversion of farmlands covered by Class I and Class II soils to urban use would be limited to lands located in proximity to existing urban service areas as necessary for the orderly growth and development of those urban areas as well as to lands located beyond the urban service areas which have been committed to urban development on approved subdivision plats. Under the plan, the agricultural lands covered by Class I and Class II soils would encompass about 1,019 square miles, or about 38 percent of the area of the Region, in the year 2020.

  The plan recognizes that under the provisions of the Wisconsin Statutes creating the Wisconsin Farmland Preservation Program, counties in the State are responsible for the identification of prime agricultural lands. The plan further recognizes that the criteria used to identify prime agricultural lands may differ from county to county. Counties in the Region are encouraged to prepare and adopt updated farmland preservation plans which identify prime agricultural lands. Such plans should seek to preserve Class I and Class II soils insofar as practicable and should establish the presence of Class I and Class II soils as a key determinant in the identification of prime agricultural land. Counties may choose to include other classes of soils in the definition of prime agricultural land and may incorporate other criteria, such as the size of farm units or size of the contiguous farming area, into the definition of prime agricultural land. Prime agricultural lands identified in county farmland preservation plans should be placed in exclusive agricultural zoning districts which specify a minimum parcel size of 35 acres.

  Other lands in this category—lands which are not identified as prime agricultural lands under county farmland preservation plans—are recommended to be retained in rural use. The regional plan encourages the continuation of agricultural activity in these areas, recognizing that such activity may occur in the form of smaller farms such as horse farms, hobby farms, or community-supported agricultural operations. Under the plan, development in these areas would be limited to rural-density residential development, defined as development with no more than one dwelling unit per five acres. Where rural-density residential development is accommodated, the plan encourages the use of cluster designs, with dwelling units developed in clusters surrounded by agricultural and other open space sufficient to maintain the maximum recommended density of no more than one dwelling unit per five acres. Where treatment and disposal of wastewater from clustered rural-density development is provided through individual soil absorption systems or a community soil absorption system, care must be taken to guard against ammonia nitrate or other groundwater pollution.

PLAN IMPLEMENTATION

Successful implementation of the regional land use plan depends upon the application of a variety of plan implementation measures and the utmost in cooperation among the local units of government and the areawide, State, and Federal agencies involved in the application of those measures. Implementation of the land use plan should begin with formal adoption or endorsement of the plan by the concerned units and agencies of government. The seven county boards in the Region should formally adopt the plan as it affects each county, after recommendation by the respective county planning committees or park and planning commissions, as a guide to future land use development within each county. City,

village, and town plan commissions should likewise adopt the recommended plan, and city councils, village boards, and town boards should adopt the plan as a matter of endorsing the local plan commission action. Other local, areawide, State, and Federal agencies and units of government which have plan implementation responsibilities should endorse or acknowledge the regional plan as appropriate and consider the plan recommendations in carrying out their various programs and activities. Adoption or endorsement of the design year 2020 regional land use plan by units and agencies of government that have adopted or endorsed the design year 1990, 2000, and/or 2010 plans will serve to substitute the new plan for the old.

Subsequent to formal plan adoption, an important step in the implementation of the regional land use plan is the refinement and detailing of that plan through appropriate county and local planning efforts. Such planning provides a means for the proper integration of regional and local land use development objectives and provides a basis for the adjustment of local plan implementation devices in accordance with those regional and local objectives. Planning should be undertaken for both urban and rural areas. Planning for urban areas should include the preparation of community-level land use plans as well as detailed development plans for neighborhoods where significant growth is expected and detailed redevelopment plans for neighborhoods showing signs of land use instability or deterioration. Detailed planning should likewise be carried out for rural areas, particularly for those areas where rural-density residential development is anticipated.

Successful implementation of the land use plan requires the judicious application of a variety of land use regulatory measures in accordance with the objectives of the regional plan and local refinements of the regional plan. Counties, cities, villages, and towns should review and adjust as appropriate their general zoning ordinances to ensure that they implement plan recommendations for urban areas, rural areas, and environmentally sensitive areas. County and local units of government should use their land division approval authority to ensure that proposed land divisions are in accord with the plan. Cities, villages, and towns should use their official mapping powers to protect lands identified in the regional plan and in local refinements of the regional plan for future public use. In addition to county and local zoning, subdivision control, and official mapping powers, regulatory programs mandated or administered by the State—including State-local floodland and shoreland zoning and State regulation of public sanitary sewerage systems—will play a key role in plan implementation. At the Federal level, steadfast administration by the U. S. Army Corps of Engineers of the wetland regulatory program established under Section 404 of the Clean Water Act will help achieve the natural resource preservation objectives of the regional plan.

A number of nonregulatory measures are available to county and local units of government in efforts to implement the regional plan and county and local plan refinements. These include open space acquisition in fee simple or less than fee simple interest for outdoor recreation and open space preservation purposes; rural cluster development; purchase of development rights; transfer of development rights; municipal boundary and utility extension agreements to facilitate orderly growth in areas which are of mutual interest to incorporated and unincorporated communities; capital improvement programming to ensure the provision of major capital improvements in accordance with the development objectives of the regional plan and county and local refinements of the regional plan; adoption of design standards consistent with local and regional development objectives; and local initiatives for the reuse of brownfields and other underused or unused lands in older areas of the Region.

As part of the year 2020 land use planning effort, the Technical Coordinating and Advisory Committee on Regional Land Use Planning reaffirmed or modified as appropriate certain recommendations intended to strengthen regional plan implementation which grew out of a special study on the status of regional land use plan implementation conducted by the Regional Planning Commission in 1993. Endorsed by the Advisory Committee were recommendations calling for the following: the expansion of the statutory basis for the review of sanitary sewer extensions beyond primarily water quality considerations; the establishment of a linkage between the regulation of private sewage disposal systems and the regional land use plan; the formulation of a State policy promoting and favoring more compact, efficient urban development patterns, such policy being incorporated into administrative rules of and day-to-day decision making by the concerned State agencies; and the making of certain changes in the Wisconsin Farmland Preservation Program intended to increase its effectiveness in the preservation of the most productive farmland. In lieu of a recommendation made in the 1993 plan implementation study calling for a regional study exploring a tax-base-sharing mechanism, the Advisory Committee recommended that the Regional Planning Commission take a lead role in promoting an awareness and understanding of the potential for municipal revenue sharing and of arrangements through which such revenue sharing may be carried out in accordance with recently enacted State enabling legislation.

CONCLUSION

The year 2020 regional land use plan presented in this report was prepared as an extension in time of the previously adopted year 2010 regional land use plan. The new plan incorporates the basic principles and concepts of the previous plan. Like the year 2010 plan, the new year 2020 regional land use plan promotes a compact, centralized regional settlement pattern, with urban development recommended to occur within, and along the periphery of, existing urban centers; promotes the location of new urban development in areas which are physically suitable for such development and which may be readily served by basic urban services, including sanitary sewer, water supply, and public transit services; and seeks to preserve the remaining primary environmental corridor lands and the most productive farmlands in the Region.

Although progress has been made in terms of implementing the regional land use plan over the past three decades, many challenges remain. These challenges include the following:

- Maintaining and restoring older urban areas, including brownfields and other unused or underutilized areas, as desirable places to live and work.

- Confining new intensive urban development to existing and expanding urban centers that are capable of providing basic urban services in an economical and efficient manner.

- Increasing cooperation between incorporated and unincorporated communities in planning future land use and arrangements for the provision of urban services and facilities in areas of mutual concern.

- Implementing a more comprehensive approach to natural resource preservation, involving, as appropriate, county and local governments, State government, and private interests, focusing on upland resources as well as lowland resources.

- Strengthening of efforts to ensure the permanent preservation of the most productive farmlands and to maintain open space and rural character in other areas of the Region located beyond the proposed urban service areas.

- Providing a sufficient range of homeowner and rental housing opportunities for persons of all ages and income levels within each urban area in the Region, maximizing the opportunity for household members to live near their places of employment and schools of their choice.

The regional land use plan provides a framework within which the concerned local, county, State, and Federal units and agencies of government and private interests can respond to these challenges. The plan promotes a more compact, centralized settlement pattern; encourages maximum use of existing and planned public utility, transportation facility, and other public facility systems; fosters the maintenance of existing urban areas as desirable places to live and work; seeks to maximize access of the resident population to neighborhood and community facilities and employment centers; and seeks to preserve environmentally sensitive areas and the most productive agricultural lands.

The regional land use plan is advisory to counties, cities, villages, towns, special-purpose units of government, State and Federal agencies, and private interests. Implementation of the plan involves a number of plan implementation measures and requires close cooperation among the units and agencies of government and private interests involved in the application of those measures. Among the most important measures are the following: additional land use planning at the county and local levels to refine and detail the areawide plan; regulatory measures, such as zoning, land division control, and official mapping; oversight of sanitary sewerage systems and private sewage disposal systems; park and open space acquisition; and municipal boundary and utility extension agreements. Attainment of the regional development and open space preservation objectives will require the consistent application of these implementation measures in accordance with the regional land use plan.

APPENDICES

Appendix A

LAND USE IN THE REGION BY COUNTY: 1963, 1970, 1980, AND 1990

Table A-1

LAND USE IN THE REGION: 1963, 1970, 1980, AND 1990

Land Use Category	Actual Land Use							
	1963		1970		1980		1990	
	Acres	Percent of Total	Acres	Percent of Total	Acres	Percent of Total	Acres	Percent of Total
Urban								
Residential	122,539	7.1	142,691	8.3	179,831	10.4	196,956	11.5
Commercial	5,610	0.3	6,734	0.4	8,162	0.5	9,712	0.6
Industrial	7,319	0.4	9,161	0.5	11,171	0.6	13,096	0.7
Transportation, Communication, andUtilities[a]	91,628	5.3	103,694	6.0	117,706	6.8	124,750	7.3
Governmental and Institutional	13,082	0.8	15,877	0.9	17,033	1.0	17,301	1.0
Recreational	16,796	1.0	21,270	1.2	24,309	1.4	26,165	1.5
Unused Urban Land	26,710	1.6	24,027	1.4	19,935	1.2	19,496	1.1
Subtotal	283,684	16.5	323,454	18.8	378,147	22.0	407,476	23.7
Rural								
Agricultural	1,047,740	60.9	1,001,398	58.0	944,232	54.8	893,025	51.8
Water	45,794	2.7	47,340	2.8	48,770	2.8	49,228	2.9
Wetlands	175,564	10.2	172,995	10.1	170,624	9.9	171,964	10.0
Woodlands	119,583	6.9	117,978	6.9	116,395	6.8	118,954	6.9
Unused Rural and Other Open Land	48,817	2.8	57,886	3.4	62,948	3.7	80,558	4.7
Subtotal	1,437,498	83.5	1,397,597	81.2	1,342,969	78.0	1,313,729	76.3
Total	1,721,182	100.0	1,721,051	100.0	1,721,116	100.0	1,721,205	100.0

NOTE: The change in the total area of the Region is the net effect of Lake Michigan shoreline erosion and accretion and of landfill activities.

[a]*Includes off-street parking areas of more than 10 spaces.*

Source: SEWRPC.

Table A-2

LAND USE IN KENOSHA COUNTY: 1963, 1970, 1980, AND 1990

Land Use Category	Actual Land Use							
	1963		1970		1980		1990	
	Acres	Percent of Total	Acres	Percent of Total	Acres	Percent of Total	Acres	Percent of Total
Urban								
Residential	10,712	6.0	12,266	6.9	15,128	8.5	15,828	8.9
Commercial	450	0.3	504	0.3	593	0.3	707	0.4
Industrial	711	0.4	769	0.4	888	0.5	781	0.4
Transportation, Communication, and Utilities[a]	8,142	4.6	8,674	4.9	9,639	5.4	10,560	5.9
Governmental and Institutional	835	0.5	1,067	0.6	1,295	0.7	1,323	0.8
Recreational	1,827	1.0	2,036	1.1	2,456	1.4	2,736	1.5
Unused Urban Land	1,242	0.7	1,220	0.7	1,105	0.6	1,554	0.9
Subtotal	23,919	13.4	26,536	14.9	31,104	17.4	33,489	18.8
Rural								
Agricultural	114,042	64.0	111,188	62.4	107,298	60.2	102,371	57.4
Water	4,351	2.4	4,683	2.6	4,826	2.7	4,963	2.8
Wetlands	16,518	9.3	16,066	9.0	15,612	8.8	15,352	8.6
Woodlands	9,907	5.6	9,735	5.5	9,572	5.4	9,719	5.5
Unused Rural and Other Open Land	9,492	5.3	9,963	5.6	9,762	5.5	12,270	6.9
Subtotal	154,310	86.6	151,635	85.1	147,070	82.6	144,675	81.2
Total	178,229	100.0	178,171	100.0	178,174	100.0	178,164	100.0

NOTE: The change in the total area of the County is the net effect of Lake Michigan shoreline erosion and accretion and of landfill activities.

[a]*Includes off-street parking areas of more than 10 spaces.*

Source: SEWRPC.

Table A-3

LAND USE IN MILWAUKEE COUNTY: 1963, 1970, 1980, AND 1990

Land Use Category	Actual Land Use							
	1963		1970		1980		1990	
	Acres	Percent of Total	Acres	Percent of Total	Acres	Percent of Total	Acres	Percent of Total
Urban								
Residential	41,566	26.7	43,964	28.3	47,196	30.4	48,834	31.5
Commercial	2,564	1.7	2,869	1.8	3,237	2.1	3,745	2.4
Industrial	4,257	2.7	4,580	3.0	5,046	3.3	5,565	3.6
Transportation, Communication, and Utilities[a]	28,714	18.5	33,118	21.3	35,681	23.0	37,045	23.8
Governmental and Institutional	6,286	4.1	6,921	4.5	7,097	4.6	7,117	4.6
Recreational	6,078	3.9	6,706	4.3	6,968	4.5	7,265	4.7
Unused Urban Land	15,292	9.9	12,307	7.9	10,003	6.4	8,979	5.8
Subtotal	104,757	67.5	110,465	71.2	115,228	74.2	118,550	76.4
Rural								
Agricultural	34,044	22.0	27,803	17.9	23,050	14.8	18,767	12.1
Water	1,193	0.8	1,261	0.8	1,327	0.9	1,317	0.8
Wetlands	4,176	2.7	4,139	2.7	4,129	2.7	4,702	3.0
Woodlands	5,467	3.5	5,087	3.3	4,856	3.1	4,773	3.1
Unused Rural and Other Open Land	5,440	3.5	6,381	4.1	6,603	4.3	7,150	4.6
Subtotal	50,320	32.5	44,671	28.8	39,965	25.8	36,709	23.6
Total	155,077	100.0	155,136	100.0	155,193	100.0	155,259	100.0

NOTE: The change in the total area of the County is the net effect of Lake Michigan shoreline erosion and accretion and of landfill activities.

[a]*Includes off-street parking areas of more than 10 spaces.*

Source: SEWRPC.

Table A-4

LAND USE IN OZAUKEE COUNTY: 1963, 1970, 1980, AND 1990

Land Use Category	Actual Land Use							
	1963		1970		1980		1990	
	Acres	Percent of Total	Acres	Percent of Total	Acres	Percent of Total	Acres	Percent of Total
Urban								
Residential	7,564	5.0	9,983	6.6	13,209	8.8	14,934	9.9
Commercial	264	0.2	327	0.2	428	0.3	538	0.4
Industrial	273	0.2	389	0.3	534	0.4	657	0.4
Transportation, Communication, and Utilities[a]	5,971	4.0	6,956	4.6	8,548	5.7	9,084	6.1
Governmental and Institutional	690	0.5	866	0.6	1,003	0.7	1,066	0.7
Recreational	905	0.6	1,439	1.0	1,746	1.2	1,824	1.2
Unused Urban Land	912	0.6	1,027	0.7	1,073	0.7	1,052	0.7
Subtotal	16,579	11.0	20,987	14.0	26,541	17.7	29,155	19.4
Rural								
Agricultural	104,154	69.2	99,161	65.9	93,832	62.4	89,410	59.4
Water	1,723	1.1	1,823	1.2	1,986	1.3	2,062	1.4
Wetlands	16,357	10.9	16,274	10.8	15,988	10.6	16,334	10.9
Woodlands	6,805	4.5	6,664	4.4	6,620	4.4	6,993	4.6
Unused Rural and Other Open Land	4,924	3.3	5,546	3.7	5,489	3.6	6,504	4.3
Subtotal	133,963	89.0	129,468	86.0	123,915	82.3	121,303	80.6
Total	150,542	100.0	150,455	100.0	150,456	100.0	150,458	100.0

NOTE: The change in the total area of the County is the net effect of Lake Michigan shoreline erosion and accretion and of landfill activities.

[a]*Includes off-street parking areas of more than 10 spaces.*

Source: SEWRPC.

Table A-5

LAND USE IN RACINE COUNTY: 1963, 1970, 1980, AND 1990

Land Use Category	Actual Land Use							
	1963		1970		1980		1990	
	Acres	Percent of Total	Acres	Percent of Total	Acres	Percent of Total	Acres	Percent of Total
Urban								
Residential	13,144	6.0	15,925	7.3	19,082	8.8	20,056	9.2
Commercial	527	0.2	656	0.3	811	0.4	1,009	0.5
Industrial	664	0.3	1,079	0.5	1,319	0.6	1,569	0.7
Transportation, Communication, and Utilities[a]	10,768	4.9	11,795	5.4	12,753	5.9	13,268	6.1
Governmental and Institutional	1,271	0.6	1,731	0.8	1,814	0.8	1,851	0.8
Recreational	1,628	0.7	2,041	0.9	2,354	1.1	2,505	1.2
Unused Urban Land	1,576	0.7	1,718	0.8	1,432	0.7	1,332	0.6
Subtotal	29,578	13.6	34,945	16.0	39,565	18.2	41,590	19.1
Rural								
Agricultural	148,717	68.2	142,185	65.2	138,260	63.4	134,501	61.7
Water	4,772	2.2	5,002	2.3	5,173	2.4	5,203	2.4
Wetlands	15,443	7.1	15,398	7.1	15,083	6.9	15,422	7.1
Woodlands	13,699	6.3	13,234	6.1	12,953	5.9	13,348	6.1
Unused Rural and Other Open Land	5,745	2.6	7,145	3.3	6,879	3.2	7,880	3.6
Subtotal	188,376	86.4	182,964	84.0	178,348	81.8	176,354	80.9
Total	217,954	100.0	217,909	100.0	217,913	100.0	217,944	100.0

NOTE: The change in the total area of the County is the net effect of Lake Michigan shoreline erosion and accretion and of landfill activities.

[a]*Includes off-street parking areas of more than 10 spaces.*

Source: SEWRPC.

Table A-6

LAND USE IN WALWORTH COUNTY: 1963, 1970, 1980, AND 1990

Land Use Category	Actual Land Use							
	1963		1970		1980		1990	
	Acres	Percent of Total	Acres	Percent of Total	Acres	Percent of Total	Acres	Percent of Total
Urban								
Residential	11,790	3.2	12,989	3.5	16,171	4.4	17,379	4.7
Commercial	581	0.2	659	0.2	753	0.2	849	0.2
Industrial	343	0.1	458	0.1	604	0.2	807	0.2
Transportation, Communication, and Utilities[a]	10,959	3.0	12,161	3.3	14,474	3.9	14,777	4.0
Governmental and Institutional	1,005	0.3	1,189	0.3	1,252	0.3	1,248	0.3
Recreational	1,996	0.5	2,941	0.8	3,435	0.9	3,454	1.0
Unused Urban Land	913	0.2	870	0.2	763	0.2	707	0.2
Subtotal	27,587	7.5	31,267	8.5	37,452	10.2	39,221	10.6
Rural								
Agricultural	260,647	70.7	257,701	69.9	250,659	67.9	247,015	66.9
Water	13,769	3.7	14,025	3.8	14,394	3.9	14,439	3.9
Wetlands	28,688	7.8	27,679	7.5	26,669	7.2	26,147	7.1
Woodlands	31,516	8.5	31,535	8.5	31,382	8.5	31,942	8.7
Unused Rural and Other Open Land	6,749	1.8	6,749	1.8	8,400	2.3	10,192	2.8
Subtotal	341,369	92.5	337,689	91.5	331,504	89.8	329,735	89.4
Total	368,956	100.0	368,956	100.0	368,956	100.0	368,956	100.0

[a]*Includes off-street parking areas of more than 10 spaces.*

Source: SEWRPC.

Table A-7

LAND USE IN WASHINGTON COUNTY: 1963, 1970, 1980, AND 1990

Land Use Category	Actual Land Use							
	1963		1970		1980		1990	
	Acres	Percent of Total	Acres	Percent of Total	Acres	Percent of Total	Acres	Percent of Total
Urban								
Residential	7,342	2.6	9,959	3.6	15,508	5.6	18,965	6.8
Commercial	279	0.1	377	0.1	508	0.2	622	0.2
Industrial	289	0.1	449	0.2	641	0.2	874	0.3
Transportation, Communication, and Utilities[a]	10,238	3.7	10,997	3.9	12,273	4.4	13,499	4.9
Governmental and Institutional	669	0.2	909	0.3	1,074	0.4	1,116	0.4
Recreational	939	0.3	1,279	0.5	1,767	0.6	2,108	0.8
Unused Urban Land	631	0.2	641	0.2	562	0.2	901	0.3
Subtotal	20,387	7.3	24,611	8.8	32,333	11.6	38,085	13.7
Rural								
Agricultural	185,894	66.7	178,971	64.2	169,575	60.9	158,532	56.8
Water	3,910	1.4	4,085	1.5	4,311	1.5	4,366	1.6
Wetlands	41,794	15.0	41,779	15.0	41,910	15.0	42,029	15.1
Woodlands	21,008	7.5	20,905	7.5	21,540	7.7	22,595	8.1
Unused Rural and Other Open Land	5,840	2.1	8,482	3.0	9,164	3.3	13,226	4.7
Subtotal	258,446	92.7	254,222	91.2	246,500	88.4	240,748	86.3
Total	278,833	100.0	278,833	100.0	278,833	100.0	278,833	100.0

[a]*Includes off-street parking areas of more than 10 spaces.*

Source: SEWRPC.

Table A-8

LAND USE IN WAUKESHA COUNTY: 1963, 1970, 1980, AND 1990

Land Use Category	Actual Land Use							
	1963		1970		1980		1990	
	Acres	Percent of Total	Acres	Percent of Total	Acres	Percent of Total	Acres	Percent of Total
Urban								
Residential	30,421	8.2	37,605	10.1	53,537	14.4	60,960	16.4
Commercial	945	0.3	1,342	0.4	1,832	0.5	2,242	0.6
Industrial	782	0.2	1,437	0.4	2,139	0.6	2,843	0.8
Transportation, Communication, and Utilities[a]	16,836	4.5	19,993	5.4	24,338	6.5	26,517	7.1
Governmental and Institutional	2,326	0.6	3,194	0.9	3,498	0.9	3,580	1.0
Recreational	3,423	0.9	4,828	1.3	5,583	1.5	6,273	1.7
Unused Urban Land	6,144	1.7	6,244	1.7	4,997	1.3	4,971	1.3
Subtotal	60,877	16.4	74,643	20.1	95,924	25.8	107,386	28.9
Rural								
Agricultural	200,242	53.8	184,389	49.6	161,558	43.5	142,429	38.3
Water	16,076	4.3	16,461	4.4	16,753	4.5	16,878	4.5
Wetlands	52,588	14.2	51,660	13.9	51,233	13.8	51,978	14.0
Woodlands	31,181	8.4	30,818	8.3	29,472	7.9	29,584	8.0
Unused Rural and Other Open Land	10,627	2.9	13,620	3.7	16,651	4.5	23,336	6.3
Subtotal	310,714	83.6	296,948	79.9	275,667	74.2	264,205	71.1
Total	371,591	100.0	371,591	100.0	371,591	100.0	371,591	100.0

[a]*Includes off-street parking areas of more than 10 spaces.*

Source: SEWRPC.

Appendix B

RESIDENTIAL PLANNING UNIT DEVELOPMENT STANDARDS FOR THE URBAN LOW-, URBAN MEDIUM-, AND URBAN HIGH-DENSITY RESIDENTIAL CLASSES UTILIZED IN REGIONAL LAND USE PLAN PREPARATION

Residential Density Class	Number	Acres	Percent	Acres	Percent
Urban Low-Density					
Gross Residential Area	--	--	--	2,560.0	100.0
Public Elementary School (K-6) Area	--	12.8	0.5	--	--
Public Park and Parkway Area	--	38.4	1.5	--	--
Neighborhood Commercial Area	--	12.8	0.5	--	--
Street Area	--	512.0	20.0	--	--
Other Public and Quasi-Public Area	--	25.6	1.0	--	--
Net Residential Area	--	--	--	1,958.4	76.5
Single-Family Area	--	1,958.4	76.5	--	--
Number of Dwelling Units	2,350.0	--	--	--	--
Dwelling Units per Net Residential Acre	1.2	--	--	--	--
Multi-Family Area	--	None	--	--	--
Urban Medium-Density					
Gross Residential Area	--	--	--	640.0	100.0
Public Elementary School (K-6) Area	--	9.6	1.5	--	--
Public Park and Parkway Area	--	16.0	2.5	--	--
Neighborhood Commercial Area	--	6.4	1.0	--	--
Street Area	--	147.2	23.0	--	--
Other Public and Quasi-Public Area	--	6.4	1.0	--	--
Net Residential Area	--	--	--	454.4	71.0
Single-Family Area	--	416.0	65.0	--	--
Number of Dwelling Units	1,615.0	--	--	--	--
Dwelling Units per Net Residential Acre	3.9	--	--	--	--
Multi-Family Area	--	38.4	6.0	--	--
Number of Dwelling Units	355.0	--	--	--	--
Dwelling Units per Net Residential Acre	9.2	--	--	--	--
Urban High-Density					
Gross Residential Area	--	--	--	160.0	100.0
Public Elementary School (K-6) Area	--	4.0	2.5	--	--
Public Park and Parkway Area	--	5.6	3.5	--	--
Neighborhood Commercial Area	--	2.4	1.5	--	--
Street Area	--	40.0	25.0	--	--
Other Public and Quasi-Public Area	--	2.4	1.5	--	--
Net Residential Area	--	--	--	105.6	66.0
Single-Family Area	--	94.4	59.0	--	--
Number of Dwelling Units	566.0	--	--	--	--
Dwelling Units per Net Residential Acre	5.9	--	--	--	--
Multi-Family Area	--	11.2	7.0	--	--
Number of Dwelling Units	698.0	--	--	--	--
Dwelling Units per Net Residential Acre	62.3	--	--	--	--

Source: SEWRPC.

Appendix C

QUARTER SECTION APPROXIMATIONS OF PLANNED MAJOR COMMERCIAL AND INDUSTRIAL CENTERS UNDER THE 2020 RECOMMENDED REGIONAL LAND USE PLAN

Maps C-1 through C-5 show the configuration of quarter sections utilized to approximate the major commercial and industrial centers in the Region under the year 2020 recommended regional land use plan.

NOTE: There are no major commercial or industrial centers in Ozaukee or Walworth Counties envisioned under the 2020 recommended regional land use plan. Maps for those Counties are therefore not included in this appendix.

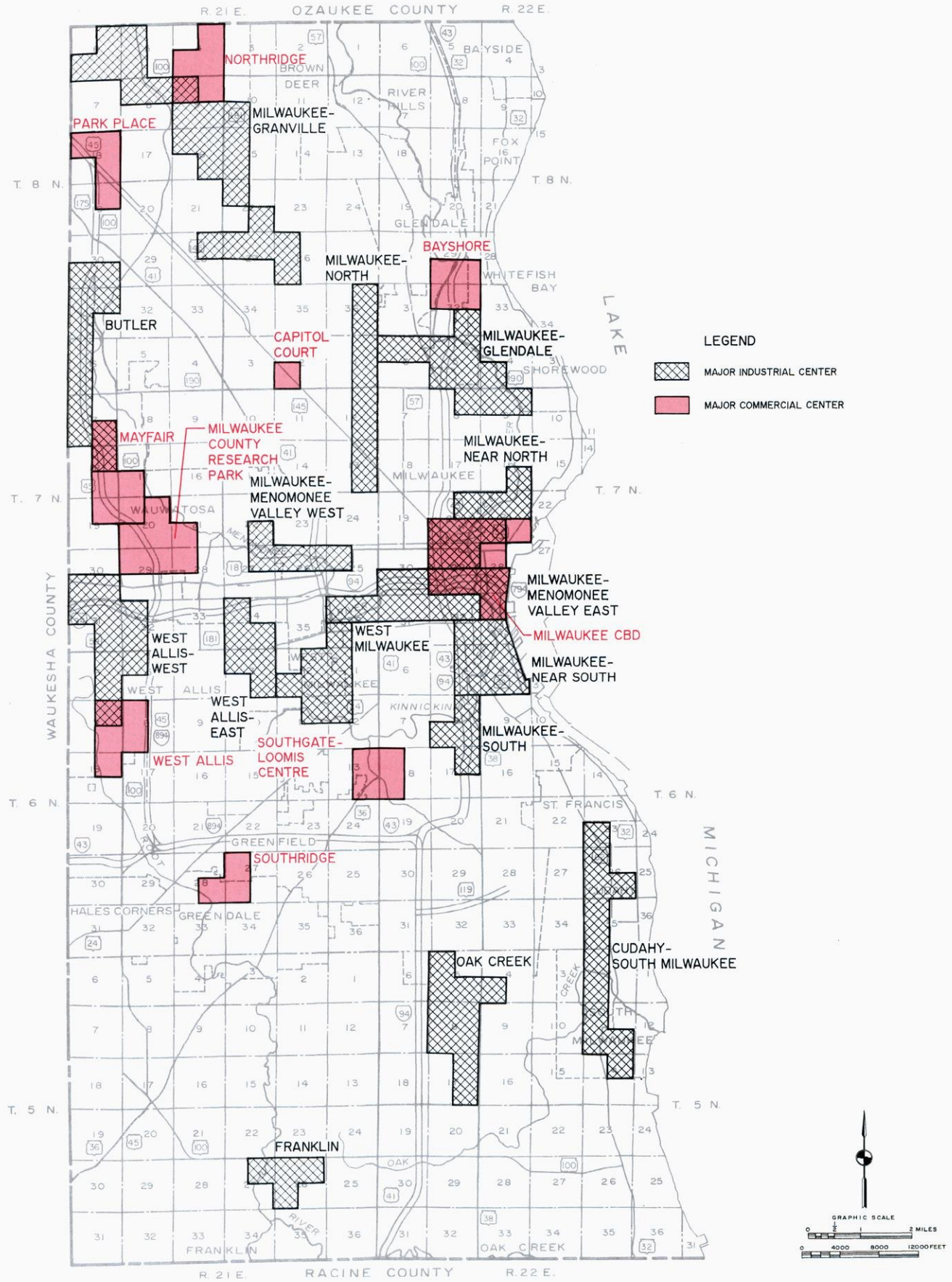
Map C-1

QUARTER SECTION APPROXIMATIONS OF PLANNED MAJOR COMMERCIAL AND INDUSTRIAL CENTERS IN KENOSHA COUNTY: 2020 RECOMMENDED LAND USE PLAN

Source: SEWRPC.

Map C-2

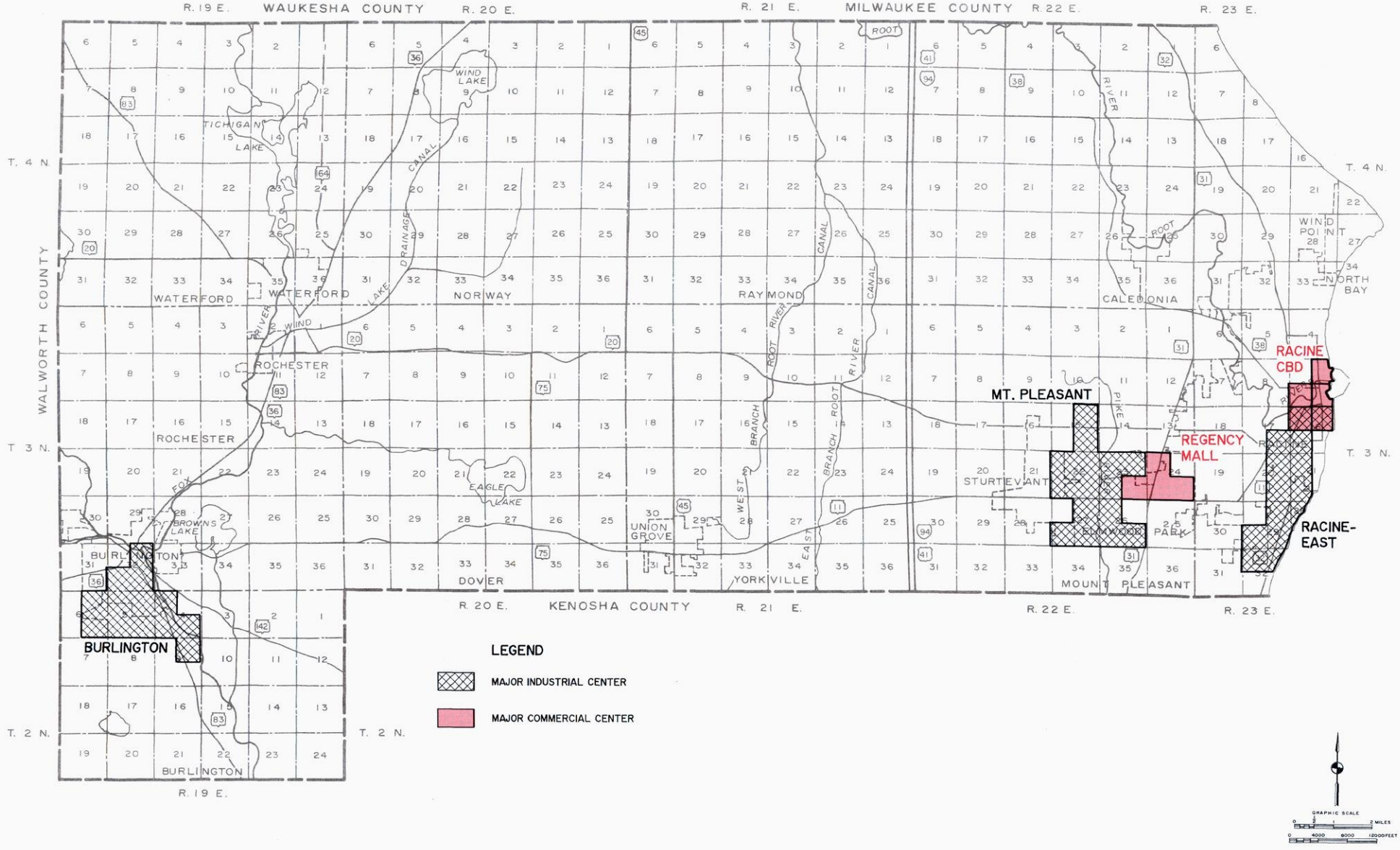
QUARTER SECTION APPROXIMATIONS OF PLANNED MAJOR COMMERCIAL AND INDUSTRIAL CENTERS IN MILWAUKEE COUNTY: 2020 RECOMMENDED LAND USE PLAN



Source: SEWRPC.

Map C-3

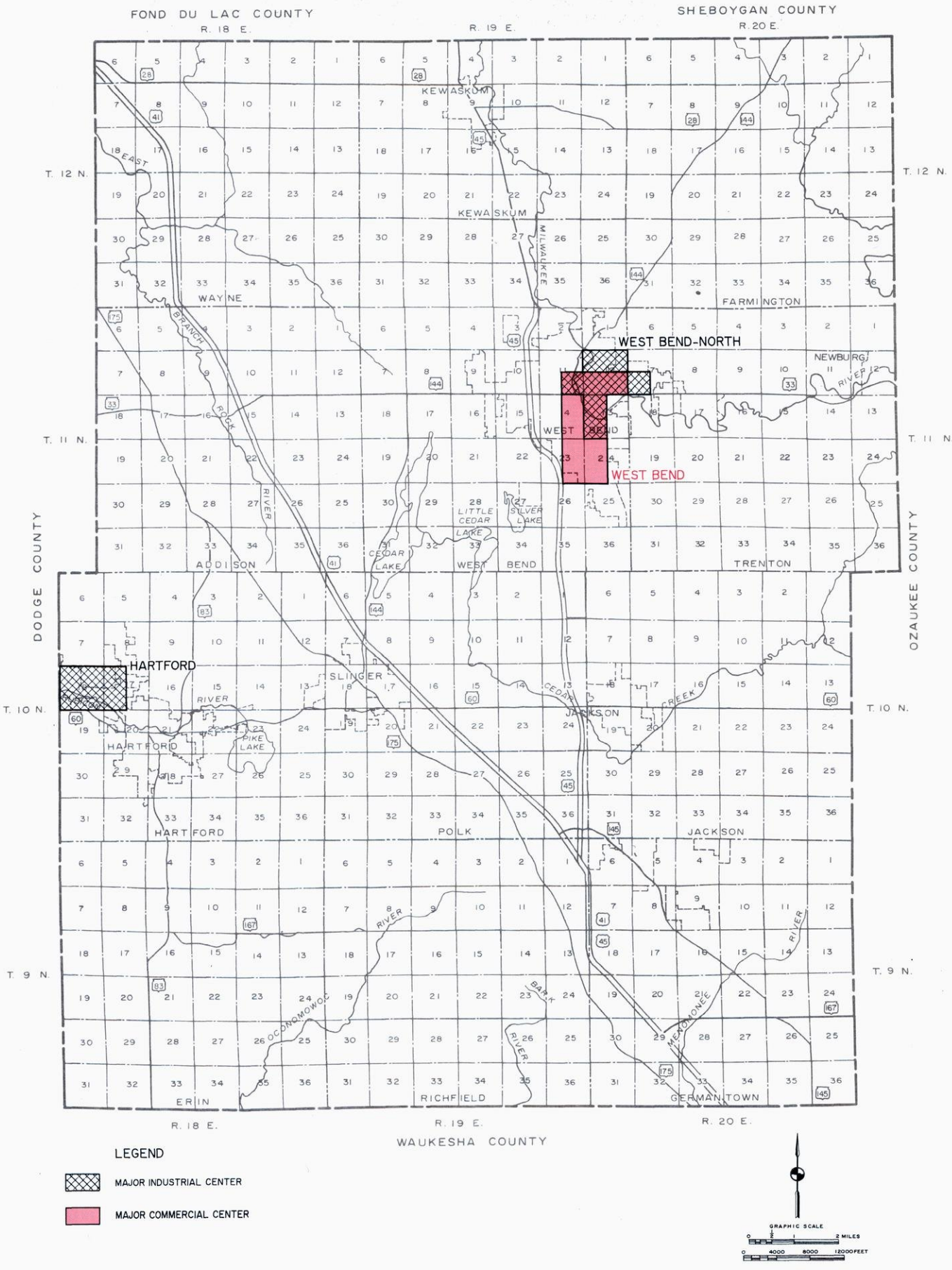
QUARTER SECTION APPROXIMATIONS OF PLANNED MAJOR COMMERCIAL AND INDUSTRIAL CENTERS IN RACINE COUNTY: 2020 RECOMMENDED LAND USE PLAN



Source: SEWRPC.

Map C-4

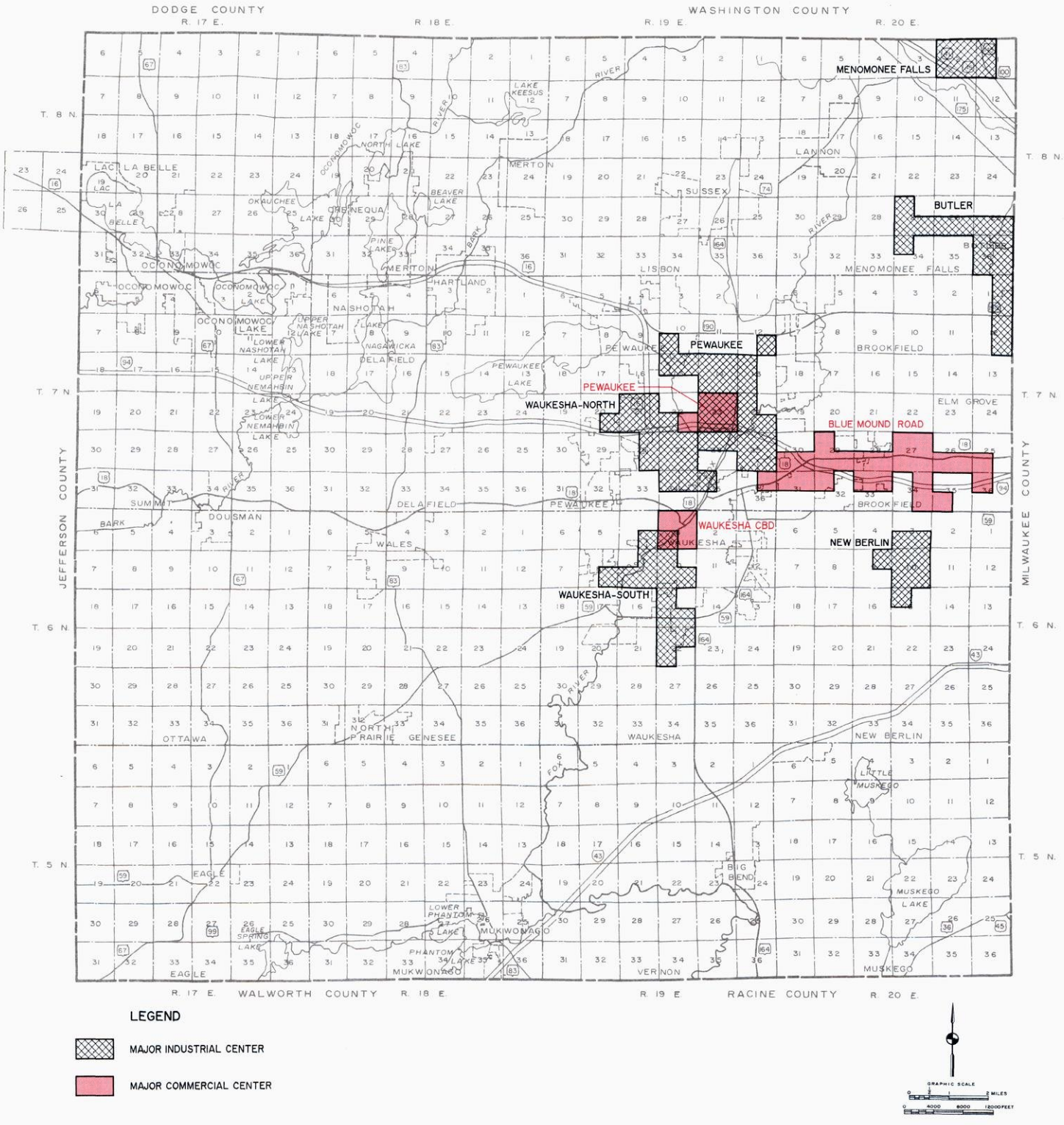
QUARTER SECTION APPROXIMATIONS OF PLANNED MAJOR COMMERCIAL AND INDUSTRIAL CENTERS IN WASHINGTON COUNTY: 2020 RECOMMENDED LAND USE PLAN



Source: SEWRPC.

Map C-5

QUARTER SECTION APPROXIMATIONS OF PLANNED MAJOR COMMERCIAL AND INDUSTRIAL CENTERS IN WAUKESHA COUNTY: 2020 RECOMMENDED LAND USE PLAN



Source: SEWRPC.

Appendix D

EXISTING 1990 AND PROPOSED 2020 POPULATION, HOUSEHOLDS, AND EMPLOYMENT IN THE REGION BY PLANNING ANALYSIS AREA

Table D-1

EXISTING AND PROPOSED POPULATION IN THE REGION BY PLANNING ANALYSIS AREA 1990, 2020 RECOMMENDED LAND USE PLAN, AND 2020 ALTERNATIVE FUTURES LAND USE PLANS

County and Planning Analysis Area	Existing 1990	2020 Recommended Plan			2020 High-Growth Decentralized Plan			2020 High-Growth Centralized Plan		
		Planned Increment 1990-2020		Total 2020	Planned Increment 1990-2020		Total 2020	Planned Increment 1990-2020		Total 2020
		Number	Percent		Number	Percent		Number	Percent	
Ozaukee										
1	5,900	1,500	25.4	7,400	5,100	86.4	11,000	2,000	33.9	7,900
2	16,300	2,500	15.3	18,800	10,600	65.0	26,900	4,000	24.5	20,300
3	28,300	5,000	17.7	33,300	22,800	80.6	51,100	8,500	30.0	36,800
4	22,300	7,100	31.8	29,400	24,600	110.3	46,900	12,900	57.9	35,200
Subtotal	72,800	16,100	22.1	88,900	63,100	86.7	135,900	27,400	37.6	100,200
Washington										
5	6,200	1,300	21.0	7,500	4,900	79.0	11,100	1,900	30.7	8,100
6	36,000	11,300	31.4	47,300	30,700	85.3	66,700	18,200	50.6	54,200
7	4,400	1,100	25.0	5,500	2,300	52.3	6,700	1,600	36.4	6,000
8	5,700	2,300	40.4	8,000	5,600	98.3	11,300	3,200	56.1	8,900
9	17,300	5,800	33.5	23,100	18,000	104.1	35,300	8,700	50.3	26,000
10	13,900	9,800	70.5	23,700	22,400	161.2	36,300	17,800	128.1	31,700
11	11,800	1,900	16.1	13,700	8,300	70.3	20,100	3,500	29.7	15,300
Subtotal	95,300	33,500	35.2	128,800	92,200	96.8	187,500	54,900	57.6	150,200
Milwaukee										
12	68,200	3,600	5.3	71,800	1,900	2.8	70,100	7,100	10.4	75,300
13	628,100	18,100	2.9	646,200	(61,000)	(9.7)	567,100	49,700	7.9	677,800
14	172,700	7,800	4.5	180,500	6,200	3.6	178,900	25,100	14.5	197,800
15	48,900	3,000	6.1	51,900	1,100	2.3	50,000	7,300	14.9	56,200
16	19,500	18,800	96.4	38,300	17,800	91.3	37,300	39,200	201.0	58,700
17	21,900	11,900	54.3	33,800	11,500	52.5	33,400	36,300	165.8	58,200
Subtotal	959,300	63,200	6.6	1,022,500	(22,500)	(2.4)	936,800	164,700	17.2	1,124,000
Waukesha										
18	29,800	9,200	30.9	39,000	24,300	81.5	54,100	15,700	52.7	45,500
19	45,700	4,800	10.5	50,500	13,200	28.9	58,900	7,300	16.0	53,000
20	33,600	9,600	28.6	43,200	28,900	86.0	62,500	18,800	56.0	52,400
21	16,800	7,200	42.9	24,000	13,200	78.6	30,000	10,400	61.9	27,200
22	13,300	6,500	48.9	19,800	16,000	120.3	29,300	8,300	62.4	21,600
23	49,800	14,400	28.9	64,200	41,900	84.1	91,700	20,200	40.6	70,000
24	79,100	20,000	25.3	99,100	61,300	77.5	140,400	37,800	47.8	116,900
25	29,100	9,200	31.6	38,300	23,300	80.1	52,400	13,400	46.1	42,500
26	7,500	1,900	25.3	9,400	6,000	80.0	13,500	3,500	46.7	11,000
Subtotal	304,700	82,800	27.2	387,500	228,100	74.9	532,800	135,400	44.4	440,100
Racine										
27	131,900	11,000	8.3	142,900	44,600	33.8	176,500	55,200	41.9	187,100
28	28,500	6,800	23.9	35,300	20,400	71.6	48,900	11,700	41.1	40,200
29	14,700	2,700	18.4	17,400	8,100	55.1	22,800	6,200	42.2	20,900
Subtotal	175,100	20,500	11.7	195,600	73,100	41.8	248,200	73,100	41.8	248,200
Kenosha										
30	100,200	20,700	20.7	120,900	40,800	40.7	141,000	51,700	51.6	151,900
31	28,000	10,700	38.2	38,700	25,200	90.0	53,200	14,300	51.1	42,300
Subtotal	128,200	31,400	24.5	159,600	66,000	51.5	194,200	66,000	51.5	194,200
Walworth										
32	10,200	2,900	28.4	13,100	6,300	61.8	16,500	4,900	48.0	15,100
33	14,600	2,400	16.4	17,000	8,100	55.5	22,700	4,700	32.2	19,300
34	50,200	14,700	29.3	64,900	42,200	84.1	92,400	25,500	50.8	75,700
Subtotal	75,000	20,000	26.7	95,000	56,600	75.5	131,600	35,100	46.8	110,100
Region Total	1,810,400	267,500	14.8	2,077,900	556,600	30.7	2,367,000	556,600	30.7	2,367,000

NOTE: Parentheses indicate a negative number.

Source: SEWRPC.

Table D-2

EXISTING AND PROPOSED HOUSEHOLDS IN THE REGION BY PLANNING ANALYSIS AREA 1990, 2020 RECOMMENDED LAND USE PLAN, AND 2020 ALTERNATIVE FUTURES LAND USE PLANS

County and Planning Analysis Area	Existing 1990	2020 Recommended Plan			2020 High-Growth Decentralized Plan			2020 High-Growth Centralized Plan		
		Planned Increment 1990-2020		Total 2020	Planned Increment 1990-2020		Total 2020	Planned Increment 1990-2020		Total 2020
		Number	Percent		Number	Percent		Number	Percent	
Ozaukee										
1	2,000	700	35.0	2,700	2,300	115.0	4,300	900	45.0	2,900
2	5,800	1,600	27.6	7,400	4,400	75.9	10,200	1,800	31.0	7,600
3	10,200	3,000	29.4	13,200	9,300	91.2	19,500	3,800	37.3	14,000
4	7,700	4,500	58.4	12,200	10,800	140.3	18,500	6,100	79.2	13,800
Subtotal	25,700	9,800	38.1	35,500	26,800	104.3	52,500	12,600	49.0	38,300
Washington										
5	2,100	1,000	47.6	3,100	2,400	114.3	4,500	1,200	57.1	3,300
6	12,600	6,800	54.0	19,400	14,100	111.9	26,700	9,000	71.4	21,600
7	1,400	600	42.9	2,000	900	64.3	2,300	600	42.9	2,000
8	1,900	1,400	73.7	3,300	2,600	136.8	4,500	1,600	84.2	3,500
9	6,200	3,900	62.9	10,100	8,700	140.3	14,900	4,800	77.4	11,000
10	5,000	4,900	98.0	9,900	9,300	186.0	14,300	7,500	150.0	12,500
11	3,800	700	18.4	4,500	3,200	84.2	7,000	1,300	34.2	5,100
Subtotal	33,000	19,300	58.5	52,300	41,200	124.9	74,200	26,000	78.8	59,000
Milwaukee										
12	27,400	1,400	5.1	28,800	600	2.2	28,000	2,200	8.0	29,600
13	240,600	18,900	7.9	259,500	(27,300)	(11.4)	213,300	25,000	10.4	265,600
14	71,000	5,500	7.8	76,500	3,400	4.8	74,400	8,500	12.0	79,500
15	19,600	1,800	9.2	21,400	500	2.6	20,100	3,600	18.4	23,200
16	7,100	6,900	97.2	14,000	6,600	93.0	13,700	15,400	216.9	22,500
17	7,400	5,700	77.0	13,100	4,300	58.1	11,700	14,100	190.5	21,500
Subtotal	373,100	40,200	10.8	413,300	(11,900)	(3.2)	361,200	68,800	18.4	441,900
Waukesha										
18	11,100	4,400	39.6	15,500	9,300	83.8	20,400	6,000	54.1	17,100
19	15,600	3,300	21.2	18,900	5,300	34.0	20,900	3,500	22.4	19,100
20	11,700	4,400	37.6	16,100	10,600	90.6	22,300	7,000	59.8	18,700
21	5,600	2,900	51.8	8,500	4,600	82.1	10,200	3,700	66.1	9,300
22	4,400	2,900	65.9	7,300	6,000	136.4	10,400	3,300	75.0	7,700
23	17,500	7,700	44.0	25,200	17,000	97.1	34,500	8,700	49.7	26,200
24	28,800	13,700	47.6	42,500	26,900	93.4	55,700	17,300	60.1	46,100
25	8,900	2,600	29.2	11,500	8,400	94.4	17,300	5,100	57.3	14,000
26	2,400	1,200	50.0	3,600	2,100	87.5	4,500	1,200	50.0	3,600
Subtotal	106,000	43,100	40.7	149,100	90,200	85.1	196,200	55,800	52.6	161,800
Racine										
27	48,800	9,700	19.9	58,500	20,800	42.6	69,600	25,000	51.2	73,800
28	9,500	3,300	34.7	12,800	7,900	83.2	17,400	4,800	50.5	14,300
29	5,400	1,500	27.8	6,900	3,400	63.0	8,800	2,700	50.0	8,100
Subtotal	63,700	14,500	22.8	78,200	32,100	50.4	95,800	32,500	51.0	96,200
Kenosha										
30	37,100	10,500	28.3	47,600	18,600	50.1	55,700	23,000	62.0	60,100
31	9,900	4,300	43.4	14,200	10,100	102.0	20,000	6,000	60.6	15,900
Subtotal	47,000	14,800	31.5	61,800	28,700	61.1	75,700	29,000	61.7	76,000
Walworth										
32	3,500	1,200	34.3	4,700	2,200	62.9	5,700	1,800	51.4	5,300
33	5,000	1,100	22.0	6,100	3,200	64.0	8,200	1,800	36.0	6,800
34	19,100	7,000	36.7	26,100	16,500	86.4	35,600	10,000	52.4	29,100
Subtotal	27,600	9,300	33.7	36,900	21,900	79.4	49,500	13,600	49.3	41,200
Region Total	676,100	151,000	22.3	827,100	229,000	33.9	905,100	238,300	35.3	914,400

NOTE: Parentheses indicate a negative number.

Source: SEWRPC.

Table D-3

EXISTING AND PROPOSED EMPLOYMENT (JOBS) IN THE REGION BY PLANNING ANALYSIS AREA 1990, 2020 RECOMMENDED LAND USE PLAN, AND 2020 ALTERNATIVE FUTURES LAND USE PLANS

County and Planning Analysis Area	Existing 1990	2020 Recommended Plan			2020 High-Growth Decentralized Plan			2020 High-Growth Centralized Plan		
		Planned Increment 1990-2020		Total 2020	Planned Increment 1990-2020		Total 2020	Planned Increment 1990-2020		Total 2020
		Number	Percent		Number	Percent		Number	Percent	
Ozaukee										
1	2,300	1,100	47.8	3,400	2,000	87.0	4,300	1,400	60.9	3,700
2	8,600	3,300	38.4	11,900	4,600	53.5	13,200	3,900	45.4	12,500
3	12,700	3,800	29.9	16,500	5,900	46.5	18,600	4,800	37.8	17,500
4	12,800	5,400	42.2	18,200	8,800	68.8	21,600	7,100	55.5	19,900
Subtotal	36,400	13,600	37.4	50,000	21,300	58.5	57,700	17,200	47.3	53,600
Washington										
5	2,400	400	16.7	2,800	800	33.3	3,200	600	25.0	3,000
6	21,400	5,200	24.3	26,600	10,000	46.7	31,400	6,900	32.2	28,300
7	1,600	100	6.3	1,700	200	12.5	1,800	100	6.3	1,700
8	2,100	1,200	57.1	3,300	2,200	104.8	4,300	1,700	81.0	3,800
9	9,900	6,700	67.7	16,600	12,900	130.3	22,800	9,600	97.0	19,500
10	6,500	3,200	49.2	9,700	4,700	72.3	11,200	4,000	61.5	10,500
11	2,200	200	9.1	2,400	300	13.6	2,500	200	9.1	2,400
Subtotal	46,100	17,000	36.9	63,100	31,100	67.5	77,200	23,100	50.1	69,200
Milwaukee										
12	44,000	5,600	12.7	49,600	4,400	10.0	48,400	5,800	13.2	49,800
13	383,100	25,800	6.7	408,900	20,400	5.3	403,500	45,700	11.9	428,800
14	137,600	3,400	2.5	141,000	900	0.7	138,500	11,300	8.2	148,900
15	21,800	1,300	6.0	23,100	600	2.8	22,400	3,200	14.7	25,000
16	20,500	6,100	29.8	26,600	9,600	46.8	30,100	10,500	51.2	31,000
17	6,300	4,100	65.1	10,400	6,100	96.8	12,400	6,500	103.2	12,800
Subtotal	613,300	46,300	7.6	659,600	42,000	6.9	655,300	83,000	13.5	696,300
Waukesha										
18	27,600	7,900	28.6	35,500	10,700	38.8	38,300	9,100	33.0	36,700
19	50,300	16,800	33.4	67,100	22,600	44.9	72,900	19,200	38.2	69,500
20	21,600	5,100	23.6	26,700	8,000	37.0	29,600	6,200	28.7	27,800
21	4,600	1,900	41.3	6,500	3,600	78.3	8,200	2,200	47.8	6,800
22	5,700	4,600	80.7	10,300	5,300	93.0	11,000	4,800	84.2	10,500
23	18,700	12,200	65.2	30,900	21,300	113.9	40,000	14,100	75.4	32,800
24	55,400	21,800	39.4	77,200	31,100	56.1	86,500	25,700	46.4	81,100
25	6,100	2,500	41.0	8,600	4,000	65.6	10,100	2,700	44.3	8,800
26	1,500	500	33.3	2,000	900	60.0	2,400	500	33.3	2,000
Subtotal	191,500	73,300	38.3	264,800	107,500	56.1	299,000	84,500	44.1	276,000
Racine										
27	70,500	14,000	19.9	84,500	18,400	26.1	88,900	22,700	32.2	93,200
28	9,800	4,000	40.8	13,800	8,800	89.8	18,600	5,600	57.1	15,400
29	8,500	1,900	22.4	10,400	3,400	40.0	11,900	2,200	25.9	10,700
Subtotal	88,800	19,900	22.4	108,700	30,600	34.5	119,400	30,500	34.4	119,300
Kenosha										
30	41,700	15,800	37.9	57,500	26,200	62.8	67,900	28,500	68.4	70,200
31	9,200	4,300	46.7	13,500	7,800	84.8	17,000	5,700	62.0	14,900
Subtotal	50,900	20,100	39.5	71,000	34,000	66.8	84,900	34,200	67.2	85,100
Walworth										
32	3,000	1,500	50.0	4,500	2,000	66.7	5,000	1,700	56.7	4,700
33	6,600	3,100	47.0	9,700	4,100	62.1	10,700	4,000	60.6	10,600
34	30,600	15,100	49.4	45,700	22,800	74.5	53,400	17,200	56.2	47,800
Subtotal	40,200	19,700	49.0	59,900	28,900	71.9	69,100	22,900	57.0	63,100
Region Total	1,067,200	209,900	19.7	1,277,100	295,400	27.7	1,362,600	295,400	27.7	1,362,600

Source: SEWRPC.

Appendix E

EXISTING AND PROPOSED POPULATION IN THE REGION BY SEWER SERVICE AREA 1990, 2020 RECOMMENDED LAND USE PLAN, AND 2020 ALTERNATIVE FUTURES LAND USE PLANS

County and Sewer Service Area Name	Existing 1990	2020 Recommended Plan			2020 High-Growth Decentralized Plan			2020 High-Growth Centralized Plan		
		Planned Increment 1990-2020			Planned Increment 1990-2020			Planned Increment 1990-2020		
		Number	Percent	Total	Number	Percent	Total	Number	Percent	Total
Kenosha County										
Bristol[a]	1,370	1,210	88.3	2,580	4,620	337.2	5,990	2,090	152.6	3,460
Kenosha	95,430	21,770	22.8	117,200	42,320	44.3	137,750	53,470	56.0	148,900
Paddock Lake	2,680	1,400	52.2	4,080	3,940	147.0	6,620	1,960	73.1	4,640
Powers-Benedict,-Tombeau Lakes (part)	0	1,260	--	1,260	1,850	--	1,850	1,380	--	1,380
Racine (part)	720	290	40.3	1,010	300	41.7	1,020	300	41.7	1,020
Salem[b]	5,760	4,260	74.0	10,020	7,260	126.0	13,020	5,100	88.5	10,860
Silver Lake	1,760	1,720	97.7	3,480	2,690	152.8	4,450	1,950	110.8	3,710
Twin Lakes	4,160	2,940	70.7	7,100	5,740	138.0	9,900	3,800	91.3	7,960
Subtotal	111,880	34,850	31.1	146,730	68,720	61.4	180,600	70,050	62.6	181,930
Outside Sewer Service Areas	16,310	(3,440)	(21.1)	12,870	(2,690)	(16.5)	13,620	(4,040)	(24.8)	12,270
County Total	128,190	31,410	24.5	159,600	66,030	51.5	194,220	66,010	51.5	194,200
Milwaukee County										
Milwaukee Metropolitan Sewerage District	933,690	65,210	7.0	998,900	(19,710)	(2.1)	913,980	166,260	17.8	1,099,950
South Milwaukee	20,890	860	4.1	21,750	150	0.7	21,040	2,090	10.0	22,980
Subtotal	954,580	66,070	6.9	1,020,650	(19,560)	(2.0)	935,020	168,350	17.6	1,122,930
Outside Sewer Service Areas	4,690	(2,840)	(60.6)	1,850	(2,900)	(61.8)	1,790	(3,610)	(77.0)	1,080
County Total	959,270	63,230	6.6	1,022,500	(22,460)	(2.3)	936,810	164,740	17.2	1,124,010
Ozaukee County										
Belgium	960	550	57.3	1,510	2,840	295.8	3,800	740	77.1	1,700
Cedarburg	10,370	3,100	29.9	13,470	13,500	130.2	23,870	5,900	56.9	16,270
Fredonia	1,600	650	40.6	2,250	1,630	101.9	3,230	630	39.4	2,230
Grafton	9,930	2,040	20.5	11,970	13,800	139.0	23,730	3,580	36.1	13,510
Lake Church	0	570	--	570	580	--	580	610	--	610
Mequon/Thiensville	18,940	8,010	42.3	26,950	25,190	133.0	44,130	13,590	71.8	32,530
Newburg (part)	90	40	44.4	130	420	466.7	510	40	44.4	130
Port Washington	9,360	1,490	15.9	10,850	6,890	73.6	16,250	2,510	26.8	11,870
Saukville	3,700	1,140	30.8	4,840	3,840	103.8	7,540	1,600	43.2	5,300
Waubeka	0	340	--	340	690	--	690	350	--	350
Subtotal	54,950	17,930	32.6	72,880	69,380	126.3	124,330	29,550	53.8	84,500
Outside Sewer Service Areas	17,890	(1,830)	(10.2)	16,060	(6,330)	(35.4)	11,560	(2,180)	(12.2)	15,710
County Total	72,840	16,100	22.1	88,940	63,050	86.6	135,890	27,370	37.6	100,210
Racine County										
Bohner Lake	0	1,850	--	1,850	1,950	--	1,950	1,940	--	1,940
Burlington[c]	11,180	2,770	24.8	13,950	8,210	73.4	19,390	6,270	56.1	17,450
Caddy Vista	830	10	1.2	840	70	8.4	900	80	9.6	910
Eagle Lake	1,460	150	10.3	1,610	1,550	106.2	3,010	870	59.6	2,330
Racine (part)	126,600	12,060	9.5	138,660	45,490	35.9	172,090	56,090	44.3	182,690
Union Grove[d]	4,490	1,300	29.0	5,790	4,250	94.7	8,740	2,370	52.8	6,860
Waterford/Rochester[e]	6,410	3,720	58.0	10,130	10,760	167.9	17,170	5,560	86.7	11,970
Wind Lake	3,980	1,500	37.7	5,480	3,110	78.1	7,090	2,350	59.0	6,330
Subtotal	154,950	23,360	15.1	178,310	75,390	48.7	230,340	75,530	48.7	230,480
Outside Sewer Service Areas	20,090	(2,790)	(13.9)	17,300	(2,210)	(11.0)	17,880	(2,350)	(11.7)	17,740
County Total	175,040	20,570	11.8	195,610	73,180	41.8	248,220	73,180	41.8	248,220
Walworth County										
Darien	1,300	320	24.6	1,620	1,080	83.1	2,380	550	42.3	1,850
Delavan/Delavan Lake	9,160	4,260	46.5	13,420	11,070	120.9	20,230	6,760	73.8	15,920
East Troy[f]	3,510	2,730	77.8	6,240	5,820	165.8	9,330	4,560	129.9	8,070
Elkhorn	5,510	2,190	39.7	7,700	6,770	122.9	12,280	4,320	78.4	9,830
Fontana	1,740	700	40.2	2,440	2,940	169.0	4,680	1,180	67.8	2,920
Geneva National/Lake Como	0	1,710	--	1,710	2,290	--	2,290	1,940	--	1,940
Genoa City	1,230	620	50.4	1,850	1,660	135.0	2,890	850	69.1	2,080
Lake Geneva	6,430	3,200	49.8	9,630	8,250	128.3	14,680	5,060	78.7	11,490
Lyons[g]	920	530	57.6	1,450	1,090	118.5	2,010	740	80.4	1,660
Pell Lake	0	1,970	--	1,970	2,230	--	2,230	2,140	--	2,140
Powers-Benedict-Tombeau Lakes (part)	0	420	--	420	450	--	450	450	--	450
Sharon	1,320	200	15.2	1,520	790	59.8	2,110	390	29.5	1,710
Walworth	1,680	750	44.6	2,430	2,870	170.8	4,550	1,840	109.5	3,520
Whitewater (part)	10,110	2,040	20.2	12,150	7,130	70.5	17,240	4,310	42.6	14,420
Williams Bay	2,280	760	33.3	3,040	2,720	119.3	5,000	1,640	71.9	3,920
Subtotal	45,190	22,400	49.6	67,590	57,160	126.5	102,350	36,730	81.3	81,920
Outside Sewer Service Areas	29,820	(2,410)	(8.1)	27,410	(550)	(1.8)	29,270	(1,650)	(5.5)	28,170
County Total	75,010	19,990	26.6	95,000	56,610	75.5	131,620	35,080	46.8	110,090

County and Sewer Service Area Name	Existing 1990	2020 Recommended Plan			2020 High-Growth Decentralized Plan			2020 High-Growth Centralized Plan		
		Planned Increment 1990-2020			Planned Increment 1990-2020			Planned Increment 1990-2020		
		Number	Percent	Total	Number	Percent	Total	Number	Percent	Total
Washington County										
Allenton	790	1,070	135.4	1,860	1,900	240.5	2,690	1,290	163.3	2,080
Big Cedar Lake	550	90	16.4	640	2,570	467.3	3,120	180	32.7	730
Germantown	10,030	9,790	97.6	19,820	24,910	248.4	34,940	19,160	191.0	29,190
Hartford[h]	8,830	4,830	54.7	13,660	12,890	146.0	21,720	6,740	76.3	15,570
Jackson	2,520	2,540	100.8	5,060	6,080	241.3	8,600	3,390	134.5	5,910
Kewaskum	2,530	1,700	67.2	4,230	4,870	192.5	7,400	2,090	82.6	4,620
Little Cedar	0	0	--	0	980	--	980	0	--	0
Newburg (part)	880	370	42.0	1,250	1,280	145.5	2,160	420	47.7	1,300
Richfield	0	0	--	0	10,310	--	10,310	4,890	--	4,890
Slinger	2,440	2,360	96.7	4,800	5,850	239.8	8,290	3,250	133.2	5,690
West Bend[i]	24,700	13,240	53.6	37,940	31,860	129.0	56,560	20,300	82.2	45,000
Subtotal	53,270	35,990	67.6	89,260	103,500	194.3	156,770	61,710	115.8	114,980
Outside Sewer Service Areas	42,070	(2,580)	(6.1)	39,490	(11,310)	(26.9)	30,760	(6,820)	(16.2)	35,250
County Total	95,340	33,410	35.0	128,750	92,190	96.7	187,530	54,890	57.6	150,230
Waukesha County										
Beaver Lake	0	0	--	0	1,800	--	1,800	0	--	0
Big Bend	0	0	--	0	4,300	--	4,300	1,400	--	1,400
Brookfield East	16,850	20	0.1	16,870	3,950	23.4	20,800	1,030	6.1	17,880
Brookfield West	23,530	5,400	22.9	28,930	9,840	41.8	33,370	6,460	27.5	29,990
Butler	2,010	(120)	(6.0)	1,890	80	4.0	2,090	80	4.0	2,090
Delafield[j]	4,050	4,390	108.4	8,440	8,810	217.5	12,860	5,480	135.3	9,530
Denoon Lake	1,100	120	10.9	1,220	700	63.6	1,800	220	20.0	1,320
Dousman	1,670	1,450	86.8	3,120	3,640	218.0	5,310	2,050	122.8	3,720
Eagle	0	0	--	0	2,730	--	2,730	0	--	0
Elm Grove	5,630	170	3.0	5,800	740	13.1	6,370	590	10.5	6,220
Hartland	7,510	3,850	51.3	11,360	5,900	78.6	13,410	5,020	66.8	12,530
Menomonee Falls East	22,830	8,440	37.0	31,270	18,930	82.9	41,760	14,550	63.7	37,380
Menomonee Falls S.W.	0	0	--	0	4,550	--	4,550	0	--	0
Mukwonago	4,680	4,310	92.1	8,990	12,910	275.9	17,590	7,890	168.6	12,570
Muskego	13,860	7,510	54.2	21,370	13,340	96.2	27,200	10,610	76.6	24,470
New Berlin	26,990	9,560	35.4	36,550	31,520	116.8	58,510	19,870	73.6	46,860
North Lake	0	710	--	710	940	--	940	760	--	760
North Prairie	0	1,970	--	1,970	4,130	--	4,130	3,300	--	3,300
Oconomowoc[k]	12,300	7,180	58.4	19,480	20,670	168.0	32,970	10,330	84.0	22,630
Oconomowoc Lake	0	500	--	500	920	--	920	530	--	530
Okauchee Lake	0	5,220	--	5,220	7,450	--	7,450	5,550	--	5,550
Pewaukee[l]	12,880	10,790	83.8	23,670	28,410	220.6	41,290	16,930	131.4	29,810
Pine Lake	0	0	--	0	420	--	420	0	--	0
Rainbow Springs[m]	0	0	--	0	590	--	590	0	--	0
Sussex/Lannon/Lisbon	5,040	8,940	177.4	13,980	23,650	469.2	28,690	11,160	221.4	16,200
Wales	0	3,630	--	3,630	8,420	--	8,420	5,080	--	5,080
Waukesha	58,580	14,770	25.2	73,350	46,810	79.9	105,390	30,020	51.2	88,600
Subtotal	219,510	98,810	45.0	318,320	266,150	121.2	485,660	158,910	72.4	378,420
Outside Sewer Service Areas	85,230	(16,010)	(18.8)	69,220	(38,150)	(44.8)	47,080	(23,580)	(27.7)	61,650
County Total	304,740	82,800	27.2	387,540	228,000	74.8	532,740	135,330	44.4	440,070
Inside Sewer Service Areas	1,594,330	299,410	18.8	1,893,740	620,740	38.9	2,215,070	600,830	37.7	2,195,160
Outside Sewer Service Areas	216,100	(31,900)	(14.8)	184,200	(64,140)	(29.7)	151,960	(44,230)	(20.5)	171,870
Region Total	1,810,430	267,510	14.8	2,077,940	556,600	30.7	2,367,030	556,600	30.7	2,367,030

NOTE: Parentheses indicate a negative number.

[a] *Includes George Lake Sewer Service Area.*

[b] *Includes Camp Lake, Center Lake, Cross Lake, Hooker Lake, Montgomery Lake, Rock Lake, and Wilmot Sewer Service Areas.*

[c] *Includes Browns Lake Sewer Service Area.*

[d] *Includes Southern Wisconsin Center Sewer Service Area.*

[e] *Includes Tichigan Lake Sewer Service Area.*

[f] *Includes Alpine Valley, Army Lake, and Potter Lake Sewer Service Areas.*

[g] *Includes Country Estates Sanitary District Sewer Service Area.*

[h] *Includes Pike Lake Sewer Service Area.*

[i] *Includes Silver Lake Sewer Service Area.*

[j] *Includes the Village of Nashotah and Nemahbin Lakes Sewer Service Areas.*

[k] *Includes the Village of Lac La Belle and Silver Lake Sewer Service Areas.*

[l] *Includes Pewaukee Lake, Town of Pewaukee, and Village of Pewaukee Sewer Service Areas.*

[m] *Includes Eagle Spring Lake and Mukwonago County Park Sewer Service Areas.*

Source: SEWRPC.