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The Socio-Economic Impact Analysis of the Regional Water Supply Plan for Southeastern Wisconsin

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A Socio-Economic Impact Analysis of the Regional Water Supply Plan for Southeastern Wisconsin

Prepared by:

The University of Wisconsin-Milwaukee Center for Economic Development

July 2010

About this report

This socio-economic impact analysis was produced at the University of Wisconsin-Milwaukee Center for Economic Development (UWMCED), a unit of the College of Letters and Science at the University of Wisconsin-Milwaukee. UWMCED was established in 1990. The analysis and conclusions presented in this report are solely those of UWMCED; they do not necessarily reflect the views or opinions of the University of Wisconsin-Milwaukee. Further information about the Center for Economic Development and its reports is available at: www.ced.uwm.edu

This analysis was developed with the assistance of Prism Technical Management & Marketing LLC who conducted community outreach and coordinated public participation for this study. Further information about Prism Technical Management & Marketing Services is available at: www.prismtechnical.com/

UWMCED was selected by the Southeastern Wisconsin Regional Planning Commission (SEWRPC) to carry out this study. Further information about SEWRPC is available at: www.sewrpc.org

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Chapter 1

INTRODUCTION

GOAL OF THE SOCIO-ECONOMIC IMPACT ANALYSIS ATTENDENT TO THE REGIONAL WATER SUPPLY PLAN

The Southeastern Wisconsin Regional Planning Commission (SEWRPC) is the designated Metropolitan Planning Organization for southeastern Wisconsin, namely Kenosha, Milwaukee, Ozaukee, Racine, Walworth, Washington, and Waukesha Counties. In 2004, SEWRPC undertook the effort to develop a region wide water supply plan; this has been among the first of its kind in both the United States and Canada. The development and adoption of the Great Lakes Compact at both the State and Federal levels occurred concurrently to the development of much of SEWRPC's Regional Water Supply Plan (RWSP).

The objective of SEWRPC's RWSP is to ensure a safe, healthy, and abundant drinking water source for a population that is growing as projected according to SEWRPC's 2035 Regional Land Use Plan¹. Although the RWSP does provide valuable data and technical research into existing and projected water use in Southeastern Wisconsin communities as well as guidance for future planning purposes, it does not provide the answers associated with a socio-economic analysis. Such an analysis is needed in order to determine what the long range effects of such a plan may have on minority, low-income, or disabled populations within the Region. With its basis in SEWRPC's Regional Land Use Plan (RLUP) and its association to five of the Region's countywide comprehensive plans, and the Regional Water Quality Management Plan (RWQMP), the RWSP does, however, provide a strong starting point from which to begin a regional socio-economic impact analysis.

In December 2008, SEWRPC released the preliminary draft of a plan for water supply in Southeastern Wisconsin through the year 2035. The plan included the following set of recommendations for the distribution of water in the region:

- 27 existing utilities to remain on Lake Michigan supply.
- 2 new utilities to be created using Lake Michigan supply.
- 42 existing utilities to remain on groundwater supply.
- 9 existing utilities to be converted from groundwater supply to Lake Michigan supply.
- 21 new utilities to utilize groundwater supply.

The plan also made the following recommendations about water conservation programs:

- 24 utilities subject to base level conservation.
- 54 utilities subject to intermediate level conservation.
- 23 utilities subject to advanced level conservation.

Finally, the plan made additional recommendations in the areas of recharge area protection, stormwater management practices, high capacity well regulation, and enhanced rainfall infiltration systems.

¹ SEWRPC Planning Report No 48 *A Regional Land Use Plan for Southeastern Wisconsin: 2035*, June 2006.

Based on recommendations by SEWRPC's Environmental Justice Task Force, SEWRPC set forth to contract a non-partisan agency to evaluate the recommendations set forth in the Preliminary Regional Water Supply Plan (RWSP) in light of potential impacts on socio-economic factors and the principles of Environmental Justice as set forth under Executive Order 12898 ("Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations") as well as precipitating and subsequent laws and regulations. In August 2009, the Center for Economic Development (CED) was selected as the non-partisan agency to undertake a socio-economic impact analysis of the RWSP.

Questions Posed by SEWRPC

This study is an evaluation of each of the recommendations set forth in the RWSP, to determine their socio-economic impact on the Southeastern Wisconsin region. CED does so principally by evaluating each of the RWSP recommendations under the scrutiny of a regional socio-economic impact analysis and by addressing the following questions, posed by SEWRPC in the Request for Qualifications:

- What impact, if any, would implementation of the regional water supply recommendations have on the overall distribution of population in the Region?
- What impact, if any, would implementation of the regional water supply recommendations have on the overall distribution of job locations in the Region?
- What impact, if any, would implementation of the regional water supply recommendations have on the racial segregation patterns in the Region?
- What impact, if any, would implementation of the regional water supply recommendations have on housing patterns in the Region?
- What impact, if any, would implementation of the regional water supply recommendations have on the fiscal health and well-being of those communities in the Region wherein reside relatively large populations of low and moderate income families?
- To what extent, if any, would implementation of the regional water supply recommendations contribute to any failure of the plan to meet Federal regulations attendant to civil rights and environmental justice?

This study answers these questions by considering each of the RWSP recommendations individually and evaluating their impact on population, job locations, segregation patterns, housing patterns, the fiscal health and well being of environmental justice communities, and their compliance with federal civil rights and environmental justice regulations.

Review of Scientific Evidence, Standards, Practices, and the Law

In order to address the above six questions, the socio-economic impact analysis for the RWSP reviewed and considered all appropriate scientific evidence, standards, practice, and all current applicable laws. Jnm7 As part of the regional water supply planning process, scientists and engineers from the DNR, SEWRPC, USGS, UWM, and WGNHS played a critical role in developing an understanding of the hydrologic cycle's impact on groundwater recharge and the regional aquifers in southeastern Wisconsin. This was necessary in order to gain insight into current and future water supply conditions.

The documents generated as part of this planning process include the following:

- *Regional Water Supply Planning Program Prospectus*, prepared by SEWRPC
- *Technical Report No. 37, Groundwater Resources of Southeastern Wisconsin*, prepared by SEWRPC and WGNHS

- *Technical Report No. 41, A Regional Aquifer Simulation Model for Southeastern Wisconsin*, prepared by SEWRPC, USGS, WGNHS, DNR, UWM, and Participating Water Utilities in Southeastern Wisconsin
- Technical Report No. 43, State-of-the-Art of Water Supply Practices, prepared by Ruekert & Mielke, Inc for SEWRPC
- *Technical Report No. 44, Water Supply Law*, prepared by the law firm of Boardman, Suhr, Curry, & Field, LLP for SEWRPC
- *Technical Report No. 47, Groundwater Recharge In Southeastern Wisconsin Estimated By A GIS-Based Water-Balance Model*, prepared by WGNHS for SEWRPC
- *Planning Report No. 52, A Regional Water Supply Plan for Southeastern Wisconsin*, prepared by SEWRPC (*forthcoming*)

Ruekert & Mielke, Inc, an engineering firm, was contracted to develop information regarding water supply standards and practices and their related costs. Additionally, Attorney Lawrie Kobza with the law firm of Boardman, Suhr, Curry, and Field, LLP prepared a technical report outlining water supply laws at both the Federal and state level, including information on the newly (2008) adopted Great Lakes Compact, the legislation governing water diversions within the Great Lakes Basin.

Overseeing the Regional Water supply planning process was the Regional Water Supply Advisory Committee. This committee is comprised of over 30 representatives from the science, water utility and public works, planning, environmental, and business communities, and has periodically convened over the past five years to provide guidance and development for each of the water supply technical reports and for Planning Report No. 52.

Evaluating Stakeholder Perceptions of the Distribution of Water Supply

One of the goals of this study was to consider the extent to which water is or is likely to become a constraint on development in the region. Much of this hinges on the findings in *Technical Report No. 47, Groundwater Recharge In Southeastern Wisconsin Estimated By A GIS-Based Water-Balance Model* and in *Technical Report No. 41, A Regional Aquifer Simulation Model for Southeastern Wisconsin*. The science, as outlined in the groundwater recharge and the aquifer simulation model studies indicates that southeastern Wisconsin is a water-abundant Region, and suggests that the provision of Lake Michigan water to suburban communities is not essential as existing groundwater sources, *if properly managed*, are of sufficient quantity and quality to support *projected* development through the year 2035. No other studies of which we are aware contradict the conclusions of the WGNHS, USGS, DNR, SEWRPC, and other agencies.

We emphasize that while existing studies suggest that regional groundwater supplies can sustain development for the near future in areas not currently receiving Lake Michigan water, there are several important caveats. First, little is known about the sustainability of groundwater supplies beyond the year 2035. Existing studies do not extend beyond that year. Second, existing studies base their projections about the sustainability of groundwater supplies on current land use plans, which can be altered. Changes in regional land use plans may require that conclusions about the sustainability of groundwater supplies be reexamined. Finally, studies emphasize that groundwater supplies in certain areas of the region are likely to be sustainable only if properly managed.

While scientific evidence suggests areas not currently using Lake Michigan can continue to rely on groundwater supplies, it is possible that conversion to Lake Michigan water may change the perceptions of developers, planners, and other decision-making stakeholders about the long-term viability of an area for development, increasing the likelihood of specific types of development activity, including residential, commercial, and industrial

development. Conversely, it is also possible that problems with the existing supply on the western side of the subcontinental divide, such as radium contamination, are or may become a constraint to development. Therefore, CED found it important to assess the perceptions that such stakeholders have regarding development in areas that were recommended for conversion from groundwater to Lake Michigan.

Regional Planning and the Limits of Planning in an Advisory Capacity

The Southeastern Wisconsin Regional Planning Commission, as the State-designated and Federally recognized Metropolitan Planning Organization (MPO) for the seven-County metropolitan Milwaukee Region, is a charter organization that acts in an *advisory* capacity on specific planning issues. Although SEWRPC is charged with developing region wide plans for the seven-County southeastern Wisconsin Region, it holds no legal authority to enforce recommendations set forth in many of the region wide plans, including the RWSP, or ensures that they are upheld by any individual community. Recommendations set forth in the Regional Water Supply Plan, are purely advisory recommendations. By developing a series of regional plans including the Regional Land Use Plan², The Regional Water Quality Management Plan, The Regional Transportation Plan, and supporting technical reports including The Economy of Southeastern Wisconsin, and the Population of Southeastern Wisconsin, SEWRPC has developed a cohesive and integrative set of regulatory and advisory plans and technical reports that each county and local community (town, village, or city) within southeastern Wisconsin can follow to ensure healthy, sustainable growth through the planning year 2035. Additionally, it follows, that under certain circumstances, recommendations are based on local ordinances, *State statutes*, or Federal laws and in those cases, those recommendations are actionable by law, but are enforceable only by local, county, State, or Federal agencies.

SEWRPC, however, holds no binding legal authority to enforce the recommendations and it is up to each community to act in the spirit of Regionalism to uphold the recommendations set forth in each of the plans and to incorporate such recommendations into local plans. Although SEWRPC is responsible for developing plans, it is ultimately up to the county, town and village boards, and city common councils, and additionally in this case, the municipal water utilities, water utility districts, and sanitary districts to ensure that compliance with the recommendations set forth in the RWSP are met.

ENVIRONMENTAL JUSTICE PRINCIPLES

Environmental Justice is both a concept and a movement. As a concept, Environmental Justice seeks to rectify any past or present harms or injustices related to environmental issues. The concept of Environmental Justice is not new; it has its roots in the laws and regulations developed by the US Environmental Protection Agency (USEPA) and other federal, state, and local agencies throughout the 20th Century that were developed to ensure safe, responsible use of resources and to safeguard the population from the hazards of industry and harmful environmental conditions. Planning as a field, particularly land use planning and zoning, had developed from the need to improve and safeguard the health, welfare, and safety of communities.

In 2006, SEWRPC created the Environmental Justice Task Force (EJTF) to oversee issues pertaining to Environmental Justice in the seven county Region, and charged it to:

1. Ensure public involvement of low income and minority groups in decision making;

² Southeastern Wisconsin Regional Planning Commission *Planning Report No. 48, A Regional Land Use Plan for Southeastern Wisconsin: 2035*, June 2006.

2. Prevent "disproportionately high and adverse" impacts of decisions on low-income and minority groups; and
3. Assure low-income and minority groups receive proportionate share of benefits.

SEWRPC created a primary role for the Environmental Justice Task Force, "to enhance the consideration and integration of environmental justice throughout the regional planning process". The EJTF was instrumental in advocating and executing the development of a socio-economic impact analysis for the regional water supply plan. This study is the first of its kind for SEWRPC.

DEFINITION OF A SOCIO-ECONOMIC IMPACT ANALYSIS

A socio-economic impact analysis or assessment is a tool used to determine whether or not a proposed development will have a negative or positive impact on the social, economic, environmental, and fiscal well-being of a community. To successfully measure socio-economic impacts, the analysis must evaluate how a proposed development will impact the lives of current and future residents of a community. Socio-economic impact analyses typically measure both quantitative and qualitative aspects of a proposed development, by combining measurable indicators along with public perceptions³.

Normally, the indicators used to measure such impacts include:

- Projected Changes in Community Demographics
- Changes in the demand for public services
- Housing Market Analyses
- Changes in employment (and often income levels)
- Changes in the aesthetic quality of the community (difficult to quantify)

Measurable indicators usually focus on population and/or job projections related to the development. For example, a proposed commercial or industrial development may increase the number of jobs in a community and therefore create an increase in demand for more housing; given the size of the development (usually given in terms of number of jobs) such data is predictive and measurable.

Community perceptions regarding a proposed development may not be as easily quantifiable, but are important in analyzing the socio-economic impact that the development could have on the community. Edwards argues that the perceptions of community members towards the development are significant in ascertaining whether the development will comply with community values and how it will affect the lives of the residents.

In general, most socio-economic impact analyses involve a two-step process. The first step is to determine measurable, quantifiable, and predictive data that pertains to the development. How many jobs will the development create? How many people will need to be housed due to the creation of new jobs? Will the development spur additional development, and will this impact population growth over the next twenty years? The second step is gauging the qualitative public perceptions about the proposed development. Do residents believe that the development will have a positive or negative impact on the community? Will the use create a nuisance, or will the supporting infrastructure cost too

³ Mary Edwards www.lic.wisc.edu/shapingdane/facilitation/all_resources/impacts/analysis_socio.htm

much? Will it have an impact on housing values? In order to identify what those values and concerns are, the public must be engaged.

Regional Socio-Economic Impact Analyses

Typical examples of socio-economic impact analyses revolve around development at a single location, for example a shopping mall or an airport, in which the development may have significant and lasting social, economic, and environmental impacts on the community. Based on a review of existing socio-economic impact analyses, it was determined that the majority of socio-economic impact analyses address issues pertinent to a single, or at most, a few municipalities, focusing on development at the local, rather than regional, level.

To date, very few examples of socio-economic impact analyses focus on regional issues or plans, particularly in the United States. A regional socio-economic impact analysis, attempts to describe and measure a phenomenon that is projected to occur over a larger geographic area, such as the impact of a freeway expansion or a large mining or resource extraction operation; these developments typically occur over multi-county areas involving numerous communities and municipalities, and development may be phased in over decades. An assessment of the RWSP would fall under the category of a regional socio-economic impact analysis as implementation of the RWSP includes phased expansion of numerous water utility service areas within the seven-county Region over the next 30 years.

Approach to a Regional Socio-Economic Impact Analysis

Similar to most socio-economic impact analyses that measure impacts of development at a local or community level, a regional socio-impact analysis includes two major components: a quantitative component and a public participation and outreach component. The first component contains various quantitative measures to determine if the implementation of the preferred recommendations set forth in the regional water supply plan will have any future impact on racial and ethnic segregation patterns within the Region, and if it will have an impact on housing patterns and the relative fiscal health and well-being of the communities in the Region, particularly those that have relatively large populations of low and very low income households. The goal of the quantitative component is to assess whether or not implementation of the preferred regional water supply recommendations will contribute to any failure of the plan to meet Federal regulations pertaining to civil rights and principles of environmental justice.

The public participation and outreach component identifies any concerns or issues regarding the plan from key stakeholders, and in this case focuses on those whose voices may not have been heard during the initial planning process. For this, outreach was specifically designed to target representatives from minority, low-income, and disabled groups for feedback.

DESCRIPTION OF THE SOCIO-ECONOMIC IMPACT ANALYSIS STRATEGY ATTENDENT TO THE REGIONAL WATER SUPPLY PLAN

In August of 2009, CED was selected to develop a method to analyze the recommendations set forth in SEWRPC's preliminary draft of the RWSP. CED designed a study with two major components: a quantitative analysis component and a public outreach component. The quantitative analysis component would assess each of the six major categories of recommendations against six groups of measurable socio-economic indicators and projections.

The six categories of recommendations set forth in the preliminary draft of A Regional Water Supply Plan for Southeastern Wisconsin to be assessed include:

- Changes in the Source of Water Supply by Utility Category (groundwater or Lake Michigan source)
- Water Conservation Programs
- Recharge Area Protection
- Stormwater management Practices
- High Capacity Well Regulation
- Enhanced Rainfall Infiltration Systems

The six clusters of measurable socio-economic indicators that will be used to assess each of the recommendations include:

- Existing and Projected Population Distribution
- Existing and Projected Racial and Ethnic (Segregation/Population) Patterns
- Existing and Projected Job Distribution
- Existing and Projected Land Use Patterns
- Fiscal Impacts on Low-Income Communities
- Potential Impacts on Environmental Justice and Civil Rights

Although the Regional Water Supply Plan addresses recommendations for each of the 101 existing or proposed public utilities in the seven-county region, much of the socio-economic impact analysis will be limited to developing an understanding of the relationship between existing or potential water service providing communities⁴ and the communities proposed to be converted from groundwater supply to Lake Michigan supply⁵, and the two newly proposed water supply utilities that will be purchasing Lake Michigan water from another utility⁶.

To fulfill the requirements of this socio-economic impact analysis, it is imperative that the relationship between provider and receiver be explored and evaluated. Self-supplied communities, including those proposed to remain on groundwater supply will not be individually assessed under the socio-economic impact analysis, nor will the community utilities that will continue to remain on Lake Michigan water, as these communities have already established sales agreements with supplier utilities. An evaluation of the 21 new groundwater utilities that have been proposed will be limited to a land use pattern assessment, as each of these utilities will be self-supplied.

In addition to developing projections, CED staff will compare existing and planned land uses in both the local comprehensive plans and the RWSP and RLUP for specific communities in order to determine whether or not the land use patterns within the areas proposed for expansion or conversion under the RWSP could have an impact on environmental justice.

Quantitative Methodology for Evaluating Socio-Economic Characteristics

Socio-economic impact analyses measure changes in the past, present, and projected conditions in demographics, land use to determine the demand for anticipated public services, and changes in employment and employment locations. Such studies describe and

⁴ Existing primary suppliers of Lake Michigan source water include the Cities of Kenosha, Milwaukee, Oak Creek, Port Washington, and Racine.

⁵ Such communities include the Cities of Brookfield, Cedarburg, Muskego, New Berlin, and Waukesha, Villages of Germantown, Grafton, and Saukville, and their environs, and the Town of Yorkville Water Utility District 1.

⁶ The two new water utilities that are proposed to receive Lake Michigan water as source of supply are the Village of Elm Grove municipal water utility and the Northwest Caledonia Area Planned Utility District in Racine County.

diagnose any regional imbalance of past and present conditions and, based upon the **imbalances, attempts to provide corrective measures for a Region's future development path**⁷.

The basic methodological framework for this regional socio-economic analysis begins with identifying and evaluating existing conditions and potential changes in demographics and economic conditions in communities that will likely be impacted by changes set forth in the RWSP recommendations. Existing social, economic, and workforce characteristics including age, income levels, employment status, and educational attainment were analyzed as well as the population distribution patterns. The identification of concentrations of low- and very- **low income households, including rates on poverty, particularly in the Region's four largest** urbanized Cities of Milwaukee, Racine, Kenosha, and Waukesha, was assessed alongside a brief discussion of affordable housing as it applies to the RWSP.

Different land uses such as residential, commercial, and industrial require different amounts of water⁸. As part of the regional water supply planning process, population, household, and land use forecasts were developed to determine projected changes in water needs. An evaluation of existing and projected land use changes is necessary to identify potential areas that communities are planning to develop for specific uses and densities.

As SEWRPC provided projected land use evaluations for five of the seven counties during the county comprehensive planning process, these data will be assessed for existing and projected service areas. Additionally, current and projected land use data is available for Waukesha County and for most of Milwaukee County through adopted comprehensive **"Smart Growth" plans, and will also be assessed for both current and projected service** areas.

Discussion of Regional Water Supply Plan Recommendations

There are six clusters of recommendations set forth in the RWSP: sources of water supply, water conservation programming, recharge area protection, stormwater management practices, high capacity well regulations, and groundwater infiltration systems. Each of the six RWSP recommendations was evaluated against each of the six criteria indicators in order to determine if there was a potential for a positive or negative socio-economic impact. In certain cases, the recommendation could not be meaningfully measured against some or all of the criteria.

During the process of evaluating each of the six recommendations set forth in the RWSP, it became clear that, based on the recommendation to switch sources of water, there was a potential source of conflict between purchasing and providing utilities. The recommendation to switch sources of supplies impacts both the utilities (communities) that are slated for the switch along with the utilities that would potentially be providing Lake Michigan water to the switching utilities. Within this recommendation, there are nine existing utilities proposed to be converted from a groundwater supply to a Lake Michigan source; City of Brookfield Municipal Water Utility, City of Cedarburg Light and Water Commission, Village of Germantown Water Utility, Village of Grafton Water and Wastewater Commission, City of Muskego Public Water Utility, City of New Berlin Water Utility, Village of Saukville Municipal Water Utility, the City of Waukesha Water Utility, and the Yorkville Utility District No. 1. Additionally, under this recommendation, there were two new proposed utilities that are recommended to utilize Lake Michigan water under the RWSP (Village of Elm Grove, and a

⁷ Development Bank of Southern Africa, *Guidelines to Regional Socio-economic Analysis*, March 2001.

⁸ Water use estimates based on land use types have been developed in conjunction with SEWRPCs Regional Water Supply Plan.

small portion of the Village of Caledonia referred to as Northwest Caledonia area). Under the plan, five potential provider communities were identified; these include the Kenosha Water Utility, Milwaukee Water Works, the City of Oak Creek Water and Sewer Utility, the City of Port Washington Water Utility, and the City of Racine Water and Wastewater Utility. In effect, this could have a potential socio-economic impact as it changes the relationship between these communities, from independent, self-serving utilities, to those reliant on procuring a resource from another utility. Based on this potential for conflict, it is these utilities, or communities, that became the focus of most of the socio-economic impact analysis. These communities are shown on Map 1-I.

Sources of Water Supply

There are two major water supply sources in Southeastern Wisconsin - groundwater and Lake Michigan - and each has its own unique advantages and disadvantages which are discussed in Technical Report No. 43, ***State-of-the-Art Water Supply Practices***. Detailed information on source of supply, the water cycle, and the significance of the subcontinental divide is provided in depth in Chapter 3 of SEWRPC's Planning Report No. 52 ***A Water Supply Plan for Southeastern Wisconsin*** as well as in the various technical reports associated with the water supply planning process^{9, 10, 11}.

Although Lake Michigan water serves the majority of people, commerce, and industry in the seven County Region, growth in the outlying Counties has increased greatly over the past 50 years, and the use of groundwater as a supply source has greatly increased. One of the central issues of the Regional Water Supply Plan is a concern regarding the amount of high quality groundwater supply available, and whether or not it could support both existing and planned development. In Southeastern Wisconsin, there are two major sources of groundwater; a shallow, easily rechargeable aquifer, and a (not so easily rechargeable) deep aquifer that sits below an impermeable aquitard. By the 1990's, several of the municipal water utilities that had switched to the deep aquifer as their primary source were facing sanctions/fines by the Wisconsin Department of Natural Resources due to unacceptable levels of radium¹². Radium is a naturally occurring element and is common in most rock, soil, and water, although concentrations are usually very low. Radium and its salts are soluble in water; therefore groundwater in areas where concentrations of radium are high in surrounding bedrock may have relatively high radium content. Based on extensive testing, it was determined that the source of groundwater with unacceptable levels of radium has been the deep aquifer.

Findings from the regional aquifer simulation model, set forth in Technical Report No. 41, ***A Regional Aquifer Simulation Model for Southeastern Wisconsin***, indicate that more problems due to sustained pumping seem to be arising in the deep aquifer than in the shallow aquifer. Much of the deep aquifer in the Region sits below an impermeable aquitard, and based on the modeling¹³, the recharge rates are exceptionally slow in comparison to the shallow aquifer. Also, regional groundwater pumping has affected groundwater flow patterns, shifting the location of the deep groundwater divide to the west more significantly in the deep aquifer than the shallow aquifer, and may be reversing the flow of groundwater away from the Lake Michigan Basin and toward the inland pumping centers.

⁹ SEWRPC Technical Report No. 37, ***Groundwater Resources of Southeastern Wisconsin***.

¹⁰ SEWRPC Technical Report No. 41, ***A Regional Aquifer Simulation Model for Southeastern Wisconsin***.

¹¹ SEWRPC Technical Report No. 47, ***Groundwater Recharge in Southeastern Wisconsin Estimated by a GIS-based Water-Balance Model***.

¹² In 2005, the USEPA standard limit for the presence of radium in drinking water was 5 picocuries per liter (5 pCi/L).

¹³ Technical Report 47, ***Groundwater Recharge in Southeastern Wisconsin Estimated by a GIS-based Water-Balance Model***.

Groundwater problems are not limited to the deep aquifer. The model estimated that between 1864 (considered pre-development conditions) and the year 2000, pumping decreased the rate of discharge in the shallow groundwater to Lake Michigan, and most significantly decreased the baseflow of streams located east of the subcontinental divide. Although this reduction is partially offset by return flow from sewers, the extent to which the reduction can be attributed to either climate or the impact of land uses is unknown.

The primary source of groundwater and groundwater recharge in the shallow aquifer is precipitation. Water recharge, or flow from surface into the groundwater system, is affected by land use practices, precipitation (climate), soil type, and topography; of these, only land use practices can be controlled through planning. As part of the water supply planning process, the Wisconsin Geologic and Natural History (WGNHS) developed a GIS-based water-balance model to measure and predict groundwater recharge in Southeastern Wisconsin. The results, set forth in Technical Report 47, *Groundwater Recharge in Southeastern Wisconsin Estimated by a GIS-based Water-Balance Model*, concluded that the shallow water aquifer could provide a stable, reliant, and replenish-able groundwater supply through 2035, if its recharge areas are properly managed through proper land use planning. In general, it is estimated that only 10 percent of all precipitation flows from the ground surface into the groundwater system. Based on historic rainfall conditions in southeastern Wisconsin, it is estimated that the average groundwater recharge exceeds the existing and projected estimates of average daily use throughout the Region. However, local conditions including precipitation, soil conditions and permeability, topography, groundwater flow patterns, and land use practices have an impact on water supply and availability in localized areas.

The primary purpose of a water supply plan is to determine whether or not the existing sources of supply are adequate to serve the needs of the existing and growing population, and to set forth procedures on how best to protect those sources of supply. Although the groundwater recharge modeling suggests that the shallow aquifer should be able to provide a sufficient groundwater supply for anticipated growth, the RWSP recommends that the nine communities¹⁴ switch to relying on Lake Michigan as the source of supply, based on localized water supply conditions including water quality and the inability of the local aquifer to adequately serve existing populations.

The socio-economic impact analysis focuses on assessing whether or not the recommendation to switch the nine groundwater-reliant communities to Lake Michigan will have a negative impact on the communities that could potentially be providing Lake Michigan water. At the heart of this issue is determining whether or not people and jobs would migrate over the subcontinental divide if a safe, abundant water supply were assured. Would changing the source of supply further concentrate low-income or minority households in the Lake Michigan-providing communities?

Water Conservation Programming

Water, no matter the source, is a finite resource that must be conserved and used wisely. Although Southeastern Wisconsin is considered a water-rich area and Lake Michigan a limitless supply, that viewpoint is changing. Increased urbanization has led to an increase in impervious surfaces, having a negative impact on groundwater infiltration and changing the interaction between ground and surface waters. A water conservation program is defined as

¹⁴ These communities include the Cities of Brookfield, Cedarburg, Muskego, New Berlin, and Waukesha, Villages of Germantown, Grafton, and Saukville, and their environs, and the Town of Yorkville Water Utility District 1.

"as a combination of practices, procedures, policies, and technologies used to reduce the amount of water usage or to improve or maintain water system efficiency."
-SEWRPC Technical Report 43 Chapter VII, page 107

The recommendations regarding water conservation programming in the RWSP are two-fold in their design; first, they were developed to increase water system efficiency which reduces the amount of water pumped to meet customer demands, and second, to reduce the amount of water used by customers. The RWSP includes a range of recommendations for water conservation programming, depending on the infrastructure needs of each water utility and the source of supply. For example, the Milwaukee Water Works relies on Lake Michigan and has an adequate water supply infrastructure in place at least for the next 10 or more years; it is recommended that the lowest level of conservation programming be sought, which includes a four to six percent daily demand reduction. It is recommended that the City of Waukesha, which has aquifer quality problems and relies on groundwater supply, should seek 10 to 18 percent daily demand reduction, under the advanced level of programming. Planned water conservation programming assumptions are set forth in Technical Report 43, Chapter VII and in Planning Report 52, Chapter IV Table IV-9.

Additionally, in order to preserve and protect freshwater within the Great Lakes basin, the newly adopted Great Lakes Compact sets forth requirements and standards for communities that wish to utilize Great Lakes water. Under the Compact, communities that straddle the subcontinental divide and communities located in counties that straddle the subcontinental divide are eligible to use water that is diverted from the Great Lakes if certain criteria are met. Primarily, this means that such communities would use the water for public use and that the spent water is returned to the Great Lakes Basin, and that the amount of water requested in the diversion is reasonable and cannot be avoided through efficient use and water conservation.

Under the Compact, each state designs its own in-basin conservation programming which must be consistent with agreed-upon regional objectives. Although the states have until December 2010 to develop program objectives and implement their programs, Wisconsin finalized its objectives in December of 2008. The objectives were developed by the Wisconsin Department of Commerce, Wisconsin Department of Natural Resources (DNR), and the Wisconsin Public Service Commission; the DNR is currently developing the specific **quantitative standards upon which the program's conservation requirements will be based.**

Although it is unlikely that water conservation programming would have an impact on projected job and population patterns, including minority and ethnic distribution patterns in the Region, some of the requirements set forth under the intermediate and advanced level programs may have an impact on low-income households or on potential recommended land uses. The cost of replacing household fixtures and appliances may be cost prohibitive for low-income households and increasing rate structures may encourage certain land use types over others.

Recharge Area Protection

Protecting groundwater recharge areas is considered critical for ensuring an abundant and safe groundwater supply. As part of the planning process, the WGNHS developed a method to delineate groundwater recharge areas using GIS; the areas were differentiated based on their capacity to recharge or discharge groundwater. The results are published in Technical Report No. 47, *Groundwater Recharge in Southeastern Wisconsin Estimated by a GIS-Based Water Balance Model.*

Currently, there are no regulatory constraints, at either the state, county or local levels, regarding development in (high or very high) groundwater recharge areas. The RWSP recommends that important groundwater recharge and discharge areas should be identified for preservation or for application of land development plans and practices that protect groundwater quality and maintain the natural surface and groundwater hydrology. It does not, however, give further instruction as to specify any new regulatory constraints, and as SEWRPC is an advisory body, it does not hold the authority to create or enforce new regulatory constraints.

It does recommend, however, that stormwater management practices and plans take into consideration activities that may impact groundwater recharge. Additionally, many high or very high groundwater recharge areas are coincidentally located in delineated environmental corridors, Isolated Natural Resource Areas (INRAs), shorelands, or floodplains. Depending upon jurisdiction, environmental corridors and INRAs may be subject to local or county zoning regulations; and shorelands and floodplains are subject to local or county regulation, as required by the State of Wisconsin under Chapters NR 115 and NR 116.

Recommendations regarding recharge area protection will be assessed using a GIS land use assessment to determine any potential impacts on existing low-income households, and proposed land use patterns.

Stormwater Management Practices

Similar to groundwater recharge, stormwater management practices encourage groundwater treatment and infiltration (recharge) in order to best maintain the natural hydrology between surface waters and groundwaters, and therefore, to contribute to a sustainable groundwater supply. The RWSP recommends following stormwater best management practices for all new residential and for selected nonresidential developments.

Regulations regarding stormwater management and its related land management practices are set forth by the State of Wisconsin in NR Chapters 151-155, NR 216, NR 243, and ATCP 50, and administered at the County or local level through various zoning ordinances. Stormwater management practices are generally considered to be safeguards to ensure a safe, abundant groundwater supply, and although unlikely to have an impact on population or job patterns, state-of-the-art stormwater management practices may require restrictions on specific types of land uses. CED investigated recommendations into land use restrictions regarding specified land use practices in Chapter 5 (Housing and Land Use Impacts).

High Capacity Well Regulation

Currently, the State of Wisconsin does not require siting regulations for non-municipal utility high capacity wells at the local or county level. The RWSP provides guidance regarding the siting of all new high capacity wells and for monitoring the impacts that such wells may have on the shallow aquifer. The RWSP recommendations for improving high capacity well regulations are based on improving methods to safeguard the quantity and quality of the groundwater supply, and for insuring that groundwater extraction will not have a negative impact on nearby surface waters through baseflow depletion. Currently, the DNR carries out such measures under its wellhead protection planning program for municipal utility wells.

Enhanced Rainfall Infiltration Systems

Enhanced rainfall infiltration systems are artificial methods to recharge groundwater. The RWSP recommends the use of enhanced rainfall infiltration systems in conjunction with the siting of shallow aquifer high capacity wells, if siting studies indicate that baseflow reductions to nearby surface waters could be affected. Various methods for artificial

recharge are described in Technical Report 43, *State-of-the-Art of Water Supply Practices*. These include

- Surface infiltration, which uses infiltration basins, or impoundments, to percolate water into the ground;
- Subsurface infiltration, which uses vadose zone (unsaturated zone) wells or trenches to introduce water into the unsaturated zone below the ground surface to facilitate infiltration;
- Direct injection, including aquifer storage and recovery, which uses wells or other structures to inject water directly into an aquifer. The water is recovered by the same well in typical aquifer storage and recovery systems;
- Enhanced recharge, which uses man-made changes to the land surface to increase the amount of water recharged from natural sources;
- Riverbank filtration, including induced recharge, which uses well fields placed near surface waterbodies with the intention of inducing surface water into the aquifer to provide some or all of the water produced by the well field; and
- Water banking under which an aquifer is recharged by one of the foregoing methods with the intent of recovery of the water at some future, possibly undefined, timeframe.

The determination to use enhanced rainfall infiltration systems is based on local conditions and the proposed high capacity well pumpage; these factors may or may not have potential impacts on streamflows or surface water levels in lakes or wetlands. If needed, the appropriate type of groundwater recharge infiltration system should be determined during high capacity well siting studies.

Although unlikely to have any negative socio-economic impacts, the siting of enhanced rainfall infiltration systems may require restrictions on neighboring residential land uses under Wisconsin Administrative Code, and local and county ordinances. CED will investigate recommendations into land use restrictions regarding enhanced rainfall infiltration systems.

Public Participation and Outreach

The second major component of a socio-economic impact analysis is public participation and input to address concerns that specific populations in the region may not have had the opportunity to express during the planning process, namely ethnic/minority, disabled, and low-income populations and those who advocate on their behalf. Assessing community perceptions about regional development is most difficult when portions of that community may not be engaged in the planning process. SEWRPC has done considerable public outreach regarding the RWSP through the use of public meetings, the internet, and other **forms of communication feedback**. Additionally, SEWRPC's County comprehensive plans have afforded an opportunity to the public to provide feedback regarding water supply issues through the use of public informational meetings, SWOT analyses, surveys, the internet, and other means, and the data collected from this public outreach is invaluable. However, and this can be said for all planning efforts, planners must find a way to engage those whose lives and communities could ostensibly be impacted by planning decisions at all levels, particularly in minority and low-income communities.

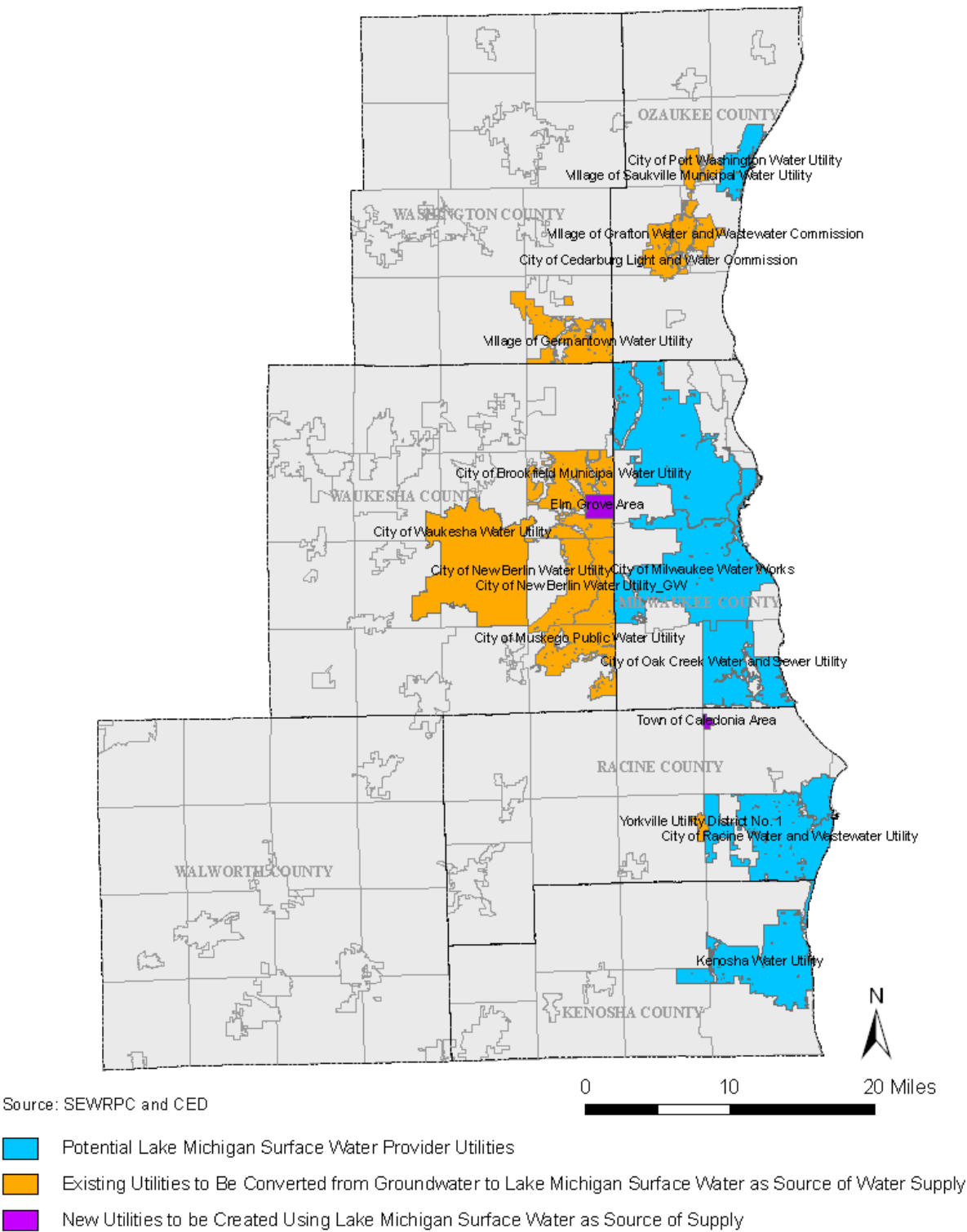
The public outreach portion of the project includes obtaining and evaluating public input on the preferred alternative of the preliminary draft RWSP. For this part of the project, CED worked with Prism Technical Management & Marketing Services to obtain input from a **cross section of the region's stakeholders (including developers and community leaders)**, with a particular emphasis on low income, minority, and disabled/aging populations and the persons that represent such populations, in order to gain useful feedback.

CED assessed existing public outreach activities by SEWRPC and developed a strategy to reach members of low income, minority, and disabled/aging populations, and persons that represent such populations in order to gain useful feedback. SEWRPC staff members provided additional assistance and input specifically in developing a message regarding the preferred alternative of the RWSP and conveying that message. Seven small focus groups and four large public open house events were conducted to gather input from stakeholders and the public. The small focus groups were divided into two rounds or sessions; the first session focused on gaining feedback about the impact that water has on development, while the second session focused on potential socio-economic impacts that the recommendations could have on populations within the region, particularly on low-income populations, impacts on racial segregation, and on job distribution patterns.

Both sets of focus groups were developed to gain additional input in order to guide the socio-economic process, and to aid in informing CED about public concerns and items for consideration during the socio-economic impact analysis of each of the recommendations. Information regarding the input gained from both sets of focus groups and the public open houses is provided in Chapter 6 (Public Participation and Environmental Justice).

* * *

Map 1-I: Utilities Studied Under the Socio-Economic Impact Analysis



Chapter 2

POPULATION DISTRIBUTION FORECASTING

INTRODUCTION

Assessing the preferred recommendations set forth in the RWSP against likely future conditions is the key to developing a socio-economic impact analysis. As part of the socio-economic impact analysis, the following two questions regarding implementation of the RWSP and its impact on population patterns were proposed by SEWRPC:

- What impact, if any, would implementation of the regional water supply recommendations have on the overall distribution of population in the Region?
- What impact, if any, would implementation of the regional water supply recommendations have on the racial segregation patterns in the Region?

As part of SEWRPC's Land Use Planning process, population forecasts were developed to determine the existing and projected size, distribution, and composition of the population in southeastern Wisconsin¹. Like previous SEWRPC forecasts, these forecasts were based primarily on the latest decennial U.S. Census (year 2000) and set forth anticipated future conditions for the year 2035. The population projections were developed with corresponding economic (jobs) forecasts, to be used as the basis for all SEWRPC planning efforts, including the Regional Water Supply Plan.

Although SEWRPC breaks down the population projections to reflect the future age and gender composition, the forecasts do not reflect an anticipated future racial or ethnic population distribution, a necessary step for developing a socio-economic impact analysis. In order to satisfactorily identify and understand potential negative socio-economic impacts that may arise from the recommendations set forth in the RWSP, CED has developed projections that reflect anticipated changes in the racial or ethnic make-up of the population as well as estimates for the number of disabled individuals for the communities selected for analysis.

POPULATION PATTERNS AND TRENDS IN SOUTHEASTERN WISCONSIN

A community's population growth is dependent upon three variables: its natural increase², migration of people moving into and out of the community, and the ability of a community to annex neighboring lands, thereby absorbing the adjacent population. Each of these variables has contributed to the population growth or decline of each community in southeastern Wisconsin. Based on several studies, including those by CED³ and SEWRPC⁴, the general pattern over the past 50 years has been an outward migration of population and jobs from the large lakeshore manufacturing cities to the outlying counties, suburbs, and exurbs. The loss of a manufacturing-based economy and the movement of economic and

¹ SEWRPC Technical Report No. 11, *The Population of Southeastern Wisconsin*, July 2004.

² Natural increase is the combination of birth and death rates.

³ Levine, Marc and Lisa Heuler Williams, *The Economic State of Milwaukee's Inner City: 2006*, May 2006.

⁴ SEWRPC Technical Report No. 10 *The Economy of Southeastern Wisconsin*, July 2004, and SEWRPC Technical Report No. No. 11 *The Population of Southeastern Wisconsin*, July 2004.

development activity inland created a negative impact on jobs and income in the historic central city areas. Minority and low-income populations have been particularly hit hard.

Table 2-I: Population Distribution for Southeastern Wisconsin: 1960 and 2007⁵

County	1960		2007		Change	
	Number	Percent	Number	Percent	Number	Percent
Kenosha	100,615	6.4	161,254	8.1	60,639	60.3
Milwaukee	1,036,041	65.8	951,026	47.6	-85,015	-8.2
Ozaukee	38,441	2.4	85,345	4.3	46,904	122.0
Racine	141,781	9.0	194,522	9.7	52,741	37.2
Walworth	52,368	3.3	100,140	5.0	47,772	91.2
Washington	46,119	2.9	126,636	6.3	80,517	174.6
Waukesha	158,249	10.1	376,978	18.9	218,729	138.2
Region	1,573,614	100.0	1,995,901	100.0	422,287	26.8

Source: US Census Bureau

In 1960, Milwaukee County contained about 66 percent of the regional population, with about 1,036,041 residents (see Table 2-I below). The next most populous county was Waukesha, with about 10 percent of the Regional population, followed by Racine County with 9 percent, and Kenosha County with 6.4 percent. Ozaukee, Walworth and Washington Counties were sparsely populated, each containing less than 4 percent of the population.

Table 2-II: Population Distribution for Selected Communities Between 1960 and 2000 in Southeastern Wisconsin

Community	Population					Change	
	1960	1970	1980	1990	2000	Number	Percent
Kenosha	67,899	78,805	77,685	80,352	90,352	22,769	33.5
Milwaukee	741,324	717,099	636,212	628,088	596,974	-144,368	-19.5
Oak Creek	9,372	13,901	16,932	19,513	28,456	19,084	203.6
Port Washington	5,984	8,752	8,612	9,338	10,467	4,380	73.2
Racine	89,144	95,162	85,730	84,298	81,855	-7,317	-8.2
Brookfield	19,812	32,140	34,035	35,184	38,649	18,995	95.9
Cedarburg	5,191	7,697	9,005	9,895	10,908	5,584	107.6
Elm Grove	4,994	7,201	6,735	6,261	6,249	1,282	25.7
Germantown	622	6,974	10,729	13,658	18,260	11,260	161.5
Grafton	3,748	5,995	8,381	9,340	10,312	6,571	175.3
Muskego ^a	NA	11,573	15,277	16,813	21,397	9,820	84.9
New Berlin	15,788	26,937	30,529	33,592	38,220	22,574	143.0
Saukville	1,038	1,389	3,478	3,695	4,068	3,116	300.2
Waukesha	30,004	40,258	50,319	56,958	64,825	34,368	114.5

Source: US Census Bureau

^a The City of Muskego was incorporated in 1964; historic data regarding population distribution reflects changes recorded as of the 1970 decennial Census.

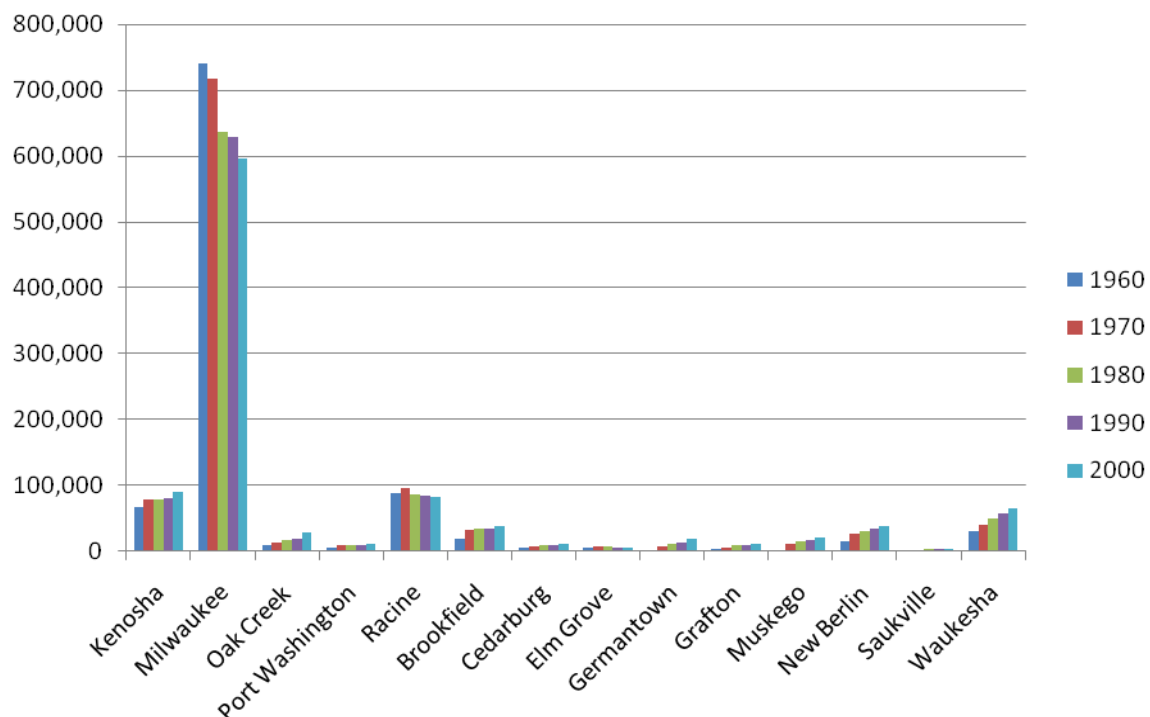
Between 1960 and 2007, six of the seven regional counties experienced population growth, with the exception of Milwaukee County which lost about 8 percent of its population over this time, or about 85,015 people. In 1960, Milwaukee County's share of the regional population was about 66 percent; this declined to about 48 percent in 2007. Waukesha County, the second most populous county in the Region in 1960 and in 2007, experienced the greatest gain in population over this time period, about 218,800 people or 138.2 percent. Waukesha County's share of the population increased to almost 19 percent by

⁵ The 2007 American Community Survey (ACS) estimates represent the 2005 to 2007 3-year average which tends to have less error than the 1-year ACS data. ACS data is not available for each of the 14 selected communities, and therefore is only used to show the most current data available at the county level.

2007. With a gain of 52,741 people, Racine County experienced a more modest share increase of the population, with 9.7 percent in 2007, up from 9 percent in 1960. Unlike Milwaukee County, Racine County, which is more rural, has seen a steady increase in population growth over this time period, similar to the other counties in the Region. With the exception of the Cities of Franklin and Oak Creek, growth within the communities of Milwaukee County is constrained by both a lack of developable land and the inability of those communities, including the City of Milwaukee, to annex developable or adjacent contiguous lands.

Although county level changes are indicative of regional population pattern shifts over time, for the purposes of the socio-economic impact analysis, it is more imperative to understand population changes for each of the selected communities (see Table 2-II and Chart 2-A). The City of Milwaukee is the largest population center and historic economic engine for southeastern Wisconsin. Data from the US Census Bureau shows that since reaching its peak in 1960, the City of Milwaukee had lost almost 20 percent of its population by the year 2000; between 1960 and 2000, all of the seven-county Region's net growth occurred outside of the City of Milwaukee. The City of Racine suffered a similar population decline; its population peaked in 1970, but by the year 2000, it had declined by approximately 14 percent. Recent estimates released by the US Census Bureau (ACS) indicate that although the City of Milwaukee is continuing to experience population loss, Milwaukee County may again be gaining population, from 940,164 in the year 2000 to an estimated 953,328 in 2008, an increase of 1.4 percent.

Chart 2-I: Population Distribution for Selected Communities Between 1960 and 2000 in Southeastern Wisconsin



Source: US Census

The City of Kenosha, another historic lakeshore manufacturing community, was not impacted in the same way as its neighboring cities to the north by the decline in manufacturing. In 1970, the City of Racine was the second largest city in the Region, but by 2000 it had been surpassed by the growing City of Kenosha which has seen fairly consistent population growth over this time period. Compared to the Cities of Milwaukee and Racine, two factors that may have stimulated growth in the City of Kenosha are its proximity to Chicago as well as its exercise of annexation powers.

The City of Waukesha is the fourth largest city in the Region, and the largest city in Waukesha County; since 1960, its population has more than doubled, from 30,004 to 64,825 in 2000, or 116 percent. The other cities in Waukesha County (Brookfield, New Berlin, and Muskego) have also experienced similar gains over this time period; like the City of Waukesha, each of these communities had room to grow. Based on its existing municipal boundaries, the City of New Berlin is nearing its build-out capacity, and therefore, population growth will most likely taper off. Muskego has significant lands (see Chapter 5) to develop within its current corporate boundaries, and therefore it is anticipated that population growth and development will continue to occur well into the future. Although the current municipal boundary extent of the City of Waukesha is near its development capacity, Waukesha would have to exercise its option to annex contiguous town lands in order to add capacity. Population growth in the Village of Elm Grove, on the other hand, peaked in 1970, slightly declined throughout the following two decades, and has remained relatively flat since 1990; this is likely due to both a stabilized, aging population along with a lack of developable land and an inability by the Village to annex contiguous lands.

The Village of Germantown population has more than doubled since 1970; its history demonstrates how annexation can greatly change its population. In 1960, Germantown had about 622 people; a major annexation in 1964 consumed most of the remaining 36 square mile area that was the Town of Germantown so that in 1970, the Village population had grown to nearly 7,000 people. Based on its reserve of developable land within its corporate boundary, it is anticipated that its population will continue to grow.

In Ozaukee County, each of the select communities (Cedarburg, Grafton, Port Washington, and Saukville) has exhibited steady and considerable population growth between 1960 and 2000. Although each community in Ozaukee County is nearing its current boundary build-out capacity, each community is surrounded by town lands and could theoretically exercise its powers of annexation to add land capacity and population (see Chapter 5).

Race and Ethnicity in Southeastern Wisconsin

The US Census Bureau has developed categories of race and ethnicity meant for purposes of self-identification in the Decennial Census and the American Community Survey; each respondent must choose from one or more races in which they most closely self-identify, and also must indicate whether or not they are of Hispanic ethnic origin. Race and ethnicity embody two different social characteristics or variables. The Office of Management and Budget, which oversees the US Census Bureau, defines the concept of both race and **ethnicity as “not scientific or anthropological” and therefore not genetic, but rather that it considers how a person identifies himself in terms of social and cultural characteristics as well as ancestry⁶.** Ethnicity is a characteristic separated from race, and in light of the US Census Bureau, it is a method to derive information regarding Hispanic persons.

⁶ The United State’s White House and the Office of Management and Budget accessible at www.whitehouse.gov/omb/fedreg_1997standards/

The Census Bureau has refined its categories of race over time, adding more categories to distinguish between races and to account for persons that are multi-racial. Prior to 1980, Census respondents were given limited options regarding race and ethnicity; data at the local level was available for those who self-identified as either "white", "negro", or "other"; and although the "other" category was further refined at the local level to count "Indian", "Japanese", "Chinese", "Filipino" and "Other Races", these categories represent, respectively, ambiguous race classifications. The 1980 Census provided further expansion and clarification on race, and was the first Census year to include information regarding Hispanic ethnicity. As of the year 2000 Decennial Census, the Census identifies five distinct categories of race "White", "Black or African American", "American Indian or Alaska Native", "Asian", "Native Hawaiian or Other Pacific Islander", and "Some Other Race", and one multi-racial category, "Two or More Races".

People of Hispanic origin may be of any race and, in the Decennial long form Census questionnaire, Hispanics are asked to indicate their origin in the question on Hispanic origin, not in the question on race, because ethnic origin is a separate concept from race.

Race Distribution in the Seven County Region

The number and proportion of non-white people in the Region has grown considerably over the past 50 years. The 1960 Census data indicates that approximately 1,499,663 people or 95.3 percent in the Region were white. Between 1960 and 2007, the number and proportion of the population identified as a racial minority has increased greatly, from 73,951 people or 4.7 percent, to 453,558 people or 22.7 percent of the region's population.

In 1960, most racial minorities lived in Milwaukee County, accounting for 66,777 people or 91 percent of all minorities residing in the seven county Region (see Table 2-III). After this, Racine County had the next highest amount of racial minorities with 5,459 people or about 7.6 percent of the minority population. Kenosha County, with 1,090 or about 1.4 percent of the minority population ranked third. In 1960, the presence of minorities residing in Ozaukee, Walworth, Washington, and Waukesha combined was less than 1 percent of the regional Non-White population. Census data on the distribution by race for each County in southeastern Wisconsin is shown for decennial Census years 1960, 1970, 1980, 1990, and 2000 in Tables A-I through A-V in Appendix A.

Table 2-III: Racial Minority Distribution for Southeastern Wisconsin

County	1960				2007			
	Total Population	Non-White Population			Total Population	Non-White Population		
	Number	Number	Percent	Percent ^a	Number	Number	Percent	Percent ^a
Kenosha	100,615	1,090	1.1	1.4	161,254	22,745	14.1	5.0
Milwaukee	1,036,041	66,777	6.4	90.6	951,026	359,791	37.8	79.3
Ozaukee	38,441	46	0.1	<0.1	85,345	3,503	4.1	0.8
Racine	141,781	5,459	3.9	7.6	194,522	34,664	17.8	7.6
Walworth	52,368	230	0.4	0.2	100,140	6,912	6.9	1.5
Washington	46,119	59	0.1	<0.1	126,636	4,089	3.2	0.9
Waukesha	158,249	290	0.2	0.2	376,978	21,854	5.8	4.8
Region	1,573,614	73,951	4.7	100.0	1,995,901	453,558	22.7	100.0

Source: US Census Bureau and American Community Survey for the Year 2007

^a Percent of Regional Non-White Population

The recent estimates from the 2007 American Community Survey (ACS) and the Census Decennial data indicate that minority population growth is occurring to some degree within each County throughout the Region, although growth is uneven. While Milwaukee County's number and share of the minority population is by far the greatest in southeastern Wisconsin, its percentage share has declined over the past 50 years, indicating that the

minority population, in relation to the overall population growth, is growing in other parts of the region as well. The proportional growth of minorities has been greatest in Kenosha and Waukesha Counties. In 1960, Kenosha County had about 1.4 percent, and Waukesha County had about 0.2 percent of the minority share; by 2007, Kenosha and Waukesha Counties each had about 5 percent of the minorities in the Region. Racine County's share in both 1960 and 2007 was about 7.6 percent of the regional minority population indicating that the proportional growth in Racine County has remained steady. Although minority presence in Ozaukee, Walworth, and Washington Counties has increased over this time period, it has done so to a much lesser degree. In 1960, Ozaukee, Walworth, and Washington County each contained 0.2 percent or fewer minority populations; as of 2007, both Ozaukee and Washington Counties each contain less than 1 percent of the Region's minority population, and Walworth County contains only 1.4 percent.

Community Level Race Distribution in Southeastern Wisconsin

In the year 2000, about 398,444 or about 21 percent of the total (1,932,908) population in the Region were non-white racial minorities. Although Milwaukee County contains the greatest number and concentration of minorities in the Region, most minorities are concentrated in the most populous cities throughout the Region. Table A-VI in Appendix A shows the number and percentage of minorities in the year 2000⁷ residing in the selected communities. Additionally, Census data on the distribution by race for each municipality in southeastern Wisconsin is shown for decennial Census years 1960, 1970, 1980, 1990, and 2000 in Tables A-VI through A-X in Appendix A.

The categories of race identified by the US Census Bureau have changed considerably over the past 50 years making it difficult to **compare a community's racial composition over time**. Prior to the year 2000 Census, the Census Bureau did not include a category for people identified as multi-racial ("**Two or More Races**"). **For the purposes of understanding historic changes within the seven county Region, and also within the select communities, it was necessary to aggregate some of the different races into either white, African American, or Other Non-White.**

Data from the 2000 Census shows that the City of Milwaukee has by far the greatest population of minorities of any community in the Region with almost 50 percent, followed by the City of Racine (31 percent), and the City of Kenosha (16.2 percent) at a distant third. In 1960, these three communities combined contained almost 96 percent of the entire racial minority population within southeastern Wisconsin, indicating that there was very little diversity within the suburban or outlying communities at this time. Table 2-X shows that in 1960, almost 89 percent of the minorities (65,752 people) within the region lived within the **City of Milwaukee, or about 9 percent of the City of Milwaukee's population. By 2000, although the City of Milwaukee's minority population grew to almost 298,600 people or 50 percent of Milwaukee's population, the city's share of regional minority population had declined to about 75 percent, indicating growth in other communities. In 1960, only about 4 percent of the minority population lived outside of the Cities of Milwaukee, Racine, and Kenosha, or about 2,372 people; most other communities contained less than 1 percent minority population.**

Between 1960 and 2000, minority presence in each of the selected communities increased to some degree, both in numbers and in the proportion of the population. In 1960, minority presence in the Cities of Oak Creek, Port Washington, Brookfield, Cedarburg, Elm Grove, Grafton, New Berlin, and Saukville was virtually non-existent. In 2000, although minority

⁷ Year 2000 Census data is the most current data available for each incorporated municipality in Southeastern Wisconsin.

presence increased, the presence of minorities in the communities of Port Washington, Cedarburg, Elm Grove, Grafton, Muskego, and Saukville remained fairly low with each containing less than 3 percent minority populations. Information regarding year 2000 race distribution for each of the 83 municipal communities in the seven county region is located in Table A-XI in Appendix A.

The Cities of Brookfield, Oak Creek, and Waukesha have made more significant gains. In 2000, Oak Creek's minority population had increased to about 8 percent of its total population, while Brookfield's increased to almost 6 percent. The population of the City of Waukesha was about 0.5 percent minority in 1960, and has increased to about 9 percent in 2000, making it the 12th most populous minority-concentrated community in the Region with a total of 5,692 persons.

Table 2-IV: Racial Minority Distribution for Southeastern Wisconsin in 1960 and 2000 for Selected Communities in Southeastern Wisconsin

Community	1960				2000			
	Total Population	Non-White Population			Total Population	Non-White Population		
	Number	Number	Percent	Percent	Number	Number	Percent	Percent
Kenosha	67,899	1,015	1.5	1.4	90,352	14,786	16.4	3.7
Milwaukee	741,324	65,752	8.9	88.9	596,974	298,595	50.0	74.9
Oak Creek	2,549	7	0.3	0.0	28,456	2,287	8.0	0.6
Port Washington	5,984	8	0.1	0.0	10,467	317	3.0	0.1
Racine	89,144	4,812	5.4	6.5	81,855	25,447	31.1	6.4
Brookfield	19,812	18	0.1	<0.1	38,649	2,242	5.8	0.6
Cedarburg	5,191	2	<0.1	<0.1	10,908	200	1.8	0.1
Elm Grove	4,994	4	0.1	<0.1	6,249	179	2.9	0.0
Germantown	622	0	0	0	18,260	762	4.2	0.2
Grafton	3,748	3	0.1	<0.1	10,312	235	2.3	0.1
Muskego ^a	--	--	--	--	21,397	405	1.9	0.1
New Berlin	15,788	14	0.1	<0.1	38,220	1,589	4.2	0.4
Saukville	1,038	0	0	0	4,068	105	2.6	0.0
Waukesha	30,004	141	0.5	0.2	64,825	5,692	8.8	1.4

Source: US Census Bureau

^aThe Village of Muskego was incorporated in 1964.

Migration and Race

Between 1960 and 2000, the City of Milwaukee's white population declined by about 56 percent or 375,387 people, indicating a significant amount of "white flight" to suburban communities. The City of Racine experienced a similar phenomenon, with a 33 percent decline in its white population. During this time period, the Cities of Racine and Milwaukee had the most significant increases in minority populations, followed by the City of Kenosha. Table 2-V shows the difference and percent change in racial distributions between 1960 and 2000 for the selected communities.

Estimates on the resident minority populations indicate that natural increase could not have wholly accounted for the growth of minority and non-minority populations within the Region or within each of the selected communities, indicating that inter- and intra-regional migration played a significant role. The historic Census data indicates that although there has been some migration to account for the growth of the number of minorities in outlying suburbs between 1960 and 2000, this growth is negligible, particularly in the case of African Americans. With the exception of the Cities of Kenosha, Milwaukee, and Racine, African Americans accounted for less than 2 percent of the total growth in each of the selected communities, while accounting for only 3.4 percent of the growth of the City of Oak Creek. Other minorities or multi-racial persons experienced higher gains in the suburbs, accounting

for over 13 percent of the growth in Waukesha, 9.5 percent in Brookfield, 9 percent in Elm Grove, and 8.4 percent in Oak Creek.

Table 2-V: Difference and Percent Change in Racial Distribution between 1960 to 2000 for Selected Communities in Southeastern Wisconsin

County	Total		White		Black or African American		Other Non-White	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Kenosha	22,769	100	9,075	39.9	5,770	25.3	7,924	34.8
Milwaukee	-144,368	100	-375,387	-260.0	158,312	109.7	72,707	50.4
Oak Creek	19,084	100	16,826	88.2	651	3.4	1,607	8.4
Port Washington	4,380	100	4,027	91.9	46	1.1	307	7.0
Racine	-7,317	100	-27,833	-380.4	11,627	158.9	8,889	121.5
Brookfield	18,995	100	16,927	89.1	258	1.4	1,810	9.5
Cedarburg	5,584	100	5,451	97.6	20	0.4	113	2.0
Elm Grove	1,282	100	1,158	90.3	9	0.7	115	9.0
Germantown	17,638	100	16,876	95.7	247	1.4	515	2.9
Grafton	6,571	100	6,329	96.3	15	0.2	226	3.4
Muskego ^a	--	--	--	--	--	--	--	--
New Berlin	22,574	100	20,930	92.7	189	0.8	1,455	6.5
Saukville	3,116	100	2,940	94.4	50	1.6	124	4.0
Waukesha	34,368	100	29,180	84.9	639	1.9	4,549	13.2

Source: US Census Bureau

^a The Village of Muskego was incorporated in 1964.

Ethnic Distribution in the Seven County Region

The inclusion of ethnicity as identified by the US Census Bureau is a relatively recent event, **making it difficult to compare a community's Hispanic composition over time.** Prior to the year 1980 Census, the Census Bureau did not include a category for people identified as Hispanic. Considered an ethnic minority, people of Hispanic origin may be of any race as ethnic origin is a separate concept from race. The University of Wisconsin Extension and Wisconsin's Applied Population Laboratory published a "Hispanic Chartbook"⁸ documenting changes and trends in Wisconsin's Hispanic population between 1990 and 2000. Based on Census data, they discovered that Wisconsin's Hispanic population had a considerably higher growth rate than the general population, and that the Hispanic population more than doubled between 1990 and 2000. Most of this growth can be attributed to higher mobility among the Hispanic population than the general population and a higher rate of in-migration to Wisconsin.

The 1980 Census data indicates that approximately 1,718,002 people or 97.3 percent in the Region were non-Hispanic, while Hispanics accounted for 46,917 people, or 2.7 percent of **the Region's population (see Table 2-VII).** Since 1980, the number and proportion of the population that is Hispanic has increased greatly; recent 2007 estimates by the American Community Survey indicate that about 165,464 people residing within the Region are Hispanic, or approximately 8.2 percent of the entire regional population.

As of 2007, the Hispanic presence has grown significantly throughout all counties in the Region, but particularly in Kenosha, Milwaukee, Racine, and Walworth Counties, where Hispanics comprise between 8.4 and 11.2 percent of the population. Their presence in Milwaukee County has grown significantly over the 27 year period and in 2007, Hispanics **comprised 11.2 percent of Milwaukee County's total population, up from 3.1 percent of the population in 1980.**

⁸ University of Wisconsin Extension and the Applied Population Laboratory *Wisconsin's Hispanic or Latino Population* accessible at http://www.uwex.edu/ces/admin/pdf/Hispanic_Chartbook.pdf

Table 2-VII: Ethnic Distribution for Southeastern Wisconsin

County	1980				2007			
	Total Pop	Hispanic Population			Total Pop	Hispanic Population		
	Number	Number	Percent ^a	Percent ^b	Number	Number	Percent ^a	Percent ^b
Kenosha	123,137	3,438	2.8	7.3	161,254	14,583	9.0	8.9
Milwaukee	964,988	29,752	3.1	63.4	951,026	106,252	11.2	64.8
Ozaukee	66,981	368	0.5	0.8	85,345	1,477	1.7	0.9
Racine	173,132	7,252	4.2	15.5	194,522	18,636	9.6	11.4
Walworth	71,507	1,234	1.7	2.6	100,140	8,422	8.4	5.1
Washington	84,848	464	0.5	1.0	126,636	2,205	1.7	1.3
Waukesha	280,326	4,409	1.6	9.4	376,978	12,412	3.3	7.6
Region	1,764,919	46,917	2.7	100.0	1,910,556	165,464	8.2	100.0

Source: US Census Bureau

^a Percent of Total County Population

^b Percent of Regional Hispanic Population

Recent estimates from the 2007 American Community Survey, as shown above in Table 2-VII, indicate that Milwaukee County contains by far the greatest number and percentage of Hispanics in southeastern Wisconsin with an estimate of 106,252 people or 64.8 percent of **the Region's Hispanic population. At a distant second, Racine County has 18,636 Hispanic** persons or about 11 percent of the regional Hispanic population. Kenosha County had 14,583 people and Waukesha County, with 12,412 people, had an 8.9 percent and 7.6 percent share of the Hispanic population in the Region. Surprisingly, rural Walworth County has approximately 5 percent of the Hispanic population, or about 8,422 people; Hispanics **comprise about 8.4 percent of Walworth County's total population. Ozaukee and Washington County populations each contain less than 2 percent of the Region's Hispanic population.**

Community Level Ethnic Distribution in Southeastern Wisconsin

Most Hispanics in southeastern Wisconsin live in the four most populous cities (Kenosha, Milwaukee, Racine, and Waukesha) in the Region. Table 2-VIII, below, shows the percentage of minorities in the years 1980 (the earliest year available for historic data) and 2000 residing in the selected communities. In 2000, the City of Milwaukee had the largest total population of Hispanics, 71,032 people, followed by the City of Racine with 11,385 people, the City of Kenosha with 8,734, and the City of Waukesha with 5,385. Information on year 2000 Hispanic data is shown for each community in Table A-XII in Appendix A. Outside of the major urban areas, a few smaller communities within the Region have had significant gains; the Hispanic presence in Darien, Delavan, and Lake Geneva in Walworth **County, is between 14 and 21 percent of the communities' population. Data from the 2000 Census shows that the City of Delavan has the greatest concentration of Hispanics in the Region with almost 21 percent of its total population (1,690).**

Migration and Ethnicity

In 1980, very few Hispanics lived outside of the Cities of Milwaukee, Racine, Kenosha, and Waukesha; between 1980 and 2000, most Hispanic population gains occurred in these four Cities. Census data indicates that there has been considerable migration to account for the growth of the number of Hispanics in both the central cities of the Region as well as in select outlying suburbs between 1980 and 2000. Hispanics account for about 8 percent of the regional population. With the exception of the Cities of Kenosha, Milwaukee, Racine, Oak Creek, and Waukesha, Hispanics accounted for less than 3 percent of the total population in each of the selected communities.

Table 2-VIII: 1980 and 2000 Ethnic Distribution for Selected Communities in Southeastern Wisconsin

Community	1980			2000			Change	
	Total Pop	Hispanic Population		Total Pop	Hispanic Population		Number	Percent
	Number	Number	Percent	Number	Number	Percent		
Kenosha	77,685	2,913	3.7	90,352	9,003	10.0	5,821	199.8
Milwaukee	636,212	26,487	4.2	596,974	71,646	12.0	44,545	168.2
Oak Creek	16,932	558	3.3	28,456	1,267	4.5	653	117.0
Port Washington	8,612	12	0.1	10,467	168	1.6	68	566.7
Racine	85,730	5,645	6.6	81,855	11,422	14.0	5,740	101.7
Brookfield	34,035	210	0.6	38,649	453	1.2	93	44.3
Cedarburg	9,005	51	0.6	10,908	94	0.9	-5	-9.8
Elm Grove	6,735	0	0.0	6,249	75	1.2	105	- -
Germantown	10,729	6	0.1	18,260	205	1.1	272	4,533.3
Grafton	8,381	19	0.2	10,312	165	1.6	204	1,073.7
Muskego	15,277	147	1.0	21,397	281	1.3	64	43.5
New Berlin	30,529	230	0.8	38,220	595	1.6	196	85.2
Saukville	3,478	0	0.0	4,068	89	2.2	115	- -
Waukesha	50,319	2,637	5.2	78,186	1,002	1.3	2,748	104.2

Source: US Census Bureau

Persons With Disabilities

As part of the socio-economic impact analysis, it is important to have an understanding of **the region's disabled population, the communities in which disabled persons might be more concentrated**, and if the recommendations set forth by the RWSP could have a disparate impact on people with disabilities as a whole. Studies by the Census Bureau base on the 2000 Decennial data⁹ indicate that the disabled are poor or in poverty at a substantially higher rate than the general population. Often the needs of disabled persons such as affordable and accessible housing, the ability to obtain or maintain employment, transportation needs, and the costs associated with managing a disability make the disabled population as a whole more sensitive to socio-economic impacts than the at-large population.

The US Census Bureau collects comparable data on long-term disabilities for all non-institutionalized persons ages 5 and older, based on three major age group aggregates; 5 to 15 years of age, 16 to 64 years of age, and greater than 64 years of age. Data is collected on individuals self-identified as disabled in at least one of six broad categories; sensory disability, physical disability, mental disability, self-care disability, go-outside-home disability, and employment disability. Sensory disability involves a disability with hearing or sight, while physical disability is defined as having a condition that limits basic physical activities (walking, climbing stairs, reaching, lifting or carrying). Mental disability refers to physical, mental, or emotion conditions that make it difficult for the individual to learn, remember, or concentrate. Self-care disability refers to a physical, mental, or emotional condition causing difficulty in dressing, bathing, or maneuvering around the home, while go-outside-home disability refers to a condition that makes it difficult for the person to go outside the home to work, shop, etc. For individuals between the ages of 16 and 64 (considered the ages eligible for participation in the labor force) additional data is collected for those with a condition that affects the ability to work at a job. Although the Census has collected data on disabilities over many decades, Census has changed its definitions over time, and does not recommend comparing data on disability between decennial years.

⁹ Waldrop, Judith and Susan Stern. Census Brief 2000, *Disability Status: 2000* accessible at www.census.gov/prod/2003pubs/c2kbr-17.pdf

Based on the Census questionnaire, a person may self-select one or more categories of disability. On a nationwide basis, the 2000 Census data indicates that approximately 19.3 percent of the non-institutionalized population ages 5 and over exhibited one or more forms of disability, or almost 1 in 5 people. The Census data indicates several trends associated with being disabled. Not surprisingly, disability rates rise with age. The data also indicates that, in general, disabled persons are more likely to experience negative economic impacts. Disabled persons between the ages of 16 and 64 were less likely to be employed than the non-disabled, and disabled persons were more likely to be poor or to live in poverty.

According to the 2000 data, disability rates vary among the major racial and ethnic groups; Asians at 16.6 percent experience the lowest rates of disability, followed by White Alone (18.5), and Native Hawaiians and Other Pacific Islanders (19.0), whose rates are at or below the national average of 19.3 percent. Black or African American Alone and American Indian and Alaska Native experienced the highest disability rates, each at about 24.3 percent. Hispanics, who may be of any race, had a slightly higher than average rate of disability at 20.9 percent.

Persons With Disabilities in Southeastern Wisconsin

In 2000, the proportion of disabled persons in Wisconsin was less than the national average (19.3 percent) with about 14.7 percent of the population reporting one or more disabilities. The percentage of disabled persons within the seven-county region also was less than the national rate but slightly higher than the State, with about 15.3 percent of its population being disabled. Table 2-IX shows the distribution of disabled persons within the region, State, and nation.

Within the region, Milwaukee County's disabled population was reported at about 18.1 percent, higher than the regional and State average, but lower than the national average. Kenosha County also exhibited a slightly higher than regional average rate at about 15.8 percent disabled. Kenosha and Milwaukee Counties also exhibited higher rates for age groups 5-15 years of age and 16 to 64 years of age than the regional average. In the category 64 years and older, Milwaukee County was higher than both the region and the State. Although most age groups by county were less than the national average, in the 5 to 15 year and in the 16 to 64 year age groups, Milwaukee County showed a higher rate, indicating a higher percentage of disabled children and youths and working age populations than the national average. Ozaukee, Waukesha, and Washington Counties had the lowest total percentages of disabled persons, and the lowest percentages within each age group.

Table 2-IX: Year 2000 Population with One or More Disabilities in Southeastern Wisconsin

County	Total Population	Total Disabled Population		5-15 Years of Age		16 to 64 Years of Age		Over 64 Years of Age	
		Number	%	Number	% w/in age group	Number	% w/in age group	Number	% w/in age group
Kenosha	149,577	23,695	15.8	1,628	6.3	15,776	16.4	6,291	36.5
Milwaukee	940,164	169,939	18.1	11,385	7.4	112,930	18.9	45,624	37.6
Ozaukee	82,317	8,503	10.3	694	4.8	4,937	9.4	2,872	27.6
Racine	188,831	28,218	14.9	1,929	6.0	17,916	14.9	8,373	35.8
Walworth	93,759	12,993	13.9	739	5.1	8,261	13.4	3,993	33.2
Washington	117,493	12,909	11.0	875	4.4	8,082	10.6	3,952	29.9
Waukesha	360,767	39,098	10.8	2,727	4.5	23,439	10.0	12,932	29.8
REGION	1,932,908	295,355	15.3	19,977	6.2	191,341	15.5	84,037	34.9
STATE	5,363,675	790,917	14.7	53,192	6.1	495,488	14.3	242,237	34.5
NATION	257,167,527	49,746,248	19.3	2,614,919	5.8	33,153,211	18.2	13,978,118	40.0

Source: US Census Bureau

Community Level Distribution of Disabled Persons in Southeastern Wisconsin

In 2000, about 295,355 people or about 15.3 percent of the total (1,932,908) population in the Region were disabled. Table 2-X shows the number and percentage of disabled persons in the year 2000¹⁰ residing in the selected communities by age group. Information regarding year 2000 distribution of disabled persons for each of the 83 municipal communities in the seven county region is located in Table A-XIII in Appendix A. Among the municipalities, the City of West Milwaukee has the greatest proportion of disabled persons in the region, with about 22.6 percent while the Village of Nashotah had the fewest, with only 7.6 percent.

Based on the 2000 Census data, the City of Milwaukee contained the second greatest **concentration of disabled persons, 22.2 percent of Milwaukee's population**, and the greatest number of disabled persons, 120,800 people. This is considerably higher than the regional average of 15.3 percent of the population. Racine, Kenosha, and Saukville were also higher than the regional average at 20, 18.8, and 17.1 percent, respectively. The City of Waukesha contained just under the regional average, with 14.9 percent of its population disabled. The selected communities with the lowest disabled populations include Brookfield, Elm Grove, Germantown, Grafton, and Muskego; each had a disabled population representing less than 11 percent of the total population.

Table 2-X: Year 2000 Population With One or More Disabilities in Selected Communities

Community	Total Population	Total Disabled Population		5-15 Years of Age		16 to 64 Years of Age		Over 64 Years of Age	
		Number	%	Number	%	Number	%	Number	%
Kenosha	90,352	15,476	18.8	1,058	6.9	10,331	18.3	4,087	39.4
Milwaukee	596,974	120,800	22.2	8,930	8.4	85,330	22.8	26,540	43.2
Oak Creek	28,456	3,469	13.1	180	4.1	2,231	11.4	1,058	41.7
Port Washington	10,467	1,170	12.4	80	4.6	618	9.7	472	35.4
Racine	81,855	14,687	20.0	1,025	7.1	9,788	19.9	3,874	39.2
Brookfield	38,649	3,825	10.6	243	3.6	1,897	8.3	1,685	26.5
Cedarburg	10,908	1,295	13.0	59	3.4	715	10.8	521	31.9
Elm Grove	6,249	563	9.7	37	3.5	259	7.4	267	22.0
Germantown	18,260	1,808	10.7	95	3.1	1,207	10.0	506	30.4
Grafton	10,312	1,014	10.5	97	5.6	465	6.9	452	38.6
Muskego	21,397	2,020	10.3	156	4.1	1,264	9.1	600	32.1
New Berlin	38,220	4,231	11.8	460	7.5	2,387	9.5	1,384	29.5
Saukville	4,068	654	17.1	67	9.0	460	16.6	127	41.6
Waukesha	64,825	8,683	14.9	558	6.2	5,824	13.6	2,301	35.6

Source: US Census Bureau

Note: For the purposes of data collection, the US Census Bureau identifies noninstitutionalized population 5 years and over for its estimates on the disabled population.

Census data on disability is reported by age group corresponding to youths and adolescents (5 to 15 years of age), persons of working age (16 to 64 years of age), and the elderly (over 64 years of age). Among the **"selected communities", the City of Milwaukee had the greatest concentrations of disabled persons within the 16 to 64 years and over 64 years age groups. Approximately 22.8 percent of the working age group (16 to 64 years of age), and about 43.2 percent of Milwaukee's elderly population (Over 64 years of age) reported one or more disabilities in 2000.** The Village of Saukville had the highest concentration of adolescents and youths with reported disabilities, about 9 percent of the population ages 5 to 15 years old. This is considerably higher than the regional, State, and National averages (6.2, 6.1, and 5.8 percent, respectively). Within this age group, the Cities of Milwaukee,

¹⁰ Year 2000 Census data is the most current data available for each incorporated municipality in Southeastern Wisconsin.

Kenosha, Racine, and New Berlin also exhibited higher than average proportions of youths with disabilities.

POPULATION FORECASTS

The focus of the socio-economic impact analysis of the RWSP is to develop an understanding of the relationship between potential water service providing communities and the communities that are proposed to receive a new water source. Therefore, the population forecasts developed for this socio-economic impact analysis will be limited to the five communities that could serve as potential Lake Michigan water suppliers, the nine communities proposed to be converted from groundwater supply to Lake Michigan supply¹¹, and the two potential future water supply utilities that are proposed to purchase Lake Michigan water from another utility¹².

Two of the utilities under the plan, the Northwest Caledonia Area Planned Utility District and the Town of Yorkville Water Utility District 1, were omitted from the population forecast analysis, based on a lack of available Census data. Both utilities encompass small populations, too small to adequately be addressed in a cohort component population forecast, and CED believes that SEWRPC's population projections for these two areas, which are based on SEWRPC's Land Use plan and utility system level planning coincident with SEWRPC's Regional Water Quality Management plan, are a likely scenario for the year 2035.

Comparison of Existing Population Forecasts

SEWRPC's population forecasts, as published in Technical Report No. 11, *The Population of Southeastern Wisconsin*, are county level forecasts. SEWRPC relies on a cohort component analysis that is described in detail in the Technical Report. At the County level, SEWRPC's population forecasts are presented as a range - low, intermediate, and high - of future population alternatives; the RWSP relied on the intermediate, or most likely, growth scenario projections. As part of its Regional land Use Planning program and for purposes of sewer service planning, existing and projected population estimates for the water utilities were also developed; these forecasts reflect probable conditions in the existing and projected utility service area rather than the existing municipal or community boundaries. The SEWRPC utility service area forecasts were developed based on the intermediate alternative; these population forecasts were integrated into the RWSP for use in utility level planning. Table 2-XI below shows SEWRPC's existing and projected forecast populations for the selected water utility service areas.

Milwaukee Water Works provides the greatest number of people with municipal water in southeastern Wisconsin. Based on the SEWRPC estimates and projections, it is estimated that the population served by the Milwaukee Water Works retail service area, which includes the Cities of Milwaukee, Greenfield, Hales Corners, and West Milwaukee, is currently about 650,750 people; it is anticipated that this will increase by 2.1 percent or about 13,800 people by the year 2035. In addition to its retail service, Milwaukee Water Works provides wholesale water to many of its neighboring water utilities including the Cities of Cudahy, South Milwaukee, Wauwatosa, and West Allis, and the Villages of Brown Deer, Greendale, Shorewood, and to portions of Franklin, Bayside, and Mequon, or approximately 194,450

¹¹ Such communities include the Cities of Brookfield, Cedarburg, Muskego, New Berlin, and Waukesha, Villages of Germantown, Grafton, and Saukville, and their environs, and the Town of Yorkville Water Utility District 1.

¹² The two potential future water utilities that are proposed to receive Lake Michigan water as source of supply are the Village of Elm Grove municipal water utility and the Northwest Caledonia Area Planned Utility District in Racine County.

people based on year 2000 estimates. More information about each water utility service is located in Chapter 4 of Planning Report 52.

Table 2-XI: Existing and Forecast Population for Selected Water Service Areas

Utility	2000	2035		
	Existing Population	Forecast Population	Change	Percent Change
Kenosha Water Utility	98,700	109,900	11,200	11.3
Milwaukee Water Works (retail)	650,750	664,550	13,800	2.1
City of Oak Creek Water and Sewer Utility	26,000	50,850	24,850	95.6
City of Port Washington Water Utility	10,600	15,000	4,400	41.5
City of Racine Water and Wastewater Utility	18,513	39,091	20,578	111.2
City of Brookfield Municipal Water Utility	24,000	44,950	20,950	87.3
City of Cedarburg Light and Water Commission	11,250	14,900	3,650	32.4
Elm Grove	--	6,650	6,650	--
Village of Germantown Water Utility	15,050	23,450	8,400	55.8
Village of Grafton Water and Wastewater Commission	10,500	16,450	5,950	56.7
City of Muskego Public Water Utility	7,800	28,650	20,850	267.3
City of New Berlin Water Utility	10,200	18,500	8,300	81.4
Village of Saukville Municipal Water Utility	4,150	5,650	1,500	36.1
City of Waukesha Water Utility	65,000	88,500	23,500	36.2

Source: SEWRPC

Table 2-XII: Comparison of Year 2035 Population Projections for Selected Communities in Southeastern Wisconsin (Cohort Component Analysis)

Community	Year 2000 (Census)	Community Projections							
		CED Cohort Component Analysis (year 2035)		Trend Analysis (year 2035)		Smart Growth Projection ^a (year 2035)		WI Dept of Administration ^b (year 2030)	
		Number	Percent Change	Number	Percent Change	Number	Percent Change	Number	Percent Change
Kenosha	90,352	119,330	32.1	119,305	32.0	124,097	37.3	114,703	27.0
Milwaukee	596,974	625,718	4.8	534,400	-10.5	623,000 ^c	4.4	543,826	-8.9
Oak Creek	28,456	52,612	84.9	72,960	156.4	52,100 ^d	83.1	40,596	42.7
Port Washington	10,467	12,856	22.8	14,350	37.1	14,500	38.5	12,427	18.7
Racine	81,855	72,772	-11.1	75,430	-7.8	80,514	-1.6	72,879	-11.0
Brookfield	38,649	45,885	18.7	48,940	26.6	42,096	8.9	42,942	11.1
Cedarburg	10,908	11,048	1.3	14,766	35.4	15,600	43.0	12,915	18.4
Elm Grove	6,249	5,588	-10.6	5,561	-11.0	5,351	-14.4	5,588	-10.6
Germantown	18,260	24,658	35.0	46,579	155.1	23,810	30.4	25,869	41.7
Grafton	10,312	13,179	27.8	14,871	44.2	16,323	58.3	14,284	38.5
Muskego	21,397	28,600	33.7	39,063	82.6	27,570	28.8	27,749	29.7
New Berlin	38,220	43,139	12.9	57,339	50.0	45,607	19.3	43,050	12.6
Saukville	4,068	4,454	9.5	5,682	39.7	9,000	121.2	4,868	19.7
Waukesha	64,825	81,186	25.2	99,245	53.1	78,762	21.5	78,172	20.6

Source: US Census Bureau

^a The Smart Growth Projections are from various sources and reflect the anticipated population set forth in each of the community's Smart Growth plans.

^b Wisconsin Department of Administration population projections currently only go to the year 2030 at the community level.

^c City of Milwaukee projection is for 2025

^d The City of Oak Creek Comprehensive Plan projection for years 2035-2040

For the 2035 Regional Land Use planning program, SEWRPC developed population projections at the level of geography of the utility service area rather than the community or municipal boundary. Municipal boundaries have a greater tendency to change over shorter periods of time, therefore SEWRPC specifically developed the projections on existing and anticipated projected sewer utility service areas in order to satisfy criteria used in the

development of sewer service areas for land use planning purposes. The Wisconsin Department of Administration (the Applied Population Lab) has developed community level population projections that rely on historic population trends rather than taking into consideration geographic (municipal) boundaries and are therefore community level **projections. Additionally, as part of the Comprehensive "Smart Growth" planning process,** each community is required to develop its own population projections in order to assist in future planning efforts. Table 2-XII shows the various population projections based on various projections.

Community Level Forecasting For the Socio-Economic Impact Analysis – Some Assumptions and Adjustments

Population forecasting can be developed at any level of geography - state, county, or community, etc - and the level of geography chosen is based on the context of the study. As water utility service areas do not necessarily coincide geographically with community geopolitical boundaries, SEWRPC refined its community based population forecasts for the existing and projected water utility service areas for the RWSP to coincide with probable/projected water utility service areas. For the purposes of this study, the historic **and input data is limited to the "Place" or community level, therefore it was necessary to create community or "Place" level projections for both the general population and for ethnic and racial minorities** in order to determine if the proposed plan may have an impact on minorities.

This does, however, create two unique problems for developing projections. First, the population forecasting developed for this socio-impact analysis cannot account for possible population increases based on changes in geographic boundaries over time, such as through annexation. The projections developed for this report reflect a probable scenario based on US Census Bureau data on population trends developed within a given municipality or **"Place" according to the US Census Bureau.** Therefore, CED was able to develop trends based on municipality or place but unable to develop projections based on utility service areas which often do not coincide with municipal boundaries.

Second, the distribution of minorities within the seven-county Region is not homogenous nor is it geographically homogenous within each community. Based on community-level projecting, it must be assumed that the distribution of minority populations within each community is homogenous. For example, based on the proposed RWSP, the eastern half of the City of Brookfield is slated to be converted to Lake Michigan water; the analysis does not consider limiting the population forecast to the eastern half of Brookfield. For cases such as the City of Brookfield, where only part of the community is anticipated to be served, CED assumed homogenous distribution of race and ethnic populations throughout the boundaries of the municipality.

Methodologies

Components of Population Growth

Population change is a combination of the existing population level, the birth or fertility rate, the death or mortality rate, and net migration. The fertility and mortality rate, when **combined, are considered a population's "natural increase" or the balance between births and deaths in an area over a given period of time.** Net migration is the total amount of people that moved into an area minus the number of people who moved from that area, or **the difference between "in-migration" and "outmigration". According to SEWRPC, natural increase plays a more significant role in population size in southeastern Wisconsin; between 1990 and 2000, the seven-county region experienced a population increase of about 120,800 people, of which 116,900 were attributed to natural increase.**

Trend Analysis/Linear Prediction Modeling

The simplest method to derive population forecasts is through a trend analysis, or by simply using the historical and existing conditions to project future conditions. This assumes that current or recent conditions will continue on into the future. Using population data from the Decennial Census, it is possible to forecast the population based on the current or recent trajectory of population growth or decline. For this assessment, changes in the population of each selected community were compiled for the years 1980, 1990, and 2000. The percent change between 1990 and 2000 was weighted more heavily than the percent change between 1980 and 1990, to reflect more recent growth patterns, or in essence, give more weight to recent changes than the more historic changes. Table 2-XI below shows the results of this analysis. Table 2-XIII shows historic populations and projected populations for each of the selected communities based on a weighted trend analysis.

Table 2-XIII: Basic Weighted Trend Analysis

Community	1980	1990		2000		2035	
	Population	Population	% Change 1980- 1990	Population	% Change 1990- 2000	Weighted Percent Change	Forecast Pop
Kenosha	77,685	80,375	3.46	90,668	12.81	8.13	119,305
Milwaukee	636,212	628,088	-1.28	596,956	-4.96	-3.12	534,400
Oak Creek	16,932	19,513	15.24	28,456	45.83	30.54	72,960
Port Washington	8,612	9,338	8.43	10,364	10.99	9.71	14,350
Racine	85,730	84,298	-1.67	81,827	-2.93	-2.30	75,430
Brookfield	34,035	35,184	3.38	38,807	10.30	6.84	48,940
Cedarburg	9,005	9,895	9.88	10,775	8.89	9.39	14,766
Elm Grove	6,735	6,261	-7.04	6,276	0.24	-3.04	5,561
Germantown	10,729	13,658	27.30	18,234	33.50	30.40	46,579
Grafton	8,381	9,340	11.44	10,319	10.48	10.96	14,871
Muskego	15,277	16,813	10.05	21,393	27.24	18.65	39,063
New Berlin	30,529	33,592	10.03	38,362	14.20	12.12	57,339
Saukville	3,478	3,695	6.24	4,154	12.42	9.33	5,682
Waukesha	50,319	56,958	13.19	64,372	13.02	13.11	99,245

Source: US Census Bureau

There are significant drawbacks to this type of analysis, particularly for projecting data over a long period of time. Growth rates tend to fluctuate, and although population growth within a community is a combination of natural increase, migration, and annexation, new growth is often limited or constrained based on the amount of land available for development within the community. This phenomenon is known as community build-out, and once a community experiences build-out or near build-out conditions, unless it has the capacity to annex adjacent developable lands, its ability to grow will become constrained. Milwaukee and Elm Grove are examples of communities that are at or near build-out conditions; there has been a recent trend in population decline in both communities and this trend is projected to continue. Oak Creek, Germantown, and Muskego exhibited exponential growth between 1980 and 2000; throughout this period, each of these communities had ample developable lands, and the growth exhibited during the twenty year period could be a unique phenomenon occurring during that time period rather than be indicative of long term growth trends as build-out approaches.

The recent population declines exhibited by Milwaukee, Racine, and Elm Grove may only be a short term phenomenon, when the long term projections might not accurately reflect actual conditions. The US Census Bureau estimates annual population changes for cities larger than 25,000 people. Recent estimates by the Census indicate that the cities of Milwaukee and Racine have gained population since the 2000 decennial Census and that the declining growth trend might be reversing course. This, however, will not be confirmed until population numbers for the 2010 Decennial Census are compiled.

Cohort Component Analysis

A cohort component analysis is the most popular method used to develop population projections. CED used cohort component analysis to estimate population numbers in 2035 for all geographic entities analyzed for the SEWRPC study area. CED looked at each **"component" of the total population separately, using** the fertility, mortality, and migration numbers described above. Components of the total population include 5 separate race/ethnicity groups: Hispanic, White Alone (non-Hispanic), Black Alone, Asian Alone, and an aggregated cohort of all other non-Hispanic (includes American Indian or Alaska Native Alone, Native Hawaiian and Pacific Islander, Some Other Race Alone, Two or More Races). A rigorous cohort component analysis relies on an adequate sample size. Because some of the identified racial groups (American Indian or Alaska Native Alone, Native Hawaiian and Pacific Islander, Some Other Race Alone, Two or More Races) were either very small or nonexistent in several of the selected communities or counties, these populations were aggregated together to create an adequate sample size for purposes of comparison.

For each of the five components, CED started with 2000 U.S. Census data (full count), specific for each single year of age, and also specific by gender. Using 2000 data as the base data, and rates described above, data for each year after 2000 was calculated using predictions from the previous year. 2015 predictions are calculated from 2014 data. 2035 predictions are calculated using 2034 data. Once each component is calculated for 2035, all components can be added together to estimate the total 2035 population for each geographic entity.

Fertility

Fertility measures the number of births per year for 1,000 women of a specified age or age group. This component requires further analysis of the base population, namely the distribution of gender by age. For the cohort component analysis, CED used birth rates by year from the Center for Disease Control (CDC) for years 2000-2006, specific for race/ethnicity and age group. For years 2007-2034, CED used an average of the last two years available from CDC (2005 and 2006). Birth rates are specific for female age groups at five year intervals for the female population ages 15-44, with the exception of age groups 15-17 and 18-19, which are further broken down to three and two year intervals respectively. For race/ethnicity, separate birth rates are used for Hispanic, white non-Hispanic, black non-Hispanic, Asian non-Hispanic, and all other races of non-Hispanic origin. For the last race/ethnicity group, CED used the birth rate for the general population.

Mortality

For the purpose of this study, CED measures fertility as the number of deaths per year for 1,000 people of a specified age or age group. Due to variable mortality rates based on gender and age, this component also requires further analysis of the base population. CED used mortality rates by year from the Center for Disease Control (CDC) for years 2000-2006, specific for race/ethnicity and age group. For years 2007-2034, CED again used an average of the last two years available from CDC (2005 and 2006). The same race/ethnicity groups are used for mortality as were used for fertility.

Migration

Net migration is the difference between "in-migration" and "out-migration" over a given period of time. To estimate migration rates, CED went through a process of steps for each geographic entity. First, CED ran the cohort population model using zero migration for each specified race and ethnic population, starting with the year 2000, and projecting to the year 2008. Next, CED looked at Census populations between 2000 and 2008, and calculated the difference in predictions between the cohort model (using zero migration) and the census population numbers. The difference divided by the number of years (eight) was used as an

estimate of migration, which could be net negative or positive. Slight adjustments were made to this process where necessary, partly due to high error margins on 2008 Census population numbers used in this process.

Population Projections By Race and Ethnicity Within the Region

In 2000, approximately 23.5 percent of the regional population was a non-White minority, either Hispanic or one of the racial minorities, while 76.5 percent of the population was White Alone, non-Hispanic. Approximately 13.4 percent of the regional population was Black Alone, non-Hispanic, 1.8 was Asian Alone, non-Hispanic, and 1.7 percent of the population was aggregated into the "Other" Alone, non-Hispanic category. The Hispanic population comprised about 6.5 percent of the regional population (see Table 2-XIV).

Table 2-XIV: Year 2000 Population by Race and Ethnicity Within the Region

County	Total Population	Non-Hispanic Population								Hispanic Population ^b	
		White Alone		Black Alone		Asian Alone		Other ^a			
	Number	Number	%	Number	%	Number	%	Number	%	Number	%
Kenosha	149,577	127,287	85.1	7,446	5.0	1,350	0.9	2,737	1.8	10,757	7.2
Milwaukee	940,164	583,481	62.1	228,471	24.3	23,879	2.5	21,927	2.3	82,406	8.8
Ozaukee	82,317	78,894	95.8	759	0.9	880	1.1	711	0.9	1,073	1.3
Racine	188,831	150,238	79.6	19,441	10.3	1,331	0.7	2,831	1.5	14,990	7.9
Walworth	93,759	85,428	91.1	747	0.8	592	0.6	856	0.9	6,136	6.5
Washington	117,493	113,870	96.9	447	0.4	666	0.6	981	0.8	1,529	1.3
Waukesha	360,767	339,905	94.2	2,570	0.7	5,340	1.5	3,449	1.0	9,503	2.6
Region	1,932,908	1,479,103	76.5	259,881	13.4	34,038	1.8	33,492	1.7	126,394	6.5

Source: US Census Bureau

^a "Other" represents the aggregated Census data from the following populations; American Indian or Alaska Native Alone, Native Hawaiian and Pacific Islander, Some Other Race Alone, Two or More Races.

^b Hispanics may be of any race.

CED's cohort component analysis projects that between 2000 and 2035, the seven-county region will continue to grow, from 1,932,908 to 2,290,118 people, or by about 18.5 percent (see Table 2-XV below). It is anticipated that the population of each county within southeastern Wisconsin will continue to increase in population and that proportions of racial and ethnic minority populations will continue to increase throughout the region, although absolute numbers in certain counties will remain very low. By 2035, it is estimated that the percent of minorities within the region will increase from 23.5 to about 36.8 percent of the total population and that the Hispanic population will have the most significant impact on this change. In 2000, Hispanics comprised approximately 6.5 percent of the regional population, with about 126,400 people; CED's cohort component analysis projects that in 2035, about 369,000 people or about 16 percent of the regional population will be Hispanic. The Asian Alone, non-Hispanic population will also see an increase in both size and proportion of population. In 2000, Asians accounted for about 1.8 percent of the regional population or about 34,038 people; CED projects that the Asian population will increase to about 3.6 percent of the population or about 83,000 people. The aggregated "Other", non-Hispanic population is also anticipated to grow, from 1.7 to 2.6 percent of the regional population or from 33,500 to 59,800 people. It is projected that the Black Alone, non-Hispanic population will increase in number, from about 260,000 to 269,000 people, but the proportion will not change measurably, increasing from 13.4 to 14.4 of the regional population.

Table 2-XV: Year 2035 Population Projections by Race and Ethnicity Within the Region

County	Total Population	Non-Hispanic Population								Hispanic Population ^b	
		White Alone		Black Alone		Asian Alone		Other ^a			
	Number	Number	%	Number	%	Number	%	Number	%	Number	%
Kenosha	213,886	146,646	68.6	18,611	8.7	5,374	2.5	4,351	2.0	38,904	18.2
Milwaukee	1,012,538	442,183	43.7	268,916	26.6	47,201	4.7	32,534	3.2	221,703	21.9
Ozaukee	98,922	86,238	87.2	2,543	2.6	2,958	3.0	2,374	2.4	4,809	4.9
Racine	234,467	159,866	68.2	21,289	9.1	3,152	1.3	6,668	2.8	43,492	18.5
Walworth	122,275	97,398	79.7	1,110	0.9	2,063	1.7	2,900	2.4	18,805	15.4
Washington	162,462	145,711	89.7	3,019	1.9	2,551	1.6	3,547	2.2	7,634	4.7
Waukesha	445,569	370,199	83.1	14,465	3.2	19,727	4.4	7,440	1.7	33,737	7.6
Region	2,290,118	1,448,240	63.2	329,954	14.4	83,026	3.6	59,814	2.6	369,084	16.1

Source: US Census Bureau and CED

^a "Other" represents the aggregated Census data from the following populations; American Indian or Alaska Native Alone, Native Hawaiian and Pacific Islander, Some Other Race Alone, Two or More Races.

^b Hispanics may be of any race.

Based on historic patterns in natural increase and migration, CED's cohort component projection indicates that the population of non-white racial and ethnic minorities will increase throughout the region and in each of the counties, and that the share of each minority population relative to the White Alone, Non-Hispanic majority will continue to increase by 2035 within each county, although once again, absolute increases in certain counties are expected to be very small. Among the minority populations, the projections indicate that the Hispanic population will have the most significant increases within each county as well as the region.

Among the counties, it is projected that Waukesha County will gain the greatest total population, about 84,800 people or an increase of 23.5 percent over its 2000 population level, and that racial and Hispanic population growth will account for about 64.3 percent of its projected growth. **Waukesha County's total minority population is expected to increase from 5.8 percent of its population in 2000 to 16.9 percent in 2035.** The population of Milwaukee County is anticipated to net the second greatest population gain, an increase of **72,374 people, or about 7.7 percent.** CED's analysis indicates that the White Alone, Non-Hispanic population in Milwaukee County is projected to decline, from 583,481 to 442,183 people, or by 24 percent. This decline is the only projected net loss in any racial or ethnic population group within the region, and represents a cumulative projected decline of 30,863 White Alone, Non-Hispanic people within the region.

Kenosha County is anticipated to have the greatest percentage increase in population between 2000 and 2035, from 149,577 to 213,886 people, an increase of 43 percent; **Kenosha County's entire minority population is projected to increase significantly,** accounting for about 70 percent of its projected growth. Racine County is projected to increase by 24.2 percent; it is anticipated that minority persons will account for about 79 percent of its growth. Although Washington County is projected to grow from 117,500 to 162,500 people, only 29 percent of its growth will be due to minority population increases, a smaller percentage than the other six counties.

Population Projections By Race and Ethnicity for Selected Communities

With exception of the Village of Elm Grove and the City of Racine, the cohort component analysis projects that each of the selected communities within southeastern Wisconsin will continue to increase in population between 2000 and 2035. Based on historic patterns in **natural increase and migration, CED's cohort component projection indicates that the population of Non-White Alone racial and ethnic minorities will increase in each of the**

selected communities, and that the share of each minority population relative to the White Alone majority will continue to increase over the 35-year period. Among the minority populations, the Hispanic population will have the most significant increases in each of the selected communities.

City of Kenosha

CED's cohort component model projects that the total population of the City of Kenosha will increase by approximately 32 percent between the year 2000 and 2035, from 90,352 to about 119,300 people. The greatest portion of this increase is anticipated to be the Hispanic population, with an increase of 19,845 people, or about 68.5 percent of the growth. The White Alone, Non-Hispanic population is projected to decline from 71,686 to about 67,321 people, about 6.1 percent or 4,365 people. This projected decline indicates a possible new pattern for the White Alone, Non-Hispanic population, as this group has not historically experienced a decline over the **past 50 years in the City of Kenosha. Within CED's cohort component model, this decline might indicate a lack of population replacement due to the impact of an aging population on fertility rates, rather than an existing or continuing trend.**

Based on the model, the combined minority population is projected to account for all of the population growth within the City of Kenosha. Among minorities, it is projected that the Hispanic population within the City of Kenosha will experience the greatest increase, from 9,003 to about 28,850 people, or from 10 percent of the population to 24.2 percent. Non-white, non-Hispanic racial minorities are also projected to increase in size and proportion, with the Black Alone population increasing from 7.5 percent to almost 14 percent of the **City's population, the Asian Alone population increasing from 1.0 percent to 2.8 percent,** and the aggregated Other Alone population increasing from 2.2 to 2.8 percent.

Table 2-XVI: Existing and Projected Population by Race and Ethnicity for the City of Kenosha

Population by Race and Ethnicity	2000		Projected 2035		Change		Percent of Change
	Number	Percent	Number	Percent	Number	Percent	
Total Population	90,352	100.0	119,330	100.0	28,978	32.1	100.0
Non-Hispanic Population	81,349	90.0	90,482	75.8	9,133	11.2	31.5
White Alone	71,686	79.3	67,321	56.4	-4,365	-6.1	-15.1
Black Alone	6,810	7.5	16,588	13.9	9,778	143.6	33.7
Asian Alone	868	1.0	3,287	2.8	2,419	278.7	8.3
Other ^a	1,985	2.2	3,286	2.8	1,301	65.5	4.5
Hispanic Population ^b	9,003	10.0	28,848	24.2	19,845	220.4	68.5

Source: US Census Bureau and CED

^a "Other" represents the aggregated Census data from the following populations; American Indian or Alaska Native Alone, Native Hawaiian and Pacific Islander, Some Other Race Alone, Two or More Races.

^b Hispanics may be of any race.

City of Milwaukee

CED's cohort component model projects that the total population of the City of Milwaukee will increase by approximately 4.8 percent between the year 2000 and 2035, from 596,974 to about 625,700 people. The greatest portion of this increase is anticipated to be the Hispanic population, with an increase of 98,649 people; this represents an increase from 71,646 to about 170,295 people, or from 12 percent of the population to 27 percent. The White Alone, Non-Hispanic population is projected to continue to decline from 270,989 to about 182,984 people, about 32.5 percent or 88,000 people, indicating both a continued outward migration of this population and a lack of replacement due to the impact of an aging population on fertility rates.

The combined minority population is projected to account for all of the population growth. It is anticipated that some of the non-White, non-Hispanic racial minorities will also increase in size and proportion, the Asian population increasing from 2.9 percent to 3.7 percent, and the aggregated "Other" population increasing from 2.8 to 4.1 percent of the City's population. Although the Black population is anticipated to increase from 220,432 to 223,690 people, its overall percent of population is anticipated to decline slightly from 36.9 percent to about 35.7 percent of the City's population.

Table 2-XVII: Existing and Projected Population by Race and Ethnicity for the City of Milwaukee

Population by Race and Ethnicity	2000		Projected 2035		Change		Percent of Change
	Number	Percent	Number	Percent	Number	Percent	
Total Population	596,974	100.0	625,718	100.0	28,744	4.8	100.0
Non-Hispanic Population	525,328	88.0	455,422	72.8	-69,906	-13.3	-243.2
White Alone	270,989	45.4	182,984	29.2	-88,005	-32.5	-306.2
Black Alone	220,432	36.9	223,690	35.7	3,258	1.5	11.3
Asian Alone	17,339	2.9	22,967	3.7	5,628	32.5	19.6
Other ^a	16,568	2.8	25,781	4.1	9,213	55.6	32.1
Hispanic Population ^b	71,646	12.0	170,295	27.2	98,649	137.7	343.2

Source: US Census Bureau and CED

^a "Other" represents the aggregated Census data from the following populations; American Indian or Alaska Native Alone, Native Hawaiian and Pacific Islander, Some Other Race Alone, Two or More Races.

^b Hispanics may be of any race.

City of Oak Creek

CED's cohort component model projects that the total population of the City of Oak Creek will increase by approximately 85 percent between the year 2000 and 2035, from 28,456 to about 52,600 people. The greatest portion of this increase is anticipated to be the White Alone, Non-Hispanic population, accounting for 68 percent of the population growth. This population is projected to increase from 25,514 to 41,939 people, about 64.4 percent or 16,425 people.

Table 2-XVIII: Existing and Projected Population by Race and Ethnicity for the City of Oak Creek

Population by Race and Ethnicity	2000		Projected 2035		Change		Percent of Change
	Number	Percent	Number	Percent	Number	Percent	
Total Population	28,456	100.0	52,612	100.0	24,156	84.9	100.0
Non-Hispanic Population	27,189	95.5	46,545	88.5	19,356	71.2	80.1
White Alone	25,514	89.7	41,939	79.7	16,425	64.4	68.0
Black Alone	503	1.8	1,892	3.6	1,389	276.1	5.8
Asian Alone	676	2.4	1,334	2.5	658	97.3	2.7
Other ^a	496	1.7	1,380	2.6	884	178.2	3.7
Hispanic Population ^b	1,267	4.5	6,068	11.5	4,801	378.9	19.9

Source: US Census Bureau and CED

^a "Other" represents the aggregated Census data from the following populations; American Indian or Alaska Native Alone, Native Hawaiian and Pacific Islander, Some Other Race Alone, Two or More Races.

^b Hispanics may be of any race.

The combined minority population is projected to account for about 32 percent of the population growth. It is anticipated that non-white, non-Hispanic racial minorities will increase in size and proportion, with the Black population increasing from 1.8 percent to 3.6 percent of the City's population and the aggregated "Other" population increasing from 1.7 to 2.6 percent. The Asian population is projected to increase proportionally only slightly

from 2.4 percent to 2.5 percent. Among minorities, it is anticipated that the Hispanic population within the City of Oak Creek will experience the greatest increase, from 1,267 to about 6,068 people, or from 4.5 percent of the population to 11.5 percent; the Hispanic population is projected to account for 19.9 percent of the population growth.

City of Port Washington

CED's cohort component model projects that the total population of the City of Port Washington will increase by approximately 23 percent between the year 2000 and 2035, from 10,467 to about 12,850 people. The greatest portion of this increase is anticipated to be the White Alone, Non-Hispanic population, accounting for about 72.3 percent of the population growth. This population is projected to increase from 10,056 to 11,783 people, about 17.2 percent or 1,727 people.

The combined minority population is projected to account for about 27.7 percent of the population growth. It is anticipated that Non-White, Non-Hispanic racial minorities will experience very small increases in size and proportion, with the Black population increasing from 0.7 percent to 1.2 percent of the City's population, the Asian population increasing from 0.5 percent to 1.2 percent, and the aggregated "Other" population increasing from 1.2 to 2.0 percent. Among minorities, it is anticipated that the Hispanic population within the City of Port Washington will experience the greatest increase, from 168 to about 509 people, or from 1.6 percent of the population to 4.0 percent; the Hispanic population is projected to account for 14.3 percent of the population growth.

Table 2-XIX: Existing and Projected Population by Race and Ethnicity for the City of Port Washington

Population by Race and Ethnicity	2000		Projected 2035		Change		Percent of Change
	Number	Percent	Number	Percent	Number	Percent	
Total Population	10,467	100.0	12,856	100.0	2,389	22.8	100.0
Non-Hispanic Population	10,299	98.4	12,347	96.0	2,048	19.9	85.7
White Alone	10,056	96.1	11,783	91.7	1,727	17.2	72.3
Black Alone	71	0.7	155	1.2	84	118.9	3.5
Asian Alone	49	0.5	153	1.2	104	212.7	4.4
Other ^a	123	1.2	255	2.0	132	107.3	5.5
Hispanic Population ^b	168	1.6	509	4.0	341	203.1	14.3

Source: US Census Bureau and CED

^a "Other" represents the aggregated Census data from the following populations; American Indian or Alaska Native Alone, Native Hawaiian and Pacific Islander, Some Other Race Alone, Two or More Races.

^b Hispanics may be of any race.

City of Racine

CED's cohort component model projects that the total population of the City of Racine will decline by approximately 11 percent between the year 2000 and 2035, from 81,855 to about 72,800 people. Although most of the decline is anticipated to be within the White Alone, Non-Hispanic population, CED's cohort component analysis indicates declines in Black and Asian populations as well. The White, non-Hispanic population is projected to decline from 51,962 to 25,413 people, or from 63.4 to 34.9 percent of the population. Among the minority populations, it is anticipated that the Non-Hispanic Black and Asian populations will decrease slightly in size yet maintain the same relative proportion, with the Black population increasing slightly from 20 percent to 22 percent of the City's population, the Asian population holding steady at 0.6 percent of the total population. This decline is most likely indicative of both a continued outward migration of this population and a lack of replacement due to the impact of an aging population on fertility rates.

Although the population of Racine is projected to decline, it is anticipated that the Hispanic and "Other" populations will both experience increases. The aggregated "Other" population is anticipated to increase from 2 to 5.5 percent, or from 1,649 to 4,030 people. It is also anticipated that the Hispanic population within the City of Racine will experience a significant increase from 11,422 to about 26,700 people or from 14 percent of the population to 37 percent. The White Alone population is projected to decline from 51,962 to about 25,413 people, from about 64 percent to 35 percent of the population.

Table 2-XX: Existing and Projected Population by Race and Ethnicity for the City of Racine

Population by Race and Ethnicity	2000		Projected 2035		Change		Percent of Change
	Number	Percent	Number	Percent	Number	Percent	
Total Population	81,855	100.0	72,772	100.0	-9,083	-11.1	-100.0
Non-Hispanic Population	70,433	86.0	46,065	63.3	-24,368	-34.6	-268.3
White Alone	51,962	63.5	25,413	34.9	-26,549	-51.1	-292.3
Black Alone	16,349	20.0	16,190	22.2	-159	-1.0	-1.8
Asian Alone	473	0.6	432	0.6	-41	-8.6	-0.5
Other ^a	1,649	2.0	4,030	5.5	2,381	144.4	26.2
Hispanic Population ^b	11,422	14.0	26,707	36.7	15,285	133.8	168.3

Source: US Census Bureau and CED

^a "Other" represents the aggregated Census data from the following populations; American Indian or Alaska Native Alone, Native Hawaiian and Pacific Islander, Some Other Race Alone, Two or More Races.

^b Hispanics may be of any race.

City of Brookfield

CED's cohort component model projects that the total population of the City of Brookfield will increase by approximately 18.7 percent between the year 2000 and 2035, from 38,649 to about 45,885 people. The greatest portion of this increase is anticipated to be the White Alone, Non-Hispanic population, accounting for about 54.6 percent of the population growth. This population is projected to increase from 36,051 to 44,990 people, about 11 percent or 3,954 people.

Table 2-XXI: Existing and Projected Population by Race and Ethnicity for the City of Brookfield

Population by Race and Ethnicity	2000		Projected 2035		Change		Percent of Change
	Number	Percent	Number	Percent	Number	Percent	
Total Population	38,649	100.0	45,885	100.0	7,236	18.7	100.0
Non-Hispanic Population	38,196	98.8	44,990	98.0	6,794	17.8	93.9
White Alone	36,051	93.3	40,005	87.2	3,954	11.0	54.6
Black Alone	316	0.8	1,120	2.4	804	254.5	11.1
Asian Alone	1,477	3.8	3,126	6.8	1,649	111.6	22.8
Other ^a	352	0.9	739	1.6	387	110.0	5.3
Hispanic Population ^b	453	1.2	895	2.0	442	97.7	6.1

Source: US Census Bureau and CED

^a "Other" represents the aggregated Census data from the following populations; American Indian or Alaska Native Alone, Native Hawaiian and Pacific Islander, Some Other Race Alone, Two or More Races.

^b Hispanics may be of any race.

The combined minority population is projected to account for about 45.4 percent of the population growth. It is anticipated that non-White, non-Hispanic racial minorities will increase in size and proportion, with the Black population increasing from less than 1 percent to about 2.4 percent and the aggregated "Other" population increasing from 0.9 to

1.6 percent. It is also anticipated that the Hispanic population within the City of Brookfield will experience an increase from 1.2 percent of the population to 2.0 percent. Amongst minorities, it is anticipated that the Asian Alone population within the City of Brookfield will experience the greatest increase, from 1,477 to about 3,126 people, or from 3.8 percent of the population to 6.8 percent; the Asian population is projected to account for 22.8 percent of the population growth.

City of Cedarburg

CED's cohort component analysis projects that the total population of the City of Cedarburg will increase only slightly, by approximately 1.3 percent, between the year 2000 and 2035, from 10,908 to about 11,048 people. The greatest portion of this increase is anticipated to be the Hispanic population, accounting for about 38.6 percent of the population growth. This population is projected to increase from 94 to 148 people, about 57.4 percent or 54 people. The White Alone, Non-Hispanic population is projected to stay about the same, and the cohort model projects a decline of 4 people or less than 0.1 percent.

The combined minority population is projected to account for 100 percent of the population growth. It is anticipated that absolute numbers of non-White, non-Hispanic racial minorities will remain largely unchanged, with the Black population increasing from 25 to 33 residents, the Asian population increasing from 77 to 110 residents, and the aggregated "Other" population increasing from 80 to 132 residents. It is anticipated that the Hispanic population within the City of Cedarburg will increase from 94 to 148 residents.

Table 2-XXII: Existing and Projected Population by Race and Ethnicity for the City of Cedarburg

Population by Race and Ethnicity	2000		Projected 2035		Change		Percent of Change
	Number	Percent	Number	Percent	Number	Percent	
Total Population	10,908	100.0	11,048	100.0	140	1.3	100.0
Non-Hispanic Population	10,814	99.1	10,900	98.7	86	0.8	61.4
White Alone	10,629	97.4	10,625	96.2	-4	<0.1	-2.9
Black Alone	25	0.2	33	0.3	8	32.0	5.7
Asian Alone	77	0.7	110	1.0	33	42.9	23.6
Other ^a	80	0.7	132	1.2	52	65.0	37.1
Hispanic Population ^b	94	0.9	148	1.3	54	57.4	38.6

Source: US Census Bureau and CED

^a "Other" represents the aggregated Census data from the following populations; American Indian or Alaska Native Alone, Native Hawaiian and Pacific Islander, Some Other Race Alone, Two or More Races.

^b Hispanics may be of any race.

Village of Elm Grove

CED's cohort component analysis projects that the total population of the Village of Elm Grove will decline by approximately 10.6 percent between the year 2000 and 2035, from 6,249 to about 5,588 people. This decline is anticipated to be within the White Alone, Non-Hispanic population, with a decline of about 820 people. This decline is most likely indicative of both a continued outward migration of this population and a lack of replacement due to the impact of an aging population on fertility rates.

Although the population of Elm Grove is projected to decline, the minority populations are projected to remain largely unchanged in size and proportion, accounting for less than 3 percent of total population by 2035. It is anticipated that absolute numbers of non-white, non-Hispanic racial minorities will increase very slightly, with the Black population increasing from 22 to 25 residents, the Asian population increasing from 93 to 140 residents, and the aggregated Other Alone population increasing from 38 to 83 residents. It

is anticipated that the Hispanic population within the Village of Elm Grove will also experience a slight increase, from 75 to about 137 people, or from 1.2 percent of the population to 2.4 percent.

Table 2-XXIII: Existing and Projected Population by Race and Ethnicity for the Village of Elm Grove

Population by Race and Ethnicity	2000		Projected 2035		Change		Percent of Change
	Number	Percent	Number	Percent	Number	Percent	
Total Population	6,249	100.0	5,588	100.0	-661	-10.6	-100.0
Non-Hispanic Population	6,174	98.8	5,451	97.6	-723	-11.7	-109.4
White Alone	6,021	96.4	5,203	93.1	-818	-13.6	-123.8
Black Alone	22	0.4	25	0.5	3	15.4	0.5
Asian Alone	93	1.5	140	2.5	47	50.2	7.1
Other ^a	38	0.6	83	1.5	45	119.6	6.8
Hispanic Population ^b	75	1.2	137	2.4	62	82.2	9.4

Source: US Census Bureau and CED

^a "Other" represents the aggregated Census data from the following populations; American Indian or Alaska Native Alone, Native Hawaiian and Pacific Islander, Some Other Race Alone, Two or More Races.

^b Hispanics may be of any race.

Village of Germantown

CED's cohort component analysis projects that the total population of the Village of Germantown will increase by approximately 35 percent between the year 2000 and 2035, from 18,260 to about 24,658 people. The greatest portion of this increase is anticipated to be the White Alone, Non-Hispanic population, accounting for about 64.7 percent of the population growth. This population is projected to increase from 17,375 to about 21,515 people, about 23.8 percent or about 4,140 people.

Table 2-XXIV: Existing and Projected Population by Race and Ethnicity for the Village of Germantown

Population by Race and Ethnicity	2000		Projected 2035		Change		Percent of Change
	Number	Percent	Number	Percent	Number	Percent	
Total Population	18,260	100.0	24,658	100.0	6,398	35.0	100.0
Non-Hispanic Population	18,055	98.9	23,256	94.3	5,201	28.8	81.3
White Alone	17,375	95.2	21,515	87.3	4,140	23.8	64.7
Black Alone	245	1.3	739	3.0	494	201.6	7.7
Asian Alone	291	1.6	489	2.0	198	68.0	3.1
Other ^a	144	0.8	513	2.1	369	256.3	5.8
Hispanic Population ^b	205	1.1	1,402	5.7	1,197	583.9	18.7

Source: US Census Bureau and CED

^a "Other" represents the aggregated Census data from the following populations; American Indian or Alaska Native Alone, Native Hawaiian and Pacific Islander, Some Other Race Alone, Two or More Races.

^b Hispanics may be of any race.

The combined minority population is projected to account for about 35.3 percent of the population growth. It is anticipated that non-white, non-Hispanic racial minorities will increase in size and proportion, with the Black population increasing from 1.3 percent to 3.0 percent of the Village's population, the Asian population increasing from 1.6 percent to 2.0 percent, and the aggregated "Other" population increasing from 0.8 to 2.1 percent. Among minorities, it is anticipated that the Hispanic population within the Village of Germantown will experience the greatest increase, from 205 to about 1,400 people, or from 1.1 percent of the population to 5.7 percent; the Hispanic population is projected to account for 18.7 percent of the population growth.

Village of Grafton

CED's cohort component model projects that the total population of the Village of Grafton will increase by approximately 27.8 percent between the year 2000 and 2035, from 10,312 to about 13,179 people. The greatest portion of this increase is anticipated to be the White Alone, Non-Hispanic population, about 90.7 percent of the population growth. The White Alone population is projected to increase from 9,954 to about 12,553 people, about 26 percent or almost 2,600 people.

The combined minority population is projected to account for about 9.3 percent of the population growth. It is anticipated that some of the Non-White, Non-Hispanic racial minorities will increase slightly in size and proportion, with the Asian population increasing from 0.7 percent to 0.8 percent, and the aggregated "Other" population increasing from 0.8 to 1.0 percent. The projection indicates that the proportion of the population that is Black Alone will remain steady at only 0.3 percent of the population, increasing from 29 to 44 persons during this time period. Among minorities, it is anticipated that the Hispanic population within the Village of Grafton will experience the greatest increase, from 165 to about 336 people, or from 1.6 percent of the population to 2.5 percent; the Hispanic population is projected to account for 6.0 percent of the population growth.

Table 2-XXV: Existing and Projected Population by Race and Ethnicity for the Village of Grafton

Population by Race and Ethnicity	2000		Projected 2035		Change		Percent of Change
	Number	Percent	Number	Percent	Number	Percent	
Total Population	10,312	100.0	13,179	100.0	2,867	27.8	100.0
Non-Hispanic Population	10,147	98.4	12,843	97.5	2,696	26.6	94.0
White Alone	9,954	96.5	12,553	95.3	2,599	26.1	90.7
Black Alone	29	0.3	44	0.3	15	51.7	0.5
Asian Alone	77	0.7	110	0.8	33	42.9	1.2
Other ^a	87	0.8	136	1.0	49	56.3	1.7
Hispanic Population ^b	165	1.6	336	2.5	171	103.6	6.0

Source: US Census Bureau and CED

^a "Other" represents the aggregated Census data from the following populations; American Indian or Alaska Native Alone, Native Hawaiian and Pacific Islander, Some Other Race Alone, Two or More Races.

^b Hispanics may be of any race.

City of Muskego

CED's cohort component model projects that the total population of the City of Muskego will increase by approximately 33.7 percent between the year 2000 and 2035, from 21,397 to about 28,600 people. The greatest portion of this increase is anticipated to be the White Alone, Non-Hispanic population, about 84 percent of the population growth. The White Alone population is projected to increase from 20,810 to about 26,855 people, about 29 percent or almost 6,045 people.

The combined minority population is projected to account for about 16 percent of the population growth. It is anticipated that non-White, non-Hispanic racial minorities will increase slightly in size and proportion with the Black population increasing slightly from 0.2 percent to almost 0.5 percent of the City's population, the Asian population increasing from 0.5 percent to 1.0 percent, and the aggregated "Other" population increasing from 0.8 to 0.9 percent. Among minorities, it is anticipated that the Hispanic population within the City of Muskego will experience the greatest increase, from 281 to about 1,054 people, or from 1.3 percent of the population to 3.7 percent.

Table 2-XXVI: Existing and Projected Population by Race and Ethnicity for the City of Muskego

Population by Race and Ethnicity	2000		Projected 2035		Change		Percent of Change
	Number	Percent	Number	Percent	Number	Percent	
Total Population	21,397	100.0	28,600	100.0	7,203	33.7	100.0
Non-Hispanic Population	21,116	98.7	27,546	96.3	6,430	30.5	89.3
White Alone	20,810	97.3	26,855	93.9	6,045	29.0	83.9
Black Alone	34	0.2	145	0.5	111	326.5	1.5
Asian Alone	97	0.5	279	1.0	182	187.6	2.5
Other ^a	175	0.8	267	0.9	92	52.6	1.3
Hispanic Population ^b	281	1.3	1,054	3.7	773	275.1	10.7

Source: US Census Bureau and CED

^a "Other" represents the aggregated Census data from the following populations; American Indian or Alaska Native Alone, Native Hawaiian and Pacific Islander, Some Other Race Alone, Two or More Races.

^b Hispanics may be of any race.

City of New Berlin

CED's cohort component model projects that the total population of the City of New Berlin will increase by approximately 12.9 percent between the year 2000 and 2035, from 38,220 to about 43,140 people. The greatest portion of this increase is anticipated to be the White Alone, Non-Hispanic population, accounting for about 46.3 percent of the population growth. The White Alone population is projected to increase from 36,265 to about 38,542 people, about 6.3 percent or almost 2,277 people.

Table 2-XXVII: Existing and Projected Population by Race and Ethnicity for the City of New Berlin

Population by Race and Ethnicity	2000		Projected 2035		Change		Percent of Change
	Number	Percent	Number	Percent	Number	Percent	
Total Population	38,220	100.0	43,139	100.0	4,919	12.9	100.0
Non-Hispanic Population	37,625	98.4	41,649	96.5	4,024	10.7	81.8
White Alone	36,265	94.9	38,542	89.3	2,277	6.3	46.3
Black Alone	167	0.4	513	1.2	346	207.4	7.0
Asian Alone	873	2.3	2,066	4.8	1,193	136.7	24.3
Other ^a	320	0.8	527	1.2	207	64.8	4.2
Hispanic Population ^b	595	1.6	1,490	3.5	895	150.4	18.2

Source: US Census Bureau and CED

^a "Other" represents the aggregated Census data from the following populations; American Indian or Alaska Native Alone, Native Hawaiian and Pacific Islander, Some Other Race Alone, Two or More Races.

^b Hispanics may be of any race.

The combined minority population is projected to account for about 53.7 percent of the population growth. It is anticipated that non-White, non-Hispanic racial minorities will increase in size and proportion, with the Black population increasing from 0.4 percent to 1.2 percent of the City's population, the Asian population increasing from 2.3 percent to 4.8 percent, and the aggregated "Other" population increasing from 0.8 to 1.2 percent. Among minorities, it is anticipated that the Hispanic population within the City of New Berlin will experience the greatest increase, from 595 to about 1,490 people, or from 1.6 to 3.5 percent of the population; the Hispanic population is projected to account for 18.2 percent of the population growth.

Village of Saukville

CED's cohort component model projects that the total population of the Village of Saukville will increase by approximately 9.5 percent between the year 2000 and 2035, from 4,068 to about 4,454 people. The greatest portion of this increase is anticipated to be the White Alone, Non-Hispanic population, accounting for 48.2 percent of the population growth. This population is projected to increase from 3,896 to about 4,082 people, about 4.8 percent or 186 people.

The combined minority population is projected to account for about 51.8 percent of the population growth. It is anticipated that non-White, non-Hispanic racial minorities will remain virtually unchanged in size, with the Black population increasing from 23 to 36 residents, the Asian population increasing from 25 to 49 residents, and the aggregated "Other" population increasing from 35 to 52 residents. Among all minorities, it is anticipated that the Hispanic population within the Village of Grafton will experience the greatest increase, from 89 to about 235 people, or from 2.2 to 5.3 percent of the population; the Hispanic population is projected to account for 37.8 percent of the population growth.

Table 2-XXVIII: Existing and Projected Population by Race and Ethnicity for the Village of Saukville

Population by Race and Ethnicity	2000		Projected 2035		Change		Percent of Change
	Number	Percent	Number	Percent	Number	Percent	
Total Population	4,068	100.0	4,454	100.0	386	9.5	100.0
Non-Hispanic Population	3,979	97.8	4,219	94.7	240	6.0	62.2
White Alone	3,896	95.8	4,082	91.6	186	4.8	48.2
Black Alone	23	0.6	36	0.8	13	56.5	3.4
Asian Alone	25	0.6	49	1.1	24	96.0	6.2
Other ^a	35	0.9	52	1.2	17	48.6	4.4
Hispanic Population ^b	89	2.2	235	5.3	146	164.0	37.8

Source: US Census Bureau and CED

^a "Other" represents the aggregated Census data from the following populations; American Indian or Alaska Native Alone, Native Hawaiian and Pacific Islander, Some Other Race Alone, Two or More Races.

^b Hispanics may be of any race.

City of Waukesha

CED's cohort component model projects that the total population of the City of Waukesha will increase by approximately 25.2 percent between the year 2000 and 2035, from 64,825 to about 81,186 people. The greatest portion of this increase is anticipated to be the Hispanic population, with an increase of 16,005 people; this represents an increase from 5,563 to about 21,568 people, or 288 percent. The White Alone, Non-Hispanic population is projected to continue to decline from 56,191 to about 46,539 people, about 17.2 percent or 9,652 people. This projected decline indicates a possible new pattern for the White Alone, Non-Hispanic population, as this group has not historically experienced a decline over the past 50 years in the City of Waukesha. Within CED's cohort component model, this decline might indicate a lack of population replacement due to the impact of an aging population on fertility rates, rather than an existing or continuing trend.

The combined minority population is projected to account for all of the population growth. It is anticipated that non-White, non-Hispanic racial minorities will increase in size and proportion, with the Black population increasing from 1.2 to 5.7 percent of the City's population, the Asian population increasing from 2.1 to 7.5 percent, and the aggregated "Other" population increasing from 1.4 to 2.8 percent. The Hispanic population within the City of Waukesha will experience the greatest increase, from 8.6 to 26.6 percent of the population.

Table 2-XXIX: Population by Race and Ethnicity for the City of Waukesha

Population by Race and Ethnicity	2000		Projected 2035		Change		Percent of Change
	Number	Percent	Number	Percent	Number	Percent	
Total Population	64,825	100.0	81,186	100.0	16,361	25.2	100.0
Non-Hispanic Population	59,262	91.4	59,618	73.4	356	0.6	2.2
White Alone	56,191	86.7	46,539	57.3	-9,652	-17.2	-59.0
Black Alone	797	1.2	4,644	5.7	3,847	482.7	23.5
Asian Alone	1,389	2.1	6,127	7.5	4,738	341.1	29.0
Other ^a	885	1.4	2,308	2.8	1,423	160.7	8.7
Hispanic Population ^b	5,563	8.6	21,568	26.6	16,005	287.7	97.8

Source: US Census Bureau and CED

^a "Other" represents the aggregated Census data from the following populations; American Indian or Alaska Native Alone, Native Hawaiian and Pacific Islander, Some Other Race Alone, Two or More Races.

^b Hispanics may be of any race.

Projected Disabled Population Patterns and Distribution

As stated above, population forecasting can be developed at any level of geography - state, county, or community - and the level of geography chosen is based on the context of the study. As water utility service areas do not necessarily coincide geographically with community geo-political boundaries, SEWRPC refined its community based population forecasts for the existing and projected water utility service areas for the RWSP to coincide with probable/projected water utility service areas. For the purposes of this study, it was **necessary to create community or "Place" level** projections for both the general population and for disabled populations based on access to place level data on disability collected in the 2000 Census Decennial. As Census definitions and age aggregations were refined considerably for the year 2000 Census, making it difficult to compare to historic disability data, the projections for future disabled populations rely heavily on the patterns detected in the year 2000 data.

Demographers predict that, based on current population conditions and trends regarding age structure, fertility, and mortality rates, the entire population of the United States will age significantly over the next 50 years. Simply stated, by 2035 the proportion of elderly persons within the population will significantly increase. Disability tends to increase with age, and therefore, it is anticipated that the number of elderly with a disability will also increase. This will most likely place greater needs on services for the elderly and aging disabled, such as transit and paratransit needs, and indicate an increasing demand for accessible and affordable housing. As stated before, due to the financial costs associated with disabilities and, in many cases, obstacles to employment, disabled people are more likely to earn less income and are more susceptible to falling into poverty.

Methodology

Given the relationship between age and disability, CED developed a projection for the number of disabled individuals in the year 2035 based on the aggregate year 2000 disability patterns by age group and on the findings from the cohort component analysis. A constituent of the cohort component analysis includes developing projections of age over time. Using the percentages of population by age group (5 to 15 years, 16 to 64 years, and Over 64 years of age) developed for the year 2000 Decennial Census, CED was able to project the number of individuals with one or more disabilities for the year 2035 for the counties and for the "selected communities" within the region.

Findings

Based on the cohort component breakouts by age group, the total number and percent of disabled population in southeastern Wisconsin is anticipated to increase by the year 2035 (see Table 2-XXX). According to the 2000 Census data, approximately 15.3 percent of the regional population (295,355 people) had one or more disabilities; by 2035, it is anticipated that this will increase to about 17.2 percent or 393,466 people. The total numbers and percentages of disabled persons are also anticipated to increase in each county. Disabled populations in Kenosha and Milwaukee Counties are, based on percent, above the regional average, while Racine County's disabled population is at the regional average.

As these projections are age-based, the distribution of disabled persons will change slightly within the region. Although Milwaukee County is projected to have the greatest number (194,989) and percentage (19.3 percent) of disabled individuals, its percent of disabled persons is anticipated to climb by about 1.2 percent, which is the smallest increase. Some of the counties with relatively lower disabled populations will begin to see a greater percent increase. In 2000, about 11 percent of Washington County's population had one or more disabilities; by 2035, this is projected to increase to 13.8 percent, a difference of about 2.8 percent. In 2000, about 10.8 percent of Waukesha County's population had one or more disabilities; by 2035, this is projected to increase to 13.5 percent, a difference of about 2.7 percent. Ozaukee, Racine, Kenosha, and County's disabled population is projected to increase by about 2.4, 2.3, and 2.2, percentage points. Walworth County's is projected to increase by 1.4 percent.

Table 2-XXX: Year 2035 Projected Population with One or More Disabilities in Southeastern Wisconsin

County	Projected Population	Total Disabled Population		5-15 Years of Age		16 to 64 Years of Age		Over 64 Years of Age	
		Number	%	Number	% w/in age group	Number	% w/in age group	Number	% w/in age group
Kenosha	213,886	38,530	18.0	1,916	6.3	20,674	16.4	15,940	36.5
Milwaukee	1,012,538	194,989	19.3	11,035	7.4	115,214	18.9	68,739	37.6
Ozaukee	98,922	12,569	12.7	641	4.8	5,265	9.4	6,663	27.6
Racine	234,467	40,298	17.2	2,008	6.0	20,214	14.9	18,075	35.8
Walworth	122,275	18,715	15.3	834	5.1	9,973	13.4	7,908	33.2
Washington	162,462	22,466	13.8	956	4.4	9,800	10.6	11,710	29.9
Waukesha	445,569	60,006	13.5	2,722	4.5	25,228	10.0	32,056	29.8
REGION	2,290,118	393,466	17.2	20,147	6.2	208,705	15.5	164,615	34.9

Source: US Census Bureau and CED

Note: For the purposes of data collection, the US Census Bureau identifies noninstitutionalized population Age 5 years and over for its estimates on the disabled population.

Table 2-XXXI shows the projected numbers of disabled persons for the year 2035 based on the CED cohort component analysis and the percentages of disabled persons by age group for the year 2000. Like the counties, the numbers and percentages of disabled persons are projected to increase in nearly all of the selected communities (see Table 2-XXXII). Based on the projections, CED anticipates that the percentages of disabled persons will increase most in the communities of Saukville, Grafton, Oak Creek, and Muskego, at 4.0, 3.8, 3.5, and 3.3 percent respectively. Besides Milwaukee, Kenosha, Oak Creek, and Waukesha will see the greatest increases in the numbers of disabled persons, at 7,418 (Kenosha), 5,259 (Oak Creek), and 4,064 (Waukesha). Elm Grove is projected to increase the least, by only 15 persons or 0.6 percent.

Table 2-XXXI: Year 2035 Projected Population with One or More Disabilities in Selected Communities

County	Projected Population	Total Disabled Population		5-15 Years of Age		16 to 64 Years of Age		Over 64 Years of Age	
		Number	Percent	Number	Percent in age group	Number	Percent in age group	Number	Percent in age group
Kenosha	119,330	22,894	19.2	17,809	6.9	71,483	18.3	21,787	39.4
Milwaukee	625,718	137,979	22.1	96,695	8.4	384,519	22.8	97,654	43.2
Oak Creek	52,612	8,728	16.6	6,926	4.1	30,575	11.4	11,890	41.7
Port Washington	12,856	1,864	14.5	1,694	4.6	7,413	9.7	3,015	35.4
Racine	72,772	14,148	19.4	11,739	7.1	43,826	19.9	11,716	39.2
Brookfield	45,885	5,450	11.9	228	3.6	2,102	8.3	3,120	26.5
Cedarburg	11,048	1,632	14.8	51	3.4	656	10.8	926	31.9
Elm Grove	5,588	578	10.3	793	3.5	3,039	7.4	1,477	22.0
Germantown	24,658	3,409	13.8	100	3.1	1,370	10.0	1,939	30.4
Grafton	13,179	1,882	14.3	1,748	5.6	7,423	6.9	3,295	38.6
Muskego	28,600	3,891	13.6	163	4.1	1,430	9.1	2,298	32.1
New Berlin	43,139	6,038	14.0	5,636	7.5	23,820	9.5	11,365	29.5
Saukville	4,454	941	21.1	51	9.0	427	16.6	463	41.6
Waukesha	81,186	12,747	15.7	11,764	6.2	48,522	13.6	15,221	35.6

Source: US Census Bureau and CED

Note: For the purposes of data collection, the US Census Bureau identifies noninstitutionalized population Age 5 years and over for its estimates on the disabled population.

Table 2-XXXII: Year 2000 Population With One or More Disabilities in Selected Communities

Community	Disabled Population in Year 2000		Projected Disabled Population in Year 2035		Change	
	Number	%	Number	%	Number	%
Kenosha	15,476	18.8	22,894	19.2	7,418	0.4
Milwaukee	120,800	22.2	137,979	22.1	17,179	-0.1
Oak Creek	3,469	13.1	8,728	16.6	5,259	3.5
Port Washington	1,170	12.4	1,864	14.5	694	2.1
Racine	14,687	20.0	14,148	19.4	-539	-0.6
Brookfield	3,825	10.6	5,450	11.9	1,625	1.3
Cedarburg	1,295	13.0	1,632	14.8	337	1.8
Elm Grove	563	9.7	578	10.3	15	0.6
Germantown	1,808	10.7	3,409	13.8	1,601	3.1
Grafton	1,014	10.5	1,882	14.3	868	3.8
Muskego	2,020	10.3	3,891	13.6	1,871	3.3
New Berlin	4,231	11.8	6,038	14.0	1,807	2.2
Saukville	654	17.1	941	21.1	287	4.0
Waukesha	8,683	14.9	12,747	15.7	4,064	0.8

Source: US Census Bureau and CED

There are two unique exceptions, however, in the Cities of Milwaukee and Racine. The City of Milwaukee is projected to have the greatest percent (22.1) and number (137,979) of persons with one or more disabilities, or an increase of about 17,200 people. In comparison to year 2000 data, it is anticipated that the percent of disabled population in 2035 will stay about the same in Milwaukee (22.2 percent of the population). The City of Racine had the second highest percentage of disabled persons in the year 2000; the 2035 projections indicate that this will decline to about 19.4 percent, and that in 2035, there will be a decline in the number of people with disabilities, from 14,687 to 14,148, or by 539 people. As the

projections are based on age-cohorts and as a significant portion of a community's disabled population is Over 64 Years of Age, these declines indicate a structural change in the age make-up of these communities. And although the populations of each community in southeastern Wisconsin are getting older, most likely these projections reflect that the **populations in Milwaukee and Racine will be aging less or "getting less old"** relative to the other communities.

ASSESSMENT OF POTENTIAL IMPACTS OF RECOMMENDATIONS

Each of the six recommendations was evaluated based on any foreseeable impacts it might have on population distribution and the distribution of racial and ethnic minorities within the **Region, and particularly in the "selected communities"**. The two following questions provide the framework or context for the evaluation.

- What impact, if any, would implementation of the regional water supply recommendations have on the overall distribution of population in the Region?
- What impact, if any, would implementation of the regional water supply recommendations have on the racial segregation patterns in the Region?

Sources of Water Supply

A reliable, abundant source of high quality water is a necessity for any community to develop. The primary question related to population and minority/ethnic distribution is, would a change in the source of water supply have any impact on future population patterns, including racial or ethnic segregation.

There are two major water supply sources in Southeastern Wisconsin - groundwater and Lake Michigan, each with its own unique advantages and disadvantages. Although Lake Michigan water serves the majority of people, commerce, and industry in the seven County Region, development in the outlying Counties has increased greatly over the past 50 years, and the use of groundwater as a supply source has also increased. One of the central issues of the Regional Water Supply Plan was a concern regarding the amount of high quality groundwater supply available, and whether or not it could support both existing and planned development.

The 2035 Regional Land Use plan provided the basis for establishing and delineating the planned municipal water utility service areas within the Region. Under the 2035 Regional Land Use Plan, SEWRPC recommended that most new urban development within the Region be served by municipal sanitary sewer and water supply facilities. The service area delineations contained in the Regional Land Use Plan were generalized, systems-level delineations, intended to be refined and detailed under subregional and local land use utility planning. In the RWSP, the delineations of the future water service areas were further refined based on proposed land use development type and density, the relationship to existing water supply service areas, the shallow groundwater aquifer characteristics, and anticipated water service needs as discussed in known local plans. The RWSP identified new areas recommended to be served by municipal water service either through expansions of the water service areas of the 78 existing water utilities (as of 2005) and an addition of 23 of the 34 new service areas identified under the Regional Land Use Plan

The 2035 Regional Land Use Plan had identified 34 urbanized areas not currently served by municipal water. Under the RWSP, each of the 34 new planned water service areas was evaluated based on existing and proposed land uses, existing residential housing units and densities, distance to the nearest existing municipal water supply service area, aquifer characteristics, and any known local initiative to develop municipal water supply systems

(see Table IV-1 in Planning Report 52). The RWSP recommended that 23 of the 34 areas become planned municipal water service areas, while 11 are recommended to continue to rely on private water supply systems. Of the 23 new systems, 21 were recommended to utilize local groundwater supplies, and 2 were recommended to utilize Lake Michigan as the source of supply (the Village of Elm Grove, and the Northwest Caledonia Area). This recommendation is contingent upon both a demonstrated local need for a utility and a local initiative to form the utility; otherwise, in the absence of these conditions, the RWSP recommends that these areas continue to utilize private wells.

Findings from the regional aquifer simulation model, set forth in SEWRPC Technical Report No. 41, ***A Regional Aquifer Simulation Model for Southeastern Wisconsin***, indicate that more problems due to sustained pumping seem to be arising in the deep aquifer than in the shallow aquifer. Much of the deep aquifer in the Region sits below an impermeable aquitard, and based on the modeling¹³, the recharge rates are exceptionally slow in comparison to the shallow aquifer. Also, regional groundwater pumping has affected groundwater flow patterns, shifting the location of the deep groundwater divide to the west, potentially reversing the flow of groundwater away from the Lake Michigan Basin and toward the inland pumping centers. Groundwater quantity problems are not limited to the deep aquifer. The model estimated that between 1864 (considered pre-development conditions) and the year 2000, pumping decreased the rate of discharge in the shallow groundwater to Lake Michigan, and most significantly decreased the baseflow of streams, although this reduction is partially offset by return flow from sewers.

In addition to groundwater flow and quantity issues, a few groundwater quality issues have also arisen associated with groundwater contaminants whose levels are regulated by the USEPA. Many of these contaminants are local to specific wells and efforts to protect wells from contamination are dealt with through State and local regulations regarding well siting, water treatment, or through wellhead protection efforts. A significant problem with groundwater quality has been identified at some of the municipal wells due to the high levels of naturally occurring contaminants including radium or salts in groundwater extracted from portions of the deep aquifer. Some communities are currently facing or were facing sanctions by the Wisconsin Department of Natural Resources for having a higher concentration of radium in the municipal water supply than allowed by the USEPA. The City of Waukesha has taken major steps to reduce the amount of radium in its water supply, and will need to come into compliance with the USEPA standard by the year 2018. All of the other municipal utilities in southeastern Wisconsin which had radium issues have come into full compliance by either treating the water, blending the contaminated water supply with uncontaminated water to lower the concentration to come into compliance with the USEPA standards, or by changing the aquifer source of supply (generally, by switching to the shallow aquifer).

The RWSP recommends the potential future creation of two new water utilities¹⁴ that rely on Lake Michigan water, and that nine existing groundwater-reliant utilities¹⁵ switch to relying on Lake Michigan as the source of supply. The socio-economic impact analysis focuses on assessing whether or not the recommendation to switch the nine groundwater-reliant communities to Lake Michigan will have a negative impact on the communities or portions of

¹³ Technical Report 47, ***Groundwater Recharge in Southeastern Wisconsin Estimated by a GIS-based Water-Balance Model***.

¹⁴ These proposed utilities are for the Village of Elm Grove and for a small portion of the Village of Caledonia, referred to as Northwest Caledonia Area.

¹⁵ These communities include the Cities of Brookfield, Cedarburg, Muskego, New Berlin, and Waukesha, Villages of Germantown, Grafton, and Saukville, and their environs, and the Town of Yorkville Water Utility District 1.

the communities that could potentially be providing Lake Michigan water. At the center of this issue is determining whether or not people and jobs would migrate over the subcontinental divide. Would changing the source of supply further concentrate low-income or minority households in the Lake Michigan-providing communities?

Evaluation of the Impact of Population Distribution Based on Planned Utility Category and Source of Supply

Population growth is a necessary component for development. The changes in population relative to the proportion of land being converted from unused to used or developed **purposes indicate a community's ability to develop various types of land uses, and in this case, for residential purposes to accommodate population growth.** Under the comprehensive planning process that each of the selected communities recently completed, each community developed a land use plan for future growth, based on anticipated future conditions including population growth. The comprehensive plans are intended to be used to help guide land use development, which in turn provides guidance for utility planning.

Each community has unique land use needs and capacities to accommodate its existing and **future populations, and it is generally a community's access** to developable lands that plays the most significant role in its ability to grow. The results of the Land Use analysis in Chapter 5 indicate that some of the selected communities (for example, Elm Grove) have very little developable lands available and the populations in these communities are not expected to increase by 2035. Some communities (for example, Germantown and Muskego) have considerable amounts of unused, developable land, and based on recent growth patterns, the projected population growth is anticipated to be significant. Most communities fall somewhere in between.

The primary question related to population patterns and growth is whether or not a change in the source of water supply could have any impact on future population growth patterns. In principle, a lack of access to clean water can act as a constraint on development; examples of development in geographic locations where water is scarce or of poor quality (for example, in portions of the southwestern US) indicate that development can be inhibited if water supplies are inadequate. However, based on the scientific evidence developed by the WGNHS in conjunction with the Regional Water Supply Planning program, neither the quantity nor quality of the existing groundwater supplies could prove to be a **constraint to the development proposed in the RWSP and SEWRPC's Regional Land Use Plan**, with the exception of possible localized conditions.

The groundwater¹⁶ and aquifer¹⁷ studies developed as part of the Regional Water Supply Planning process by SEWRPC, the WGNHS, the USGS, the DNR, University of Wisconsin – Milwaukee and other Wisconsin groundwater experts provide the most current and thorough examination of the groundwater supply in southeastern Wisconsin. A review of these studies indicates that while withdrawals from the shallow and deep aquifers have, over time, changed the groundwater flow system, many of the problems or perceptions regarding groundwater quality or quantity are associated with withdrawal from the deep aquifer, rather than the groundwater system as a whole. Based on the scientific evidence developed by the WGNHS, it appears as though existing sources of groundwater supply, ***if properly managed***, would be sufficient to support development through 2035, ***assuming that existing land use plans do not change***.

¹⁶ *Technical Report No. 37, Groundwater Resources of Southeastern Wisconsin*, prepared by SEWRPC and WGNHS

¹⁷ *Technical Report No. 41, A Regional Aquifer Simulation Model for Southeastern Wisconsin*, prepared by SEWRPC, USGS, WGNHS, DNR, UWM, and participating water utilities in Southeastern Wisconsin.

Of the 78 existing utilities in southeastern Wisconsin, it was recommended that 27 remain on Lake Michigan supply, 42 utilities remain on groundwater supply, and 9 utilities were recommended to be converted from groundwater to Lake Michigan as the source of supply. It is these 9 utilities, the 2 newly recommended Lake Michigan utilities, and the 5 potential Lake Michigan suppliers that were selected as the focus of the cohort component model developed for the socio-impact analysis.

CED's cohort component model projects that the existing racial and ethnic segregation patterns will continue to show both numerical and proportional growth of the minority populations in each of the "selected communities" through the planning year 2035. If trends over the past 50 years continue, migration of the White Alone, Non-Hispanic populations from the Cities of Milwaukee and Racine will continue to contribute to growth in suburban areas. Additionally, based on the cohort model, the White Alone populations in the Cities of Kenosha and Waukesha are projected to decline in number and proportion while increases in minority populations will account for all of the population growth in those cities.

It is not, however, anticipated that either the projected population growth or the distribution of ethnic and racial minorities, or disabled populations will be caused by implementation of the recommendation to change sources of water supply under the Regional Water Supply Plan. A review of past trends indicates that significant population growth has occurred over the past 40 years in each of the nine selected communities, while it has significantly declined or remained stagnant in the historic urban centers, including the cities of Milwaukee and Racine. Based on the results of the groundwater recharge study undertaken by the WGNHS, outside of a few unique areas with localized aquifer conditions, there is no pervasive shortage of groundwater in southeastern Wisconsin and the existing and replenishing supplies within both aquifers could sustain existing and projected development as set forth in the Regional Water Supply Plan and Regional Land Use Plans through the year 2035.

In most of the "selected communities", the existing and projected service areas delineated within the Regional Water Supply Plan are predominantly developed (see chapter 5). Any major population increases would be based not only on a combination of fertility, mortality, and migration, but also on an incremental growth due to expansion of the water utility service areas or redevelopment within the service areas. Additionally, if the RWSP recommendations were adhered to by local and county planning agencies, most population growth and residential development would be limited to the projected utility service areas, as stated under the Regional Land Use Plan.

For the 27 existing utilities slated to remain on Lake Michigan supply, and the 42 existing utilities to remain on groundwater supply, it is anticipated that any impacts on population growth or racial and ethnic population patterns will not be affected by the recommendations to remain on the current source of supply. For the 21 potential future utilities to utilize groundwater supply, which are predominantly located around lakes in the western portion of Waukesha County or in the Fox River watershed throughout Racine and Kenosha Counties, it is unlikely that the development of such systems would have an impact on population growth or minority or ethnic distribution patterns.

Each of the planned water utility areas were evaluated by CED in light of their planned land uses to evaluate the potential for growth within the service areas. The results of this analysis are discussed in Chapter 5.

Water Conservation Programming

Unlike other parts of the country, such as California or the southwestern US, where water plays a significant role in determining land use patterns, development on either side of the subcontinental divide has historically not been hampered by a lack of access to water. The status of Southeastern Wisconsin as a relatively water-rich area is, however, changing, and the RWSP recommends that measures be taken to conserve water as a resource and to improve the system transmission of water.

A water conservation program is identified as a combination of practices, procedures, policies and technologies to reduce the amount of water used or to improve or maintain water utility system efficiency. The recommendations regarding water conservation programming in the RWSP are two-fold in their design: first, they were developed to increase water system efficiency which reduces the amount of water pumped to meet customer demands, and second, to reduce the amount of water used by customers. The RWSP includes a range of recommendations for water conservation programming, depending on the infrastructure needs of each water utility and the source of supply as shown in Table IV-9 in Planning Report 52.

Additionally, in order to preserve and protect fresh water within the Great Lakes basin, the newly adopted Great Lakes Compact sets forth requirements and standards for communities that wish to utilize Great Lakes water through a diversion. Under the Compact, each state must design its own in-basin conservation programming which must be consistent with agreed-upon regional objectives. Wisconsin finalized its objectives in December 2008, and the Wisconsin Department of Natural Resources is currently developing the specific **quantitative standards upon which the program's conservation requirements will be based.**

Water conservation measures, at any level, are designed to both improve the use of supply and therefore to sustain all sources of water supply for all water consumers. There is no credible method to draw a linkage between the implementation of water conservation measures at any level and the potential for having an impact on population growth or distribution patterns in the Region, and therefore it is unlikely that water conservation programming would have an impact on projected population patterns, including minority and ethnic distribution patterns and the distribution of disabled persons in the Region. Some of the requirements set forth under the intermediate and advanced level programs may have an impact on low-income households and may disproportionately affect low-income minority or ethnic households. This issue is considered in Chapter 4.

Recharge Area Protection

Protecting groundwater recharge areas is considered essential for ensuring an abundant and safe groundwater supply. As part of the planning process, the WGNHS developed a method to delineate groundwater recharge areas based on capacity to recharge or discharge groundwater using GIS. The results are published in Technical Report No. 47, ***Groundwater Recharge in Southeastern Wisconsin Estimated by a GIS-Based Water Balance Model.***

Currently, there are no regulatory constraints, at either the state, county or local levels, regarding development in (high or very high) groundwater recharge areas. The RWSP recommends that important groundwater recharge and discharge areas should be identified for preservation or for application of land development plans and practices that protect groundwater quality and maintain the natural surface and groundwater hydrology. It does not, however, give further instruction as to specify any new regulatory constraints, and as SEWRPC is an advisory body, it does not hold the authority to create or enforce new regulatory constraints.

Based on a lack of regulatory constraints and a lack of formally delineated recharge areas, there is no credible method to draw a linkage between the implementation of the recharge area protection recommendation and the potential for having an impact on population growth or minority, ethnic, or disabled population distribution patterns in the Region. The delineation of recharge areas for protection should, if applicable, also include an inventory of the population and any development of local, county, or state regulations regarding recharge areas should take into consideration any potential ramifications that the implementation of regulations could have on the populations of the delineated recharge areas.

Stormwater Management Practices

Similar to groundwater recharge, stormwater management practices encourage groundwater treatment and infiltration (recharge) in order to best maintain the natural hydrology between surface waters and groundwaters, and therefore, to contribute to a sustainable groundwater supply. The RWSP recommends following stormwater best management practices related to infiltration and recharge for all new residential and for selected nonresidential developments.

Regulations regarding stormwater management and its related land management practices are set forth by the State of Wisconsin in NR Chapters 151-155, NR 216, NR 243, and ATCP 50, and administered at the County or local level through various zoning ordinances. Stormwater management practices are generally considered to be safeguards to ensure a safe, abundant groundwater supply, and although unlikely to have an impact on population or job patterns, state-of-the-art stormwater management practices may require restrictions on specific types of land uses.

Based on the RWSP recommendation to follow best management practices related to stormwater infiltration and recharge for all new development, there is no clear, easily identifiable linkage between the implementation of the stormwater management practices recommendation and the potential for having an impact on population growth or minority, ethnic, and disabled population distribution patterns in the Region.

High Capacity Well Siting Procedure Changes

Currently, the Wisconsin Department of Natural Resources regulations require a permit application for all new high capacity wells. The DNR review includes the potential impact of the well on nearby municipal wells and adjacent surface waters among other things. The RWSP provides guidance regarding the siting of all new high capacity wells and for monitoring the impacts that such wells may have on the shallow aquifer. The RWSP recommendations for improving high capacity well regulations are based on improving methods to safeguard the quantity and quality of the groundwater supply, and for insuring that groundwater extraction will not have a negative impact on nearby surface waters through baseflow depletion.

Based on the RWSP recommendation to improve high capacity well siting methods and regulations, there is no clear, easily identifiable direct linkage between the implementation of the high capacity well recommendation and the potential for having an impact on population growth or minority and ethnic distribution patterns in the Region. This recommendation implies adoption of regulations incorporating well siting procedures. Development of high capacity well regulations should take into consideration any potential impacts on all nearby populations.

Enhanced Rainfall Infiltrations Systems

Enhanced rainfall infiltration systems are artificial methods to recharge groundwater. The RWSP recommends the use of enhanced rainfall infiltration systems in conjunction with the siting of shallow aquifer high capacity wells, if siting studies indicate that baseflow reductions to nearby surface waters could be materially affected.

The determination to use enhanced rainfall infiltration systems is based on local conditions and the appropriate type of groundwater recharge infiltration system would need to be determined on a site specific basis. Based on the these constraints, there is no clear or direct linkage between the implementation of the enhanced rainfall infiltration system recommendation and the potential for having an impact on population growth or minority, ethnic, and disabled population distribution patterns in the Region.

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Chapter 3

JOB DISTRIBUTION TRENDS AND FORECASTS

INTRODUCTION

As part of the socio-economic impact analysis, the following question regarding implementation of the RWSP and its impact on job distribution patterns was proposed by SEWRPC:

- What impact, if any, would implementation of the regional water supply recommendations have on the overall distribution of job locations in the Region?

Access to a reliable, sustainable water supply is necessary not only for residential development, but also for commercial or industrial development and, therefore, water supply has a potential impact on the distribution of jobs.

In addition to the population forecasts developed in SEWRPC's Land Use Planning process, detailed job forecasts were developed to determine the existing and projected number, distribution, and types of jobs in southeastern Wisconsin¹. Like previous SEWRPC forecasts, these forecasts were based on known conditions and trends, using data, including demographic data from the decennial U.S. Census; the forecasts set forth anticipated future conditions for the year 2035. The job projections were developed with corresponding population forecasts, to be used as the basis for current SEWRPC planning efforts, including the Regional Water Supply Plan. Similar to the population forecasts, SEWRPC projected a range of future employment levels—low, intermediate, and high—for the Region. The projection range was developed due to the high degree of uncertainty that coincides with any effort to forecast social or economic outcomes. The intermediate projection is considered the most likely to be achieved for the Region and was selected for use in the Regional Water Supply Plan (RWSP).

In order to satisfactorily identify and understand potential negative socio-economic impacts that may arise from the recommendations set forth in the RWSP, CED evaluated historic job patterns within the region and SEWRPC's job projections that were developed for the RWSP, for the communities selected for analysis.

JOB GROWTH PATTERNS AND TRENDS IN SOUTHEASTERN WISCONSIN

Existing Conditions in Southeastern Wisconsin

Historic job patterns in southeastern Wisconsin have been studied by numerous institutions and organizations, including SEWRPC and the CED. As part of its regional land use planning program, SEWRPC has collected data and reported on trends in jobs and employment in southeastern Wisconsin since its inception in 1963. CED and several other academic institutes and centers also study and report on local and regional employment trends. Many of these reports have come to similar findings, that over the past 40 to 50 years, there has been a significant change in job sector employment, from an economy that relied predominantly on manufacturing toward an economy reliant on services. Additionally, while job growth has slowed significantly in the historic urban centers, particularly from the City

¹ Technical Report No. 10, *The Economy of Southeastern Wisconsin*, July 2004.

of Milwaukee and Milwaukee County, there has been significant job growth in the suburban communities and counties.

The movement from a manufacturing-based economy toward a more service-based economy is prevalent throughout the United States. Wisconsin, and southeastern Wisconsin, is rather unique in that manufacturing continues to play a significant role in its economy. At the regional level, studies indicate that both the economic and geographic shift has had a very negative impact on populations within the urban centers, particularly in the inner City of Milwaukee. As job centers shifted from the urban core to the suburbs, job accessibility has become a significant barrier to employment for those who do not have a personal vehicle, due to the lack of public transportation options. Additionally, as more and more jobs require post high school training or education, many of these jobs are **"inaccessible"** to those that either lack education or skills or lack the resources to obtain the skills.

A study by CED focuses specifically on the impact that this historic shift has had on inner city populations in Milwaukee². Much of the study focuses on a geographic subset of the inner city, the **"Enterprise Community", the area most plagued by problems of poverty, crime, and joblessness**. In 2000, unemployment in the inner city was about four times higher than the metro Milwaukee average. From 1970 to 2000, the population in the "Enterprise Community" dropped by 45 percent. This area has been plagued by joblessness, and in 2000, 59 percent of the working age population was either unemployed or not in the labor force, twice the suburban average.

Another study³ published in 1998 by CED looks at the City of Milwaukee and metro Milwaukee's economic performance over time, as well as in comparison to 13 other large, **Frostbelt cities and metropolitan areas. Most identified "Frostbelt" cities and regions include other Great Lakes or "Rust Belt" cities with similar histories**. Key indicators showed that the metro Milwaukee region has experienced moderate job growth between 1970 and 2000, and has done relatively better at conserving its manufacturing base than most big Frostbelt cities. Like all central cities in the Frostbelt, the City of Milwaukee has declined markedly since the late 1960s as the employment hub of its region, but in relative terms, the City of Milwaukee has done substantially better than most Frostbelt cities in holding its share of regional employment.

In 1998, metro Milwaukee had the 5th lowest unemployment rate of the 14 regions in the study; the city of Milwaukee had the 5th lowest among the cities. However, the black unemployment rate doubled in both the Milwaukee metropolitan area and city between 1970 and 1990, and the disparity between black and white unemployment rates in metropolitan Milwaukee remains the widest in the Frostbelt, as has been the case since 1970.

The Great Recession

The global economy is in the second year of what has now been dubbed the Great Recession. Although the **long-term impact on southeastern Wisconsin's economy is unknown**, recent employment data indicates that the impact on southeastern Wisconsin is about average for the United States. Economic indicators are starting to show that the Great Recession is likely to have a greater impact on minority and ethnic populations, particularly black and Hispanic persons.

² Marc Levine *The Economic State of Milwaukee's Inner City: 1970-2000*. December 2002. Accessible at www4.uwm.edu/ced/publications/innercity2002.pdf

³ Marc Levine with Sandra J. Callaghan. *The Economic State of Milwaukee: The City and the Region*, May 1998.

The Employment and Training Institute (ETI) at the University of Wisconsin Milwaukee conducts a periodic survey on job openings in southeastern Wisconsin; its most recent survey was completed in May 2009⁴. In this study, ETI concluded that there is currently an unprecedented job gap in the seven-county region between people seeking work and jobs available, and that the gap between job seekers and full-time openings is 13 to 1. This gap **is most severe in the City of Milwaukee's inner city where there are about 25 job seekers for each full-time job opening.**

Based on the results of the 2009 survey, ETI concluded that technical or skills training are essential for a majority of jobs available in the region and that the labor market for unskilled workers lacking a high school diploma or occupation-specific work experience is extremely weak. In comparison to the prior ETI survey (May 2006), there were about 6,550 full-time openings for unskilled workers; in 2009, there were only 500 openings. Additionally, demand for unskilled, semi-skilled, and skilled blue collar workers has seen the greatest decline between 2006 and 2009, and full-time job openings in manufacturing saw their lowest point since the ETI job survey began in 1993.

County Level Job Distribution in Southeastern Wisconsin

Historic job growth patterns indicate that there has been trend toward decentralization of jobs from the historic economic and urban centers to the outlying counties between 1960 and 2000. Tables 3-I and 3-II and Chart 3-I show historic job growth patterns between 1960 and 2000 for the counties in southeastern Wisconsin. In 1960, there were about 673,000 jobs in southeastern Wisconsin; by 2000, this had grown to about 1,222,800, an increase of 549,800 jobs or 82 percent. Throughout this period, the types of jobs and the economy in the region had shifted from the historic reliance on manufacturing as the most dominant employment sector to the service industry and retail trade as the dominant industries. Manufacturing does, however, continue to play a significant role in the region's economy and manufacturing jobs were the second highest sectoral category in 2000. Technical Report No. 10, *The Economy of Southeastern Wisconsin*, July 2004 provides a detailed history and analysis of jobs by sector within the region.

Table 3-I: Job Distribution for Southeastern Wisconsin

County	1960		1970		1980		1990		2000	
	Jobs	%	Jobs	%	Jobs	%	Jobs	%	Jobs	%
Kenosha	42,200	6.3	42,100	5.4	54,100	5.7	52,200	4.6	68,700	5.6
Milwaukee	503,300	74.8	525,200	66.9	583,200	61.5	609,800	53.3	624,600	51.1
Ozaukee	10,200	1.5	21,300	2.7	28,200	3.0	35,300	3.1	50,800	4.2
Racine	49,900	7.4	64,600	8.2	81,200	8.6	89,600	7.8	94,400	7.7
Walworth	19,600	2.9	26,400	3.4	33,500	3.5	39,900	3.5	51,800	4.2
Washington	15,200	2.3	24,300	3.1	35,200	3.7	46,100	4.0	61,700	5.0
Waukesha	32,600	4.8	81,000	10.3	132,800	14.0	189,700	16.6	270,800	22.1
Region	673,000	100.0	784,900	100.0	948,200	100.0	1,143,700	100.0	1,222,800	100.0

Source: Bureau of Labor Statistics and the US Census Bureau

Along with population growth, job growth among the seven counties has changed over the 1960 to 2000 period. Charts 3-II and 3-III illustrate the changes in job distribution patterns by county between 1960 and 2000. In 1960, the vast majority of jobs, about 75 percent, were located in Milwaukee County. Similar to changes in population distribution, by 2000, **Milwaukee County's share of regional jobs had declined to about 51 percent. Although**

⁴ The Employment and Technology Institute at the University of Wisconsin Milwaukee *Survey of Job Openings in the 7 Counties of Southeastern Wisconsin: Week of May 25, 2009* accessible at www4.uwm.edu/eti/2009/RegionalJobOpenings.pdf

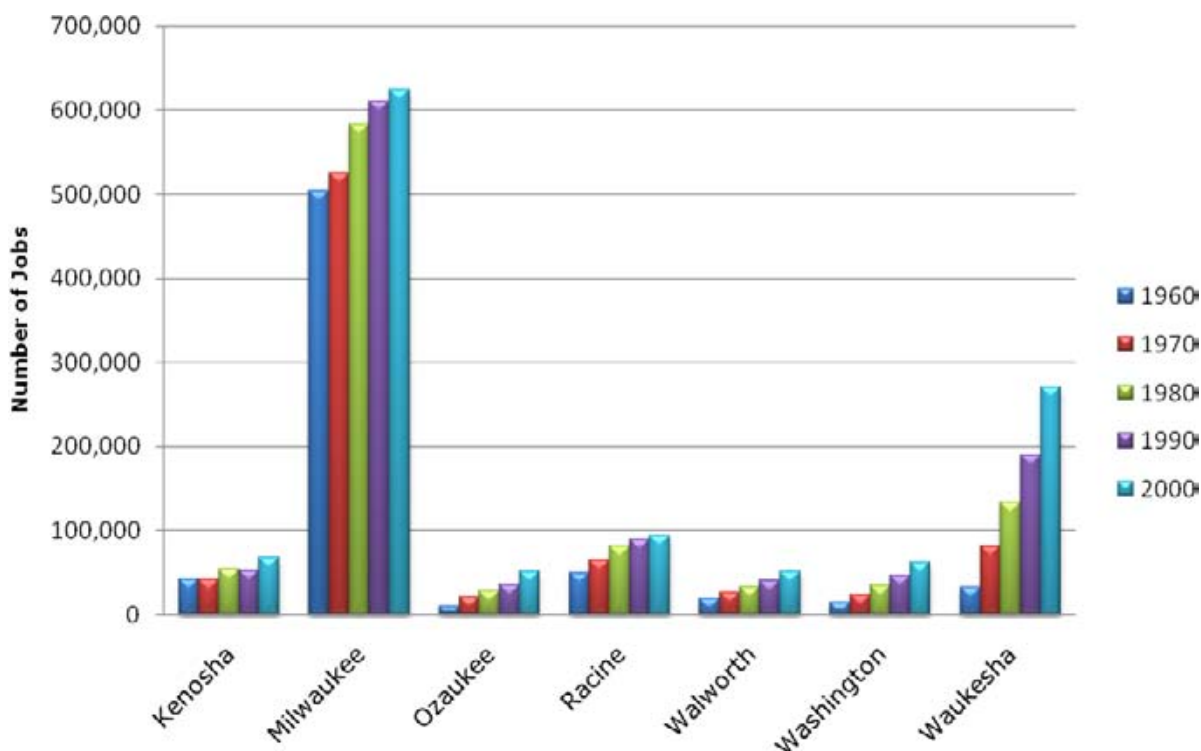
Milwaukee County had gained about 121,300 jobs, or the second highest number of jobs over this time period, its share of jobs steadily declined during this period and its average annual growth rate, factored over the 40 year period, was approximately 0.54 percent or less than the regional 1.5 percent average.

Table 3-II: Job Growth in Southeastern Wisconsin

County	1960	2000	1960 to 2000		
			Change	Percent	Compound Annual Growth Rate
Kenosha	42,200	68,700	26,500	62.8	1.23
Milwaukee	503,300	624,600	121,300	24.1	0.54
Ozaukee	10,200	50,800	40,600	398.0	4.10
Racine	49,900	94,400	44,500	89.2	1.61
Walworth	19,600	51,800	32,200	164.3	2.46
Washington	15,200	61,700	46,500	305.9	3.56
Waukesha	32,600	270,800	238,200	730.7	5.44
Region	673,000	1,222,800	549,800	81.7	1.50

Source: Bureau of Labor Statistics and the US Census Bureau

Chart 3-I: Jobs by County Between 1960 and 2000

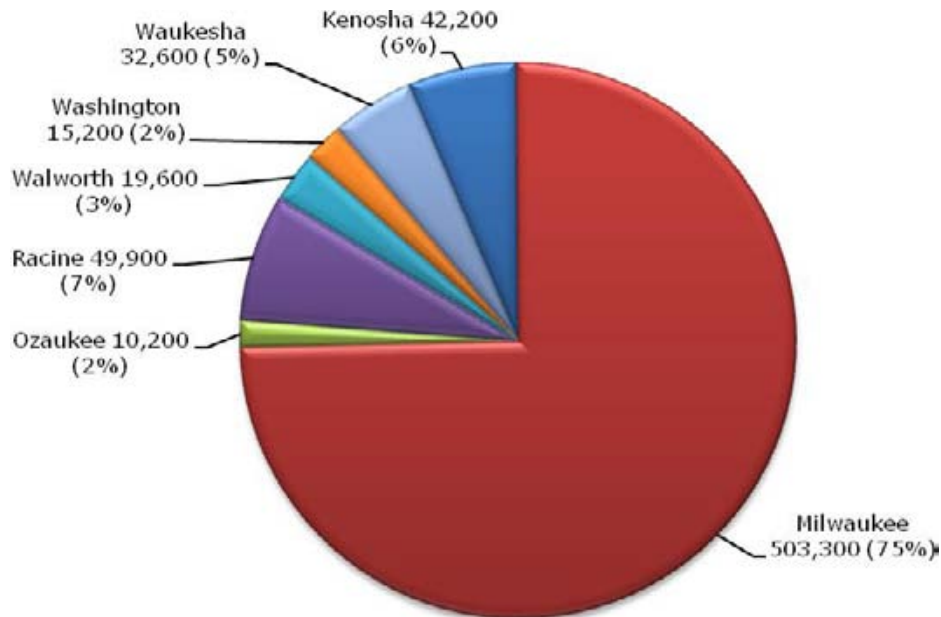


Source: Bureau of Labor Statistics and the US Census Bureau

Although each County experienced some degree of job growth, parts of the Region have fared better than others. Similar to its population growth, Waukesha County experienced a significant increase in the number of jobs and in its share of regional jobs. In 1960, Waukesha had about 32,600 jobs, or less than 5 percent of the regional share; by 2000, the number of jobs increased, on average, by about 5.44 percent annual growth rate to 270,800, or about 22 percent of the regional job share. This is a gain of about 238,200 jobs

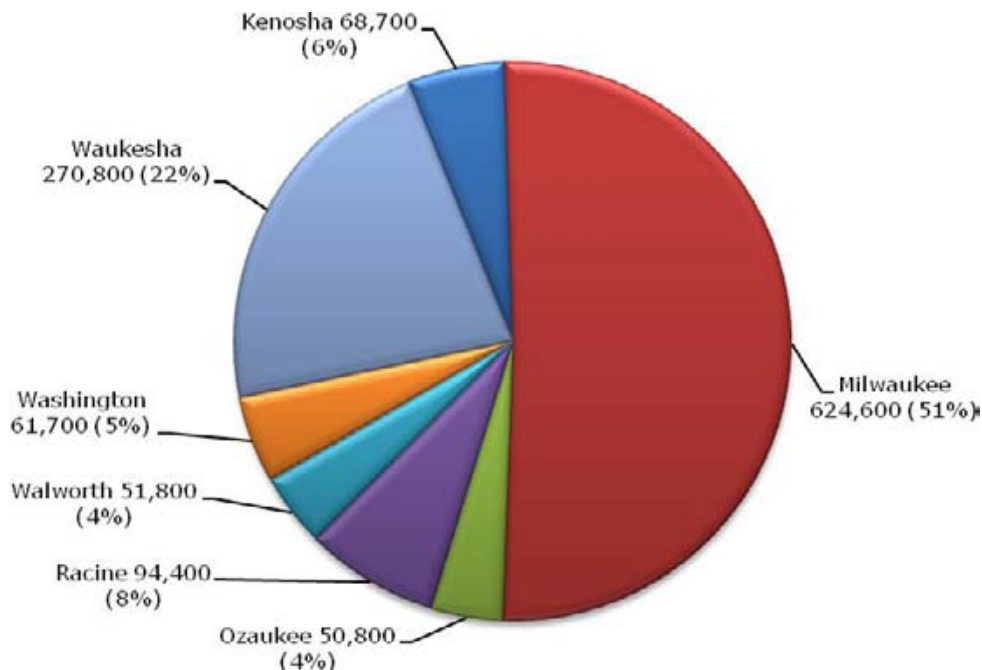
or about 43 percent of the regional job growth; Waukesha County's overall growth since 1960 was 730 percent.

Chart 3-II: Job Distribution By County in 1960



Source: Bureau of Labor Statistics and the US Census Bureau

Chart 3-III: Job Distribution By County in 2000



Source: Bureau of Labor Statistics and the US Census Bureau

Ozaukee, Walworth, Washington Counties also had significant gains in the number and share of jobs. Ozaukee County's annual growth rate was about 4.1 percent, and its share of regional jobs increased from 1.5 percent to over 4 percent. Washington County's annual job growth rate over the 40 year period was 3.56 percent, and its share of regional jobs doubled from about 2.3 percent to 5 percent. Walworth County's share grew from 2.9 to 4.2 percent, with an average annual growth rate of 2.56 percent.

Comparatively, Kenosha and Racine Counties had modest increases, with average annual growth rates of 1.23 and 1.61 percent, respectively, similar to the average regional growth rate of 1.5 percent. Although Kenosha County's job growth tended to fluctuate between 1960 and 2000, it gained about 26,500 jobs over this period, about a 63 percent increase. Racine County gained about 44,500 jobs over this time period, an increase of 89 percent.

Labor Force Distribution in Southeastern Wisconsin

Similar changes are reflected in the historic labor force pattern for the region. Between 1960 and 2000, the region's labor force had increased from about 636,900 to 1,008,400 people, a gain of about 371,500 workers or 58 percent. In 1960, almost 68 percent of the regional labor force resided in Milwaukee County; and although the civilian labor force in Milwaukee County grew by about 37,500 people, by 2000, its share had declined to 46.5 percent of the regional labor force. Milwaukee County's labor force increased steadily between 1960 and 1990, but declined from 479,374 to 469,257 workers between 1990 and 2000. Although its total labor force increased by about 8.7 percent, the annual labor force growth rate for Milwaukee County was only 0.21 percent over the forty year period, compared to a 1.16 percent average for the Region (see Tables 3-III and 3-IV). All other counties fared better than Milwaukee County, and surpassed the regional average.

Table 3-III: Civilian Labor Force Distribution for Southeastern Wisconsin

County	1960		1970		1980		1990		2000	
	Workers	%	Workers	%	Workers	%	Workers	%	Workers	%
Kenosha	39,726	6.2	47,171	6.4	59,625	6.8	64,192	6.9	77,709	7.7
Milwaukee	431,746	67.8	454,085	61.7	478,184	54.6	479,374	51.3	469,257	46.5
Ozaukee	14,438	2.3	22,105	3.0	34,468	3.9	40,114	4.3	45,219	4.5
Racine	54,947	8.6	68,255	9.3	84,330	9.6	89,356	9.6	96,861	9.6
Walworth	20,444	3.2	26,345	3.6	34,727	4.0	39,642	4.2	51,861	5.1
Washington	17,384	2.7	25,727	3.5	42,044	4.8	52,106	5.6	66,496	6.6
Waukesha	58,216	9.1	92,390	12.6	142,774	16.3	169,369	18.1	200,991	19.9
Region	636,901	100.0	736,078	100.0	876,152	100.0	934,153	100.0	1,008,394	100.0

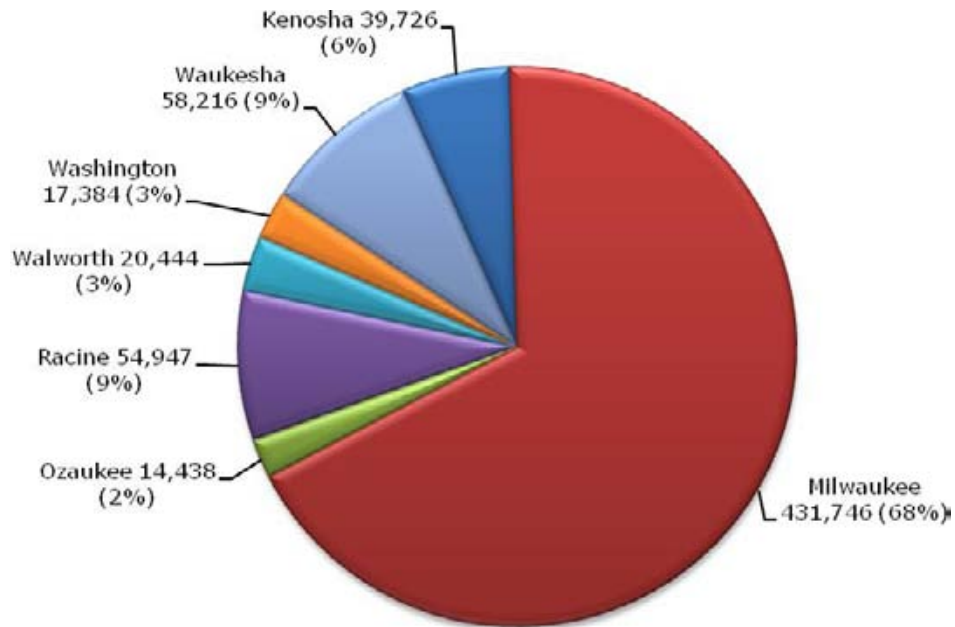
Source: US Census Bureau

Table 3-IV: Civilian Labor Force Growth in Southeastern Wisconsin

County	1960	2000	1960 to 2000		
			Change	Percent	Compound Annual Growth Rate
Kenosha	39,726	77,709	37,983	95.6	1.69
Milwaukee	431,746	469,257	37,511	8.7	0.21
Ozaukee	14,438	45,219	30,781	213.2	2.90
Racine	54,947	96,861	41,914	76.3	1.43
Walworth	20,444	51,861	31,417	153.7	2.35
Washington	17,384	66,496	49,112	282.5	3.41
Waukesha	58,216	200,991	142,775	245.3	3.15
Region	636,901	1,008,394	371,493	58.3	1.16

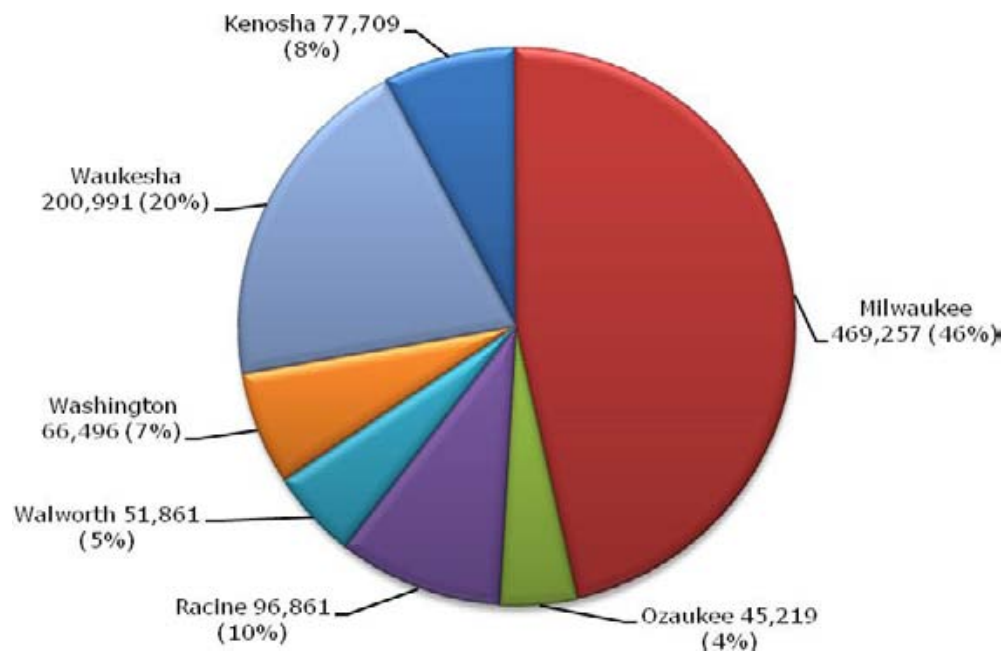
Source: US Census Bureau

Chart 3-IV: Distribution of Labor Force By County in 1960



Source: US Census Bureau

Chart 3-V: Distribution of Labor Force By County in 2000



Source: US Census Bureau

Between 1960 and 2000, Milwaukee County's share of the regional labor force declined while each of the other county's portions grew (see Charts 3-IV and 3-V). Waukesha County's share of the regional civilian labor force significantly increased from 58,216 to 200,991 people or from 9.1 to 19.9 percent of the regional share. Waukesha County's civilian labor force experienced, on average, a 3.15 percent annual growth rate over the forty year period. Washington County experienced the highest growth rate over the forty year period (3.41 percent average annual growth), and its labor force saw the second highest overall gains, with 49,112 people. The labor force growth rates in Ozaukee and Walworth Counties were higher than the regional average, with 2.90 and 2.35 percent respectively, and the growth rates in Kenosha and Racine Counties were similar to the regional average, at 1.69 and 1.43 percent respectively.

Unlike jobs that are tied to a geographic location, the labor force is mobile, and indicates place of residence rather than place of job. Although both **Milwaukee County's labor force** population and general population decreased slightly between 1990 and 2000, its job growth continued to increase, from 609,800 to 624,600 jobs.

The Census also collects data on place of work and residence locations for workers by county. Table 3-V indicates that in 2000, approximately 70 percent (or 651,213) of the workers in southeastern Wisconsin resided within the same county that they worked. Of the workers that resided in Milwaukee County, 81 percent of working residents (or 345,163 workers), worked within Milwaukee County, while about 19 percent of the workers commuted outside of Milwaukee County for work. The other counties varied greatly in the number of residents who commuted outside of the county to work, but each of the outlying counties had a greater percent of workers working outside of their resident county. Excluding Milwaukee County workers, about 60 percent of the regional workers worked within their county of residence, while 40 percent commuted outside for work.

Table 3-V: Year 2000 County of Work for Workers in Southeastern Wisconsin

County	Total Number of Workers	Worked in County of Residence		Worked Outside County of Residence		Worked in Milwaukee County	
		Number	Percent	Number	Percent	Number	Percent
Kenosha	72,053	40,489	56.2	31,564	43.8	2,260	3.1
Milwaukee	427,620	345,163	80.7	82,457	19.3	345,163	80.7
Ozaukee	43,555	22,469	51.6	21,086	48.4	15,057	34.6
Racine	89,494	61,020	68.5	28,474	31.5	12,906	14.5
Walworth	48,172	30,545	63.4	17,627	36.6	2,290	4.8
Washington	63,610	32,066	50.4	31,544	49.6	14,335	22.5
Waukesha	192,602	119,461	62.0	73,141	38.0	61,038	31.7
Region	937,106	651,213	69.5	285,893	30.5	453,049	48.3
Total Non-Milwaukee County Residents	509,486	306,050	60.0	203,436	40.0	107,886	21.2

Source: US Census Bureau

In 2000, about 48 percent of the regional workers worked in Milwaukee County. A significant portion of workers from outside of Milwaukee County worked within the County. In 2000, approximately 107,886 workers from the surrounding regional counties commuted into Milwaukee County for work, or about 21.2 percent of the regional workers that reside outside of Milwaukee County. About 34.6 percent of Ozaukee County workers and 31.7 percent of Waukesha County workers commuted to Milwaukee County for their jobs.

Community Level Job and Labor Force Distribution in Southeastern Wisconsin

The Bureau of Labor Statistics (BLS) and the US Census Bureau collect official data on jobs and the labor force. The BLS publishes a quarterly count of employment and wages reported

by employers that covers about 98 percent of U.S. jobs through the Quarterly Census of Employment and Wages (QCEW); this data, however, is only available at the county, MSA, state and national levels by industry. Although data on the number of jobs is not readily available from either the BLS or the Census at the "Place" level, data on the labor force (number of people working) is available through the Census.

Table 3-VI: Civilian Labor Force Distribution for Selected Communities in Southeastern Wisconsin

Community	1960 ^a		1970 ^b		1980		1990		2000	
	Workers	%	Workers	%	Workers	%	Workers	%	Workers	%
Kenosha	20,407	3.2	31,950	4.0	37,344	4.3	38,996	4.2	45,875	4.5
Milwaukee	316,862	49.8	313,174	42.5	306,547	35.0	301,032	32.2	282,823	28.0
Oak Creek	3,297	0.5	5,534	0.8	8,850	1.0	11,228	1.2	16,774	1.7
Port Washington	2,428	0.4	3,395	0.5	4,444	0.5	5,131	0.5	5,746	0.6
Racine	36,293	5.7	39,310	5.3	41,126	4.7	40,502	4.3	38,679	3.8
Brookfield	6,981	1.1	12,582	1.7	16,967	1.9	18,061	1.9	19,353	1.9
Cedarburg	1,988	0.3	3,195	0.4	4,628	0.5	5,586	0.6	5,792	0.6
Elm Grove	1,542	0.2	2,728	0.4	3,150	0.4	2,909	0.3	2,746	0.3
Germantown ^c	NA	NA	2,675	0.4	5,795	0.7	8,057	0.9	10,552	1.0
Grafton	1,344	0.2	2,342	0.3	4,410	0.5	5,513	0.6	6,019	0.6
Muskego ^d	NA	NA	4,499	0.6	7,481	0.9	9,612	1.0	12,237	1.2
New Berlin	5,508	0.9	10,738	1.5	16,527	1.9	19,630	2.1	21,656	2.1
Saukville ^c	NA	NA	NA	NA	1,728	0.2	2,074	0.2	2,558	0.3
Waukesha	8,199	1.3	17,073	2.3	26,734	3.1	32,400	3.5	37,056	3.7
Region	636,901	100.0	736,078	100.0	876,152	100.0	934,153	100.0	1,008,394	100.0

Source: US Census Bureau

^a Year 1960: Total population aged 14 years and older participating in labor force.

^b Years 1970 to 2000: Total population aged 16 years and older participating in labor force.

^c Based on population size, economic data is not available for the Village of Germantown for the year 1960 and for the Village of Saukville for the years 1960 and 1970.

^d Data for the year 1960 is not available for the Village of Muskego which incorporated in 1964.

Table 3-VII: Year 2000 Labor Force Composition for Selected Communities in Southeastern Wisconsin

Community	Total Population	Total Population Aged 16+ Years	Population in Labor Force ^a		Population Not in Labor Force ^b		Employed
			Number	Percent	Number	Percent	
Kenosha	90,668	68,467	46,025	67.2	22,442	32.8	43,023
Milwaukee	596,956	442,845	283,052	63.9	159,793	36.1	256,244
Oak Creek	28,456	22,177	16,846	76.0	5,331	24.0	16,418
Port Washington	10,364	7,972	5,746	72.1	2,226	27.9	5,618
Racine	81,827	60,612	38,716	63.9	21,896	36.1	35,975
Brookfield	38,807	29,810	19,353	64.9	10,457	35.1	18,807
Cedarburg	10,775	8,298	5,817	70.1	2,481	29.9	5,715
Elm Grove	6,276	4,888	2,746	56.2	2,142	43.8	2,664
Germantown	18,234	13,822	10,563	76.4	3,259	23.6	10,286
Grafton	10,319	7,948	6,028	75.8	1,920	24.2	5,831
Muskego	21,393	16,110	12,263	76.1	3,847	23.9	11,835
New Berlin	38,362	30,008	21,662	72.2	8,346	27.8	21,039
Saukville	4,154	3,082	2,558	83.0	524	17.0	2,467
Waukesha	64,372	50,623	37,078	73.2	13,545	26.8	35,802

Source: US Census Bureau

Notes:

^a Population aged 16 years and older participating in labor force.

^b Population aged 16 years and older not participating in labor force.

Census defines the civilian labor force as the sum of civilian employment and civilian unemployment. These individuals are civilians (not members of the Armed Services) who are age 16 years or older, and are not in institutions such as prisons, mental hospitals, or nursing homes. In 1960, almost half of the **Region's civilian labor force, 316,862 people** or 49 percent, resided in the City of Milwaukee (see Table 3-VI). By 2000, this had declined to about 28 percent or 282,823 people.

Table 3-VII shows the composition of the labor force within the selected communities in 2000. Of these, the Village of Elm Grove had the highest percentage (43.8 percent) of the population ages 16 and over not participating in the labor force. This was followed by the Cities of Milwaukee and Racine with 36.1 percent, City of Brookfield with 35.1 percent, and the City of Kenosha with 32.8 percent.

SEWRPCs JOB FORECASTS

SEWRPC has historically developed long-term economic and jobs projections for counties and urban service areas within Southeastern Wisconsin as part of its overall regional planning program. The first projections were developed in 1962, and the most recent projections are set forth in Planning Report No. 48 ***A Regional Land Use Plan for Southeastern Wisconsin: 2035***, published in 2006. The most recent projections were developed to project likely conditions for the planning year 2035. Other State agencies, including the Wisconsin Department of Workforce Development and the Department of Revenue, have also developed job or employment projections. These projections however, are of significantly shorter term or are estimates for the State of Wisconsin as a whole. As of 2009, available job projections from the Wisconsin Department of Workforce Development end in the year 2016; those from the Wisconsin Department of Revenue only project to the end of year 2012.

Table 3-VIII: Projected Jobs Distribution for Southeastern Wisconsin

County	2003		Projected Jobs			
	Jobs	Percent of Regional Jobs	2035	Change (2000 - 2035)	Percent Change	Percent of Regional Jobs
Kenosha	69,500	5.9	88,500	19,000	27.3	6.5
Milwaukee	589,800	50.0	628,900	39,100	6.6	46.0
Ozaukee	49,200	4.2	62,300	13,100	26.6	4.6
Racine	90,000	7.6	106,600	16,600	18.4	7.8
Walworth	52,300	4.4	69,400	17,100	32.7	5.1
Washington	61,800	5.2	78,900	17,100	27.7	5.8
Waukesha	266,400	22.6	333,700	67,300	25.3	24.4
Region	1,179,000	100.0	1,368,300	189,300	16.1	100.0

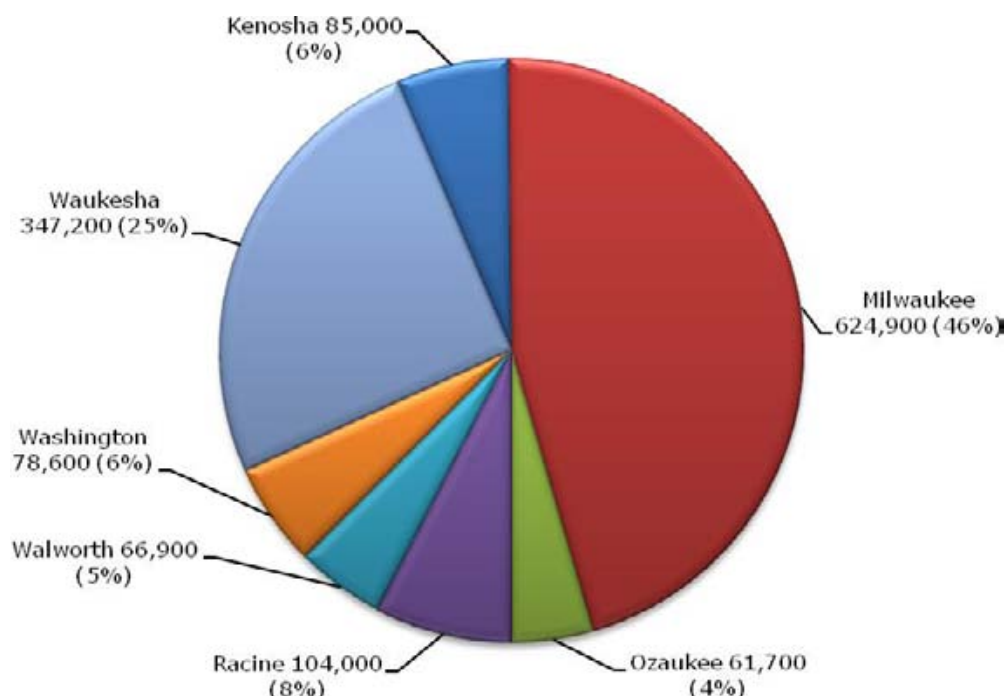
Source: SEWRPC and US Bureau of Economic Analysis

Job forecasting includes an assessment of data on the existing and projected labor force, existing regional or local job trends, and the outlook of future industries or job sectors. Outside of SEWRPC, no other agency in the State of Wisconsin engages in developing such long range jobs and employment forecasting for the southeastern Wisconsin region. Although projections on both the labor force and sectoral outlook are based on region-wide trends and are therefore region-wide projections, SEWRPC has developed job projections for each of the seven counties and for each of the urban service areas within the region. Based on the availability of the data, CED chose to evaluate SEWRPC's job projections in the context of county-level and urban service area-level job growth for the purpose of this study.

It must be noted that the most recent job projections developed by SEWRPC under the Regional Land Use Plan reflect base year data for the year 2000, but include data on jobs

from the Bureau of Economic Analysis through the year 2003; this captures the effects of the economic downturn that began in 2001 following the aftermath of September 11th. Most counties experienced a dip or decline between 2000 and 2003, with the exceptions of Kenosha, Walworth, and Washington Counties where job growth increased negligibly. Overall, regional job growth fell from 1,222,800 to 1,179,000 or a loss of 43,800 jobs or about 3.6 percent during this 3 year period.

Chart 3-VI: Year 2035 Job Distribution Forecast By County



Source: SEWRPC

Under SEWRPCs 2035 planned employment for the region, between 2003 and 2035, SEWRPC projects an overall increase of about 16.1 percent in the number of jobs within the region, or about 189,300 jobs. Waukesha County will likely see the highest increases in jobs, with an estimated additional 67,300 jobs, followed by Milwaukee County with projected growth of 39,100 jobs between 2003 and 2035. Milwaukee's share of jobs will decline slightly from about 50 percent to about 46 percent of the regional job share, while Waukesha's share will grow from 22.6 to 24.4 percent. Each of the other counties share of regional jobs will continue to range from just under 4 to just over 7 percent of the regional share in 2035. SEWRPC anticipates that the historic job trends will continue through the year 2035, but at a considerably slower pace than the trends seen between 1960 and 2000. It must also be noted that these job projections do not reflect the current and yet unforeseen impact of the current Great Recession.

Job growth projections are tied significantly to the population projection, as one of the determining factors regarding job growth is its labor force. Between 2000 and 2035, SEWRPC projects that the civilian labor force will increase from 1,008,400 to 1,144,300 or about 13.5 percent in the seven-county Region. SEWRPC anticipates that the regional labor force may be expected to level off, particularly during the middle of the projection period, as the baby-boom generation approaches retirement. Without an influx of additional people

through higher rates of in-migration, this leveling-off of the labor force could potentially decrease the number of jobs that the regional population could accommodate.

Job Forecasts Based on Water Utility Service Areas in Southeastern Wisconsin

Although SEWRPC's regional labor force projection was not refined for smaller areas of geography, such as county or community, job projections were developed for each urbanized service area. Under the Regional Water Supply Plan, the County projections were refined for each water utility service area, based primarily on an intermediate growth scenario conditions recognized under the Regional Land Use Plan. County-level projections were developed under low-, intermediate-, and high-growth scenarios indicating a range of probable projections for the numbers of jobs. For each water utility service area, the job projections were developed based on the intermediate-growth scenario, considered the most likely projection.

Table 3-IX: Existing and 2035 Job Forecasts for Selected Water Service Areas

Community	2000	2035		
	Jobs	Jobs	Change	Percent Change
Kenosha Water Utility	45,269	48,693	3,424	7.6
Milwaukee Water Works	410,929	404,650	-6,279	-1.5
City of Oak Creek Water and Sewer Utility	19,916	28,349	8,433	42.3
City of Port Washington Water Utility	7,092	8,933	1,841	26.0
City of Racine Water and Wastewater Utility	58,601	59,644	1,043	1.8
City of Brookfield Municipal Water Utility and Village of Elm Grove ^a	34,772	50,711	15,939	45.8
City of Cedarburg Light and Water Commission	8,120	8,754	634	7.8
Village of Germantown Water Utility	10,545	18,071	7,526	71.4
Village of Grafton Water and Wastewater Commission	8,473	12,662	4,189	49.4
City of Muskego Public Water Utility	4,344	8,068	3,724	85.7
City of New Berlin Water Utility	24,237	33,058	8,821	36.4
Village of Saukville Municipal Water Utility	3,306	5,245	1,939	58.7
City of Waukesha Water Utility	51,792	58,196	6,404	12.4

Source: SEWRPC

^a Based on the analysis methodology, SEWRPC combines forecast jobs data for the Village of Elm Grove with the City of Brookfield Municipal Water Utility.

Table 3-IX shows the estimated number of jobs within each of the selected water utility service areas for the year 2000 and the year 2035 job forecasts. There are three methods in which job growth (or decline) will occur within the utility service areas; new job creation (or conversely, job decline), job migration or movement from outside of the service area, and job absorption. Although it is anticipated that some of the job growth will be based on job creation or migration within each utility service area, many of the utilities will experience job growth due to job absorption, as many of the selected water utility service areas are proposed for expansion and jobs currently outside of the existing service areas will be absorbed into the expanding service area boundaries. It is difficult to discern which type of job growth - creation, migration, or absorption - will have a greater impact on job growth within each of the selected utilities, other than to say that growth through absorption will not occur in service utility areas that are not projected to increase in size.

The job forecasts project that each utility service will experience some degree of job growth over the 35 year period, with the exception of Milwaukee Water Works. It is anticipated that the Milwaukee Water Works retail service area⁵ will lose approximately 6,300 jobs, or

⁵ The Milwaukee Water Works retail service area which includes the Cities of Milwaukee, Greenfield, Hales Corners, St. Francis, West Milwaukee, and a portion of Franklin.

decline by about 1.5 percent either through destruction or migration. The Milwaukee Water Works service area is not anticipated to expand over this period, and therefore, job absorption within its service area will not occur.

Aside from Milwaukee Water Works, each of the other selected water utility service areas is projected to experience some form of service area expansion. For example, the City of Racine Water and Wastewater Utility is projected to see an increase of about 1,050 jobs or about 1.8 percent. This job growth will be some combination of new job creation, migration, and absorption as its service area is anticipated to expand from about 22.3 to about 27.7 square miles⁶.

Table 3-X: Existing and Forecast Population for Selected Water Service Areas

Community	2000			2035		
	Population	Jobs	Jobs Per 100 Persons	Population	Jobs	Jobs Per 100 Persons
Kenosha Water Utility	98,700	45,269	45.9	105,100	48,693	46.3
Milwaukee Water Works	650,750	410,929	63.1	664,550	404,650	60.9
City of Oak Creek Water and Sewer Utility	26,000	19,916	76.6	50,850	28,349	55.8
City of Port Washington Water Utility	10,600	7,092	66.9	15,000	8,933	59.6
City of Racine Water and Wastewater Utility	103,800	58,601	56.5	113,500	59,644	52.5
City of Brookfield Municipal Water Utility and Village of Elm Grove ^a	30,249	34,772	115.0	51,600	50,711	98.3
City of Cedarburg Light and Water Commission	11,250	8,120	72.2	14,900	8,754	58.8
Village of Germantown Water Utility	15,050	10,545	70.1	23,450	18,071	77.1
Village of Grafton Water and Wastewater Commission	10,500	8,473	80.7	16,450	12,662	77.0
City of Muskego Public Water Utility	7,800	4,344	55.7	28,650	8,068	28.2
City of New Berlin Water Utility	30,100	24,237	80.5	41,300	33,058	80.0
Village of Saukville Municipal Water Utility	4,150	3,306	79.7	5,650	5,245	92.8
City of Waukesha Water Utility	65,000	51,792	79.7	88,500	58,196	65.8

Source: SEWRPC and CED

^a Based on the analysis methodology, SEWRPC combines forecast jobs data for the Village of Elm Grove with the City of Brookfield Municipal Water Utility. Job estimates are based on both the City of Brookfield Municipal Water Utility and the Village of Elm Grove sewer service area. The year 2000 population projections include the estimate of 24,000 people served by the City of Brookfield Municipal Water Utility and the estimated population of the Village of Elm Grove served by municipal sewer, or 6,249 people.

Of the selected utilities, the greatest increase in number of jobs is anticipated to occur in the combined City of Brookfield Municipal Water Utility and Elm Grove service area, with an increase of about 15,900 jobs or 46 percent. Again, much of this job growth within the utility service areas could potentially be based on absorption as well as job creation and migration. The proposed development of a water utility service area in Elm Grove indicates that no jobs located in Elm Grove are counted for the year 2000 data. Also, the existing City of Brookfield Municipal Water Utility service area (see Map D-6A in Appendix D) indicates that many City of Brookfield jobs may be currently located within areas that are not served by municipal water within the City of Brookfield.

⁶ SEWRPC Planning Report Number 52, Chapter 4.

In 2000, approximately 19,916 jobs were located within the Oak Creek utility area; by 2035, it is expected to increase by about 8,400 jobs, to about 28,350 jobs through a combination of job creation, migration, and service area expansion. Similarly, job growth in **Muskego and Germantown's utility service areas** is expected to increase by 86 and 71 percent respectively, also through a combination of job creation, migration, and absorption.

Because there is a discrepancy between job growth through actual job creation or migration, and through service area expansion and absorption, a more meaningful method to compare job growth within the service areas is by measuring existing and projected jobs per capita (see Table 3-X below); in this case, the data was normalized to reflect the number of jobs per 100 persons. Although not the best method for comparing projected job growth within a community, this measure can give an indication of the direction that job growth is projected to occur within the service area relative to projected population growth. Based on this assessment, the ratio of jobs to people is projected to either decline or remain unchanged in most of the selected communities. Most likely, a decline is a reflection of the aging of the population, as by the year 2035, it is anticipated that a smaller proportion of the population will be between the ages of 16 and 64, or of prime working age. Between 2000 and 2035, population is expected to increase while jobs are projected to decline in the Milwaukee Water Works service area where the ratio of jobs to people is projected to decrease very slightly, from 63 to 61 per 100 persons. In 2000, the City of Muskego had about 56 jobs for every 100 people; although both the number of people and jobs is projected to grow, it is anticipated that its population growth will outpace any job growth, and that by 2035, there will be only about 28 jobs for every 100 people within the City of Muskego Public Water Utility service area.

Jobs per capita are projected to increase in only three of the selected utility service areas; the Kenosha Water Utility, the Village of Germantown Water Utility, and the Village of Saukville Municipal Water Utility. The ratio of jobs to people should increase very slightly for the Kenosha Water Utility from 2000 to 2035, with about 46 jobs for every 100 people. Comparatively, this is the lowest estimate of jobs per capita amongst the 14 service areas for the year 2000. Historic trends within Kenosha County indicate that a significant number of Kenosha City and County residents work outside of the City of Kenosha and outside of Kenosha County (most significantly in northern Illinois)⁷.

Water-Intensive Industries

All commercial and industrial businesses and industries use water in one form or another, but most would not be considered water-intensive users. Although water-intensive industries have not been conclusively identified in southeastern Wisconsin, a review of the 2007 County Business Patterns indicates the county locations of some of the industries identified with water-intensive production needs. Currently, the most water-intensive industries located in southeastern Wisconsin include brewing and bottling manufacturers, mining, thermoelectric power generators, and agriculture. Additionally, there are some large food processors and manufacturers located within the region that most likely rely on large quantities of water for production.

Many of the largest water users do not rely on the use of municipal water. Instead, they rely on private high-capacity wells for groundwater, which are regulated by the Department of Natural Resources. Information regarding these high-capacity wells and their estimated water use was compiled during the RWSP planning process and is available in Chapter 3 of **SEWRPC's Planning Report 52. Some of these water-intensive industries**, however, involve

⁷ Preliminary draft of the Kenosha County Comprehensive Plan Chapter, Chapter XIII *Economic Development*.

cycling groundwater; for example, groundwater is withdrawn but then sprayed on crops for agricultural practices and therefore most of the groundwater is returned in the production process.

By far the most intensive water-using industries are those that generate thermoelectric power, and most of these plants are located within the Lake Michigan watershed and rely on **Lake Michigan water as the source. Within the region, there are two We Energies “peaking plants” that rely on** groundwater, one in the Town of Paris, and the other in the Village of Germantown. The two peaking plants are used intermittently, only during periods of peak demand, and therefore, water use is also intermittent, and the spent water is cycled back to its source. Additionally, there are several quarries in the region that are water-intensive; these too involve a process of recycling groundwater, and all quarries rely on private high capacity groundwater wells that are operated by individual industries and regulated by the Department of Natural Resources.

A review of existing large businesses located within the selected 9 communities indicates that there are currently no known major water-intensive businesses or industries located within the 9 communities that rely on municipal groundwater. Almost all of the existing bottling and brewing/beverage manufacturers in southeastern Wisconsin are located within the Lake Michigan basin, with the exception of one water bottling plant, Cascade Springs, in the Village of Mukwonago. Additionally, there are also some large food production manufacturers in the region that rely on large amounts of water for their production; some of these plants are located within utility service areas, yet some are located outside of water utility service areas and rely on private high-capacity wells.

For any industry that relies on water, it is assumed that the cost of water as well as the water quality should have some impact on its choice of production location. This could, however, change depending upon any water sales agreement determining the amount of water supplied to individual communities, and any agreement regarding return flow. Much of this is yet to be determined, and would be under the scrutiny of the terms of the Great Lakes Compact and would be subject to regulations that would need to be set forth by the Department of Natural Resources and the Wisconsin Public Service Commission.

ASSESSMENT OF POTENTIAL IMPACTS OF RECOMMENDATIONS

Each of the six recommendations was evaluated based on any foreseeable impacts they might have on job distribution within the Region, and particularly in the selected communities. The following question provides the framework or context for the evaluation.

- What impact, if any, would implementation of the regional water supply recommendations have on the overall distribution of job locations in the Region?

The historic job growth and the migration of jobs and people to outlying suburban areas, and conversely, the inability for job creation in the urban core areas to keep pace with population growth, particularly in the City of Milwaukee, has created a pattern of job dispersion and spatial mismatch. Access to jobs is constrained, particularly for those central city residents that rely on a transit system for access to work. Central to the issue of providing Lake Michigan water to communities located over the sub-continental divide is whether or not this will contribute to continued intra-regional migration and whether the provision of Lake Michigan water to the communities selected for conversion or development of lake water supplied systems will create a shift in jobs balance between the provider communities and the receiving communities.

Sources of Water Supply

A reliable source of high quality water is a necessity for any community to develop. Historically, employment and population growth within the Region was tied to improvements in water procurement and treatment, much of which occurred in the lakeshore cities with nearly all of the early development tied to the utilization of groundwater as the source of supply (see Planning Report 52, *Chapter III Existing Water Supply Conditions in the Region* for a history of municipal water within the region). Improvements in both lake and groundwater procurement and the development of water transmission (utility) services have helped to spur development and job growth over the last century throughout the entire region.

As stated previously in Chapter 2, there are two major water supply sources in Southeastern Wisconsin - groundwater and Lake Michigan, each with its own unique advantages and disadvantages. Although Lake Michigan water serves the majority of people, commerce, and industry in the seven County Region, growth in the outlying Counties has increased greatly over the past 50 years, and the use of groundwater as a supply source has also increased. One of the central issues of the Regional Water Supply Plan was a concern regarding the amount of high quality groundwater supply available, and whether or not it could support both existing and planned development.

Findings from the regional aquifer simulation model, set forth in SEWRPC Technical Report No. 41, *A Regional Aquifer Simulation Model for Southeastern Wisconsin*, indicate that more problems due to sustained pumping seem to be arising in the deep aquifer than in the shallow aquifer. Much of the deep aquifer in the Region sits below an impermeable aquitard, and based on the modeling⁸, the recharge rates are exceptionally slow in comparison to the shallow aquifer. Also, regional groundwater pumping has affected groundwater flow patterns, shifting the location of the deep groundwater divide to the west, potentially reversing the flow of groundwater away from the Lake Michigan Basin and toward the inland pumping centers. Groundwater quantity problems are not limited to the deep aquifer. The model estimated that between 1864 (considered pre-development conditions) and the year 2000, pumping decreased the rate of discharge in the shallow groundwater to Lake Michigan, and most significantly decreased the baseflow of streams, although this reduction is partially offset by return flow from sewers.

In addition to groundwater flow and quantity issues, a few groundwater quality issues have also arisen associated with groundwater contaminants whose levels are regulated by the USEPA. Many of these contaminants are local to specific wells and efforts to protect wells from contamination are dealt with through State and local regulations regarding well siting, water treatment, or through wellhead protection efforts. A significant problem with groundwater quality has been identified at some of the municipal wells due to the high levels of naturally occurring contaminants including radium or salts in groundwater extracted from portions of the deep aquifer. Some communities are currently facing or were facing sanctions by the Wisconsin Department of Natural Resources for having a higher concentration of radium in the municipal water supply than allowed by the USEPA. The City of Waukesha has taken major steps to reduce the amount of radium in its water supply, and will need to come into compliance with the USEPA standard by the year 2018. All of the other municipal utilities in southeastern Wisconsin which had radium issues have come into full compliance by either treating the water, blending the contaminated water supply with uncontaminated water to lower the concentration to come into compliance with the USEPA

⁸ Technical Report 47, *Groundwater Recharge in Southeastern Wisconsin Estimated by a GIS-based Water-Balance Model*.

standards, or by changing the aquifer source of supply (generally, by switching to the shallow aquifer).

The 2035 Regional Land Use plan provided the basis for establishing and delineating the planned municipal water utility service areas within the Region. Under the 2035 Regional Land Use Plan, SEWRPC recommended that most new urban development within the Region be served by municipal sanitary sewer and water supply facilities. The service area delineations contained in the Regional Land Use Plan were generalized, systems-level delineations, intended to be refined and detailed under subregional and local land use utility planning. In the RWSP, the delineations of the future water service areas were further refined based on proposed land use development type and density, the relationship to existing water supply service areas, the shallow groundwater aquifer characteristics, and anticipated water service needs as discussed in known local plans. The RWSP identified new areas recommended to be served by municipal water service either through expansions of the water service areas of the 78 existing water utilities (as of 2005) and an addition of 23 of the 34 new service areas identified under the Regional Land Use Plan.

The 2035 Regional Land Use Plan identified 34 urbanized areas not currently served by municipal water. Under the RWSP, each of the 34 new planned water service areas was evaluated based on existing and proposed land uses, existing residential housing units and densities, distance to the nearest existing municipal water supply service area, aquifer characteristics, and any known local initiative to develop municipal water supply systems (see Table IV-1 in Planning Report 52). The RWSP recommended that 23 of the 34 areas become planned municipal water service areas, while 11 are recommended to continue to rely on private water supply systems. Of the 23 new systems, 21 were recommended to utilize local groundwater supplies, and 2 were recommended to utilize Lake Michigan as the source of supply (the Village of Elm Grove and the Northwest Caledonia Area). This recommendation is contingent upon both a demonstrated local need for a utility and a local initiative to form the utility; otherwise, in the absence of these conditions, the RWSP recommends that these areas continue to utilize private wells.

In addition to recommending the creation of two new Lake Michigan-reliant water utilities, the RWSP recommends that nine existing utilities⁹ switch to Lake Michigan as the source of supply. This part of the socio-economic impact analysis focuses on whether or not a change in source of supply, from groundwater to Lake Michigan, could potentially spur job growth through either job or population migration from any of the potential provider communities.

Evaluation of the Impact of Job Distribution Based on Planned Utility Category and Source of Supply

The primary question related to job growth is whether or not a change in the source of water supply could have an impact on future job growth patterns. In principle, a lack of access to water can act as a constraint on development and therefore inhibit job growth; examples of development in geographic locations where water is scarce or of poor quality (for example, in portions of the southwestern US) indicate that development can be inhibited based on its water supply.

⁹ These communities include the Cities of Brookfield, Cedarburg, Muskego, New Berlin, and Waukesha, Villages of Germantown, Grafton, and Saukville, and their environs, and the Town of Yorkville Water Utility District 1.

The groundwater¹⁰ and aquifer¹¹ studies developed as part of the Regional Water Supply Planning process by SEWRPC, the WGNHS, the USGS, the DNR, University of Wisconsin – Milwaukee and other Wisconsin groundwater experts provide the latest, most thorough examination of the groundwater supply in southeastern Wisconsin. A review of these studies indicates that while withdrawals from the shallow and deep aquifers have, over time, changed the groundwater flow system, many of the problems or perceptions regarding groundwater quality or quantity are associated with withdrawal from the deep aquifer, rather than the groundwater system as a whole. Based on the scientific evidence developed by the WGNHS, it appears as though existing sources of groundwater supply, ***if properly managed***, would be sufficient to support development through 2035, ***assuming that existing land use plans do not change***.

A review of past trends indicates that significant job growth has occurred over the past 40 years in each of the nine selected groundwater conversion communities, while it has significantly declined or remained stagnant in the cities of Milwaukee and Racine. Responses from planners, developers, and utility managers support conclusions reached during the Regional Water Supply Planning process that although deep aquifer sources are stressed in areas or might require additional treatment, there is no imminent lack of groundwater resources for utilities to tap into. Clearly, factors other than access to a Lake Michigan source of water are at play in determining job growth patterns. Historically, water-reliant industries including breweries and bottling plants were located on both sides of the Great Lakes basin. Although Milwaukee had, by volume, some of the largest brewery and bottling plants in the nation, there were numerous small bottling plants located in Waukesha County. Many of these businesses in both Milwaukee and Waukesha disappeared over the past 50 years, although it is unlikely that the source of supply factored significantly into this decline.

It is possible to infer, however, that certain industries reliant on an inexpensive source of high quality water, for example the brewing or bottling industries, may choose to locate within water utility service areas with the lowest costs and highest quality, or within service areas that provide an incentive to such industries. If water quality and costs factor significantly into an industries choice of location, then lowering rates or creating incentives could help attract water-intensive industries. Currently, the City of Milwaukee is considering a measure to provide cost incentives to businesses that locate within the city in order to become more economically competitive within those industries.

SEWRPC projects continued job growth in each of the water utility service areas through the planning year 2035. If trends over the past 50 years continue, most of the job growth will continue to occur outside of the historic urban centers (the Cities of Milwaukee and Racine) in suburban communities. This could, however, change as local efforts could have an impact on future job growth. The City of Milwaukee has begun marketing itself as a water industry hub with low-water rates, and is currently trying to attract water-intensive industries. It is not, however, anticipated that job distribution patterns through 2035 will be significantly impacted by implementation of the recommendation to change sources of water supply under the Regional Water Supply Plan. Based on the results of the groundwater recharge study undertaken by the WGNHS, outside of a few unique areas with localized aquifer conditions, there is no pervasive shortage of groundwater in Southeastern Wisconsin and the existing and replenishing supplies within the shallow aquifer should sustain projected

¹⁰ ***Technical Report No. 37, Groundwater Resources of Southeastern Wisconsin***, prepared by SEWRPC and WGNHS

¹¹ ***Technical Report No. 41, A Regional Aquifer Simulation Model for Southeastern Wisconsin***, prepared by SEWRPC, USGS, WGNHS, DNR, UWM, and Participating Water Utilities in Southeastern Wisconsin.

development as set forth in the Regional Water Supply Plan and Regional Land Use Plans through **the year 2035. In most of the “selected communities”, the existing and projected** service areas delineated within the Regional Water Supply Plan are, predominantly, currently developed (see Chapter 5).

Existing Utilities to Remain on Current Supply

For the 27 existing utilities slated to remain on Lake Michigan supply, and the 42 existing utilities to remain on groundwater supply, it is anticipated that future job growth will not be affected by the recommendations to remain on the current source of supply. These utilities either purchase wholesale groundwater from one of the Lake Michigan suppliers or supply their own groundwater. With a known source of supply, job growth will likely be impacted by other economic factors.

New Utilities (groundwater supply)

For the 21 potential future utilities to utilize groundwater supply, which are predominantly located around lakes in the western portion of Waukesha, or in the Fox River watershed throughout Racine and Kenosha Counties, it is unclear whether or not the development of a water utility system could have an impact on job growth. As stated above, these areas would only be converted to municipal systems if a local demonstrated need was identified and if local implementation was initiated; in the absence of a local need or initiation, these areas would continue to be served by private wells. Although usually the presence of municipal utility systems can spur development and attract businesses to an area, the costs associated with developing a water utility system might be prohibitive for existing businesses as well as residents, and these users would bear the brunt of the costs for utility development. Under both the current Regional Land Use Planning program and local or county comprehensive planning measures, development and particularly commercial development should continue to be encouraged within existing municipal utility service areas.

New Utilities (Lake Michigan supply)

For the 2 new utilities to utilize Lake Michigan supply, the development of new water utility systems would not likely spur significant job growth. Both proposed utility areas are small, and based on the land use analysis (Chapter 5) the proposed Northwest Caledonia area utility and Elm Grove utility would provide minimal opportunities for the development of new jobs. The Village of Elm Grove water service area is at build-out capacity, as nearly most of its land has been developed. In this case, it is highly unlikely that development of a municipal water supply would spur new job growth, although it could help to ensure the viability and safety of existing businesses and promote redevelopment efforts. The Village of Elm Grove has demonstrated both a local need (fire protection) and initiative. During the focus groups, representatives from Elm Grove indicated that, like municipal planners and representatives, the majority of Elm Grove business owners support the development of a municipal water system. The Northwest Caledonia area does have 217 acres of developable area within its proposed service area boundary; however, its service area is very small and **it’s not likely that this could support significant job growth.**

Existing Utilities to Change Source of Supply

Much of the focus of this socio-economic impact analysis has been on the 14 “selected” utilities; the 9 existing utilities that are recommended to be converted from municipal groundwater to Lake Michigan as the source of supply, and the 5 large Lake Michigan suppliers (or “potential providers”). **The relationship between the potential wholesale Lake Michigan water purchasers and the “potential providers” or suppliers of treated Lake Michigan water is considerably more complicated than the situation described for self-supplying utilities because it creates the potential for conflict between utilities.** Based on this

potential for conflict as well as regulatory issues, the purchaser/provider relationship between water utilities requires a purchase agreement between two utility systems for a common resource that is a critical element to development. Under any purchase agreement, both the receiving and providing community would have to be in agreement regarding the proposed delineated service area.

A review of past trends indicates that a significant decrease in the proportion of regional jobs has occurred over the past 40 years in the cities of Kenosha, Milwaukee, and Racine while it has increased in many of the selected suburban communities. Developers/planners participating in focus groups for this study expressed the view that a change in water source from groundwater to Lake Michigan water is unlikely to have a significant impact on **development within the existing “selected” service areas**. Of the nine proposed utilities, existing infrastructure regarding water distribution is already in place and the service areas delineated reflect, primarily, potential growth areas within the service area. Based on the assessment set forth in Chapter 5, most areas within the selected utility service areas are fully developed. There is however, considerable uncertainty regarding development in the areas outside of the existing utility service areas, namely within any undeveloped areas within the projected 2035 water utility service areas. Each of the selected planned water utility areas will be evaluated in Chapter 5 in light of their planned land uses to evaluate the potential for growth within the service areas. Ultimately, under any new municipal water purchase agreement, the area delineated for projected water service would have to be agreed upon by both provider and purchaser. Based on the purchase agreement, providers of Lake Michigan water would be able to negotiate certain limits on the amounts of water supplied to the purchasing communities. Additionally, under the agreement, provider and purchasing communities would be able to negotiate a non-compete term to avoid job and **business “poaching”**. **Any such agreement would be subject to approval** by the PSC and any diversion would have to be approved under the Great Lakes Compact.

Water Conservation Programming

Unlike other parts of the country, where water plays a significant role in determining land use patterns, development on either side of the subcontinental divide has historically not been hampered by a lack of access to water. The status of Southeastern Wisconsin as a water-rich area is, however, changing, and the RWSP recommends that measures be taken to conserve water as a resource and to improve the system transmission of water.

A water conservation program is identified as a combination of practices, procedures, policies and technologies to reduce the amount of water used or to improve or maintain water utility system efficiency. The recommendations regarding water conservation programming in the RWSP are two-fold in their design; first, they were developed to increase water system efficiency which reduces the amount of water pumped to meet customer demands, and second, to reduce the amount of water used by customers. The RWSP includes a range of recommendations for water conservation programming, depending on the infrastructure needs of each water utility and the source of supply as shown in Table IV-9 in Planning Report 52.

Additionally, in order to preserve and protect freshwater within the Great Lakes basin, the newly adopted Great Lakes Compact sets forth requirements and standards for communities that wish to utilize Great Lakes water through a diversion. Under the Compact, each state must design its own in-basin conservation programming which must be consistent with agreed-upon regional objectives. Wisconsin finalized its objectives in December 2008, and the Wisconsin Department of Natural Resources is currently developing the specific **quantitative standards upon which the program’s conservation requirements will be based**.

Water conservation measures, at any level, are designed to both improve the use of supply and therefore to sustain all sources of water supply for all water consumers. Based on the RWSP, it is likely that the intermediate and advanced level water conservation measures implemented at the local level could encourage industries and work places to reduce water use. Additionally, it could possibly inhibit the development of water-intensive industries in the communities slated to convert to Lake Michigan water, as could the Great Lakes Compact. While it is possible that conservation measures could have an impact on regional job growth patterns, there is no reliable method for developing a precise estimate.

Recharge Area Protection

Protecting groundwater recharge areas is considered essential for ensuring an abundant and safe groundwater supply. As part of the planning process, the WGNHS developed a method to delineate groundwater recharge areas based on capacity to recharge or discharge groundwater using GIS. The results are published in Technical Report No. 47, *Groundwater Recharge in Southeastern Wisconsin Estimated by a GIS-Based Water Balance Model*.

Currently, there are no regulatory constraints, at either the state, county or local levels, regarding development in (high or very high) groundwater recharge areas. The RWSP recommends that important groundwater recharge and discharge areas should be identified for preservation or for application of land development plans and practices that protect groundwater quality and maintain the natural surface and groundwater hydrology. It does not, however, give further instruction as to specify any new regulatory constraints, and as SEWRPC is an advisory body, it does not hold the authority to create or enforce new regulatory constraints.

Based on a lack of regulatory constraints and a lack of formally delineated recharge areas, there is no credible method to draw a linkage between the implementation of the recharge area protection recommendation and the potential for having an impact on job growth patterns in the Region. The delineation of recharge areas for protection should, if applicable, also include an inventory of any job locations within those areas, and any development of local, county, or state regulations regarding recharge areas should take into consideration any potential ramifications that the implementation of regulations could have on jobs or industries located within the delineated recharge areas.

Stormwater Management Practices

Similar to groundwater recharge, stormwater management practices encourage groundwater treatment and infiltration (recharge) in order to best maintain the natural hydrology between surface waters and groundwaters, and therefore, to contribute to a sustainable groundwater supply. The RWSP recommends following stormwater best management practices related to infiltration and recharge for all new residential and for selected nonresidential developments.

Regulations regarding stormwater management and its related land management practices are set forth by the State of Wisconsin in NR Chapters 151-155, NR 216, NR 243, and ATCP 50, and administered at the County or local level through various zoning ordinances. Stormwater management practices are generally considered to be safeguards to ensure a safe, abundant groundwater supply, and although unlikely to have an impact on population or job patterns, state-of-the-art stormwater management practices may require restrictions on specific types of land uses.

Based on the RWSP recommendation to follow best management practices related to stormwater infiltration and recharge for all new development, there is no clear, easily identifiable linkage between the implementation of the stormwater management practices

recommendation and the potential for having an impact on job growth patterns in the Region.

High Capacity Well Siting Procedure Changes

Currently, the Wisconsin Department of Natural Resources regulations require a permit application for all new high capacity wells. The DNR review includes the potential impact of the well on nearby municipal wells and adjacent surface waters among other things. The RWSP provides guidance regarding the siting of all new high capacity wells and for monitoring the impacts that such wells may have on the shallow aquifer. The RWSP recommendations for improving high capacity well regulations are based on improving methods to safeguard the quantity and quality of the groundwater supply, and for insuring that groundwater extraction will not have a negative impact on nearby surface waters through baseflow depletion.

Based on the RWSP recommendation to improve high-capacity well siting methods and regulations, there is no clear, easily identifiable direct linkage between the implementation of the high-capacity well recommendation and the potential for having an impact on job growth in the Region, although it may have an impact on some industries that rely on private high-capacity wells. This recommendation implies adoption of regulations incorporating well siting procedures, and therefore could have an impact on any of water-intensive businesses that rely on private high capacity wells such as bottling or food processing plants. Development of high-capacity well regulations at the local or county level should take into consideration any potential impacts on all nearby populations and businesses.

Enhanced Rainfall Infiltrations Systems

Enhanced rainfall infiltration systems are artificial methods to recharge groundwater. The RWSP recommends the use of enhanced rainfall infiltration systems in conjunction with the siting of shallow aquifer high capacity wells, if siting studies indicate that baseflow reductions to nearby surface waters could be materially affected.

The determination to use enhanced rainfall infiltration systems is based on local conditions and the appropriate type of groundwater recharge infiltration system would need to be determined on a site specific basis. Based on these constraints, there is no clear or direct linkage between the implementation of the enhanced rainfall infiltration system recommendation and the potential for having an impact on job growth patterns in the Region.

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Chapter 4

Fiscal Impact on Low-Income Communities

INTRODUCTION

Assessing whether or not the preferred recommendations set forth in the RWSP would have a disparate impact on the economic well being of populations in different communities is a significant part of the socio-economic impact analysis. As part of the socio-economic impact analysis, the following question regarding implementation of the RWSP and its impact on communities with large populations of low to moderate income families was proposed by SEWRPC:

- What impact, if any, would implementation of the regional water supply recommendations have on the fiscal health and well-being of those communities in the Region wherein reside relatively large populations of low and moderate income families?

This Chapter focuses on gaining an understanding into the relationship between the RWSP recommendations and the financial impact it could have on individuals and families in southeastern Wisconsin. The first step in assessing the fiscal impact on low-income communities is identifying which communities, within the framework of the RWSP, have relatively high concentrations of low-income households. As low-income families, including those living at or below the poverty level, and households represent a population that could potentially be more impacted financially than moderate- and higher income families, CED focused its analysis on identifying communities with greater concentrations of such households. Additionally, the evaluation of low-income households includes a discussion of **issues surrounding affordable housing in light of the recent "Smart Growth" legislation**. The second step is to develop an understanding of the costs of water and water infrastructure, and how those costs are distributed among utility customers; the goal is to identify any potential inequities among water users.

The assessment of potential impacts includes identifying any possible financial impacts that changes in the planned utility categories could have on families and households as well as **any possible financial costs and benefits that may exist between the "water providing" and "water accepting" communities**. For example, if the Milwaukee Water Works were to provide water to the City of Waukesha Water Utility, would there be a negative fiscal impact on low-income residents in either the City of Milwaukee or the City of Waukesha? Would low-income residents of either water providing or receiving communities have to shoulder a greater fiscal burden based on the recommendations set forth in the RWSP?

IDENTIFICATION OF LOW-INCOME COMMUNITIES

The global economy is in the third year of what has been dubbed "the Great Recession". A recession is defined as a significant decline in economic activity spread across the economy, lasting more than two quarters, normally visible in real GDP, real income, employment, industrial production, and wholesale-retail sales. Although the US has seen several significant recessions over the past 50 years, most economists agree that this has been the worst economic downturn since the Great Depression and this is by far the longest recession since that time. The National Bureau of Economic Research (NBER), the agency that officially declares the beginning and end of recessions, identified the beginning of this

recession in December 2007. It has yet to officially declare its end, but even when it does, it is likely that the recession will have a lasting impact on the US and regional economy.

Recent data reported by Moody's Economy.com indicates that there have been hints at an economic recovery within the US economy. As of the 2009 fourth quarter, unemployment **has stabilized in the Central Plains portion of the US, and Moody's (or NBER) predicts that exports in the Midwest will likely be the next to stabilize**¹. Unemployment appears to have leveled off in the upper Midwest, and Wisconsin Department of Workforce Development monthly unemployment figures indicate that layoffs have stabilized throughout southeastern Wisconsin. However, **Moody's warns that this leveling off could be due to a shrinkage of the labor force as discouraged workers stop looking for work.** Hiring is still limited across most **industries and nearly everywhere, contributing to speculation that this may be a "jobless" recovery.** Although consumer confidence has started to rise throughout the US, it has improved the least in the Midwest where workers await manufacturing callbacks, and in the Northeast based on uncertainty in the financial sectors.

Any economic rebound will have a direct impact on the housing market. **Moody's indicates** that, as of the end of 2009, there is continued uncertainty in the housing market and that housing remains the greatest risk to regional recovery. Compared to most of the rest of the country, most local housing markets in the Midwest escaped much of the impact of the housing bubble, and economists generally agree that recovery in the housing market is either imminent or has already begun. Foreclosures in southeastern Wisconsin increased to an all-time high in 2009, to 12,745, more than the record-setting 10,884 foreclosure filings in 2008. Local economists and experts that track foreclosures in southeastern Wisconsin blame unemployment and underemployment for the continuing rise in foreclosures².

Recently, researchers have begun to look at the impacts that the Great Recession is having on low-income populations, along with minority populations, as many of the racial and ethnic minority populations have a disproportionately low-income component. Studies are beginning to show disparities that the impact of the Great Recession (including unemployment, access to credit, foreclosures) is having on minority and low-income persons, and the Congressional Committee on Oversight and Government Reform has begun to review studies³ that indicate in some cities, minority unemployment as a direct impact of the Great Recession has outpaced unemployment rates in the white majority.

County Trends and Changes in Household Income

Based on several studies including those by CED⁴ and SEWRPC⁵, the general pattern over the past 30 years has been a trend in lower growth of jobs and population in the historic urban centers compared to the outlying counties, suburbs, and exurbs. This trend is a result of a myriad of factors including net migration and shifts in regional, state, and national economies. In particular, the loss of a manufacturing-based economy and the movement of economic and development activity inland had a significantly negative impact on the

¹ **Moody's Economy.com** accessible at www.economy.com/dismal/article_free.asp?cid=120123&src=dismal-advert-a&tid=098264A2-DEA7-4A66-85CA-B70E998693B8

² Journal Sentinel Article accessed 1/03/10 www.jsonline.com/news/wisconsin/80505782.html

³ Congressional Committee on Oversight and Government Reform accessible at http://oversight.house.gov/index.php?option=com_content&task=view&id=3750&Itemid=49

⁴ Levine, Marc and Lisa Heuler Williams, *The Economic State of Milwaukee's Inner City: 2006*, May 2006.

⁵ SEWRPC Technical Report No. 10 *The Economy of Southeastern Wisconsin*, July 2004, and SEWRPC Technical Report No. No. 11 *The Population of Southeastern Wisconsin*, July 2004.

populations of Milwaukee, Racine, and Kenosha as both jobs and income in those central city areas shifted to the suburbs.

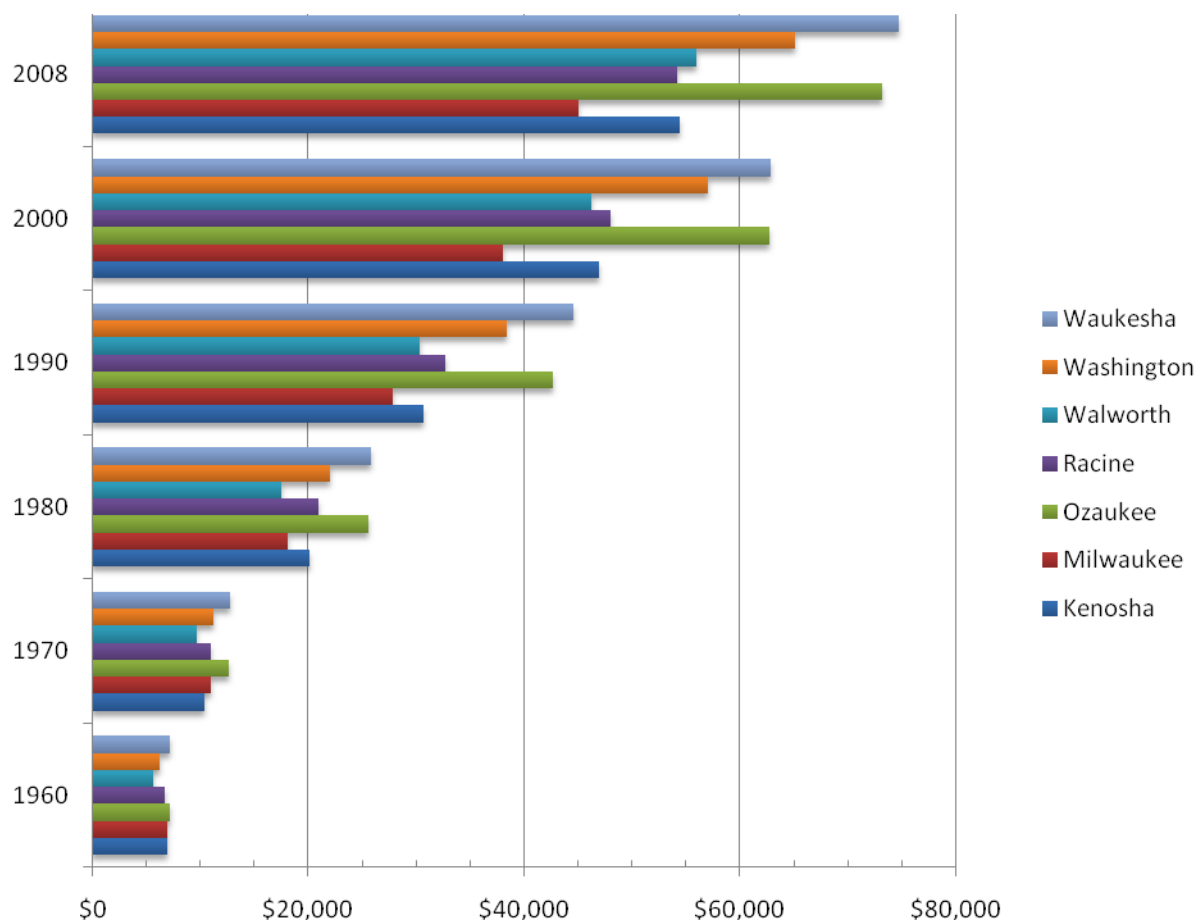
Table 4-I: Historic Median Household Income for Southeastern Wisconsin (Reported Median Income)

County	1960	1970	1980	1990	2000	2008
Kenosha	6,916	10,380	20,084	30,638	46,970	54,464
Milwaukee	6,969	10,980	18,122	27,867	38,100	45,091
Ozaukee	7,152	12,620	25,554	42,695	62,745	73,186
Racine	6,722	10,968	20,944	32,751	48,059	54,241
Walworth	5,692	9,687	17,457	30,345	46,274	55,988
Washington	6,209	11,275	21,989	38,431	57,033	65,061
Waukesha	7,190	12,795	25,827	44,565	62,839	74,688

Note: 1960 and 1970 Census reports Median Family Income NOT Median HH Income

Source: US Census Bureau and American Community Survey

Chart 4-I: Historic Median Household Incomes By County from 1960 to 2008



Note: Data from Table 4-I.

Source: US Census Bureau and American Community Survey

Historic changes in median household income by county indicate that there has been a widening gap in median incomes between the counties over the past 50 years. In 1960, the median income in five of the seven counties was relatively similar, between \$6,722 in

Racine County and \$7,190 in Waukesha County, or a difference of 6.5 percent. Walworth and Washington Counties had somewhat lower median incomes, and in 1960, the economies were predominantly agriculture. Even comparing the difference between the highest median income and the lowest, the difference in 1960 was under 21 percent. However, by 2008, the difference between the County with the highest median income (Waukesha County with an estimated median income of \$74,688) and the lowest median income (Milwaukee County with an estimated median income of \$45,091) this gap had grown to 40 percent. Table 4-1 and Chart 4-I show this increase in dispersion over the 48 year period.

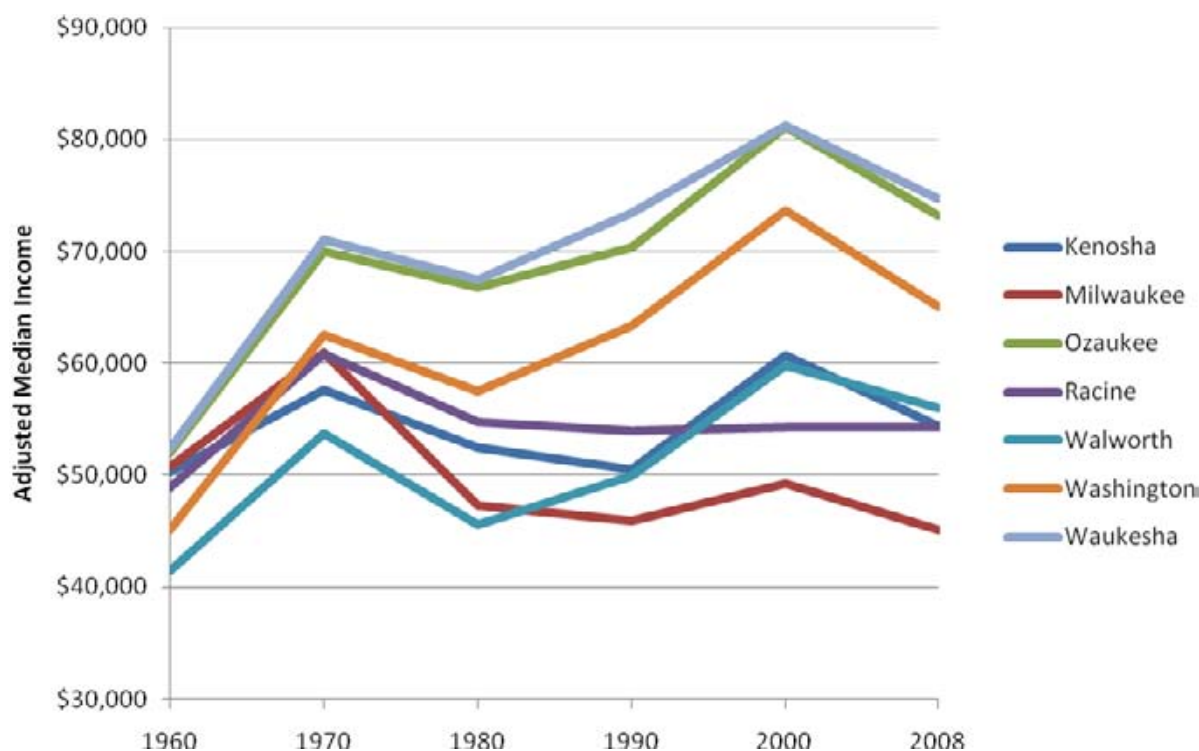
Table 4-II: Historic Median Household Income for Southeastern Wisconsin (Median Income Adjusted to Reflect 2008 Dollars)

County	1960	1970	1980	1990	2000	2008
Kenosha	50,305	57,599	52,477	50,470	60,701	54,464
Milwaukee	50,691	60,929	47,351	45,906	49,238	45,091
Ozaukee	52,022	70,029	66,770	70,332	81,088	73,186
Racine	48,894	60,862	54,725	53,951	54,354	54,241
Walworth	41,402	53,754	45,613	49,988	59,802	55,988
Washington	45,163	62,566	57,455	63,308	73,706	65,061
Waukesha	52,298	71,000	67,483	73,412	81,209	74,688

Note: Note: Data from Table 4-I. Dollars are adjusted to 2008 dollars based on the Consumer Price Index.

Source: US Census Bureau and American Community Survey

Chart 4-II: Historic Median County Incomes Adjusted to 2008 Dollars



Note: Data from Table 4-II. Dollars are adjusted to 2008 dollars based on the Consumer Price Index

Source: US Census Bureau and American Community Survey

Median household incomes are shown in real dollars in Table 4-I; this data indicates that in each county, median incomes have increased between 1960 and 2008. In order to show the impact of changes in median income over time and to adjust for inflation, the dollar values of the median incomes were adjusted to reflect 2008 dollars, based on the Consumer Price Index. These are shown in Table 4-II and Chart 4-II. Between 1960 and 2008, Waukesha and Ozaukee Counties have maintained the highest median incomes among the seven counties. Over this 48 year period, there was considerable fluctuation, with median incomes peaking around 1970 but then declining in each county by 1980; this region-wide decline reflects the two recessions in the 1970's and early 1980's. Median income in most counties rebounded throughout the 1980's and saw gains throughout the 1990's. However, median incomes in Milwaukee and Kenosha County continued to lag until the 1990's.

With the exception of Racine County, median incomes in each of the six counties have fallen since the 2000 Census, due to the Great Recession; median income in Racine County has remained flat since about 1980. Overall, each county's median income increased between 1960 and 2008, with the exception of Milwaukee County, whose median income today is less than what it was in 1960, after adjusting for inflation.

County Distribution of Household Income

In addition to comparing median household incomes, estimates on the ranges in household incomes provide information regarding the distribution of household incomes in each county, shown in Table 4-III and Chart 4-III. This helps identify which counties have the greatest numbers and percentages of low-income households and allows for comparisons between counties. Regionally, about 7.5 percent of households earned less than \$10,000 in 2000, or about 56,195 households. An additional 40,804 households earned between \$10,000 and \$14,999, also considered very low-income households. In 2000, Milwaukee County contained the greatest number and percent of households that had very low incomes; about 40,100 households or 10.4 percent of households had annual incomes less

Table 4-III: 2000 Annual Household Income Ranges for Southeastern Wisconsin

County	Numbers of Households						
	Less than \$10,000	\$10,000 to \$14,999	\$15,000 to \$24,999	\$25,000 to \$34,999	\$35,000 to \$49,999	\$50,000 to \$74,999	Over \$75,000
Kenosha	3,554	2,926	6,896	6,957	9,300	12,959	13,501
Milwaukee	40,098	25,500	54,013	53,352	66,510	72,565	65,945
Ozaukee	837	881	2,453	2,850	4,360	7,324	12,182
Racine	4,423	3,643	8,428	8,453	11,812	17,196	16,841
Walworth	2,106	2,024	3,913	4,459	6,256	8,307	7,450
Washington	1,479	1,414	3,494	4,642	7,298	12,255	13,328
Waukesha	3,698	4,416	9,696	12,097	19,686	33,478	52,379
Region	56,195	40,804	88,893	92,810	125,222	164,084	181,626

County	Percent of Households						
	Less than \$10,000	\$10,000 to \$14,999	\$15,000 to \$24,999	\$25,000 to \$34,999	\$35,000 to \$49,999	\$50,000 to \$74,999	Over \$75,000
Kenosha	6.3	5.2	12.3	12.4	16.6	23.1	24.1
Milwaukee	10.6	6.7	14.3	14.1	17.6	19.2	17.4
Ozaukee	2.7	2.9	7.9	9.2	14.1	23.7	39.4
Racine	6.2	5.1	11.9	11.9	16.7	24.3	23.8
Walworth	6.1	5.9	11.3	12.9	18.1	24.1	21.6
Washington	3.4	3.2	8.0	10.6	16.6	27.9	30.4
Waukesha	2.7	3.3	7.2	8.9	14.5	24.7	38.7
Region	7.5	5.4	11.9	12.4	16.7	21.9	24.2

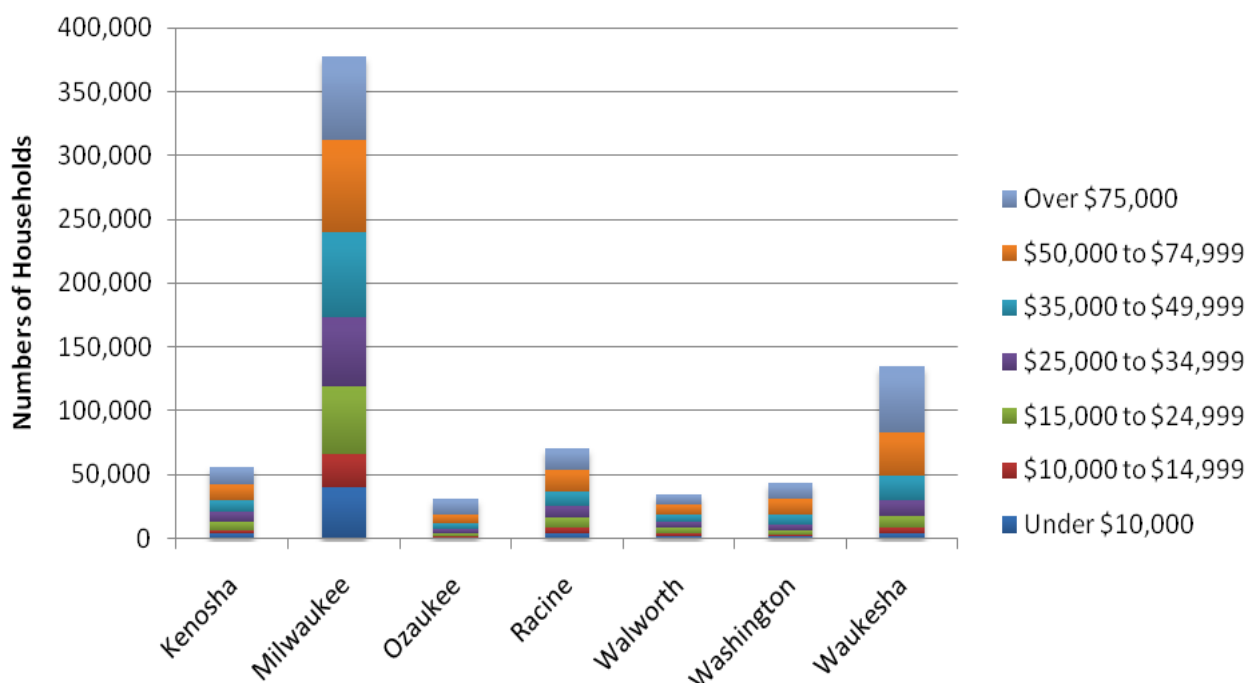
Source: US Census Bureau

than \$10,000, and an additional 25,500 households or 6.7 percent earned between \$10,000 and \$14,999. Although Milwaukee County had the greatest number of households earning more than \$75,000 per year, it had the smallest percentage of such households, only 17.4 percent of households; the regional average was about 24.2 percent.

Ozaukee, Washington, and Waukesha Counties contained the lowest percentages of households that had annual incomes under \$10,000 at 2.7 percent, 3.4 percent, and 2.7 percent respectively. Additionally, these three counties had the highest percentages of households with incomes over \$75,000 at 39.4 percent, 30.4 percent, and 38.7 percent respectively. Comparatively, Kenosha, Racine, and Walworth Counties exhibited similar distribution patterns in household incomes and were within about one percentage point in most income categories. Similar patterns were exhibited in the \$10,000 to \$14,999 range.

More information on annual household income ranges by county is provided for years 2000 and 2008 in Appendix B Table B-I.

Chart 4-III: Year 2000 Annual Household Incomes By County



Source: US Census Bureau

Trends and Changes in Household Income Within the Selected Communities

Historic trends within the selected communities are similar to the trends seen at the county level. Tables 4-IV, 4-V, and Chart 4-IV indicate that among the selected communities there has been a widening gap in median incomes over the past 50 years. Excluding the higher incomes seen in Brookfield and New Berlin, the year 1960 median income in most of the communities was relatively similar, between \$6,664 in the City of Milwaukee and \$7,035 in the City of Kenosha, or a difference of 5.6 percent. By 2008, four of the smaller suburban communities for which data are available had fared considerably better than the four largest urban centers in the region (the Cities of Kenosha, Milwaukee, Racine, and Waukesha).

It should be noted that prior to the 1980 Census, Median Household Income was not a defined Census indicator, and the Census Bureau relied solely on Median Family Income as the preferred indicator for measuring income within social units that live together (i.e., families or households). Currently, Median Household Income has replaced Median Family Income as the preferable measure. Even though the term "family income" may be used synonymously with "household income", the Census Bureau defines the two differently. While household income takes all households into account, family income only takes households with two or more persons related through blood, marriage or adoption into account. For the sake of understanding historic trends, it can be used in conjunction with Median Household Income for the sake of comparison. Also, it should be noted that for Places with populations less than 1,000, Census data on Median Household Income is not available.

Table 4-IV: Historic Median Household Income for Selected Communities in Southeastern Wisconsin (Reported Median Income)

Community	1960	1970	1980	1990	2000	2008
Kenosha	7,035	10,191	18,927	27,770	41,902	46,356
Milwaukee	6,664	10,262	16,028	23,627	32,216	37,022
Oak Creek	6,984	11,715	23,413	39,995	53,779	69,304
Port Washington	6,801	11,465	21,914	36,515	53,827	NA
Racine	6,758	10,526	18,437	26,540	37,164	40,976
Brookfield	8,909	16,052	32,159	57,132	76,225	89,361
Cedarburg	6,729	12,521	22,716	38,322	56,431	NA
Elm Grove	NA	21,969	38,922	66,852	86,212	NA
Germantown	NA	13,128	25,314	43,486	60,742	NA
Grafton	6,980	12,669	23,647	40,596	53,918	NA
Muskego	NA	12,581	25,648	46,119	64,247	82,327
New Berlin	7,503	13,185	28,547	49,394	67,576	77,299
Saukville	NA	NA	22,264	34,461	53,159	NA
Waukesha	6,779	11,547	21,175	36,192	50,084	55,157

Note: 1960 and 1970 Census reports Median Family Income not Median Household Income. 2008 ACS estimates are not available for communities under 25,000 people (Cedarburg, Elm Grove, Germantown, Grafton, Port Washington, and Saukville).

Source: US Census Bureau and American Community Survey

Median incomes are shown in real dollars in Table 4-IV; this data indicates that in each community, median incomes have increased between 1960 and 2008. In order to show the impact of changes in median income over time and to adjust for inflation, the dollar values of the median incomes were adjusted to reflect 2008 dollars, based on the Consumer Price Index (see Table 4-V and Chart 4-IV). This data reflects the value or worth of the median incomes as projected in year 2008 dollars. Over this 48 year period, there was considerable fluctuation, with median income values peaking around 1970 but then declining in each community by 1980; **this region-wide decline reflects the two recessions in the 1970's and early 1980's.** Median income in most of the selected communities rebounded throughout the 1980's and saw gains throughout the 1990's. **In the Cities of Kenosha, Milwaukee, and Racine, median incomes continued to decline throughout the 1980's and did not recover until after 1990.**

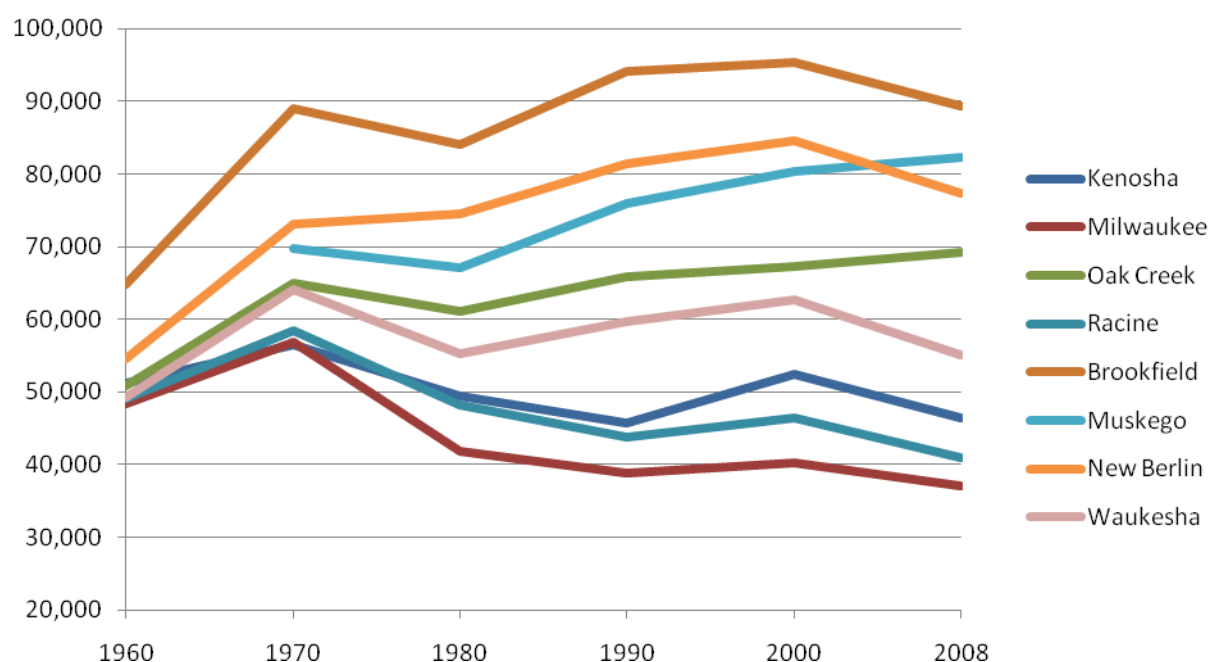
Like the County estimates, the decade between 1990 and 2000 saw gains in the value of median incomes in each of the selected communities, but between 2000 and 2008, median income declined in most of the selected communities. Of the selected communities, the value of median incomes in Muskego and Oak Creek did not decline between the 2000 and 2008 period.

Table 4-V: Historic Median Household Income for Southeastern Wisconsin (Median Income Adjusted to Reflect 2008 Dollars)

Community	1960	1970	1980	1990	2000	2008
Kenosha	51,171	56,550	49,454	45,746	52,390	46,356
Milwaukee	48,472	56,944	41,880	38,921	40,280	37,022
Oak Creek	50,800	65,007	61,176	65,884	67,240	69,304
Port Washington	49,469	63,620	57,259	60,151	67,300	NA
Racine	49,156	58,409	48,174	43,720	46,466	40,976
Brookfield	64,802	89,073	84,028	94,114	95,305	89,361
Cedarburg	48,945	69,480	59,355	63,128	70,556	NA
Elm Grove	NA	121,907	101,699	110,126	107,792	NA
Germantown	NA	72,848	66,143	71,635	75,946	NA
Grafton	50,771	70,301	61,787	66,874	67,414	NA
Muskego	NA	69,813	67,016	75,972	80,329	82,327
New Berlin	54,575	73,164	74,590	81,367	84,491	77,299
Saukville	NA	NA	58,174	56,768	66,465	NA
Waukesha	49,309	64,075	55,328	59,619	62,620	55,157

Note: Data are from Table 4-IV. Dollars are adjusted to 2008 dollars based on the Consumer Price Index. 2008 ACS estimates are not available for communities under 25,000 people (Cedarburg, Elm Grove, Germantown, Grafton, Port Washington, and Saukville).
Source: US Census Bureau and American Community Survey

Chart 4-IV: Historic Median Household Incomes for Selected Communities Adjusted to 2008 Dollars



Note: Data are from Table 4-V. Data are available only for communities with populations over 25,000.
Source: US Census Bureau and American Community Survey

Between 1960 and 2008, it would appear that Brookfield maintained the highest median income levels and experienced the greatest gains among the selected communities, followed by Muskego and New Berlin. The value of median incomes in the Cities of Kenosha, Milwaukee, and Racine actually declined not only from its peak worth in 1970, but also from its value in 1960, indicating that the typical or median household income in these three cities is lower than it was nearly 50 years ago. The value of median income in the City of

Waukesha has increased slightly over this time period, but it too has declined from its peak in 1970. Estimates on median household incomes are not available for communities under 25,000 people, making it impossible to determine how the values of median incomes in the smaller communities⁶ will be affected by the Great Recession. As of the year 2000, the value of median incomes for each of these communities ranged between \$66,465 and \$75,946.

Distribution of Household Income in Selected Communities

As a rule of thumb, Census and HUD often identify low and moderate household income levels relative to a county's or a community's median household. Estimates are based on three income level thresholds - Moderate Income (80 percent) level, Low Income (50 percent), and Very Low Income (30 percent); depending on the agency or application, income thresholds may or may not incorporate household size. HUD publishes formalized county-level thresholds for income limits based on household size as shown in Table 4-VI. Based on the HUD figures, there is little variation between the seven counties in southeastern Wisconsin.

Table 4-VI: HUD's Year 2000 Four-Person Household Income Limit

Community	Very Low-Income Limit	Low Income Limit	Moderate Income Limit
Kenosha	\$17,050	\$28,450	\$45,500
Milwaukee	17,150	28,550	45,700
Ozaukee	17,150	28,550	45,700
Racine	17,000	28,350	45,350
Walworth	17,150	28,550	45,700
Washington	17,150	28,550	45,700
Waukesha	17,050	28,450	45,500

Source: Department of Housing and Urban Development

Often, local or state programs will use the general rule of thumb to identify very low- and low-income households for various programming efforts. For example, in 2000, median household income in the City of Kenosha was \$52,390 per year; under this definition a very-low household income would earn about \$15,717 or less, a low income household would earn about \$26,195, and a moderate-income household would have to earn at least \$41,912.

The Census household income range numbers do not directly coincide with the HUD definitions of household income limits, therefore, there is some estimating that has to be done in order to interpolate the numbers of very low-, low-, and moderate income households. Table 4-VII shows the number and percentage of households by household income range. In 2000, the City of Milwaukee contained the greatest number and percent of households that had very low incomes; about 32,701 households or 14.1 percent of households had annual incomes under \$10,000, and 18,446 households or 7.9 percent earned between \$10,000 and \$14,999. Additionally, about 37,867 households (or 16.3 percent) earned between \$15,000 to \$24,999, indicating that about 38.3 percent of households in the City of Milwaukee earned low to very low incomes (under \$24,999) in 2000. Although the City of Milwaukee had the greatest number of households earning more than \$75,000 per year (27,338 households), it had the smallest percentage of such households, only 11.8 percent of households; the regional average was about 24.2 percent.

⁶ 2008 ACS data on income is not available for communities under 25,000 people including Cedarburg, Elm Grove, Germantown, Grafton, Port Washington, and Saukville.

In addition to comparing median household incomes, estimates on the ranges in household incomes provide information regarding the distribution of household incomes in each community, shown in Table 4-VII. This helps identify which communities have the greatest numbers and percentages of low-income households and allows for comparisons between communities. Regionally, about 7.5 percent of households earned less than \$10,000 in 2000, or about 56,195 households. An additional 40,804 households earned between \$10,000 and \$14,999, also considered very low-income households.

Table 4-VII: Year 2000 Annual Household Income Ranges for Selected Communities in Southeastern Wisconsin

Community	Number of Households						
	Under \$10,000	\$10,000 to \$14,999	\$15,000 to \$24,999	\$25,000 to \$34,999	\$35,000 to \$49,999	\$50,000 to \$74,999	Over \$75,000
Kenosha	2,619	2,137	4,960	4,494	5,976	7,723	6,594
Milwaukee	32,701	18,446	37,867	35,509	40,961	39,490	27,338
Oak Creek	433	376	1,051	1,027	2,140	2,937	3,313
Port Washington	187	102	433	419	648	1,240	1,076
Racine	3,036	2,271	4,885	4,592	5,514	6,647	4,413
Brookfield	281	255	739	1,008	1,644	2,928	7,130
Cedarburg	135	181	432	535	651	1,039	1,444
Elm Grove	93	109	116	155	233	421	1,332
Germantown	165	211	478	737	1,128	1,769	2,441
Grafton	91	145	415	422	761	953	1,278
Muskego	175	208	425	568	1,077	2,225	2,884
New Berlin	223	385	875	1,228	2,039	3,569	6,180
Saukville	79	68	144	150	275	426	441
Waukesha	1,222	1,262	2,670	3,007	4,617	6,744	6,102

Community	Percent of Households						
	Under \$10,000	\$10,000 to \$14,999	\$15,000 to \$24,999	\$25,000 to \$34,999	\$35,000 to \$49,999	\$50,000 to \$74,999	Over \$75,000
Kenosha	7.6	6.2	14.4	13.0	17.3	22.4	19.1
Milwaukee	14.1	7.9	16.3	15.3	17.6	17.0	11.8
Oak Creek	3.8	3.3	9.3	9.1	19.0	26.0	29.4
Port Washington	4.6	2.5	10.5	10.2	15.8	30.2	26.2
Racine	9.7	7.2	15.6	14.6	17.6	21.2	14.1
Brookfield	2.0	1.8	5.3	7.2	11.8	20.9	51.0
Cedarburg	3.1	4.1	9.8	12.1	14.7	23.5	32.7
Elm Grove	3.8	4.4	4.7	6.3	9.5	17.1	54.2
Germantown	2.4	3.0	6.9	10.6	16.3	25.5	35.2
Grafton	2.2	3.6	10.2	10.4	18.7	23.4	31.4
Muskego	2.3	2.8	5.6	7.5	14.2	29.4	38.1
New Berlin	1.5	2.7	6.0	8.5	14.1	24.6	42.6
Saukville	5.0	4.3	9.1	9.5	17.4	26.9	27.9
Waukesha	4.8	4.9	10.4	11.7	18.0	26.3	23.8

Source: US Census Bureau

The City of Racine had the second highest concentration of low- and very low-income households with approximately 32.5 percent of households earning less than \$24,999 in 2000; this was followed by the Cities of Kenosha and Waukesha, with 28.2 and 20.1 percent of households earning less than \$24,999. Each of these communities (Kenosha, Racine, and

Waukesha) had lower than average percentages of households (24.2 percent) earning over \$75,000 in 2000.

Next to Milwaukee, Brookfield had the second highest number of households (7,130 or about 51 percent) earning more than \$75,000 in 2000. It also had the lowest percentage of households earning less than \$24,999, with about 9.1 percent or a combined 1,275 households. Elm Grove had the highest percentage of households earning over \$75,000 in 2000, with about 54 percent of all households in this category. New Berlin and Muskego also had relatively high percentages of higher income households earning over \$75,000 per year, and lower numbers and percentages of low-income households, with 10.2 and 10.7 percent of households earning less than \$24,999 in 2000. Table B-II in Appendix B shows the median household incomes and household income distributions for each community in southeastern Wisconsin for 2000.

Low-Income Households and the Poverty Threshold

Although household income measures the distribution of household income among the population, it poses a unique problem for identifying households that are truly economically challenged, as it does not take into consideration household size and make-up (for example, the number of occupants or dependents relying on the household income). A household of 1 adult earning \$25,000 per year is most likely not as economically challenged as a household of a single parent and four children relying on \$25,000 per year. The official poverty threshold was developed by the US Office of Management and Budget (OMB) to put income into perspective based on family characteristics by using a set of income thresholds that vary by size, age, and composition to determine who is in poverty.

Table 4-VIII: 2008 Poverty Thresholds By Size of Family and Number of Related Children Under Age 18 Years

Size of Family Unit	Weighted Average Threshold	Number of Related Children in Family								
		None	One	Two	Three	Four	Five	Six	Seven	Eight
1 Person	10,991									
Under 65 Years	11,201	11,201								
Over 65 Years	10,326	10,326								
2 People	14,051									
Under 65 Years	14,489	14,417	14,840							
Over 65 Years	13,030	13,014	14,784							
Three People	17,163	16,841	17,330	17,346						
Four People	22,025	22,207	22,570	21,834	21,910					
Five People	26,049	26,781	27,170	26,338	25,694	25,301				
Six People	29,456	30,803	30,925	30,288	29,677	28,769	28,230			
Seven People	33,529	35,442	35,664	34,901	34,369	33,379	32,223	30,995		
Eight People	37,220	39,640	39,990	39,270	38,639	37,744	36,608	35,426	35,125	
Nine People	44,346	47,684	47,915	47,278	46,743	45,864	44,656	43,563	43,292	41,624

Source: US Office of Management and Budget and the US Census Bureau.

Components of the poverty threshold include money income prior to taxes (earnings, unemployment compensation, workers compensation, Social Security, Supplemental Security Income, veteran's payment benefits, rents, royalties, income from estates and trusts, educational assistance, alimony, child support, and dividends). It does not include capital gains/losses or noncash benefits (such as public housing vouchers, Medicaid, food stamps, etc). Income is family based and income from non-related housemates does not count. The remaining components include size of family (number of related children) and

age of family members. According to the Census, each person or family is then assigned to one of 48 possible poverty thresholds (see Table 4-VIII).

The OMB poverty thresholds are used throughout the United States and are not adjusted based on the cost of living by geography. The poverty threshold was originally designed in the mid-1960's based on data regarding the portion of income that economically stressed families spent on food. Although the thresholds reflect to some degree family needs, they are intended for use as a statistical tool, and are not meant to reflect the basic income needs that people and families have.

Various agencies rely on the OMB definition of poverty including the Census Bureau and the Department of Housing and Urban Development (HUD). The US Department of Health and Human Services uses a slightly different measure, called the poverty guidelines. These, too, are income-based and adjusted for families of different sizes, but the income levels vary slightly from the OMB poverty thresholds. Both the poverty thresholds and the guidelines are the same for the 48 contiguous United States, and do not take regional differences in the cost of living into account. Both measures are updated annually for inflation based on the Consumer Price Index.

Poverty Levels in Southeastern Wisconsin

The 1970 Census was the first Decennial Census that included data on poverty threshold statistics. Based on the Decennial Census data, between 1970 and 2000, poverty levels in southeastern Wisconsin counties have fluctuated. In 1970, just under 8 percent of the regional population had incomes or lived in families with incomes at or below the poverty level (see Table 4-IX). The percent of population in poverty peaked around 1990 in both the region and in most counties. In 1990, about 13.2 percent of the population was in poverty; this number declined by the year 2000 to 10.1 percent. In 1970, Walworth County had the highest percentage of people living at or below the poverty level, with about 10.3 percent; but by 1980, the concentration in Milwaukee County surpassed Walworth, and about 14.0 percent of the population was living in poverty. By 1990, poverty in Milwaukee County had climbed to about 18.9 percent, but by 2000, this had declined to about 15.3 percent.

Table 4-IX: Population With Incomes At or Below the Poverty Level in Southeastern Wisconsin

County	1970		1980		1990		2000	
	Persons	Percent of Population	Persons	Percent of Population	Persons	Percent of Population	Persons	Percent of Population
Kenosha	8,844	7.5	12,437	10.1	14,613	11.4	11,218	7.5
Milwaukee	95,920	9.1	135,098	14.0	181,303	18.9	143,845	15.3
Ozaukee	2,449	4.5	3,081	4.6	1,602	2.2	2,140	2.6
Racine	12,471	7.3	16,621	9.6	19,779	11.3	15,862	8.4
Walworth	6,535	10.3	8,581	12.0	8,025	10.7	7,876	8.4
Washington	3,383	5.3	6,194	7.3	3,146	3.3	4,230	3.6
Waukesha	9,255	4.0	12,609	4.5	9,751	3.2	9,741	2.7
Region	138,856	7.9	194,621	11.0	238,218	13.2	194,912	10.1

Source: US Census Bureau

Table 4-X shows the historic share of population living at or below the poverty threshold by county in southeastern Wisconsin. The historic data indicates that although there hasn't been a significant change in the distribution of persons living at or below the poverty level, there has been an increase in Milwaukee County's share while the other counties have slightly declined. The percentage of the Region's population living at or below the poverty threshold living in Milwaukee County also increased over time, from about 69.1 percent in 1970 to 73.8 percent of the region's population in poverty in 2000; based on the Census

data, its share had peaked in 1990 and has since declined. Racine County was a distant second in both number and percent of regional population in poverty, with about 9.0 percent of the region's poverty in 1970, declining slightly to about 8.1 percent in 2000. Ozaukee and Washington Counties have historically had the lowest percentages and numbers of persons in poverty compared to the rest of the region. In 1970, Waukesha County had about 6.7 percent of the region's population living at or below the poverty threshold; by 2000, this had declined slightly to about 5.0 percent.

Table 4-X: Percent of Regional Population With Incomes At or Below the Poverty Level in Southeastern Wisconsin

County	1970	1980	1990	2000
Kenosha	6.4	6.4	6.1	5.8
Milwaukee	69.1	69.4	76.1	73.8
Ozaukee	1.8	1.6	0.7	1.1
Racine	9.0	8.5	8.3	8.1
Walworth	4.7	4.4	3.4	4.0
Washington	2.4	3.2	1.3	2.2
Waukesha	6.7	6.5	4.1	5.0
Region	100	100	100	100

Source: US Census Bureau

Poverty and Minority Populations

Poverty impacts people differently based on both race and ethnicity. Tables B-IIIa and B-IIIb in Appendix B show the number and percent of persons living in poverty by race and ethnicity in southeastern Wisconsin counties. In 2000, approximately 81,490 persons or 5.4 percent of the White Alone population in the region was at or below the poverty level, representing about 37.6 percent of all persons living at or below the poverty level. Although more White Alone persons live in poverty in southeastern Wisconsin than any other single racial or ethnic class, the statistics indicate that persons of every single racial and ethnic minority class in southeastern Wisconsin face a greater likelihood of living in poverty than the White Alone majority population. Slightly fewer Black or African American Alone persons (80,825) were at or below the poverty level, but they represent 32.3 percent of the Black population and 37.3 percent of persons living in poverty.

The Hispanic population, which includes people of all races, represents about 12.5 percent of the total population living in poverty. This accounts for about 27,180 persons, and about 22.1 percent of the regional Hispanic population. **"Some Other Race Alone" comprised about 6.9 percent of the regional poverty with about 24 percent of its population living at or below the poverty level, almost 1 in 4 persons.** Although they represent only about 1.2 percent of the regional population in poverty, about 22.1 percent, or more than 1 in 5, of the American Indian and Native Alaskan Alone population was at or below the poverty level. About 18.5 percent of the **"Two or More Races" population was living at or below the poverty level in 2000, comprising 2.9 percent of the regional population.**

Of the minority populations, the Asian Alone and Native Hawaiian and Other Pacific Islander Alone populations had the least numbers and percentages of people living at or below the poverty level, although each group had greater percentages than the White Alone population. Fifteen percent of the Asian Alone population and about 10.2 percent of the Native Hawaiian and Other Pacific Islander Alone population were at or below the poverty level; these groups comprised 2.2 percent and less than 0.1 percent of the regional population at or below the poverty level, respectively.

Poverty and People with Disabilities

The relationship between poverty and disability has been well documented, and more often people with disabilities are impacted by poverty at much higher rates than non-disabled people. Research indicates that there exists a strong correlation between poverty and disability, and that with many individuals, disability often leads to poverty⁷. People with disabilities are more likely to experience barriers to employment or limitations in earning higher wages. Often, the financial costs associated with managing a disability can have devastating effects on families and individuals, and can thrust the disabled and their **families into poverty. Although the causal relationship isn't quite as clear, there is some** evidence that poverty can cause disability. Much of this research has focused on the relationship of poor health (often a symptom of poverty) to disability or based on disabilities caused by stresses related to living in poverty.

Table 4-XI: Year 2000 People with Disabilities Living At or Below the Poverty Level Southeastern Wisconsin

County	Total Population		Disabled Population			
	Total	In Poverty	Total	In Poverty	Percent of Population in Poverty	Percent of Disabled Population
Kenosha	149,577	11,218	23,695	3,011	26.8	12.7
Milwaukee	940,164	143,845	169,939	34,651	24.1	20.4
Ozaukee	82,317	2,140	8,503	457	21.4	5.4
Racine	188,831	15,862	28,218	4,102	25.9	14.5
Walworth	93,759	7,876	12,993	1,480	18.8	11.4
Washington	117,493	4,230	12,909	1,052	24.9	8.1
Waukesha	360,767	9,741	39,098	2,513	25.8	6.4
Region	1,932,908	194,912	295,355	47,266	24.2	16.0

Note: For the purposes of data collection, the US Census Bureau identifies noninstitutionalized population 5 years and over for its estimates on the disabled population.

Source: US Census Bureau

Table 4-XI shows the number and percent of people with disabilities living in poverty by county and in the region. In most southeastern Wisconsin counties, people with one or more disabilities represent about 25 percent of the population living in poverty. This is considerably higher than the rate for the entire population, indicating that indeed, people with disabilities are more likely to live at or below the poverty level than non-disabled persons. Walworth and Ozaukee Counties have slightly lower rates, at 18.8 and 21.4 percent respectively.

In southeastern Wisconsin, about 16.0 percent of the disabled population is at or below the poverty level. The number and percent of people with disabilities in poverty is greatest in Milwaukee County, with 34,651 persons in poverty or about 20.4 percent of Milwaukee **County's disabled population.** Ozaukee and Waukesha Counties have the lowest percentages of people with disabilities living at or below the poverty level, with 5.4 and 6.4 percent respective. Ozaukee County also has the fewest people with disabilities living in poverty (457).

Poverty Levels in Selected Communities

Poverty within the region tends to be concentrated in urban areas, and the historic data on the selected communities indicates that it has been the greatest (both numerically and

⁷ Lustig, Daniel and David Strauser *Causal Relationships Between Poverty and Disability*, Rehabilitation Counseling Bulletin, June 2007.

percentage-wise) in the largest communities in southeastern Wisconsin, namely the historic urban centers of Milwaukee, Racine, and Kenosha.

Table 4-XII: Number and Percent of Population With Incomes At or Below the Poverty Level for Selected Communities in Southeastern Wisconsin

Community	1970		1980		1990		2000	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Kenosha	6,210	8.1	6,026	8.0	9,923	11.0	8,382	9.5
Milwaukee	80,377	11.4	85,328	13.8	135,583	19.3	123,664	21.3
Oak Creek	597	4.3	536	3.2	426	1.9	868	3.1
Port Washington	581	6.7	252	3.0	229	2.4	421	4.2
Racine	8,456	8.9	8,005	9.4	13,136	13.4	11,120	13.9
Brookfield	668	2.1	708	2.1	399	1.1	843	2.2
Cedarburg	309	4.1	323	3.7	132	1.3	291	2.7
Elm Grove	356	5.2	382	5.7	261	4.3	181	3.0
Germantown	346	5.0	304	2.8	313	2.1	448	2.5
Grafton	265	4.4	238	2.8	149	1.5	179	1.7
Muskego	485	4.2	417	2.8	422	2.6	340	1.6
New Berlin	590	2.2	557	1.8	569	1.6	748	2.0
Saukville	NA	NA	305	8.8	94	2.3	130	3.1
Waukesha	2,424	6.2	2,503	5.1	3,359	5.3	3,323	5.4

Source: US Census Bureau

Table 4-XII shows the numbers and percentages of people living in poverty in the selected communities in southeastern Wisconsin between 1970 and 2000. Poverty in the City of Milwaukee has been consistently higher than anywhere else in the region and has grown considerably since 1970, when about 11.4 percent of the population was in poverty, or just over 1 in 10 persons. By 2000, this had grown to about 21.3 percent, or over 1 in 5. Poverty in Racine and Kenosha has also grown; in 1970, Kenosha and Racine experienced poverty rates of about 8.1 and 8.9 percent. By 1990, this grew to about 11 percent for Kenosha, and 13.4 percent for Racine. By 2000, Kenosha's poverty rate had declined to about 9.5 percent or just under the regional average of 10.1 percent; Racine's continued to climb to about 13.9 percent. Poverty rates in the City of Waukesha have fluctuated slightly, but have remained a bit over 5 percent over the 40 year time span. In 1970, Waukesha's poverty rate was at its peak at 6.2 percent; this declined to 5.1 percent in 1980, but has been increasing slightly since this period.

Poverty rates in most of the other selected communities have remained relatively low, and in many, the rates have actually declined over this period, including Cedarburg, Elm Grove, Germantown, Grafton, Muskego, Oak Creek, and Saukville. Poverty rates in Brookfield and New Berlin have remained relatively steady at about 2.1 percent of the population in each community.

Poverty and Minorities in Selected Communities

Tables B-IVa and B-IVb in Appendix B show the number and percent of persons living in poverty by race and ethnicity in the selected communities. White Alone persons represent the majority of persons living in poverty in most of the selected communities, with the exception of the Cities of Racine and Milwaukee where White Alone persons represented 28.2 and 22.3 percent of people living at or below the poverty level. In 2000, the White Alone demographic in most of the suburban communities represented 80 to 95 percent of the entire population living at or below the poverty level.

Minority representation in the suburbs was small in 2000 and this is reflected in the number and percentage of total persons in poverty by race or ethnicity; however, within each of the

racial and ethnic groups, there were higher rates of poverty among the minorities compared to the White Alone group, indicating that every racial and ethnic minority class in southeastern Wisconsin faces a greater likelihood of living in poverty than the white majority population. For example, in the City of Cedarburg, Black or African American Alone persons represent only about 2.7 percent of all persons living below the poverty level; however, about 38.1 percent of the Black or African American Alone population in Cedarburg was at or below the poverty level, a much higher percentage than the 2.4 percent of the White Alone group.

In 2000, the Cities of Milwaukee and Racine had the greatest numbers and concentrations of minorities living in poverty; particularly hard hit were the Black or African American Alone and Hispanic populations. In Milwaukee, about 50.1 percent of people at or below the poverty level were Black or African American Alone; this was followed by White Alone (22.3 percent) and the Hispanic population with 13.8 percent. Poverty within the minority categories was also high with 33.3 percent (71,879 people) of the Black or African American Alone population and 28.4 percent of the Hispanic population (19,864 people) at or below the poverty level. Poverty in the "Some Other Race Alone", "Two or More Races" and Asian Alone categories was also high, at 28.7, 25.6, and 22.4 percent respectively. Although White Alone persons in Milwaukee were the second largest group living in poverty, with 32,057 persons in poverty, this represented only about 11.2 percent of the total White Alone population. The minority and poverty dynamics in Racine are similar.

Poverty and People with Disabilities in Selected Communities

Tables 4-XIII shows the number and percentages of disabled persons living at or below the poverty level within each of the selected communities compared to the total population living at or below the poverty level. With the exception of Cedarburg and Elm Grove, people with disabilities represent, on average about 27 percent of the population living in poverty in most of the selected communities. Similar to the County level data, these rates are considerably higher than the rate for the entire regional population (10.1 percent), indicating that disabled persons are more likely to live at or below the poverty level than non-disabled persons. Port Washington and Saukville had the highest concentrations of disabled persons in poverty, with 33.5 and 37.7 percent of disabled persons in poverty.

Table 4-XIII: Year 2000 Disabled Persons Living At or Below the Poverty Level for Selected Communities in Southeastern Wisconsin

Community	Total Population		People with Disabilities Living at or Below Poverty Level	
	Total	In Poverty	Persons	Percent
Kenosha	90,352	8,382	2,341	27.9
Milwaukee	596,974	123,664	30,246	24.5
Oak Creek	28,456	868	230	26.5
Port Washington	10,467	421	141	33.5
Racine	81,855	11,120	2,761	24.8
Brookfield	38,649	843	228	27.0
Cedarburg	10,908	291	35	12.0
Elm Grove	6,249	181	18	9.9
Germantown	18,260	448	110	24.6
Grafton	10,312	179	46	25.7
Muskego	21,397	340	88	25.9
New Berlin	38,220	748	163	21.8
Saukville	4,068	130	49	37.7
Waukesha	64,825	3,323	993	29.9

Source: US Census Bureau

Table 4-XIV shows a comparison of the concentration of disabled persons living at or below the poverty level among the selected communities. In 2000, the greatest numbers and concentrations of disabled persons living in poverty were in the three largest communities, Kenosha, Milwaukee, and Racine. The number and percent of disabled persons in poverty was greatest in the City of Milwaukee, with 30,426 persons in poverty or about 25 percent of Milwaukee's disabled population. In the City of Racine, about 2,761 disabled persons were in poverty, or about 18.8 percent of the disabled population and in Kenosha, about 2,341 disabled persons were in poverty (15.1 percent). Cedarburg and Elm Grove had the lowest percentages of disabled living at or below the poverty level, with 2.7 and 3.2 percent respectively.

Table 4-XIV: Year 2000 Disabled Persons Living At or Below the Poverty Level for Selected Communities in Southeastern Wisconsin

Community	People with Disabilities		
	Total	In Poverty	Percent of People with Disabilities Living at or Below Poverty Level
Kenosha	15,476	2,341	15.1
Milwaukee	120,800	30,246	25.0
Oak Creek	3,469	230	6.6
Port Washington	1,170	141	12.1
Racine	14,687	2,761	18.8
Brookfield	3,825	228	6.0
Cedarburg	1,295	35	2.7
Elm Grove	563	18	3.2
Germantown	1,808	110	6.1
Grafton	1,014	46	4.5
Muskego	2,020	88	4.4
New Berlin	4,231	163	3.9
Saukville	654	49	7.5
Waukesha	8,683	993	11.4

Source: US Census Bureau

DISTRIBUTION OF WATER COSTS

As part of the RWSP, a state-of-the-art of water supply practices⁸ was prepared which includes standards and cost estimates for the procurement, treatment, and transmission of municipally supplied water. The cost estimates are based on information developed by the American Water Works Association (AWWA) and on current industry standards. The cost estimates are based on year 2005 dollars, and due to the 30 year time-span in which the RWSP is expected to unfold, it is anticipated that there will be some fluctuation due to variability in the market. Based on this, CED does not attempt to project future changes in long term capital or operating costs; instead CED relies on the cost estimates developed by Ruekert & Mielke Inc. and current (2009) water rates to determine if water sales between the selected utilities could have an unfair impact on low-income communities.

The Role of the Wisconsin Public Service Commission

The Wisconsin Public Service Commission (PSC) is the designated independent regulatory agency charged with the oversight and regulation of all public and private utilities in the State of Wisconsin. There are over 1,100 utilities under the agency's jurisdiction and regulated utilities include electric, natural gas, telephone, water, and combined sewer and water utilities. Most of these utilities must obtain PSC approval before setting new utility

⁸ SEWRPC *Technical Report No. 43 State-Of-The-Art Water Supply Practices*, July 2007.

rates, issuing stocks or bonds, and undertaking major construction projects such as power plants, transmission lines, and developing major water-related infrastructure. Under Chapter 196 of the Wisconsin Statutes and Chapters PSC 1 through PSC 187 of the Wisconsin Administrative Code, the PSC is empowered to ensure that, in the absence of competition, adequate and reasonably priced service is provided to utility customers. PSC review and approval is required before a utility can change rates or construct major infrastructure-related projects.

Within the PSC, the Division of Water, Compliance and Consumer Affairs (DWCCA) is responsible for regulating all water and combined water and sewer utilities in the State of Wisconsin, including the 580 municipal and 8 private water systems. This oversight includes approval of rates, oversight of large distribution and treatment facility projects, utility finance, regional water supply solutions, rules and practices of water and sewage systems, and oversight of compliance with statutes, codes, and record keeping requirements. Chapter PSC 185 sets forth the role of the PSC and the regulations and procedures regarding its oversight of water utilities⁹. PSC regulations and procedures focus on protecting consumers and ensuring that water utilities are able to provide a reliable, safe, and efficient product. **The division offers assistance to all of the state's utilities in compliance with the statutes, code, and record keeping requirements and the development of consumer affairs policies.** The DWCCA also coordinates consumer information with water utilities and the resolution of consumer complaints.

While regulation of all Wisconsin water utilities is required under PSC regulations, sewer utility regulation is voluntary on the part of the municipality. Although there are over 600 sewer operations in Wisconsin, the PSC currently regulates fewer than 20 sewer utilities. These systems have elected to combine their water and sewer operations into a single public utility. For these systems, the PSC regulates rates and rules, practices and procedures, plant additions, service quality, etc. For the unregulated sewer systems, the local governing bodies are responsible the operations and the establishment of rates. Investor-owned sewer utilities would be regulated, but none currently exist.

Evaluation of Municipal Water Rates

As stated above, Chapter PSC 185 sets forth the role of the PSC and the regulations and procedures regarding its oversight of water utilities. According to the PSC, under Wisconsin law (Chapter 66.0811), a municipality may own and operate a public water utility, and in doing so, it is not recognized to be performing a governmental service. Instead, the municipal utility is placed in a position similar to a typical business enterprise in order to operate and maintain the utility. Revenue needs for each water utility are based on financial projections, and are executed through the rate-making process. Rate-making requires facility-level planning to determine existing and future operating and maintenance costs, taxes, capital depreciation (for example, infrastructure and facility), and return on investment. The PSC provides regulatory oversight for each of these practices in order to ensure that water utilities provide a fair rate to their customers while being able to provide and maintain a sustainable water supply and system.

Operating and maintenance costs are generally based on recent operating and maintenance costs of the water system. These are fairly easy costs to determine and project in the short term, and any short term changes to the utility system can be added based on known factors. Depreciation costs are slightly more difficult to calculate. Depreciation is the cost associated with the value that the utility infrastructure loses over time. Most infrastructure

⁹ Wisconsin State Administrative Code PSC 185 can be accessed at <http://www.legis.state.wi.us/rsb/code/psc/psc185.pdf>

or property, be it water mains, well components, intake facilities, or treatment plant components, has a set lifespan until it either requires replacement or becomes outmoded. Depreciation assigns the percent of value lost through general wear and tear in an average **year's worth of use, based on the initial costs, the units salvage value, and the cost of removal.** The PSC sets benchmark ranges for depreciation rates for each water utility, generally somewhere between 2.0 and 2.5 percent of the utility's total value.

In Wisconsin, under Chapter PSC 109 of the Wisconsin Administrative Code, public water **utilities are required to pay what is called a tax equivalent, or "payment in lieu of taxes"** (PILOT), or the PSC Remainder Assessment. The tax equivalent is based on a combination of the gross book value and assessment ratio of the utility, the net local rate, and school district tax rate. The tax equivalent can be lowered if authorized by the local municipality.

In utility forecasting and rate-making, the return on net investment rate base (NIRB) is the most complicated cost that each utility must assess, and according to the PSC is generally the cause of most disputes during the rate-making process. It is a combination of the rate base (value of the utility) and the rate of return on investment and is a measure of the accumulated utility depreciation, the regulatory liability costs for the plant based on historic conditions, and the costs of materials and supplies. According to the PSC, a fair rate of **return should result in a net operating income that provides for the utility's cost of debt and** provide a fair return on equity capital, including the quality of service provided, all capital costs, an assessment of economic risk, and an **assessment of the utility's ability to attract** capital. In other words, a fair return on the NIRB allows a municipal utility to cover its debt interest and a reasonable return on equity capital to sustain itself and to plan for future needs.

Rate Design and the Impact on the Consumer

The PSC follows philosophy set forth in **James Bonbright's *Principles of Public Utility Rates***¹⁰ to establish water utility rates. Rates established by a utility regulatory commission should:

- Be Practical, Simple, and Easily Understandable
- Be Clear, Having Only One Interpretation
- Achieve Proper Revenue Requirement
- Provide Relatively Stable Revenues
- Avoid Unnecessary Rate Shock
- Be Based on the Cost of Providing Service
- Not Be Unduly Discriminatory
- Promote Justified Applications and Discourage Wasteful Use

Although utilities usually petition the PSC to change the water rates, the new water rates are designed by PSC staff, and sent out to the utility for its review. A hearing is then held on the proposed rates. Based on the outcome of the hearing record, the PSC prescribes final rates by issuing its rate order. Tariff sheets containing the authorized rates and rules are prepared and sent to the utility thereby concluding the rate setting process.

Each utility may have several different water rates based on classes or uses. There are a few basic types of water consumers based on their water uses: residential, commercial, industrial, public authority, and fire protection services. Chapters 3 and 4 in PR 52 provide more information regarding different types of water uses. Water utilities need to find a balance between achieving the proper revenue requirement and providing a fair distribution

¹⁰ Information regarding the Public Service Commission can be accessed at www.psc.wi.gov/utilityInfo/water/index-water.htm

of the costs between different types of consumers based on the cost of providing service. For the purposes of cost allocation, fire protection costs are considered a separate class of service and may be an annual amount charged to the municipality served, or the water utility may instead charge public fire protection rates directly to water customers.

Table 4-XV: 2009 Quarterly Water Rates for Selected Communities (in dollars)

Water Utility	Rate Schedule	Minimum Bill	500 CF (3,750 gal)	1,000 CF (7,500 gal)	2,500 CF (18,750 gal)	6,000 CF (45,000 gal)	10,000 CF (75,000 gal)
Kenosha Water Utility	MG1 ¹	13.92	21.57	29.22	52.17	105.09	163.49
Milwaukee Water Works	MG2G ^{1,2}	15.19	23.57	31.94	57.07	115.69	182.69
	MG2W ^{1,3}	15.19	19.14	23.08	34.92	62.53	94.09
	MG1 ¹	12.14	18.84	25.54	45.64	92.54	146.14
City of Oak Creek Water and Sewer Utility	MG1 ¹	21.00	30.86	40.73	70.31	139.35	218.25
City of Port Washington Water Utility	MG1 ¹	21.00	29.66	38.33	64.31	124.95	194.25
City of Racine Water and Wastewater Utility	MG1 ¹	14.68	23.08	31.48	56.68	110.83	168.73
City of Brookfield Municipal Water Utility	MG1 ¹	20.25	36.50	52.75	101.50	215.25	337.25
City of Cedarburg Light and Water Commission	MG1	17.51	25.46	33.41	57.26	98.16	144.06
Village of Germantown Water Utility	MG1	16.50	25.75	35.00	62.75	127.50	201.50
Village of Grafton Water and Wastewater Commission	MG1	13.60	21.10	28.60	51.1	103.60	163.60
City of Muskego Public Water Utility	MG1	13.35	21.56	29.78	54.41	111.90	177.60
City of New Berlin Water Utility	MG1	24.00	35.63	47.25	82.13	157.65	238.95
Village of Saukville Municipal Water Utility	MG1 ⁴	20.60	33.46	46.33	84.91	173.95	273.85
City of Waukesha Water Utility	MG1NR ^{1,5}	22.50	31.24	39.98	66.19	127.35	197.25
	MG1R ^{1,6}	22.50	30.19	37.88	66.19	147.00	249.00
	MG1R3 ^{1,6}	22.50	30.19	37.88	60.94	129.75	220.50
	MGR2 ^{1,6}	22.50	30.19	37.88	60.94	137.25	239.25

Source: Wisconsin Public Service Commission (Rates current as of November 10, 2009)

Note: Rates are based on 5/8" meter size, for residential and small commercial services.

^[1] Bills do not include Public Fire Protection which the municipality has chosen to direct charge to customers.

^[2] Milwaukee Water Utility serves suburban retail service to several communities in the Milwaukee area under this rate schedule.

^[3] Milwaukee Water Utility serves suburban retail service to West Milwaukee under this rate schedule.

^[4] Bills include any applicable Purchased Water Adjustments.

^[5] Rates for non-residential classes in a community that has conservation rates.

^[6] Conservation rates for residential class. These rates are typically inclining block or uniform rate structure.

The rates for the other four classes of water users generally consist of two separate and independent charges: a fixed charge based on the size of the meter and a variable charge depending on the volume of water used. The combination of fixed and volumetric charges applies to all classes of customers. The different usage characteristics of each class are reflected in the cost allocation model and the resulting rate design. Ideally, rates should be based on the cost of providing service, at least as a starting point. Often the rate design will

be adjusted based on the other goals of rate design or based on specific policy goals such as water conservation.

Different classes of customers are assigned to specified rate schedules and may be charged different rates, often dependent on volume. Large water users, such as commercial bottling plants, might be charged less, per volume than general water users, but may have higher fixed charges, depending upon the class schedule. A billing analysis provides the method to predict the annual consumption for each customer class broken down into the rate blocks of **the utility's rate structure. Knowing both the number and size of the meters serving a** given class and the class volume sales within the rate blocks enables the utility to design rates to come very close to recovering the full cost of service from each customer class. Table 4-XV shows the quarterly water rates including rate schedules, minimum bill, and examples of rates based on volumes and a meter connection size of 5/8" **for each of the selected water utilities. These rates are typical for many single-family and duplex housing units, and for small commercial users. Rates vary based on meter connection size and rate based on a ¾" or a 1" meter connection size** would reflect a slightly higher fixed cost rate (referred to in Table 4-XV as the "Minimum Bill").

As of November 2009, residential water rates for the Lake Michigan supplied communities tended to be lower for the three largest Lake Michigan utilities. Milwaukee Water Works provided the lowest rates, particularly for residential customers living within its retail service area. The City of New Berlin Water Utility had the highest rates, for both its minimum bill and by water volume. Most of the water utilities had a single rate class for residential customers, generally the MG1 class, although two utilities had different rates for different classes, namely Milwaukee Water Works and the City of Waukesha Water Utility. Milwaukee Water Works charges different residential rates depending on if the consumer is a resident of its retail service in the City of Milwaukee (MG1), if the consumer is a resident of its suburban wholesale service area (MG2G), or if the consumer is a resident of West Milwaukee, its suburban wholesale service (MG2W). The City of Waukesha Water Utility has four separate rate structures, each incorporating some degree of conservation pricing, aimed at encouraging limiting water usage among its customers.

Water Consumption and Billing in Southeastern Wisconsin

Residential water use is addressed in Chapter 3 of Planning Report 52. Based on estimates and studies on residential water use, the average person uses between 65 and 70 gallons per day for domestic purposes; this means that a typical person uses approximately 2,000 gallons of water per month. Water bills are issued on a quarterly basis, and estimates indicate that the average household uses between 15,000 and 18,000 gallons of water per quarter.

How consumers get billed for their water use varies greatly and generally depends on how water meters are established. The PSC requires that public water utilities bill the property being served, and unpaid water bills become a lien against the property being served. Typical single family homes have a single meter and homeowners or tenants are directly billed for their water consumption. Condo residents may be directly billed if separate water meters are established for each condo unit, or water bills may be paid out of some aggregate fund, for example condo fees. Residents living in multi-family units and duplexes **may be billed for water, or a water bill is issued to the building's owner or landlord and the cost of water use is considered a portion of rent. Landlord practices do tend to vary, but typically the building's owner is responsible for paying the water bill. If a tenant fails to pay a water bill and the bill ends up in arrears, the property owner is still responsible for paying the bill even if the lease specifies that the tenant must pay the bill.**

Property owners are responsible for maintaining the plumbing, pipes, and fixtures needed to distribute water within a residential unit. Upgrades and improvements to pipes, plumbing, and fixtures are subject to regulations based on Wisconsin's **Uniform Dwelling Code (UDC)** for one- and two-family dwelling, and by the Wisconsin State Commercial Building Codes for multi-family dwellings. **Additionally, property owners are responsible for a building's connection to the water main, otherwise known as a service lateral.** Service laterals are the portions that extend underground from the house under up to the curbstop located at the property line¹¹. Under Wisconsin law, the service lateral is owned by and is the responsibility of the property owner; the water utility is responsible for the water mains located in the public right of way (usually located under the street) but the property owner is responsible for the lateral.

The costs associated with maintaining and or upgrading plumbing, pipes, and fixtures can vary considerably. Often older homes may require significant investment to upgrade piping, plumbing, or fixtures. The costs of replacing fixtures, such as toilets or showerheads, usually do offset the costs caused by leaking or inefficient fixtures. Some costs associated with replacing piping or a service lateral can be very costly, often costing thousands of dollars; this can have a much greater impact on low-income homeowners. In many cases, the costs to replace a lateral can be fully or partially covered by homeowners insurance.

Comparison of Wholesale and Retail Water Supplies

Although most utilities in southeastern Wisconsin supply their own water and maintain their own utility systems, several utilities purchase Lake Michigan water from neighbors¹². Milwaukee Water Works is by far the largest surface water provider in Wisconsin, and provides retail service to customers in Milwaukee, Hales Corners, Greenfield, St. Francis and to a small portion of Franklin. Additionally, it sells water on a wholesale basis to several of its neighbors including Brown Deer, Butler, Greendale, Menomonee Falls, Mequon, New Berlin, Shorewood, Thiensville, Wauwatosa, West Allis, and to the Milwaukee County Grounds. The Village of West Milwaukee has a unique arrangement with the City of Milwaukee Water Works, as it receives water and billing services from Milwaukee Water Works, but maintains its own system. The Kenosha Water Utility, City of Oak Creek Water and Sewer Utility, and the City of Racine Water and Wastewater Utility also provide water on either a wholesale or retail basis to their neighbors, and although the City of Port Washington Water Utility only self-supplies, under the RWSP, it is proposed that it provide wholesale water service to the Village of Saukville Municipal Water Utility. The difference between retail and wholesale water usually involves different levels of service; retail customers typically receive full service including direct customer billing and distribution system maintenance, whereas wholesale customers typically operate their own utilities, maintain their own municipal distribution systems, and handle their own billing.

The process for procuring wholesale water involves the development of a purchase agreement between the providing and receiving communities. The purchase agreement must guarantee two main items, that the providing community will be able to provide the receiving community with an adequate supply of water and that the purchaser will continue to obtain the supply so that the provider may continue planning the maintenance and/or expansion of its system. It also sets forth the delineated area in which the two parties have agreed to supply water¹³. The provider utility develops both its retail and wholesale rates in

¹¹ Diagram by the Sheboygan Water Utility illustrating a typical water lateral (portions of the water lateral based on responsible party) can be viewed at www.4squarehi.com/files/WaterLateralWork.pdf

¹² The regulatory framework outlining the provision and sale of municipal water between utilities is set forth in Wisconsin Statutes 66.0811 and 66.0813.

¹³ Wisconsin Statute 66.0811(3)

accordance with PSC regulations and oversight, to ensure its ability to plan for, maintain, and expand its water facilities¹⁴. Under Wisconsin law, the income of a municipal water utility must first be used to make payments on the operating, maintenance, improvements to, and depreciation of the utility along with any interest or debts, and local and school tax equivalents. Any income in excess of these requirements may be used to purchase and hold bonds, issued for the acquisition of the utility; life insurance for an officer or manager of the utility; or may be paid into the general fund for general or special municipal purposes. This authority to make payment to the municipal fund is rarely used and is typically not used on a repeated basis. Individual wholesale rates do not have to be uniform among all wholesale customers and are typically seldom the same because of varying costs to provide service to different customers. Uniquely, the Milwaukee Water Works has legal authority that ensures that all retail water sales outside the City of Milwaukee limits be at least 25 percent higher than the rates charged to customers within city limits. This is unlike most other retail services which typically require uniform rates for the service in all parts of the utility service area.

Individual purchase agreements may also stipulate certain conditions, such as prohibiting the resale of purchased water by the receiving utility to other utilities or outside of the delineated service area. Additionally, agreements may stipulate additional charges or increases in service fees in the receiving community exceed its maximum flow rate or demand. Appendix C shows an example of excess demand pricing based on the Milwaukee Water Works and New Berlin Water Utility water service area agreement. Initial purchase agreements may require that, beyond the negotiated water service, the receiving utility pay some sort of upfront impact fee or charge to the providing utility. Appendix C also includes a water service agreement between the City of Cleveland Ohio and neighboring Portage County that stipulates conditions meant to offset the impacts of economic development outside of Cleveland, and to promote joint economic development activities between the two communities.

Normally, there are limits to the duration of the purchase agreement, usually 10 or 20 years, and once the purchase agreement nears its date of completion, another purchase agreement must be drafted and executed. Under PSC law, once a purchase agreement has been executed, the wholesale provider is obligated to provide water supply and to continue supplying the receiving community into the future. Renewal of the contract may include a **re-delineation of the receiving utility's service area or other changes subject to the approval** of the PSC. Appendix C also includes an example of a renewal purchase agreement for water between the City of Milwaukee and the City of West Allis for the purchase of water at a wholesale rate. In Wisconsin, purchase agreements are overseen by the PSC.

In certain cases, this process may also include an intergovernmental cooperation agreement for services between two or more municipalities. Although usually used to address issues regarding growth and annexation, intergovernmental cooperation agreements may also be developed to set forth rules for shared services including water utility services. Under Wisconsin Statutes 66.0230, 66.0270, and 66.0301, communities in Wisconsin may engage in intergovernmental cooperation to address annexation and infrastructure issues. Additionally, under Wisconsin Statute 66.0280, communities may also engage in revenue sharing to resolve issues, including those related to sharing infrastructure expenses. Several communities in southeastern Wisconsin are engaged in intergovernmental agreements for either municipal boundary expansions or for shared utility or community services. The City of Kenosha is involved in several intergovernmental agreements with its neighbors involving water service; each of the agreements set forth plans for future services and provide

¹⁴ Wisconsin Statute 66.0811(2)

delineations for future expansion for each of the communities. Intergovernmental agreements are overseen by the Wisconsin Department of Administration.

Waukesha Water Utility's Diversion Application¹⁵

Waukesha Water Utility and its water utility contractor CH2MHill evaluated a series of scenarios to resolve its water supply problems, including different groundwater sources, surface water sources, and combinations of the two sources. Each of the scenarios has different costs associated with the procurement, treatment, and transmission of water. Procurement of Lake Michigan surface water would require not only developing the infrastructure for water conveyance, but also the development of infrastructure to transmit the spent water back to the Lake Michigan basin based on the conditions set forth in the Great Lakes Compact. Under any scenario that would require Waukesha to search for an alternative groundwater supply, the costs are generally tied up in treatment as well as procurement, including the possibility of annexing non-contiguous lands (for example, in areas south of the City near the Vernon Marsh or further west in Waukesha County, beyond the confining aquifer) in order to provide the necessary resources for shallow wells. After eliminating most of the less likely scenarios, CH2MHill and the Waukesha Water Utility focused on evaluating the following four alternatives:

Alternative 1: This proposes continued reliance on groundwater, and continued blending of groundwater from both the deep and shallow aquifers, but with more reliance on the shallow aquifer and reduced withdrawals from the deep aquifer. Specifically, this alternative includes using the existing shallow aquifer wells and the addition of water from 2 wells proposed to be located south of the City near the Vernon Marsh. Under this scenario, approximately 60% of the supply would come from the shallow aquifer while the remaining 40% would come from the deep aquifer. According to CH2MHill, this alternative would likely have negative impacts on the environmentally sensitive marsh and be less cost effective as the continued use of the deep aquifer supply has degraded water quality and would require additional water treatment or processing. Due to the two different source types, this alternative would also require at least two different types of treatment facilities. The cost to treat the ever degrading deep aquifer water would most likely increase through use. Water from this shallow aquifer is hard and would require continued softening costs for the property owner. The estimated capital cost for this alternative is \$189M, with annual operating and maintenance costs around \$7.2M.

Alternative 2: This focuses on continued reliance on groundwater, but proposes to discontinue the use of the deep aquifer in favor of utilizing water strictly from the shallow aquifer, namely from the Fox River alluvium. CH2MHill's analysis indicates that this alternative would have greater negative impacts on the environment than Alternative 1, as it would have a much greater impact on the baseflow to surface waters, specifically in areas along the Fox River including portions of the Vernon Marsh, Vernon Wildlife Area, and Pebble Creek. In comparison to Alternative 1, treatment would be provided by one central treatment facility resulting in a reduction in operation and maintenance costs over Alternative 1. Similar to Alternative 1, water from this shallow aquifer is hard and requires softening costs for the property owner. The estimated capital cost for this alternative is \$184M, with annual operating and maintenance costs around \$7.4M.

Alternative 3: This proposes to discontinue use of the deep aquifer and to purchase treated Lake Michigan water from a Lake Michigan water utility and blend this with water from the shallow aquifer. Approximately 40% of the supply would come from a Lake Michigan supply;

¹⁵ Documents pertaining to the Waukesha Water Utility diversion application can be accessed online at www.ci.waukesha.wi.us/web/guest/futurewatersupplyinfo

under this option, it is assumed that water would be purchased from Milwaukee Water Works, and conveyed through a transmission pipeline and booster pump station to a Waukesha reservoir for distribution. The other 60% of needed supply would come from new and existing shallow aquifer wells. Treated used water would be returned to the Lake Michigan watershed through some form of return flow conveyance. Although Underwood Creek was proposed based on CH2MHill's assessment that it is the best alternative due to the shortest distance and provides the best use of infrastructure, other return flow alternatives exist and would require further evaluation. Water from the shallow aquifer is hard. In some cases, it would be mixed with soft Lake Michigan water, but in others, the groundwater may not be mixed, therefore it would still require continued softening costs for the property owner. The estimated capital cost for this alternative is \$238M, with annual operating and maintenance costs around \$7.5M.

Alternative 4: This alternative proposes to discontinue use of the groundwater supply system and to purchase treated Lake Michigan water from a Lake Michigan water utility (specifically Milwaukee Water Works) and to convey the purchased water through a transmission pipeline and booster pump station to a Waukesha reservoir for distribution. Treated used water would be returned to the Lake Michigan watershed through some form of **return flow conveyance. Although Underwood Creek was proposed based on CH2MHill's** assessment that it is the best alternative due to the shortest distance and provides the best use of infrastructure, other return flow alternatives exist and would require further evaluation. Alternative 4 is the preferred alternative, as CH2MHill assess it as having the fewest environmental impacts, the longest term sustainability, and the lowest infrastructure costs as it removes the operation and maintenance costs associated with wells, well fields, and water treatment plants. The estimated capital cost for this alternative is \$164M, with annual operating and maintenance costs around \$6.2M.

In addition to the costs associated with water procurement and treatment, costs associated with return to source have also been taken into consideration for Alternatives 3 and 4. Any Great Lakes diversion demands that all water taken out of the basin must be returned to the basin and therefore infrastructure would need to be built to return the spent water. Waukesha evaluated three return flow routes, one through Underwood Creek, one through the Root River, and another as a direct flow to Lake Michigan. Based on the Waukesha **Water Utility's diversion application, of the three return flow** alternatives evaluated, the return flow through Underwood Creek is considered most preferable with the lowest estimated capital cost of about \$56M with an annual operations and maintenance cost of about \$120,000. The estimated costs for return flow via the Root River are about \$76M with an annual operating and maintenance cost of \$145,000. The estimate for the direct flow return to Lake Michigan is the most expensive with a capital cost of about \$110M and an annual operating and maintenance cost of about \$160,000. The additional costs for the least expensive, preferred return flow through Underwood Creek were added to Alternatives 3 and 4 but may need to be adjusted if this alternative were rejected, adding to the overall costs of Alternatives 3 and 4.

Alternative 4 offers both the lowest estimates in overall capital costs and annual operating and maintenance costs. Its estimated capital cost is lower than the next lowest alternative (Alternative 2 – shallow aquifer only) by \$20M or about 11%. Alternatively, its annual operating and maintenance is about \$1M less than Alternative 1 (shallow and deep aquifer blending), or about 14% less. On a present worth cost basis, the cost differential between Alternative 1 and Alternatives 2 and 4 would be somewhere in the range of 11 to 14%. Alternative 3 is substantially higher than the other alternatives, and therefore not considered a likely scenario.

Although the preferred alternative as set forth under the RWSP promotes the change in supply from groundwater to strictly Lake Michigan water (Alternative 4), questions have arisen regarding whether or not cost differences between the alternatives set forth in the Waukesha Water Utility diversion application would have any differential socio-economic impacts, particularly **if either of Waukesha's groundwater alternatives would need to be implemented**. It is impossible to answer this question definitively, since existing cost estimates are based on assumptions that may change over time. However, it appears unlikely at this time that the difference in overall cost between the Lake Michigan option and a groundwater option would result in significant socio-economic impacts. Currently, the average Waukesha Water Utility residential user is charged approximately \$67 per quarter for water (based on an average use of 14,300 gallons per quarter) or \$268 per year. Under groundwater-based Alternatives 1 and 2, the average residential water user would be charged about \$151 quarterly or \$604 per year. Under Lake Michigan Alternative 4, the estimated quarterly cost for the average residential water user would be about \$142 (about \$568 per year), or about 6 percent less than the groundwater alternatives. These costs could be somewhat lower if financial assistance is obtained from an outside source.

Additionally, it is unlikely that any of the Waukesha water alternatives would have negative socio-economic impacts on Milwaukee Water Works users based on cost. Current estimates project that future water rates in the Waukesha Water Utility service area will be significantly higher than in the Milwaukee Water Works service area, no matter which alternative is selected. Currently, the estimated quarterly cost for 14,300 gallons for most residential users of Milwaukee Water Works retail supply is about \$42, or roughly \$168 per year. This is \$400 less per year than the rates proposed under Alternative 4 and \$436 less per year than the rates proposed under Alternatives 1 and 2. As such, no matter which alternative is selected, there will be no incentive for a developer, business, or resident to move from Milwaukee to Waukesha based on the cost of water.

There are some unknown cost factors that may need to be addressed if the Waukesha's diversion application is rejected or if portions of the proposal such as the preferred return flow option need to be revised. If the WDNR rejects the preferred return flow route through Underwood Creek in favor of either of the other two routes, the estimated water rates under Alternative 4 would increase. Also, implementation of Alternatives 1 and 2 might trigger the possibility of developing infiltration systems or other protective methods in order to mitigate any impacts to the baseflows of surrounding surface waters. The WDNR has designated all of Waukesha County as a groundwater management area, and therefore implementation of any of the groundwater alternatives would require WDNR approval and would necessitate a groundwater management plan for the area, which could possibly include additional costs associated with recharge area management or groundwater infiltration techniques. Further study of these potential costs may be necessary.

ASSESSMENT OF POTENTIAL IMPACTS OF RECOMMENDATIONS

Each of the six recommendations was evaluated based on any foreseeable impacts they might have on low-income families and households within the Region, and particularly in the **"selected communities"**. The following question provides the framework or context for the evaluation.

- What impact, if any, would implementation of the regional water supply recommendations have on the fiscal health and well-being of those communities in the Region wherein reside relatively large populations of low and moderate income families?

Key to the issue of providing Lake Michigan water to communities located over the sub-continental divide is identifying the costs associated with the development of infrastructure and understanding how the water costs are distributed. Could the costs of water and water infrastructure set forth under the plan potentially have a negative fiscal impact on low-income households and families in either receiving or providing community? Could any of the recommendations set forth under the RWSP have a negative fiscal impact on low-income households?

Sources of Water Supply

As stated previously, there are two major water supply sources in Southeastern Wisconsin - groundwater and Lake Michigan, each with its own unique advantages and disadvantages. Although Lake Michigan water serves the majority of people, commerce, and industry in the seven County Region, growth in the outlying Counties has increased greatly over the past 50 years, and the use of groundwater as a supply source has also increased. One of the central issues of the Regional Water Supply Plan was a concern regarding the amount of high quality groundwater supply available, and whether or not it could support both existing and planned development.

The 2035 Regional Land Use plan provided the basis for establishing and delineating the planned municipal water utility service areas within the Region. Under the 2035 Regional Land Use Plan, SEWRPC recommended that most new urban development within the Region be served by municipal sanitary sewer and water supply facilities. The service area delineations contained in the Regional Land Use Plan were generalized, systems-level delineations, intended to be refined and detailed under subregional and local land use utility planning. In the RWSP, the delineations of the future water service areas were further refined based on proposed land use development type and density, the relationship to existing water supply service areas, the shallow groundwater aquifer characteristics, and anticipated water service needs as discussed in known local plans. The RWSP identified new areas recommended to be served by municipal water service either through expansions of the water service areas of the 78 existing water utilities (as of 2005) and an addition of 23 of the 34 new service areas identified under the Regional Land Use Plan.

The 2035 Regional Land Use Plan identified 34 urbanized areas not currently served by municipal water. Under the RWSP, each of the 34 new planned water service areas was evaluated based on existing and proposed land uses, existing residential housing units and densities, distance to the nearest existing municipal water supply service area, aquifer characteristics, and any known local initiative to develop municipal water supply systems (see Table IV-1 in Planning Report 52). The RWSP recommended that 23 of the 34 areas become planned municipal water service areas, while 11 are recommended to continue to rely on private water supply systems. Of the 23 new systems, 21 were recommended to utilize local groundwater supplies, and 2 were recommended to utilize Lake Michigan as the source of supply (the Village of Elm Grove, and the Northwest Caledonia Area). This recommendation is contingent upon both a demonstrated local need for a utility and a local initiative to form the utility; otherwise, in the absence of these conditions, the RWSP recommends that these areas continue to utilize private wells.

Findings from the regional aquifer simulation model, set forth in SEWRPC Technical Report No. 41, ***A Regional Aquifer Simulation Model for Southeastern Wisconsin***, indicate that more problems due to sustained pumping seem to be arising in the deep aquifer than in the shallow aquifer. Much of the deep aquifer in the Region sits below an impermeable aquitard,

and based on the modeling¹⁶, the recharge rates are exceptionally slow in comparison to the shallow aquifer. Also, regional groundwater pumping has affected groundwater flow patterns, shifting the location of the deep groundwater divide to the west, and potentially reversing the flow of groundwater away from the Lake Michigan Basin and toward the inland pumping centers. Groundwater problems are not limited to the deep aquifer. The model estimated that between 1864 (considered pre-development conditions) and the year 2000, pumping decreased the rate of discharge in the shallow groundwater to Lake Michigan, and most significantly decreased the baseflow of streams, although this reduction is partially offset by return flow from sewers.

In addition to groundwater flow and quantity issues, certain groundwater quality issues have also arisen associated with groundwater contaminants whose levels are regulated by the USEPA. Many of these contaminants are local to specific wells and efforts to protect wells from contamination are dealt with through State and local regulations regarding well siting, water treatment, or through wellhead protection efforts. A significant problem with groundwater quality has been identified at some of the municipal wells due to the high levels of naturally occurring contaminants including radium or salts in groundwater extracted from portions of the deep aquifer. Some communities are currently facing or have faced sanctions by the Wisconsin Department of Natural Resources for having a higher concentration of radium in the municipal water supply than allowed by the USEPA. The City of Waukesha has taken steps to reduce the amount of radium in its water supply, and will need to come into compliance with the USEPA standard by the year 2018. All of the other municipal utilities in southeastern Wisconsin which have had radium issues have come into full compliance by either treating the water, blending the contaminated water supply with uncontaminated water to lower the concentration, or by changing the aquifer source of supply (generally, by switching to the shallow aquifer).

The RWSP recommends the creation of two new water utilities¹⁷ that rely on Lake Michigan water, and that nine existing utilities¹⁸ switch to relying on Lake Michigan as the source of supply. This part of the socio-economic impact analysis focuses on assessing whether or not the RWSP recommendations regarding the source of water supply or changes to the source of water supply could have socio-economic impacts on low-income households or homeowners. The assessment focuses on the relationship between water providing and purchasing communities and whether or not the recommendation to switch the nine groundwater-reliant communities to Lake Michigan will have a negative impact on the communities or portions of the communities that could potentially be providing Lake Michigan water.

Evaluation of the Impact of the Planned Utility Categories on Low-Income Families and Households and Source of Supply

The primary question related to population patterns and growth is whether or not a change in the source of water supply could have any negative fiscal impacts on low-income and disabled persons, or on communities that have higher concentrations of low-income and disabled populations. To answer this question, an understanding of both water rates and how the costs of water infrastructure are distributed is needed.

¹⁶ Technical Report 47, *Groundwater Recharge in Southeastern Wisconsin Estimated by a GIS-based Water-Balance Model*.

¹⁷ These proposed utilities are for the Village of Elm Grove and for a small portion of the Village of Caledonia, referred to as Northwest Caledonia Area.

¹⁸ These communities include the Cities of Brookfield, Cedarburg, Muskego, New Berlin, and Waukesha, Villages of Germantown, Grafton, and Saukville, and their environs, and the Town of Yorkville Water Utility District 1.

The groundwater¹⁹ and aquifer²⁰ studies developed as part of the Regional Water Supply Planning process by SEWRPC, the WGNHS, the USGS, the DNR, University of Wisconsin – Milwaukee and other Wisconsin groundwater experts provide the latest, most thorough examination of the groundwater supply in southeastern Wisconsin. A review of these studies indicates that while withdrawals from the shallow and deep aquifers have, over time, changed the groundwater flow system, many of the problems or perceptions regarding groundwater quality or quantity are associated with withdrawal from the deep aquifer, rather than the groundwater system as a whole. Based on the scientific evidence developed by the WGNHS, it appears as though existing sources of groundwater supply, ***if properly managed***, would be sufficient to support development through 2035, ***assuming that existing land use plans do not change***.

In addition to the 23 potential utility service areas, the 78 existing utilities were evaluated based on information provided by the local water utilities and the PSC. The service area delineations contained in the Regional Land Use Plan were generalized, systems-level delineations, intended to be refined and detailed under subregional and local land use utility planning. In the RWSP, the delineations of the future water service areas were further refined based on proposed land use development type and density, the relationship to existing water supply service areas, the shallow groundwater aquifer characteristics, and anticipated water service needs as discussed in known local plans.

Of the 78 existing utilities, it was recommended that 27 remain on Lake Michigan supply, 42 utilities remain on groundwater supply, 9 utilities were recommended to be converted from groundwater to Lake Michigan as the source of supply, and 2 new utilities were proposed to utilize Lake Michigan water.

Existing Utilities to Remain on Current Supply

For the 27 existing utilities slated to remain on Lake Michigan supply, and the 42 existing utilities to remain on groundwater supply, it is not anticipated that remaining on the current source of supply will have a financial impact on low-income or disabled households. Any costs associated with future facilities level planning or service area expansion will continue to be assessed by the PSC, in accordance with the development of rate structures. Any utility that wishes to engage in any major facilities or utility expansion may do so under the guidance of the PSC whose job it is to ensure that the costs of providing both water and supply infrastructure (existing and planned) are fair for the consumers. As stated earlier, the goal of the PSC is to approve rate structures that avoid unnecessary rate shock for the customers, are not unduly discriminatory, promote justified applications, and discourage wasteful use. Additionally, the role of the PSC oversight is to ensure that a utility achieves the proper and necessary revenue requirement, needed for existing and planned utility development, and that the rates are designed to provide relatively stable revenues to achieve development objectives.

In most facilities-level planning processes, rates and additional charges are devised to shield existing ratepayers from subsidizing infrastructure needed to serve new development, and usually, a utility will do this by assessing an impact fee for new customers. Although there are some exceptions, most new development within an urban service area is required under local ordinance to provide municipal water service. Within most new developments,

¹⁹ ***Technical Report No. 37, Groundwater Resources of Southeastern Wisconsin***, prepared by SEWRPC and WGNHS

²⁰ ***Technical Report No. 41, A Regional Aquifer Simulation Model for Southeastern Wisconsin***, prepared by SEWRPC, USGS, WGNHS, DNR, UWM, and Participating Water Utilities in Southeastern Wisconsin.

the developer bears the brunt of the impact fee, and then passes these costs along to the consumer. For existing developments that join onto the system, the impact fee is paid for by the property owner and generally covers the costs to hook up to the system (the lateral) as well as a portion of the additional mains. It is these potential customers (most of whom rely on private wells) that pose a unique situation for each utility. Undoubtedly, there will be some resistance on the part of many homeowners to avoid the costs of impact fees, and being located within an urban service area does not necessarily require existing homeowners to join the utility system. Generally, the connection of existing development to a municipal utility is carried out, at least in part, due to a locally identified need for **municipal service and often is based upon a survey of property owner's preferences.** This implies that, for areas that are converted to municipal systems, the benefits and costs of a municipal system may outweigh the overall benefits and costs of remaining on private wells.

Existing Utilities to Change Source of Supply

Nine utilities are recommended for conversion from groundwater to Lake Michigan as a source of supply. The existing infrastructure regarding water distribution in each of the nine utilities is already in place, but three major changes in infrastructure would potentially be required. First, the local municipal wells and any processing or treatment infrastructure would need to be shut down or mothballed; second, infrastructure to procure the water from a Lake Michigan provider would need to be developed; and third, under the Great Lakes Compact, infrastructure or a means to convey the discharge would have to be developed to ensure return flow to the Great Lakes basin. The return flow system is in place for eight of the nine utilities, the exception being the Waukesha Water Utility.

Within the RWSP's preferred alternative, part of the decision to switch five of the nine selected utilities²¹ was based on a number of factors including the Milwaukee Water Works excess capacity which has helped keep production costs low. Milwaukee Water Works, by far the largest system in Wisconsin, currently runs at about half of its designed water production capacity. In order to serve additional wholesale utilities, some of the other **Lake Michigan producer's** facilities would need to invest in major expansions, and the costs of the upgrades would be passed along to new customers. Additionally, potential costs associated with the transmission of wholesale Lake Michigan water from alternative sources would most likely be higher based on distance traveled alone. It would likely be more cost effective for the five selected utilities to obtain wholesale water from Milwaukee Water Works rather than from an alternative Lake Michigan provider. Under a typical purchase agreement, customers within the City of Brookfield Municipal Water Utility, Village of Germantown Water Utility, City of Muskego Public Water Utility, City of New Berlin Water Utility, and the City of Waukesha Water Utility would have to pay for the costs of the distribution infrastructure, including the costs to hook onto the Lake Michigan system; these costs would be included in new rates developed by each of the receiving utilities to equitably disperse any additional costs among consumers. Wholesale rate structures developed by the providing utility would have to take into account the addition of each utility and its potential impact on its own system.

Also under the RWSP, the Village of Saukville Municipal Water Utility would most likely procure wholesale water from the City of Port Washington Water Utility. Under this recommendation, any upgrades to **Port Washington's facility necessary to provide Saukville** with Lake Michigan water would most likely be incurred by the Saukville Municipal Water

²¹ The proposed existing utilities that would most likely rely on purchasing wholesale water from Milwaukee Water Works include the City of Brookfield Municipal Water Utility (limited to portion east of the subcontinental divide), Village of Germantown Water Utility, City of Muskego Public Water Utility, City of New Berlin Water Utility, and the City of Waukesha Water Utility.

Utility customers. Under the RWSP, it has been proposed that the City of Cedarburg Light and Water Commission and Village of Grafton Water and Wastewater Commission develop their own Lake Michigan water treatment processing facility or alternatively to procure water from an existing Lake Michigan supplier. Although much of the water distribution infrastructure is currently developed in these two adjacent utility service areas, the costs to develop a new Lake Michigan intake and treatment facility, or alternatively a major transmission main along with the infrastructure and rights-of-way needed to transmit it to the utility service areas would be transferred to its water users through the water rates.

A review of past trends indicates that a significant increase in the number and percent of low-income or families living at or below the poverty level has occurred over the past 40 years in the cities of Kenosha, Milwaukee, and Racine while it has declined in many of the selected suburban communities. It is unlikely that a change in water source, from groundwater to Lake Michigan water, would have a significant impact on these trends within existing service areas. Based on the existing regulatory oversight in place by the PSC, water utility rates are intended to be designed to protect existing customers from having to subsidize the needs of new customers. Furthermore, within each municipality, water rates are required to be uniform and not differentiate between customers. Under PSC regulations, the costs associated with system planning, construction of both the water utility and return flow infrastructure, and water procurement would have to be dispersed equitably among the receiving utilities customers. In each of these cases, the distribution infrastructure is already in place, and therefore, new Lake Michigan customers would be fully responsible for any additional **infrastructure needed to hook up with the provider's infrastructure along with** any infrastructure related to the return flow. Additionally, it is expected that the water rates in the communities served by a Lake Michigan supplier, including both retail and wholesale customers, would be reduced if the provider utilities service area and customer base were to expand. This would apply to all of Milwaukee County and the Racine and Kenosha Urban Service areas. The reason for this is that the fixed costs of the providers make up the greatest portion of the rates (typically 70 percent or more). These fixed costs would be distributed over a larger base, therefore resulting in reduced rates for all customers. This would tend to result in a benefit for those areas with a higher percentage of lower income populations.

Under any purchase agreement, both the receiving and providing community would have to be in agreement regarding the proposed delineated service area along with the amount of water that would be provided. Any new users within the proposed service areas would be subject to an impact fee to hook onto the existing system, and would have to be factored into the rate structures for both the receiving and providing utilities. Additionally, as each of these would require a new purchase agreement, any negotiated upfront fees would also be **distributed among the receiving utility's consumers within their rate structures.**

New Utilities

The planning, development, and construction of a new water utility system involves significant financial resources which would ultimately be paid for by the water utility consumers. For the 21 potential new utilities to utilize groundwater supply and the 2 new utilities to utilize Lake Michigan supply, the development of new water utility systems could have financial impacts on low-income homeowners residing within those proposed utility service areas if they are required to connect to a municipal system. Typically, the development of a new utility is achieved in part through impact fees charged to homeowners and all property owners to cover the cost of making a physical connection to the utility service, and also to cover a portion of the costs of the utility development. The costs can be significant especially in comparison to the costs of operating and maintaining a private well. However, as previously noted, the development of a new utility to serve areas

of existing development would only occur if a local need and initiative were in place. The local need could be, for example, groundwater contamination with arsenic, as is the case in one area of southeastern Wisconsin. The local initiative would only take place if the municipal system was the most desirable means of solving the problem. Thus a municipal system would likely be the most beneficial to all involved including low-income persons within the proposed service area; in such cases communities or utilities should be sensitive to the needs of low-income property owners and provide assistance through grants or low- or no-interest loans for low-income property owners to pay for hooking onto the system.

To the often financially stressed low-income households that reside within the proposed utility service areas, and even to moderate-income households, impact fees which are often thousands of dollars can be a financial hardship. For example, the Village of Elm Grove is one of the wealthier communities slated for a new water utility, with some of the highest household incomes within the region. Although it is unlikely that the development of a new water utility would have a significant negative impact on the finances of most Elm Grove households, for low-income homeowners, it could represent a significant financial burden. Impact fees can also cause political and legal problems for potential consumers, utilities, and municipalities regardless of income levels within a community. The development of a municipal water utility in Elm Grove has been considered for several decades, and although utility and municipal leaders and many residents support the development of a municipal water utility, other residents do not support this. Many homeowners would prefer to stay on their own private wells. In addition to impact fees, users that once were able to procure groundwater for free, minus any costs associated with maintaining a well, water softening system, and plumbing, would now be required to pay a quarterly or monthly bill for their water. However, the potential benefits of the municipal water system such as reduced water treatment costs, reduced fire insurance costs through improved fire protection services, and homeowner avoidance of public health problems can often exceed the costs the municipal system. Development of a local initiative is very much a key to the implementing a municipal water system.

Water Conservation Programming

Unlike other parts of the country, where water plays a significant role in determining land use patterns, development on either side of the subcontinental divide has historically not been hampered by a lack of access to water. The status of Southeastern Wisconsin as a relatively water-rich area is, however, changing, and the RWSP recommends that measures be taken to conserve water as a resource and to improve the system transmission of water.

A water conservation program is identified as a combination of practices, procedures, policies and technologies to reduce the amount of water used or to improve or maintain water utility system efficiency. The recommendations regarding water conservation programming in the RWSP are two-fold in their design; first, they were developed to increase water system efficiency which reduces the amount of water pumped to meet customer demands, and second, to reduce the amount of water used by customers. The RWSP includes a range of recommendations for water conservation programming, depending on the infrastructure needs of each water utility and the source of supply as shown in Table IV-9 in Planning Report 52.

Additionally, in order to preserve and protect freshwater within the Great Lakes basin, the newly adopted Great Lakes Compact sets forth requirements and standards for communities that wish to utilize Great Lakes water through a diversion. Under the Compact, each state must design its own in-basin conservation programming which must be consistent with agreed-upon regional objectives. Wisconsin finalized its objectives in December 2008, and

the Wisconsin Department of Natural Resources is currently developing the specific **quantitative standards upon which the program's conservation** requirements will be based.

Water conservation measures, at any level, are designed to both improve the use of supply and therefore to sustain all sources of water supply for all water consumers. Based on the recommendations, it is likely that the water conservation measures implemented at the local level could encourage customers, including low-income users and homeowners, to reduce their water use. It is unlikely that water conservation programming would have a negative fiscal impact on low-income households, and any savings at the utility level could possibly be passed on to all utility customers including low-income customers.

Recharge Area Protection

Protecting groundwater recharge areas is considered essential for ensuring an abundant and safe groundwater supply. As part of the planning process, the WGNHS developed a method to delineate groundwater recharge areas based on capacity to recharge or discharge groundwater using GIS. The results are published in Technical Report No. 47, *Groundwater Recharge in Southeastern Wisconsin Estimated by a GIS-Based Water Balance Model*.

Currently, there are no regulatory constraints, at either the state, county or local levels, regarding development in (high or very high) groundwater recharge areas. The RWSP recommends that important groundwater recharge and discharge areas should be identified for preservation or for application of land development plans and practices that protect groundwater quality and maintain the natural surface and groundwater hydrology. It does not, however, give further instruction as to specify any new regulatory constraints, and as SEWRPC is an advisory body, it does not hold the authority to create or enforce new regulatory constraints.

Based on a lack of regulatory constraints and a lack of formally delineated recharge areas, there is no credible method to draw a linkage between the implementation of the recharge area protection recommendation and the potential for having an impact on low-income households in the Region. The recharge areas, by their nature, are typically undevelopable or undeveloped open space lands, or lands within the delineated environmental corridors that SEWRPC recommends not be developed. Based on this, there should be no significant impact on any segment of the population.

Stormwater Management Practices

Similar to groundwater recharge, stormwater management practices encourage groundwater treatment and infiltration (recharge) in order to best maintain the natural hydrology between surface waters and groundwaters, and therefore, to contribute to a sustainable groundwater supply. The RWSP recommends following stormwater best management practices related to infiltration and recharge for all new residential and for selected nonresidential developments.

Regulations regarding stormwater management and its related land management practices are set forth by the State of Wisconsin in NR Chapters 151-155, NR 216, NR 243, and ATCP 50 of the Wisconsin Administrative Code, and administered at the County or local level through various zoning ordinances. Stormwater management practices are generally considered to be safeguards to ensure a safe, abundant groundwater supply, and although unlikely to have an impact on population or job patterns, state-of-the-art stormwater management practices may require restrictions on specific types of land uses.

Based on the RWSP recommendation to follow best management practices related to stormwater infiltration and recharge for all new development, there is no clear, easily

identifiable linkage between the implementation of the stormwater management practices recommendation and the potential for having an impact on low-income households or household patterns in the Region.

High Capacity Well Siting Procedure Changes

Currently, the Wisconsin Department of Natural Resources regulations require a permit application for all new high capacity wells. The DNR review includes the potential impact of the well on nearby municipal wells and adjacent surface waters among other things. The RWSP provides guidance regarding the siting of all new high capacity wells and for monitoring the impacts that such wells may have on the shallow aquifer. The RWSP recommendations for improving high capacity well regulations are based on improving methods to safeguard the quantity and quality of the groundwater supply, and for insuring that groundwater extraction will not have a negative impact on nearby surface waters through baseflow depletion.

Based on the RWSP recommendation to improve high-capacity well siting methods and regulations, there is no clear, easily identifiable direct linkage between the implementation of the high-capacity well recommendation and the potential for having an impact on low-income housing patterns, or any housing patterns in the Region. This recommendation implies adoption of regulations incorporating well siting procedures. Development of high capacity well regulations should take into consideration any potential impacts on all nearby populations.

Enhanced Rainfall Infiltrations Systems

Enhanced rainfall infiltration systems are artificial methods to recharge groundwater. The RWSP recommends the use of enhanced rainfall infiltration systems in conjunction with the siting of shallow aquifer high capacity wells, if siting studies indicate that baseflow reductions to nearby surface waters could be materially affected.

The determination to use enhanced rainfall infiltration systems is based on local conditions and the appropriate type of groundwater recharge infiltration system would need to be determined on a site specific basis. Because the enhanced rainfall infiltration systems typically involve open space areas, there should be no foreseeable significant impact on low-income households or housing patterns in the Region.

* * *

Chapter 5

Housing and Land Use Impacts

INTRODUCTION

The concept of integrating water management planning and land use planning has been widely promoted within planning and environmental resource management circles. Environmental impacts of variable land uses on local water resources, both ground and surface waters, have been studied for years, often in the context of water resource and watershed management planning. As part of the socio-economic impact analysis, it is necessary to develop an understanding of how the recommendations set forth in the RWSP could impact existing and planned land uses, and how those changes impact people through new residential, commercial, and industrial development.

This chapter focuses on the potential impacts that the preliminary water supply recommendations may have on future housing and land use development, by looking at housing data and existing and planned land use data, including existing land uses identified under the Regional Land Use Plan, and planned land uses as set forth under local and county level comprehensive “Smart Growth” plans.

HOUSING

Housing Patterns and Wisconsin’s Comprehensive Planning Law

As part of the State’s smart growth directives, housing, like utility planning, is one of the nine required elements of a comprehensive plan. Section 66.1001 (2) (b) of the Wisconsin Statutes provides guidance regarding how housing issues are to be addressed. Under this rule, each community is required to inventory and assess the age, structural condition, value, and occupancy characteristics of its existing housing stock, and develop a strategy to promote the development of housing for its residents, provide a range of housing choices to meet the needs of all persons regardless of income levels, age, or disability, to promote the availability of land for the development or redevelopment of affordable housing, and to maintain or rehabilitate the existing housing stock. Additionally, the State of Wisconsin outlines specific comprehensive planning goals related to housing including the promotion of redevelopment of lands¹ with existing infrastructure, public services, and the maintenance and rehabilitation of existing residential, commercial, and industrial structure; the encouragement of land uses, densities, and regulations that promote efficient development patterns and relatively low governmental and utility costs, providing an adequate supply of affordable housing for individuals of all income levels throughout each community, and for providing adequate infrastructure and public services and an adequate supply of developable land to meet existing and future market demand for residential, commercial, and industrial purposes. Each community is directed to identify and develop affordable housing for its projected growth, based on the needs of the existing and projected population. This includes addressing the housing needs for both low-income and disabled populations.

In southeastern Wisconsin, most comprehensive plans have been developed at the local/community level or the county level, and have addressed issues at the local or community

¹ Section 16.965 of the Wisconsin State Statutes.

level. As development and planning decisions regarding housing for low-income persons are made at the local or community level, any strategies developed to address needs regarding affordable housing and implementation of such strategies exist at the local or community level, rather than at the regional level. Unfortunately, the vagaries set forth in the Smart Growth legislation make it difficult to predict what impact the directives will actually have on improving housing for the disabled and poor throughout southeastern Wisconsin. Some of the key housing issues have to do with how the concept of affordable housing is interpreted and how the strategies for improving the availability and quality of housing for low-income and disabled populations will be executed.

Affordable Housing

The US Department of Housing and Urban Development (HUD) defines affordable housing as a household paying no more than 30 percent of gross annual income on housing needs. Families or persons that pay more than 30 percent of their income on housing are considered to have high housing cost burdens, which means that they may have difficulty affording other essential needs, including food, clothing, transportation, and medical care². In part, this approach is based on the long-standing mortgage lending practice of limiting a **borrower's ability to finance a mortgage** to less than 30 percent of gross annual household income. Based on this definition, every household, no matter the income level, is subject to a certain housing affordability threshold above which they would be considered to have a high housing cost burden.

Although most households choose to spend less than 30 percent of their income on housing, many low income households and families may not have that option. Many are unable to find safe, decent housing that costs less than 30 percent of their gross income, and **therefore the term "affordable housing" has been used by housing advocates to describe safe, decent housing that is affordable to individuals that earn a certain percentage (usually less than 80 percent) of a community's median income.**

According to HUD, the expansion of the supply of affordable housing for low-income families is at the core of HUD's mission, and many HUD-funded programs are administered at the state and local levels to assist in the development of housing for low-income families and individuals. Under Wisconsin laws regarding municipal governance and the Smart Growth legislation, each community is responsible for addressing the needs for its own affordable housing. Each community has its own unique needs regarding affordable housing and has to establish its own strategy to address those needs. Communities such as the Cities of Milwaukee and Racine, with higher numbers and shares of low-income households and families living at or below the poverty level, have to go to much greater lengths to provide safe, decent, affordable housing to their low-income and disabled populations than their wealthier counterparts that have relatively fewer low-income and disabled persons.

Based on the historic income data, it is likely that cities like Milwaukee and Racine, and to a lesser extent Kenosha and Waukesha, will continue to experience declines in median incomes and increases in low-income persons and families. This pattern indicates that the existing and future need for affordable housing will continue to be concentrated in communities with larger low-income and disabled populations. Although current Wisconsin state law regarding municipal governance and Smart Growth legislation does not encourage regional approaches to solving problems like housing for low-income and disabled persons, affordable housing is an issue that would be better approached at the regional level.

² Department of Housing and Urban Development information on affordable housing is accessible online at www.hud.gov/offices/cpd/affordablehousing/index.cfm

Housing Characteristics

Data on median incomes, median housing values, and gross rents indicate that housing costs within the historic urban centers of Kenosha, Milwaukee, and Racine are generally lower than in the other selected communities. Table 5-I shows data from the year 2000 on both median housing values and median gross rents for each of the selected communities; year 2000 is the most recent year for which most housing data are available for each of the selected communities.

Table 5-I: Year 2000 Median Housing Values and Median Gross Rents within the Selected Communities

Community	Median Housing Value	Median Gross Rent
Kenosha	\$108,000	\$571
Milwaukee	80,400	527
Oak Creek	139,100	704
Port Washington	136,200	624
Racine	83,600	520
Brookfield	189,100	1,014
Cedarburg	179,900	670
Elm Grove	263,900	673
Germantown	169,900	709
Grafton	145,800	625
Muskego	166,700	785
New Berlin	162,100	830
Saukville	135,700	589
Waukesha	139,900	675

Source: US Census Bureau

Table 5-II: Year 2000 Occupancy and Tenure for Households in Selected Communities

Community	Total Housing Units	Occupied Housing Units					Vacant Units	
		Total Occupied Housing Units	Owner Occupied Units		Renter Occupied Units		Number	Percent
			Number	Percent	Number	Percent		
Kenosha	36,162	34,546	21,488	59.4	13,058	36.1	1,616	4.5
Milwaukee	249,215	232,178	105,186	42.2	126,992	51.0	17,037	6.8
Oak Creek	11,897	11,239	6,907	58.1	4,332	36.4	658	5.5
Port Washington	4,225	4,050	2,554	60.4	1,496	35.4	175	4.1
Racine	33,458	31,498	18,977	56.7	12,521	37.4	1,960	5.9
Brookfield	14,246	13,947	12,555	88.1	1,392	9.8	299	2.1
Cedarburg	4,534	4,408	2,831	62.4	1,577	34.8	126	2.8
Elm Grove	2,557	2,444	2,202	86.1	242	9.5	113	4.4
Germantown	7,068	6,898	5,380	76.2	1,518	21.5	170	2.4
Grafton	4,211	4,075	2,870	68.2	1,205	28.6	136	3.2
Muskego	7,694	7,530	6,229	81.0	1,301	16.9	164	2.1
New Berlin	14,939	14,505	11,787	78.9	2,718	18.2	434	2.9
Saukville	1,644	1,585	950	57.8	635	38.6	59	3.6
Waukesha	26,858	25,665	14,480	53.9	11,185	41.6	1,193	4.4

Source: US Census Bureau

The occupancy and tenure (owner- or renter-occupied) for the year 2000 housing stock is shown in Table 5-II for each of the selected communities. Under the local comprehensive plans, these data are necessary to help forecast the number of additional housing units that will be needed in the future. Census data on occupancy and tenure from 2000 indicate that there is a broad spectrum between the percentages of owner-occupied housing units and

renter occupied units between the selected communities. Although most of the communities have about 55 to 65 percent owner occupied units and between 35 and 45 percent renter units, four of the communities have fewer than 20 percent rental units (Brookfield, Elm Grove, Muskego, and New Berlin). Each of these communities have higher median household incomes. The City of Milwaukee has a greater percentage of rental units (51 percent) than owner-occupied units (42.2 percent).

HUD recommends that an area needs a minimum overall vacancy rate of 3 percent to ensure an adequate housing supply, and that each community's housing inventory should include a minimum 1.5 percent vacancy rate for owner-occupied housing units and a minimum 5 percent vacancy rate for rental units to ensure adequate housing choices.

Tables 5-III shows tenure for renter occupied household units by household income for each of the selected communities for the year 1999. In general, the pattern indicates that more rental units are occupied by households with lower incomes than owner occupied units. In 1999, the City of Milwaukee had by far the greatest number (126,992) and concentration of **occupied rental housing units; the majority of the City of Milwaukee's rental units (about 68 percent)** were occupied by households that earn less than \$35,000 per year.

Table 5-III: Renter Occupied Household Units By Household Income in 1999

Community	Rental Units	Less than \$10,000		\$10,000 to \$19,999		\$20,000 to \$34,999	
		Number	Percent	Number	Percent	Number	Percent
Kenosha	13,058	2,011	15.4	2,810	21.5	3,591	27.5
Milwaukee	126,992	27,304	21.5	26,574	20.9	32,928	25.9
Oak Creek	4,332	390	9.0	564	13.0	950	21.9
Port Washington	1,496	125	8.4	180	12.0	346	23.1
Racine	12,521	2,317	18.5	3,194	25.5	3,381	27.0
Brookfield	1,392	80	5.7	166	11.9	231	16.6
Cedarburg	1,577	98	6.2	284	18.0	438	27.8
Elm Grove	242	21	8.7	50	20.7	39	16.1
Germantown	1,518	63	4.2	233	15.3	319	21.0
Grafton	1,205	42	3.5	170	14.1	322	26.7
Muskego	1,301	87	6.7	146	11.2	261	20.1
New Berlin	2,718	95	3.5	338	12.4	511	18.8
Saukville	635	79	12.4	84	13.2	156	24.6
Waukesha	11,185	1,086	9.7	1,905	17.0	2,745	24.5

Community	\$35,000 to \$49,999		\$50,000 to \$74,999		\$75,000 to \$99,999		Greater than \$100,000	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Kenosha	2,212	16.9	1,807	13.8	379	2.9	248	1.9
Milwaukee	20,232	15.9	13,442	10.6	3,775	3.0	2,737	2.2
Oak Creek	1,011	23.3	901	20.8	380	8.8	136	3.1
Port Washington	337	22.5	353	23.6	93	6.2	62	4.1
Racine	1,689	13.5	1,361	10.9	396	3.2	183	1.5
Brookfield	221	15.9	351	25.2	110	7.9	233	16.7
Cedarburg	300	19.0	324	20.5	53	3.4	80	5.1
Elm Grove	38	15.7	65	26.9	0	0.0	29	12.0
Germantown	371	24.4	394	26.0	97	6.4	41	2.7
Grafton	318	26.4	215	17.8	99	8.2	39	3.2
Muskego	279	21.4	348	26.7	101	7.8	79	6.1
New Berlin	651	24.0	627	23.1	261	9.6	235	8.6
Saukville	171	26.9	114	18.0	0	0.0	31	4.9
Waukesha	2,350	21.0	2,182	19.5	648	5.8	269	2.4

Source: US Census Bureau

Similarly, in Kenosha about 64.4 percent of rental units, and in Racine about 71 percent of rental units were occupied by households earning under \$35,000 per year. Among the selected communities, Cedarburg (52 percent), Waukesha (51.3 percent), and Saukville (50.2 percent) had the next highest concentrations of occupied renting households earning less than \$35,000, while Muskego (37.7 percent), New Berlin (34.9 percent), and Brookfield (34.6 percent) had the lowest.

Table 5-IV: Owner Occupied Household Units By Household Income in 1999

Community	Owner Occupied Units	Less than \$10,000		\$10,000 to \$19,999		\$20,000 to \$34,999	
		Number	Percent	Number	Percent	Number	Percent
Kenosha	21,488	724	3.4	1,807	8.4	3,499	16.3
Milwaukee	105,186	5,671	5.4	11,077	10.5	21,666	20.6
Oak Creek	6,907	60	0.9	318	4.6	640	9.3
Port Washington	2,554	70	2.7	111	4.3	300	11.7
Racine	18,977	756	4.0	1,746	9.2	3,643	19.2
Brookfield	12,555	199	1.6	449	3.6	1,212	9.7
Cedarburg	2,831	32	1.1	105	3.7	358	12.6
Elm Grove	2,202	69	3.1	111	5.0	180	8.2
Germantown	5,380	112	2.1	216	4.0	730	13.6
Grafton	2,870	55	1.9	161	5.6	336	11.7
Muskego	6,229	81	1.3	221	3.5	558	9.0
New Berlin	11,787	142	1.2	442	3.7	1,266	10.7
Saukville	950	15	1.6	61	6.4	79	8.3
Waukesha	14,480	151	1.0	810	5.6	1,581	10.9

Community	\$35,000 to \$49,999		\$50,000 to \$74,999		\$75,000 to \$99,999		Greater than \$100,000	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Kenosha	3,678	17.1	5,862	27.3	3,444	16.0	2,474	11.5
Milwaukee	20,523	19.5	25,662	24.4	12,340	11.7	8,247	7.8
Oak Creek	1,126	16.3	1,980	28.7	1,646	23.8	1,137	16.5
Port Washington	319	12.5	866	33.9	545	21.3	343	13.4
Racine	3,828	20.2	5,248	27.7	2,352	12.4	1,404	7.4
Brookfield	1,388	11.1	2,597	20.7	2,245	17.9	4,465	35.6
Cedarburg	344	12.2	710	25.1	497	17.6	785	27.7
Elm Grove	194	8.8	342	15.5	272	12.4	1,034	47.0
Germantown	740	13.8	1,312	24.4	1,199	22.3	1,071	19.9
Grafton	432	15.1	754	26.3	479	16.7	653	22.8
Muskego	813	13.1	1,889	30.3	1,323	21.2	1,344	21.6
New Berlin	1,393	11.8	2,905	24.6	2,303	19.5	3,336	28.3
Saukville	134	14.1	309	32.5	236	24.8	116	12.2
Waukesha	2,266	15.6	4,495	31.0	2,702	18.7	2,475	17.1

Source: US Census Bureau

Table 5-IV shows the distribution of annual household incomes among owner-occupied housing units in the selected communities in 2000. The Cities of Milwaukee, Racine, and Kenosha all had higher percentages of owner-occupied household units with incomes under \$35,000. In Milwaukee, about 36.5 percent of owner-occupied households earned less than \$35,000 in 1999; this was followed by Racine (32.4 percent) and Kenosha (28.1 percent). Additionally, about 15.9 percent of owner occupied housing units in the City of Milwaukee were owned by households that earned less than \$20,000 in 1999. Among the remainder of the selected communities, approximately 14 to 20 percent of owner-occupied housing units were owned by households with incomes less than \$35,000 in 1999.

Table 5-V shows data on housing tenure by race for the year 2000. The Cities of Milwaukee and Racine had the greatest numbers and percentages of rental units occupied by racial ethnic minorities, with 50.4 percent and 41 percent respectively. This was followed by the City of Kenosha, with about 19.9 percent. The numbers and percentages for each of these communities most likely reflect the higher population rates of minorities within each of these communities. Rental occupied unit rates in each of the other communities were low for racial and ethnic minorities. Aside from Brookfield and Waukesha (both slightly less than 10 percent) the remaining selected communities had rates under 10 percent, and in the case of Elm Grove, in 2000 it was 0 percent.

In each of the selected communities, most owner occupied housing units were more likely to be owned by White Alone persons, while minorities (both racial and ethnic) were less likely to own their home. The Cities of Milwaukee and Racine had the greatest concentrations of minority home-ownership in 2000 which reflects the higher population rates of minorities

Table 5-V: Year 2000 Tenure By Race for Households in Selected Communities

Community	Rental Occupied Units					
	Occupied Housing Units	White Alone		Racial Minority		Hispanic ^a
		Units	Percent	Units	Percent	Units
Kenosha	13,058	10,458	80.1	2,600	19.9	1,253
Milwaukee	126,992	62,946	49.6	64,046	50.4	12,487
Oak Creek	4,332	3,903	90.1	429	9.9	170
Port Washington	1,496	1,443	96.5	53	3.5	13
Racine	12,521	7,390	59.0	5,131	41.0	1,562
Brookfield	1,392	1,260	90.5	132	9.5	16
Cedarburg	1,577	1,538	97.5	39	2.5	6
Elm Grove	242	242	100.0	0	0.0	0
Germantown	1,518	1,451	95.6	67	4.4	40
Grafton	1,205	1,142	94.8	63	5.2	65
Muskego	1,301	1,292	99.3	9	0.7	18
New Berlin	2,718	2,518	92.6	200	7.4	20
Saukville	635	600	94.5	35	5.5	15
Waukesha	11,185	10,104	90.3	1,081	9.7	953

Community	Owner Occupied Units					
	Occupied Housing Units	White Alone		Racial Minority		Hispanic ^a
		Units	Percent	Units	Percent	Units
Kenosha	21,488	20,109	93.6	1,379	6.4	892
Milwaukee	105,186	73,967	70.3	31,219	29.7	6,010
Oak Creek	6,907	6,655	96.4	252	3.6	201
Port Washington	2,554	2,487	97.4	67	2.6	7
Racine	18,977	16,151	85.1	2,826	14.9	1,360
Brookfield	12,555	12,110	96.5	445	3.5	60
Cedarburg	2,831	2,814	99.4	17	0.6	21
Elm Grove	2,202	2,165	98.3	37	1.7	15
Germantown	5,380	5,237	97.3	143	2.7	14
Grafton	2,870	2,862	99.7	8	0.3	0
Muskego	6,229	6,138	98.5	91	1.5	18
New Berlin	11,787	11,488	97.5	299	2.5	94
Saukville	950	934	98.3	16	1.7	20
Waukesha	14,480	13,992	96.6	488	3.4	536

^a Occupied housing units with a Hispanic householder can be of any race.

Source: US Census Bureau

within each of these communities. In Milwaukee, approximately 29.7 percent of owner-occupied units were owned by racial minorities; in Racine, about 14.9 percent of owner-occupied units were owned by racial minorities. In most of the other selected communities, White Alone persons held the majority of owner occupied units, generally between 91 and 99 percent. This too, reflects the low numbers of racial minorities residing in these communities.

Planning and Housing Policies

Housing policies are generally decided at the local level, through a combination of local zoning and subdivision regulations and through local housing policies. Planning agencies and advocates throughout Wisconsin advocate that communities should establish housing mix policies that provide a full range of housing choices. Although the comprehensive plans do not require this, many communities in southeastern Wisconsin have adopted policies specifying a desirable mix of housing types either within the context of the comprehensive planning process, prior master or land use plans, or based on local initiatives. In general, the most effective housing mix policies are based on the provision of a full range of housing choices and reflect the combination of housing types and affordability to existing and projected jobs and incomes. Within the context of comprehensive planning, it is recommended that communities seeking to attract jobs, as demonstrated in the planned or projected land use inventories for new commercial and industrial development within the comprehensive plan, should ensure that a broad range of housing styles, types and price ranges are provided to allow housing opportunities to minimize geographic imbalances between job and residential locations. Additionally, it is recommended that communities need to ensure that they can provide a range of housing stock to meet the needs of an aging population.

Although some of the selected communities, as well as others throughout southeastern Wisconsin have adopted desirable housing mix policies, it has yet to be determined whether or not locally adopted housing policies will have a positive impact on either projected workforce housing needs or the needs of the aging population, or that such policies are reviewed periodically to ensure that these needs are being met. Housing mix policies for the selected communities are listed below:

- City of Kenosha: The City of Kenosha, Village of Pleasant Prairie and Town of Somers have adopted a policy as part of a comprehensive plan for the Kenosha Urban Planning District. This plan includes a housing standard that the housing units within the planned urban service area of the Planning District should generally be allocated as follows: single-family detached housing units, 60 percent; units in two-family structures, 10 percent; and units in multi-family (three or more family) structures, 30 percent.
- City of Milwaukee: Based on a year 2000 study by SEWRPC, 40% single-family, 40% multi-family housing, and 20% duplex (SEWRPC MR 2000-1, ***Summary of Housing Characteristics in Metropolitan Milwaukee Area***, May 2000).
- City of Oak Creek: Policy in place regarding desirable mix of housing type; no more than 40% multi-family units.
- City of Port Washington: No policy in place.
- City of Racine: No policy in place.
- City of Brookfield: Policy in place regarding desirable mix of housing type; 75% single family and 25% multi-family units.
- City of Cedarburg: Policy in place regarding desirable mix of housing types; 82% single-family and 18% multi-family units.
- Village of Elm Grove: No policy in place.

- Village of Germantown: Policy in place regarding desirable mix of housing types; 80% single-family and 20% two- and multi-family units.
- Village of Grafton: Policy in place regarding desirable mix of housing types; 68% single-family, 22% multi-family, and 10% duplex units.
- City of Muskego: No policy in place.
- City of New Berlin: Policy in place regarding desirable mix of housing types; 80% singles family and 20% multi-family units.
- Village of Saukville: No policy in place.
- City of Waukesha: Policy in place regarding desirable mix of housing types; 65% single family units and 35% multi-family units.

There is also some uncertainty as to how condominium units are counted. Some communities count condominium units as multi-family units based on their inherent structural nature while others consider them to be single-family due to their ownership characteristics as they are usually owner-occupied units. At least one community (City of Waukesha³) changed its categorization of condo units from multi-family units to single family units; this instantaneously changed their ratio of single family units to multi-family units from 55%/45% to 65%/35%.

THE CONNECTION BETWEEN LAND USE AND WATER SUPPLY PLANNING

Water supply planning and land use planning have not historically been well connected, and until recently, most communities in the US did not consider the impacts that water supply would have beyond the realm of facilities level planning or even local level land use planning. Recent studies indicate that development patterns such as housing density, lot size, or distance from distribution lines have been tied to water use. Generally, high density developments result in less water consumption than low density developments. A recent study undertaken by the Southern Illinois University⁴ for the Chicago Metropolitan Agency **for Planning's (CMAP)** regional water supply planning efforts analyzed per capita water-use data in Northeastern Illinois and confirmed this trend. This study demonstrated that average residential water use tended to be lower in highly urbanized counties and higher in the collar and outlying counties of the 11-county CMAP planning region. Findings also indicate that higher per capita residential water-use tends to be found in affluent communities with low housing densities and homes with larger residential landscapes.

Planners in arid climates have long recognized the significance and need to coordinate land use planning with water supply planning. Within relatively water-rich environments, such as the Great Lakes region, this trend is beginning to catch on, in part based on the Great Lakes Compact as well as a recognized need to preserve and foster the Great Lakes as a unique and valuable resource. Much of this has been recognized within the last decade, in part due to local, state, or national Smart Growth planning initiatives that encourage the study of the relationship between land use decisions and water consumption patterns.

As part of the Regional Water Supply Planning program, the groundwater resource⁵, aquifer simulation⁶, and groundwater recharge⁷ studies developed by SEWRPC, the Wisconsin

³ The City of Waukesha's housing policy can be accessed online at

www.ci.waukesha.wi.us/c/document_library/get_file?folderId=42002&name=DLFE-5632.pdf

⁴ B. Dziegielewski and F. J. Chowdhury Regional Water Demand Scenarios for Northeastern Illinois: 2005 -2050, 2008

⁵ *Technical Report No. 37, Groundwater Resources of Southeastern Wisconsin*, prepared by SEWRPC and WGNHS

⁶ *Technical Report No. 41, A Regional Aquifer Simulation Model for Southeastern Wisconsin*, prepared by SEWRPC, USGS, WGNHS, WDNR, UWM, and participating water utilities in Southeastern Wisconsin

Geologic and Natural History Survey, the U.S. Geological Survey, the Wisconsin Department of Natural Resources, University of Wisconsin – Milwaukee and other Wisconsin groundwater experts provide the latest, most thorough examination about what is known of the groundwater supply in southeastern Wisconsin. The groundwater recharge study focused on the relationship between land use and water use patterns in southeastern Wisconsin, and determined that, in addition to differences in soil type and topography, altering land use patterns can alter recharge. This study, conducted primarily by the WGNHS, indicates that different land uses can have varying impacts on groundwater recharge rates, and therefore wise land use planning can play a significant role in protecting groundwater recharge areas.

A review of the groundwater resource and aquifer simulation studies indicates that while withdrawals from the shallow and deep aquifers have, over time, changed the groundwater flow system, many of the problems or perceptions regarding groundwater quality or quantity are associated with withdrawal from the deep aquifer, rather than with the groundwater system as a whole. Although in principle, a lack of access to water can act as a constraint on development, based on the scientific evidence developed by the USGS and the WGNHS, it appears as though existing sources of groundwater supply, *if properly managed*, would be sufficient to support development through 2035, *assuming that existing land use plans do not change*. This does not imply that development has no impact on groundwater supplies in southeastern Wisconsin, but that if carefully managed, by directing a limited amount of development to specific urban areas (infill areas) and discouraging the development of water-intensive land uses in greenfield areas, groundwater resources (particularly shallow groundwater resources) can provide an adequate water supply through 2035 for areas based on the RWSP.

Regional Land Use Planning In Wisconsin

SEWRPC is the officially designated regional planning agency for the seven-county Southeastern Wisconsin region. Under Wisconsin Statute 66.0309, SEWRPC is charged with **“the function and duty of making and adopting a master plan for the physical development of the region.”** As outlined in the enabling legislation (and as it applies to each Regional Planning Commission in the State of Wisconsin), master planning includes not only land use planning, but also infrastructure planning, including transportation infrastructure, communications infrastructure, sewer infrastructure, and this first generation Regional Water Supply Plan. Together, each of these elements is coordinated under the RLUP, with the RLUP serving as the centralized planning element upon which each of the other elements are based. The regional plans that SEWRPC develops are advisory by nature and implementation is based on local or county actions or initiatives.

Local Land Use Planning In Wisconsin

Chapter 66 General Municipality Law of the Wisconsin statutes sets forth the legislation that provides local municipalities with the authority to engage in local land use planning and decision making, and sets forth the rules and regulations that such local entities must follow while engaging in land use planning and development. Although SEWRPC is charged under State Law to develop a regional land use plan for the physical development of the region, under Wisconsin law, almost all land use decisions are made at the local level either by county, town, and village boards, and city common councils. Essentially, SEWRPC is designated to develop and provide a land use plan as a roadmap, but it is up to local authorities to follow or implement the plan. All too often, local planning agencies or entities acting in their own self-interests ignore it. Currently, all local level land use planning in the

⁷ Technical Report 47, *Groundwater Recharge in Southeastern Wisconsin Estimated by a GIS-based Water-Balance Model*, prepared by WGNHS and SEWRPC.

State of Wisconsin, for all counties, towns, villages, and cities, is subject to Wisconsin's Comprehensive Planning Law.

Wisconsin's Comprehensive Planning Law

Currently, under Wisconsin law, municipalities are required to have adopted a local or **county level comprehensive or "smart growth" plan** in order to conduct land use planning and to engage in the processes of zoning, land subdivision, and official mapping. Smart Growth legislation was enacted to ensure that local communities or counties acting on behalf of towns in Wisconsin have the tools or a framework in which to make sound development decisions. Under Smart Growth directives, utility planning needs are to be addressed within all local or county comprehensive plans. 1000 Friends of Wisconsin⁸, a **planning advocacy group, provides information on both Wisconsin's Smart Growth** legislation and its impact on local land use decision making processes.

Under ***Wisconsin State Statute 66.1001***, Wisconsin's Comprehensive Planning legislation specifically sets forth nine required elements of a comprehensive or "smart growth" plan, details land use regulations that must be consistent with a comprehensive plan as of January 1st, 2010, and lists mandatory procedures for adopting a comprehensive plan. One of the nine required elements includes planning for utilities and community facilities; planning for communities' water needs should be specifically addressed as part of this element. A good comprehensive plan will encourage development that is coordinated with the expansion of all utilities and public services, including sewer, water, roads, police and fire protection, and other services; besides encouraging compact urban design, this helps save significantly on the development costs. As part of meeting the comprehensive planning requirements, community water needs must be addressed in the utilities and community facilities element, and communities are also required to address specific community water needs in the land use element so therefore must also attend to any future changes that the community may wish to make that would affect zoning, subdivision regulations, and official mapping. Also, water resource planning must be addressed as part of the Agricultural, Natural, and Cultural Resources Element. Additionally, for those communities that engage in or plan on engaging in the purchasing or selling of water, or developing some sort of trade agreement regarding water resources, water supply planning must be addressed within the Intergovernmental Cooperation Element.

Wisconsin's Department of Administration is tasked with overseeing the development of comprehensive plans in Wisconsin, and has provided funding for communities, primarily those that sought to engage in multi-jurisdiction or county-wide comprehensive planning. Although the comprehensive plans are required to identify and address issues regarding intergovernmental cooperation in planning decisions, and to set the framework for integrative, sustainable local planning, including utility planning, there are no directives that provide guidance regarding regional, cross-county cooperation.

Service Area Expansion Under the RWSP

As corporate or municipal boundaries can and often do change over time, the recommendations of the land use plan concerning the location and density of new urban development are formulated without regard to the location of city, village, and town boundaries. Similarly, the proposed water utility service areas were delineated without regard to the locations of municipal boundaries, relying more heavily on the locations of existing urban development. Service area expansion could either be the result of an

⁸ 1000 Friends of Wisconsin, *A Citizens's Guide to Land Use in Wisconsin*, 2002. Accessible online at www.1kfriends.org/Publications/pdfs/1kF_Citizens_Guide_3rd.pdf

annexation (change in municipal boundary) or through a utility extension agreement within an intergovernmental agreement. Under the RWSP, there is no indication or guidance as to how the expansion of any of the utility service areas should take place in the context of procedures, either through annexation or intergovernmental agreement, other than to say that it would require a local initiative.

Annexations

Annexation is the statutory process for transferring lands from unincorporated areas (towns) to incorporated areas (cities and villages). The laws governing annexation and annexation procedures are set forth under Sections 66.021, 66.024, and 66.025 of the ***Wisconsin Statutes***. Annexations can be initiated either by private landowners within towns, or by villages and cities as a method to extend municipal services by incorporating lands. Section Chapter 66.021 sets forth the conditions and procedures regarding annexation initiated by landowners in a town to be annexed by a village or city. In Wisconsin, it is generally more common for landowners or a group of landowners to initiate a petition to have their land(s) annexed by a city or village. Sections 66.024 and 66.025 set forth the laws and procedures that allow cities and villages the opportunity to annex lands contiguous to their corporate limits or for municipally-owned lands outside of their municipal boundaries. These types of annexations are generally made to accommodate growth in a desired direction, to avoid having future growth permanently cut off by annexation from another municipality, as way to more efficiently provide municipal services, or as a way to increase the municipal tax base. Alternatively, a municipality may feel that planning and development are not being carried out properly, and that annexation may be a preferred alternative to avoid any negative impacts from development in the area in the future.

As stated above, it is currently unknown whether or not the proposed expansions of utility service areas would be accomplished through annexation or intergovernmental agreement. Not all municipalities have the capacity to exercise their powers of annexation and are limited to engaging in intergovernmental cooperative agreements in order to provide or extend water services to neighboring lands or municipalities. Within the selected utilities, Milwaukee Water Works, City of Oak Creek Water and Sewer Utility, City of Brookfield Municipal Water Utility, and the proposed Village of Elm Grove are surrounded by incorporated areas and are therefore unable to exercise their municipal powers of annexation. Although not all of the selected municipalities have the capacity to exercise their powers of annexation, each has the capacity to engage in intergovernmental cooperative agreements in order to provide or receive water services to neighboring lands or municipalities. Within the selected utilities, several utilities already engage in intergovernmental agreements, including Kenosha Water Utility, Milwaukee Water Works, City of Oak Creek Water and Sewer Utility, City of Racine Water and Wastewater Utility, and the City of New Berlin Water Utility. Additionally, two utilities (Kenosha Water Utility and the City of Racine Water and Wastewater Utility) are engaged in intergovernmental agreements that specifically provide for the annexation of lands from adjacent towns.

Intergovernmental Cooperation Agreements

In Wisconsin, governmental units or entities (including counties, cities, villages, towns, utility and sanitary districts, etc.) are eligible, and under many circumstances, encouraged to engage in the practice of developing intergovernmental agreements to resolve issues surrounding annexation and development or to provide a more efficient method for communities to deliver government services⁹. Intergovernmental agreements can provide guidance and assurance in often contentious issues such as those regarding annexation, boundary agreements, and land development. They also provide an opportunity for two or

⁹ UW Extension accessible online at <http://lgc.uwex.edu/program/pdf/fact14.pdf>

more governmental units to engage in agreements that resolve problems or address needs including municipal services, or resource or revenue sharing. When two or more governments develop an agreement to merge services or to provide reciprocity in services, this can provide substantial cost savings by reducing duplication in administration, planning, purchasing, or delivery processes. In Wisconsin, all intergovernmental agreements are subject to review and authorization by the Wisconsin Department of Administration.

Various State laws provide guidance on intergovernmental agreements, depending upon the arrangement or need. Under Sections 66.0230, 66.0270, 66.0301, and 66.0307 of the Wisconsin Statutes, communities in Wisconsin may engage in intergovernmental cooperation to address infrastructure issues. Additionally, under Section 66.0280, communities may also engage in revenue sharing to resolve issues, including those related to sharing infrastructure expenses. Section 66.0307 allows adjacent governmental units to determine their boundary lines under a cooperative plan and any conditions that must be met prior to that boundary agreement such as delivery of municipal services to specified territories under the plan. Most importantly in regards to the RWSP, Section 66.0301 of the Wisconsin State Statutes sets forth the guidance that allows two or more governmental units to engage in intergovernmental agreements with respect to the sharing or receipt of municipal services. This includes the sharing or provision of utility or transportation agreements, or tax-based revenue sharing.

Under Wisconsin's General Municipality Law, and in accordance with Wisconsin's Smart Growth Legislation, Section 66.0317 requires that all municipal governments located within a Metropolitan Statistical Area (MSA) sign at least two intergovernmental agreements (compacts) with neighboring governmental units for the provision of joint services. This was enacted specifically to encourage cost or tax savings for services across municipal boundaries. Additionally, under the Regional Land Use Plan, SEWRPC encourages the development of cooperative agreements, particularly those that surround land use issues, under Sections 66.0307 and 66.0225, as well as those involving urban services under Section 66.0301. Under the RLUP, SEWRPC recommends the development of cooperative agreements between neighboring incorporated and unincorporated communities for future land use planning, civil division boundary delineation, and for the provision of urban services. **SEWRPC recognizes that intergovernmental agreements "can contribute significantly to attainment of the compact, centralized urban growth" and that "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."**¹⁰ Examples of existing intergovernmental agreements in Wisconsin that involve the provision of water and/or other water utility services include the following, by year:

- **2008, New Berlin and Milwaukee:** Intergovernmental Cooperation Agreement approved annual sale of up to 1.83 mgd (up to 2.48 mgd by 2050). Once-off payment of \$1.5M. Allows for billing for excessive demand charge.
- **2007, Madison, Sun Prairie, and DeForest:** Cooperative Plan includes boundary changes, extension of water service and revenue sharing.
- **2005, Kenosha and Somers:** Extended sewer and water services to portions of the Town of Somers. Includes revenue sharing. Establishes limits on Kenosha's exercise of land use controls within Somers.

¹⁰ *Planning Report No. 48, A Regional Land Use Plan for Southeastern Wisconsin: 2035*, prepared by SEWRPC, June 2006, page 175.

- **2004, Oshkosh and Algoma:** Agreement of future annexation of expansion areas in Town of Algoma with provision of City of Oshkosh water and sewer to these expansion areas.
- **2003, Madison and Middleton:** Cooperative boundary agreement that establishes new long-term boundaries between city and town. City of Madison municipal water and sewer will be provided to new boundary areas in Middleton. Includes revenue sharing.
- **2002, Racine and multiple communities:** Boundary agreement and property tax revenue sharing program. Includes provision to purchase capacity in the wastewater treatment facility. Includes payment to City of Racine to support Racine Zoo, Racine Museum and Racine Public Library. Revenue sharing payments are to be spent in "joint impact zones" and economic revitalization projects. It may lead to conversion of the entire area to Racine Water Utility.
- **2000, Kenosha and Bristol:** Includes provision of water to Bristol. Provides for revenue sharing.
- **1997, Kenosha and Pleasant Prairie:** Intergovernmental agreement established provisions for water supply, treatment and storage and for sewage conveyance between Kenosha and Pleasant Prairie. Note that Pleasant Prairie was granted a diversion under the Water Resources Development Act (precursor to the Great Lakes Compact) in 1990.
- **1996, Stevens Point and Plover:** Cooperative boundary agreement that includes boundary changes, extension of utility services, and the replacement of failing private wells and septic systems with public sewer and water lines.

As stated in Chapter 4, the process of developing a water service purchase agreement would also warrant an intergovernmental cooperation agreement for services between two or more municipalities. Several communities in southeastern Wisconsin are engaged in intergovernmental agreements for either municipal boundary expansions or for shared utility or community services. The City of Kenosha is involved in several intergovernmental agreements with its neighbors involving water service; each of the agreements set forth plans for future services and provides delineations for future expansion for each of the communities. The benefit of developing a intergovernmental agreement along with a service purchase agreement is that combined, these agreements provide greater assurance regarding future water use needs as well as documenting planned development needs over the course of the life of the water service purchase agreement. Ultimately, it provides an opportunity for two or more communities to engage in some form of regional cooperation to address some of their most critical socio-economic problems, including housing, transportation, and jobs.

SEWRPC's Regional Land Use Plan

SEWRPCs RLUP is both a plan and an ongoing process. The first generation RLUP began in 1966, with a design year of 1990. The RLUP is reviewed and updated approximately every 10 years, with a design year that extends about 35 years into the future. Each periodic review of the regional land use plan incorporates analyses and projections related to population and employment growth, as well as changes in land use and land development trends. The most recent RLUP is the fifth generation, updated to reflect conditions in the year 2000 and to address projected changes and needs based on a 2035 design year.

SEWRPCs Land Use Classification System (2000)

As part of its Regional Land Use planning process, SEWRPC has developed a system to identify and classify land uses throughout southeastern Wisconsin. SEWRPCs land use classification system identifies broader classes of land use types, such as residential, commercial, transportation, and industrial, as well as specific land uses. Using GIS, CED was

able to provide a land use inventory of developed and developable lands (as of the year 2005) for each selected utility, for both the year 2000 existing service areas, and for the projected 2035 service areas.

Developed Lands, Undevelopable Lands, and Lands Set Aside for Purposes Other Than Residential, Commercial or Industrial Development

As part of the existing and projected land use inventory, it is necessary to identify which lands within the existing and proposed service areas are likely to be developed and those that either are developed or are unlikely to ever be developed. Using SEWRPCs land use inventory data, CED was able to identify lands that, as of the year 2000, are potentially developable based on the elimination of lands that are already part of the urban landscape, as well as lands that are unlikely to ever be developed.

Based on SEWRPCs identification and land use classification system, lands that are currently developed and either serviced or serviceable (based on identification as urban density lands) include the following:

Residential Lands (100 Series)

All lands coded within the 100 series are assigned to the residential land use class. All are considered developed, including lands designated as 199, which are Residential Land Under Development. These lands are committed to residential use but not yet fully developed have been identified as residential lands under development and include undeveloped lots between existing residential structures and lots showing evidence of construction activity. For the purposes of this analysis, it is assumed that all lands delineated within the 100 series are developed with the exception of those with the sub-classification **(S) which signifies "suburban density"** or rather very low density residential development. Under the RLUP, lands designated as suburban density (a minimum lot size of 1.44 acres) are unlikely to be serviceable by municipal water or sewer utilities.

Commercial Lands (200 Series)

All lands coded within the 200 series are assigned to the commercial land use class. All are considered developed including lands designated as 299, which are Commercial Land Under Development. These are lands committed to commercial use but not yet fully developed have been identified on the basis of development activity visible on the aerial photograph, including activities such as construction of foundations. For the purposes of this analysis, it is assumed that all lands delineated within the 200 series are developed.

Industrial Lands (300 Series)

All lands coded within the 300 series are assigned to the industrial land use class. All are considered developed including lands designated as 399, which are Industrial Land Under Development. These are lands committed to industrial use but not fully developed have been identified on the basis of evidence of development activity visible on the photograph, including activity such as construction of foundations. For the purposes of this analysis, it is assumed that all lands delineated within the 300 series are developed.

Transportation Lands (400 Series)

All lands coded within the 400 series are assigned to the transportation land use class. All are considered developed including land designated as 499, which are Transportation Land Under Development. These include those lands in a planned highway right-of-way which are not yet fully developed and therefore not yet open to

regular vehicular traffic, and have been identified on the basis of evidence of development activities such as grading which are visible on the aerial photograph.

Communication and Utilities (500 Series)

All lands coded within the 500 series are assigned to the communication and utilities land use class. All are considered developed including lands designated as 599, which are Communications and Utilities Under Development. These include lands committed to communication and utility facilities but not yet fully developed and have been identified on the basis of evidence of development activity visible on the photograph, including activities such as grading and construction of foundations.

Institutional and Government Services (600 Series)

All lands coded within the 600 series are assigned to the institutional and government services land use class. All are considered developed including lands designated as 699 which are Governmental and Institutional Land Under Development. These include lands committed to governmental or institutional use but not yet fully developed and have been identified on the basis of development activity visible on the photograph, including activity such as the construction of foundations.

Special and Cultural Recreation Areas (700 Series)

All lands coded within the 700 series are assigned to the recreational areas land use class. Although many of these lands are technically **“undeveloped” and may or may not** receive limited water services, these lands are all considered developed, including lands designated as 799 which are Outdoor Recreation Area Under Development. These include lands committed to the development of facilities for intensive outdoor recreation activities but not yet fully developed and have been identified on the basis of development activity visible on the photograph.

Landfill (Code 930)

Those tracts of land used for the purpose of sanitary landfill operations and dumps have been identified as landfills. The delineation includes only those areas in which landfill activity has taken place. (Garages, offices, and equipment storage areas at large landfills have been coded 210 or 340, as appropriate.)

Based on SEWRPCs identification and land use classification system, lands that are unlikely to ever be developed include the following:

Wetlands (Code 910)

Those lands in which the water table is at, near, or above the land surface and which are characterized by both hydric soils such as peats or mucks or other organic soils, and by the growth of hydrophytes, such as sedges, cattails, and tamarack, have been identified as wetlands. The delineation of wetland areas is based upon the presence of the natural resource base element and therefore generally results in irregular boundaries.

Woodlands (Code 940)

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 50 percent canopy cover, have been identified as woodlands. In addition, coniferous tree plantations and reforestation projects were also identified as woodlands. The delineations of woodlands are based upon the presence of the natural resource base element and, therefore, are generally irregularly shaped. Also, all lowland wooded areas such as

tamarack swamps were classified 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 hydrophytic trees and shrubs (see Code No. 910).

Surface Water (Code 950)

Those large areas of surface water which are visible on the aerial photograph have been identified as water. The delineation includes all lakes and ponds, as well as streams, rivers, and canals 50 feet or greater in width. Rivers, streams, and canals less than 50 feet in width are classified with the same code numbers as the adjacent land uses. In addition, urban drainageways, when clearly separated from adjacent land uses and ownerships, have been classified as unused urban land (see Code No. 921).

Additionally, undeveloped lands identified as part of the environmental corridors (primary and secondary), as isolated natural resource areas, and designated as existing or planned park and open space lands are also considered unlikely to ever be developed for the purposes of this inventory. Most of the lands identified within the environmental corridors are generally are classified as wetlands, woodlands, or surface waters. Although local land use practices often allow some development within the environmental corridors, SEWRPC recommends no or very limited development within the identified environmental corridors, including land that would potentially be serviceable by both water or sewer utilities, and therefore these areas are considered undevelopable. Park and open space lands can include lands classified under the 700 series, or as wetlands or woodlands, and generally refer to those lands with limited or no development.

Developable Lands

Based on SEWRPCs 2000 land use classifications and codes, developed as part of the Regional Land Use Inventory, developable lands include most lands currently in agricultural uses, and lands identified as unused urban and rural lands. These include the following codes:

Agricultural Lands (800 Series)

All lands coded within the 800 series are assigned to the agricultural land use class. These include lands in use for cultivation, pasture lands, unused agricultural lands, and special crops. All are considered developable with the exception of Farm Buildings (Code 871) which are considered developed.

921 = Unused Urban Land

Those lands located within or adjacent to urban areas and not utilized for an identifiable use have been classified as unused urban lands. The delineation of such unused lands generally includes areas lacking any intensive urban uses and those areas lacking an identifiable natural resource base element such as a woodland, a wetland, or water area.

This land use classification includes such areas as vacant lots in areas where the future use cannot be determined (that is, those areas surrounded by variety of different classifications of urban land use so that Code No. 199--residential land under development-- does not apply) including undeveloped parks; urban drainageways which are not located within parks, wetlands, or residential lots; leased garden plots in publicly-owned lands; and other open lands in urban areas for which the potential future use cannot be determined on the basis of aerial photograph. In general, unused lands are considered "urban" when 75 percent or

more of the land adjacent to the unused land has been assigned urban land use classifications (Code No. 111-799).

922 = *Unused rural land*

Those rural open areas which are not utilized for agricultural purposes, which have not been identified as unused agricultural lands or pasture, and which do not encompass important elements of the natural resource base--such as woodlands, wetlands, or water—have been identified as unused rural land.

This land use classification consists of such areas as steeply sloping unwooded rural land not used for pasture or other related agricultural purposes; areas within portions of large parks located in rural areas which do not contain intensive outdoor recreation facilities, woodlands, wetlands, or water; and rural areas for which the potential future use cannot be determined on the basis of the aerial photograph. Lands classified as unused rural lands are generally one acre or greater in size.

Inventory of Developable Lands

Using SEWRPCs year 2000 land use inventory data, CED was able to identify existing **developed lands and potential developable lands within each of the selected community's** utility service areas for both the existing 2000 service area delineations and the projected year 2035 utility service areas. Unused lands or undeveloped lands include lands categorized as unused urban, unused rural, or agricultural lands, as noted above, and provide the basis for this analysis. Many of these undeveloped lands, however, are unsuitable for development, and using GIS, these specific land use categories were evaluated and refined to identify possible lands that could be developed within both the year 2000 water service areas, and again for the year 2035 projected service areas.

In order to identify lands that could potentially be developed within each of the existing and projected service areas, CED established a set of specific criteria, in order to identify or eliminate possible lands that would not likely be developed. The criterion for identifying potentially developable lands stands as follows:

- Identification and Review of year 2000 lands identified by the following land use codes
 - Any agricultural lands (series 800) with the exception of farm buildings (land use code 871)
 - Land use code 921 (unused urban land)
 - Land use code 922 (unused urban land)
- Eliminate all non-contiguous areas less than 0.5 acres in size
- Eliminate all areas located between transportation corridors (for example, median strips)
- Eliminate all areas without access or potential access to transportation corridors (for example, this would include unused lands between developed areas, such as subdivisions, or areas at the rear of developed lots)
- Eliminate all other areas that are unlikely to be developed based on adjacent land uses (for example, unused lands within the port or airport areas), topography, or other environmental considerations (for example, drainage ditches, stormwater ponds, utility corridors, or adjacency to water features).
- Use 2005 aerial photographs (orthophotos) to eliminate areas that have been developed between the years 2000 and 2005

As part of the comprehensive planning process, each community is required to develop a planned land use map that identifies areas and types of existing development, areas that

are slated to remain undeveloped (such as wetlands or environmentally sensitive lands), areas that should be preserved with little or no development, areas to remain as working lands such as agricultural lands or orchards, as well as planned or desired development within lands that are underutilized or vacant. Besides lands that could be developable and serviceable, it was necessary to identify other lands that, under the county or local comprehensive plans, or existing land use plans would not likely be serviceable. These include the following:

- Identification of areas based on the projected county and local comprehensive plans that indicate plans for non-developable and non-serviceable uses, such as areas slated for conservation or preservation, or to remain in open land uses through either the planning period or in perpetuity
- Identification of areas based on the existing county and local land use plans that indicate development but are non-serviceable uses, such as very low (suburban or rural density) housing developments.
- Identification of areas based on the projected county and local comprehensive plans that indicate plans for development but are non-serviceable uses, such as very low (suburban or rural density) housing developments.

This process of identification and elimination was used to identify the maximum amount of land that could potentially be developed or redeveloped within each projected service area. It does not take into consideration local land use objectives or potential changes in the projected land uses, subdivision or zoning regulations, or other issues or obstacles to development (like soil conditions or land ownership). It is simply meant to provide an estimate of the amount of unused or agricultural lands that could be used for development (those generally available for development or redevelopment). Table 5-VI shows the summary of developable lands within the existing (year 2000) water service areas, and Table 5-VII shows the summary of developable lands within the projected (year 2035) service areas for each of the selected communities.

Table 5-VI: Summary of Developable Lands within the Year 2000 Water Service Areas

Utility	Total Acres Within Year 2000 Utility Service Area ^a	Total Developed and Served Acres within the Year 2000 Service Area	Developable Lands within the Year 2000 Service Area	
			Acres	Percent
Kenosha Water Utility	13,616	11,153	638	4.7
Milwaukee Water Works	70,992	60,566	2,551	3.6
City of Oak Creek Water and Sewer Utility	7,506	6,019	777	10.4
City of Port Washington Water Utility	1,914	1,613	25	1.3
City of Racine Water and Wastewater Utility	13,999	11,642	483	3.4
City of Brookfield Municipal Water Utility	8,603	7,695	145	1.7
Proposed Lake Michigan Portion	3,705	3,705	0	--
City of Cedarburg Light and Water Commission	2,127	1,758	29	1.4
Village of Germantown Water Utility	3,655	2,872	243	6.6
Village of Grafton Water and Wastewater Commission	2,091	1,769	52	2.5
City of Muskego Public Water Utility	1,738	1,361	96	5.5
City of New Berlin Water Utility	7,424	6,486	182	2.5
Village of Saukville Municipal Water Utility	878	748	49	5.6
City of Waukesha Water Utility (2009 Boundaries)	16,272	11,809	852	5.2

^aTotal acreage within in service area does not include all lands delineated within the Year 2005 Environmental Corridors or Landfills, however it does include all identified parks and open space lands, including those coinciding with environmental corridors, wetlands, woodlands, and surface waters.

Source: SEWRPC and CED.

Under the RWSP, the year 2000 water utility service areas reflect the actual extent of water service areas on the ground, rather than the actual extent of the municipal boundary, which for several of these utilities would be the actual corporate or municipal boundary extent of the community. In 2000, Milwaukee Water Works had by far the largest retail water service area of approximately 70,992 acres. This was followed by the City of Racine Water and Wastewater Utility (13,999 acres), the Kenosha Water Utility (13,616 acres), and the City of Waukesha Water Utility (11,243 acres). In 2000, developable lands accounted for less than 10 percent of all available lands in most of the selected utility service areas, with the exception of the City of Oak Creek Water and Sewer Utility; about 10.4 percent of the land **in Oak Creek's water service area was considered** developable in 2000 (see Map D-3A).

The year 2035 water utility service areas reflect the proposed extents of water service areas as set forth under the RWSP based on both existing and known planned development; the amounts of developed and developable lands within the 2035 projected service areas are shown in Table 5-VII. The amount and percentages of developable lands within the proposed service areas vary considerably among the selected utilities, although generally, the delineations were created to accommodate existing development as well as some known planned development and without consideration of municipal boundary. Under the RWSP as well as its planning basis (the RLUP), the projected water supply service areas were delineated based on the locations and densities of existing or known planned urban developments, without regard to the location of municipal or community boundaries, and take into consideration the locations of existing utility infrastructure (water and sewer) as well as the locations of environmentally sensitive lands (both environmental corridors and existing and planned parks and open space lands), and the availability of lands considered to be suitable for urban development.

The expanded utility service areas of Waukesha, Saukville, Cedarburg, Port Washington, Grafton, and the Yorkville Utility District No. 1 were delineated to include existing and known planned development; each of these communities have the capacity to expand their corporate boundaries through annexation, although it is unclear as to whether or not their service area expansion would depend upon either annexation or intergovernmental agreement.

Communities which are at or nearly at build-out conditions and have no capacity to increase their service areas through annexation, like Milwaukee or Brookfield, are unable to increase their capacity to develop and therefore must focus on providing water service to existing development or to the small areas of development that remain within their municipal boundaries. Similarly, Elm Grove also is unable to exercise any powers of annexation, but would have to concentrate almost exclusively on providing service to existing areas. Oak Creek which is also unable to increase its land area through annexation, contains a considerable amount of land that is developable (4,765 acres). In addition, the City of Oak Creek Water and Sewer Utility serves areas in the Village of Caledonia and the City of Franklin which can be expanded.

Several utility service areas (Kenosha Water Utility, City of Racine Water and Wastewater Utility, City of New Berlin Water Utility) are currently bound to intergovernmental agreements and therefore their planned water utility service areas reflect the delineations set forth under those agreements.

Communities with extensive developable lands within their existing municipal boundaries, such as Germantown and Muskego, could potentially develop toward their municipal boundaries; however, under the RWSP, it is recommended that municipal water service be limited to existing development and to known or planned development areas within the

proposed geographic extent. At the time of this analysis, both Muskego and Germantown have indicated that they do not intend to follow the recommendations set forth within the RWSP. As such, it is unknown whether or not the projected service areas delineated under the RWSP will be adopted by either community, and whether the RWSP recommendations will have an impact on development in either community. The results of the land use analysis are shown in Map 5-I at the end of the Chapter, and maps of land uses within the existing and projected areas for each utility studied are provided in Appendix D.

Table 5-VII: Summary of Developable Lands within the Projected 2035 Water Service Areas

Utility	Total Acres Within Utility Service Area	Total Developed and Served Acres within the Year 2035 Service Area	Total Non-Servicable Acres within the 2035 ^a Service Area	Developable Lands within the 2035 Service Area	
				Acres	%
Kenosha Water Utility	20,263	13,287	2,733	4,242	20.9
Milwaukee Water Works	70,922	60,566	7,805	2,551	3.6
City of Oak Creek Water and Sewer Utility	15,853	8,507	2,581	4,765	30.1
City of Port Washington Water Utility	5,103	2,475	871	1,756	34.4
City of Racine Water and Wastewater Utility	26,229	15,682	2,705	7,842	29.9
City of Brookfield Municipal Water Utility	14,914	12,493	1,747	674	4.5
Proposed Lake Michigan Portion	7,547	6,669	632	246	3.3
City of Cedarburg Light and Water Commission	4,969	3,089	933	947	19.1
Elm Grove Area	2,089	1,883	197	9	0.4
Village of Germantown Water Utility	10,836	5,595	1,681	3,559	32.8
Village of Grafton Water and Wastewater Commission	4,987	2,826	1,363	798	16.0
City of Muskego Public Water Utility	9,901	5,518	2,538	1,845	18.6
City of New Berlin Water Utility	14,972	9,554	4,572	1,045	7.0
Lake Michigan Service Area Portion	8,883	5,184	3,013	686	7.7
Village of Saukville Municipal Water Utility	2,772	1,339	788	645	23.3
City of Waukesha Water Utility	32,209	16,659	13,761	1,789	5.6
Caledonia Area	324	81	25	217	67.0
Yorkville Utility District No. 1	809	390	221	198	24.5

^a Defined as lands that are not serviceable or would not be serviceable based on existing or planned land uses. Such lands include all lands within environmental corridors, existing and planned parks and open spaces, lands to be set aside for conservation or preservation, lands proposed to remain in farming, residential lands developed at very low densities that would likely remain on private wells, and lands set aside for suburban or residential densities as categorized under the Regional Land Use Plan and local or county comprehensive plans.

Source: SEWRPC and CED.

Community Level Assessment - Potential Provider Utilities

Kenosha Water Utility

The Kenosha Water Utility is one of the five utilities identified as a “provider” utility as it either currently provides retail or wholesale Lake Michigan water to neighboring utilities, or it has the potential to do so. In 2000, the Kenosha Water Utility service area was approximately 13,616 acres; of this, only about 638 acres were identified as developable or about 4.7 percent of its utility service area. Map D-1A in Appendix D shows the extent of developed and developable land within the Kenosha Water Utility’s service area in the year 2000.

Currently, the Kenosha Water Utility provides retail service to customers in the City of Kenosha, as well as to portions of the Village of Pleasant Prairie and to portions of the

Towns of Bristol, Paris, and Somers. There has been a long-standing coordinated water supply and sewerage system planning program for the planned urban service area otherwise known as the Kenosha Urban Planning District, which includes the City of Kenosha (including the Kenosha Water Utility), the Village of Pleasant Prairie, the Town of Bristol Utility District No. 3, and portions of the Town of Somers. Kenosha Water Utility is under numerous water service purchase agreements and several intergovernmental agreements to provide wholesale water to each of these utilities. This coordinated planning program, along with the intergovernmental boundary agreements that have been developed between the affected communities, indicate that the boundaries of the proposed Kenosha Water Utility service area will not change for the duration of the intergovernmental agreement. The benefit of this form of intergovernmental agreement is that it assures that development will be directed toward specific areas outlined within the service areas, rather than outside of service areas.

Under the RWSP, the projected Kenosha Water Utility service area is anticipated to expand from 13,616 to 20,263 acres, or an increase of about 49 percent. It is recommended that all developable and serviceable lands within the Kenosha Water Utility service area boundary be served by municipal water, rather than by private wells, by the year 2035. Based on **CED's land use evaluation**, as of 2005, this includes about 13,287 acres of land that are currently developed, about 4,242 acres of lands that are potentially developable and serviceable, and approximately 2,733 acres of land that would not be serviceable. Lands that are considered not serviceable include about 835 acres of environmental corridors, 1,856 acres that are dedicated to park and open space, 28 acres dedicated to preservation and non-farmed wetlands, and 14 acres of existing developed low-density residential lands. Map D-1B in Appendix D shows the projected extent of developed and developable land **within the Kenosha Water Utility's service area in the year 2035.**

Both map and land use results are based on a GIS evaluation of SEWRPC's land use file (starting in the year 2000 and updated to reflect on ground conditions for the year 2005 based on orthophoto review), along with current (year 2009) Park and Open space inventory data, the preliminary Kenosha County Comprehensive plan data on projected land **uses, and CED's** potentially developable lands file (which identified all contiguous lands over 0.5 acres that meet the criterion for identifying developable lands). Based on this method, areas to be developed and serviced or that are currently developed and serviceable are presumed to be current as of year 2005.

Milwaukee Water Works

The Milwaukee Water Works is one of the five utilities identified as a "provider" utility as it currently provides both retail and wholesale Lake Michigan water to neighboring utilities, and it has the potential to supply other communities. In 2000, the Milwaukee Water Works service area was approximately 70,883 acres; of this, only about 2,551 acres was identified as developable or about 3.6 percent of its utility service area. Map D-2A in Appendix D **shows the extent of developed and developable land within the Milwaukee Water Work's** service area in the year 2000.

Currently, Milwaukee Water Works retail service area extends beyond the municipal boundaries of the City of Milwaukee to include the municipalities of Greenfield, Hales Corners, St. Francis, West Milwaukee, and a portion of the City of Franklin. In addition to its retail service area, Milwaukee Water Works provides wholesale water to the following communities that operate and maintain their own water utilities: Cities of Cudahy, Greendale, Mequon, New Berlin, Wauwatosa, West Allis, the Villages of Brown Deer, Butler, Menomonee Falls, and Shorewood. Milwaukee Water Works maintains water service

purchase agreements and intergovernmental agreements with each of its wholesale contracting utilities.

With only approximately 3.6 percent of its land available for development (2,551 acres) the Milwaukee Water Works service area is nearly at build-out conditions. There is, however, potential for significant development in the service areas of its contract wholesale customers. Milwaukee and its constituent retail service municipalities are land-locked and unable to exercise any authority of annexation, therefore Milwaukee Water Works is considered confined to its existing municipal boundary through the year 2035 and beyond. The only method through which Milwaukee Water Works retail service area could potentially change would be through a change in intergovernmental agreement with one of its wholesale service purchasers, which is an unlikely, although possible, scenario. Although there are some greenfield lands available for new development, particularly in the northwest part of the City of Milwaukee, most new development within the Milwaukee Water Works retail service area is dependent upon the redevelopment of brownfields or areas that have been previously developed.

Under the RWSP, it is recommended that all developable and serviceable lands within the Milwaukee Water Works retail service area boundary be served by municipal water, rather than by private wells, through the year 2035 and beyond; this would include the entire projected service area of about 70,922 acres. **Based on CED's land use evaluation, as of 2005**, this includes about 60,566 acres of land that are currently developed, about 2,551 acres of lands that are potentially developable and serviceable, and approximately 7,805 acres of land that would not be serviceable. Lands that are considered not serviceable include about 1,526 acres of environmental corridors, and 6,279 acres that are dedicated to park and open space. Map D-2B in Appendix D shows the projected extent of developed and developable land within the Milwaukee Water Work's service area in the year 2035.

Both map and land use results are based on a GIS evaluation of SEWRPC's land use file (starting in the year 2000 and updated to reflect on ground conditions for the year 2005 based on orthophoto review), along with current (year 2009) Park and Open space inventory data, **and CED's potentially developable lands file** (which identified all contiguous lands over 0.5 acres that meet the criterion for identifying developable lands). Based on this method, areas to be developed and serviced or that are currently developed and serviceable are presumed to be current as of year 2005.

City of Oak Creek Water and Sewer Utility

The City of Oak Creek Water and Sewer Utility is one of the five utilities identified as a **"provider" utility as it either currently provides retail or wholesale** Lake Michigan water to neighboring utilities, or it has the potential to do so. In 2000, the City of Oak Creek Water and Sewer Utility was approximately 7,506 acres; of this, about 777 acres within was identified as developable or about 10.4 percent of its utility service area. Map D-3A in Appendix D shows the extent of developed and developable land within the Oak Creek Water and Sewer Utility's service area in the year 2000.

As of 2005, the service area encompasses a relatively small portion of its entire 18,217 acre municipal boundary area, based on existing development within the City of Oak Creek; this indicates that Oak Creek has considerable land available for development. The City of Oak Creek Water and Sewer Utility provides retail service to its customers within the City of Oak Creek and to small portions of the City of Franklin, and provides wholesale water to the City of Franklin Water Utility, and to portions of the Village of Caledonia through the portions of the Village of Caledonia East Utility District and portions of the Village of Caledonia West Utility District. The City of Oak Creek Water and Sewer Utility maintains water service

purchase agreements with each of its wholesale contractors. Due to geographic constraints and an inability to exercise any authority of annexation, the projected City of Oak Creek Water and Sewer Utility retail service boundary is anticipated to remain unchanged through the year 2035 and beyond; there is however, significant development potential within that area. **In addition, there is potential for expansion of the City's wholesale service area that could include portions of the City of Franklin and the Village of Caledonia.**

Under the RWSP, it is recommended that all developable and serviceable lands within the City of Oak Creek Water and Sewer Utility retail service area boundary be served by municipal water, rather than by private wells, through the year 2035 and beyond; this **would include the entire projected service area of about 15,853 acres. Based on CED's land use evaluation, as of 2005, this includes about 8,507 acres of land that are currently developed, about 4,765 acres of lands that are potentially developable and serviceable, and approximately 2,581 acres of land that would not be serviceable.** Lands that are considered not serviceable include about 1,212 acres of environmental corridors, and 1,369 acres that are dedicated to park and open space. Map D-3B in Appendix D shows the projected extent of developed and developable land within the City of Oak Creek Water and Sewer Utility service area in the year 2035.

Both map and land use results are based on a GIS evaluation of SEWRPC's land use file (starting in the year 2000 and updated to reflect on ground conditions for the year 2005 based on orthophoto review), along with current (year 2009) Park and Open space inventory data, **and CED's potentially developable lands file** (which identified all contiguous lands over 0.5 acres that meet the criterion for identifying developable lands). Based on this method, areas to be developed and serviced or that are currently developed and serviceable are presumed to be current as of year 2005.

City of Port Washington Water Utility

The City of Port Washington Water Utility is one of the five utilities identified as a "provider" utility as it either currently provides retail or wholesale Lake Michigan water to neighboring utilities, or it has the potential to do so. In 2000, the City of Port Washington Water Utility service area was approximately 1,914 acres; of this, only about 25 acres was identified as developable or about 1.3 percent of its utility service area. As of 2005, its entire municipal boundary encompassed 3,722 acres, indicating that the City of Port Washington Water Utility has room to grow within its corporate boundaries. Map D-4A in Appendix D shows the extent of developed and developable land within the City of Port Washington Water Utility's service area in the year 2000.

The City of Port Washington Water Utility provides retail service to its customers within the City of Port Washington; it currently does not provide wholesale water to any other utilities, although under the RWSP, it is proposed to provide wholesale water to the Village of Saukville Municipal Water Utility. Due to planned development under both the RLUP and its own comprehensive plan, the projected City of Port Washington Water Utility retail service boundary municipal boundary is anticipated to grow considerably through the year 2035 and beyond.

Under the RWSP, it is recommended that all developable and serviceable lands within the City of Port Washington Water Utility retail service area boundary be served by municipal water, rather than by private wells, through the year 2035 and beyond; this would include an expansion of the entire projected service area from 3,722 acres to about 5,103 acres. **Based on CED's land use evaluation, as of 2005, this includes about 2,475 acres of land that are currently developed, about 1,756 acres of lands that are potentially developable and serviceable, and approximately 871 acres of land that would not be serviceable.** Lands that

are considered not serviceable include about 213 acres of environmental corridors, 176 acres that are dedicated to park and open space, 142 acres dedicated as lands to be preserved and farmlands, and 340 acres of planned very low-density residential development. Map D-4B in Appendix D shows the projected extent of developed and developable land within the City of Port Washington Water Utility service area in the year 2035.

Both map and land use results are based on a GIS evaluation of SEWRPC's land use file (starting in the year 2000 and updated to reflect on ground conditions for the year 2005 based on orthophoto review), along with current (year 2009) Park and Open space inventory data, Ozaukee County Comprehensive plan data on projected land uses, and **CED's potentially developable lands file** (which identified all contiguous lands over 0.5 acres that meet the criterion for identifying developable lands). Based on this method, areas to be developed and serviced or that are currently developed and serviceable are presumed to be current as of year 2005.

City of Racine Water and Wastewater Utility

The City of Racine Water and Wastewater Utility is one of the five utilities identified as a **"provider" utility as it either currently provides retail or wholesale Lake Michigan water to** neighboring utilities, or it has the potential to do so. In 2000, the City of Racine Water and Wastewater Utility service area was approximately 13,999 acres; of this, only about 483 acres within was identified as developable or about 3.4 percent of its utility service area. Map D-5A in Appendix D shows the extent of developed and developable land within the City of Racine Water and Wastewater Utility service area in the year 2000.

The City of Racine Water and Wastewater Utility provides retail service to customers in the City of Racine, as well as to the Villages of Elmwood Park, Mount Pleasant, North Bay, and Sturtevant. There has been a long-standing coordinated water supply planning program for the Racine planned urban service area, which includes the City of Racine Water and Wastewater Utility retail service areas, the Village of Wind Point Municipal Water Utility, and portions of the Village of Caledonia East and West Utility Districts. The City of Racine Water and Wastewater Utility is under water service purchase agreements and intergovernmental agreements to provide wholesale water to each of these utilities. This coordinated planning program sets forth areas which can be provided with municipal water service. The benefit of this form of intergovernmental agreement is that it assures that development will be directed toward specific areas outlined within the service areas, rather than outside of service areas.

Under the RWSP, the projected City of Racine Water and Wastewater Utility service area is anticipated to expand from 14,000 to 26,229 acres, or an increase of about 87 percent. It is recommended that all developable and serviceable lands within the City of Racine Water and Wastewater Utility service area boundary be served by municipal water, rather than by **private wells, by the year 2035. Based on CED's land use evaluation, as of 2005, this** included about 15,682 acres of land that are currently developed, about 7,842 acres of lands that are potentially developable and serviceable, and approximately 2,705 acres of land that would not be serviceable. Lands that are considered not serviceable include about 1,325 acres of environmental corridors, and 1,381 acres that are dedicated to park and open space. Map D-5B in Appendix D shows the projected extent of developed and developable land within the City of Port Washington Water Utility service area in the year 2035.

Both map and land use results are based on a GIS evaluation of SEWRPC's land use file (starting in the year 2000 and updated to reflect on ground conditions for the year 2005

based on orthophoto review), along with current (year 2009) Park and Open space inventory data, the Racine County Comprehensive plan data on projected land uses, and **CED's potentially developable lands file** (which identified all contiguous lands over 0.5 acres that meet the criterion for identifying developable lands). Based on this method, areas to be developed and serviced or that are currently developed and serviceable are presumed to be current as of year 2005.

Community Level Assessment – Potential Purchasing Utilities

City of Brookfield Municipal Water Utility

The City of Brookfield municipal boundary encompasses approximately 17,610 acres, located in eastern Waukesha County. It is nearly entirely surrounded by incorporated municipalities, with the exception of lands within the Town of Brookfield. Most of the lands in the Town of Brookfield receive water from the Town of Brookfield Utility District or are served by private wells.

Although the City of Brookfield is nearly at build-out conditions with only about 4.5 percent or 674 acres of identified developable lands throughout its entire municipal boundary, its most current water utility service area only serves portions of the City (see Map D-6A); many residences and businesses within the service area are served by private wells. Based on year 2000 service area data, only 8,603 acres of the 12,493 acres of developed land within the City of Brookfield were served by municipal water; approximately 3,890 acres of existing, serviceable lands remain on private well water. Under the RWSP plan, the RLUP plan, and the comprehensive plan, it is recommended that **all developable and serviceable lands within the City's existing boundary be served by municipal water, rather than the existing private wells, by the year 2035.** Of the total 17,610 acres within the City, this would include the entire projected service area of about 14,914 acres. **Based on CED's land use evaluation, as of 2005, Brookfield's service area would include 12,493 acres of land that are currently developed at urban densities and uses and should be served by municipal water, about 674 acres of lands that are planned urban density developable and serviceable lands, and approximately 1,747 acres of land that would not be serviceable.** Lands that are considered non-serviceable include about 409 acres of additional environmental corridors, and 1,338 acres that are dedicated to park and open space, planned recreational, or agricultural and open space lands dedicated to preservation. Map D-6B in Appendix D shows the projected extent of developed and developable land within the City of Brookfield Municipal Water Utility service area in the year 2035.

The subcontinental divide runs through the geographic center of the city, north to the south, splitting the City into an eastern half and western half. Under the RWSP, the eastern half is recommended to switch its source of supply, from groundwater to Lake Michigan, while the western half is recommended to remain under service by groundwater sources. The eastern half of Brookfield currently is served by the MMSD, indicating that an existing return flow for this portion would continue into the future. Map D-6C in Appendix D shows the existing extent of developed and developable land within the eastern portion of the City of Brookfield Municipal Water Utility service area in the year 2035. Under the RWSP, the eastern half of the proposed service area comprises about 7,547 acres, or about 51 percent of the **proposed service area. Based on CED's land use evaluation, as of 2005, this includes 7,547 acres of land that are currently developed, about 246 acres of lands that are potentially developable and serviceable, and approximately 632 acres of land that would not be serviceable.** Lands that are considered not serviceable include about 184 acres of environmental corridors, and 448 acres that are dedicated to park and open space, planned recreational, or agricultural and open space lands dedicated to preservation. Map D-6D in Appendix D shows the projected extent of developed and developable land within the

eastern portion of the City of Brookfield Municipal Water Utility service area in the year 2035.

Both map and land use results are based on a GIS evaluation of SEWRPC's land use file (starting in the year 2000 and updated to reflect on ground conditions for the year 2005 based on orthophoto review), along with current (year 2009) Park and Open space inventory data, Waukesha County Comprehensive plan data on projected land uses, and **CED's potentially developable lands file** (which identified all contiguous lands over 0.5 acres that meet the criterion for identifying developable lands). Based on this method, areas to be developed and serviced or that are currently developed and serviceable are presumed to be current as of year 2005.

City of Cedarburg Light and Water Commission

The City of Cedarburg Light and Water Commission service area is one of the nine utilities recommended under the RWSP to switch from self-supplying groundwater to Lake Michigan surface water. In 2000, its service area encompassed approximately 2,127 acres located mainly within its 2,590 acre municipal boundary area. Under the RWSP, the City of Cedarburg Light and Water Commission is recommended to coordinate with the Village of Grafton to develop its own Lake Michigan surface water treatment facility, in order to switch from its current groundwater supply. The City of Cedarburg Light and Water Commission provides retail service to its customers within the City of Cedarburg and to a few residences in the Town of Cedarburg; it currently does not provide wholesale water to any other utilities. Due to planned development under both the RLUP and its own comprehensive plan, the projected City of Cedarburg Light and Water Commission service boundary is anticipated to grow considerably through the year 2035 and beyond.

Under the RWSP, it is recommended that all developable and serviceable lands within the City of Cedarburg Light and Water Commission service area boundary be served by municipal water, rather than by private wells, through the year 2035 and beyond; this would include an expansion of the entire projected service area from 2,127 acres to about **4,969 acres, an increase of 137 percent or 2,842 acres. Based on CED's land use** evaluation, as of 2005, this includes about 3,089 acres of land that are currently developed, about 947 acres of lands that are potentially developable and serviceable, and approximately 933 acres of land that would not be serviceable. Lands that are considered not serviceable include about 269 acres of environmental corridors, 404 acres that are dedicated to park and open space, 61 acres dedicated as lands to be preserved and farmlands, and 199 acres of planned very low-density residential development. Map D-7B in Appendix D shows the projected extent of developed and developable land within the eastern portion of the City of Cedarburg Light and Water Commission service area in the year 2035.

Both map and land use results are based on a GIS evaluation of SEWRPC's land use file (starting in the year 2000 and updated to reflect on ground conditions for the year 2005 based on orthophoto review), along with current (year 2009) Park and Open space inventory data, Ozaukee County Comprehensive plan data on projected land uses, and **CED's potentially developable lands file** (which identified all contiguous lands over 0.5 acres that meet the criterion for identifying developable lands). Based on this method, areas to be developed and serviced or that are currently developed and serviceable are presumed to be current as of year 2005.

Village of Germantown Water Utility

The Village of Germantown Water Utility service area is one of the nine utilities recommended under the RWSP to switch from self-supplying groundwater to supplying Lake

Michigan surface water. In 2000, its service area included approximately 3,705 acres of developed land within its 22,015 acre municipal boundary area. At nearly 35 square miles, Germantown has a significant amount of land available for development within its current (2005) municipal boundary (see Map D-8A for the year 2000 service area). Much of the Village of Germantown is currently undeveloped, but considered developable. Under the RWSP, its projected year 2035 water utility service area would contain urban density development to the southern half of the village, with no development or non-serviceable, very low-density development in the northern half of the village. Additionally, under the RWSP, the Village of Germantown Water Utility is proposed to provide water to a commercial area within the adjacent Village of Richfield. This could be done on either a retail or wholesale basis. Alternatively, the Village of Richfield could develop its own source of supply to serve the proposed area. Sewer service in the Village of Germantown is provided by the MMSD, indicating that an existing return flow for this portion will continue into the future.

Under the RWSP, it is recommended that all developable and serviceable lands within the Village of Germantown Water Utility service area boundary be served by municipal water, rather than by private wells, through the year 2035 and beyond; this would include an expansion of the entire projected service area from 3,655 acres to about 10,836 acres, an increase of 196 percent or 7,181 acres. This 10,836 acres is roughly half of its existing 22,015 acre municipal boundary area. Based on CED's land use evaluation, as of 2005, this includes about 5,595 acres of land that are currently developed, about 3,559 acres of lands that are potentially developable and serviceable, and approximately 1,681 acres of land that would not be serviceable. Lands that are considered not serviceable include about 888 acres of environmental corridors, 664 acres that are dedicated to park and open space, and 15 acres dedicated as lands to be preserved. Map D-8B in Appendix D shows the projected extent of developed and developable land in the Village of Germantown Water Utility service area in the year 2035.

The Village of Germantown has formally notified SEWRPC that it has elected to remain on private groundwater for the foreseeable future. Based on this decision, it is unknown whether or not the Village of Germantown Water Utility retail service area boundary would remain configured based on the RWSP, if it is intended to limit urban density development to the projected service area, or whether or not this will have any impact on future land use patterns as projected under the Regional Land Use Plan. Although the Village of Germantown will be subject to its own comprehensive land use plan, it is uncertain as to how their development will proceed into the future in relation to the RWSP.

Both map and land use results are based on a GIS evaluation of SEWRPC's land use file (starting in the year 2000 and updated to reflect on ground conditions for the year 2005 based on orthophoto review), along with current (year 2009) Park and Open space inventory data, Village of Germantown Comprehensive plan data on projected land uses, and CED's potentially developable lands file (which identified all contiguous lands over 0.5 acres that meet the criterion for identifying developable lands). Based on this method, areas to be developed and serviced or that are currently developed and serviceable are presumed to be current as of year 2005.

Village of Grafton Water and Wastewater Commission

The Village of Grafton Water and Wastewater Commission service area is one of the nine utilities recommended under the RWSP to switch from self-supplying groundwater to supplying Lake Michigan surface water. Currently, its service area encompasses approximately 2,127 acres within its 2,590 acre municipal boundary area (see Map D-9A in Appendix D for the year 2000 service area). Under the RWSP, the Village of Grafton Water

and Wastewater Commission is recommended to coordinate with the City of Cedarburg to develop its own Lake Michigan surface water treatment facility, in order to switch from its current groundwater supply. The Village of Grafton Water and Wastewater Commission provides retail service to its customers within the Village of Grafton and to small adjacent portions of the Town of Grafton. Due to planned development under both the RLUP and its **own comprehensive plan, along with the Village of Grafton's ability to exercise its authority** of annexation, the projected Village of Grafton Water and Wastewater Commission service boundary municipal boundary is anticipated to grow considerably through the year 2035.

Under the RWSP, it is recommended that all developable and serviceable lands within the Village of Grafton Water and Wastewater Commission retail service area boundary be served by municipal water, rather than by private wells, through the year 2035 and beyond; this would include an expansion of the entire projected service area from 2,127 acres to about **4,987 acres, an increase of 134 percent or 2,860 acres. Based on CED's land use** evaluation, as of 2005, this includes about 2,826 acres of land that are currently developed, about 798 acres of lands that are potentially developable and serviceable, and approximately 1,363 acres of land that would not be serviceable. Lands that are considered not serviceable include about 195 acres of environmental corridors, 285 acres that are dedicated to park and open space, 75 acres dedicated as lands to be preserved and farmlands, and 808 acres of planned very low-density residential development. Map D-9B in Appendix D shows the projected extent of developed and developable land in the Village of Grafton Water and Wastewater Commission water service area in the year 2035.

Both map and land use results are based on a GIS evaluation of SEWRPC's land use file (starting in the year 2000 and updated to reflect on ground conditions for the year 2005 based on orthophoto review), along with current (year 2009) Park and Open space inventory data, Ozaukee County Comprehensive plan data on projected land uses, and **CED's potentially developable lands file** (which identified all contiguous lands over 0.5 acres that meet the criterion for identifying developable lands). Based on this method, areas to be developed and serviced or that are currently developed and serviceable are presumed to be current as of year 2005.

City of Muskego Public Water Utility

The City of Muskego Public Water Utility service area is one of the nine utilities recommended under the RWSP to switch from self-supplying groundwater to supplying Lake Michigan surface water. Currently, its service area serves approximately 1,739 acres of developed land within its 23,020 acre municipal boundary area (see Map D-10A in Appendix D for the year 2000 service area). At nearly 36 square miles, Muskego has a significant amount of land available for development within its current (2005) municipal boundary, and it is unlikely that Muskego would exercise any of its municipal powers for annexation upon any of its unincorporated neighbors within the 2035 planning period. Much of the City of Muskego is currently undeveloped, and under the RLUP and RWSP, it is recommended that any urban density development (that which would require sewer and water services) be confined to existing areas of urban density development or to areas adjacent to such development. Under the RWSP, the projected year 2035 water utility service area would contain urban density development to the northern portions of the city, with no development or non-serviceable, low-density development in the southern portions of the city. Additionally, the projected water service boundary was developed to coincide with the planned sewer service area. Sewer service in the City of Muskego is provided by the MMSD, indicating that an existing return flow for this portion would continue into the future.

Under the RWSP, it is recommended that all developable and serviceable lands within the City of Muskego Public Water Utility retail service area boundary be served by municipal

water, rather than by private wells, through the year 2035 and beyond; this would include an expansion of the entire projected service area from 1,739 acres to about 9,901 acres, an increase of 469 percent or 8,162 acres. The 9,901 acres is less than half of its existing 23,020 acre **municipal boundary area. Based on CED's land use evaluation, as of 2005, this** includes about 5,518 acres of land that are currently developed, about 1,845 acres of lands that are potentially developable and serviceable, and approximately 2,538 acres of land that would not be serviceable. Lands that are considered not serviceable include about 1,257 acres of environmental corridors, 543 acres that are dedicated to park and open space, 227 acres of existing very low-density residential development, and 511 acres of planned very low-density residential development. Map D-10B in Appendix D shows the projected extent of developed and developable land in the City of Muskego Public Water Utility service area in the year 2035.

The City of Muskego has indicated its intention to continue to utilize groundwater as its source of supply for the foreseeable future. Based on this decision, it is unknown whether or not the City of Muskego Public Water Utility retail service area boundary would remain configured based on the RWSP, if it is intended to limit urban density development to the projected service area, or whether or not this will have any impact on future land use patterns as projected under the Regional Land Use Plan. Although the City of Muskego will be subject to its own comprehensive land use plan, it is uncertain as to how their development could proceed into the future in relation to the RWSP.

Both map and land use results are based on a GIS evaluation of SEWRPC's land use file (starting in the year 2000 and updated to reflect on ground conditions for the year 2005 based on orthophoto review), along with current (year 2009) Park and Open space inventory data, Waukesha County Comprehensive plan data on projected land uses, and **CED's potentially developable lands** file (which identified all contiguous lands over 0.5 acres that meet the criterion for identifying developable lands). Based on this method, areas to be developed and serviced or that are currently developed and serviceable are presumed to be current as of year 2005.

City of New Berlin Water Utility

The City of New Berlin Water Utility has historically utilized both groundwater and Lake Michigan water for its municipal sources of water supply. Although the City of New Berlin has a significant amount of land available for potential development within its current (2005) municipal boundary, and it is unlikely that development in New Berlin will be significant over the planning period set forth in the RWSP, as New Berlin is currently engaged in an intergovernmental agreement with the Milwaukee Water Works which limits its ability to develop lands that would be serviceable by municipal water to the eastern two-thirds of the City. The eastern two-thirds of New Berlin are significantly developed and are served by the City of New Berlin Water Utility, while the western one-third of the city is relatively undeveloped; any development within the western third relies on private wells. The existing (year 2000) service area serves about 7,424 acres of land; the planned service area in 2035 is proposed to encompass about 15,171 acres within its 23,593 acre municipal boundary area (see Map D-11A in Appendix D for the year 2000 service area). Sewer service throughout the City of New Berlin is provided by the MMSD, indicating that the return flow will continue into the future.

New Berlin straddles the subcontinental divide and is geographically divided into three general regions. The easternmost portion of New Berlin lies east of the subcontinental divide, representing **one-third of the city's land area; the City of New Berlin Water Utility** provides Lake Michigan surface water purchased from Milwaukee Water Works to developed areas within this eastern portion of New Berlin. The middle geographic third of New Berlin is

also significantly developed and the City of New Berlin Water Utility has historically provided this area with groundwater. Under the RWSP, it was recommended that the City of New Berlin Water Utility switch the source of supply for this area from groundwater to Lake Michigan; this recommendation was implemented and negotiation between the City of New Berlin Water Utility and Milwaukee Water Works was completed as of 2009. Appendix C shows the intergovernmental agreement and the water service purchase contract between the two utilities. This area is located west of the subcontinental divide; in addition to the intergovernmental agreement and water service purchase agreement, the negotiation required a diversion application.

Under the RWSP, it is recommended that all developable and serviceable lands within the City of New Berlin Water Utility service area boundary be served by municipal water, rather than by private wells, through the year 2035 and beyond; this includes an expansion of the entire projected service area from 7,424 acres to about 15,171 acres, an increase of 104 percent or 7,747 acres. **Based on CED's land use evaluation, as of 2005, this includes about 9,554 acres of land that are currently developed, about 1,045 acres of lands that are potentially developable and serviceable, and approximately 4,572 acres of land that would not be serviceable.** Lands that are considered not serviceable include about 1,641 acres of environmental corridors, 1,055 acres that are dedicated to park and open space, 81 acres of existing very low-density residential development, and 1,795 acres of planned very low-density residential development. Map D-11B in Appendix D shows the projected extent of developed and developable land in the City of New Berlin Water Utility service area in the year 2035.

Under the RWSP, the middle third, groundwater supplying portion of the City of New Berlin Water Utility service area is recommended to switch from to supplying Lake Michigan surface water, rendering the entire water utility system reliant on Lake Michigan as its **source. Based on both the RWSP and on New Berlin's water service purchase agreement with the City of Milwaukee, this new portion of New Berlin's water utility has been delineated to encompass approximately 8,883 acres of the 15,717 acres of total projected service area. Based on CED's land use evaluation, this portion includes about 5,184 acres of land that are currently developed, about 686 acres of lands that are potentially developable and serviceable, and approximately 3,013 acres of land that would not be serviceable.** Lands that are considered not serviceable include about 1,154 acres of environmental corridors, 633 acres that are dedicated to park and open space, 16 acres of existing very low-density residential development, and 1,210 acres of planned very low-density residential development. Map D-11C in Appendix D shows the projected extent of developed and developable land in the City of New Berlin Water Utility service area in the year 2035.

Both map and land use results are based on a GIS evaluation of SEWRPC's land use file (starting in the year 2000 and updated to reflect on ground conditions for the year 2005 based on orthophoto review), along with current (year 2009) Park and Open space inventory data, Waukesha County Comprehensive plan data on projected land uses, and **CED's potentially developable lands file** (which identified all contiguous lands over 0.5 acres that meet the criterion for identifying developable lands). Based on this method, areas to be developed and serviced or that are currently developed and serviceable are presumed to be current as of year 2005.

Village of Saukville Municipal Water Utility

The Village of Saukville Municipal Water Utility service area is one of the nine utilities recommended under the RWSP to switch from self-supplying groundwater to supplying Lake Michigan surface water. Under the RWSP, it is recommended that the Village of Saukville Municipal Water Utility abandon its current groundwater supply and purchase Lake Michigan

surface water from the City of Port Washington. The Village of Saukville Municipal Water Utility provides retail service to its customers within the Village of Saukville. Currently, its service area encompasses approximately 878 acres within its 2,246 acre municipal boundary area, indicating that Saukville has a significant amount of land available for development (see Map D-12A in Appendix D for the year 2000 service area). Due to planned development under both the RLUP and its own comprehensive plan, the projected Village of Saukville Municipal Water Utility service boundary municipal boundary is anticipated to grow considerably through the year 2035.

Under the RWSP, it is recommended that all developable and serviceable lands within the Village of Saukville Municipal Water Utility service area boundary be served by municipal water, rather than by private wells, through the year 2035 and beyond; this would include an expansion of the entire projected service area from 878 acres to about 2,772 acres, an increase of 216 percent or 1,894 acres. Based on CED's land use evaluation, as of 2005, this includes about 1,339 acres of land that are currently developed, about 645 acres of lands that are potentially developable and serviceable, and approximately 788 acres of land that would not be serviceable. Lands that are considered not serviceable include about 312 acres of environmental corridors, 51 acres that are dedicated to park and open space, 151 acres dedicated as lands to be preserved and farmlands, and 274 acres of planned very low-density residential development. Map D-12B in Appendix D shows the projected extent of developed and developable land in the Village of Saukville Municipal Water Utility service area in the year 2035.

Both map and land use results are based on a GIS evaluation of SEWRPC's land use file (starting in the year 2000 and updated to reflect on ground conditions for the year 2005 based on orthophoto review), along with current (year 2009) Park and Open space inventory data, Ozaukee County Comprehensive plan data on projected land uses, and **CED's potentially developable lands file** (which identified all contiguous lands over 0.5 acres that meet the criterion for identifying developable lands). Based on this method, areas to be developed and serviced or that are currently developed and serviceable are presumed to be current as of year 2005.

City of Waukesha Water Utility

The City of Waukesha Water Utility service area is one of the nine utilities recommended under the RWSP to switch from self-supplying groundwater to supplying Lake Michigan surface water. In 2000, its service area encompassed approximately 11,243 acres; as of 2009, this had grown to about 16,242 acres, or its current municipal boundary area (see Map D-13A in Appendix D for the year 2000 service area). The City of Waukesha Water Utility provides retail service to its customers within the City of Waukesha and to small adjacent portions of the Town of Waukesha; it currently does not provide wholesale water to any other utilities.

Due to planned development under both the RLUP and its own comprehensive plan, the projected City of Waukesha Water Utility Commission service boundary municipal boundary is anticipated to grow considerably through the year 2035, and under the RWSP, this total projected service area would encompass approximately 32,209 acres. As stated in the RWSP, the recommended projected Waukesha Water Utility service area was delineated without regard to the location of municipal or corporate boundaries, but rather on the basis of the location and density of urban development (if the type or density of development warrants municipal water service), the existence or location of utility infrastructure, the location of environmentally sensitive lands, and the availability of lands considered to be suitable for urban development. Under its own land use plan, the City of Waukesha acknowledges that in order to expand its own urban development or to provide for

extension of utility for urban development in neighboring communities, it would do so by either reaching an agreement (intergovernmental agreement) with its neighbors (Towns of Delafield, Genesee, and Waukesha) or through the annexation of unincorporated lands in those towns.

Under the RWSP, it is recommended that all developable and serviceable lands within the City of Waukesha Water Utility service area boundary be served by municipal water, rather than by private wells, through the year 2035 and beyond; this would include an expansion of the entire projected service area from its current (2009) 16,242 acres to about 32,209 acres, an increase of 98 percent or 15,967 acres. Based on CED's land use evaluation, as of 2009, this includes about 16,659 acres of land that are currently developed, about 1,789 acres of lands that are potentially developable and serviceable, and approximately 13,761 acres of land that would not be considered serviceable. Lands that are considered not serviceable include about 6,490 acres of environmental corridors, 3,125 acres that are dedicated to park and open space, 2,076 acres of existing very low-density residential development, and 2,070 acres of planned very low-density residential development. Most of the 2,070 acres of planned very low-density residential acreage lies outside of current municipal borders (1,932 acres) and has been designated as planned very low-density residential use through the Waukesha County comprehensive plan; if annexed by the City of Waukesha, the planned land use designation of portions or all of these undeveloped lands could feasibly change. Map D-13B in Appendix D shows the projected extent of developed and developable land in the City of Waukesha Water Utility service area in the year 2035.

Table 5-VIII: Projected Land Uses for Developable Lands for the Existing (2009) and Projected (2035) Waukesha Water Utility Service Boundaries

Planned Land Uses Within the City of Waukesha Water Utility Service Area	Total Developable Acres within the Existing 2009 Service Area	Total Developable Acres within the Expanded Service Area Increment	Total Developable Acres within the Projected 2035 Service Area
Commercial	33	35	68
Industrial	207	35	242
Governmental and Institutional	<1	51	51
Recreational	43	0	43
Mixed Use	0	76	76
High Density Residential	31	0	31
Medium Density Residential	446	0	446
Low Density Residential	92	740	832
Total Planned Serviceable Acres	852	937	1,789

Source: Waukesha County Comprehensive Plan and CED.

In addition to evaluating the amount of developable lands available within the existing and projected service areas for the City of Waukesha Water Utility, the types of planned land uses were also evaluated based on the Waukesha County Comprehensive Plan, which **reflects planned land uses based on the City of Waukesha's Comprehensive Plan**. Table 5-VIII shows the projected land use breakouts based on the planned land use map, along with the incremental difference. Within the existing (2009) service area and municipal boundary, there are approximately 852 acres of developable land available for development that would be serviceable under both the Waukesha County Comprehensive Plan and the Regional Land Use Plan. Of this, about 446 acres are planned for medium density, 92 acres are planned for low density, and 31 acres are planned for high density residential land uses. Additionally, about 207 acres are planned for industrial, 33 acres are planned for commercial, and 43 acres are planned for recreational purposes (see Map D-13C in Appendix D). Within the expanded service area, there is an additional 937 acres available for planned serviceable development; of this, the vast majority is planned as low density residential development (740 acres), with 76 acres planned as mixed use, 51 acres planned as governmental and

institutional, and 35 acres of planned commercial and industrial lands. Map D-13D in Appendix D shows the distribution and locations of planned land uses within the existing and planned service areas for the Waukesha Water Utility.

Most of the planned development located outside of the existing (2009) corporate boundaries is planned as low density residential development (740 acres); this is typical of most of the existing land uses within the expanded service area. Technically, any change in land use is possible, if changes are made to either the City or County comprehensive land use plan, based on a local initiative. It is also unknown if a change in the delineated service areas or municipal boundaries would have an impact on the planned land uses of developable lands within either the existing or planned service areas. If industrial or commercial uses were limited to the existing 2009 service area boundary, it would eliminate a total of 70 acres of commercial and industrial development from the expanded service area increment; it is unknown, however, if any development wanting to locate within those incremental areas would need to rely on municipal water, or if such development could rely on private onsite wells. Land uses, even urban land uses, are not exclusively dependent upon municipal service areas for development, and as of 2009, there are approximately 58 acres of commercial development and 68 acres of industrial development located within the proposed incremental expansion portion of the service area.

Table 5-IX: Existing (year 2009) Land Uses Located within the Incremental Portion of the 2035 Waukesha Water Utility Service Boundaries

Existing Land Uses Within the City of Waukesha Water Utility Service Area	Developed Acres within the Incremental 2009 to 2035 Projected Service Area
Commercial	58
Industrial	68
Governmental and Institutional	74
Recreational	293
Mixed Use	25
High Density Residential	0
Medium Density Residential	59
Low Density Residential	4,113
Other (Including Transportation, Utilities)	160
Total Existing Serviceable Acres	4,850

Source: SEWRPC, Waukesha County Comprehensive Plan, and CED.

Table 5-IX shows the breakouts of land uses within the proposed incremental expansion portion of the Waukesha Water Utility service area. As of 2009, there was approximately 4,850 acres of developed and serviceable land within this portion. Most of the developed land (4,113 acres) is in low-density residential uses, potentially serviceable by municipal water. Map D-13E in Appendix D shows the developed lands within this incremental area. Based on the RWSP, it is unknown whether or not any of the developable lands within the expanded service area portion of the projected service area would be served either through the process of annexation or through an intergovernmental agreement to extend water **services into the adjacent towns. Developable acres that are adjacent to the Waukesha's** corporate or service area boundaries are more likely to be served through annexation, while developable lands further away would have to create some form of local initiative to engage in an intergovernmental agreement with Waukesha for service, wait to be annexed, or be served by private onsite wells.

Both map and land use results are based on a GIS evaluation of SEWRPC's updated land use file developed land use file for the projected 2035 Waukesha Water Utility service area (year 2009), along with current (year 2009) Park and Open space inventory data, Waukesha County Comprehensive plan data on projected land uses, **and CED's potentially developable** lands file (which identified all contiguous lands over 0.5 acres that meet the criterion for

identifying developable lands). Based on this method, areas to be developed and serviced or that are currently developed and serviceable are presumed to be current as of year 2009.

Proposed Elm Grove Service Area

The proposed Village of Elm Grove service area is one of the two utilities recommended under the RWSP for development using Lake Michigan surface water. Under the RWSP, its proposed service area would encompass approximately 2,089 acres within its 2,106 acre municipal boundary area. All current existing development within the Village of Elm Grove is served by onsite private wells. Based on existing development, the Village of Elm Grove is currently at build out conditions; Elm Grove has about 9 acres of land available for development within its current (2005) municipal boundary. Due to planned development under both the RLUP and its own comprehensive plan, the projected planned Village of Elm Grove water utility service boundary would ultimately be confined to its existing municipal boundary through the year 2035 and beyond. Sewer service in the Village of Elm Grove is provided by the MMSD, indicating that an existing return flow for this portion would continue into the future.

Under the RWSP, it is recommended that all developable and serviceable lands within the Village of Elm Grove service area/municipal boundary area be served by municipal water, rather than by private wells through the year 2035 and beyond; this would include a service **area of about 2,089 acres within its 2,106 acre municipal service boundary. Based on CED's** land use evaluation, as of 2005, this includes about 1,883 acres of land that are currently developed, about 9 acres of lands that are potentially developable and serviceable, and approximately 197 acres of land that would not be serviceable. Lands that are considered not serviceable include about 90 acres of environmental corridors and 107 acres that are dedicated to park and open space. Map D-14A in Appendix D shows the projected extent of developed and developable land within the proposed Village of Elm Grove service area in the year 2035.

Both map and land use results are based on a GIS evaluation of SEWRPC's land use file (starting in the year 2000 and updated to reflect on ground conditions for the year 2005 based on orthophoto review), along with current (year 2009) Park and Open space inventory data, Waukesha County Comprehensive plan data on projected land uses, and **CED's** potentially developable lands file (which identified all contiguous lands over 0.5 acres that meet the criterion for identifying developable lands). Based on this method, areas to be developed and serviced or that are currently developed and serviceable are presumed to be current as of year 2005.

Proposed Northwest Caledonia Service Area

The proposed Northwest Caledonia service area is one of the two utilities recommended under the RWSP for development using Lake Michigan surface water. Under the RWSP, the proposed service area would encompass approximately 324 acres within the Village of Caledonia. Currently, all existing development within this proposed area is served by onsite private wells. This small 324 acre area has been proposed for a water utility service area and under the RWSP, it is recommended that this area seek to purchase Lake Michigan surface water from the City of Oak Creek.

Under the RWSP, it is recommended that all developable and serviceable lands within the proposed Northwest Caledonia service area be served by municipal water, rather than by private wells, through the year 2035; this would include the proposed service area of about **324 acres. Based on CED's land use evaluation, as of 2005, this includes about 81 acres of** land that are currently developed, about 217 acres of lands that are potentially developable and serviceable, and approximately 25 acres of land that would not be serviceable. Lands

that are considered not serviceable include about 25 acres of environmental corridors. See Map D-15A in Appendix D shows the projected extent of developed and developable land within the proposed Northwest Caledonia service area in the year 2035.

Both map and land use results are based on a GIS evaluation of SEWRPC's land use file (starting in the year 2000 and updated to reflect on ground conditions for the year 2005 based on orthophoto review), along with current (year 2009) Park and Open space inventory data, Waukesha County Comprehensive plan data on projected land uses, and **CED's potentially developable lands file** (which identified all contiguous lands over 0.5 acres that meet the criterion for identifying developable lands). Based on this method, areas to be developed and serviced or that are currently developed and serviceable are presumed to be current as of year 2005.

Yorkville Utility District No. 1

The Yorkville Utility District No. 1 is one of the nine utilities recommended under the RWSP to switch from self-supplying groundwater to supplying Lake Michigan surface water. Currently, its service area encompasses approximately 88 acres within the Town of Yorkville (see Map D-16A in Appendix D). Under the RWSP, it is recommended that the Yorkville Utility District No. 1 abandon its current groundwater supply and purchase Lake Michigan surface water from the City of Racine.

Under the RWSP, it is recommended that all developable and serviceable lands within the Yorkville Utility District No. 1 be served by municipal water through the year 2035; this would include the proposed service area of about 809 acres, or an increase of 721 acres or **819 percent. Based on CED's land use evaluation, as of 2005, the proposed service area** contains about 390 acres of land that are currently developed, about 198 acres of lands that are potentially developable and serviceable, and approximately 220 acres of land that would not be serviceable. Lands that are considered not serviceable include about 113 acres of environmental corridors and 108 acres of land that is dedicated to park and open space. Map D-16B in Appendix D shows the projected extent of developed and developable land within the proposed Yorkville Utility District No. 1 service area in the year 2035.

Both map and land use results are based on a GIS evaluation of SEWRPC's land use file (starting in the year 2000 and updated to reflect on ground conditions for the year 2005 based on orthophoto review), along with current (year 2009) Park and Open space inventory data, **Racine County's Recommended Land Use Plan** plan data on projected land uses, and **CED's potentially developable lands file** (which identified all contiguous lands over 0.5 acres that meet the criterion for identifying developable lands). Based on this method, areas to be developed and serviced or that are currently developed and serviceable are presumed to be current as of year 2005.

ASSESSMENT OF POTENTIAL IMPACTS OF RECOMMENDATIONS

Each of the six recommendations was evaluated based on any foreseeable impacts they might have on housing and land-used patterns within the Region, and particularly in the **"selected communities"**. The key to understanding whether or not providing Lake Michigan water to communities located over the sub-continental divide will exacerbate or continue negative potential associated socio-economic impacts is identifying how the provision of water may impact development, including land uses and housing patterns.

Understanding the interaction between water supply and development requires not only the consideration of whether or not the recommendation to switch sources could have any impact on development, but also whether or not the delineations of the projected service

areas under the RWSP could have any positive or negative socio-economic impacts. Development and land use planning do not occur in a bubble, making it necessary to examine how the delineations of the projected service areas could potentially impact **development, particularly in light of local conditions, including comprehensive “smart growth” planning.**

Water and Its Impact on Development

A review of past socio-economic trends indicates that there have been significant declines in income and other growth indicators over the past 40 years in the cities of Kenosha, Milwaukee, and Racine, while growth and development has tended to favor the suburban communities. The data indicates that there are continued and growing socio-economic imbalances within the region that have had an increasingly negative impact on the larger urban core areas, particularly the Cities of Milwaukee and Racine. The question has been raised regarding land use changes within the projected service areas, whether or not any potential development within the undeveloped areas could have an impact on any socio-economic imbalances within the region.

Although the USGS and SEWRPC studies have concluded that problems with groundwater quality and quantity are not widespread but are based on isolated conditions, and that groundwater resources are not currently a constraint on development in southeastern Wisconsin, there is ongoing debate over whether or not access to Lake Michigan water is necessary to support future development in certain areas of the region. Many of the responses conveyed to CED during both focus group sessions, feedback, and SWOT analyses, indicate differing views regarding the impact that the source of water has had on development, and much of this is based on perceptions surrounding groundwater quantity and quality. Many of the perceptions are based on the quality and quantity problems associated with the deep aquifer; groundwater tends to be associated with contamination (particularly radium), and is quite often perceived as an inferior product to treated Lake Michigan water, and considered unsustainable. These perceptions have led to a continuing debate over whether or not the provision of Lake Michigan water to areas that currently rely on groundwater would lead to unconstrained development in the suburbs, to the detriment of urban core areas, particularly the City of Milwaukee.

There was a general consensus among the community participants in focus groups for this study that changing the source of water supply is the most contentious recommendation related to the RWSP. There was much concern expressed that the provision of Lake Michigan water to the purchasing communities would promote continued sprawl development, particularly in the western suburbs where it is perceived that the proposed service area expansion provides considerable room for development. Most of the responses in both the SWOT analysis, and the discussion sessions focused on issues directly related to **the City of Waukesha Water Utility’s application for a diversion, and perceived issues that could arise for the City of Milwaukee if a diversion were granted.** Within this context, there was considerable amount of concern expressed that if Milwaukee Water Works provides **water to the Waukesha Water Utility, development will occur unabated within Waukesha’s** proposed expanded service area, and that would have a continued negative socio-economic impacts on minority and low-income households that are currently concentrated within the City of Milwaukee. Assertions were made that the Regional Water Supply Plan failed to evaluate whether limiting growth to infill development would result in more regional equity.

SEWRPC has asserted that the delineated future water utility service areas were based on existing and known planned development within the expanded areas, along with specific groundwater objectives such as the well contamination areas. Infill development is the process of developing vacant or under-utilized parcels within existing urban areas that are

already largely developed (see explanation below); based on the land use analysis, the delineations of existing urban density development indicate that the majority of undeveloped lands within the projected service areas are primarily infill development. Delineating service areas that support or enable the development of infrastructure within limited areas encourages wiser land use decisions and discourages the development of open greenfield lands.

CED's land use analysis indicates that most of the land within the proposed, expanded service areas is currently developed, and although there are varying degrees of developable lands available or slated for urban or non-urban development within each of the projected utility service areas, in most cases these lands would be considered infill development. Would an alternative in which existing service area boundaries are maintained rather than expanded ("no growth scenario") have fewer negative socioeconomic impacts? To consider this question, CED examined the different types of scenarios based on the proposed service areas:

For those utilities in which the proposed water service area is smaller than their current municipal boundary (Muskego, Germantown, New Berlin)

- Under the RWSP and RLUP delineation, urban density development is limited to include all existing urban density development and their contiguous infill lands.
- It does not include any lands beyond those generalized urban density (serviceable) areas, and limits growth to those developable areas located between developed areas (infill development), and does not include, or rather discourages, any urban density development beyond the existing urban density development areas.
- For the City of Muskego and Village of Germantown, projected land uses and development patterns in light of future water supply service area expansions are unknown, although are subject to planning set forth in their respective comprehensive land use plans. Both Muskego and Germantown have stated their preference to remain on self-supplied groundwater and have not indicated whether or not they will adhere to the water service areas set forth within the RWSP.
- For the City of New Berlin, all lands within the projected water service area are under development constraints set forth within its water purchase service and intergovernmental agreements with the City of Milwaukee Water Works.

For those utilities whose proposed service areas are larger than their current municipal boundaries (Waukesha, Saukville, Cedarburg, Grafton, Port Washington, Racine, Kenosha)

- Under the RWSP and RLUP delineation, urban density development is limited to include all existing urban density development and the infill lands for the Village of Grafton Water and Wastewater Commission, Village of Saukville Municipal Water Utility, and the Waukesha Water Utility.
- For the most part, the delineated areas do not include any lands beyond those urban density (serviceable) areas. Growth is limited to those developable areas located between developed areas, and does not include (rather it dissuades) any urban density development beyond the existing urban density development areas.
- There are exceptions however, based strictly on other development or environment objectives.
 - For the Kenosha Water Utility and City of Racine Water and Wastewater Utility, there are significant undeveloped portions that would not likely be considered infill; however, these areas have been identified and delineated based on other objectives that are set forth under their respective comprehensive plans and their urban service area plans. As these communities are involved in numerous intergovernmental agreements that include the provision of services including water, it is

unlikely that future development within these areas would have any negative socio-economic impacts. Limiting development to the areas within the current water utility boundaries could actually inhibit certain positive socio-economic impacts for these communities, particularly regarding job growth, by eliminating areas for commercial or industrial development along the IH-94 corridor (see Maps D-1B and D-5B).

- For the City of Port Washington Water Utility, there are significant undeveloped portions that would not likely be considered infill in adjacent **areas located north of the city's current municipal boundary, north of IH-43**, within the Town of Port Washington.
- Similarly, the City of Cedarburg Light and Water Commission also has significant undeveloped portions that may not be considered infill in an **adjacent area located north of the city's current municipal boundary; this area**, however, was delineated based on specific environmental objectives, such as known potential water quality problems.

For those utilities whose proposed service areas match their existing municipal boundaries (Elm Grove, Brookfield, Oak Creek, Milwaukee)

- Under the RWSP and RLUP delineation, urban density development is limited to existing urban density development and the infill lands. With the exception of Oak Creek, each of these communities is at build out conditions and therefore any future development would require redevelopment.
- It does not include any lands beyond those urban density (serviceable) areas. Growth is limited to those developable areas located between developed areas, and does not include (rather it dissuades) any urban density development beyond the existing urban density development areas.

Defining "Infill Development"

Infill development is the process of developing vacant or under-utilized parcels within existing urban areas that are already largely developed. Most communities have vacant or undeveloped lands which, for various reasons, have been passed over in the normal course of urbanization or are redevelopable based on processes such as property abandonment. Developing or redeveloping infill is a goal of Smart Growth or comprehensive planning as it contributes to a more compact urban form of development which is less consumptive of land and other resources. It can and often does lead to increased mobility for those reliant on public transportation and can contribute to minimizing costly service extensions, traffic congestion, energy consumption, and environmental impacts associated with sprawl development. A successful infill development strategy focuses on the completion of the existing community fabric, or filling in gaps in the land use pattern. The RWSP does this by limiting development to those gaps in the land use pattern.

Many developers will bypass vacant or under-utilized urban areas for less expensive land **beyond community's edges, often to areas where there is no provision of municipal services.** Growth at the cities' edges, particularly beyond the reach of urban services, has come at the expense of central cities. Older buildings in core areas may be abandoned, existing utilities are underutilized and, in general, new investment has been redirected to the outlying areas. Infill development bolsters local government budgets by putting underutilized vacant land back on the tax roles. Spreading facility operation and maintenance costs among more residents and businesses ultimately will reduce costs for individual city taxpayers. By providing services to those developed urban areas, it promotes infill development within serviceable areas, rather than promoting urban density land uses without the added benefit of infrastructure.

Under the RWSP, growth is limited to the existing development as well as to primarily infill developable areas within the proposed expanded water utility service areas. The proposed expanded water utility service areas focus specifically on constraining development to areas **that have urban density development, and therefore all “developable” areas within the** proposed service areas technically are defined as infill development. These areas were delineated under the RLUP, and based on their projected densities and land, as set forth under their respective adopted comprehensive plans, should be considered serviceable by either water or sewer utilities.

Sources of Water Supply

As stated previously, there are two major water supply sources in Southeastern Wisconsin - groundwater and Lake Michigan, each with its own unique advantages and disadvantages. Although Lake Michigan water serves the majority of people, commerce, and industry in the seven County Region, growth in the outlying Counties has increased greatly over the past 50 years, and the use of groundwater as a supply source has also increased. One of the central issues of the Regional Water Supply Plan was a concern regarding the amount of high quality groundwater supply available, and whether or not it could support both existing and planned development through 2035.

The 2035 Regional Land Use plan provided the basis for establishing and delineating the planned municipal water utility service areas within the Region. Under the 2035 Regional Land Use Plan, SEWRPC recommended that most new urban development within the Region be served by municipal sanitary sewer and water supply facilities. Under the RWSP, 34 new areas of existing urban density development were evaluated based on existing and proposed land uses, existing residential housing units and densities, distance to the nearest existing municipal water supply service area, aquifer characteristics, and any known local initiative to develop municipal water supply systems (see Table IV-1 in Planning Report 52). The RWSP concluded that 23 of the 34 areas had the potential to become planned municipal water service areas, while 11 were recommended to continue to rely on private water supply systems. Of the 23 potential new service areas, 21 were recommended to utilize local groundwater supplies, and 2 were recommended to utilize Lake Michigan as the source of supply (the Village of Elm Grove, and the Northwest Caledonia Area). The RWSP includes a conditional recommendation that municipal water utilities be created in these areas if there is a demonstrated local need and if there is a local initiative to create a utility. In the absence of these two conditions, it is recommended that development within these areas utilize private groundwater wells indefinitely.

The 2035 Regional Land Use Plan identified 34 urbanized areas not currently served by municipal water. Under the RWSP, each of the 34 new planned water service areas was evaluated based on existing and proposed land uses, existing residential housing units and densities, distance to the nearest existing municipal water supply service area, aquifer characteristics, and any known local initiative to develop municipal water supply systems (see Table IV-1 in Planning Report 52). The RWSP recommended that 23 of the 34 areas become planned municipal water service areas, while 11 are recommended to continue to rely on private water supply systems. Of the 23 new systems, 21 were recommended to utilize local groundwater supplies, and 2 were recommended to utilize Lake Michigan as the source of supply (the Village of Elm Grove, and the Northwest Caledonia Area). This recommendation is contingent upon both a demonstrated local need for a utility and a local initiative to form the utility; otherwise, in the absence of these conditions, the RWSP recommends that these areas continue to utilize private wells.

Findings from the regional aquifer simulation model, set forth in SEWRPC Technical Report No. 41, ***A Regional Aquifer Simulation Model for Southeastern Wisconsin***, indicate that more

problems due to sustained pumping seem to be arising in the deep aquifer than in the shallow aquifer. Much of the deep aquifer in the Region sits below an impermeable aquitard, and based on the modeling¹¹, the recharge rates are exceptionally slow in comparison to the shallow aquifer. Also, regional groundwater pumping has affected groundwater flow patterns, shifting the location of the deep groundwater divide to the west, and potentially reversing the flow of groundwater away from the Lake Michigan Basin and toward the inland pumping centers. Groundwater problems are not limited to the deep aquifer. The groundwater modeling estimated that between 1864 (considered pre-development conditions) and the year 2000, pumping decreased the rate of discharge in the shallow groundwater to Lake Michigan, and most significantly decreased the baseflow of streams, although this reduction is partially offset by return flow from sewers.

In addition to groundwater flow and quantity issues, a few groundwater quality issues have also arisen associated with groundwater contaminants whose levels are regulated by the USEPA. Many of these contaminants are local to specific wells and efforts to protect wells from contamination are dealt with through State and local regulations regarding well siting, water treatment, or through wellhead protection efforts. A significant problem with groundwater quality has been identified at some of the municipal wells due to the high levels of naturally occurring contaminants including radium or salts in groundwater extracted from portions of the deep aquifer. Some communities are currently facing or have faced sanctions by the Wisconsin Department of Natural Resources for having a higher concentration of radium in the municipal water supply than allowed by the USEPA. The City of Waukesha has taken major steps to reduce the amount of radium in its water supply, and will need to come into compliance with the USEPA standard by the year 2018. All of the other municipal utilities in southeastern Wisconsin which had radium issues have come into full compliance by either treating the water, blending the contaminated water supply with uncontaminated water to lower the concentration to come into compliance with the USEPA standards, or by changing the aquifer source of supply (generally, by switching to the shallow aquifer).

This part of the socio-economic impact analysis focuses on assessing whether or not the RWSP recommendations regarding the source of water supply or changes to the source of water supply could have any impact on development, which in turn would have an impact on future land use or housing patterns.

Evaluation of the Impact of the Planned Utility Categories on Land Uses and Housing Patterns Based on Source of Supply

As stated in the introduction, the decision to undertake a socio-economic analysis of a regional water supply plan presumes that changing the way that water is distributed within the region may have an impact on development in the region. This proposition was investigated, based primarily on the groundwater study put forth by the USGS, as well as from input by developers and planners during the first round of focus groups. Based on the evidence, at this point, there is no decisive evidence that a switch in source, from groundwater to Lake Michigan coupled with the delineated projected water service areas set forth under the RWSP, will have a significant impact on development, and therefore on population or job growth patterns, low-income households, or housing and land use patterns between now and the year 2035. The data suggest that the provision of Lake Michigan water to suburban communities is not necessary to support projected development patterns since existing groundwater sources of water, if used wisely, are sufficiently plentiful and contamination-free to support the projected development within the proposed areas.

¹¹ Technical Report 47, *Groundwater Recharge in Southeastern Wisconsin Estimated by a GIS-based Water-Balance Model*.

The groundwater¹² and aquifer¹³ studies developed as part of the Regional Water Supply Planning process by SEWRPC, the WGNHS, the USGS, the DNR, University of Wisconsin – Milwaukee and other Wisconsin groundwater experts provide the latest, most thorough examination of the groundwater supply in southeastern Wisconsin. A review of these studies indicates that while withdrawals from the shallow and deep aquifers have, over time, changed the groundwater flow system, many of the problems or perceptions regarding groundwater quality or quantity are associated with withdrawal from the deep aquifer, rather than the groundwater system as a whole. Based on the scientific evidence developed by the WGNHS, it appears as though existing sources of groundwater supply, ***if properly managed***, would be sufficient to support development through 2035, ***assuming that existing land use plans do not change***.

In addition to the 23 potential utility service areas, the 78 existing utilities were evaluated based on information provided by the local water utilities and the PSC. The service area delineations contained in the Regional Land Use Plan were generalized, systems-level delineations, intended to be refined and detailed under subregional and local land use utility planning. In the RWSP, the delineations of the future water service areas were further refined based on proposed land use development type and density, the relationship to existing water supply service areas, the shallow groundwater aquifer characteristics, and anticipated water service needs as discussed in known local plans.

Of the 78 existing utilities, it was recommended that 27 remain on Lake Michigan supply, 42 utilities remain on groundwater supply, 9 utilities were recommended to be converted from groundwater to Lake Michigan as the source of supply, and 2 new utilities were proposed to utilize Lake Michigan water.

Existing Utilities to Remain on Current Supply

For the 27 existing utilities recommended to remain on Lake Michigan supply, and the 42 existing utilities to remain on groundwater supply, it is not anticipated that the recommendations to remain on the current source of supply will have a significant impact on land use or housing patterns through 2035. It has been determined under the RWSP that each of these communities has a reliable, sustainable water supply that can support existing and planned development within their delineated water service boundaries through 2035.

Although there are some exceptions, most new development within an urban service area is required under local ordinance to provide municipal water service, as most local subdivision ordinances within urban service areas mandate the provision of municipal water. For existing developments that join onto the system, the impact fee is paid for by the property owner and generally covers the costs to hook up to the system (the lateral) as well as a portion of the additional mains. It is these potential customers who reside within any of the proposed expanded water supply service areas (those that rely on private wells) that pose a unique situation for each utility. Undoubtedly, there will be some resistance on the part of many homeowners to impact fees, and being located within an urban service area does not necessarily require existing homeowners to join the utility system. Generally, the connection of existing development to a municipal utility is carried out, at least in part, due to a locally **identified need for municipal service and often is based upon a survey of property owner's preferences.**

¹² ***Technical Report No. 37, Groundwater Resources of Southeastern Wisconsin***, prepared by SEWRPC and WGNHS.

¹³ ***Technical Report No. 41, A Regional Aquifer Simulation Model for Southeastern Wisconsin***, prepared by SEWRPC, USGS, WGNHS, DNR, UWM, and Participating Water Utilities in Southeastern Wisconsin.

Existing Utilities to Change Source of Supply

Nine utilities are recommended for conversion from groundwater to Lake Michigan as source of supply. **Within the RWSP's preferred alternative, part of the decision to** switch the nine selected utilities was based on a number of factors including favorable environmental impacts to aid in the recovery of the deep aquifer, to improve or maintain baseflows to surface waters, or to reduce chloride discharges to streams, and the ability to preserve groundwater for other uses. Additionally, for five¹⁴ of the nine utilities, another factor was considered; the opportunity to take advantage of the Milwaukee Water Work's excess capacity. This would result in economies of scale by spreading production costs over a wider base of customers, providing associated fiscal benefits for Milwaukee residents. Ultimately, this recommendation to change the source of supply for nine of the utilities presumes the development of both a water purchase agreement and an intergovernmental cooperative agreement between purchasing and potential providing utilities.

Under a typical purchase agreement, customers within the purchasing utility would have to pay for the costs of the distribution infrastructure, including the costs to hook onto the Lake Michigan system; these costs would be included in new rates developed by each of the receiving utilities to equitably disperse any additional costs among consumers. Wholesale rate structures developed by the providing utility would have to take into account the addition of each utility and its potential impact on its own system. Under any purchase agreement, both the receiving and providing community would have to be in agreement regarding the proposed delineated service area along with the amount of water that would be provided. Any new users within the proposed service areas would be subject to an impact fee to hook onto the existing system, and would have to be factored into the rate structures for both the receiving and providing utilities. Additionally, as each of these would require a new purchase agreement, any upfront fees negotiated through an intergovernmental agreement **would also be distributed among the receiving utility's** consumers within their rate structures.

The development of both a water purchase agreement and an intergovernmental cooperative agreement between purchasing and potential providing utilities offers an opportunity for communities to engage in negotiations—over services, monies, or other considerations—and to offset any potential negative socio-economic impacts, real or perceived, that might exist between the communities.

New Utilities

For the 21 potential new utilities to utilize groundwater supply and the 2 new utilities to utilize Lake Michigan supply, it is unlikely that the delineations created under the RWSP would have a significant impact on land uses or housing patterns within the region through 2035. The delineations of the newly proposed utilities were based either upon areas of existing urban development that most likely could be served by municipal water utilities, or on areas in which there are certain environmental considerations that would need to be addressed. In all cases, the development of a new utility to serve areas of existing development would only occur if a local need and initiative were in place.

Of the two new utilities proposed to utilize Lake Michigan supply, development in both would likely be constrained by a water purchase service agreement and an intergovernmental cooperation agreement. The new water utility proposed for the Northwest Caledonia area is

¹⁴ The proposed existing utilities that would most likely rely on purchasing wholesale water from Milwaukee Water Works include the City of Brookfield Municipal Water Utility (limited to portion east of the subcontinental divide), Village of Germantown Water Utility, City of Muskego Public Water Utility, City of New Berlin Water Utility, and the City of Waukesha Water Utility.

based strictly on environmental considerations. Although this area has significant lands that could be developed, given the size of the projected service area, it is unlikely that creation of a new utility would have a significant socio-economic impact on development within the region. Additionally, the Village of Elm Grove has almost no land available for development (approximately 9 acres), making it unlikely that the development of a new utility would have an impact on land uses and housing patterns through 2035.

Water Conservation Programming

Unlike other parts of the country, where water plays a significant role in determining land use patterns, development on either side of the subcontinental divide in recent years has not been hampered by a lack of access to water. The status of Southeastern Wisconsin as a relatively water-rich area is, however, changing, and the RWSP recommends that measures be taken to conserve water as a resource and to improve the system transmission of water.

A water conservation program is identified as a combination of practices, procedures, policies and technologies to reduce the amount of water used or to improve or maintain water utility system efficiency. The recommendations regarding water conservation programming in the RWSP are two-fold in their design; first, they were developed to increase water system efficiency which reduces the amount of water pumped to meet customer demands, and second, to reduce the amount of water used by customers. The RWSP includes a range of recommendations for water conservation programming, depending on the infrastructure needs of each water utility and the source of supply as shown in Table IV-9 in Planning Report 52.

Additionally, in order to preserve and protect freshwater within the Great Lakes basin, the newly adopted Great Lakes Compact sets forth requirements and standards for communities that wish to utilize Great Lakes water through a diversion. Under the Compact, each state must design its own in-basin conservation programming which must be consistent with agreed-upon regional objectives. Wisconsin finalized its objectives in December 2008, and the Wisconsin Department of Natural Resources is currently developing the specific **quantitative standards upon which the program's conservation requirements will be based.**

Water conservation measures, at any level, are designed to improve the use of supply and maintain the sustainability of sources of water supply for all water consumers. It is likely that water conservation measures implemented at the local level would encourage customers to reduce their water use; this could lead to changes in lawn watering or landscaping practices. It is unlikely that water conservation measures would have a significant impact on land use or housing patterns, and there is no reliable method to draw a linkage between the implementation of water conservation measures at any level and the overall impact on land uses and household patterns.

Recharge Area Protection

Protecting groundwater recharge areas is considered essential for ensuring an abundant and safe groundwater supply. As part of the planning process, the WGNHS developed a method to delineate groundwater recharge areas based on capacity to recharge or discharge groundwater using GIS. The results are published in Technical Report No. 47, ***Groundwater Recharge in Southeastern Wisconsin Estimated by a GIS-Based Water Balance Model.***

Currently, there are no regulatory constraints, at either the state, county or local levels, regarding development in (high or very high) groundwater recharge areas. The RWSP recommends that important groundwater recharge and discharge areas should be identified for preservation or for application of land development plans and practices that protect groundwater quality and maintain the natural surface and groundwater hydrology. It does

not, however, give further instruction as to specify any new regulatory constraints, and as SEWRPC is an advisory body, it does not hold the authority to create or enforce new regulatory constraints.

Based on a lack of regulatory constraints and a lack of formally delineated recharge areas, there is no credible method to draw a linkage between the implementation of the recharge area protection recommendation and the potential for having an impact on various land uses in the Region. The recharge areas, by their nature, are typically undevelopable or undeveloped open space lands, or lands within the delineated environmental corridors that SEWRPC recommends not be developed. As such, there should be no significant impact on existing land uses or housing patterns.

Stormwater Management Practices

Similar to groundwater recharge, stormwater management practices encourage groundwater treatment and infiltration (recharge) in order to best maintain the natural hydrology between surface waters and groundwaters, and therefore, to contribute to a sustainable groundwater supply. The RWSP recommends following stormwater best management practices related to infiltration and recharge for all new residential and for selected nonresidential developments.

Regulations regarding stormwater management and its related land management practices are set forth by the State of Wisconsin in NR Chapters 151-155, NR 216, NR 243, and ATCP 50 of the Wisconsin Administrative Code, and administered at the County or local level through various zoning ordinances. Stormwater management practices are generally considered to be safeguards to ensure a safe, abundant groundwater supply, and although unlikely to have an impact on population or job patterns, state-of-the-art stormwater management practices may require restrictions on specific types of land uses.

Based on the RWSP recommendation to follow best management practices related to stormwater infiltration and recharge for all new development, the implementation of the stormwater management practices recommendation most likely would have a positive impact on land uses or household patterns in the Region. This recommendation also provides an opportunity to study the impacts that various stormwater infiltration and recharge practices may have on various land uses (different types and densities) and housing patterns, and in turn can help to further direct land use planning.

High Capacity Well Siting Procedure Changes

Currently, the Wisconsin Department of Natural Resources regulations require a permit application for all new high capacity wells. The DNR review includes the potential impact of the well on nearby municipal wells and adjacent surface waters among other things. The RWSP provides guidance regarding the siting of all new high capacity wells and for monitoring the impacts that such wells may have on the shallow aquifer. The RWSP recommendations for improving high capacity well regulations are based on improving methods to safeguard the quantity and quality of the groundwater supply, and for insuring that groundwater extraction will not have a negative impact on nearby surface waters through baseflow depletion.

This recommendation implies adoption of regulations incorporating well siting procedures, and development of such regulations should take into consideration any potential impacts on existing housing or land use patterns. Additionally, the RWSP recommendation to improve high-capacity well siting methods and regulations provides an opportunity to study the impacts that high-capacity well siting can have on various land uses (different types and densities) and on housing patterns. This in turn can provide greater insight into the impacts

that high-capacity groundwater pumpage can have on local land uses and conditions within southeastern Wisconsin, and can help to further direct land use planning.

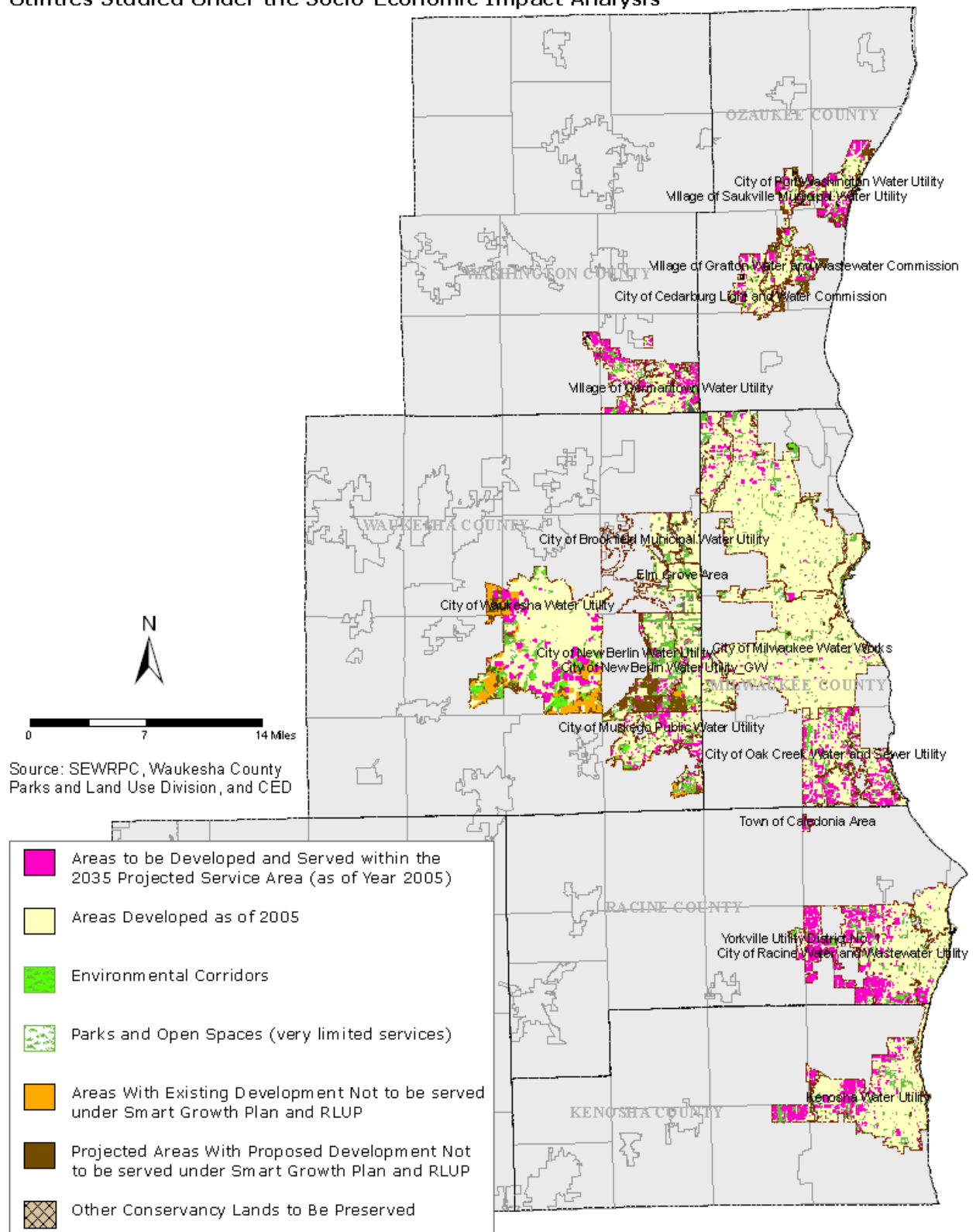
Enhanced Rainfall Infiltrations Systems

Enhanced rainfall infiltration systems are artificial methods to recharge groundwater. The RWSP recommends the use of enhanced rainfall infiltration systems in conjunction with the siting of shallow aquifer high capacity wells, if siting studies indicate that baseflow reductions to nearby surface waters could be materially affected.

The determination to use enhanced rainfall infiltration systems is based on local conditions, and the appropriate type of groundwater recharge infiltration system would need to be determined on a site specific basis. Because the enhanced rainfall infiltration systems typically involve open space areas, there should be no significant impact on land use or housing patterns in the Region.

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Map 5-I: Development within the 2035 Projected Service Areas for Utilities Studied Under the Socio-Economic Impact Analysis



Chapter 6

Public Participation and Environmental Justice

INTRODUCTION

Public participation plays a vital and necessary role in planning and policy making¹. It ensures governmental transparency, encourages collaborative decision-making, promotes ownership of the plan or policy, and can help to ensure the successful implementation of recommendations or policy changes. When citizens are engaged and contributing to the planning process, they become full participants in the process, rather than waiting to see what programs and services they will receive for their tax dollars.

When applied to public participation, the principles of Environmental Justice are designed to ensure that the voices of those who could potentially be most impacted by policies or plans are fully engaged in the planning process.

This chapter presents information regarding public participation and its significance in the planning process for the socio-economic impact analysis and provides an assessment of the public participation component of the Regional Water Supply Plan and how the planning process for the RWSP relates to environmental justice issues.

PUBLIC PARTICIPATION AND OUTREACH FOR THE SOCIO-ECONOMIC IMPACT ANALYSIS

This socio-economic impact analysis was designed with two interrelated components. The first component included gathering and presenting data on historic, existing, and projected conditions. The second major component, typical of a socio-economic impact analysis, is public participation and input to provide additional opportunities to address concerns of specific populations, namely ethnic/minority, disabled, and low-income populations and those who advocate on their behalf. Assessing community perceptions about regional development is most difficult when portions of that community may not be engaged in the planning process. Planners need to find a way to directly engage those whose lives and communities could ostensibly be impacted by planning decisions at all levels, particularly in minority and low-income communities.

The public outreach portion of the project included obtaining and evaluating public input on the preferred alternative of the preliminary draft RWSP. For this part of the project, CED worked with Prism Technical Management & Marketing Services to obtain input from a cross **section of the region's stakeholders (including developers and community leaders)**, with a particular emphasis on low income, minority, and disabled/aging populations and the persons that represent such populations, in order to gain useful feedback. SEWRPC staff members provided additional assistance and input specifically in developing a message regarding the preferred alternative of the RWSP and conveying that message. Seven small focus groups and four public open house events were conducted to gather input from stakeholders and the public. The small focus groups were divided into two rounds or sessions. The first session focused on gaining feedback about the impact that water has on

¹ More information on public participation and planning from the UW-Extension is available online at <http://www.uwsp.edu/cnr/landcenter/Publications/PublicParticipation.pdf>

development. The second session focused on potential socio-economic impacts that the recommendations could have on populations within the region, particularly on low-income populations, impacts on racial segregation, and on job distribution patterns.

Both sets of focus groups were developed to gain additional input in order to aid in informing CED about the concerns and items for consideration during the socio-economic impact analysis of each of the recommendations. For each of the focus groups, background information on each of the six plan recommendations was provided to participants prior to and during each of the focus group sessions. Additionally, background information regarding the socio-economic impact analysis was also provided, including preliminary results from the quantitative analyses, including historic trends and projections on population and job growth and low-income households, and information regarding the scope and purpose of the socio-economic impact analysis. Techniques to gain public feedback included question and answer sessions, brainstorming, a SWOT analysis at one of the small focus group events, public comment cards, and a webpage for public feedback. In addition, development of a newsletter and advertising on radio, newspaper, and other available media was used to publicize upcoming input/outreach events and to convey information regarding the RWSP and the outcomes of the quantitative analysis. An extensive list of potential participants was compiled by Prism Technical Management & Marketing Services, LLC, CED, and SEWRPC, focusing specifically on developers, planners, water utility and public works managers, community leaders and representatives of community organizations including those that work with low-income, minority, or other disadvantaged groups, politicians, and local and regional environmental leaders. Additionally, bloggers posted the dates and times of the focus group events, and several people not affiliated with any specific group but interested in the topic participated.

The dates, times, and locations of the first round of focus groups were the following:

- December 9th, 1:30pm at the University of Wisconsin- Milwaukee, in the City of Milwaukee (9 participants)
- December 16th, 2:30pm at the Waukesha County Administration Building (5 participants)
- December 17th, 1:30pm at the University of Wisconsin- Milwaukee, in the City of Milwaukee (13 participants)
- January 7th, 9:00am at the Waukesha County Administration Building (2 participants)

The dates, times, and locations of the second round of focus groups were the following:

- February 8th, 1:30pm Waukesha County Administration Building in the City of Waukesha (2 participants)
- February 10th, 4:30pm Milwaukee Public Library - Washington Park Branch in the City of Milwaukee (17 participants)
- February 11th, 1:30pm at the University of Wisconsin- Milwaukee, in the City of Milwaukee (11 participants)

Focus Groups

First Round of Focus Groups: How does Water Impact the Development Process?

The first round of focus groups was directed at addressing the issue of how water impacts development, and whether or not the method or manner in which water is distributed acts as a constraint on development. The decision to undertake a socio-economic analysis of a regional water supply plan presumes that changing the way that water is distributed within the region may have an impact on development in the region. This indicates that there is an underlying need to understand how water and the distribution of water impacts

development and the development process. As part of the socio-economic impact analysis, CED designed the first round of focus groups to specifically address this issue. The key stakeholders invited to participate in the first round of focus groups were developers, builders, planners, and utility managers, particularly those involved with projects or representatives of the 14 selected communities.

CED hosted four focus groups with a total of 29 participants. The structure of this set of focus groups was primarily a roundtable discussion, in which background information was provided on each of the RWSP plan recommendations, and CED structured the discussion for participants and respondents to provide information and feedback relative to the impact of water supply on development. Although the roundtable discussions were designed to promote an atmosphere in which participants could freely discuss issues surrounding impacts of water on development in southeastern Wisconsin, CED developed a set of questions as a springboard to help guide the discussion among participants. Examples of the questions posed to participants and key findings from this set of focus groups include the following:

- What role does water play in your decision-making process (particularly in the development process)?
- Do you foresee either source of municipal water supply (groundwater or Lake Michigan) as a potential constraint to development? Would a switch from municipal groundwater to Lake Michigan water have any impact on the type or density of development allowed or the locations your company would choose to develop?
- Is a lack of access to a municipal water source a constraint on development, particularly on the type or density of development allowed?
- Do you anticipate additional costs (i.e. construction costs or impact fees) if there is a switch from groundwater to Lake Michigan water? Are there financial benefits or costs to developing in areas accessible to specific types of water supplies (Lake Michigan vs. municipal groundwater vs. private groundwater)?
- Has the presence of radium or other contaminants in groundwater had an impact on development?

Based on the focus group discussions and responses conveyed to CED during the first round of focus groups, there does appear to be some consensus regarding the impact that the source of water could have on development, that the source of supply within a municipal service area is not a differentiating factor. The only exception to this view was related to perceptions surrounding groundwater quantity and quality. Many of the perceptions regarding groundwater quality and quantity are based on the problems associated with the deep aquifer, and therefore all groundwater tends to be associated with contamination (particularly radium). Groundwater utility managers felt that the problems associated with radium have been somewhat exaggerated (in the media) as radium tends to affect wells only in localized areas, not necessarily across an entire water utility system.

Generally, planners and utility managers did not view the source of supply as a potential constraint on development. Rather than the source of supply, it is the costs associated with providing water infrastructure that generally have an impact on the development process. Planners and utility managers need to weigh the costs of providing new infrastructure against the gains of development, to ensure that the existing population is not negatively impacted by the costs. Ultimately, it was recognized that this need to protect existing users helped to ensure higher densities in new development. And although water infrastructure is considered in the development process, most planners and utility managers agree that water provision is just one of many issues that need to be considered when determining development, and that other issues including overall impact of the development on the tax

base and other infrastructure needs (particularly sewer) play a more important role in the planning and development process.

The potential for economic competition between water-providing and water-purchasing communities was raised by a few people as a potential issue. Planners and utility managers from the Lake Michigan utility service areas (provider utilities) believed the provision of wholesale Lake Michigan water to developed utility service areas would not have a significant economic impact in either loss of industry or movement of people. The issue was raised related to the provision to undeveloped areas, either stand-alone or within existing groundwater utilities as something that could have an impact on their ability to compete for development and businesses. Why provide a competing community with a resource that could potentially give them an economic edge? Representatives of Lake Michigan providers tended to agree that the provision of water to other utilities would have to be weighed against any potential economic or development benefits to the system and existing utility customers.

Political problems between municipalities were identified as another source of conflict. Some participants pointed out that historic animosities and a perceived and real lack of regional cooperation between southeastern Wisconsin communities, particularly between the City of Milwaukee and the suburbs, played a significant role in making the issue of the source of water critical to the development process. Some of the participants representing groundwater interests were concerned that recent actions by the Cities of Milwaukee and forthcoming rulings by the PSC might lead to the commoditization of water which could potentially have a significant impact on development; other utility experts disagreed, deferring to past PSC rulings. Although this issue sparked discussion, it was agreed that in the future there will be new regulatory issues regarding water, in light of the recently adopted Great Lakes Compact and any potential changes in regulation by the USEPA, PSC, or DNR that will have an impact on how water is procured and distributed.

Planners and utility managers representing groundwater-reliant communities supported the conclusions reached by the USGS in the groundwater modeling study, that overall groundwater sources have not proven to be a constraint on development, and that it is the provision of public utilities, including sewer and water services, not the source, that helps drive the development, density, and land use patterns. The decision to switch from a groundwater to surface water supply would have to include a measure of the costs surrounding any differences between Lake Michigan and groundwater supplies; a water utility manager who has worked for both Lake Michigan and groundwater supply utilities pointed out that the costs associated with procuring and treating groundwater resources tend to offset the costs associated with Lake Michigan water treatment. Additionally, the decision to switch from groundwater to surface water would have to be weighed against a preference to maintain control over the source of supply, and to maintain control over the costs associated with the water rates. Why enter into a purchase agreement to procure water from a second party that controls the rates, when the community has the ability to self-supply? Groundwater utilities would have to weigh the costs associated with resolving any quantity or quality problems within the utility system, either by installing infrastructure to improve groundwater quality, improving treatment techniques, or by switching aquifer sources, against the costs to procure and purchase a Lake Michigan source of supply. Based on decisions regarding the impact of costs to the utilities and communities, two of the selected utilities (Village of Germantown Water Utility and the City of Muskego Public Water Utility) have, at this time, indicated a preference to remain on groundwater rather than follow the recommendation to switch to Lake Michigan water. The Village of Germantown, under an order from the DNR to lower radium content, invested significantly in infrastructure to treat the problem; for the foreseeable future, it does not recommend

switching sources, but acknowledges that future conditions or needs may reverse this decision. The City of Waukesha Water Utility has undertaken an analysis to measure the costs of procuring a Lake Michigan source over the costs to lower their radium content while providing for a future supply; their analysis concluded that a Lake Michigan source would be, over the long term, a better, more financially sound choice².

Planners and developers pointed out that the development process can be very complicated; besides access to water (either municipal or private well) and sewer or onsite system, other localized physiographic factors such as soil conditions or topography can play a much bigger role in constraining development and often dictate land use patterns. Although access to water is something that each developer must take into account, developers did not view source of supply either within or outside of municipal water service areas as having a significant impact on the development process, unless under exceptional or localized conditions. Participating developers clearly favored developing within municipal service areas over developing in areas with private wells. Developers weigh the costs and benefits of providing water in any form, be it onsite private well water or through a municipal utility, but the costs have to fit within the overall development plan. Besides water, there are many different variables that developers must weigh while planning for a residential development including the price of land as well as the provision of other services, particularly sewer and roads. Although there are exceptions, it is generally thought that the costs to provide either sewer or road infrastructure can be considerably more expensive than the costs to provide water. Development within utility service areas or with access to municipal services (water and sewer) is considered preferable to development in areas without existing services.

The developers participating in focus groups expressed the view that the source of water would not have an impact on development, whether lake water or groundwater, and that the critical element was municipally-provided water and the ease of which the developer can tap into the existing infrastructure. Developers were also asked whether or not a lack of access to a municipal water source posed a constraint on development, particularly on the type or density of development allowed; answers were mixed but this was more or less attributed to differences in subdivision regulations or other localized zoning requirements regarding the distribution of water which often act as a constraint on development. For development outside of the existing utility service areas, developers agreed that the costs and considerations associated with developing either private septic systems (Private-Onsite-Waste-Treatment Systems or POWTS) or providing the infrastructure to connect to nearby sewer lines was considerably more important to the development process than access to water.

Second Round of Focus Groups: How Will the RWSP Recommendations Impact Low-Income, Minority, and Disabled Populations?

The second round of focus groups was directed at identifying and addressing how each of the recommendations in the RWSP could potentially impact low-income, minority, and disabled populations. As part of the socio-economic impact analysis, CED needed to gather input from the public to determine if the recommendations set forth under the preliminary RWSP could have any negative or positive impacts on people within the seven county Region. The key stakeholders invited to participate in the second round of focus groups were community advocates and leaders, environmental advocates, and politicians,

² Waukesha Water Utility presentation on Preliminary Draft of Great Lakes Application, October 12th, 2009. Accessible online at www.ci.waukesha.wi.us/c/document_library/get_file?folderId=42481&name=DLFE-7501.pdf

specifically those involved with projects or representatives of the 14 selected communities given emphasis in the socioeconomic analysis.

CED hosted three focus groups with a total of 31 participants. In order to gain meaningful feedback during the second round of focus groups, CED structured the discussion to provide information on the recommendations and allow participants and respondents to provide feedback within the context of a roundtable discussion. Similar to the first round of focus groups, participants were provided with background information on each of the RWSP plan recommendations, along with relevant information on the socio-economic impact analysis, including current trends and projections. Participants were encouraged to both ask questions about the results of the plan, and then provided a discussion forum to identify possible socio-economic impacts that may arise due to any of the recommendations. Additionally, during the second focus group session, participants contributed to the development of a SWOT analysis. A SWOT analysis is a form of guided brainstorming that allows participants to focus on identifying **S**trengths, **W**eaknesses, **O**pportunities, and **T**hreats that may arise from any of the recommendations or be an unforeseen consequence of any of the recommendations set forth.

- **S**trengths: attributes of the plan or recommendations that are helpful to achieving plan objectives.
- **W**eaknesses: attributes of the plan that are harmful to achieving plan objectives.
- **O**pportunities: external conditions that are helpful to achieving plan objectives.
- **T**hreats: external conditions which could do damage to plan objectives.

The SWOT summary is shown on at end of this chapter.

Based on the results of the second set of focus groups, there was a general consensus among the community participants that changing the source of water supply is the most contentious recommendation related to the RWSP.

The results of the roundtable discussions, SWOT, and other feedback indicate that eight clusters of issues were identified. These include four clusters identified as the basis of the socio-economic impact analysis; job growth and migration, racial segregation, financial impacts on low-income persons, and urban sprawl and controlling development. Four additional cluster areas were identified through this process; these include the Great Lakes Compact and diversion issues, regional cooperation, return flow issues, and groundwater infiltration and quantity issues.

Job Growth and Migration

Participants expressed concerns that the sale of Lake Michigan water to outlying communities would spur job and population growth in the western suburbs, to the detriment of the City of Milwaukee. Both job and population patterns, trends, and projections are evaluated in light of the RWSP recommendations as part of a fundamental step in evaluating a socio-economic impact analysis. Comments and concerns regarding population growth and job growth have been incorporated into the evaluation within Chapters 2 and 3, respectively.

Racial Segregation

Concern was raised that the recommendation to provide Lake Michigan water to the Waukesha Water Utility will continue to contribute to long-term segregation patterns in the region, to the detriment of the City of Milwaukee. Population and segregation patterns are evaluated in light of the RWSP recommendations as part of a fundamental step in evaluating

a socio-economic impact analysis. Comments and concerns regarding racial segregation have been incorporated into the evaluation within Chapter 2.

Financial Impacts on Low-Income Households

Similar to job and population growth, participants expressed concerns that the sale of Lake Michigan water would spur growth in the western suburbs, to the detriment of the City of Milwaukee. The financial impacts on low-income households are evaluated in light of the RWSP recommendations as part of a fundamental step in evaluating a socio-economic impact analysis. Comments and concerns regarding the financial impacts on low-income households have been incorporated into the evaluation within Chapter 4.

Urban Sprawl and Controlling Development

There was much concern expressed that the provision of Lake Michigan water to the purchasing communities would promote continued sprawl development, particularly in the western suburbs where it is perceived that the growth and development within these areas has been to the detriment of the socio-economic welfare of the City of Milwaukee. In particular, concerns were directed within the context of the expanded service area that SEWRPC recommended for the Waukesha Water Utility. A considerable amount of concern was expressed that if Milwaukee Water Works provides water to the Waukesha Water Utility, **development will occur unabated within Waukesha's proposed expanded service area**, and that would have a continued negative socio-economic impacts on minority and low-income households that are currently concentrated within the City of Milwaukee. It has been perceived that the proposed service area expansion provides considerable room for development which could inevitably widen the already existing socio-economic imbalances between both jobs and people. Most of the responses in both the SWOT analysis, and the **discussion sessions focused on issues directly related to the City of Waukesha Water Utility's** application for a diversion, and perceived issues that could arise for the City of Milwaukee if a diversion were granted.

Within the discussions and feedback, concern was expressed regarding the perceived **inability or unwillingness of SEWRPC and other elected officials to stop "sprawl"** development. Questions and concerns included **'Why didn't the communities with known water problems stop growing until they had resolved their water problems?'** and **'Why didn't SEWRPC recommend that the communities with known water problems stop growing?'**. Again, most of this was directed towards **Milwaukee's western suburbs**, and it is perceived that the growth and development within these areas has been to the detriment of the socio-economic welfare of the City of Milwaukee. Comments were submitted to CED through e-mails and the website regarding the role of SEWRPC within the region, most commonly that SEWRPC is an organization that serves the entire Southeastern Wisconsin region, but there is such an emphasis on planning activities and development in the outlying areas that it seems to deemphasize or neglect the needs of the people in Milwaukee.

Throughout this process, most of the concerns surrounding land use and development were directed toward the expanded service area that SEWRPC recommended for the Waukesha Water Utility. It has been perceived that the proposed service area provides considerable **room for growth or rather "sprawl"**. **Comments and concerns regarding land use and development** have been incorporated into the evaluation within Chapter 5.

Great Lakes Compact and Diversion Issues

Significant concern was expressed over the legal aspects and constraints related to one of the recommendations, specifically the Waukesha Water Utility diversion. Concern was expressed that the Great Lakes Compact should be the starting point in the discussion of

the proposed diversions, and that any recommendation concerning the diversions should have been made under the narrowest interpretation. The narrowest interpretation of the Compact requires the demonstration of a water-**needs “emergency” or “crisis” for diversion**, but the findings of the RWSP indicate that there is no eminent or dire need or crisis. Concern was also expressed regarding legal aspects specific to the Great Lakes Compact, in **light of the current State regulations as well as Waukesha’s diversion** application. The Wisconsin DNR has yet to codify regulations that would provide guidance for a diversion. The proposed Waukesha diversion will set a precedent, as it will draw water out of the basin; how will the lack of regulatory codes, much less a lack of legislation impact this diversion?

Currently in Wisconsin, any legal constraints under the Great Lakes Compact, Federal and State laws for a diversion will depend on how the law is interpreted. In the case of Waukesha, it does not have to be a crisis per se, but Waukesha does have to demonstrate that it has no other reasonable alternative as defined under Act 227 and Section 281.346(1)³ of the Wisconsin Statutes. As this has yet to be tested, the interpretation of any diversion application is currently unknown. At this point, the Wisconsin DNR has not yet provided guidance for legislation regarding State diversions under the Great Lakes Compact, and without guidance or legislation, interpretation of the law remains unclear. The Waukesha Water Utility diversion could potentially be the first **“test” of the Great Lakes Compact** for a community within a straddling county; it is unknown if they will be able to prove their case. The Great Lakes Compact is shown in Appendix E.

Regional Cooperation

The historic lack of regional cooperation between the suburbs (particularly between those communities proposed for diversion) and the City of Milwaukee is viewed as a weakness for implementing the plan recommendation. Participants pointed out that policy decisions (particularly those surrounding housing, jobs, and transit) made by the suburbs have often been to the detriment of City of Milwaukee which has borne the brunt of concentrated poverty and low-income populations, while a lack of transit access to jobs in the suburbs or low-income housing opportunities has ensured that low-income, transit-dependent populations are limited in their ability to participate in most of the suburban job growth.

Participants recognized that water is a way for the City of Milwaukee to leverage regional **cooperation in order to help resolve some of the city’s pressing socio-economic problems**, particularly transportation, housing, and jobs. This is an opportunity for Milwaukee to gain some concessions from Waukesha and to allow a door to be opened toward regional **cooperation for solving some of the region’s most pressing socio-economic problems**. The concept of tax-based sharing was also identified as a way to develop or facilitate an agreement for water provision that would benefit the provider community. Tax-based sharing is another alternative to intergovernmental agreements, for the provision of water and would go along with the water service purchase agreement. This concept supports the resolution passed by the City of Milwaukee Common Council that if Milwaukee were to sell water to Waukesha, Waukesha would need to participate in contributions to an entire

³ Under **Section 281.346(1) “Reasonable water supply alternative”** is defined as **“a water supply alternative that is similar in cost to, and as environmentally sustainable and protective of public health as, the proposed or increased diversion and that does not have greater adverse environmental impacts than the proposed or increased diversion.”**

variety of public services such as transportation, affordable housing, job development, and environmental protection.

A comment was made regarding a problem that the recommendations do not take into account the importance of prior regional cooperation or cooperative efforts between potential provider and purchasing communities. For example, the lack of prior negotiation or cooperation between the City of Waukesha and the City of Milwaukee is perceived as a potential obstacle to any water negotiation. For example, the provider City of Milwaukee Water Works has had a long-term relationship with New Berlin as a purchaser when it negotiated for its diversion – and it still faced considerable scrutiny. Between the Cities of Milwaukee and Waukesha, this would be a first-time negotiation, without precedence or prior relationship.

Return Flow

Concerns were raised regarding the return flow of spent or treated effluent water, the quality of water surrounding the return flow, and potential impacts that the return flow may have on the environment was expressed. Under the Great Lakes Compact, all water taken out of the Great Lakes basins must be returned in as good if not better condition or quality. Participants questioned the quality of the return flow (as proposed by the Waukesha Water Utility diversion), as well as its potential to cause erosion if it is to be dumped into an existing stream.

Return flow issues fall under the realm of SEWRPC's Regional Water Quality Management Program, DNR regulations, and in many cases in SE WI, MMSD programming. The RWSP sets forth system level analyses of four different options for return flow, and notes the need for a more detailed evaluation of the return flow options at the preliminary engineering and planning level associated with plan implementation and the diversion application. Therefore all specific return flow issues, including legal constraints, financial impacts, and environmental concerns would have to be addressed if any recommendations regarding provision of Lake Michigan water are implemented, but just not under the RWSP. To do so prior to either a granted diversion or a negotiation between provider and accepting communities would be premature, as well as extremely costly.

Groundwater Infiltration and Quantity Issues

Concerns and comments were made regarding the impact on groundwater quantity and infiltration. From the plan and the studies, it seems that switching some of the communities within the Lake Michigan basin from groundwater to Lake Michigan water along with protecting recharge areas would provide some environmental benefits to both the ground and surface waters, including slowing or stopping the reversal of groundwater flow away from the Lake Michigan basin. Several participants raised concerns that this plan only goes to the year 2035 and argued that instead, the planning efforts should be extended out to 50 or 100 years. Additionally, it was noted that the recommendation for the enhanced rainfall infiltration should consider including a water quality monitoring component to ensure that pollutants or contaminants are not being introduced into the groundwater supply.

Public Open Houses

In addition to the focus groups, CED, Prism, and SEWRPC hosted 4 public open house events to present information about the SEI and to further guide the socio-economic process by providing an opportunity for the public to weigh in on the results of the SEI and provide further input on the RWSP. At each open house, SEWRPC presented information on each of the six plan recommendations to attendants during the public open houses and provided an opportunity for attendees to ask questions and discuss issues surrounding the recommendations. Additionally, CED presented information regarding the scope and

purpose of the socio-economic impact analysis, the results from the quantitative analyses, including historic trends and projections on population and job growth and low-income households, and the preliminary results of the analysis. CED gained public feedback through the question and answer sessions following the presentations, and encouraged attendees to contact CED for further clarification or comments via e-mail or through the comments section on CED's webpage for public feedback.

The dates, times, and locations of the open house meetings were the following:

- March 2nd, 6pm Independence First, in the City of Milwaukee (approximately 5 attendants)
- March 3rd, 7pm Goodwill, in the City of Waukesha (1 attendant)
- March 9th, 7pm HeartLove Place, in the City of Milwaukee (approximately 7 attendants)
- March 11th, 7pm Frame Park Schuetze Building, in the City of Waukesha (approximately 7 attendants)

ENVIRONMENTAL JUSTICE PRINCIPLES AND REGULATION

Environmental Justice is both a concept and a movement. As a concept, Environmental Justice seeks to rectify any past or present harms or injustices related to environmental issues, and to identify any potential injustices that may result from an action. The concept of Environmental Justice is not new; it has its roots in the laws and regulations developed by the US Environmental Protection Agency (USEPA) and other federal, state, and local agencies throughout the 20th Century that were developed to ensure safe, responsible use of resources and to safeguard the population from the hazards of industry and harmful environmental conditions. Planning as a field, particularly land use planning and zoning, had developed from the need to improve and safeguard the health, welfare, and safety of communities.

As a movement, Environmental Justice has its roots in the Civil Rights movement of the **1960's, and 1970's and in the environmental movement of the 1960's and 1970's. Although** living conditions had improved for many, blight persisted in primarily low-income, and often minority, neighborhoods by the end of the 20th Century. Many saw that the benefits that planning and regulation could provide should go a step further to ensure that the health, welfare, and safety was applicable to all people, not just those that had reaped the benefits of prior regulatory changes. In 1987, the Commission for Racial Justice published the nation-wide study ***Toxic Wastes and Race in the United States*** that correlated the location of waste facility sites and demographic characteristics and found that the most significant variable in predicting the location of toxic waste sites was race, even more significant than poverty, land values, and home ownership. Additionally, in 1990, Robert D. Bullard published ***Dumping in Dixie: Race, Class, and Environmental Quality***; just as the civil rights movement had been born in the south, ***Dumping in Dixie*** highlighted how the African-American social justice movement in the South converged with the environmental movement to create the Environmental Justice movement.

What began as local and often isolated struggles against toxic hazards and facility siting quickly grew into an organized multi-ethnic global movement. In October 1991, delegates to the First National People of Color Environmental Leadership Summit gathered in Washington, DC to develop a formalized Principles of Environmental Justice⁴. The Principles

⁴ First National People of Color Environmental Leadership Summit (October 1991). Accessible online at www.ejnet.org/ej/principles.html

of Environmental Justice set forth a seventeen point framework that addresses environmental issues in terms of public health, worker safety, land use, transportation, housing, resource allocation, and community empowerment⁵. In 1994, then-President Clinton signed Executive Order No. 12898 into law, recognizing the need for addressing Environmental Justice issues at the Federal level. Both the Principles and Executive Order No. 12898 are set forth in Appendix F.

In 2007, a follow up report to *Toxic Wastes and Race* was commissioned by the United Church of Christ and produced by a consortium of researchers led by Robert D. Bullard from Clark Atlanta University, the University of Michigan, the University of Montana and Dillard University. The report found that in the 20 years since the original report, no progress in the arena of Environmental Justice had been made and that environmental laws do not protect communities of color any more than they had in 1987. The 2007 report specifically cites the response to Hurricane Katrina in New Orleans as a most poignant example of unequal treatment of minorities in hazardous waste emergencies.

Federal Laws and Regulations Pertaining to Environmental Justice

In February 1994, Executive Order No. 12898 ("Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations") was signed into law. Executive Order 12898 set forth the framework for defining Environmental Justice at the Federal level. It created an interagency working group on Environmental Justice, and charged each **Federal agency with "identifying and addressing disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations" in the US and its territories.** Executive Order 12898 is set forth in Appendix F.

The concept of Environmental Justice requires application of Civil Rights laws to the **environmental arena, and, per the Environmental Protection Agency, "the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies."** These issues come into play with lead abatement, hazardous waste sites, the handling and disposal of pesticides and all hazardous materials, air pollution, waste water, and the distribution of water.

Civil Rights legislation and regulation are inherent to the concept of Environmental Justice, as they are often the mechanism by which to determine if an environmental injustice has occurred. In addition to Executive Order 12898, various preceding Federal laws and regulations pertain to Civil Rights and Environmental Justice. These include the Civil Rights Act of 1964, the Civil Rights Restoration Act of 1987, and numerous environmental acts including the National Environmental Policy Act of 1969 (NEPA) and the creation of the USEPA in 1970, the Clean Air Act of 1963 (substantially amended in 1977 and 1990), the Federal Water Pollution Act of 1972 (also known as the Clean Water Act), the Safe Drinking Water Act of 1974 (SDWA), the Toxic Substances Control Act of 1976, the Resource Conservation and Recovery Act of 1976, and the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA, also referred to as the Superfund site program).

In addition to this legislation, the Council of Environmental Quality and the Office of Environmental Justice provide specific guidance for determining whether or not an action or policy has a negative impact on environmental justice.

⁵ Robert D. Bullard *Environmental Justice in the 21st Century*, accessible online at www.ejrc.cau.edu/ejinthe21century.htm

The Council on Environmental Quality

The Council on Environmental Quality (CEQ) was established within the Executive Office of the President by Congress as part of the National Environmental Policy Act of 1969 (NEPA). The CEQ is charged with coordinating all Federal environmental efforts and works closely with agencies and other White House offices in the development of environmental policies and initiatives. **The CEQ developed USEPA's *Final Guidance for Incorporating Environmental Justice Concerns in EPA's NEPA Compliance Analyses*** which provides an overview of many of the factors that should be considered when identifying and evaluating environmental justice concerns.

Based on the guidance, CEQ regulations (40 CFR 1508.27) set forth criteria for determining whether a proposed action or policy is significant, thereby requiring a detailed statement (i.e., an Environmental Impact Statement or EIS). Under CEQ guidance, economic or social effects alone do not trigger an EIS [40 CFR 1508.14]. For an EIS to be triggered, there **must be a sufficient impact on the environment to be considered "significant" within the meaning of NEPA.** The agency must identify potential impacts that the action or policy would have on low-income populations, minority populations or Indian tribes, and determine if such actions could lead to disproportionately high and adverse human health or environmental effects. CEQ requires that significance be evaluated in terms of "intensity" or "severity of impact"; based on this, each action or policy must be evaluated in a focused manner that may show potential impacts at the local level that may be missed at a regional or state level. Narrowing the focus could have an impact on the determination of whether disproportionately high and adverse effects should trigger the serious consideration of alternatives and mitigation actions in coordination with extensive community outreach efforts.

The Office of Environmental Justice

The Office of Environmental Justice under the US Environmental Protection Agency developed the ***Toolkit for Assessing Potential Allegations of Environmental Justice***⁶. The ***Toolkit*** provides guidance that can be used to aid in the identification of environmental justice issues raised by a community or other stakeholders. These issues range from concerns about conditions caused by past environmental decisions to determinations of whether future actions will have environmental justice implications.

According to the ***Toolkit***, the determination regarding whether a particular situation raises an environmental justice issue or problem depends upon an evaluation of the totality of the circumstances surrounding the action. Also, in accordance with the Department of Justice Guidance Concerning Environmental Justice, there are a number of factors that should be considered in determining whether any individual situation does raise such an issue:

1. Whether individuals, certain neighborhoods, or federally recognized tribes suffer disproportionately adverse health or environmental effects from pollution or other environmental hazards;
2. Whether individuals, certain neighborhoods, or federally recognized tribes suffer disproportionate risks or exposure to environmental hazards, or suffer disproportionately from the effects of past under enforcement of state or federal health or environmental laws;

⁶ Office of Environmental Justice ***Toolkit for Assessing Potential Allegations of Environmental Justice***, accessible online at www.epa.gov/compliance/ej/resources/policy/ej-toolkit.pdf

3. Whether individuals, certain neighborhoods, or federally recognized tribes have been denied an opportunity for meaningful involvement, as provided by law, in governmental decision-making relating to the distribution of environmental benefits or burdens. Such decision-making might involve permit processing and compliance activities.

As stated in the *Toolkit*, although it is important to avoid overly narrow conceptions of possible environmental justice circumstances, the mere presence of environmental hazards in a particular community does not necessarily mean that an environmental justice problem is unlawful. Additional factors must be considered, such as the accumulation of a number of environmental hazards in an affected area because of the lack of public participation by the community, the lack of adequate protection under the laws designed to protect health and the environment, or unusual vulnerability of the community to such hazards.

Based on the *Toolkit*, Environmental Justice Coordinators at EPA Headquarters and Regional Offices utilize a four phase framework for identifying potential sources of Environmental Injustice:

- Phase 1 – Problem Identification
- Phase 2 – Data Collection
 - Collection of Data (Social, Economic, and Health Indicators⁷) on Affected Area and Reference Community
- Phase 3 – **Assessment of the Potential for “Adverse” Environmental and Human Health Effects or Impacts**
- Phase 4 – **Assessment of Potential for “Disproportionately Adverse” Effects or Impacts**

The first phase of the assessment is to determine, at least qualitatively, the context, scope, participants, community of concern, reference communities, and indicators that can be used to evaluate the assessment endpoints and level of effort needed to conduct a preliminary examination of the questions or issues that started the assessment. At the screening stage, the goal of problem formulation is a conceptual model of the issue and an analysis plan. The second phase of the framework is collecting data on the environmental actions or entities (e.g., a facility) that create the environmental and health effects; and the community of concern where these impacts will be manifested.

Within the context of establishing the potential for Environmental Justice impacts, the third phase is to evaluate the environmental data or action collected in phase 2 to determine whether it is likely to cause adverse environmental, human health, or welfare impacts. This step helps to determine whether the proposed actions or existing situation, either alone or in combination with other sources of stress in the environment, might cause adverse impacts on the environment in which the members of the community live and work. Examples of adverse effects can include:

- Bodily impairment, infirmity, illness, or death;
- Air, noise, soil, and water pollution or contamination;

⁷ As no known sustained health problems have been scientifically linked to any municipal water systems (including groundwater radium contamination), the data collection and assessment of the **potential for “adverse” impacts were limited to social and economic indicators and assessing environmental impacts.**

- Destruction or disruption of man-made or natural resources;
- Destruction or disruption of aesthetic values;
- Destruction or disruption of **community cohesion or a community's economic vitality**;
- Destruction or disruption of the availability of public and private facilities and services;
- Vibration;
- Adverse employment effects;
- Displacement of persons, businesses, farms, or nonprofit organizations; and
- Increased traffic congestion, isolation, exclusion, or separation of individuals within a community or from a broader community.

Indicators of existing environmental conditions include known contaminants levels in the air, water, or soils, including any environmental data that is monitored or that is needed to establish the existence of an environmental injustice situation. Data on existing conditions are also needed to establish the potential for environmental injustice situations in the event that an action may have a further negative impact.

The fourth phase of the framework assesses whether or not any adverse impacts identified in the third phase would have a disproportionately higher impact on any of the Environmental Justice communities than on the community at large. This is based on the idea that an action that equally affects many may be an adverse effect, but would not necessarily trigger environmental justice concerns. As stated in the *Toolkit*, the term **"disproportionately high and adverse effects or impacts"** means an adverse effect or impact that is predominately borne by any segment of the population, including a minority population and/or a low-income population and is significantly more severe or greater in magnitude than the adverse effect or impact that will be suffered by a non-minority population and/or non-low-income population.

Because the definition of environmental justice assumes a relative or disproportionate comparison of impact, the indicators of community trends are examined within the context of the reference area outside the community, and the community that may be disproportionately affected is evaluated in a way to show that it is distinct from the larger reference community. While indicators may suggest that a community is adversely affected, until those impacts are compared to impacts on an appropriate reference community, the community of concern cannot be classified as disproportionately affected. In other words, an adverse impact is not necessarily an environmental injustice impact.

SEWRPC's Environmental Justice Task Force

In 2006, SEWRPC created the Environmental Justice Task Force (EJTF) to oversee issues pertaining to Environmental Justice in the seven county Region, and charged it to:

1. Ensure public involvement of low income and minority groups in decision making;
2. Prevent "disproportionately high and adverse" impacts of decisions on low-income and minority groups; and
3. Assure low-income and minority groups receive proportionate share of benefits.

SEWRPC created a primary role for the Environmental Justice Task Force, **"to enhance the consideration and integration of environmental justice throughout the regional planning process", and set forth five specific purposes, which are:**

1. To further facilitate the involvement of, and help ensure the full and fair participation of, low-income, minority and disabled individuals and communities at all stages in relevant areas of regional planning, as determined in consultation with them;
2. To make recommendations on, and help monitor, issues and analyses potentially relevant to the needs and circumstances of low-income, minority and disabled communities in the region;
3. To help identify potential benefits and adverse effects⁸ of regional planning programs and activities with respect to minority, low-income and disabled populations;
4. To advise and recommend methods to prevent the denial of, reduction in, or significant delay in the receipt of benefits, and/or to avoid, minimize, or mitigate disproportionately high and adverse human health and environmental effects, including social and economic effects, on minority, low-income and disabled populations; and
5. To enhance awareness, understanding, appreciation, support, and implementation of planning recommendations and benefits, with emphasis on the needs of minority, low-income, and disabled populations.

The EJTF consists of 15 voting members appointed by SEWRPC, after consultation with organizations representing low-income, African-American, Latino, Asian, Native American, disabled and transit-dependent populations. **SEWRPC's protocol on the EJTF promotes a policy to ensure that meaningful efforts be made for the EJTF to be inclusive of individuals and organizations representing such diverse experiences and interests (e.g.: minority organizations; non-English-speaking populations; organizations of or for disabled persons; low-income workers and/or families; low-income neighborhoods; and those representing senior citizens, youth, community health organizations, community environmental organizations, and organizations involved in housing, serving particularly minority, disabled and low-income populations).**

Of the 15 voting members, seven of the EJTF members shall be selected to represent the counties in the region (one per county). Three additional members shall be chosen to represent the largest city in the region (Milwaukee); three more shall be chosen to represent the three next-largest cities in the region (one per city – Kenosha, Racine, and Waukesha); and one shall be chosen from the remainder of the region. The fifteenth member shall be selected as an at-large representative of regional low income, minority, disabled and/or transit-dependent communities. The Commission shall appoint one of the members of the EJTF as its chair. Members serve on the EJTF for a term of two years and

⁸According to SEWRPC's EJTF protocol, "adverse effects" may include, but are not limited to, "the totality of significant individual or cumulative human health or environmental effects, including interrelated social and economic effects, which may include, but are not limited to: bodily impairment, infirmity, illness or death; air, noise, and water pollution and soil contamination; destruction or disruption of man-made or natural resources; destruction or diminution of aesthetic values; destruction or disruption of community cohesion or a community's economic vitality; destruction or disruption of the availability of public and private facilities and services; vibration; adverse employment effects; displacement of persons, businesses, farms, or nonprofit organizations; increased traffic congestion, isolation, exclusion or separation of minority or low-income individuals within a given community or from the broader community; and the denial of, reduction in, or significant delay in the receipt of, benefits of FHWA programs, policies, or activities." *FHWA Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, Order 6640.23 (Dec. 2, 1998).

the EJTF generally meets quarterly to review ongoing SEWRPC planning programs in a public, open forum.

The Environmental Justice Task Force engages in the numerous oversight activities including **reviewing and making recommendations on SEWRPC's public involvement activities** regarding Environmental Justice (EJ) issues and populations, and reviewing and commenting on regional planning programs and documents, at draft or scoping stages with a specific focus on the effects of plans on EJ populations. EJTF members are tasked with assisting SEWRPC in disseminating and gaining information, ideas, and feedback from EJ populations, and with helping to identify ways for minority, low-income, and disabled populations become more engaged. EJTF members are tasked with presenting EJ recommendations, ideas, or concerns to SEWRPC and other SEWRPC advisory committees, with recommending additional research or studies for SEWRPC to undertake, and to suggest quantitative and qualitative information and issues regarding EJ population for SEWRPC to consider in its planning activities.

The EJTF was instrumental in advocating and executing the development of a socio-economic impact analysis for the regional water supply plan. This analysis is the first of its kind for SEWRPC. SEWRPC, however, has conducted extensive analyses of the impacts of regional transportation plans on the minority and low-income populations in southeastern Wisconsin.

SEWRPC's Regional Water Supply Plan Technical Advisory Committee

When developing any of the region-wide plans, SEWRPC relies on advisory committees to provide guidance for the plan in development and preparation, and to provide a forum for public involvement. The primary function of the Advisory Committee is to review all the documentation, including technical and planning reports, and provide advice and guidance on all of the technical matters and decisions related to the plan itself.

"Advisory committees form a most fundamental type of public involvement, with strong prospects for the planning program contributions to be of a broad and representative nature⁹." - SEWRPC RWSP Website

The RWSP Technical Advisory Committee was established by SEWRPC's 21 member Board of Commissioners. Committee membership was developed to include experts and concerned representatives from the utilities and local governments of the region as well as from relevant State and Federal agencies; members included representatives from the academic, business, agricultural, and environmental groups. A list of members of the RWSP Advisory Committee is available online¹⁰. The Advisory Committee for the RWSP did not directly include any representatives from low-income or minority populations which is recommended under **the Environmental Protection Agency's Guidance for Incorporating Environmental Justice Concerns in EPA's NEPA Compliance Analyses, the FHWA Actions to Address Environmental Justice in Minority Populations and Low-Income Populations**, and according to SEWRPC's Environmental Justice Task Force protocol. The SEWRPC Advisory Committee does include representatives of the Cities and Counties of Kenosha, Milwaukee, and Racine, which have the highest percentages of minorities and low-income populations.

⁹ Documented online at www.sewrpc.org/SEWRPC/Environment/RegionalWaterSupplyPlan.htm

¹⁰ Documented online at www.sewrpc.org/SEWRPC/DataResources/CommissionAdvisoryCommittees/RegionalWaterSupplyPlanningAdv.htm

Overview of SEWRPC's Public Outreach for the RWSP

As part of its planning program, SEWRPC conducts outreach to various public and private agencies, non-profit groups, academic or professional organizations, and other groups throughout Southeastern Wisconsin through various means and sources of media. When requested or invited, SEWRPC conducts presentations. Over the course of the RWSP planning period (between March 2001 and September 2009) SEWRPC conducted approximately 143 presentations and public informational meetings throughout southeastern Wisconsin for the RWSP. Most of the presentations were conducted for environmental groups and agencies, municipal governments and county boards, or for professional planning and utility management groups or personnel. Titles and topics of the presentations include the following¹¹:

- Water Supply Issues In Southeastern Wisconsin: Technical And Policy Needs And Challenges
- Southeastern Wisconsin Water Supply Issues And Regional Water Supply Planning Program Overview
- Southeastern Wisconsin Regional Aquifer Modeling and Water Supply Planning Program: An Intergovernmental – Interagency Cooperative Effort
- Southeastern Wisconsin Regional Water Supply Planning Program Overview and Challenges
- Intergovernmental Informational Meeting on Groundwater Modeling and Watershed Planning in Southern Waukesha and Northeastern Walworth Counties
- Troy Bedrock Valley Aquifer Model
- Hydrostratigraphy and Groundwater Flow Model: Troy Valley Glacial Aquifer, Southern Waukesha Co., WI
- Mukwonago River Watershed Protection Planning Program
- Southeastern Wisconsin Regional Water Supply Planning Program— Background, Findings to Date, and Next Steps – Focus on Waukesha County
- Southeastern Wisconsin Regional Water Supply Planning Program Update – Alternative and Initially Recommended Plans: Waukesha County Focus
- Southeastern Wisconsin Regional Water Supply Planning Program Update – Focus on Alternative and Preliminary Recommended Plans

In addition to the presentations, water supply study materials including drafts of the planning report chapters, numerous technical reports, three newsletters, and one summary brochure were developed throughout the course of the planning process. SEWRPC distributed all planning materials and preliminary chapters to the RWSP Advisory committee and to various governmental agencies; additionally, materials were provided to interested parties based on request. Additionally, all materials and documents were made available online¹², and contact information and a comments box were available online to assist in the submission of questions, comments, and complaints. The newsletters, which provided a summary of the planning process, plan findings, and recommendations were distributed via mail to about 2,000 groups and persons including various governmental agencies throughout the State and region, environmental and academic groups, other interested parties, and various civic and low-income, disabled, minority groups and organizations (referred to as Environmental Justice groups or organizations), and other interested parties. The third newsletter included notice of the public informational meetings scheduled to be

¹¹ Links to these presentations and more information regarding SEWRPCs outreach can be accessed on their website at www.sewrpc.org/SEWRPC/Environment/RegionalWaterSupplyPlan.htm

¹² All documents related to the regional water supply plan can be accessed on the internet at www.sewrpc.org/SEWRPC/Environment/RegionalWaterSupplyPlan.htm

held to present and receive comments on a preliminary recommended plan; this newsletter was translated into Spanish.

SEWRPC's records indicate that their public informational activities to facilitate public participation throughout the development of the regional water supply planning program included over 140 public presentations, distribution of planning materials and planning information, maintaining a webpage to disseminate planning information and gather public feedback, and extensive advertising for nine public informational meetings. As of September 2009, SEWRPC had conducted presentations for local elected officials (33) and for numerous business, civic, and environmental groups and organizations (12) throughout the region.

Upon completion of the preliminary draft of the RWSP, SEWRPC held nine public informational meetings during January and February of 2009, attended by approximately 180 people. The public informational meetings were designed as a forum to present the preliminary recommendations of the plan, answer any questions that the public may have had about the plan, and to gain feedback, comments, and criticisms of the plan to be further incorporated into the plan. SEWRPC published numerous paid newspaper advertisements announcing the public informational meetings scheduled to be held on the preliminary recommended plan throughout the region. These included announcements in the following; CSI Community Shoppers (Walworth County), Daily News (West Bend), El Conquistador (Milwaukee area), Freeman (Waukesha), Fronteras de la Noticia (Kenosha area), Insider News (Racine area), Journal Times (Racine), Kenosha News, Milwaukee Journal Sentinel, Milwaukee Times, and News Graphic (Ozaukee County) Oconomowoc Enterprise; and Weekend Freeman Lake Country (Waukesha County). Upon completion of the preliminary draft of the RWSP, SEWRPC conducted a series of public informational meetings and received public comments which were provided to the RWSP Advisory Committee for consideration. In addition to the nine public informational meetings, SEWRPC **hosted two sessions of the "Water-Wise Conference" held in the City of Waukesha in March of 2009**; public input from these two sessions was also incorporated into the RWSP.

SEWRPC sent letters to the **Commission's contact list of Environmental Justice organization** contacts, with over 80 minority, low-income, and disabled groups and organizations, to encourage comments and extend an offer to meet individually regarding the Water Supply Study. Each of these organizations had received the Commission newsletter with the public informational meeting announcements. Based on a request from the Environmental Justice Task Force, the comment period for the RWSP was extended to March 16, 2009. Aside from the presentations to SEWRPC's Environmental Justice Task Force, presentations were conducted for the benefit of community groups that focus specifically on issues related to the needs of the low-income or minority populations or for disabled persons. These include the following:

- 9 To 5 National Association of Working Women
- CNI/Fondy/North Business Association
- Kenosha County Job Center
- Hispanic Roundtable
- Potawatomi Bingo Casino
- Public Policy Forum
- Racine County Workforce Development Center
- Repairers of the Breach
- Riverworks
- Urban Economic Development Association
- Waukesha County Workforce Development Center
- Whitefish Bay Methodist Church

Forthcoming Chapter 10 of the Planning Report No. 52 includes a summary of the record of public comment and the subsequent actions of the RWSP Technical Advisory Committee associated with the RWSP. Additionally, the Record of Public Comment is being published and made available online in its entirety.

ASSESSMENT OF PUBLIC OUTREACH AND IMPACTS ON ENVIRONMENTAL JUSTICE PRINCIPLES AND REGULATIONS

Evaluation of the RWSP in Light of Environmental Justice Principles and Regulations

Based on the SEI scope, each of the six major recommendations was evaluated using the three-point approach that the USEPA has developed to identify potential issues that would in effect trigger the need for an Environmental Impact Statement and **against a “do nothing”** option, based on the Office of Environmental Justice under the US Environmental Protection Agency developed the *Toolkit for Assessing Potential Allegations of Environmental Justice*¹³. Again, the three point approach for identifying environmental justice issues assess:

1. Whether individuals, certain neighborhoods, or federally recognized tribes suffer disproportionately adverse health or environmental effects from pollution or other environmental hazards;
2. Whether individuals, certain neighborhoods, or federally recognized tribes suffer disproportionate risks or exposure to environmental hazards, or suffer disproportionately from the effects of past under-enforcement of state or federal health or environmental laws;
3. Whether individuals, certain neighborhoods, or federally recognized tribes have been denied an opportunity for meaningful involvement, as provided by law, in governmental decision-making relating to the distribution of environmental benefits or burdens. Such decision-making might involve permit processing and compliance activities.

The first point specifies assessing whether or not any proposed action or recommendation in the RWSP has a potential for disproportionate risk, if it would likely impact one community to the detriment of another community. As it applies to the RWSP, this point indicates a need for an assessment of the plan recommendations in regard to both source of water and expansion of planned service areas, two major components set forth in this SEI analysis. The recommendations that would be applicable, as set forth under the RWSP, are evaluated for this point in the following section.

The second point asks if historic or existing conditions have had any negative impacts on a population. Under the RWSP, no determination has been made as to whether or not any communities, including Environmental Justice communities, have suffered, disproportionately or otherwise, from any past environmental injustices based on the effects of past actions due to water utility operations, the extent to which water utility boundaries are located, or due to a lack of enforcement of state or federal health or environmental laws. None of the proposed recommendations pose any sort of known direct foreseeable environmental risk for any population within the context of the plan. Most of the recommendations set forth in the RWSP are directed at alleviating both historic and current problems as well as minimizing the potential for risks associated with degrading and known

¹³ Office of Environmental Justice *Toolkit for Assessing Potential Allegations of Environmental Justice*, accessible online at www.epa.gov/compliance/ej/resources/policy/ej-toolkit.pdf

water quality or quantity problems, and therefore it is unlikely that direct actions stemming from a recommendation would have a disproportionate risk.

However, there is a question of whether or not the implementation of a recommended action under the RWSP, through the actions of another agency (in these cases, local water and sewer utilities), could have a disproportionate risk on an Environmental Justice population (i.e., pose a cumulative effect). For example, the recommendation for the City of Waukesha Water Utility to switch to Lake Michigan as its water source requires, based on the Great Lakes Compact, that the flow of spent water be returned to the Lake Michigan basin. This recommendation may generate an action that could potentially have a disproportionate risk, and under State and Federal law, this secondary action could require the development of an Environmental Impact Statement (EIS) to evaluate the potential for disproportionate risk.

The third point asks whether or not Environmental Justice communities have been sufficiently involved in the decision-making process. This reflects Principle 7 of the Principles of Environmental Justice, as set forth by the People of Color Environmental Leadership Summit.

Principle 7. Environmental justice demands the right to participate as equal partners at every level of decision-making including needs assessment, planning, implementation, enforcement and evaluation.

This point and principle indicates a need for an assessment of the RWSP planning process and whether or not Environmental Justice communities or groups were included, at what point, and to what effect.

Evaluation of Recommendations

Source of Water Supply

For those utilities that are slated to continue to utilize their current water sources of water supply, continued use of such sources has been found to be sustainable through the planning year 2035 under the RWSP, and there would be little to no adverse environmental or human health effects or impacts to these communities. For those communities selected to switch sources of water supply, this recommendation was made, in part, to aid in improving local groundwater quality. If carried out in environmentally sensitive ways, this should improve environmental quality for all populations.

Under this recommendation, each of the existing and proposed water service areas is delineated based on known conditions including known development that supports compact **urban design**. Compared to a “do nothing” option, it is unknown as to whether or not future water service area expansions would follow a compact urban design and therefore it is impossible to establish a conclusion as to whether or not future actions outside of the plan would have adverse environmental or disproportionately adverse impacts on the communities.

The development of a new municipal water utility would be based on a demonstrated local need and initiative, and presupposes the development of an environmental analysis. The demonstrated local need may be based on specific environmental factors that need to be addressed. For those 21 potential new utilities to utilize groundwater supply and the 2 new utilities to utilize Lake Michigan supply, it is assumed that an environmental analysis would help to identify any potential adverse environmental impacts as well as environmental injustices. For these communities, however, **the “do nothing” option may or may not have**

an adverse environmental impact; continued monitoring may be necessary if an adverse environmental or human health impact is suspected.

Water Conservation Programming

Based on the recommendation associated with variable levels of water conservation programming, it is unlikely that any level of water conservation programming would have any adverse impacts on the environment or cause any environmental injustice impacts. The recommendations regarding water conservation programming in the RWSP are two-fold in their design; first, they were developed to increase water system efficiency which reduces the amount of water pumped to meet customer demands, and second, to reduce the amount of water used by customers. The RWSP includes a range of recommendations for water conservation programming, depending on the infrastructure needs of each water utility and the source of supply as shown in Table IV-9 in Planning Report 52.

Water conservation measures, at any level, are designed to improve the use of supply and maintain the sustainability of sources of water supply for all water consumers. Based on this, there should be no disproportionate environmental or fiscal impact on any segment of the population and therefore it is unlikely that the implementation of this recommendation would cause any disproportionate environmental justice impacts.

Recharge Area Protection

The recharge area protection recommendation was designed to promote or enhance groundwater recharge by limiting development or certain types of development activities within areas identified, and therefore it is unlikely that recommendation would have any adverse environmental impacts. Currently, however, there are no regulatory constraints, at either the state, county or local levels, regarding development in (high or very high) groundwater recharge areas. The RWSP recommends that important groundwater recharge and discharge areas should be identified for preservation or for application of land development plans and practices that protect groundwater quality and maintain the natural surface and groundwater hydrology. The recharge areas, by their nature, are typically undevelopable or undeveloped open space lands, or lands within the delineated environmental corridors that SEWRPC recommends not be developed. Based on this, there should be no significant impact on any segment of the population and therefore it is unlikely that the implementation of this recommendation would cause any disproportionate environmental justice impacts.

Stormwater Management Practices

Similar to groundwater recharge, stormwater management practices encourage groundwater treatment and infiltration (recharge) in order to best maintain the natural hydrology between surface waters and groundwaters, and therefore, to contribute to a sustainable groundwater supply. The RWSP recommends following stormwater best management practices related to infiltration and recharge for all new residential and for selected nonresidential developments. Based on this, it is unlikely that stormwater management practices would have an adverse impact on the environment or that it would cause any disproportionate environmental injustice impacts.

High Capacity Well Siting Procedures

The RWSP recommendations for improving high capacity well regulations are based on improving methods to safeguard the quantity and quality of the groundwater supply, and for ensuring that groundwater extraction will not have a negative impact on nearby surface waters through baseflow depletion. Based on this, it is unlikely that stormwater management practices would have an adverse impact on the environment or that it would cause any disproportionate environmental injustice impacts.

Enhanced Rainfall Infiltration Systems

The determination to use enhanced rainfall infiltration systems is based on local conditions and the appropriate type of groundwater recharge infiltration system would need to be determined on a site specific basis. Based on this, it is unlikely that the installation of enhanced rainfall infiltration systems would have an adverse impact on the environment or that it would cause any disproportionate environmental injustice impacts.

Evaluation of the RWSP in Light of Public Participation

The planning process demands that planners find a way to directly engage those whose lives and communities could ostensibly be impacted by planning decisions at all levels, particularly in minority and low-income communities. Assessing community perceptions about regional development is most difficult when portions of that community may not be engaged in the planning process. The third point in the Office of Environmental Justice *Toolkit* asks whether or not Environmental Justice communities have been sufficiently involved in the decision-making process. This issue is also similar to Title VI of the Civil Rights Act of 1964 which **states that "No person in the United States shall, on the ground of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance."** A participant in the second round of focus groups questioned whether or not the RWSP violates Title VI of the Civil Rights Act.

The *Toolkit* provides guidance to evaluate whether or not any relevant person or group has been denied an opportunity for meaningful involvement in governmental decision-making relating to the distribution of environmental benefits or burdens. However, the guidance provided is applicable specifically to localized plans that would trigger an EIS rather than to regional long-range planning efforts which entail different levels of planning and planning participation.

This creates some uncertainties regarding the level of involvement that environmental justice communities have or should have in regards specifically to the RWSP planning process. What, in the planning process, is an appropriate level of participation and plan contribution? Concerns have been raised regarding the lack of representation from environmental justice communities on the RWSP technical committee. Is it adequate that environmental justice communities were contacted by SEWRPC in the context of providing information on the plan and plan development? Did SEWRPC violate Title VI by not recruiting a representative from the environmental justice communities to the RWSP Technical Committee? The Title VI investigation process, as set forth by the Office of Civil Rights, focuses on whether a recipient of federal financial assistance has conducted its programs in a manner that discriminates or has a discriminatory effect on the basis of race, color, or national origin. The Title VI investigation process can be used to address formal complaints concerning a subset of environmental justice situations where complainants believe that an adverse disparate environmental impact has resulted because of race, color, or national origin due to the actions of a recipient of EPA financial assistance.

While SEWRPC conducted considerable public outreach during the course of the RWSP planning process, including efforts to engage environmental justice groups, its failure to include a representative from environmental justice communities on the RWSP Technical Committee violates the spirit, if not the letter, of environmental justice. Although environmental justice communities were solicited to provide feedback and insight throughout the planning process, the lack of direct inclusion in plan development violates the intent of Principle 7 of the Principles of Environmental Justice. It may also weaken the plan as it denies an opportunity for SEWRPC to engage with environmental justice communities in order to gain support for plan recommendations.

The attendance at the RWSP (180 people per 9 meetings) public open house meetings suggests that SEWRPC may need to change the way it approaches engaging members of the community for future updates of the RWSP. It should be noted that engaging the public in long-range planning is often more challenging than it is in short-term planning as the focus is less about a specific project or development and more about setting long range objectives and goals and determining how to achieve those goals. In contrast, where local or neighborhood level planning in which community members may see a direct impact of a plan or policy change in their everyday lives, long range regional level planning, especially planning related to infrastructure, does not generally attract the attention of most citizens unless there is a significant problem or localized interest. CED experienced this first hand in both its attempts to recruit participants for its focus groups and for its open houses. Still, while low attendance, this may be an indication that the topic is not a major priority or concern for many people, it may also indicate that SEWRPC needs to be more creative and proactive in its public outreach efforts. Opportunities for the public to provide substantive input may help to encourage public interest in planning issues.

There has been a growing trend in community-level planning towards the formalization of public participation plans, partially due to the widespread implementation of comprehensive and **"Smart Growth" planning efforts**. A public participation plan provides a formal document that outlines the specific strategies that are used for public engagement¹⁴. Developing a formalized public participation plan or strategy for each of the region-wide plans, similar to the public participation plan that SEWRPC adopted for the Regional Transportation Plan¹⁵ and each of the county-wide comprehensive plans, may help to facilitate effective public involvement and add to greater transparency in the planning process.

* * *

¹⁴ Miskowiak, Douglas Center for Land Use Education *Crafting an Effective Plan for Public Participation*, November 2004 accessible online at www.uwsp.edu/cnr/landcenter/Publications/PublicParticipation.pdf

¹⁵ SEWRPCs Public Participation Plan for Transportation Planning accessible online at http://maps.sewrpc.org/transportation/taskforce/pdfs/sewrpc_public_participation_plan.pdf

SWOT Analysis of the Regional Water Supply Plan Recommendations

Strengths

- In-basin switches to lake water could improve groundwater levels
- Recharge areas could improve groundwater levels
- Water sale to Waukesha could be source of revenue for Milwaukee
- May lead to water bill relief (reduced water bill charge for residents)
- Water can be used as a tool for negotiation with over-the-divide areas
- At least there is one thing that Waukesha and other outlying communities want from Milwaukee
- "As a black woman, I have no problem with selling water to other communities. I don't think we should try to control the growth of the suburbs by manipulating their access to water"

Weaknesses

- There is not a good true healthy government relationship between communities
- Because of the way this plan is presented (i.e. data on population by race is misleading because it gives false impression that there has been progress in racial mix in the suburbs) and analyzed there is a lack of hope that there is a way to fix other issues affecting the region, e.g. race, transit, housing
- Promotes sprawl and pollution and global warming
- Promotes racial and economic segregation
- Promotes unemployment
- Violates intent and spirit of Great Lakes Compact
- Returning non-drinkable water increases MMSD procession costs
- Impact on low-income minorities
- Natural resources are being misused
- Need a longer term perspective (i.e. 100 years)

Opportunities

- Underutilized infrastructure within city should encourage more development within the city of MKE
- Ensure development occurs where there are sustainable water supplies
- Way to make money
- Additional jobs at new or expanded water treatment facilities for service areas west of the divide
- Can be used to negotiate for improved rail and other public transportation, low and moderate income housing, and jobs for Milwaukee County residents but only true if these are contractually required as quid pro quo for water
- Demand development of increased rainfall infiltration/collection and stormwater management infrastructure be done in areas west of the subcontinental divide
- The only opportunity is to see this as a wake up call to have leaders of vision who see far enough ahead
- Source of revenue for Milwaukee could be used for other purposes

Threats

- Deteriorated revenue/profit if processing costs are not determined and new cost/gallon are not determined
- Perpetuates myth that SEWRPC is a competent and honest organization that helps the Milwaukee area
- The planning ignores the historical reality that regional plans have not had a high rate of compliance in the suburban and rural areas
- Milwaukee loss of jobs/industry/residences to city of Waukesha
- Milwaukee jobseekers can not get jobs in Waukesha
- Milwaukee jobseekers can not afford to live in Waukesha
- Natural resource damage from return flow
- Diversion of lake water to Waukesha will fuel sprawl and white flight
- No transit, buses or light rail
- Encourages sprawl
- Will lead to higher property tax
- Lack of jobs
- Continues to expand the haves and have-nots
- Creates more sprawl by encouraging more highways

Chapter 7

Summary and Conclusions

This socio-economic impact analysis provides an evaluation of each of the six recommendations set forth in the Regional Water Supply Plan, to determine their impact on populations within the Southeastern Wisconsin region. The Center for Economic Development evaluated each of the following six categories of recommendations to determine their socio-economic impact on the Southeastern Wisconsin region:

- Source of Water Supply
- Water Conservation Programming
- Recharge Area Protection
- Stormwater Management Practices
- High Capacity Well Regulations
- Enhanced Rainfall Infiltration Systems

The following questions provided the framework for developing the SEI analysis:

- What impact, if any, would implementation of the regional water supply recommendations have on the overall distribution of population, including racial segregation patterns, in the Region?
- What impact, if any, would implementation of the regional water supply recommendations have on the overall distribution of job locations in the Region?
- What impact, if any, would implementation of the regional water supply recommendations have on the fiscal health and well-being of those communities in the Region wherein reside relatively large populations of low and moderate income families?
- What impact, if any, would implementation of the regional water supply recommendations have on housing and other land use patterns in the Region?
- To what extent, if any, would implementation of the regional water supply recommendations contribute to any failure of the plan to meet Federal regulations attendant to civil rights and environmental justice?

The study was designed to answer these questions by considering each of the RWSP recommendations individually and determining their impact on population, job locations, segregation patterns, housing patterns, the fiscal health and well being of environmental justice communities, and their compliance with federal civil rights and environmental justice regulations.

BASIS FOR THE FINDINGS OF THE SOCIO-ECONOMIC IMPACT ANALYSIS OF THE REGIONAL WATER SUPPLY PLAN

Many of the conclusions drawn in the socio-economic impact analysis rely heavily on the findings in Technical Report No. 47, Groundwater Recharge In Southeastern Wisconsin Estimated By A GIS-Based Water-Balance Model and in Technical Report No. 41, A Regional

Aquifer Simulation Model for Southeastern Wisconsin. These studies were developed as part of the Regional Water Supply Planning process by the Southeastern Wisconsin Regional Planning Commission (SEWRPC), the Wisconsin Geological and Natural History Survey (WGNHS), the United States Geological Survey (USGS), the Wisconsin Department of Natural Resources (DNR), University of Wisconsin – Milwaukee and other Wisconsin groundwater experts. The data compiled by these studies currently provide the latest, most thorough examination about what is known of the groundwater supply in southeastern Wisconsin. The science concludes that southeastern Wisconsin is currently a water-abundant Region, and suggests that the provision of Lake Michigan water to suburban communities is not essential as existing groundwater sources, if properly managed, are of sufficient quantity and quality to support projected development through the year 2035. No other studies of which we are aware contradict the conclusions of the WGNHS, USGS, DNR, SEWRPC, and other agencies.

We emphasize that while existing studies suggest that regional groundwater supplies can sustain development for the near future in most areas not currently receiving Lake Michigan water, there are several important caveats. First, little is known about the sustainability of groundwater supplies beyond the year 2035. Existing studies do not extend beyond that year. Second, existing studies base their projections about the sustainability of groundwater supplies on current land use plans, which can be altered. Changes in regional land use plans may require that conclusions about the sustainability of groundwater supplies be reexamined. Additionally, studies emphasize that groundwater supplies in certain areas of the region are likely to be sustainable only if properly managed including conversion of some utilities which are east of the subcontinental divide or straddle the divide to Lake Michigan supplies. Finally, the use of groundwater does have impacts on base flows to surface waters which are variable across the region.

Although the Regional Water Supply Plan addresses recommendations for each of the 78 public utilities in the seven-county southeastern Wisconsin region, most of the socio-economic impact analysis was limited to developing an understanding of the relationship between the 5 existing or potential Lake Michigan water service providing utilities and the 9 potential Lake Michigan receiving utilities. During the scoping phase of the SEI analysis, it became clear that the relationship between potential water providing utilities and receiving utilities would be the likely source of any socio-economic imbalances, and due to this potential for conflict, this dynamic should be explored and evaluated.

The evaluation of the RWSP took into consideration additional relevant plans, including **SEWRPC's Regional Land Use Plan (RLUP)**, and relevant local and countywide comprehensive plans, including the planned land use components. The regional land use plan and the land use elements of the comprehensive plans provide the necessary components for understanding how the recommendations set forth in the RWSP will impact development and land use. CED compared existing and planned land uses projected in both the local comprehensive plans and the RLUP for specific communities in order to determine whether or not the land use patterns within the areas proposed for expansion or conversion under the RWSP could have an impact on environmental justice.

Review of Socio-Economic Trends in Southeastern Wisconsin

The historic development patterns in Southeastern Wisconsin outline the need for a socio-economic impact analysis. CED summarizes these historic trends in population, jobs, and **income in Chapter's 2, 3, and 4** for each of the communities and counties selected for this study. The data indicate that over the past 50 years, there has been an outward migration of population and jobs from the large lakeshore manufacturing cities to the outlying counties, suburbs, and exurbs. The loss of a manufacturing-based economy and the

movement of economic and development activity inland created a negative impact on jobs and income in the historic central city areas. Data indicate that a significant increase in the number and percent of low-income persons or families living at or below the poverty level has occurred in the cities of Kenosha, Milwaukee, and Racine while it has declined in many of the selected suburban communities. Racial and ethnic minority and low-income populations have been disproportionately affected, and these populations have become increasingly concentrated in the cities of Kenosha, Milwaukee, and Racine.

In order to gain a better understanding as to how the six RWSP recommendations may impact the community over the planning period, CED also evaluated job projections and developed population projections by race, ethnicity, and disability for the year 2035. CED's cohort component model projects both numerical and proportional growth of the minority populations in each of the "selected communities" through the planning year 2035, although increases will be negligible in some communities. If trends over the past 50 years continue, migration of the White Alone, Non-Hispanic populations from the Cities of Milwaukee and Racine will continue to contribute to growth in suburban areas, and the White Alone populations in the cities of Kenosha and Waukesha are projected to decline in number and proportion while increases in minority populations will account for all of the population growth in those cities.

These trends indicate the need to evaluate the relationship that water distribution may have on development.

Evaluation: Is the way in which water is distributed a constraint on development?

Although the USGS and SEWRPC studies indicate that problems with groundwater quality and quantity are not widespread and are based on isolated conditions, and that groundwater resources are not currently a constraint on development in southeastern Wisconsin, there is ongoing debate over whether or not access to Lake Michigan water is necessary to support future development in parts of the region. Based on input from the focus groups and website comments, much concern was expressed that the provision of Lake Michigan water to the purchasing communities would promote continued sprawl development, particularly in the western suburbs where it is perceived that the proposed service area expansion provides considerable room for development. Assertions were made that the Regional Water Supply Plan failed to evaluate whether limiting growth to infill development would result in more regional equity.

During the scoping phase of the SEI study, it became evident that the relationship between water distribution and development lies at the center of this socio-economic impact analysis and that having a clear understanding of the relationship between water distribution, water source, land use, and development is necessary for identifying or evaluating any potential socio-economic impacts. In order to address part of this issue, CED held a series of focus groups with planners, utility managers, and developers to gain a better understanding of the relationship between water, water infrastructure, and development in southeastern Wisconsin.

- *Planners and utility managers participating in focus groups for this study did not view the source of supply as a potential constraint on development. Rather than the source of supply, they claimed that it is the costs associated with providing water and other infrastructure that generally has an impact on the development process.*
- *Additionally, the developers participating in focus groups expressed the view that the source of water would not have an impact on development, whether lake water or groundwater, and that the critical element was municipally-provided water and the ease with which the developer can tap into the existing infrastructure.*

A review of past socio-economic trends, as shown in Chapters 2, 3, and 4, indicates that there have been significant declines in income and other growth indicators over the past 40 years in the cities of Kenosha, Milwaukee, and Racine, while growth and development have tended to favor the suburban communities. The data also indicates that there are continued and growing socio-economic imbalances within the region that have had an increasingly negative impact on the larger urban core areas, particularly in the cities of Milwaukee and Racine. The question has been raised regarding land use changes within the projected service areas, whether or not any potential development within the undeveloped areas could have an impact on any socio-economic imbalances within the region.

Based on CED's land use analysis, the delineations of the existing and proposed utility service areas include lands that are for the most part, either currently developed or undevelopable under the RLUP. The land use analysis also indicates that the majority of undeveloped lands within the projected service areas are primarily infill development. Under the RWSP, growth is limited to the existing development as well as to primarily infill developable areas within the proposed expanded water utility service areas. It is therefore not anticipated that either the projected population growth or the distribution of ethnic and racial minorities, or disabled populations as projected under the CED cohort component analysis will be caused by implementation of the recommendation to change sources of water supply. Any major population increases would be based not only on a combination of fertility, mortality, and migration, but also on an incremental growth due to expansion of the water utility service areas into areas that are currently developed. These areas were delineated under the RLUP, and based on their projected densities and land, as set forth under their respective adopted comprehensive plans, should be considered serviceable by either water or sewer utilities.

- *Based on the land use findings, it is unlikely that the recommendation for the selected communities to change water sources, from groundwater to Lake Michigan, would yield any significant socio-economic imbalances through 2035.*
- *The implementation of this recommendation presumes the development of an intergovernmental cooperative agreement and water service purchase agreement in which two or more communities would have to be in agreement over the amount of water to be provided and the delineation of the water service area. This recommendation allows for the possibility that existing regional socio-economic imbalances could be rectified through an intergovernmental cooperative agreement.*

These issues needed to be addressed prior to an evaluation of each of the six recommendations under the RWSP.

SUMMARY: EVALUATION OF THE REGIONAL WATER SUPPLY PLAN RECOMMENDATIONS

The questions listed at the beginning of this chapter provided the framework for the socio-economic impact analysis. Each of the six recommendations in the RWSP was evaluated in light of the following topics addressed:

- Impact on the population distribution, including racial segregation patterns (Chapter 2)
- Impact on job growth and job patterns (Chapter 3)
- Impact on low- and moderate- income families (Chapter 4)
- Impacts on housing and other land use patterns (Chapter 5)
- Impact on Environmental Justice (Chapter 6)

Source of Supply

Based on results from the focus groups, changing the source of water supply appears to be the most contentious recommendation in the RWSP due to the potential for conflict between some of the utilities and their communities. A total of 23 potential water utility service areas and 78 existing utilities were evaluated under the RWSP. Of the 78 existing utilities, it was recommended that 27 remain on Lake Michigan supply and 42 utilities remain on groundwater supply. The potential for conflict would only arise between 9 existing utilities recommended to be converted from groundwater to Lake Michigan as the source of supply, 2 new utilities proposed to utilize Lake Michigan water, and 5 potential provider communities. Due to the potential for conflict between providing and receiving communities, much of the analysis focused specifically on these 16 utilities.

Existing Utilities to Remain on Current Supply

The following findings apply to the 27 existing utilities recommended to remain on Lake Michigan supply, and the 42 existing utilities to remain on groundwater supply.

- *It is anticipated that population growth or racial and ethnic population patterns will not be affected by the recommendations to remain on the current source of supply.*
- *It is anticipated that future job growth will not be affected by the recommendations to remain on the current source of supply. With a known source of supply, job growth will likely be impacted by other economic factors.*
- *Each of these communities has a reliable, sustainable water supply that can support existing and planned development within their delineated water service boundaries. Therefore it is anticipated that the recommendations to remain on the current source of supply will have no impact on future land use or housing patterns.*
- *PSC regulates water utility rate structures to ensure that water rates are distributed fairly to users across the system. Therefore it is not anticipated that remaining on the current source of supply will have a financial impact on low-income or disabled households.*
- *There would be little to no adverse environmental or human health effects or impacts to these communities.*

Existing Utilities to Change Source of Supply

The following findings apply to the nine utilities recommended for conversion from groundwater to Lake Michigan as source of supply. The recommendation proposal to change the source of supply was based on a number of factors including favorable environmental impacts to aid in the recovery of the deep aquifer; to improve or maintain baseflows to surface waters; to reduce chloride discharges to streams; to preserve groundwater for other uses; and to take advantage of the Milwaukee Water Work's excess capacity which has helped keep production costs low and could provide associated fiscal benefits for Milwaukee residents.

- *Past trends indicate that a significant increase in the number and percent of low-income persons or families living at or below the poverty level has occurred over the past 40 years in the cities of Kenosha, Milwaukee, and Racine while it has declined in many of the selected suburban communities. These trends are likely to continue regardless of source of supply.*
- *Ultimately, this recommendation presumes the development of both a water purchase agreement and an intergovernmental cooperative agreement between purchasing and potential providing utilities.*
 - *This recommendation provides an opportunity for communities to engage in the negotiation process, to engage in trade either for services or monies, and to offset any potential negative socio-economic impacts, real or perceived, that might exist between the communities.*

- *Under a typical purchase agreement, customers within the purchasing utility would have to pay for the costs of the distribution infrastructure, including the costs to hook onto the Lake Michigan system; these costs would be included in new rates developed by each of the receiving utilities to equitably disperse any additional costs among consumers.*
- *Wholesale rate structures developed by the providing utility would have to take into account the addition of each utility and its potential impact on its own system.*
- *Any new users within the proposed service areas would be subject to an impact fee or other assessment to hook onto the existing system. Under each new purchase agreement, any negotiated upfront fees or monetary assessments, including those used to cover the provider community's costs, would likely be distributed among the receiving utility's consumers within their rate structures.*
- *Both the receiving and providing community would have to be in agreement regarding the proposed delineated service area along with the amount of water that would be provided. This assures that growth in the receiving community would be a known factor.*
- *In any new purchase agreement, any upfront fees negotiated through an intergovernmental agreement would also be distributed among the receiving utility's consumers within their rate structures.*
- *Based on the purchase agreement, provider and purchasing communities would be able to negotiate a non-compete term to avoid job and business "poaching".*
- *The recommendation helps to improve system efficiency, keep system costs low, and ultimately, encourage lower rates. The decision to switch five of the nine selected utilities¹ was based, in part, on the excess capacity of Milwaukee Water Works which currently utilizes only about half of its designed water production capacity. In order to serve additional wholesale utilities, some of the other Lake Michigan producer's facilities would need to invest in major expansions, and the costs of the upgrades would be passed along to new customers.*
 - *Based on the existing regulatory oversight in place by the Public Service Commission (PSC), water utility rates are intended to be designed to protect existing customers from having to subsidize the needs of new customers.*
 - *Any new users within the proposed service areas would be subject to an impact fee to hook onto the existing system, which would have to be factored into the rate structures for both the receiving and providing utilities.*
 - *It is anticipated that the water rates in the communities served by a Lake Michigan supplier, including both retail and wholesale customers, would be reduced if the provider utility's service area and customer base were to expand. This would apply to all of Milwaukee County and the Racine and Kenosha Urban Service areas. The reason for this is that the fixed costs of the providers make up the greatest portion of the rates (typically 70 percent or more). These fixed costs would be distributed over a larger base, resulting in reduced rates for all customers and potentially benefiting those areas with a higher percentage of lower income populations.*
 - *In the case of the Waukesha Water Utility, based on the cost differentials between the alternatives set forth in its Great Lakes diversion application, it*

¹ The proposed existing utilities that would most likely rely on purchasing wholesale water from Milwaukee Water Works include the City of Brookfield Municipal Water Utility (limited to portion east of the subcontinental divide), Village of Germantown Water Utility, City of Muskego Public Water Utility, City of New Berlin Water Utility, and the City of Waukesha Water Utility.

appears unlikely at this time that the difference in overall cost between the Lake Michigan option and a groundwater option would result in significant socio-economic impacts. Additionally, it is unlikely that any of the Waukesha water alternatives would have negative socio-economic impacts on Milwaukee Water Works users based on cost.

- *This recommendation was made, in part, to aid in improving local groundwater quality. If carried out in environmentally sensitive ways, this should improve environmental quality for all populations.*
 - *Compared to a "do nothing" option, it is unknown as to whether or not future water service area expansions would follow a compact urban design and therefore it is impossible to establish a conclusion as to whether or not future actions outside of the plan would have adverse environmental or disproportionately adverse impacts on the communities.*

New Utilities

The following findings apply to the 21 potential new utilities recommended to utilize groundwater supply and the 2 new utilities to utilize Lake Michigan supply.

- *The development of a new utility to serve areas of existing development would only occur if there was a demonstrated local need and initiative.*
 - *Demonstrated needs often include health issues concerning water quality, such as arsenic or radium, safety issues such as fire protection services, or cost concerns such as private well treatment costs.*
 - *In such cases, a municipal system would likely be the most beneficial to all involved including low-income persons within the proposed service area.*
- *For the 21 potential future utilities to utilize groundwater supply, which are predominantly located around lakes in the western portion of Waukesha County or in the Fox River watershed throughout Racine and Kenosha Counties, it is unlikely that the development of such systems would have an impact on population growth or minority or ethnic distribution patterns.*
- *The 21 potential future utilities recommended to utilize groundwater were delineated based on existing development, therefore it is unclear whether or not the development of a water utility system could have an impact on job growth.*
- *For the 2 new utilities to utilize Lake Michigan supply; due to limited lands for development, it is unlikely that development of a municipal water supply would spur new job growth, although it could help to ensure the viability and safety of existing businesses and promote redevelopment efforts.*
- *It is unlikely that the development of such systems would have an impact on population growth or minority or ethnic distribution patterns as the primary basis for the delineation of the 23 potential future utilities is existing development.*
- *It is unlikely that the delineations created under the RLUP would have a major impact or shift in land uses or housing patterns within the region. The delineations of the newly proposed utilities were based either upon areas of existing urban development that most likely could be served by municipal water utilities, or on areas in which there are certain environmental considerations that would need to be addressed.*
- *Costs and impact fees were evaluated:*
 - *The planning, development, and construction of a new water utility system involves significant financial resources which would ultimately be paid for by the water utility consumers. This could ultimately have financial impacts on low-income homeowners residing within those proposed utility service areas if they are required to connect to a municipal system.*
 - *The development of a new utility is achieved in part through assessments charged to homeowners and all property owners to cover the cost of making a*

- physical connection to the utility service, and also to cover a portion of the costs of the utility development. The costs can be significant especially in comparison to the costs of operating and maintaining a private well.*
 - *To the often financially stressed low-income households that reside within the potential future utility service areas, and even to moderate-income households, impact fees which are often thousands of dollars can be a financial hardship.*
 - *Impact fees can also cause political and legal problems for potential consumers, utilities, and municipalities regardless of income levels within a community.*
- *The development of a new municipal water utility would be based on a demonstrated local need and initiative, and presupposes the development of an environmental analysis. The demonstrated local need may be based on specific environmental factors that need to be addressed. For those 21 potential new utilities to utilize groundwater supply and the 2 new utilities to utilize Lake Michigan supply, it is assumed that an environmental analysis would help to identify any potential adverse environmental impacts as well as environmental injustices.*
 - *For these communities, however, the “do nothing” option may or may not have an adverse environmental impact; continued monitoring may be necessary if an adverse environmental or human health impact is suspected.*
- *Recommendation: the RWSP should include information or a sub-recommendation on how communities or new utilities can provide assistance or low- or no-interest loans for low- to median-income homeowners.*

Water Conservation Programming

A water conservation program is identified as a combination of practices, procedures, policies and technologies to reduce the amount of water used or to improve or maintain water utility system efficiency. The recommendations regarding water conservation programming in the RWSP are two-fold in their design: first, they were developed to increase water system efficiency which reduces the amount of water pumped to meet customer demands, and second, to reduce the amount of water used by customers. The RWSP includes a range of recommendations for water conservation programming, depending on the infrastructure needs of each water utility and the source of supply as shown in Table 58 in Planning Report 52.

Water conservation measures, at any level, are designed to both improve the use of supply and therefore to sustain all sources of water supply for all water consumers. The following applies to all of the existing and proposed utility service areas;

- *Based on the recommendations, it is likely that the water conservation measures implemented at the local level could encourage customers to reduce their water use.*
- *It is unlikely that water conservation programming would have any negative fiscal impact on low-income households, and any savings at the utility level could be passed on to all utility customers including low-income customers.*
- *Although conservation programs could lead to reductions in lawn watering or changes in landscaping practices, it is unlikely that this could have any widespread impact or change in land use or housing patterns, and it is unlikely that there would be any impact on land uses and household patterns.*
- *As water conservation measures are intended to improve the quantity and quality of all water supplies within the region, it is unlikely that the implementation of this recommendation would cause any disproportionate environmental justice impacts.*

Recharge Area Protection

Currently, there are no regulatory constraints, at either the state, county or local levels, regarding development in (high or very high) groundwater recharge areas. The RWSP recommends that important groundwater recharge and discharge areas should be identified for preservation or for application of land development plans and practices that protect groundwater quality and maintain the natural surface and groundwater hydrology. It does not, however, give further instruction as to specify any new regulatory constraints, and as SEWRPC is an advisory body, it does not hold the authority to create or enforce new regulatory constraints.

Based on the RWSP recommendation related to recharge area protection;

- *The recharge areas, by their nature, are typically undevelopable or undeveloped open space lands, or lands within the delineated environmental corridors that SEWRPC recommends not be developed, therefore it is unlikely that there would be any significant impact on any segment of the population.*
 - *As such, it is unlikely that the implementation of this recommendation would cause any disproportionate environmental injustice impacts.*
- *There is no credible method to draw a linkage between the implementation of the recharge area protection recommendation and the potential for having an impact on population growth or minority, ethnic, or disabled population distribution patterns in the Region.*
- *Based on a lack of regulatory constraints and a lack of formally delineated recharge areas, there is no credible method to draw a linkage between the implementation of the recharge area protection recommendation and the potential for having an impact on low-income households in the Region.*
- *It is unlikely that the installation of enhanced rainfall infiltration systems would have an adverse impact on the environment or that it would cause any disproportionate environmental injustice impacts.*
- *Recommendation: The delineation of recharge areas for protection should, if applicable, include an inventory of the population and land use, and any development of local, county, or state regulations regarding recharge areas should take into consideration any potential ramifications that the implementation of regulations could have on the populations of the delineated recharge areas.*

Stormwater Management Practices

Similar to groundwater recharge, stormwater management practices encourage groundwater treatment and infiltration (recharge) in order to best maintain the natural hydrology between surface waters and groundwaters, and therefore, to contribute to a sustainable groundwater supply. The RWSP recommends following stormwater best management practices related to infiltration and recharge for all new residential and for selected nonresidential developments.

Regulations regarding stormwater management and its related land management practices are set forth by the State of Wisconsin in NR Chapters 151-155, NR 216, NR 243, and ATCP 50 of the Wisconsin Administrative Code, and administered at the County or local level through various zoning ordinances. Stormwater management practices are generally considered to be safeguards to ensure a safe, abundant groundwater supply, and although unlikely to have an impact on population or job patterns, state-of-the-art stormwater management practices may require restrictions on specific types of land uses.

Based on the RWSP recommendation to follow best management practices related to stormwater infiltration and recharge for all new development;

- *There is no clear, identifiable linkage between the implementation of the stormwater management practices recommendation and the potential for having an impact on population growth or minority, ethnic, and disabled population distribution patterns or job growth and distribution in the Region.*
- *The implementation of the stormwater management practices recommendation most likely would have a positive impact on land uses or household patterns in the Region. This recommendation also provides an opportunity to study the impacts that various stormwater infiltration and recharge practices may have on various land uses (different types and densities) and housing patterns, and in turn can help to further direct land use planning.*
- *It is unlikely that stormwater management practices would have an adverse impact on the environment or that it would cause any disproportionate environmental injustice impacts.*

High Capacity Well Siting Procedures

Currently, the Wisconsin Department of Natural Resources regulations require a permit application for all new high capacity wells. The DNR review includes the potential impact of the well on nearby municipal wells and selected adjacent surface waters among other things. The RWSP provides guidance regarding the siting of all new high capacity wells and for monitoring the impacts that such wells may have on the shallow aquifer. The RWSP recommendations for improving high capacity well regulations are based on improving methods to safeguard the quantity and quality of the groundwater supply, and for insuring that groundwater extraction will not have a negative impact on nearby surface waters through baseflow depletion.

This recommendation implies adoption of regulations incorporating well siting procedures, and development of such regulations should take into consideration any potential impacts on existing housing or land use patterns. Additionally, the RWSP recommendation to improve high-capacity well siting methods and regulations provides an opportunity to study the impacts that high-capacity well siting can have on various land uses (different types and densities) and on housing patterns. This in turn can provide greater insight into the impacts that high-capacity groundwater pumpage can have on local land uses and conditions within southeastern Wisconsin, and can help to further direct land use planning.

Based on the RWSP recommendation to improve high capacity well siting methods and regulations,

- *There is no clear, identifiable direct linkage between the implementation of the high capacity well recommendation and the potential for having an impact on population growth or minority and ethnic distribution patterns, job growth or distribution, or overall land use patterns in the Region. This recommendation implies adoption of regulations incorporating well siting procedures. Development of high capacity well regulations should take into consideration any potential impacts on all nearby populations and land uses.*
- *It is unlikely that the high capacity well recommendation would have an adverse impact on the environment or that it would cause any disproportionate environmental injustice impacts.*

Enhanced Rainfall Infiltrations Systems

Enhanced rainfall infiltration systems are artificial methods to recharge groundwater. The RWSP recommends the use of enhanced rainfall infiltration systems in conjunction with the siting of shallow aquifer high capacity wells, if siting studies indicate that baseflow reductions to nearby surface waters could be materially affected.

The determination to use enhanced rainfall infiltration systems is based on local conditions and the appropriate type of groundwater recharge infiltration system would need to be determined on a site specific basis.

- *As the enhanced rainfall infiltration systems typically involve open space areas, there should be no foreseeable significant impact on land use or housing patterns in the Region.*
- *Based on these constraints, there is no clear linkage between the implementation of the enhanced rainfall infiltration system recommendation and the potential for having an impact on population growth or minority, ethnic, and disabled population distribution patterns in the Region.*
- *There is no clear linkage between the implementation of the enhanced rainfall infiltration system recommendation and the potential for having an impact on job growth or distribution patterns in the Region.*

SUMMARY: EVALUATION OF THE REGIONAL WATER SUPPLY PLAN IN LIGHT OF PUBLIC PARTICIPATION

As part of the socio-economic impact analysis, CED examined whether or not the implementation of the regional water supply recommendations could contribute to any failure of the plan to meet Federal regulations attendant to civil rights and environmental justice. This includes an evaluation of the RWSP planning process itself.

The planning process demands that planners find a way to directly engage those whose lives and communities could ostensibly be impacted by planning decisions at all levels, particularly in minority and low-income communities. Assessing community perceptions about regional development is most difficult when portions of that community may not be engaged in the planning process. The third point in the Office of Environmental Justice **Toolkit** asks whether or not Environmental Justice communities have been sufficiently involved in the decision-making process. The **Toolkit** provides guidance to evaluate whether or not any relevant person or group has been denied an opportunity for meaningful involvement in governmental decision-making relating to the distribution of environmental benefits or burdens.

While SEWRPC conducted considerable public outreach during the course of the RWSP planning process, its failure to include a representative from environmental justice communities on the RWSP Technical Committee violates the spirit, if not the letter, of environmental justice. Although environmental justice communities were solicited to provide feedback and insight throughout the planning process, the lack of direct inclusion in plan development violates the intent of Principle 7 of the Principles of Environmental Justice. It may also weaken the plan as it denies an opportunity for SEWRPC to engage with environmental justice communities in order to gain support for plan recommendations.

- *Recommendation: for any future updates to the Regional Water Supply Plan, it is recommended that SEWRPC and the Environmental Justice Task Force establish a process for selecting one or more representatives from either the EJTF or from the Environmental Justice community for the RWSP Technical Committee.*

There has been a growing trend in community-level planning towards the formalization of public participation plans, partially due to the widespread implementation of comprehensive and “Smart Growth” planning efforts. A public participation plan provides a formal document that outlines the specific strategies that are used for public engagement². Developing a

² Miskowiak, Douglas Center for Land Use Education *Crafting an Effective Plan for Public Participation*, November 2004 accessible at www.uwsp.edu/cnr/landcenter/Publications/PublicParticipation.pdf

formalized public participation plan or strategy for each of the region-wide plans, similar to the public participation plan that SEWRPC adopted for the Regional Transportation Plan³ and each of the county-wide comprehensive plans, may help to facilitate effective public involvement and add to greater transparency in the planning process.

- *Recommendation: for any future updates to the Regional Water Supply Plan, it is recommended that SEWRPC adopt a formal public participation plan.*

* * *

³ SEWRPCs Public Participation Plan for Transportation Planning accessible online at http://maps.sewrpc.org/transportation/taskforce/pdfs/sewrpc_public_participation_plan.pdf

Appendix A: Population Tables

Table A-I: 2000 Population Distribution by Race for Southeastern Wisconsin

County	White Alone		Black or African American Alone		American Indian or Alaska Native Alone		Asian Alone		Native Hawaiian or Pacific Islander Alone		Some Other Race Alone		Two or More Races		Total Population	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Kenosha	132,193	88.4	7,600	5.1	564	0.4	1,381	0.9	57	<0.1	4,924	3.3	2,858	1.9	149,577	100
Milwaukee	616,973	65.6	231,157	24.6	6,794	0.7	24,145	2.6	422	<0.1	39,931	4.2	20,742	2.2	940,164	100
Ozaukee	79,621	96.7	765	0.9	162	0.2	882	1.1	14	<0.1	276	0.3	597	0.7	82,317	100
Racine	156,796	83.0	19,777	10.5	687	0.4	1,363	0.7	77	<0.1	6,972	3.7	3,159	1.7	188,831	100
Walworth	88,597	94.5	790	0.8	219	0.2	612	0.7	24	<0.1	2,452	2.6	1065	1.1	93,759	100
Washington	114,778	97.7	465	0.4	296	0.3	674	0.6	35	<0.1	474	0.4	771	0.7	117,493	100
Waukesha	345,506	95.8	2,646	0.7	788	0.2	5,381	1.5	87	<0.1	3,128	0.9	3,231	0.9	360,767	100
Region	1,534,464	79.4	263,200	13.6	9,510	0.5	34,438	1.8	716	<0.1	58,157	3.0	32,423	1.7	1,932,908	100

Source: US Census Bureau (SF1)

Table A-II: 1990 Population Distribution by Race for Southeastern Wisconsin

County	White		Black or African American		American Indian Eskimo or Aleut		Asian		Native Hawaiian or Pacific Islander		Some Other Race		Total Population	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Kenosha	119,286	93.1	5,301	4.1	470	0.4	671	0.5	0	0	2,453	1.9	128,181	100
Milwaukee	719,648	75.0	195,551	20.4	7,258	0.8	14,580	1.5	273	0	21,965	2.3	959,275	100
Ozaukee	71,748	98.5	492	0.7	123	0.2	404	0.6	0	0	64	0.1	72,831	100
Racine	152,144	86.9	16,981	9.7	590	0.3	1,075	0.6	13	0	4,231	2.4	175,034	100
Walworth	72,587	96.8	435	0.6	231	0.3	728	1.0	5	0	1,014	1.4	75,000	100
Washington	94,645	99.3	99	0.1	142	0.1	310	0.3	9	0	123	0.1	95,328	100
Waukesha	298,222	97.9	1,002	0.3	615	0.2	2,732	0.9	76	0	2,068	0.7	304,715	100
Region	1,528,280	84.4	219,861	12.1	9,429	0.5	20,500	1.1	376	0	31,918	1.8	1,810,364	100

Source: US Census Bureau

Table A-III: 1980 Population Distribution by Race for Southeastern Wisconsin

County	White		Black or African American		American Indian Eskimo or Aleut		Asian and Pacific Islander		Some Other Race		Total Population	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Kenosha	117,830	95.7	3,128	2.5	457	0.4	474	0.4	1,248	1.0	123,137	100
Milwaukee	790,568	81.9	149,385	15.5	6,179	0.6	6,838	0.7	12,018	1.2	964,988	100
Ozaukee	66,162	98.8	451	0.7	131	0.2	150	0.2	87	0.1	66,981	100
Racine	155,605	89.9	13,824	8.0	283	0.2	697	0.4	2,723	1.6	173,132	100
Walworth	70,084	98.0	393	0.5	170	0.2	238	0.3	622	0.9	71,507	100
Washington	84,198	99.2	52	0.1	234	0.3	239	0.3	125	0.1	84,848	100
Waukesha	275,850	98.4	950	0.3	492	0.2	1,715	0.6	1,319	0.5	280,203	100
Region	1,560,297	88.4	168,183	9.5	7,946	0.5	10,351	0.6	18,142	1.0	1,764,796	100

Source: US Census Bureau

Table A-IV: 1970 Population Distribution by Race for Southeastern Wisconsin

County	White		Black or African American ("Negro")		Some Other Race		Total Population	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Kenosha	115,623	98.1	1,930	1.6	364	0.3	117,917	100
Milwaukee	939,989	89.2	106,033	10.1	8,040	0.8	1,054,062	100
Ozaukee	54,197	99.6	92	0.2	132	0.2	54,421	100
Racine	161,464	94.5	10,572	6.2	1,200	0.7	170,836	100
Walworth	62,879	99.1	287	0.5	722	1.1	63,444	100
Washington	63,652	99.7	45	0.1	142	0.2	63,839	100
Waukesha	230,205	99.5	362	0.2	798	0.3	231,365	100
Region	1,628,009	92.7	119,321	6.8	11,398	0.6	1,755,884	100

Source: US Census Bureau

Table A-V: 1960 Population Distribution by Race for Southeastern Wisconsin

County	White		Black or African American ("Negro")		Some Other Race		Total Population	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Kenosha	99,525	98.9	957	1.0	133	0.1	100,615	100
Milwaukee	969,264	93.6	63,024	6.1	3,753	0.4	1,036,041	100
Ozaukee	38,395	99.9	9	0.0	37	0.1	38,441	100
Racine	136,322	96.1	5,289	3.7	170	0.1	141,781	100
Walworth	52,138	99.6	158	0.3	72	0.1	52,368	100
Washington	46,060	99.9	8	0.0	51	0.1	46,119	100
Waukesha	157,959	99.8	145	0.1	145	0.1	158,249	100
Region	1,499,663	95.3	69,590	4.4	4,361	0.3	1,573,614	100

Source: US Census Bureau

Table A-VI: 2000 Population Distribution by Race for Southeastern Wisconsin

Community	White Alone		Black or African American Alone		American Indian or Alaska Native Alone		Asian Alone		Native Hawaiian or Pacific Islander Alone		Some Other Race Alone		Two or More Races		Total Population	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Kenosha	75,566	83.6	6,943	7.7	398	0.4	893	1.0	40	<0.1	4,366	4.8	2,146	2.4	90,352	100
Milwaukee	298,379	50.0	222,933	37.3	5,212	0.9	17,571	2.9	301	0.1	36,428	6.1	16,150	2.7	596,974	100
Oak Creek	26,169	92.0	519	1.8	169	0.6	680	2.4	1	<0.1	484	1.7	434	1.5	28,456	100
Port Washington	10,150	97.0	73	0.7	39	0.4	49	0.5	0	0.0	63	0.6	93	0.9	10,467	100
Racine	56,408	68.9	16,634	20.3	328	0.4	497	0.6	42	0.1	5,841	7.1	2,105	2.6	81,855	100
Brookfield	36,407	94.2	321	0.8	35	0.1	1,479	3.8	7	<0.1	87	0.2	313	0.8	38,649	100
Cedarburg	10,708	98.2	27	0.2	14	0.1	80	0.7	2	<0.1	14	0.1	63	0.6	10,908	100
Elm Grove	6,070	97.1	27	0.4	7	0.1	93	1.5	5	0.1	25	0.4	22	0.4	6,249	100
Germantown	17,498	95.8	247	1.4	45	0.2	292	1.6	7	<0.1	62	0.3	109	0.6	18,260	100
Grafton	10,077	97.7	29	0.3	25	0.2	77	0.7	1	<0.1	38	0.4	65	0.6	10,312	100
Muskego	20,992	98.1	34	0.2	46	0.2	97	0.5	5	<0.1	76	0.4	147	0.7	21,397	100
New Berlin	36,631	95.8	169	0.4	82	0.2	883	2.3	6	<0.1	173	0.5	276	0.7	38,220	100
Saukville	3,963	97.4	23	0.6	6	0.1	25	0.6	0	0.0	13	0.3	38	0.9	4,068	100
Waukesha	59,133	91.2	831	1.3	216	0.3	1,407	2.2	23	<0.1	2,144	3.3	1,071	1.7	64,825	100

Source: US Census Bureau (SF1)

Table A-VII: 1990 Population Distribution by Race for Southeastern Wisconsin

Community	White		Black or African American		American Indian Eskimo or Aleut		Asian		Native Hawaiian or Pacific Islander		Some Other Race		Total Population	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Kenosha	72,139	89.8	5,137	6.4	297	0.4	448	0.6	0	0	2,331	2.9	80,352	100
Milwaukee	398,033	63.4	191,255	30.5	5,858	0.9	11,817	1.9	0	<0.1	21,125	3.3	628,088	100
Oak Creek	18,907	96.9	142	0.7	105	0.5	168	0.9	0	0	191	1.0	19,513	100
Port Washington	9,237	98.9	11	0.1	43	0.5	40	0.4	0	0	7	<0.1	9,338	100
Racine	64,378	76.4	15,551	18.5	273	0.3	458	0.5	0	0	3,638	4.3	84,298	100
Brookfield	34,082	96.9	136	0.4	53	0.2	859	2.4	0	0	54	0.2	35,184	100
Cedarburg	9,812	99.2	13	0.1	11	0.1	37	0.4	0	0	22	0.2	9,895	100
Elm Grove	6,122	97.8	10	0.2	7	0.1	111	1.8	0	0	11	0.2	6,261	100
Germantown	13,484	98.7	58	0.4	23	0.2	67	0.5	0	0	26	0.2	13,658	100
Grafton	9,275	99.3	4	<0.1	24	0.3	21	0.2	0	0	16	0.2	9,340	100
Muskego	16,700	99.3	13	<0.1	27	0.2	41	20.0	0	0	32	0.2	16,813	100
New Berlin	33,055	98.4	80	0.2	73	0.2	331	1.0	0	0	53	0.2	33,592	100
Saukville	3,676	99.5	1	<0.1	4	0.1	12	0.3	0	0	2	<0.1	3,695	100
Waukesha	54,319	95.4	317	0.6	161	0.3	719	1.3	0	0	1,442	2.5	56,958	100

Source: US Census Bureau

Table A-VIII: 1980 Population Distribution by Race for Southeastern Wisconsin

County	White		Black or African American		American Indian Eskimo or Aleut		Asian and Pacific Islander		Some Other Race		Total Population	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Kenosha	72,841	93.8	3,062	3.9	283	0.4	370	0.5	1,129	1.5	77,685	100
Milwaukee	468,064	73.6	147,055	23.1	5,348	0.8	4,451	0.7	11,294	1.8	636,212	100
Oak Creek	16,643	98.3	48	0.3	80	0.5	63	0.4	98	0.6	16,932	100
Port Washington	8,549	99.3	0	0.0	32	0.4	20	0.2	11	0.1	8,612	100
Racine	70,519	82.3	12,601	14.7	99	0.1	308	0.4	2,203	2.6	85,730	100
Brookfield	33,148	97.4	289	0.8	33	0.1	557	1.6	8	0.0	34,035	100
Cedarburg	8,962	99.5	6	0.1	0	0.0	10	0.1	27	0.3	9,005	100
Elm Grove	6,648	98.7	26	0.4	6	0.1	55	0.8	0	0.0	6,735	100
Germantown	10,619	99.0	50	0.5	6	0.1	54	0.5	0	0.0	10,729	100
Grafton	8,332	99.4	0	0.0	30	0.4	19	0.2	0	0.0	8,381	100
Muskego	15,263	99.9	0	0.0	5	<0.1	9	0.1	0	0.0	15,277	100
New Berlin	30,256	99.1	22	0.1	30	0.1	212	0.7	9	<0.0	30,529	100
Saukville	3,469	99.7	9	0.3	0	0.0	0	0.0	0	0.0	3,478	100
Waukesha	48,573	96.5	212	0.4	141	0.3	369	0.7	1,024	2.0	50,319	100

Source: US Census Bureau (SF1)

Table A-IX: 1970 Population Distribution by Race for Southeastern Wisconsin

County	White		Black or African American		Other Races ¹		Total Population	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Kenosha	76,625	97.2	1,921	2.4	259	0.3	78,805	100
Milwaukee	605,372	84.4	105,088	14.7	6,639	0.9	717,099	100
Oak Creek	13,743	98.9	47	0.3	111	0.8	13,901	100
Port Washington	8,724	99.7	5	0.1	23	0.3	8,752	100
Racine	84,667	89.0	10,008	10.5	487	0.5	95,162	100
Brookfield	32,010	99.6	33	0.1	97	0.3	32,140	100
Cedarburg	7,676	99.7	0	0.0	21	0.3	7,697	100
Elm Grove	7,184	99.8	5	0.1	12	0.2	7,201	100
Germantown	6,933	99.4	28	0.4	13	0.2	6,974	100
Grafton	5,977	99.6	3	0.1	18	0.3	5,998	100
Muskego	11,554	99.8	4	<0.1	15	0.1	11,573	100
New Berlin	26,837	99.6	17	0.1	83	0.3	26,937	100
Saukville	1,388	99.9	0	0.0	1	0.1	1,389	100
Waukesha	39,892	99.1	126	0.3	240	0.6	40,258	100

Source: US Census Bureau (SF1)

¹ Other Races includes: Indian, Japanese, Chinese, Filipino, Other Races.

Table A-X: 1960 Population Distribution by Race for Southeastern Wisconsin

Community	White		Black or African American ("Negro")		Some Other Race ⁱ		Total Population	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Kenosha	66,884	98.5	943	1.4	72	0.1	67,899	100
Milwaukee	675,572	91.1	62,458	8.4	3,294	0.4	741,324	100
Oak Creek	2,542	99.7	5	0.2	2	0.1	2,549	100
Port Washington	5,976	99.9	2	<0.1	6	0.1	5,984	100
Racine	84,332	94.6	4,738	5.3	74	0.1	89,144	100
Brookfield	19,794	99.9	8	<0.1	10	0.1	19,812	100
Cedarburg	5,189	100.0	1	<0.1	1	<0.1	5,191	100
Elm Grove	4,990	99.9	2	<0.1	2	<0.1	4,994	100
Germantown	622	100.0	0	0.0	0	0.0	622	100
Grafton	3,745	99.9	0	0.0	3	0.1	3,748	100
Muskego ⁱⁱ	--	--	--	--	--	--	--	--
New Berlin	15,774	99.9	3	<0.1	11	0.1	15,788	100
Saukville	1,038	100.0	0	0.0	0	0.0	1,038	100
Waukesha	29,863	99.5	81	0.3	60	0.2	30,004	100

Source: US Census Bureau (SF1)

ⁱ Other Races includes: Indian, Japanese, Chinese, Filipino, Other Races.

ⁱⁱ The City of Muskego was not incorporated until 1964 and therefore no Census data is available.

Table A-XI: 2000 Population by Race for Southeastern Wisconsin Municipalities

Community	Total Population	White Alone		Black or African American Alone		American Indian or Alaska Native Alone		Asian Alone		Native Hawaiian or Pacific Islander Alone		Some Other Race Alone		Two or More Races		Rank Based on Percent Minority	
	Number	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Rank	%
Kenosha County	149,577	132,193	88.4	7,600	5.1	564	0.4	1,381	0.9	57	<0.1	4,924	3.3	2,858	1.9	--	--
Kenosha	90,352	75,566	83.6	6,943	7.7	398	0.4	893	1.0	40	<0.1	4,366	4.8	2,146	2.4	6	16.4
Paddock Lake	3,012	2,917	96.8	12	0.4	5	0.2	21	0.7	1	<0.1	28	0.9	28	0.9	47	3.2
Pleasant Prairie	16,136	15,181	94.1	234	1.5	63	0.4	223	1.4	4	<0.1	167	1.0	264	1.6	24	5.9
Silver Lake	2,341	2,268	96.9	2	0.1	13	0.6	4	0.2	0	0.0	19	0.8	35	1.5	48	3.1
Twin Lakes	5,124	4,988	97.3	19	0.4	9	0.2	29	0.6	1	<0.1	29	0.6	49	1.0	60	2.7
Remainder of County	32,612	31,273	95.9	390	1.2	76	0.2	211	0.6	11	<0.1	315	1.0	336	1.0	--	--
Milwaukee County	940,164	616,973	65.6	231,157	24.6	6,794	0.7	24,145	2.6	422	<0.1	39,931	4.2	20,742	2.2	--	--
Bayside ⁱ	4,518	4,263	94.4	125	2.8	7	0.2	82	1.8	4	0.1	14	0.3	23	0.5	27	5.6
Brown Deer	12,170	9,984	82.0	1,522	12.5	31	0.3	319	2.6	5	<0.1	80	0.7	229	1.9	4	18.0
Cudahy	18,429	17,303	93.9	175	0.9	150	0.8	154	0.8	6	<0.1	267	1.4	374	2.0	21	6.1
Fox Point	7,012	6,700	95.6	85	1.2	8	0.1	150	2.1	1	<0.1	13	0.2	55	0.8	32	4.4
Franklin	29,494	26,775	90.8	1,520	5.2	106	0.4	619	2.1	10	<0.1	197	0.7	267	0.9	10	9.2
Glendale	13,367	11,597	86.8	1,087	8.1	31	0.2	395	3.0	13	0.1	66	0.5	178	1.3	9	13.2
Greendale	14,405	13,855	96.2	41	0.3	23	0.2	296	2.1	1	<0.1	81	0.6	108	0.7	36	3.8
Greenfield	35,476	33,247	93.7	348	1.0	155	0.4	802	2.3	7	<0.1	464	1.3	453	1.3	19	6.3
Hales Corners	7,765	7,544	97.2	17	0.2	38	0.5	75	1.0	3	<0.1	44	0.6	44	0.6	52	2.8
Milwaukee	596,974	298,379	50.0	222,933	37.3	5,212	0.9	17,571	2.9	301	0.1	36,428	6.1	16,150	2.7	1	50.0
Oak Creek	28,456	26,169	92.0	519	1.8	169	0.6	680	2.4	1	<0.1	484	1.7	434	1.5	15	8.0
River Hills	1,631	1,398	85.7	80	4.9	2	0.1	123	7.5	0	0.0	1	0.1	27	1.7	8	14.3
St. Francis	8,662	8,122	93.8	84	1.0	76	0.9	91	1.1	2	<0.1	130	1.5	157	1.8	20	6.2
Shorewood	13,763	12,584	91.4	332	2.4	32	0.2	439	3.2	5	<0.1	116	0.8	255	1.9	13	8.6
South Milwaukee	21,256	20,153	94.8	222	1.0	123	0.6	147	0.7	9	<0.1	289	1.4	313	1.5	29	5.2
Wauwatosa	47,271	44,422	94.0	965	2.0	128	0.3	918	1.9	31	0.1	254	0.5	553	1.2	22	6.0
West Allis	61,254	57,600	94.0	818	1.3	428	0.7	812	1.3	12	<0.1	720	1.2	864	1.4	23	6.0
West Milwaukee	4,201	3,511	83.6	147	3.5	65	1.5	107	2.5	3	0.1	246	5.9	122	2.9	5	16.4
Whitefish Bay	14,163	13,467	95.1	139	1.0	10	0.1	366	2.6	8	0.1	37	0.3	136	1.0	31	4.9
Remainder of County ⁱ	-103	-100	95.1	-2	1.0	0	0.0	-1	0.5	0	0.0	0	0.0	0	0.0	--	--
Ozaukee County	82,317	79,621	96.7	765	0.9	162	0.2	882	1.1	14	<0.1	276	0.3	597	0.7	--	--
Belgium	1,678	1,616	96.3	8	0.5	7	0.4	3	0.2	0	0.0	25	1.5	19	1.1	38	3.7
Cedarburg	10,908	10,708	98.2	27	0.2	14	0.1	80	0.7	2	<0.1	14	0.1	63	0.6	74	1.8
Fredonia	1,934	1,883	97.4	10	0.5	9	0.5	10	0.5	0	0.0	7	0.4	15	0.8	61	2.7
Grafton	10,312	10,077	97.7	29	0.3	25	0.2	77	0.7	1	<0.1	38	0.4	65	0.6	66	2.3
Mequon	21,823	20,549	94.2	492	2.3	21	0.1	522	2.4	6	<0.1	51	0.2	182	0.8	25	5.8
Port Washington	10,467	10,150	97.0	73	0.7	39	0.4	49	0.5	0	0.0	63	0.6	93	0.9	49	3.0
Saukville	4,068	3,963	97.4	23	0.6	6	0.1	25	0.6	0	0.0	13	0.3	38	0.9	63	2.6
Thiensville	3,254	3,142	96.6	24	0.7	2	0.1	41	1.3	0	0.0	6	0.2	39	1.2	41	3.4
Remainder of County ⁱⁱ	17,873	17,533	98.1	79	0.4	39	0.2	75	0.4	5	0.0	59	0.3	83	0.5	--	--
Racine County	188,831	156,796	83.0	19,777	10.5	687	0.4	1,363	0.7	77	<0.1	6,972	3.7	3,159	1.7	--	--
Burlington	9,936	9,528	95.9	37	0.4	12	0.1	55	0.6	0	0.0	220	2.2	84	0.8	35	4.1
Elmwood Park	474	458	96.6	16	3.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	43	3.4

Community	Total Population	White Alone		Black or African American Alone		American Indian or Alaska Native Alone		Asian Alone		Native Hawaiian or Pacific Islander Alone		Some Other Race Alone		Two or More Races		Rank Based on Percent Minority	
	Number	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Rank	%
North Bay	260	238	91.5	12	4.6	0	0.0	0	0.0	0	0.0	1	0.4	9	3.5	14	8.5
Racine	81,855	56,408	68.9	16,634	20.3	328	0.4	497	0.6	42	0.1	5,841	7.1	2,105	2.6	2	31.1
Rochester	1,149	1,118	97.3	1	0.1	4	0.3	2	0.2	0	0.0	8	0.7	16	1.4	58	2.7
Sturtevant	5,287	4,243	80.3	835	15.8	61	1.2	21	0.4	11	0.2	44	0.8	72	1.4	4	19.
Union Grove	4,322	4,201	97.2	12	0.3	9	0.2	31	0.7	0	0.0	18	0.4	51	1.2	53	2.8
Waterford	4,048	3,973	98.1	11	0.3	9	0.2	8	0.2	0	0.0	17	0.4	30	0.7	73	1.9
Wind Point	1,853	1,754	94.7	6	0.3	4	0.2	56	3.0	0	0.0	1	0.1	32	1.7	28	5.3
Remainder of County	79,647	74,875	94.0	2,213	2.8	260	0.3	693	0.9	24	<0.1	822	1.0	760	1.0	--	--
Walworth County	93,759	88,597	94.5	790	0.8	219	0.2	612	0.7	24	<0.1	2,452	2.6	1065	1.1	--	--
Darien	1,572	1,464	93.1	8	0.5	4	0.3	0	0.0	1	0.1	69	4.4	26	1.7	17	6.9
Delavan	7,956	6,704	84.3	91	1.1	37	0.5	53	0.7	6	0.1	849	10.7	216	2.7	7	15.7
East Troy	3,564	3,449	96.8	6	0.2	10	0.3	19	0.5	0	0.0	48	1.3	32	0.9	46	3.2
Elkhorn	7,305	6,926	94.8	34	0.5	29	0.4	40	0.5	2	<0.1	207	2.8	67	0.9	30	5.2
Fontana-on-Geneva Lake	1,754	1,723	98.2	7	0.4	0	0.0	15	0.9	0	0.0	7	0.4	2	0.1	78	1.8
Genoa City	1,949	1,900	97.5	3	0.2	3	0.2	10	0.5	0	0.0	6	0.3	27	1.4	64	2.5
Lake Geneva	7,148	6,491	90.8	64	0.9	8	0.1	77	1.1	4	0.1	369	5.2	135	1.9	11	9.2
Sharon	1,549	1,446	93.4	9	0.6	7	0.5	7	0.5	0	0.0	56	3.6	24	1.5	18	6.6
Walworth	2,304	2,240	97.2	11	0.5	2	0.1	15	0.7	1	<0.1	27	1.2	8	0.3	55	2.8
Whitewater ⁱⁱⁱ	13,437	12,395	92.2	315	2.3	36	0.3	197	1.5	2	<0.1	333	2.5	159	1.2	16	7.8
Williams Bay	2,415	2,371	98.2	12	0.5	2	0.1	8	0.3	1	<0.1	17	0.7	4	0.2	75	1.8
Remainder of County	42,806	41,488	96.9	230	0.5	81	0.2	171	0.4	7	<0.1	464	1.1	365	0.9	--	--
Washington County	117,493	114,778	97.7	465	0.4	296	0.3	674	0.6	35	<0.1	474	0.4	771	0.7	--	--
Germantown	18,260	17,498	95.8	247	1.4	45	0.2	292	1.6	7	<0.1	62	0.3	109	0.6	33	4.2
Hartford	10,905	10,545	96.7	29	0.3	38	0.3	50	0.5	5	<0.1	134	1.2	104	1.0	44	3.3
Jackson	4,938	4,865	98.5	4	0.1	12	0.2	10	0.2	0	0.0	16	0.3	31	0.6	79	1.5
Kewaskum	3,274	3,207	98.0	9	0.3	6	0.2	12	0.4	0	0.0	12	0.4	28	0.9	71	2.0
Newburg ^{iv}	1,119	1,089	97.3	0	0.0	4	0.4	3	0.3	0	0.0	1	0.1	22	2.0	59	2.7
Slinger	3,901	3,821	97.9	10	0.3	6	0.2	7	0.2	2	0.1	16	0.4	39	1.0	70	2.1
West Bend	28,152	27,391	97.3	96	0.3	119	0.4	148	0.5	2	<0.1	173	0.6	223	0.8	57	2.7
Remainder of County	46,944	46,362	98.8	70	0.1	66	0.1	152	0.3	19	<0.1	60	0.1	215	0.5	--	--
Waukesha County	360,767	345,506	95.8	2,646	0.7	788	0.2	5,381	1.5	87	<0.1	3,128	0.9	3,231	0.9	--	--
Big Bend	1,278	1,243	97.3	6	0.5	7	0.5	3	0.2	5	0.4	5	0.4	9	0.7	56	2.7
Brookfield (C)	38,649	36,407	94.2	321	0.8	35	0.1	1,479	3.8	7	<0.1	87	0.2	313	0.8	26	5.8
Butler	1,881	1,832	97.4	5	0.3	20	1.1	9	0.5	3	0.2	0	0.0	12	0.6	62	2.6
Chenequa	583	570	97.8	0	0.0	2	0.3	2	0.3	1	0.2	0	0.0	8	1.4	68	2.2
Delafield	6,472	6,326	97.7	6	0.1	20	0.3	37	0.6	0	0.0	21	0.3	62	1.0	67	2.3
Dousman	1,584	1,530	96.6	9	0.6	1	0.1	13	0.8	0	0.0	9	0.6	22	1.4	42	3.4
Eagle	1,707	1,647	96.5	4	0.2	9	0.5	5	0.3	0	0.0	23	1.3	19	1.1	39	3.5
Elm Grove	6,249	6,070	97.1	27	0.4	7	0.1	93	1.5	5	0.1	25	0.4	22	0.4	51	2.9
Hartland	10,905	10,545	96.7	29	0.3	38	0.3	50	0.5	5	<0.1	134	1.2	104	1.0	45	3.3
Lannon	1,009	988	97.9	5	0.5	4	0.4	1	0.1	0	0.0	1	0.1	10	1.0	69	2.1
Menomonee Falls	32,647	31,504	96.5	479	1.5	53	0.2	288	0.9	7	<0.1	78	0.2	238	0.7	40	3.5

Community	Total Population	White Alone		Black or African American Alone		American Indian or Alaska Native Alone		Asian Alone		Native Hawaiian or Pacific Islander Alone		Some Other Race Alone		Two or More Races		Rank Based on Percent Minority	
	Number	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Rank	%
Merton	1,926	1,900	98.7	8	0.4	4	0.2	4	0.2	0	0.0	0	0.0	10	0.5	81	1.3
Mukwonago	6,162	6,052	98.2	12	0.2	15	0.2	22	0.4	0	0.0	18	0.3	43	0.7	76	1.8
Muskego	21,397	20,992	98.1	34	0.2	46	0.2	97	0.5	5	<0.1	76	0.4	147	0.7	72	1.9
Nashotah	1,266	1,251	98.8	2	0.2	2	0.2	3	0.2	1	0.1	1	0.1	6	0.5	82	1.2
New Berlin	38,220	36,631	95.8	169	0.4	82	0.2	883	2.3	6	<0.1	173	0.5	276	0.7	34	4.2
North Prairie	1,571	1,558	99.2	0	0.0	5	0.3	1	0.1	0	0.0	2	0.1	5	0.3	83	0.8
Oconomowoc	12,382	12,098	97.7	38	0.3	35	0.3	66	0.5	1	<0.1	58	0.5	86	0.7	65	2.3
Oconomowoc Lake	564	554	98.2	0	0.0	0	0.0	5	0.9	0	0.0	2	0.4	3	0.5	77	1.8
Pewaukee (C)	11,783	11,455	97.2	41	0.3	9	0.1	126	1.1	1	<0.1	52	0.4	99	0.8	54	2.8
Pewaukee (V)	8,170	7,859	96.2	47	0.6	18	0.2	147	1.8	0	0.0	29	0.4	70	0.9	37	3.8
Sussex	8,828	8,561	97.0	66	0.7	16	0.2	71	0.8	4	<0.1	32	0.4	78	0.9	50	3.0
Wales	2,523	2,488	98.6	4	0.2	6	0.2	6	0.2	0	0.0	5	0.2	14	0.6	80	1.4
Waukesha (C)	64,825	59,133	91.2	831	1.3	216	0.3	1,407	2.2	23	<0.1	2,144	3.3	1,071	1.7	12	8.8
Remainder of County	78,186	76,312	97.6	503	0.6	138	0.2	563	0.7	13	<0.1	153	0.2	504	0.6	--	--
REGION	1,932,908	1,534,464	79.4	263,200	13.6	9,510	0.5	34,438	1.8	716	<0.1	58,157	3.0	32,423	1.7	--	--

Source: US Census Bureau

ⁱ The total population count for the Village of Bayside includes a small portion of the population located in Ozaukee County.

ⁱⁱ Includes the population living in the eastern portion of the Village of Newburg which straddles Ozaukee and Washington Counties.

ⁱⁱⁱ The total population count for the City of Whitewater includes a portion of the population located in Dodge County.

^{iv} The total population count for the Village of Newburg in Washington County includes a portion of the population located in Ozaukee County.

Table A-XII: 2000 Hispanic Population for Southeastern Wisconsin Municipalities

Community	Total Population	Hispanic	
	Number	Number	%
Kenosha County	149,577	10,757	7.2
Kenosha	90,352	9,003	10.0
Paddock Lake	3,012	135	4.5
Pleasant Prairie	16,136	544	3.4
Silver Lake	2,341	72	3.1
Twin Lakes	5,124	127	2.5
Remainder of County	32,612	876	2.7
Milwaukee County	940,164	82,406	8.8
Bayside ⁱ	4,518	77	1.7
Brown Deer	12,170	260	2.1
Cudahy	18,429	872	4.7
Fox Point	7,012	74	1.1
Franklin	29,494	780	2.6
Glendale	13,367	236	1.8
Greendale	14,405	340	2.4
Greenfield	35,476	1,376	3.9
Hales Corners	7,765	162	2.1
Milwaukee	596,974	71,646	12.0
Oak Creek	28,456	1,267	4.5
River Hills	1,631	34	2.1
St. Francis	8,662	392	4.5
Shorewood	13,763	345	2.5
South Milwaukee	21,256	852	4.0
Wauwatosa	47,271	813	1.7
West Allis	61,254	2,155	3.5
West Milwaukee	4,201	504	12.0
Whitefish Bay	14,163	221	1.6
Remainder of County ⁱ	-103	0	0.0
Ozaukee County	82,317	1,073	1.3
Belgium	1,678	69	4.1
Cedarburg	10,908	94	0.9
Fredonia	1,934	27	1.4
Grafton	10,312	165	1.6
Mequon	21,823	261	1.2
Port Washington	10,467	168	1.6
Saukville	4,068	89	2.2
Thiensville	3,254	34	1.0
Remainder of County ⁱⁱ	17,873	166	0.9
Racine County	188,831	14,990	7.9
Burlington	9,936	462	4.6
Elmwood Park	474	6	1.3
North Bay	260	15	5.8
Racine	81,855	11,422	14.0

Community	Total Population	Hispanic	
	Number	Number	%
Rochester	1,149	40	3.5
Sturtevant	5,287	303	5.7
Union Grove	4,322	102	2.4
Waterford	4,048	76	1.9
Wind Point	1,853	24	1.3
Remainder of County	79,647	2,540	3.2
Walworth County	93,759	6,136	6.5
Darien	1,572	222	14.1
Delavan	7,956	1,690	21.2
East Troy	3,564	105	2.9
Elkhorn	7,305	448	6.1
Fontana-on-Geneva Lake	1,754	19	1.1
Genoa City	1,949	63	3.2
Lake Geneva	7,148	1,054	14.7
Sharon	1,549	113	7.3
Walworth	2,304	165	7.2
Whitewater ⁱⁱⁱ	13,437	873	6.5
Williams Bay	2,415	90	3.7
Remainder of County	42,806	1,294	3.0
Washington County	117,493	1,529	1.3
Germantown	18,260	205	1.1
Hartford	10,905	326	3.0
Jackson	4,938	61	1.2
Kewaskum	3,274	30	0.9
Newburg ^{iv}	1,119	20	1.8
Slinger	3,901	54	1.4
West Bend	28,152	519	1.8
Remainder of County	46,944	314	0.7
Waukesha County	360,767	9,503	2.6
Big Bend	1,278	23	1.8
Brookfield (C)	38,649	453	1.2
Butler	1,881	16	0.9
Chenequa	583	5	0.9
Delafield	6,472	95	1.5
Dousman	1,584	37	2.3
Eagle	1,707	52	3.0
Elm Grove	6,249	75	1.2
Hartland	10,905	119	1.1
Lannon	1,009	16	1.6
Menomonee Falls	32,647	377	1.2
Merton village	1,926	14	0.7
Mukwonago	6,162	117	1.9

Community	Total Population	Hispanic	
	Number	Number	%
Muskego	21,397	281	1.3
Nashotah	1,266	13	1.0
New Berlin	38,220	595	1.6
North Prairie	1,571	17	1.1
Oconomowoc	12,382	204	1.6
Oconomowoc Lake	564	4	0.7
Pewaukee (C)	11,783	153	1.3
Pewaukee (V)	8,170	99	1.2

Community	Total Population	Hispanic	
	Number	Number	%
Sussex	8,828	147	1.7
Wales	2,523	26	1.0
Waukesha (C)	64,825	5,563	8.6
Remainder of County	78,186	1,002	1.3
TOTAL REGION	1,932,908	126,394	6.5

Source: US Census Bureau

- ⁱ The total population count for the Village of Bayside includes a small portion of the population located in Ozaukee County.
- ⁱⁱ Includes the population living in the eastern portion of the Village of Newburg which straddles Ozaukee and Washington Counties.
- ⁱⁱⁱ The total population count for the City of Whitewater includes a portion of the population located in Dodge County.
- ^{iv} The total population count for the Village of Newburg in Washington County includes a portion of the population located in Ozaukee County.

Table A-XIII: 2000 Disabled Population By Age Group for Southeastern Wisconsin Municipalities

Community	Total Population	Total Disabled Population		Ages 5-15		Ages 16-64		Ages 64 and Over		Rank Based on Percent Total Disabled
	Number	Number	%	Number	%	Number	%	Number	%	Rank
Kenosha County	149,577	23,695	17.2	1,628	6.3	15,776	16.6	6,291	38.3	
Kenosha	90,352	15,476	18.8	1,058	6.9	10,331	18.3	4,087	39.4	9
Paddock Lake	3,012	388	13.5	17	2.9	284	14.2	87	31.2	42
Pleasant Prairie	16,136	1,890	12.9	137	4.9	1,154	11.3	599	36.6	48
Silver Lake	2,341	355	16.2	33	7.1	205	13.7	117	48.5	24
Twin Lakes	5,124	892	18.8	34	3.6	527	16.9	331	48.5	10
Remainder of County	32,612	4,694	15.3	349	6.2	3,275	15.0	1,070	33.4	
Milwaukee County	940,164	169,939	19.7	11,385	7.4	112,930	19.1	45,624	39.7	
Bayside ⁱ	4,518	478	11.6	40	6.1	256	9.7	182	22.0	58
Brown Deer	12,170	1,542	13.9	87	5.6	894	11.8	561	28.1	40
Cudahy	18,429	3,494	20.3	251	9.6	2,124	18.2	1,119	38.4	3
Fox Point	7,012	830	12.6	33	3.0	367	9.1	430	29.4	49
Franklin	29,494	3,431	13.2	199	4.6	2,295	12.3	937	32.2	43
Glendale	13,367	2,129	17.5	64	3.9	1,103	14.5	962	33.3	17
Greendale	14,405	1,905	14.0	121	6.1	831	9.4	953	34.0	39
Greenfield	35,476	6,078	18.4	227	5.5	3,229	14.4	2,622	39.8	12
Hales Corners	7,765	1,145	15.4	50	4.4	569	11.7	526	36.7	27
Milwaukee	596,974	120,800	22.2	8,930	8.4	85,330	22.8	26,540	43.2	2
Oak Creek	28,456	3,469	13.1	180	4.1	2,231	11.4	1,058	41.7	45
River Hills	1,631	142	9.0	14	4.9	85	8.1	43	17.9	76
St. Francis	8,662	1,562	19.0	62	6.0	867	15.2	633	41.9	8
Shorewood	13,763	1,856	14.3	102	5.6	998	10.8	756	40.7	36
South Milwaukee	21,256	3,077	15.7	170	5.3	1,808	13.7	1,099	34.6	26
Wauwatosa	47,271	5,615	12.9	198	3.0	2,755	9.6	2,662	32.8	47
West Allis	61,254	10,346	18.1	504	6.3	5,943	15.2	3,899	38.9	13
West Milwaukee	4,201	884	22.6	32	6.6	565	20.1	287	46.7	1
Whitefish Bay	14,163	1,156	8.8	121	4.5	680	7.8	355	21.3	77
Remainder of County ⁱ	-103	0	0	0	0	0	0	0	0	
Ozaukee County	82,317	8,503	11.1	694	4.8	4,937	9.5	2,872	28.7	
Belgium	1,678	139	9.2	12	3.7	100	9.5	27	20.1	75
Cedarburg	10,908	1,295	13.0	59	3.4	715	10.8	521	31.9	46
Fredonia	1,934	313	17.7	28	7.7	239	19.1	46	30.3	15
Grafton	10,312	1,014	10.5	97	5.6	465	6.9	452	38.6	67
Mequon	21,823	1,665	8.1	154	3.7	927	6.9	584	20.5	80
Port Washington	10,467	1,170	12.4	80	4.6	618	9.7	472	35.4	50
Saukville	4,068	654	17.1	67	9.0	460	16.6	127	41.6	20
Thiensville	3,254	356	11.6	27	6.5	159	8.0	170	25.3	60
Remainder of County ⁱⁱ	17,873	1,897	11.3	170	5.4	1,254	10.5	473	26.9	

Community	Total Population	Total Disabled Population		Ages 5-15		Ages 16-64		Ages 64 and Over		Rank Based on Percent Total Disabled
	Number	Number	%	Number	%	Number	%	Number	%	Rank
Racine County	188,831	28,218	16.4	1,929	6.0	17,916	15.2	8,373	37.3	
Burlington	9,936	1,329	14.8	124	7.0	777	12.8	428	37.2	31
Elmwood Park	474	78	16.8	6	13.6	44	12.9	28	35.9	22
North Bay	260	34	14.2	6	16.2	11	6.5	17	50.0	38
Racine	81,855	14,687	20.0	1,025	7.1	9,788	19.9	3,874	39.2	4
Rochester	1,149	109	10.0	2	0.8	86	11.1	21	28.4	70
Sturtevant	5,287	438	12.0	17	2.4	313	12.2	108	30.8	51
Union Grove	4,322	541	13.6	57	7.1	334	12.3	150	31.7	41
Waterford	4,048	546	14.4	20	3.1	366	13.8	160	31.1	35
Wind Point	1,853	187	10.7	3	1.2	115	9.9	69	20.7	65
Remainder of County	79,647	10,269	13.8	669	5.2	6,082	11.7	3,518	36.8	
Walworth County	93,759	12,993	14.9	739	5.1	8,261	13.5	3,993	35.3	
Darien	1,572	263	19.4	11	3.7	207	21.5	45	43.3	6
Delavan	7,956	1,173	16.2	83	5.5	774	16.1	316	33.1	23
East Troy	3,564	564	17.8	33	5.5	345	16.2	186	43.5	14
Elkhorn	7,305	1,281	19.2	70	5.6	809	18.0	402	43.2	7
Fontana-on-Geneva Lake	1,754	201	11.8	12	5.7	113	10.0	76	20.7	55
Genoa City	1,949	175	10.2	11	2.9	118	9.7	46	38.0	69
Lake Geneva	7,148	1,262	18.7	59	6.1	821	17.6	382	34.4	11
Sharon	1,549	238	17.0	35	11.7	158	16.2	45	37.5	21
Walworth	2,304	372	17.5	17	4.3	161	12.1	194	49.2	18
Whitewater ⁱⁱⁱ	13,437	1,544	12.0	47	4.3	1,076	10.1	421	38.6	52
Williams Bay	2,415	334	14.4	25	5.5	144	10.2	165	36.6	34
Remainder of County	42,806	5,586	14.0	336	4.7	3,535	12.9	1,715	32.8	
Washington County	117,493	12,909	11.9	875	4.4	8,082	10.6	3,952	31.8	
Germantown	18,260	1,808	10.7	95	3.1	1,207	10.0	506	30.4	64
Hartford	10,905	1,460	14.5	125	6.3	887	13.2	448	33.7	33
Jackson	4,938	420	9.8	23	3.4	290	9.3	107	22.2	71
Kewaskum	3,274	510	17.1	24	4.2	360	17.4	126	37.8	19
Newburg ^{iv}	1,119	114	11.4	10	5.0	75	10.4	29	37.2	62
Slinger	3,901	503	13.2	27	3.7	249	9.8	227	42.5	44
West Bend	28,152	3,881	15.1	280	6.4	2,291	13.2	1,310	33.7	29
Remainder of County	46,944	4,213	9.6	291	3.6	2,723	8.6	1,199	29.0	
Waukesha County	360,767	39,098	11.7	2,727	4.5	23,439	10.1	12,932	31.7	
Big Bend	1,278	187	16.0	24	9.7	134	16.8	29	24.0	25
Brookfield (C)	38,649	3,825	10.6	243	3.6	1,897	8.3	1,685	26.5	66
Butler	1,881	358	20.0	13	5.6	138	12.4	207	46.2	4
Chenequa	583	50	8.9	4	4.6	25	6.4	21	24.1	77
Delafield	6,472	723	11.6	19	1.6	456	10.5	248	35.9	59
Dousman	1,584	195	14.3	25	9.2	110	11.9	60	36.1	37

Community	Total Population	Total Disabled Population		Ages 5-15		Ages 16-64		Ages 64 and Over		Rank Based on Percent Total Disabled
	Number	Number	%	Number	%	Number	%	Number	%	Rank
Eagle	1,707	140	8.6	21	6.2	76	6.5	43	39.4	79
Elm Grove	6,249	563	9.7	37	3.5	259	7.4	267	22.0	73
Hartland	10,905	839	11.3	92	5.8	514	9.8	233	41.8	63
Lannon	1,009	171	17.7	11	7.0	98	14.7	62	43.4	16
Menomonee Falls	32,647	3,633	12.0	214	4.2	1,876	9.3	1,543	31.3	53
Merton	1,926	145	7.8	16	3.1	104	8.2	25	32.5	81
Mukwonago	6,162	698	12.0	43	4.2	359	8.6	296	48.6	54
Muskego	21,397	2,020	10.3	156	4.1	1,264	9.1	600	32.1	68
Nashotah	1,266	90	7.6	18	6.1	33	4.3	39	32.8	83
New Berlin	38,220	4,231	11.8	460	7.5	2,387	9.5	1,384	29.5	56
North Prairie	1,571	142	9.3	17	5.5	96	8.7	29	25.2	74
Oconomowoc	12,382	1,682	15.2	107	5.9	914	12.1	661	38.0	28
Oconomowoc Lake	564	42	7.7	3	3.0	35	9.1	4	6.3	82
Pewaukee (C)	11,783	1,075	9.8	58	3.4	676	8.5	341	24.9	72
Pewaukee (V)	8,170	877	11.5	62	5.3	552	9.6	263	37.0	61
Sussex	8,828	933	11.7	84	5.5	583	10.2	266	35.9	57
Wales	2,523	353	14.6	18	3.2	284	16.1	51	55.4	32
Waukesha (C)	64,825	8,683	14.9	558	6.2	5,824	13.6	2,301	35.6	30
Remainder of County	78,186	7,443	9.9	424	2.8	4,745	9.0	2,274	30.8	
REGION	1,932,908	295,355	0	19,977	6.2	191,341	15.6	84,037	36.8	

Source: US Census Bureau

ⁱ The total population count for the Village of Bayside includes a small portion of the population located in Ozaukee County.

ⁱⁱ Includes the population living in the eastern portion of the Village of Newburg which straddles Ozaukee and Washington Counties.

ⁱⁱⁱ The total population count for the City of Whitewater includes a portion of the population located in Dodge County.

^{iv} The total population count for the Village of Newburg in Washington County includes a portion of the population located in Ozaukee County.

Table A-IV: Year 2000 to 2035 Population Growth by Race and Ethnicity Within the Region

Population by Race and Ethnicity	Incremental Population Growth (2000 to 2035)		Non-Hispanic Population								Hispanic ⁱ Population	
			White Alone		Black Alone		Asian Alone		Other ⁱⁱ			
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Kenosha	64,309	43.0	19,359	15.2	11,165	149.9	4,024	298.1	1,614	59.0	28,147	261.7
Milwaukee	72,374	7.7	-141,298	-24.2	40,445	17.7	23,322	97.7	10,607	48.4	139,297	169.0
Ozaukee	16,605	20.2	7,344	9.3	1,784	235.0	2,078	236.1	1,663	233.9	3,736	348.2
Racine	45,636	24.2	9,628	6.4	1,848	9.5	1,821	136.8	3,837	135.5	28,502	190.1
Walworth	28,516	30.4	11,970	14.0	363	48.6	1,471	248.5	2,044	238.8	12,669	206.5
Washington	44,969	38.3	31,841	28.0	2,572	575.4	1,885	283.0	2,566	261.6	6,105	399.3
Waukesha	84,802	23.5	30,294	8.9	11,895	462.8	14,387	269.4	3,991	115.7	24,234	255.0
Region	357,210	18.5	-30,863	-2.1	70,073	27.0	48,988	143.9	26,322	78.6	242,690	192.0

Source: US Census Bureau and CED

ⁱ Hispanics may be of any race.

ⁱⁱ "Other" represents the aggregated Census data from the following populations; American Indian or Alaska Native Alone, Native Hawaiian and Pacific Islander, Some Other Race Alone, Two or More Races.

Appendix B: Economic and Income Tables

Table B-I: Recent Changes in Household Income for Southeastern Wisconsin

County	2000			2008			2000 to 2008 Change	
	Total Households		Median Household Income	Total Households		Median Household Income	Dollars	%
	Number	%		Number	%			
Kenosha	56,093	7.5	\$46,970	60,470	7.8	\$54,464	\$7,494	16.0
Milwaukee	377,983	50.4	38,100	373,585	48.0	45,091	6,991	18.3
Ozaukee	30,887	4.1	62,745	33,071	4.3	73,186	10,441	16.6
Racine	70,796	9.4	48,059	75,097	9.7	54,241	6,182	12.9
Walworth	34,515	4.6	46,274	37,799	4.9	55,988	9,714	21.0
Washington	43,910	5.9	57,033	50,544	6.5	65,061	8,028	14.1
Waukesha	135,450	18.1	62,839	147,093	18.9	74,688	11,849	18.9
Region	749,634	100	- -	777,659	100	- -	- -	-

Source: US Census Bureau and the American Community Survey

Table B-II: Year 2000 Median Household Incomes and Household Income Distribution for Each Community in Southeastern Wisconsin

Community	Median Income	Under \$10,000		\$10,000 to \$14,999		\$15,000 to \$24,999		\$25,000 to \$34,999		\$35,000 to \$49,999		\$50,000 to \$74,999		Over \$75,000	
		Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%
Kenosha County	\$46,970	3,554	6.3	2,926	5.2	6,896	12.3	6,957	12.4	9,300	16.6	12,959	23.1	13,501	24.1
Kenosha	51,016	2,619	7.6	2,137	6.2	4,960	14.4	4,494	13.0	5,976	17.3	7,723	22.4	6,594	19.1
Paddock Lake	60,216	19	1.8	23	2.2	96	9.1	146	13.8	184	17.4	278	26.3	312	29.5
Pleasant Prairie	71,452	184	3.2	160	2.8	428	7.5	589	10.3	738	12.9	1,408	24.7	2,200	38.5
Silver Lake	59,844	49	5.4	59	6.6	95	10.6	87	9.7	155	17.2	217	24.1	238	26.4
Twin Lakes	54,583	116	5.7	75	3.7	241	11.9	285	14.1	361	17.9	464	23.0	479	23.7
Remainder of County	--	567	4.8	472	4.0	1,076	9.0	1,356	11.4	1,886	15.8	2,869	24.1	3,678	30.9
Milwaukee County	38,100	40,098	10.6	25,500	6.7	54,013	14.3	53,352	14.1	66,510	17.6	72,565	19.2	65,945	17.4
Bayside ^a	104,771	63	3.5	56	3.2	48	2.7	92	5.2	197	11.1	293	16.5	1,028	57.9
Brown Deer	60,335	180	3.5	135	2.6	561	11.0	800	15.6	830	16.2	1,195	23.3	1,418	27.7
Cudahy	49,082	510	6.5	594	7.5	1,043	13.2	1,133	14.4	1,696	21.5	1,719	21.8	1,185	15.0
Fox Point	94,348	79	2.8	36	1.3	254	9.0	195	6.9	275	9.7	466	16.5	1,521	53.8
Franklin	75,532	271	2.5	292	2.7	781	7.3	890	8.4	1,436	13.5	2,497	23.5	4,470	42.0
Glendale	68,429	230	4.0	303	5.2	555	9.6	535	9.3	1,002	17.3	1,308	22.6	1,844	31.9
Greendale	65,071	302	5.0	242	4.0	565	9.3	641	10.6	903	14.9	1,485	24.5	1,916	31.6
Greenfield	56,272	716	4.6	648	4.1	2,072	13.2	2,239	14.3	3,135	20.0	3,746	23.9	3,146	20.0
Hales Corners	66,136	132	4.0	145	4.4	317	9.7	316	9.7	497	15.2	897	27.4	965	29.5
Milwaukee	37,879	32,701	14.1	18,446	7.9	37,867	16.3	35,509	15.3	40,961	17.6	39,490	17.0	27,338	11.8
Oak Creek	63,381	433	3.8	376	3.3	1,051	9.3	1,027	9.1	2,140	19.0	2,937	26.0	3,313	29.4
River Hills	181,443	14	2.4	10	1.7	25	4.3	25	4.3	19	3.2	71	12.1	424	72.1
St. Francis	49,896	299	7.4	254	6.3	590	14.6	740	18.3	807	20.0	790	19.6	560	13.9
Shorewood	67,589	512	7.8	353	5.4	700	10.7	841	12.9	986	15.1	1,244	19.0	1,905	29.1
South Milwaukee	54,474	498	5.7	480	5.5	989	11.4	1,314	15.2	1,589	18.3	2,223	25.6	1,574	18.2
Wauwatosa	68,030	813	4.0	850	4.2	2,097	10.3	2,112	10.3	3,386	16.6	4,786	23.4	6,386	31.3
West Allis	50,732	1,896	6.9	2,012	7.3	3,928	14.2	4,202	15.2	5,553	20.1	6,137	22.2	3,912	14.2
West Milwaukee	43,036	289	14.1	143	7.0	289	14.1	291	14.2	514	25.1	365	17.8	156	7.6
Whitefish Bay	95,744	160	2.9	125	2.3	281	5.2	450	8.3	592	10.9	916	16.8	2,918	53.6
Remainder of County ^a	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Ozaukee County	62,745	837	2.7	881	2.9	2,453	7.9	2,850	9.2	4,360	14.1	7,324	23.7	12,182	39.4
Belgium	59,375	10	1.7	6	1.0	39	6.8	79	13.7	124	21.6	182	31.7	135	23.5
Cedarburg	66,932	135	3.1	181	4.1	432	9.8	535	12.1	651	14.7	1,039	23.5	1,444	32.7
Fredonia	60,326	18	2.6	27	3.9	61	8.8	83	12.0	133	19.2	199	28.8	170	24.6
Grafton	65,825	91	2.2	145	3.6	415	10.2	422	10.4	761	18.7	953	23.4	1,278	31.4
Mequon	101,793	122	1.5	140	1.8	319	4.0	498	6.3	717	9.1	1,325	16.8	4,763	60.4
Port Washington	62,215	187	4.6	102	2.5	433	10.5	419	10.2	648	15.8	1,240	30.2	1,076	26.2
Saukville	62,436	79	5.0	68	4.3	144	9.1	150	9.5	275	17.4	426	26.9	441	27.9

Community	Median Income	Under \$10,000		\$10,000 to \$14,999		\$15,000 to \$24,999		\$25,000 to \$34,999		\$35,000 to \$49,999		\$50,000 to \$74,999		Over \$75,000	
		Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%
Thiensville	69,286	29	1.9	65	4.4	117	7.8	188	12.6	239	16.0	387	25.9	469	31.4
Remainder of County ^b	--	166	2.7	147	2.4	493	8.1	476	7.8	812	13.4	1,573	25.9	2,406	39.6
Racine County	48,059	4,423	6.2	3,643	5.1	8,428	11.9	8,453	11.9	11,812	16.7	17,196	24.3	16,841	23.8
Burlington	54,045	234	6.1	166	4.3	552	14.3	492	12.8	746	19.4	907	23.5	756	19.6
Elmwood Park	74,205	6	3.1	2	1.0	21	10.7	9	4.6	28	14.3	42	21.4	88	44.9
North Bay	118,459	2	1.9	2	1.9	9	8.7	1	1.0	7	6.7	9	8.7	74	71.2
Racine	45,150	3,036	9.7	2,271	7.2	4,885	15.6	4,592	14.6	5,514	17.6	6,647	21.2	4,413	14.1
Rochester	61,875	16	4.0	5	1.2	24	5.9	44	10.9	85	21.0	114	28.1	117	28.9
Sturtevant	56,563	77	5.1	79	5.3	141	9.4	168	11.2	210	14.0	529	35.2	300	19.9
Union Grove	57,453	78	4.8	76	4.7	165	10.2	130	8.0	349	21.5	486	29.9	340	20.9
Waterford	64,453	41	2.6	71	4.4	129	8.1	199	12.4	239	14.9	492	30.7	430	26.9
Wind Point	100,614	31	4.2	18	2.4	23	3.1	70	9.4	61	8.2	122	16.4	419	56.3
Remainder of County	--	902	3.1	953	3.2	2,479	8.4	2,748	9.3	4,573	15.6	7,848	26.7	9,904	33.7
Walworth County	46,274	2,106	6.1	2,024	5.9	3,913	11.3	4,459	12.9	6,256	18.1	8,307	24.1	7,450	21.6
Darien	53,625	34	6.5	21	4.0	48	9.2	66	12.7	109	21.0	160	30.8	82	15.8
Delavan	49,929	131	4.5	228	7.8	383	13.1	498	17.1	502	17.2	730	25.0	446	15.3
East Troy	54,422	35	2.6	59	4.3	159	11.6	167	12.2	295	21.5	405	29.5	251	18.3
Elkhorn	47,475	260	8.8	216	7.3	355	12.1	485	16.5	539	18.3	663	22.6	421	14.3
Fontana-on-Geneva Lake	63,594	27	3.4	29	3.7	77	9.8	99	12.6	115	14.6	169	21.4	272	34.5
Genoa City	56,298	22	3.3	35	5.2	78	11.5	62	9.2	150	22.2	203	30.0	126	18.6
Lake Geneva	54,543	246	7.9	276	8.8	367	11.8	441	14.1	535	17.1	715	22.9	542	17.4
Sharon	45,500	48	8.5	23	4.1	64	11.3	102	18.1	132	23.4	139	24.6	57	10.1
Walworth	51,630	58	6.9	45	5.3	113	13.4	115	13.6	156	18.5	218	25.8	140	16.6
Whitewater ^c	48,185	568	13.8	434	10.6	608	14.8	609	14.8	771	18.8	636	15.5	484	11.8
Williams Bay	60,573	54	5.5	66	6.7	106	10.8	103	10.5	159	16.1	201	20.4	296	30.1
Remainder of County	--	623	4.0	592	3.8	1,555	9.9	1,712	10.9	2,793	17.8	4,068	26.0	4,333	27.6
Washington County	57,033	1,479	3.4	1,414	3.2	3,494	8.0	4,642	10.6	7,298	16.6	12,255	27.9	13,328	30.4
Germantown	68,975	165	2.4	211	3.0	478	6.9	737	10.6	1,128	16.3	1,769	25.5	2,441	35.2
Hartford	53,968	263	6.1	254	5.9	456	10.6	562	13.1	756	17.6	1,291	30.0	715	16.6
Jackson	60,991	104	5.4	55	2.8	146	7.5	166	8.6	406	20.9	656	33.8	407	21.0
Kewaskum	55,144	52	4.4	40	3.4	110	9.3	153	12.9	241	20.3	320	26.9	273	23.0
Slinger	55,607	90	5.5	88	5.4	156	9.5	236	14.4	345	21.1	406	24.8	317	19.4
West Bend	56,299	487	4.3	478	4.2	1,285	11.3	1,556	13.7	2,121	18.7	3,173	27.9	2,266	19.9
Remainder of County	--	318	1.9	288	1.7	863	5.2	1,232	7.4	2,301	13.9	4,640	28.0	6,909	41.7
Waukesha County	62,839	3,698	2.7	4,416	3.3	9,696	7.2	12,097	8.9	19,686	14.5	33,478	24.7	52,379	38.7
Big Bend	61,771	2	0.4	18	4.0	32	7.1	40	8.9	74	16.4	181	40.1	104	23.1

Community	Median Income	Under \$10,000		\$10,000 to \$14,999		\$15,000 to \$24,999		\$25,000 to \$34,999		\$35,000 to \$49,999		\$50,000 to \$74,999		Over \$75,000	
		Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%
Brookfield (C)	83,691	281	2.0	255	1.8	739	5.3	1,008	7.2	1,644	11.8	2,928	20.9	7,130	51.0
Butler	50,903	78	8.4	82	8.9	112	12.1	133	14.4	197	21.3	212	22.9	110	11.9
Chenequa	166,623	0	0.0	2	0.9	7	3.3	2	0.9	19	8.9	12	5.6	172	80.4
Delafield	71,955	101	3.9	51	2.0	216	8.4	238	9.3	375	14.6	587	22.8	1,001	39.0
Dousman	53,409	20	3.4	43	7.2	47	7.9	85	14.3	132	22.1	146	24.5	123	20.6
Eagle	62,500	13	2.1	28	4.5	20	3.2	58	9.3	118	18.9	227	36.3	161	25.8
Elm Grove	108,209	93	3.8	109	4.4	116	4.7	155	6.3	233	9.5	421	17.1	1,332	54.2
Hartland	67,844	90	3.0	141	4.7	207	6.9	309	10.3	457	15.2	765	25.4	1,039	34.5
Lannon	54,107	19	4.7	16	3.9	57	14.0	78	19.1	65	15.9	97	23.8	76	18.6
Menomonee Falls	68,952	338	2.6	502	3.9	1,049	8.1	1,368	10.6	2,097	16.3	3,088	24.0	4,432	34.4
Merton	75,000	10	1.6	13	2.1	19	3.1	38	6.2	68	11.2	172	28.2	289	47.5
Mukwonago	64,354	44	1.8	106	4.3	222	9.0	240	9.7	427	17.3	738	30.0	685	27.8
Muskego	69,722	175	2.3	208	2.8	425	5.6	568	7.5	1,077	14.2	2,225	29.4	2,884	38.1
Nashotah	82,949	5	1.1	4	0.9	28	6.4	33	7.5	49	11.2	91	20.7	229	52.2
New Berlin	75,565	223	1.5	385	2.7	875	6.0	1,228	8.5	2,039	14.1	3,569	24.6	6,180	42.6
North Prairie	70,781	3	0.5	10	1.8	20	3.6	35	6.3	119	21.4	138	24.8	232	41.7
Oconomowoc	62,950	112	2.2	306	6.1	530	10.6	529	10.6	926	18.6	1,193	23.9	1,390	27.9
Oconomowoc Lake	126,406	6	2.9	2	1.0	2	1.0	10	4.8	15	7.2	29	13.9	145	69.4
Pewaukee (C)	80,163	58	1.3	51	1.1	242	5.4	328	7.3	553	12.3	993	22.0	2,289	50.7
Pewaukee (V)	66,940	78	2.1	111	3.0	316	8.5	576	15.5	615	16.5	945	25.4	1,077	29.0
Sussex	65,702	115	3.5	120	3.6	215	6.5	323	9.7	524	15.8	838	25.2	1,189	35.8
Wales	77,468	6	0.7	11	1.3	22	2.7	40	4.8	105	12.7	230	27.8	414	50.0
Waukesha (C)	60,841	1,222	4.8	1,262	4.9	2,670	10.4	3,007	11.7	4,617	18.0	6,744	26.3	6,102	23.8
Remainder of County	--	1,828	3.4	1,842	3.4	4,178	7.8	4,675	8.7	7,758	14.5	13,653	25.5	19,696	36.7
REGION	--	56,195	7.5	40,804	5.4	88,893	11.9	92,810	12.4	125,222	16.7	164,084	21.9	181,626	24.2

Source: US Census Bureau

Table B-IIIa: Year 2000 Population With Incomes Below the Poverty Level By Race and Ethnicity in Southeastern Wisconsin

County	White Alone		Black or African American Alone		American Indian and Native Alaskan Alone		Asian Alone	
	Total Population	At or Below the Poverty Level	Total Population	At or Below the Poverty Level	Total Population	At or Below the Poverty Level	Total Population	At or Below the Poverty Level
Kenosha	129,202	7,587	6,532	1,752	615	135	1,363	160
Milwaukee	602,505	45,503	222,068	72,794	8,073	1,931	22,111	4,053
Ozaukee	78,175	1,929	659	26	262	8	663	62
Racine	154,655	7,425	17,465	5,873	700	100	1,277	182
Walworth	84,216	6,720	522	43	455	142	513	78
Washington	113,322	3,807	588	16	450	170	513	0
Waukesha	340,122	8,519	2,129	321	975	57	4,974	191
Region	1,502,197	81,490	249,963	80,825	11,530	2,543	31,414	4,726

County	Native Hawaiian And Other Pacific Islander Alone		Some Other Race Alone		Two or More Races		Hispanic	
	Total Population	At or Below the Poverty Level	Total Population	At or Below the Poverty Level	Total Population	At or Below the Poverty Level	Total Population	At or Below the Poverty Level
Kenosha	43	6	4,922	822	2,931	453	10,185	1,556
Milwaukee	410	54	38,629	10,482	21,892	4,930	81,166	21,171
Ozaukee	0	0	270	3	651	50	1,028	96
Racine	89	0	6,597	1,402	3,565	509	14,364	2,310
Walworth	17	5	2,503	415	738	75	5,832	1,053
Washington	7	0	572	120	830	91	1,466	254
Waukesha	71	0	3,036	296	3,795	251	8,789	739
Region	637	65	56,529	13,540	34,402	6,359	122,830	27,179

Source: US Census Bureau

Table B-IIIb: Year 2000 Percent of Population With Incomes Below the Poverty Level By Race and Ethnicity in Southeastern Wisconsin

County	White Alone		Black or African American Alone		American Indian and Native Alaskan Alone		Asian Alone	
	Percent of Race Who Are At or Below the Poverty Line	Percent of Total Population Below Poverty Line	Percent of Race Who Are At or Below the Poverty Line	Percent of Total Population Below Poverty Line	Percent of Race Who Are At or Below the Poverty Line	Percent of Total Population Below Poverty Line	Percent of Race Who Are At or Below the Poverty Line	Percent of Total Population Below Poverty Line
Kenosha	5.9	60.8	26.8	14.0	22.0	1.1	11.7	1.3
Milwaukee	7.6	28.3	32.8	45.2	23.9	1.2	18.3	2.5
Ozaukee	2.5	88.7	3.9	1.2	3.1	0.4	9.4	2.9
Racine	4.8	41.7	33.6	33.0	14.3	0.6	14.3	1.0
Walworth	8.0	78.8	8.2	0.5	31.2	1.7	15.2	0.9
Washington	3.4	85.4	2.7	0.4	37.8	3.8	- -	0.0
Waukesha	2.5	82.1	15.1	3.1	5.8	0.5	3.8	1.8
Region	5.4	37.6	32.3	37.3	22.1	1.2	15.0	2.2

County	Native Hawaiian And Other Pacific Islander Alone		Some Other Race Alone		Two or More Races		Hispanic	
	Percent of Race Who Are At or Below the Poverty Line	Percent of Total Population Below Poverty Line	Percent of Race Who Are At or Below the Poverty Line	Percent of Total Population Below Poverty Line	Percent of Race Who Are At or Below the Poverty Line	Percent of Total Population Below Poverty Line	Percent of Race Who Are At or Below the Poverty Line	Percent of Total Population Below Poverty Line
Kenosha	14.0	<0.1	16.7	6.6	15.5	3.6	15.3	12.5
Milwaukee	13.2	<0.1	27.1	6.5	22.5	3.1	26.1	13.2
Ozaukee	- -	0.0	1.1	0.1	7.7	2.3	9.3	4.4
Racine	- -	0.0	21.3	7.9	14.3	2.9	16.1	13.0
Walworth	29.4	0.1	16.6	4.9	10.2	0.9	18.1	12.3
Washington	- -	0.0	21.0	2.7	11.0	2.0	17.3	5.7
Waukesha	- -	0.0	9.7	2.9	6.6	2.4	8.4	7.1
Region	10.2	<0.1	24.0	6.2	18.5	2.9	22.1	12.5

Note: Based on data from Table B-IIa.

Source: US Census Bureau

Table B-IVa: Year 2000 Population With Incomes At or Below the Poverty Level By Race and Ethnicity in Selected Communities in Southeastern Wisconsin

County	White Alone		Black or African American Alone		American Indian and Native Alaskan Alone		Asian Alone	
	Total Population	At or Below the Poverty Level	Total Population	At or Below the Poverty Level	Total Population	At or Below the Poverty Level	Total Population	At or Below the Poverty Level
Kenosha	73,648	5,341	6,270	1,703	391	118	847	34
Milwaukee	288,750	32,057	215,610	71,879	6,297	1,617	15,881	3,552
Oak Creek	26,100	738	670	43	136	25	625	35
Port Washington	9,738	414	22	7	70	0	103	0
Racine	55,345	3,769	15,550	5,456	395	96	492	50
Brookfield	36,172	728	266	5	109	0	1,312	103
Cedarburg	10,627	256	21	8	22	0	75	27
Elm Grove	5,990	181	11	0	0	0	65	0
Germantown	17,271	370	318	16	76	0	139	0
Grafton	10,074	171	16	0	33	0	44	0
Muskego	20,591	321	64	19	19	0	100	0
New Berlin	36,428	673	191	41	96	0	888	0
Saukville	3,967	130	44	0	5	0	9	0
Waukesha	56,876	2,711	608	187	237	41	1,206	44

County	Native Hawaiian And Other Pacific Islander Alone		Some Other Race Alone		Two or More Races		Hispanic	
	Total Population	At or Below the Poverty Level	Total Population	At or Below the Poverty Level	Total Population	At or Below the Poverty Level	Total Population	At or Below the Poverty Level
Kenosha	29	6	4,488	782	2,087	344	8,543	1,429
Milwaukee	272	45	35,325	10,137	17,100	4,377	70,039	19,864
Oak Creek	0	0	503	0	361	27	1,204	51
Port Washington	0	0	12	0	123	0	64	19
Racine	55	0	5,627	1,337	2,342	412	11,191	2,146
Brookfield	0	0	86	0	313	7	303	6
Cedarburg	0	0	0	0	17	0	46	0
Elm Grove	0	0	7	0	45	0	105	0
Germantown	7	0	182	62	135	0	278	94
Grafton	0	0	39	0	113	8	223	0
Muskego	7	0	13	0	235	0	211	0
New Berlin	45	0	97	15	326	19	404	36
Saukville	0	0	55	0	56	0	115	8
Waukesha	6	0	1,933	209	1,153	131	5,312	530

Source: US Census Bureau

Table B-IVb: Year 2000 Percent Population With Incomes Below the Poverty Level By Race and Ethnicity in Selected Communities in Southeastern Wisconsin

County	White Alone		Black or African American Alone		American Indian and Native Alaskan Alone		Asian Alone	
	Percent of Race Who Are Below the Poverty Line	Percent of Total Population Below Poverty Line	Percent of Race Who Are Below the Poverty Line	Percent of Total Population Below Poverty Line	Percent of Race Who Are Below the Poverty Line	Percent of Total Population Below Poverty Line	Percent of Race Who Are Below the Poverty Line	Percent of Total Population Below Poverty Line
Kenosha	7.3	54.7	27.2	17.5	30.2	1.2	4.0	0.3
Milwaukee	11.1	22.3	33.3	50.1	25.7	1.1	22.4	2.5
Oak Creek	2.8	80.3	6.4	4.7	18.4	2.7	5.6	3.8
Port Washington	4.3	94.1	31.8	1.6	0.0	0.0	0.0	0.0
Racine	6.8	28.4	35.1	41.1	24.3	0.7	10.2	0.4
Brookfield	2.0	85.7	1.9	0.6	0.0	0.0	7.9	12.1
Cedarburg	2.4	88.0	38.1	2.7	0.0	0.0	36.0	9.3
Elm Grove	3.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0
Germantown	2.1	68.3	5.0	3.0	0.0	0.0	0.0	0.0
Grafton	1.7	95.5	0.0	0.0	0.0	0.0	0.0	0.0
Muskego	1.6	94.4	29.7	5.6	0.0	0.0	0.0	0.0
New Berlin	1.8	85.8	21.5	5.2	0.0	0.0	0.0	0.0
Saukville	3.3	94.2	0.0	0.0	0.0	0.0	0.0	0.0
Waukesha	4.8	70.4	30.8	4.9	17.3	1.1	3.6	1.1

County	Native Hawaiian And Other Pacific Islander Alone		Some Other Race Alone		Two or More Races		Hispanic	
	Percent of Race Who Are Below the Poverty Line	Percent of Total Population Below Poverty Line	Percent of Race Who Are Below the Poverty Line	Percent of Total Population Below Poverty Line	Percent of Race Who Are Below the Poverty Line	Percent of Total Population Below Poverty Line	Percent of Race Who Are Below the Poverty Line	Percent of Total Population Below Poverty Line
Kenosha	20.7	0.1	17.4	8.0	16.5	3.5	16.7	14.6
Milwaukee	16.5	<0.1	28.7	7.1	25.6	3.0	28.4	13.8
Oak Creek	0.0	0.0	0.0	0.0	7.5	2.9	4.2	5.5
Port Washington	0.0	0.0	0.0	0.0	0.0	0.0	29.7	4.3
Racine	0.0	0.0	23.8	10.1	17.6	3.1	19.2	16.2
Brookfield	0.0	0.0	0.0	0.0	2.2	0.8	2.0	0.7
Cedarburg	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Elm Grove	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Germantown	0.0	0.0	34.1	11.4	0.0	0.0	33.8	17.3
Grafton	0.0	0.0	0.0	0.0	7.1	4.5	0.0	0.0
Muskego	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
New Berlin	0.0	0.0	15.5	1.9	5.8	2.4	8.9	4.6
Saukville	0.0	0.0	0.0	0.0	0.0	0.0	7.0	5.8
Waukesha	0.0	0.0	10.8	5.4	11.4	3.4	10.0	13.8

Note: Based on data from Table B-IVa.

Source: US Census Bureau

Appendix C: Examples of Water Service Purchase Agreements

INTERGOVERNMENTAL COOPERATION AGREEMENT
BETWEEN THE CITY OF MILWAUKEE
AND THE CITY OF NEW BERLIN

RECEIVED

SEP 15 2008

RUEKERT & MIELKE, INC.

This Agreement is entered into this 12 day of Sept., 2008, by and between the City of Milwaukee, a municipal corporation ("Milwaukee"), and the City of New Berlin, a municipal corporation ("New Berlin").

WHEREAS, Milwaukee, operating as a public water utility, and New Berlin, operating as a public water utility, executed an agreement as of the 25th day of June, 2003 for the sale of water by Milwaukee to New Berlin at wholesale, which agreement is entitled Agreement Between the City of Milwaukee and the City of New Berlin for the Purchase of Water at Wholesale ("Water Service Agreement"); and

WHEREAS, pursuant to the Water Service Agreement, Milwaukee currently serves water to the area identified as the "Approved Lake Water Service Area" in Appendix A to this Intergovernmental Cooperation Agreement; and

WHEREAS, Milwaukee and New Berlin desire to expand the area served by Milwaukee water to include the area identified in Appendix A to this Intergovernmental Cooperation Agreement as the "Expanded Lake Water Service Area"; and

WHEREAS, the map attached to this Intergovernmental Cooperation Agreement as Appendix A is identical to the map attached to the First Amendment to Agreement Between the City of Milwaukee and the City of New Berlin for the Purchase of Water at Wholesale ("First Amendment to WSA") as Appendix B-1; and

WHEREAS, in partial consideration of the extension of water service to the Expanded Lake Water Service Area, New Berlin has agreed to enter into this Agreement to compensate Milwaukee for the value of Milwaukee water to New Berlin's existing customers and the value of Milwaukee water for potential future connections, within the Expanded Lake Water Service Area, to the New Berlin water utility under the terms of the First Amendment to WSA; and

WHEREAS, New Berlin has authorized its proper City officials to enter into this Agreement pursuant to Resolution Number 08-26 dated 26, AUG., 2008; and

WHEREAS, Milwaukee has authorized its proper City officials to enter into this Agreement pursuant to Common Council Resolution Number 080011 dated July 30, 2008; and

WHEREAS, Wisconsin Statute § 66.0301 authorizes municipalities to contract with each other for the receipt or furnishing of services.

NOW, THEREFORE, In consideration of the mutual promises contained herein and for other good and valuable consideration, the parties agree as follows:

ARTICLE I
AGREEMENT ON BEHALF OF NEW BERLIN

A. Regional Benefits Payment. In partial consideration of Milwaukee's agreement to extend water service to the Expanded Lake Water Service Area, which area is delineated in the map attached as Appendix A to this Agreement, New Berlin agrees to pay to Milwaukee, subject to the other provisions of this Agreement, a one-time Regional Benefits Payment of \$1.5 million payable between January 1, 2009 and January 31, 2009.

B. Nature of Compensation. The Regional Benefits Payment reflects the value of Milwaukee water to New Berlin's existing customers and a pre-payment that reflects the value of Milwaukee water for potential future connections, within the Expanded Lake Water Service Area, to the New Berlin water utility under the terms of the First Amendment to WSA. The parties expressly recognize that the payment made by New Berlin to Milwaukee shall not be considered tax receipts or revenues of Milwaukee's water system. Milwaukee shall deposit the payment into the City of Milwaukee General Fund.

ARTICLE II
AGREEMENT ON BEHALF OF MILWAUKEE

A. It is expressly understood by the parties that, notwithstanding approval by the Public Service Commission of Wisconsin of the First Amendment to WSA, Milwaukee's obligation to provide water service to the Expanded Lake Water Service Area is contingent upon the receipt of the Regional Benefit Payment described in Article I (A) of this Agreement.

B. It is expressly understood by the parties that this Agreement creates no obligation on the part of Milwaukee to provide water service at any time to any portion of New Berlin that is not a part of the Expanded Lake Water Service Area or Approved Lake Water Service Area as those areas are identified in Appendix A to this Agreement. It is further understood that additional Regional Benefit Payments will not be a requirement for any future continuation of water service to the Expanded Lake Water Service Area identified in Appendix A to this Agreement.

ARTICLE III
AGREEMENT ON BEHALF OF BOTH PARTIES

A. Both parties agree that economic development generates local and regional benefits. In order to achieve local and regional economic development benefits, both parties agree to abide by the Code of Ethics adopted by the Milwaukee 7 on November 29, 2006 and attached as Appendix B.

B. Both parties agree to hold an annual meeting with designees of both communities' Mayors to discuss opportunities to improve the availability of skilled workers in both communities and to improve the access of workers in each community to job opportunities.

C. Both parties agree that neither party shall take any action to solicit businesses to relocate from the City of Milwaukee to the City of New Berlin, or the City of New Berlin to the City of Milwaukee; and the City of New Berlin further agrees it shall not offer any economic incentives to any business to move from the City of Milwaukee to the City of New Berlin.

ARTICLE IV TERM

This Agreement shall become effective upon its execution by both parties and shall run concurrently with the term of the First Amendment to WSA.

ARTICLE V AMENDMENT

This Agreement may be amended at any time in writing upon mutual agreement of the parties.

ARTICLE VI NOTICES

All notices to be given by the parties shall be in writing and served by personal delivery, facsimile or United States mail, first class, postage prepaid, addressed as follows:

1. City of Milwaukee
Department of Administration
Budget and Management Division
City Hall Room 603
200 E. Wells Street
Milwaukee, WI 53202
2. City of New Berlin
Treasurer/Comptroller's Office
City of New Berlin
3805 S. Casper Drive
New Berlin, WI 53151

**ARTICLE VII
ENTIRE AGREEMENT**

With the exception of the terms of the Water Services Agreement and the First Amendment to WSA, this Agreement sets forth all the covenants, provisions, agreements, conditions and understandings between the parties and there are no covenants, promises, agreements, conditions or understandings either oral or written other than are herein set forth.

**ARTICLE VIII
COUNTERPARTS**

This Agreement may be executed in any number of counterparts, each of which shall constitute an original and all of which shall constitute one and the same Agreement.

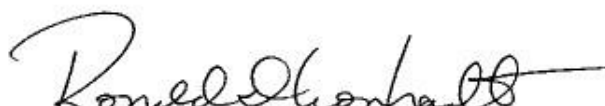
In Witness Whereof, The parties hereto have executed this Agreement the day and year first above written.

IN THE PRESENCE OF: CITY OF MILWAUKEE,



Mayor





City Clerk

COUNTERSIGNED:



City Comptroller

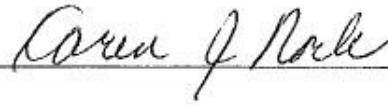
DEPUTY



IN THE PRESENCE OF: CITY OF NEW BERLIN,



Mayor



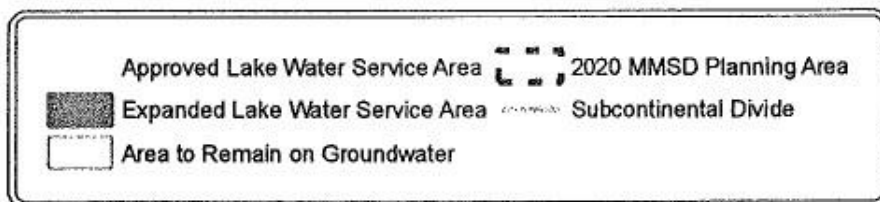
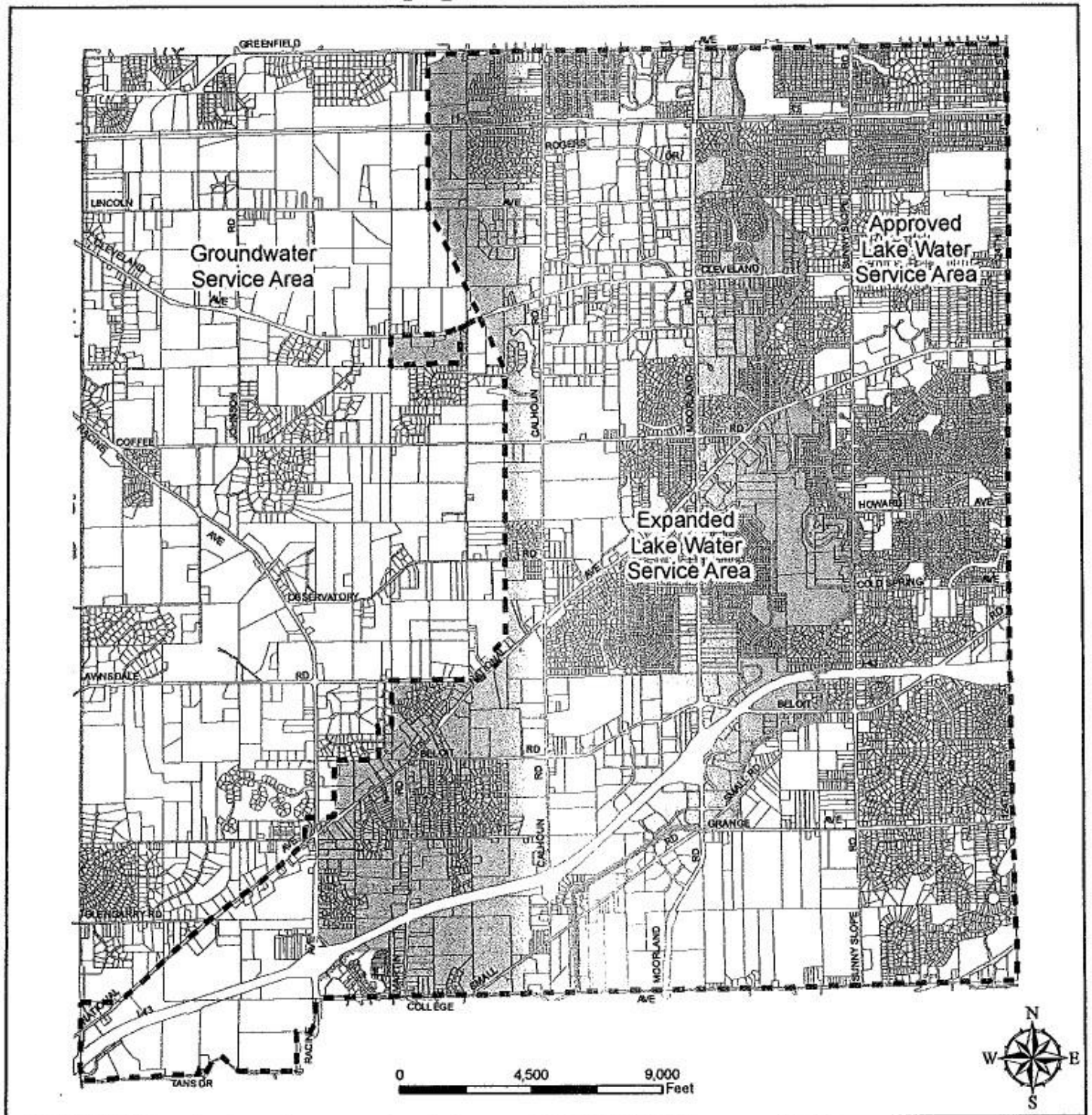


City Clerk



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Appendix A



RECEIVED

SEP 15 2008

RUEKERT & MIELKE, INC.

**FIRST AMENDMENT TO AGREEMENT BETWEEN THE CITY OF MILWAUKEE
AND THE CITY OF NEW BERLIN FOR
THE PURCHASE OF WATER AT WHOLESALE**

WHEREAS, an agreement was executed as of the 25th day of June, 2003, by and between the City of Milwaukee, operating as a public utility, (hereinafter referred to as "Milwaukee") and the City of New Berlin, operating as a water utility, (hereinafter referred to as "New Berlin") for the sale of water by Milwaukee to New Berlin at wholesale ("the Agreement"); and

WHEREAS, Milwaukee and New Berlin desire to expand the service area defined in the Agreement to include the Expanded Lake Water Service Area delineated in Appendix B-1 attached to this First Amendment to Agreement Between the City of Milwaukee and the City of New Berlin for the Purchase of Water at Wholesale ("First Amendment"); and

WHEREAS, in partial consideration of Milwaukee's agreement to provide water service to the Expanded Lake Water Service Area, Milwaukee and New Berlin executed an Intergovernmental Cooperation Agreement Between the City of Milwaukee and the City of New Berlin dated 12 SEPTEMBER, 2008 ("Intergovernmental Cooperation Agreement"); and

WHEREAS, the Milwaukee Water Works has facilities to ensure that New Berlin and other wholesale customers receive an adequate supply of water and the Milwaukee Water Works continues to incur the obligation to maintain those facilities; and

WHEREAS, Milwaukee must be assured that purchasers of large quantities of water will continue to obtain their supply from Milwaukee so that it may prudently plan the expansion of its facilities and that the facilities when constructed will not be rendered either functionless or partially functionless; and

WHEREAS, New Berlin desires to be assured that Milwaukee continues to have the facilities necessary to provide New Berlin with adequate water service and a supply of water pursuant to the terms of this First Amendment; Now, therefore,

IT IS AGREED, by and between the parties hereto as follows:

1. Appendix A to the Agreement establishing the Estimated Maximum Day Delivery Volume (Million Gallons) is amended and restated and shall be in the form attached to this First Amendment as Appendix A-1.
2. Appendix B to the Agreement establishing the Water Service Area is amended and restated and shall be in the form attached to this First Amendment as Appendix B-1.

3. Section I(a) of the Agreement is amended to read:

- (a) Adequate Water Service – Except as otherwise provided in paragraph II (j) of this agreement, unlimited, uninterrupted service of standard quality water as follows:

Location	Elevation (NGVD) (Center of Intersection)	Minimum Hydraulic Grade (NGVD)	Maximum Flow Rate (MGD)
W. Morgan Oak Drive & S. 124 th Street	820.6	901.5	6.50
W. Grange Ave & S. 124 th Street	829.5	910.4	

See Appendix A-1 for Estimated Maximum Day Volumes, which projections have been supplied by New Berlin to Milwaukee. This does not apply when the requirement of any state or federal governmental agency having jurisdiction may require otherwise.

4. Sections I(f) of the Agreement is amended to read:

- (f) Service Area – Area to be served with water. The boundary of the Service Area is set out in the map attached as Appendix B-1. The Service Area, composed of the Approved Lake Water Service Area and the Expanded Lake Water Service Area, is within the MMSD Sewer Service Planning Area as defined in the MMSD 2020 Facilities Plan.
1. Approved Lake Water Service Area – Area served with water pursuant to the June 25, 2003 Agreement. The boundary of the Approved Lake Water Service Area is set out in the map attached as Appendix B-1.
 2. Expanded Lake Water Service Area - Area not previously served with water pursuant to the June 25, 2003 Agreement and to be served with water pursuant to this First Amendment. The boundary of the Expanded Lake Water Service Area is set out in the map attached as Appendix B-1.

5. Section II(b) of the Agreement is amended to read:

- (b) The rates or charges for service at wholesale for water supplied to New Berlin shall be those established by the Commission. This First Amendment is conditioned upon Commission approval of the Additional Charges for Excessive Demand for water service in excess of the

applicable maximum flow rate as set forth in Paragraph 6 of this First Amendment.

6. Additional Charges for Excessive Demand. Whenever New Berlin's demand, within the Service Area, exceeds the applicable maximum flow rate for more than 10 minutes, as measured by the total of all flows through the metering devices measuring water being delivered to New Berlin, additional charges will be imposed by Milwaukee as set forth below. During the first year after the effective date of this First Amendment only, the additional charge for excessive demand will be imposed whenever New Berlin's demand exceeds the applicable maximum flow rate for more than 30 minutes.

For every hour or portion thereof that New Berlin's demand exceeds the applicable maximum flow rate, after the 10-minute grace period allowed above (30-minute grace period during the first year of this First Amendment), the monthly service charge shall be increased by the corresponding dollar amount as set forth in the following table:

Maximum Total Flow Rate Measured Through All Metering Devices (MGD)	Excessive Demand Charge (Per Hour or Portion Thereof)
< 6.50	n/a
6.51 – 7.00	\$10,000
7.01 – 7.50	\$15,000
7.51 – 8.00	\$20,000
8.01 – 8.50	\$25,000
8.51 – 9.00	\$30,000

An additional \$10,000 per hour Excessive Demand Charge will apply for each 0.50 MGD increment above 9.00 MGD. For the purposes of calculating the Excessive Demand Charge, time shall be measured in one-minute intervals. Examples of the calculation of the Excessive Demand Charge are shown in Appendix C to this First Amendment.

- (a) New Berlin agrees to pay these additional charges in accordance with Section II(f) of the Agreement.
- (b) If Milwaukee completes infrastructure improvements, pursuant to Paragraph 14 of this First Amendment, that allow Milwaukee to deliver higher maximum flow rates without adversely affecting Milwaukee's water distribution system, as determined by Milwaukee's hydraulic model or equivalent analysis, the Excessive Demand Charge schedule will be adjusted accordingly by deleting charges for flow rates that do not adversely affect Milwaukee's system and also adjusting the corresponding

dollar amount of the Excessive Demand Charge accordingly so that the \$10,000 charge shall apply to the first increment of 0.50 MGD in excess of the applicable maximum flow rate.

- (c) The additional charges set forth above shall not apply in the following circumstances:
 - (1) Where excessive demand is due to a water main break if Milwaukee is notified by New Berlin within 48 hours after New Berlin becomes aware of the main break. To qualify for this exception, however, New Berlin must reduce its hourly demand to less than the applicable maximum rate within four hours of the time it becomes informed of the main break.
 - (2) Where excessive demand is due to use of water for fire-protection service if Milwaukee is notified by New Berlin within 48 hours of the fire-protection service.
 - (3) Where excessive demand is due to an act of God or other catastrophic event beyond the reasonable control of New Berlin if Milwaukee is notified by New Berlin within 48 hours of the act of God or catastrophic event. To qualify for this exception, however, New Berlin must reduce its hourly demand to less than the applicable maximum rate within four hours of the end of the event.

The 48-hour notification period is exclusive of Saturdays, Sundays, and legal holidays.

7. Section II(e) of the Agreement is amended to read:

- (e) New Berlin shall obtain all of its water from Milwaukee for distribution in the Service Area defined in Appendix B-1 except as provided in Paragraph II (k).

8. Section II(k) of the Agreement is amended to read:

- (k) Whenever Milwaukee does not supply adequate water service as a result of an Emergency, New Berlin may obtain emergency water service from any other source or use water from each of its wells located in the Service Area, but only for the specific period of time that Milwaukee is unable to provide that supply. Whenever demand is in excess of agreed-upon demands in the Service Area, New Berlin may use water from each of its wells located in the Service Area.

9. Section II(g)1 of the Agreement is amended to read:

1. The area to be served for wholesale purposes under this First Amendment shall be delineated on a map attached hereto as Appendix B-1. No water purchased by New Berlin under this First Amendment may be resold or exchanged on a wholesale or retail basis outside the Service Area without the permission of Milwaukee. No water purchased by New Berlin under this First Amendment may allow New Berlin to sell or exchange well water or ground water on a wholesale or retail basis to any other municipality in existence as of the date of this agreement or to any properties therein with the exception of emergency service.

10. Section II(g)3 of the Agreement is amended to read:

3. In the event that New Berlin shall be either extended or enlarged in any manner whatsoever as a consequence of any consolidation or merger of New Berlin with any other municipal entity or political subdivision, then, and except as may otherwise be provided by law, there shall be no duty or obligation under this First Amendment on the part of Milwaukee to provide water to any area other than that delineated in Appendix B-1. Milwaukee reserves the option, however, of providing water service to the enlarged area of New Berlin.

11. Section II(g) of the Agreement is amended to add Sections II(g)4-6 as follows:

4. New Berlin agrees to operate its facilities in a reasonable manner which is consistent with the performance and service needs of both Milwaukee and New Berlin, including but not limited to tank operation and hydrant flushing.
5. New Berlin shall comply with all applicable water conservation and efficiency measures required by the Wisconsin Department of Natural Resources pursuant to Wisconsin Statute Section 281.344(8)(d).
6. No water service shall be provided to customers in New Berlin who are not also connected to a sanitary sewer tributary to the Milwaukee Metropolitan Sewerage District.

12. Section II(h) of the Agreement is amended to read:

- (h) New Berlin shall pay all costs, charges, fees, and all expenses incidental to construction, maintenance, and operation of its own water distribution system located within the Service Area, and all costs, charges, fees, and

expenses that may be entailed or incurred in providing any mains or any other distribution facilities from the limits of Milwaukee's distribution system to the New Berlin water distribution system with the exception of items Milwaukee is responsible for in Section II (f) 1 and II (f) 2.

13. Milwaukee and New Berlin agree to meet and confer every five years, or more frequently if requested by one of the parties, to reassess the water service demands and related infrastructure needs to meet those demands.
14. Milwaukee acknowledges that New Berlin is not responsible for any capital costs for water system improvements within Milwaukee County necessary to allow New Berlin to reach the maximum flow rate of 6.50 MGD. If the applicable maximum flow rate is exceeded more than two times in a rolling 12-month period, Milwaukee shall determine, in its sole discretion and based on Milwaukee's hydraulic model or equivalent analysis, whether infrastructure improvements to the Milwaukee distribution system are necessary to serve New Berlin, and Milwaukee's other customers, at adequate pressure. If New Berlin begins to approach the maximum flow rate, New Berlin may request additional capacity from Milwaukee. Milwaukee has no obligation to grant such request. If Milwaukee determines in its sole discretion that infrastructure improvements are necessary, New Berlin agrees to pay its proportionate share of the costs of the infrastructure improvements, as determined by Milwaukee after consultation with New Berlin. Factors in Milwaukee's determination of New Berlin's proportionate share of the costs of the infrastructure improvements shall include but are not limited to: the extent to which water service to New Berlin negatively impacts Milwaukee's provision of water service to its other wholesale and retail customers; the benefits of the infrastructure improvements to Milwaukee and other existing and future customers; the remaining useful life of the infrastructure that is being replaced or upgraded; the extent to which the improvements will require Milwaukee to adjust its capital improvement planning and resource allocation; and the extent to which the work is required in order to comply with existing and future state or federal regulations. Milwaukee's cost-sharing allocation shall be final, provided that New Berlin may seek review by the Public Service Commission, under Wis. Stat. §§ 196.26 and 196.40, of the reasonableness of Milwaukee's cost-sharing allocation.
15. Section III(b) of the Agreement is amended to read:
 - (b) Milwaukee shall pay the costs, charges, fees, and expenses that relate to the construction, maintenance, operation and expansion of its own water system that may be devoted in whole or in part to service of New Berlin as provided for in this Agreement, except for work identified under Paragraph II (f)1 of this Agreement as being the responsibility of New Berlin and except for costs determined under Paragraph 14 of the First Amendment to be the responsibility of New Berlin.

16. This First Amendment is subject to the approval of the Common Councils of Milwaukee and New Berlin, and after execution by both parties, Milwaukee shall file a copy of this First Amendment with the Commission. Approval of the Common Council of Milwaukee and the Common Council of New Berlin shall be evidenced by adoption of appropriate resolutions approving this First Amendment.
17. This First Amendment shall remain in full force and effect for the entire Service Area for a period of 20 years from and after the effective date of this First Amendment and is subject to the renewal provisions of Section IV (d) of the Agreement.
18. The effective date of this First Amendment shall be the date upon which the Commission approves this First Amendment or after receipt by Milwaukee of the Regional Benefit Payment described in Article I(A) of the Intergovernmental Cooperation Agreement, whichever date is later. The parties expressly agree that this First Amendment is conditioned upon Commission approval of the Additional Charges for Excessive Demand for water service in excess of the applicable maximum flow rate as set forth in Paragraph 6 of this First Amendment.
19. These changes constitute the entire amendment to the Agreement. All other covenants, provisions, terms, and conditions of the Agreement shall remain in force until further amended by mutual agreement of the parties.

Dated this 12 day of September, 2008.

IN THE PRESENCE OF:

CITY OF MILWAUKEE, operating as a
Water Public Utility

Kimberly Montgomery

Dean Barrett
Mayor

Katherine H. Mollica

Ronald Conhardt
City Clerk

W. H. DeBenedictis

COUNTERSIGNED:

Michael J. DeBenedictis
City Comptroller **DEPUTY** dm

IN THE PRESENCE OF:

CITY OF NEW BERLIN, operating
as a Water Public Utility

Karen J. Rock

Paul L. O'Donnell
Mayor

Shawn Z. Schepers

Marilyn Bruzger
City Clerk

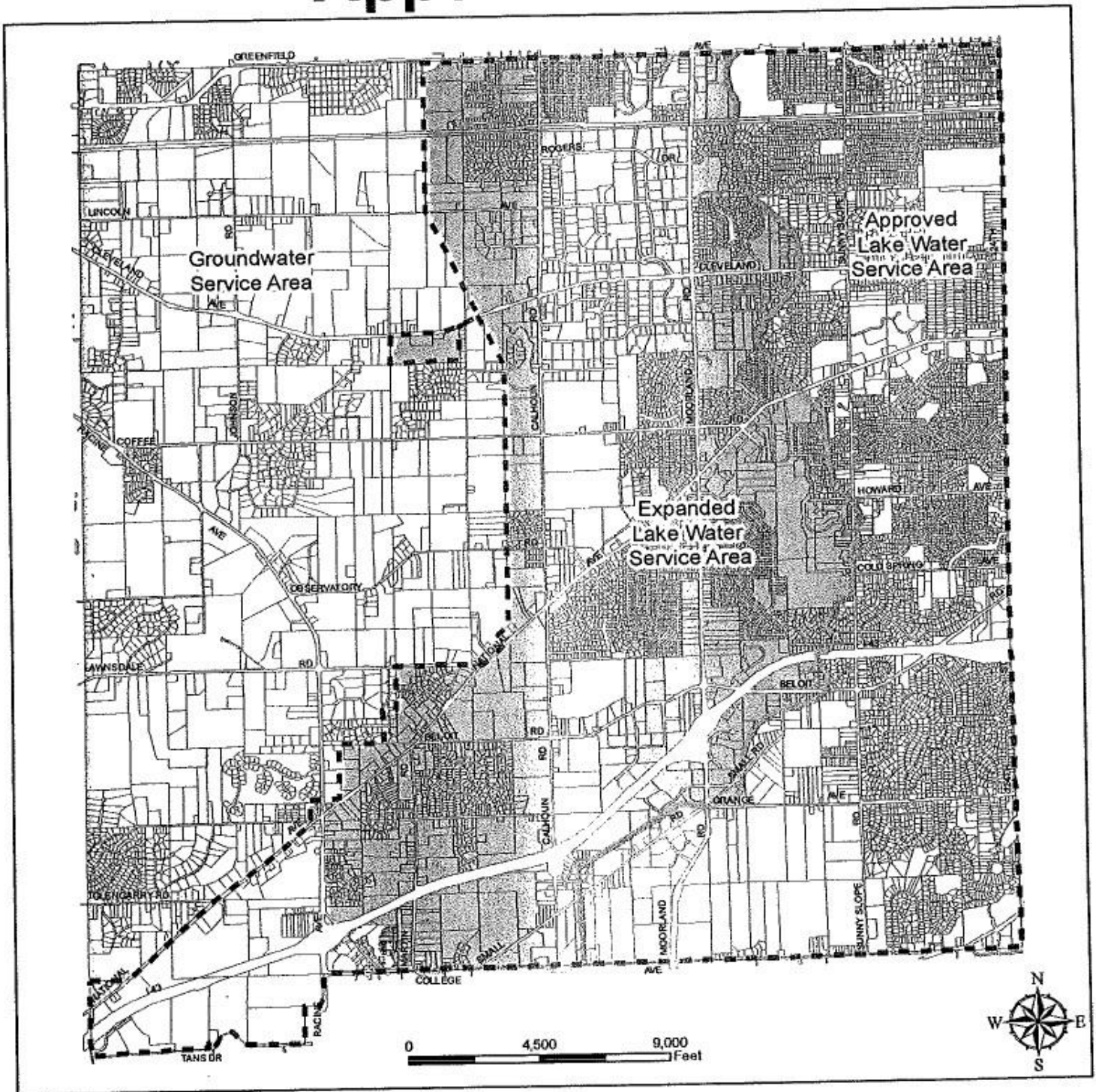
1048-2008-1374:132346

APPENDIX A-1

Estimated Water Demands for Milwaukee Service to New Berlin: 2008 to 2035

Year	Projected Average Day Demand MGD	Projected Maximum Day Demand MGD
2008	3.553	6.060
2009	3.568	6.044
2010	3.582	6.027
2011	3.596	6.009
2012	3.610	5.991
2013	3.625	5.972
2014	3.639	5.952
2015	3.653	5.931
2016	3.667	5.910
2017	3.682	5.887
2018	3.696	5.910
2019	3.710	5.933
2020	3.725	5.956
2021	3.739	5.979
2022	3.753	6.001
2023	3.767	6.024
2024	3.782	6.047
2025	3.796	6.070
2026	3.810	6.093
2027	3.825	6.116
2028	3.839	6.138
2029	3.853	6.161
2030	3.867	6.184
2031	3.882	6.207
2032	3.896	6.230
2033	3.910	6.253
2034	3.924	6.275
2035	3.939	6.298

Appendix B-1



Approved Lake Water Service Area  2020 MMSD Planning Area
 Expanded Lake Water Service Area  Subcontinental Divide
 Area to Remain on Groundwater



City of New Berlin Community Development
 3805 S Casper Drive, New Berlin WI 53161
 (262) 797-2446 www.newberlin.org

CDB
 6/23/2008
 G:\GIS_CURRENT\PROJECTS\MMSD\MMSD_Service_Ar_080514_ExB1.mxd

APPENDIX C

Examples of billings for Excessive Demand Charge

The table of charges is used as specified in the First Amendment to Agreement Between the City of Milwaukee and the City of New Berlin for the Purchase of Water at Wholesale, reproduced below.

Maximum Total Flow Rate Measured Through All Metering Devices (MGD)	Excessive Demand Charge (Per Hour or Portion Thereof)
< 6.50	n/a
6.51 – 7.00	\$10,000
7.01 – 7.50	\$15,000
7.51 – 8.00	\$20,000
8.01 – 8.50	\$25,000
8.51 – 9.00	\$30,000

An additional \$10,000 per hour or portion thereof Excessive Demand Charge will apply for each 0.50 MGD increment above 9.00 MGD.

Example: 6.80 MGD for 3.5 hours

<6.50 MGD			No excessive demand charge
6.51 to 6.80 MGD	<1 to 10 minutes	\$0	No excessive demand charge for first ten minutes over 6.50 MGD
6.80 MGD	11 to 60 minutes	\$10,000	Maximum rate between 6.51 and 7.00 MGD in first hour
6.80 MGD	61 to 120 minutes	\$10,000	Maximum rate between 6.51 and 7.00 MGD in second hour
6.80 MGD	121 to 180 minutes	\$10,000	Maximum rate between 6.51 and 7.00 MGD in third hour
6.80 MGD	181 to 210 minutes	\$10,000	Maximum rate between 6.51 and 7.00 MGD in fourth hour
< 6.50 MGD	>211 minutes	\$0	Maximum rate below 6.50 MGD; no excessive demand charge
Event total		\$40,000	

Example: 7.30 MGD for 3.5 hours

<6.50 MGD		\$0	Maximum rate below 6.50 MGD; no excessive demand charge
6.51 to 7.30 MGD	<1 to 10 minutes	\$0	No excessive demand charge for first ten minutes over 6.50 MGD
7.30 MGD	11 to 60 minutes	\$15,000	Maximum rate between 7.01 and 7.50 MGD in first hour
7.30 MGD	61 to 120 minutes	\$15,000	Maximum rate between 7.01 and 7.50 MGD in second hour
7.30 MGD	121 to 180 minutes	\$15,000	Maximum rate between 7.01 and 7.50 MGD in third hour
7.30 MGD	181 to 210 minutes	\$15,000	Maximum rate between 7.01 and 7.50 MGD in fourth hour
<6.50 MGD	>211 minutes	\$0	Maximum rate below 6.50 MGD; no excessive demand charge
Event total		\$60,000	

Example: Variable flows up to 9.95 MGD over 165 minute period

<6.50 MGD		\$0	Maximum rate below 6.50 MGD; no excessive demand charge
6.51 to 9.23 MGD	<1 to 10 minutes	\$0	No excessive demand charge for first ten minutes over 6.50 MGD
9.23 MGD	11 to 60 minutes	\$40,000	Maximum rate between 9.01 and 9.50 MGD in first hour ¹
9.23 MGD	61 to 90 minutes	\$50,000	Maximum rate between 9.51 and 10.00 MGD in second hour ²
9.75 MGD	91 to 120 minutes		
9.95 MGD	121 to 165 minutes	\$50,000	Maximum rate between 9.51 and 10.00 MGD in third hour ²
<6.50 MGD	>166 minutes	\$0	Maximum rate below 6.50 MGD; no excessive demand charge
Event total		\$140,000	

¹Excessive demand charge for 9.01 to 9.50 MGD is \$40,000 per hour or portion thereof.

²Excessive demand charge for 9.51 to 10.00 MGD is \$50,000 per hour or portion thereof.

Example: Variable flows up to 7.25 MGD over 75 minute period

<6.50 MGD		\$0	Maximum rate below 6.50 MGD; no excessive demand charge
6.60 to 6.75 MGD	<1 to 10 minutes	\$0	No excessive demand charge for first ten minutes over 6.50 MGD
6.75 MGD	11 to 30 minutes	\$15,000	Maximum rate between 7.01 and 7.50 MGD in first hour
7.25 MGD	31 to 50 minutes		
6.75 MGD	51 to 60 minutes		
6.75 MGD	61 to 75 minutes	\$10,000	Maximum rate between 7.01 and 7.50 MGD in second hour
<6.50 MGD	>76 minutes	\$0	Maximum rate below 6.50 MGD; no excessive demand charge
Event total		\$25,000	

Billings for Excessive Demand Charge after infrastructure improvements.

For this example, it is assumed that infrastructure improvements have been made which allow maximum flow rates of 8.50 MGD to be delivered without adverse effects on Milwaukee's system.

In this case, the table of charges would be modified as follows:

Maximum Total Flow Rate Measured Through All Metering Devices (MGD)	Excessive Demand Charge (Per Hour or Portion Thereof)
< 8.50	n/a
8.51 – 9.00	\$10,000
9.01 – 9.50	\$15,000
9.51 – 10.00	\$20,000
10.01 – 10.50	\$25,000
10.51 – 11.00	\$30,000

An additional \$10,000 per hour or portion thereof Excessive Demand Charge will apply for each 0.50 MGD increment above 11.00 MGD.

**AGREEMENT BETWEEN THE CITY OF MILWAUKEE
AND THE CITY OF WEST ALLIS FOR
THE PURCHASE OF WATER AT WHOLESALE**

This Agreement, made as of the ____ day of _____, 2006 by and between the City of Milwaukee, operating as a water public utility ("Milwaukee") and the City of West Allis, operating as a water public utility ("West Allis").

Whereas, West Allis desires to continue the purchase of water from Milwaukee at wholesale; and

Whereas, under current law, Milwaukee has an obligation to provide adequate water supply to West Allis at rates approved by the Public Service Commission of Wisconsin ("Commission"); and

Whereas, The Milwaukee Water Works has constructed facilities to ensure that West Allis and other wholesale customers receive an adequate supply of water and continues to incur the obligation to maintain those facilities; and

Whereas, Milwaukee must be assured that purchasers of large quantities of water will continue to obtain their supply from Milwaukee so that it may prudently plan the expansion of its facilities and that the facilities when constructed will not be rendered either functionless or partially functionless; and

Whereas, West Allis desires to be assured that Milwaukee continues to have the facilities necessary to provide West Allis with adequate water service and a supply of water;

Now therefore, in consideration of the mutual covenants hereinafter expressed, it is agreed as follows:

I. Definitions

- (a) Adequate Water Service – Except as otherwise provided in paragraph II (i) of this agreement, unlimited, uninterrupted service of standard quality water as follows:

Location	Elevation (NGVD) (Center of Intersection)	Minimum Hydraulic Grade (NGVD)	Estimated Maximum Flow Rate (MGD)
7701 W. Pierce St.	708.5 Ft	790 Ft	6.10
5660 W. National Ave.	667.4 Ft	749 Ft	9.88

This does not apply when the requirement of any state or federal governmental agency having jurisdiction may require otherwise.

- (b) Ccf – 100 cubic feet of water (748 gallons)
(c) Commission – Public Service Commission of the State of Wisconsin
(d) Emergency – A situation caused by an act of God or circumstances beyond the control of the Milwaukee Water Works which results in the Milwaukee Water Works not meeting the requirements of service as contained in this Agreement.
(e) Service Area – Area to be served with water. The boundary of the Service Area is set out in the map attached as Appendix A.

- (f) Standard Quality Water - Water that meets the standards of federal and state agencies having authority to establish water quality standards that uniformly apply to Milwaukee and its customers and as those standards may be amended from time to time.

II. West Allis agrees that:

- (a) This Agreement shall be subject to applicable rules and regulations of the Milwaukee Water Works on file with the Commission, as those rules and regulations may be amended from time to time. West Allis shall be subject to reasonable restrictions that are uniformly imposed by Milwaukee throughout its service area and on its other retail and wholesale customers, specifically with respect to the above rules and regulations. These restrictions are subject to approval by any state or federal governmental agency having jurisdiction.
- (b) The rates or charges for service at wholesale for water supplied to West Allis shall be those established by the Commission.
- (c) West Allis shall grant permits at standard fees within the boundaries of the service area that are necessary to effectuate Milwaukee's construction, maintenance, alteration or operation with respect to service under this Agreement subject to applicable city codes, state statutes and administrative rules. West Allis will not tax Milwaukee-owned Water Works facilities located in the service area.
- (d) West Allis shall obtain all of its water from Milwaukee for distribution in the Service Area except for areas served by West Allis from another water supplier as of the date of signing of this agreement, and except as provided in Section II (j).
- (e) West Allis shall pay to Milwaukee, in accordance with the billings of Milwaukee, the full and correct amount of such billings to be computed upon the prevailing rates and charges as provided in paragraph II (b).
 - 1. West Allis shall furnish and install master wholesale water meter pits, or other enclosures, complete with meter settings but without meters. Meters shall be supplied by Milwaukee and paid for at cost by West Allis. Milwaukee shall be responsible for the cost to install the meters.
 - 2. Milwaukee Water Works shall install and maintain demand-metering facilities.
- (f) West Allis shall limit water service as follows:
 - 1. The area to be served for wholesale purposes under this Agreement shall be as outlined in Section I(e). No water purchased by West Allis under this agreement may be resold or exchanged on a wholesale or retail basis outside this Service Area without the permission of Milwaukee. No water purchased by West Allis under this agreement may allow West Allis to sell or exchange well water or ground water on a wholesale or retail basis to any other municipality in existence

as of the date of this agreement or to any properties therein with the exception of emergency service.

2. In the event that prudent management, public safety and good operation require a readjustment of the boundaries of the Service Area as distinct from the municipal corporate boundaries, the mutual consent of both parties to this Agreement is necessary as a condition precedent to effecting a readjustment of service-area boundaries subject, however, to such action as the Commission may take in the exercise of its regulatory powers.
 3. In the event that the Service Area shall be either extended or enlarged in any manner whatsoever as a consequence of any consolidation or merger with any other municipal entity or political subdivision, then, and except as may otherwise be provided by law, there shall be no duty or obligation under this Agreement on the part of Milwaukee to provide water to any area other than that delineated in Section I(e). Milwaukee reserves the option, however, of providing water service to the enlarged area.
- (g) West Allis shall pay all costs, charges, fees, and all expenses incidental to construction, maintenance, and operation of its own water distribution system located within the Service Area, and all costs, charges, fees, and expenses that may be entailed or incurred in providing any mains or any other distribution facilities from the corporate limits of Milwaukee to the West Allis water distribution system with the exception of items Milwaukee is responsible for in Section II (e) 1 and II (e) 2.
- (h) All plans and specifications for metering stations, re-pumping stations, storage facilities and all other major distribution improvements or extensions 16 inches or larger to the West Allis distribution system must conform to the standards prescribed by the Wisconsin Department of Natural Resources and shall be reviewed by Milwaukee prior to the time contracts are awarded or materials are purchased, to determine whether increased demands caused by the improvements would require capital expenditures by the Milwaukee Water Works and whether cost sharing for Milwaukee's improvements is appropriate. Milwaukee shall review all plans and specifications submitted by West Allis under this paragraph and respond in writing within 30 days of the date the plans and specifications are submitted. The written response will indicate approval, or identify objections or concerns regarding the proposed improvements.
- (i) Milwaukee may place restrictions upon the use of water by West Allis as a result of an occurrence that is an Emergency or is related to a breakdown of Milwaukee's facilities. Any restriction so placed will be done in a manner consistent with the restrictions placed upon similarly situated customers. Milwaukee shall give West Allis as much prior notice as is reasonably possible of any such restrictions.

- (j) Whenever Milwaukee does not supply adequate water service or if demand is in excess of agreed upon demands in the Service Area, West Allis may obtain emergency water service from any other source but only for the specific period of time that Milwaukee is unable to provide that supply. In an emergency during which West Allis is unable to provide water supply to its customers, West Allis may obtain emergency water service from any other source but only for the specific period of time that West Allis is unable to provide that supply.
- (k) West Allis agrees to defend and hold harmless Milwaukee from any claims or causes of action of whatever nature arising from West Allis' negligence, intentional actions, or breach of the expressed warranties and covenants contained in this Agreement or any liabilities which may be incurred by the City of Milwaukee arising from an action challenging the authority of the City of Milwaukee to make this agreement. The indemnity provisions of the Agreement shall survive its termination and shall continue in full force and effect.

III. Milwaukee agrees as follows:

- (a) To provide Adequate Water Service to West Allis.
- (b) Milwaukee shall pay the costs, charges, fees, and expenses that relate to the construction, maintenance, operation and expansion of its own water system that may be devoted in whole or in part to service of West Allis as provided for in this Agreement, except for work identified under Section II (e)1 of this Agreement as being the responsibility of West Allis.
- (c) Milwaukee shall pay all costs and expenses incurred as a result of testing metering devices and appurtenances with respect thereto.
- (d) Except as otherwise provided in this Agreement, Milwaukee does hereby grant to West Allis authority to install flow control, security, SCADA and flow monitoring equipment at interconnection points between the two systems, namely Milwaukee and West Allis.
- (e) Milwaukee warrants that all water purchased or delivered under this Agreement has been treated in accordance with and meets all applicable state and federal regulations. There are no warranties provided that extends beyond the above description.
- (f) Milwaukee agrees to defend and hold harmless West Allis from any claims or causes of action of whatever nature arising from Milwaukee's negligence, intentional actions, or breach of the expressed warranties contained in this Agreement or any liabilities which may be incurred by West Allis arising from the making of this Agreement. The indemnity provisions of this Agreement shall survive its termination and shall continue in full force and effect.
- (g) Milwaukee will simultaneously furnish West Allis the meter data signal and information provided by the demand metering facilities to be provided by Milwaukee pursuant to Section II (e) 2 above.
- (h) Milwaukee will provide to West Allis, within 10 days of filing, a copy of its application to the Commission for adjustment of its water rates.

IV. Milwaukee and West Allis hereby mutually agree:

- (a) That this Agreement is subject to the approval of the Common Councils of Milwaukee and West Allis, and after execution by both parties, Milwaukee shall file a copy of the Agreement with the Commission. Approval of the Common Councils of both communities shall be evidenced by adoption of appropriate resolutions approving this Agreement.
- (b) The effective date of this Agreement shall be the date upon which the Commission acknowledges the Agreement in such manner as the Commission shall deem appropriate.
- (c) This Agreement shall be governed by, construed, and enforced under and in accordance with the laws of the State of Wisconsin.
- (d) This Agreement shall remain in full force and effect for ten years from and after the effective date of this Agreement and shall automatically renew for subsequent ten-year periods. Any party wishing to not renew this Agreement at the conclusion of the initial term, or any ten-year term, must submit a written notice of non-renewal at least 48 months prior to the date the Agreement would otherwise automatically renew. The party to whom a notice of non-renewal is submitted shall acknowledge receipt of the notice in writing within 30 days of the date of the notice.
- (l) Termination of this Agreement at any time other than renewal requires the mutual consent of both parties. A party shall give or withhold its consent in writing within 90 days of being formally requested to give its consent.
- (f) The parties agree to act in good faith and use due diligence in meeting their respective obligations under this Agreement.
- (g) This Agreement may be executed in counterparts, which together shall constitute a single contract.
- (h) If the parties are unable to resolve a dispute over the terms and conditions of this Agreement, either party may request in writing that the matter be submitted for determination by an arbitrator. A party shall give or withhold its consent in writing within 90 days of being formally requested to give its consent. Upon mutual consent of both parties to proceed, the parties shall appoint one arbitrator. If the parties cannot agree on the arbitrator, the arbitrator shall be selected by a judge in a court of competent jurisdiction. The arbitrator may hold such hearings and require such briefs as the arbitrator determines to be necessary. The arbitrator shall issue a written decision within 15 business days of the final hearing or the final submission of any material requested by the arbitrator. The decision of the arbitrator shall be binding upon Milwaukee and West Allis. The cost of arbitration shall be equally shared and paid by Milwaukee and West Allis.
- (i) This Agreement and all of the provisions hereof shall be binding upon and inure to the benefit of the parties hereto, but neither this Agreement nor any of the rights, interest, or obligations hereunder

shall be assigned by either of the parties hereto without the prior written consent of the other party.

- (j) All notices, requests, demands, and other communications under this Agreement shall be in writing and shall be deemed given if personally delivered or mailed, certified mail, return receipt requested to the following addresses:

If to West Allis:

West Allis Water Utility

Attention: Director of Public Works

6300 West McGeoch Ave.

West Allis WI 53219

If to Milwaukee:

Milwaukee Water Works

Attn: Superintendent

841 N. Broadway Rm 409

Milwaukee WI 53202

IN THE PRESENCE OF:

CITY OF MILWAUKEE, operating as a
Public Water Utility

Mayor

City Clerk

COUNTERSIGNED:

City Comptroller

IN THE PRESENCE OF:

WEST ALLIS, operating
as a Public Water Utility

Mayor

City Attorney

City Clerk/Treasurer

COUNTERSIGNED:

City Comptroller

ORIGINAL

ECONOMIC DEVELOPMENT AGREEMENT

BETWEEN

THE CITY OF CLEVELAND

AND

PORTAGE COUNTY

7KLV (FRQRPLF 'HYHORSPHQW \$JUHHPHQW '3\$JUHHPHQW' LV HQWHUHG LQWR WKLV

16th day of August, 2006, between the City of Cleveland, under the authority of Ordinance No. 607-06, passed by the Council of the City of Cleveland on May 8, 2006, and Portage County, under the authority of Resolution No. 06-0697 adopted August 10, 2006.

RECITALS

- 1) Sections 4 and 6 of Article XVIII of the Ohio Constitution authorize Cleveland to extend its ZDWHU VHUYLFH RXWVLGH WKH &LWV corporate limits and to determine the terms and conditions under which such service will be extended; and
- 2) Portage County desires to obtain Cleveland water service to supply its customers (including the City of Aurora), also known as the
36HUYLFH \$UHD ' WKURXJK D &RPSHWLWLYH 5HVSQRVH ODVWHU OHWHU :DWHU 6HUYLFH \$JUHHPHQW WKH 3:6\$' DQG
- 3) The provision of Cleveland water to the Service Area will facilitate economic development, create and preserve jobs, improve

property values, and advance the economic welfare of the inhabitants and businesses within Portage County; and

4) The provision of Cleveland water to the Service Area may have negative economic impacts for Cleveland through the loss of economic development that may otherwise have occurred within Cleveland; and

5) In consideration of such extension of water service by the Cleveland Division of Water, Portage County has agreed to enter into this Agreement to compensate Cleveland for the impacts to economic development within Cleveland, caused by the extension of water service to Portage County.

ECONOMIC DEVELOPMENT AGREEMENT

Article I. Compensation to Cleveland

A) Amount, Q FRQVLGHUDWLRQ RI & OHYHODQG\ DJUHHPHQW WR H[WHQG water service, PoUWDJH &RXQW\ DJUHHV WR SD\ WR & OHYHODQG\ *HQHUDO)XQG DQ DQQXDQ HFRQRPLF ORVV PLWLJDWLRQ IHH WKH')HH' GXH XSRQ WKH VLJQLQJ RI this Agreement and on the anniversary date each following year, to compensate for current and future economic losses suffered by Cleveland that may be caused by extension of water service to the Service Area, as follows:

- 1) 7KH DQQXDQ ,PSDFW)HH VKDOO LQLWLDOO\ EH XQWLO WKH ' express main, described in the WSA, is operational.
- 2) Once the main is available, the annual Impact Fee shall increase to \$100,000, and will escalate at the Consumer Price Index (CPI) up to 5% per year, until such time that 2.5 million gallons per day average annual flow is drawn from Cleveland.
- 3) Once Portage County demands more than 2.5 million gallons per day annual flow from Cleveland, the Fee shall increase by an additional \$100,000, and shall

escalate as described in the paragraph above.

- 4) The Fee shall be prorated for any year in which the Fee increases to reflect the additional amount.
- 5) The parties agree that for purposes of this Article I, a year VKDOO EHJLQ RQ WKH GDWH RQ ZKLFK 3RUWDJH &RXQW¶¶V ILUVW payment of \$37,500 is due, and ends on the day before the first anniversary of that date.

B) Nature of Compensation. The parties expressly recognize that the payments made by Portage County to Cleveland are intended to be compensation to Cleveland for impacts to economic development within Cleveland due to its extension of water service, and shall not be considered tax receipts or reYHQXH V RI WKH &LW¶¶V ZDWHU \\\VWHP &OHYHODQG VKDOO GHSRVLW the fees into a fund designated to offset impacts of economic development outside Cleveland, to promote economic development within Cleveland and/or to promote joint economic development activities between Cleveland and Portage County.

C) Cleveland Businesses. Portage County shall not take any action to promote, encourage, offer economic incentives to, or otherwise solicit Cleveland businesses to relocate to the Service Area. Portage County will include a similar provision in future agreements with other communities in the service area.

Article II. Term

The term of this Agreement shall begin on the date of its execution and shall run concurrently with the term of the WSA, including any renewals or extensions.

ARTICLE III. Water Service Agreement

A) Water service to the Service Area &OHYHODQG¶¶V REOLJDWLRQ WR provide water service to the Service Area is contingent upon the receipt of the fee described in Article I (A) of this Agreement.

B)Termination. In the event that this Agreement is deemed to be unenforceable under any local, state, or federal law, or if for any reason Portage County ceases to make the payments to Cleveland required by Article I (A), Cleveland shall have the right, upon six mRQWKV¶ ZULWWHQ QRWLFH to Portage County, to terminate the WSA and discontinue water service to 3RUWDJH &RXQW\ 3ULRU WR &OHYHODQG¶V H[HUFLVLQJ VXFK ULJKW KRZHYHU WKH parties will use best efforts to enter into a new Agreement and WSA under terms and conditions that will cure the defect(s) that rendered this Agreement unenforceable.

Article V. Default and Remedies

A failure to comply with the terms of this Agreement shall constitute a default. In the event of a default, the parties shall follow the Dispute Resolution process set forth in the WSA.

Article VI. Miscellaneous

- A) Governing Law. This Agreement shall be governed exclusively by and construed in accordance with the laws of Ohio.
- B) Captions and Headings. The captions and headings used in this Agreement are for convenience only and in no way define, limit or describe the scope or intent of any contract provision.
- C) Binding On Successors. This agreement shall be binding upon successor governmental authorities of the parties to the extent permitted by law.
- D) Amendments to Be In Writing. This agreement shall not be amended, modified, discharged or extended except by written instrument executed by the parties, under their respective ordinances and charters, and the laws of Ohio.

Article VII. Form of Notices

Any notice or demand to be given by or to any of the parties shall be made in writing and shall be deemed to have been given or delivered, as the case may be, two (2) days after deposit in the U.S. Post Office, registered or certified mail, postage prepaid, return receipt requested and addressed as follows (or as to each party, to such other address as the party may designate by a notice given in accordance with the provisions of this Section):

Notice to Cleveland shall be addressed to:

Director of Finance
City of Cleveland
Department of Finance
601 Lakeside Avenue
Cleveland, Ohio 44114

With a copy to:

Director of Public Utilities
City of Cleveland
Department of Public Utilities
1201 Lakeside Avenue
Cleveland, Ohio 44114

Notice to Portage County shall be addressed to:

Board of Portage County Commissioners
449 South Meridian Street
Ravenna, Ohio 44266-1217

The parties have executed this Agreement as of the date and year first above written.

CITY OF CLEVELAND

By: Sharon Dumas
Director of Finance

The legal form and
correctness of this Agreement are approved:

ROBERT J. TRIOZZI

Director of Law

By: Katie Novak
Assistant Director of Law

Date: 8/15/06

**PORTAGE COUNTY
BOARD OF COMMISSIONERS**

Christopher Smeiles

Charles W. Keiper, II

Maureen T. Frederick

8-10-06

Date

8-10-06

Date

8-10-06

Date

Approved:

ASSISTANT PORTAGE COUNTY PROSECUTOR

By: _____

Date: 8-10-06

Certificate of Auditor

I HEREBY CERTIFY that the amount of **\$ 37,500.00** required to meet the foregoing contract, agreement, or obligation has been lawfully appropriated, or authorized or directed for such purposes, and is in the County treasury to the credit of Fund 54001004 400000 free from any outstanding obligation.

8-10-06

Date

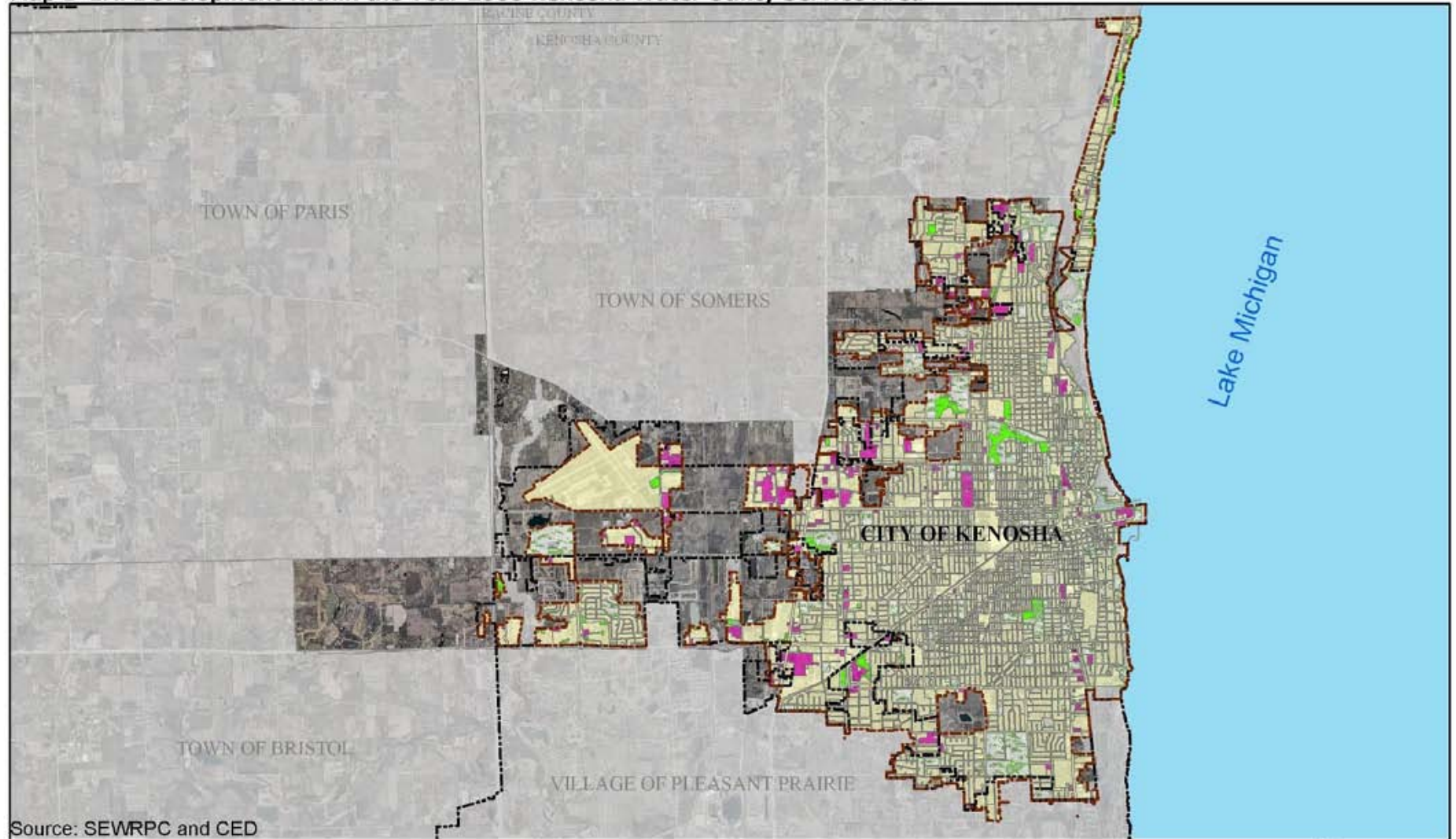
Janet Esposito (signed)

Portage County Auditor

* * *

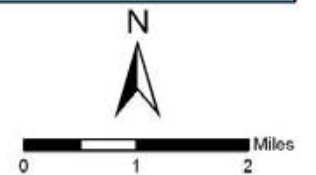
Appendix D: Land Use Maps of Selected Communities

Map D-1A: Development within the Year 2000 Kenosha Water Utility Service Area

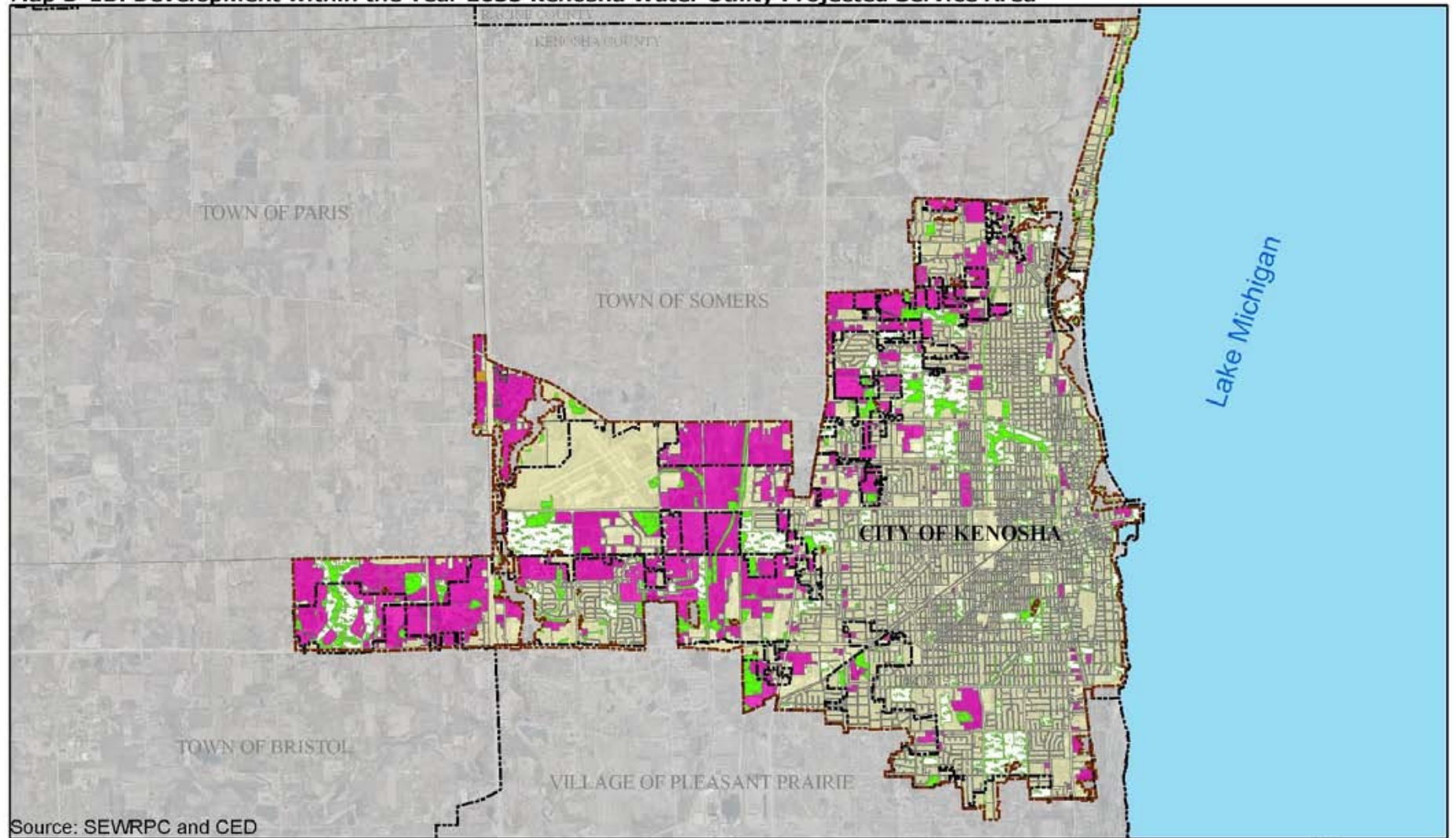


Source: SEWRPC and CED


- Areas to be Developed and Served within the Year 2000 Service Area (as of Year 2005)
- Areas Developed as of 2005
- Environmental Corridors
- Parks, and Open Spaces (very limited services)
- Year 2000 Kenosha Water Utility Service Area Boundary
- 2005 Municipal Boundaries



Map D-1B: Development within the Year 2035 Kenosha Water Utility Projected Service Area




Source: SEWRPC and CED


 Areas to be Developed and Served within the 2035 Projected Service Area (as of Year 2005)

 Areas Developed as of 2005

 Environmental Corridors

 Parks, and Open Spaces (very limited services)

 Projected Farmland and Lands to be Preserved, not to be served under Smart Growth Plan and RLUP

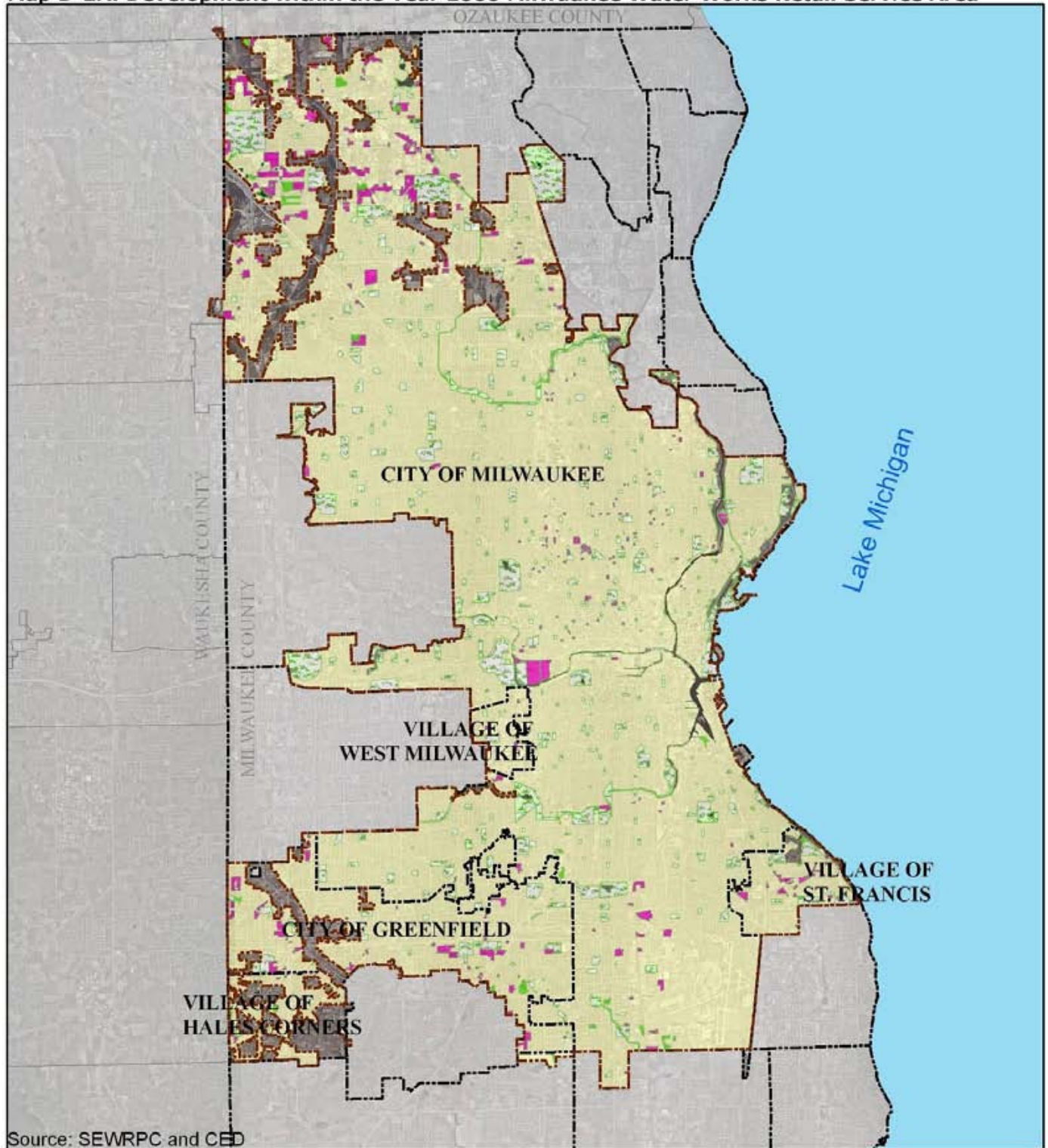
 Projected Areas With Existing Development, not to be served under Smart Growth Plan and RLUP

 Year 2035 Kenosha Water Utility Service Area Boundary

 2005 Municipal Boundaries



Map D-2A: Development within the Year 2000 Milwaukee Water Works Retail Service Area



Source: SEWRPC and CED

Areas to be Developed and Served within the Year 2000 Service Area (as of Year 2005)

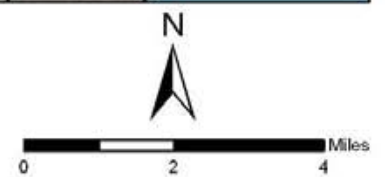
Areas Developed as of 2005

Environmental Corridors

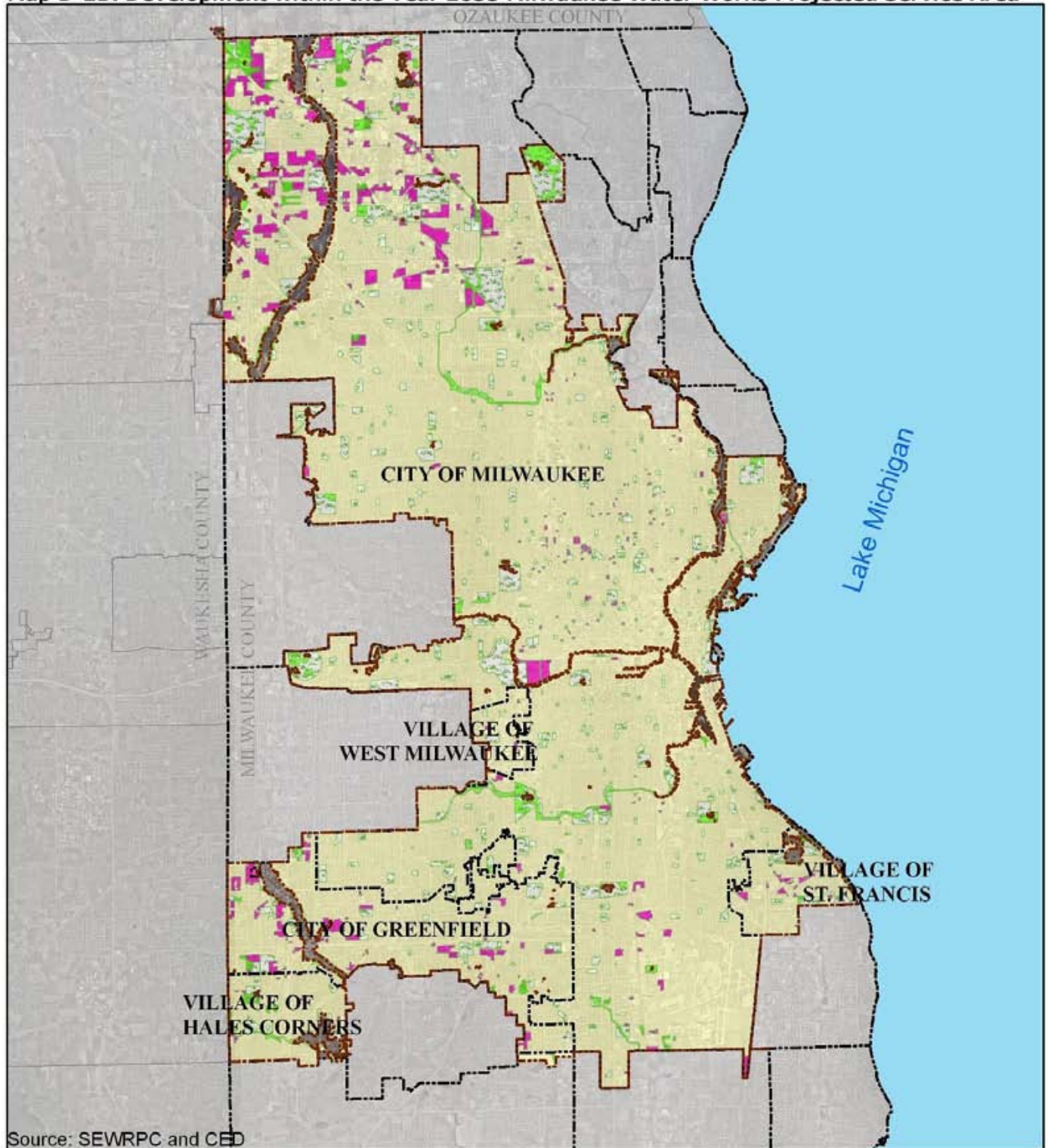
Parks and Open Spaces (very limited services)

Year 2000 Milwaukee Water Works Retail Service Area Boundary

2005 Municipal Boundaries



Map D-2B: Development within the Year 2035 Milwaukee Water Works Projected Service Area



Source: SEWRPC and CED

Areas to be Developed and Served within the 2035 Projected Service Area (as of Year 2005)

Areas Developed as of 2005

Environmental Corridors

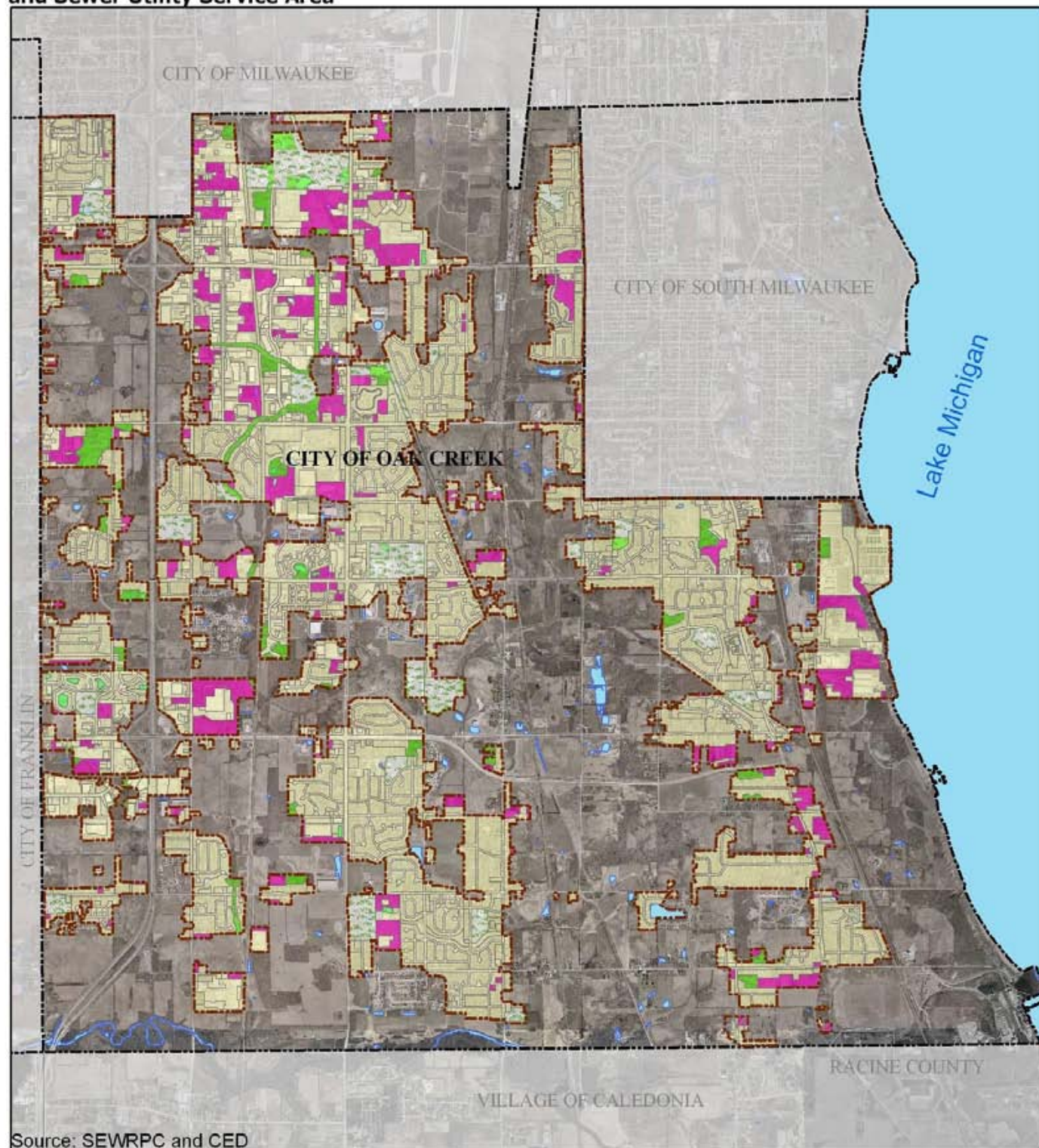
Parks and Open Spaces (very limited services)

Year 2035 Milwaukee Water Works Retail Service Area Boundary

2005 Municipal Boundaries



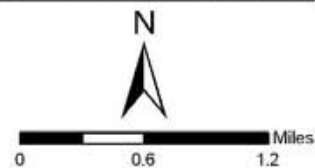
Map D-3A: Development within the Year 2000 City of Oak Creek Water and Sewer Utility Service Area



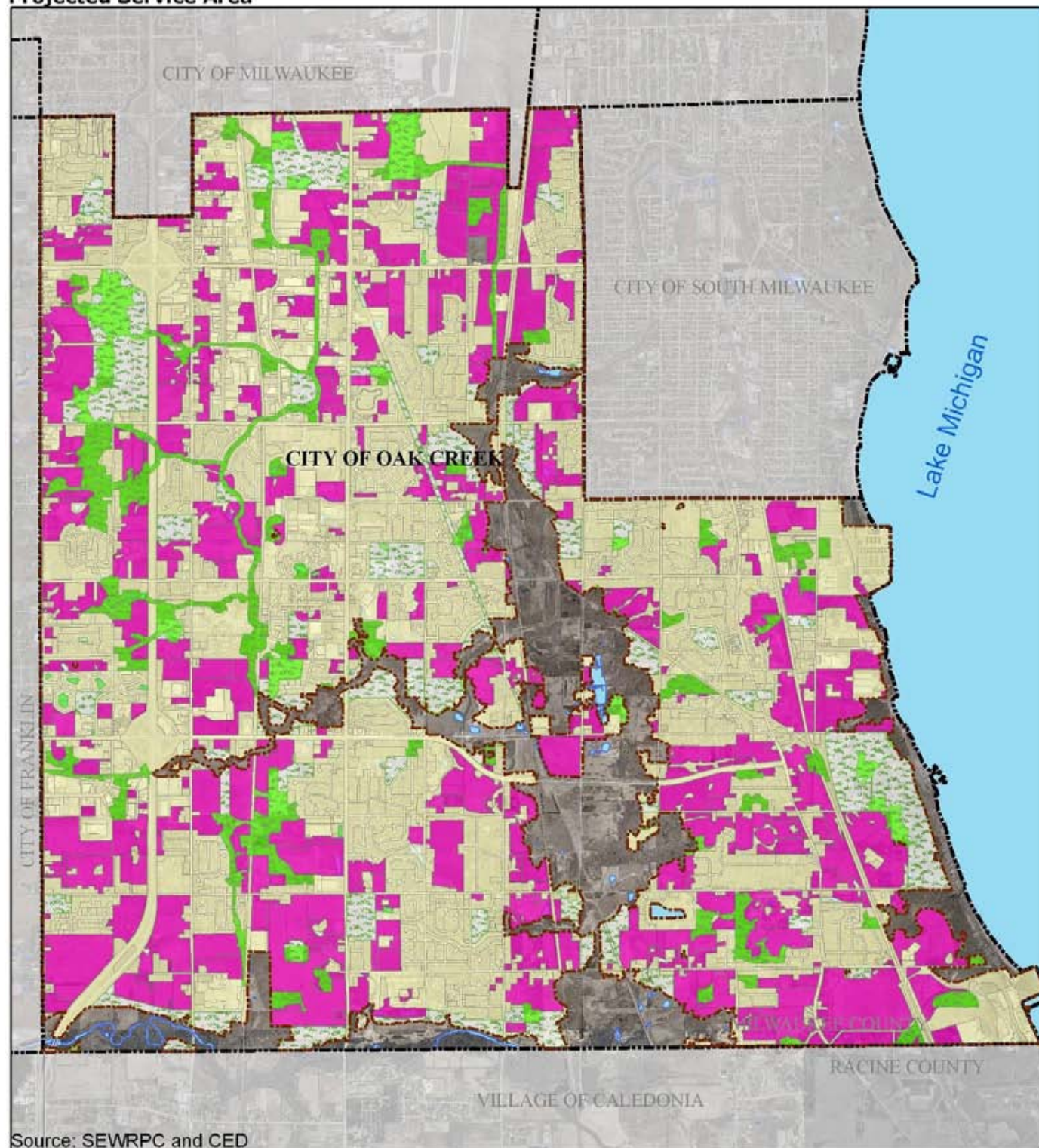
Source: SEWRPC and CED

- Areas to be Developed and Served within the Year 2000 Service Area (as of Year 2005)
- Areas Developed as of 2005
- Environmental Corridors
- Parks and Open Spaces (very limited services)

- Year 2000 City of Oak Creek Water and Sewer Utility Service Area Boundary
- 2005 Municipal Boundaries



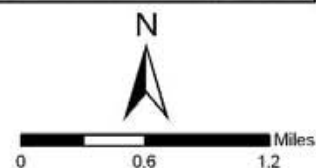
Map D-3B: Development within the Year 2035 City of Oak Creek Water and Sewer Utility Projected Service Area



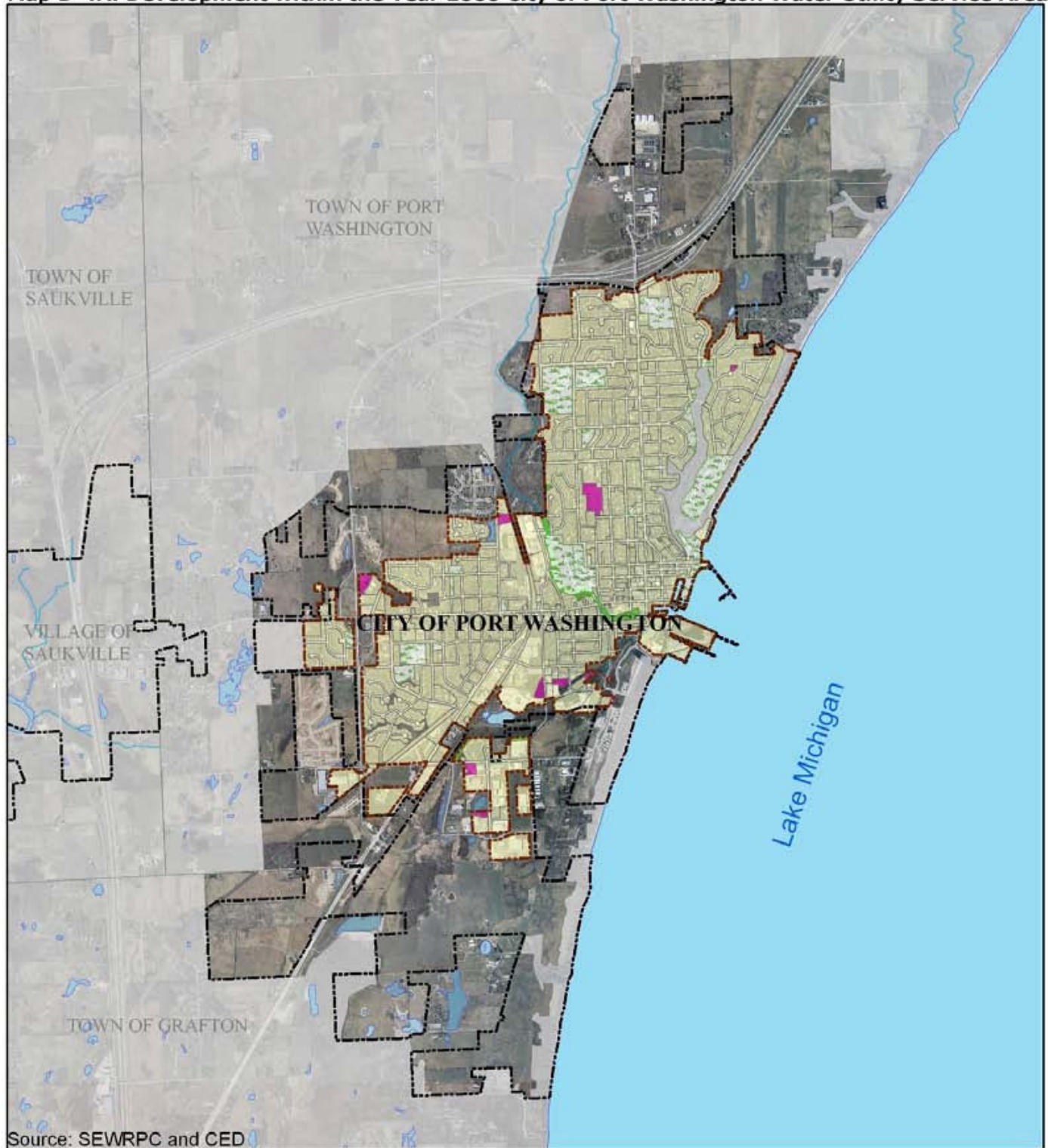
Source: SEWRPC and CED

- Areas to be Developed and Served within the 2035 Projected Service Area (as of Year 2005)
- Areas Developed as of 2005
- Environmental Corridors
- Parks, and Open Spaces (very limited services)

- Year 2035 City of Oak Creek Water and Sewer Utility Service Area Boundary
- 2005 Municipal Boundaries



Map D-4A: Development within the Year 2000 City of Port Washington Water Utility Service Area



Source: SEWRPC and CED

Areas to be Developed and Served within the Year 2000 Service Area (as of Year 2005)

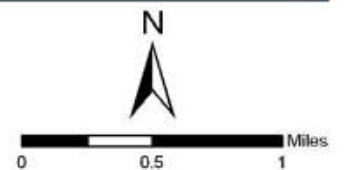
Areas Developed as of 2005

Environmental Corridors

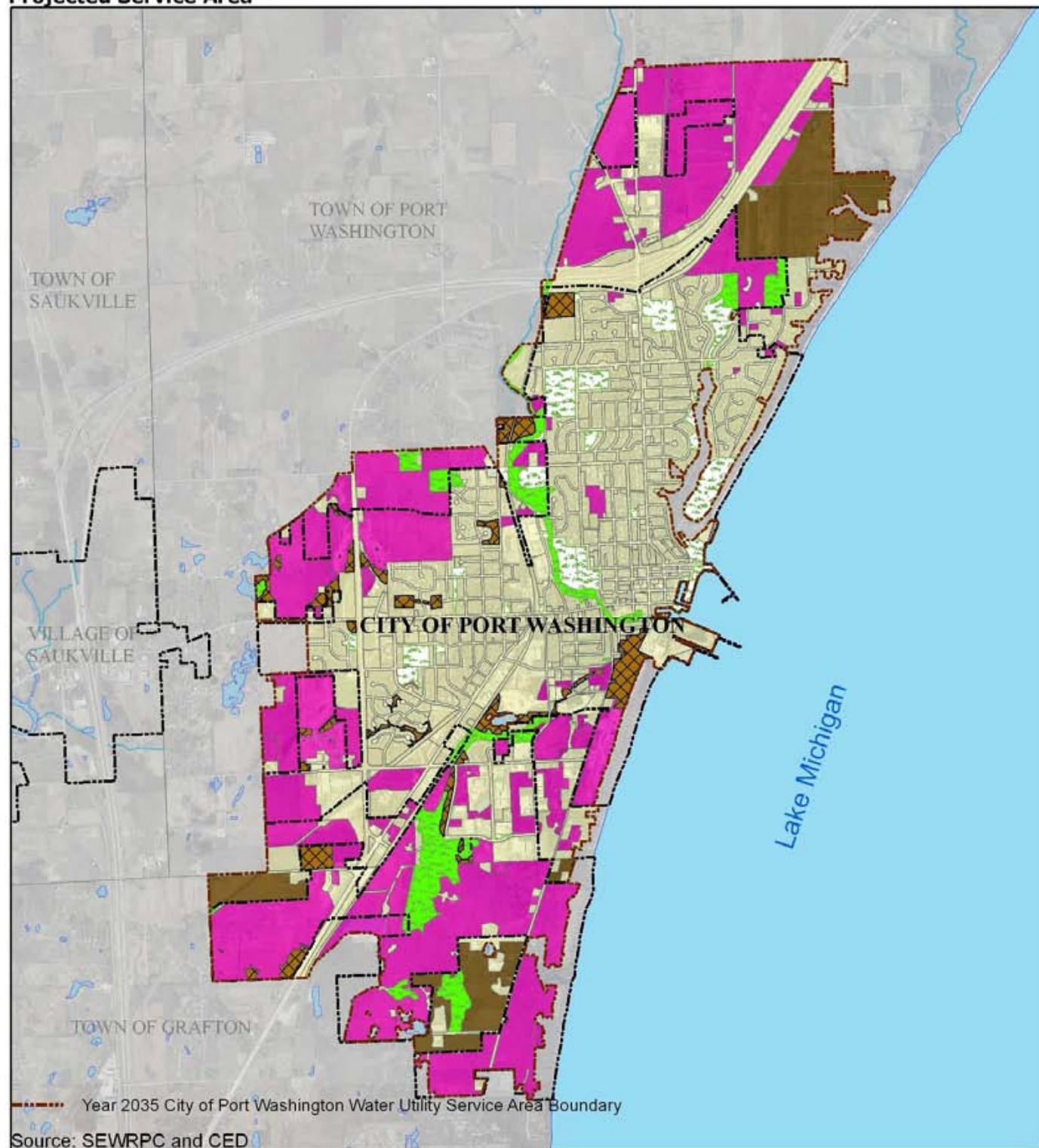
Parks and Open Spaces (very limited services)

Year 2000 City of Port Washington Water Utility Service Area Boundary

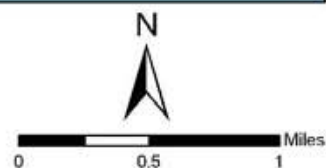
2005 Municipal Boundaries



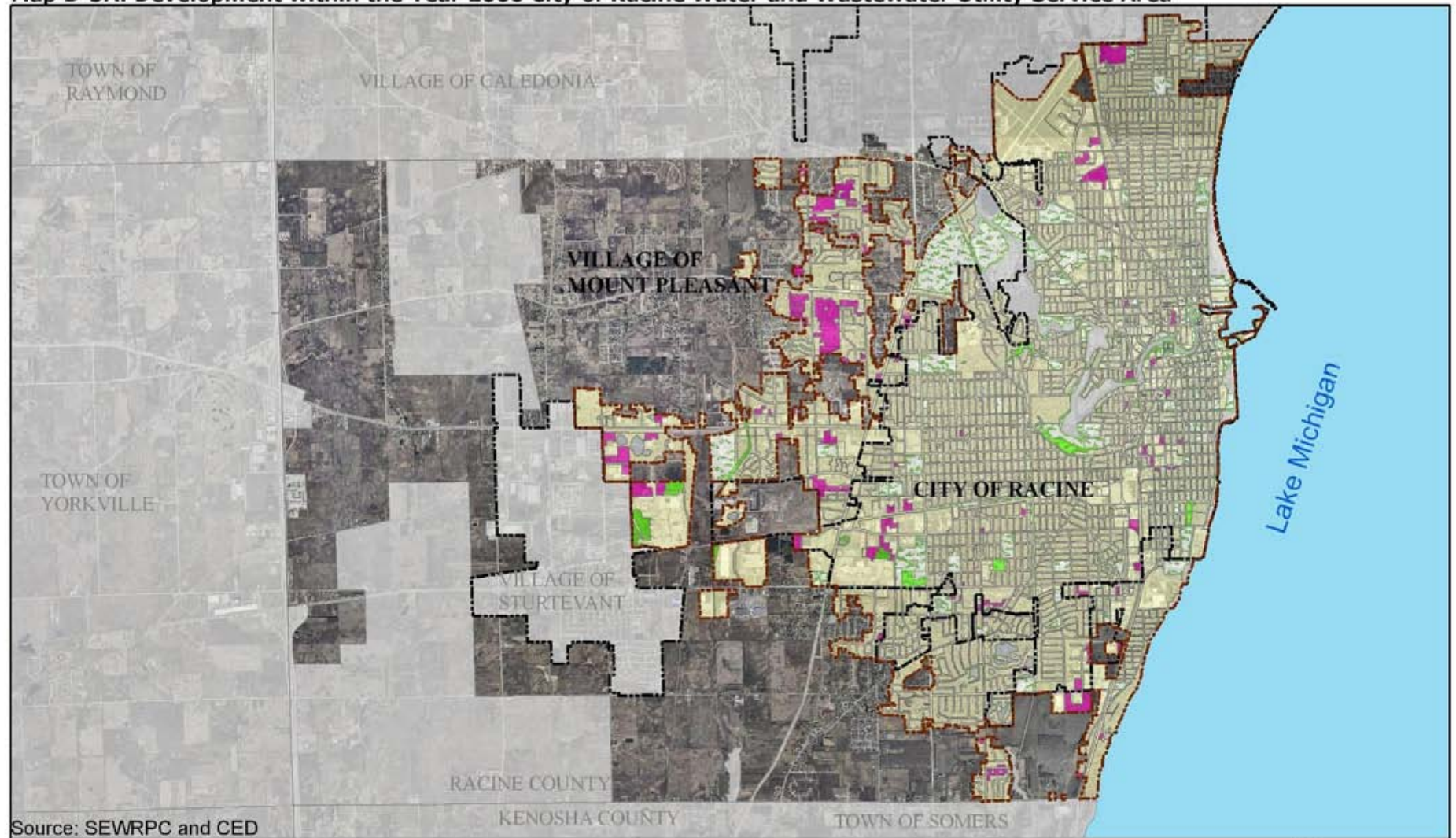
Map D-4B: Development within the Year 2035 City of Port Washington Water Utility Projected Service Area



- Areas to be Developed and Served within the 2035 Projected Service Area (as of Year 2005)
- Areas Developed as of 2005
- Environmental Corridors
- Parks, and Open Spaces (very limited services)
- Projected Farmland and Lands to be Preserved, not to be served under Smart Growth Plan and RLUP
- Projected Areas With Proposed Development not to be served under Smart Growth Plan and RLUP



Map D-5A: Development within the Year 2000 City of Racine Water and Wastewater Utility Service Area

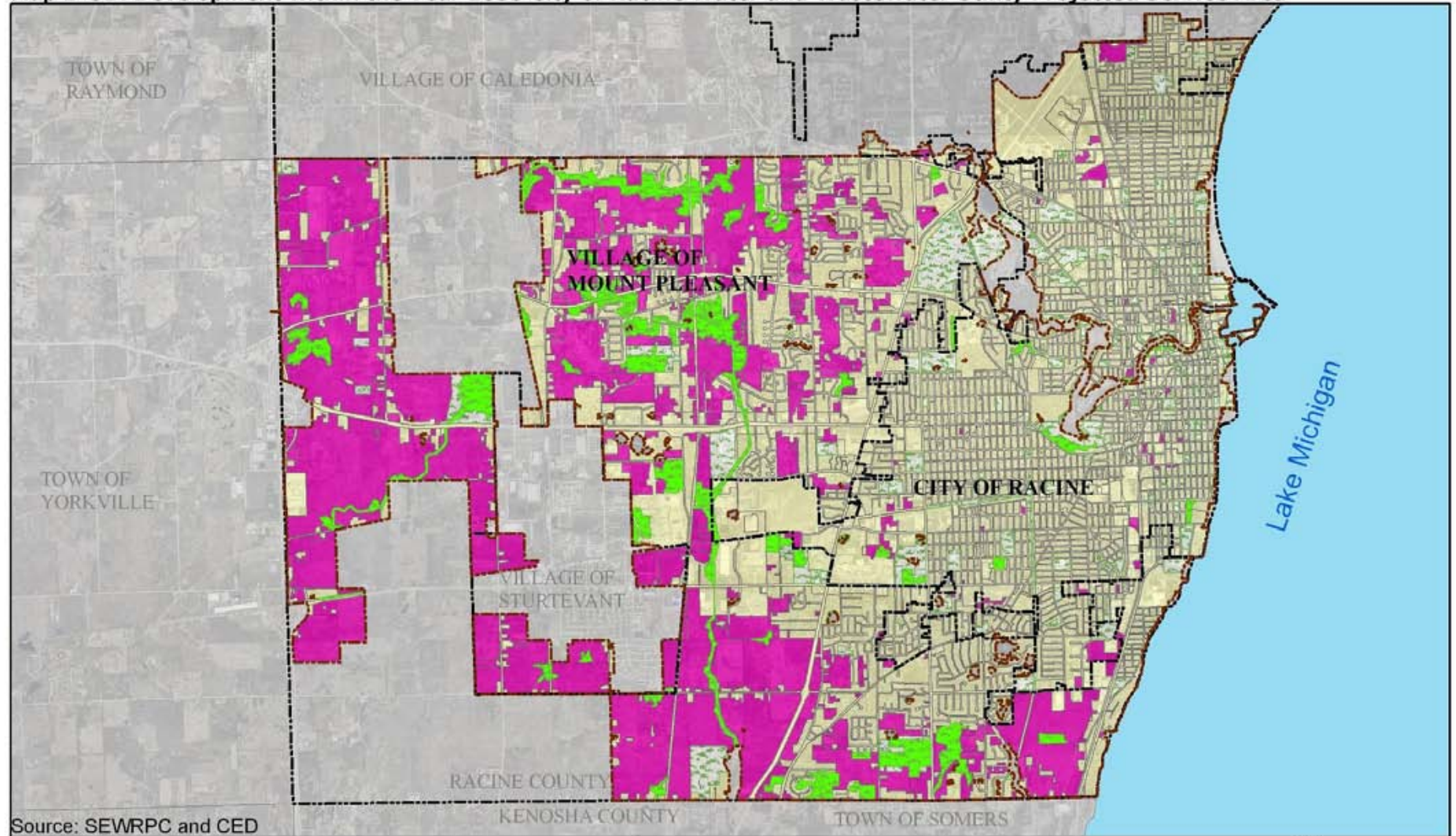


Source: SEWRPC and CED

- Areas to be Developed and Served within the Year 2000 Service Area (as of Year 2005)
- Areas Developed as of 2005
- Environmental Corridors
- Parks, and Open Spaces (very limited services)
- Year 2000 City of Racine Water and Wastewater Utility Service Area Boundary
- 2005 Municipal Boundaries



Map D-5B: Development within the Year 2035 City of Racine Water and Wastewater Utility Projected Service Area

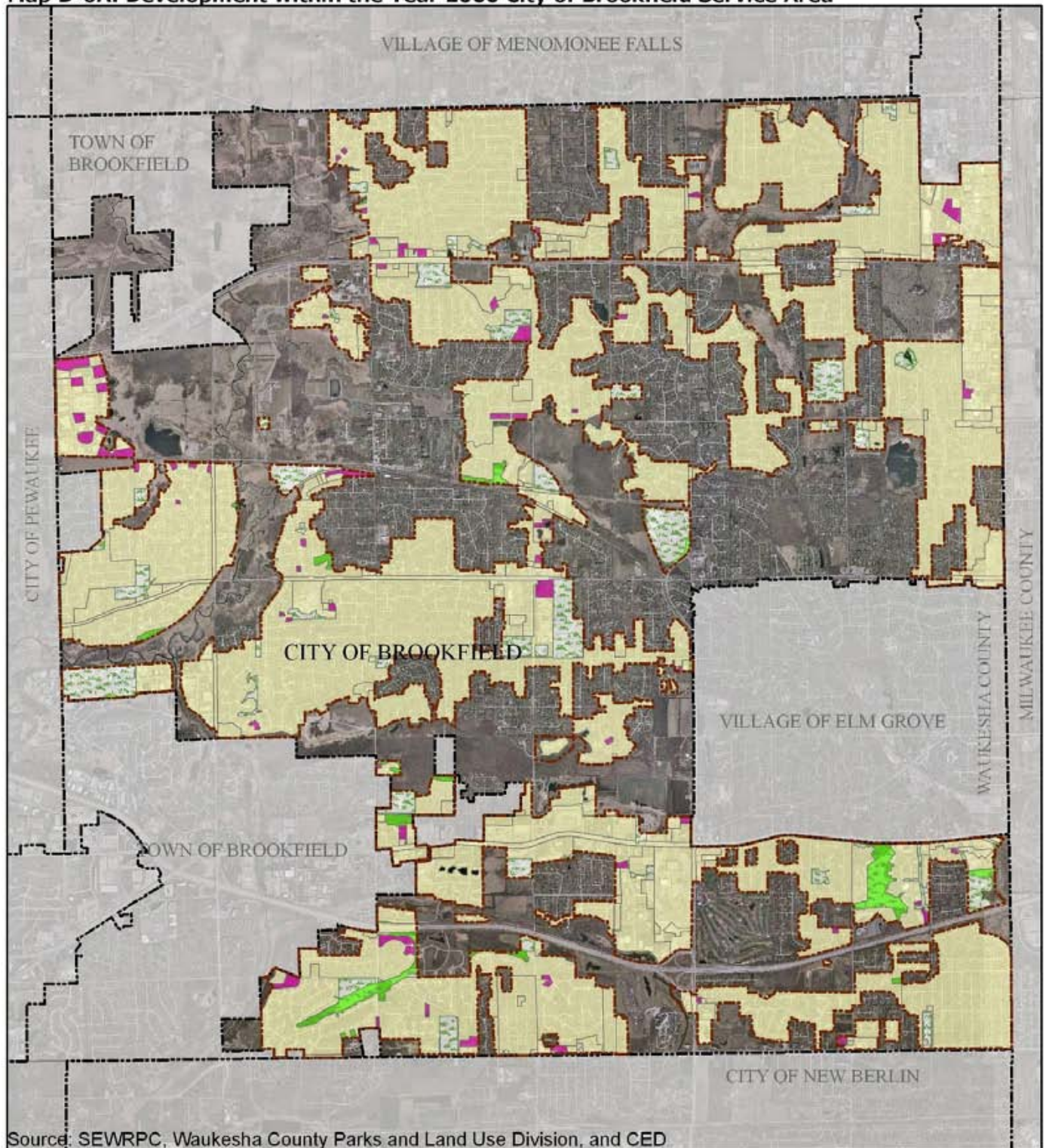


Source: SEWRPC and CED

- Areas to be Developed and Served within the 2035 Projected Service Area (as of Year 2005)
- Areas Developed as of 2005
- Environmental Corridors
- Parks, and Open Spaces (very limited services)
- Year 2035 City of Racine Water and Wastewater Utility Service Area Boundary
- 2005 Municipal Boundaries

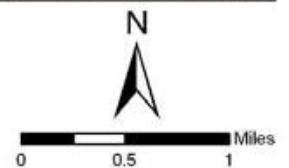


Map D-6A: Development within the Year 2000 City of Brookfield Service Area

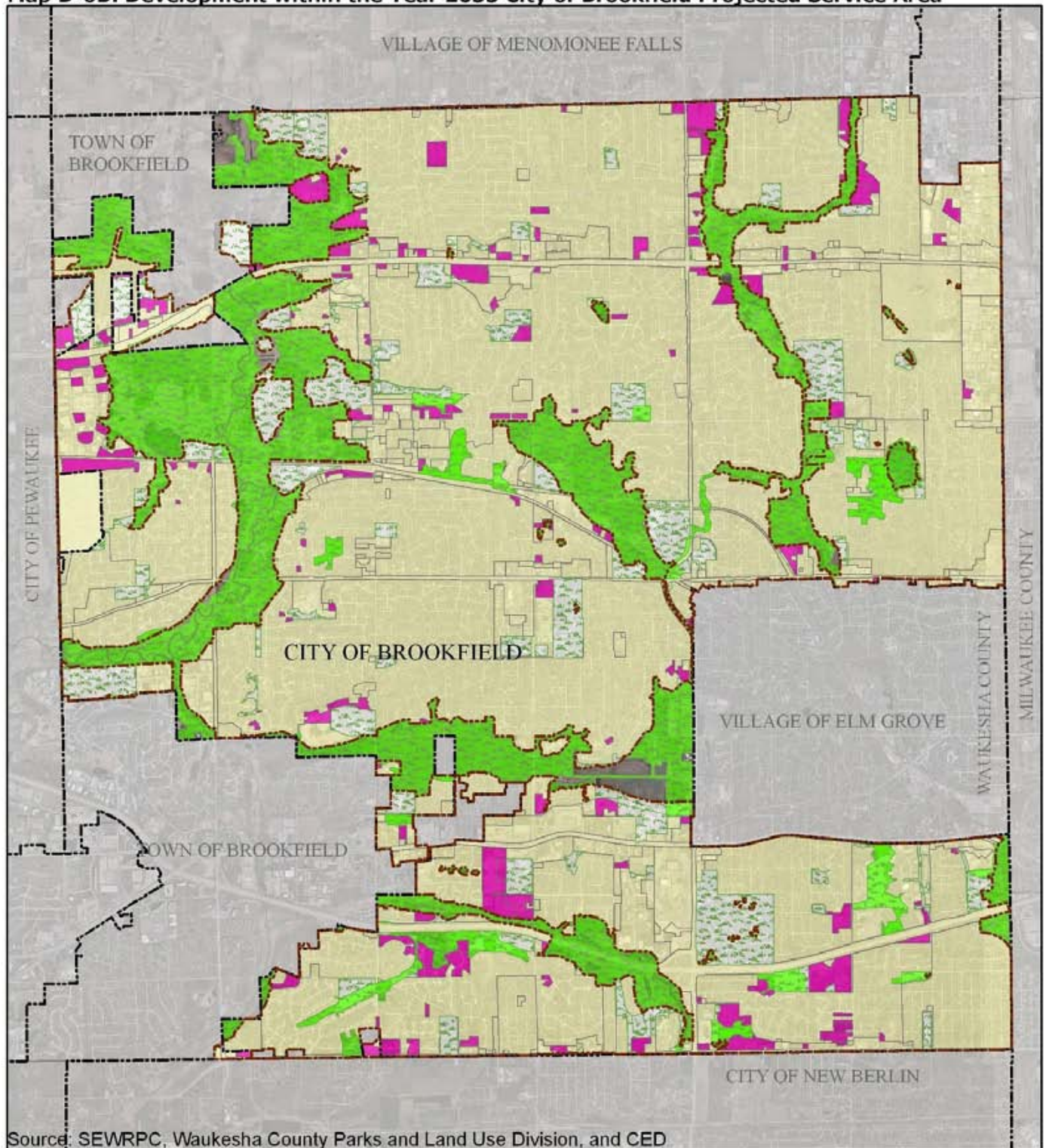


Source: SEWRPC, Waukesha County Parks and Land Use Division, and CED

- Areas to be Developed and Served within the Year 2000 Service Area (as of Year 2005)
- Areas Developed as of 2005
- Environmental Corridors
- Parks, and Open Spaces (very limited services)
- Year 2000 City of Brookfield Water Utility Service Area Boundary
- 2005 Municipal Boundaries

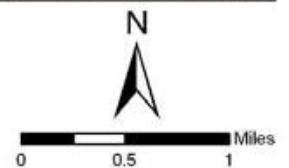


Map D-6B: Development within the Year 2035 City of Brookfield Projected Service Area

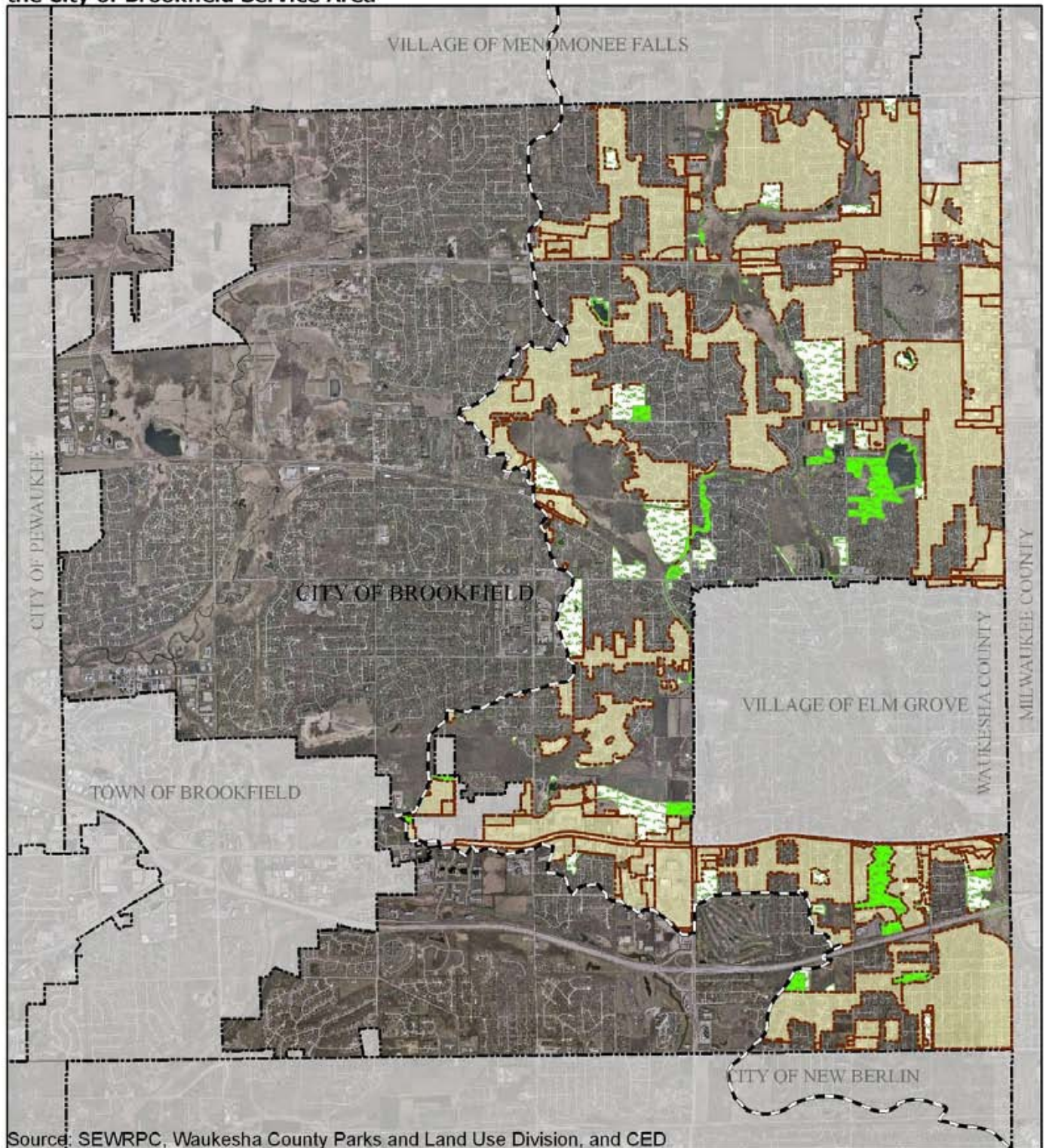


Source: SEWRPC, Waukesha County Parks and Land Use Division, and CED

- Areas to be Developed and Served within the 2035 Projected Service Area (as of Year 2005)
- Areas Developed as of 2005
- Environmental Corridors
- Parks, and Open Spaces (very limited services)
- Year 2035 City of Brookfield Water Utility Service Area Boundary
- 2005 Municipal Boundaries

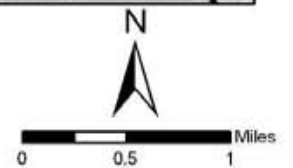


Map F-6C: Development within the Year 2000 Lake Michigan Supply Area of the City of Brookfield Service Area

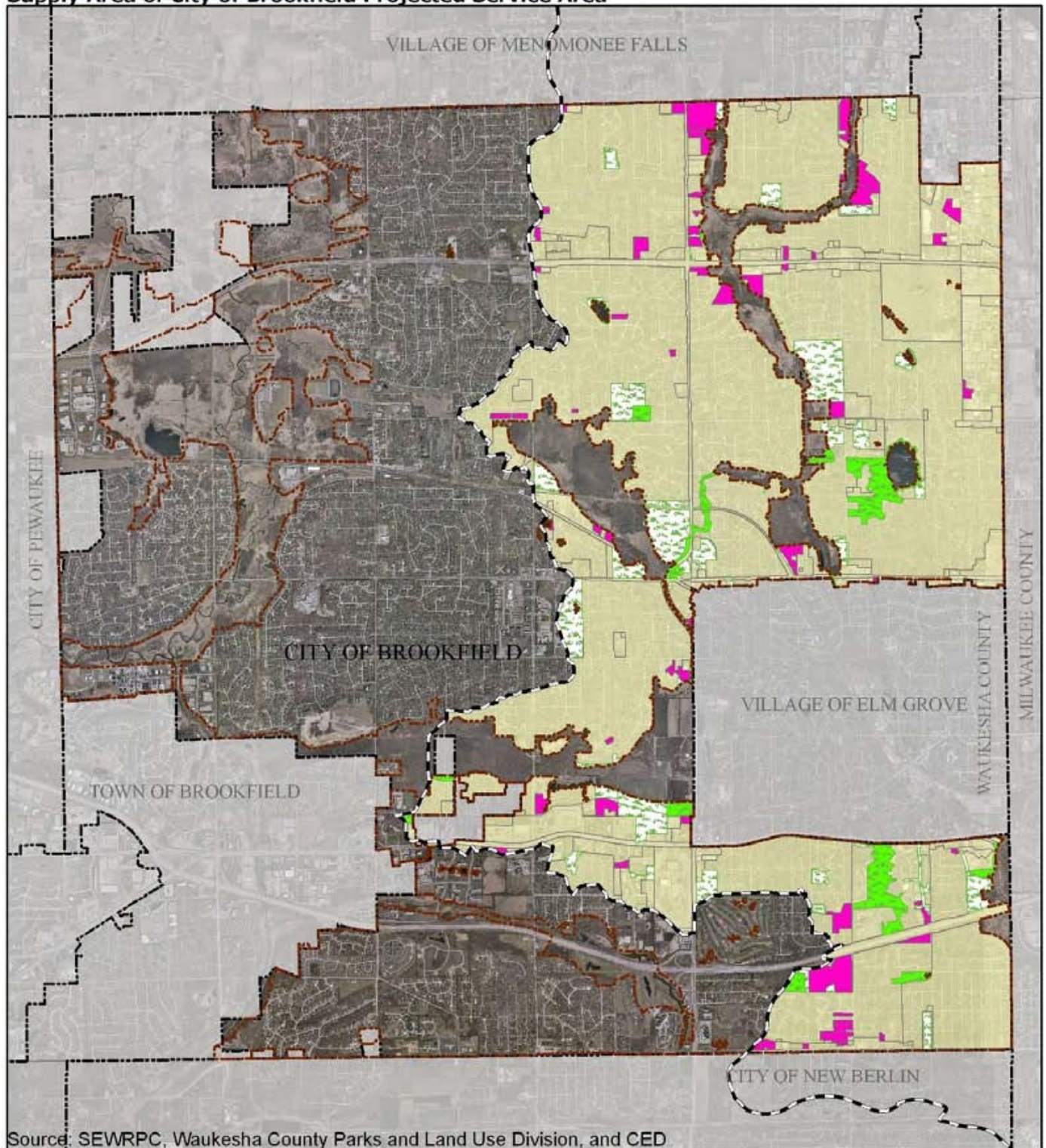


Source: SEWRPC, Waukesha County Parks and Land Use Division, and CED

- Areas Developed as of 2005
- Environmental Corridors
- Parks, and Open Spaces (very limited services)
- Year 2000 City of Brookfield Water Utility Service Area Boundary
- 2005 Municipal Boundaries
- Subcontinental Divide

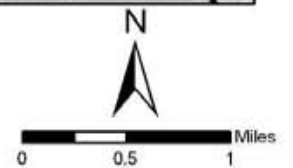


Map D-6D: Development within the Year 2035 Lake Michigan Supply Area of City of Brookfield Projected Service Area

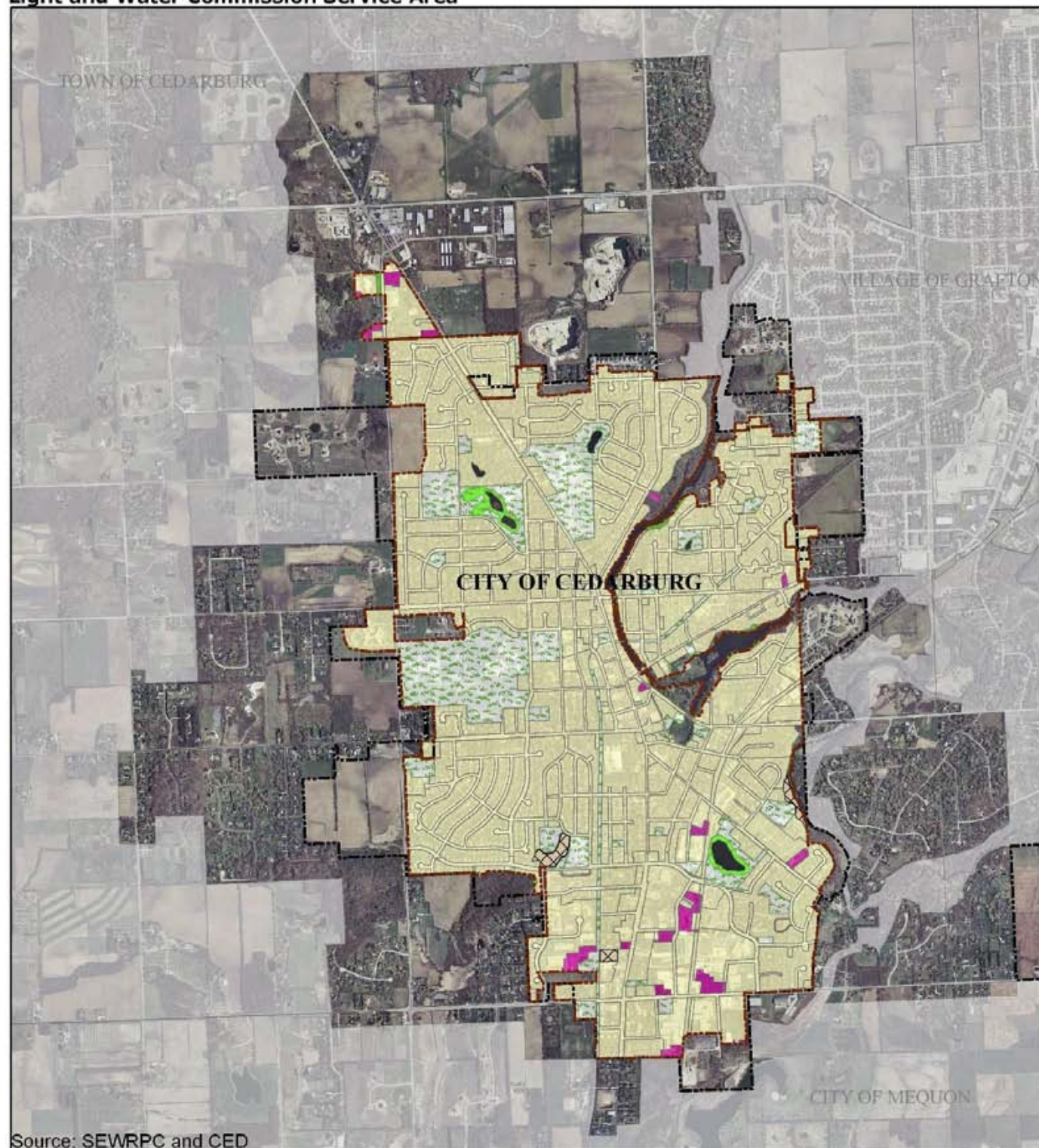


Source: SEWRPC, Waukesha County Parks and Land Use Division, and CED

- Areas to be Developed and Served within the 2035 Projected Service Area (as of Year 2005)
- Areas Developed as of 2005
- Environmental Corridors
- Parks and Open Spaces (very limited services)
- Year 2035 City of Brookfield Water Utility Service Area Boundary
- 2005 Municipal Boundaries
- Subcontinental Divide

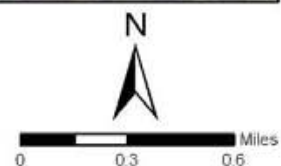


Map D-7A: Development within the Year 2000 City of Cedarburg Light and Water Commission Service Area

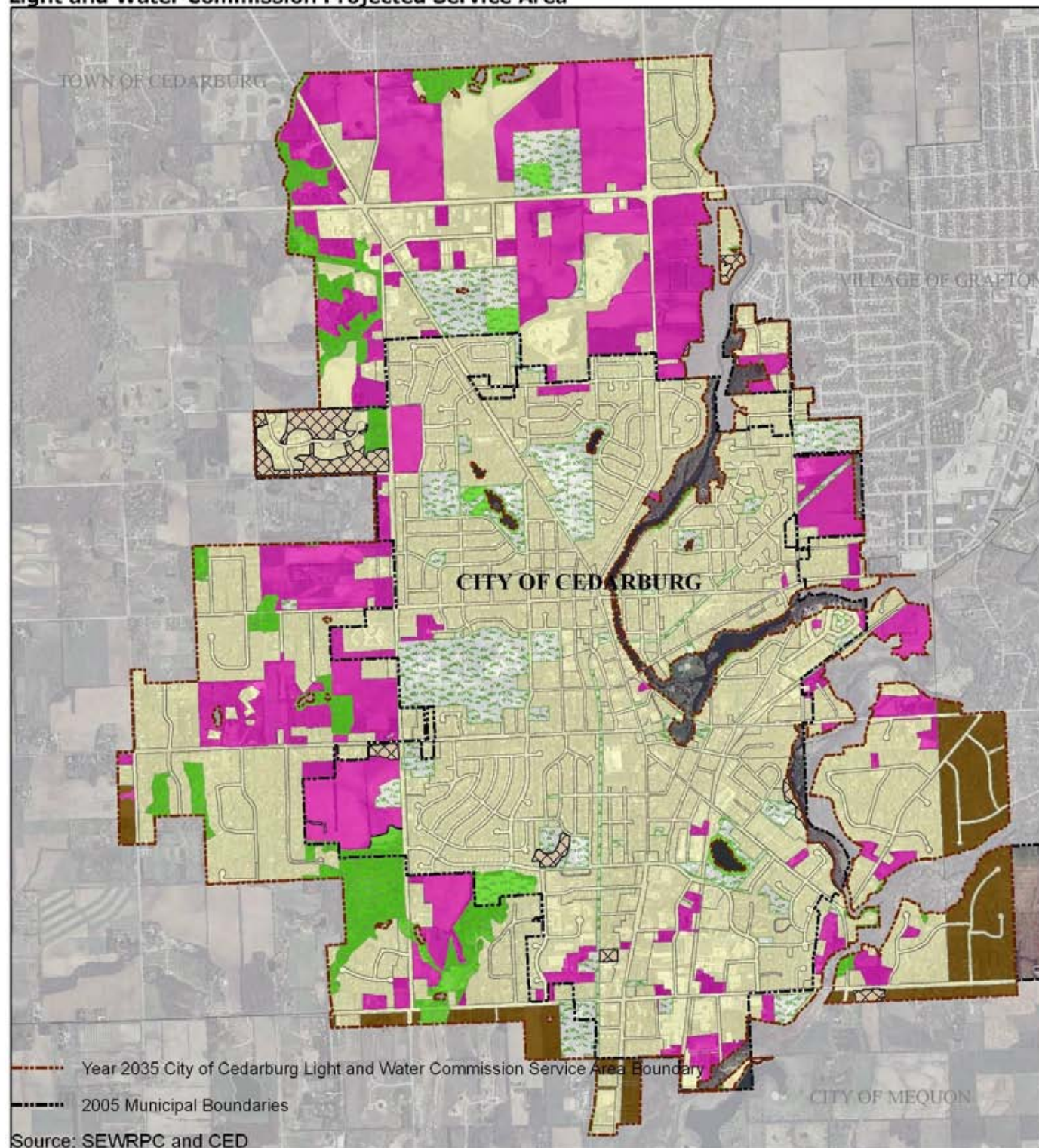


Source: SEWRPC and CED

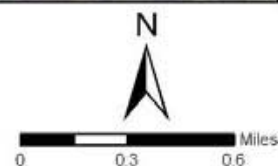
- Areas to be Developed and Served within the Year 2000 Projected Service Area (as of Year 2005)
- Areas Developed as of 2005
- Environmental Corridors
- Parks and Open Spaces (very limited services)
- Farmland and Lands to be Preserved, not to be served under Smart Growth Plan and RLUP
- Year 2000 City of Cedarburg Light and Water Commission Service Area Boundary
- 2005 Municipal Boundaries



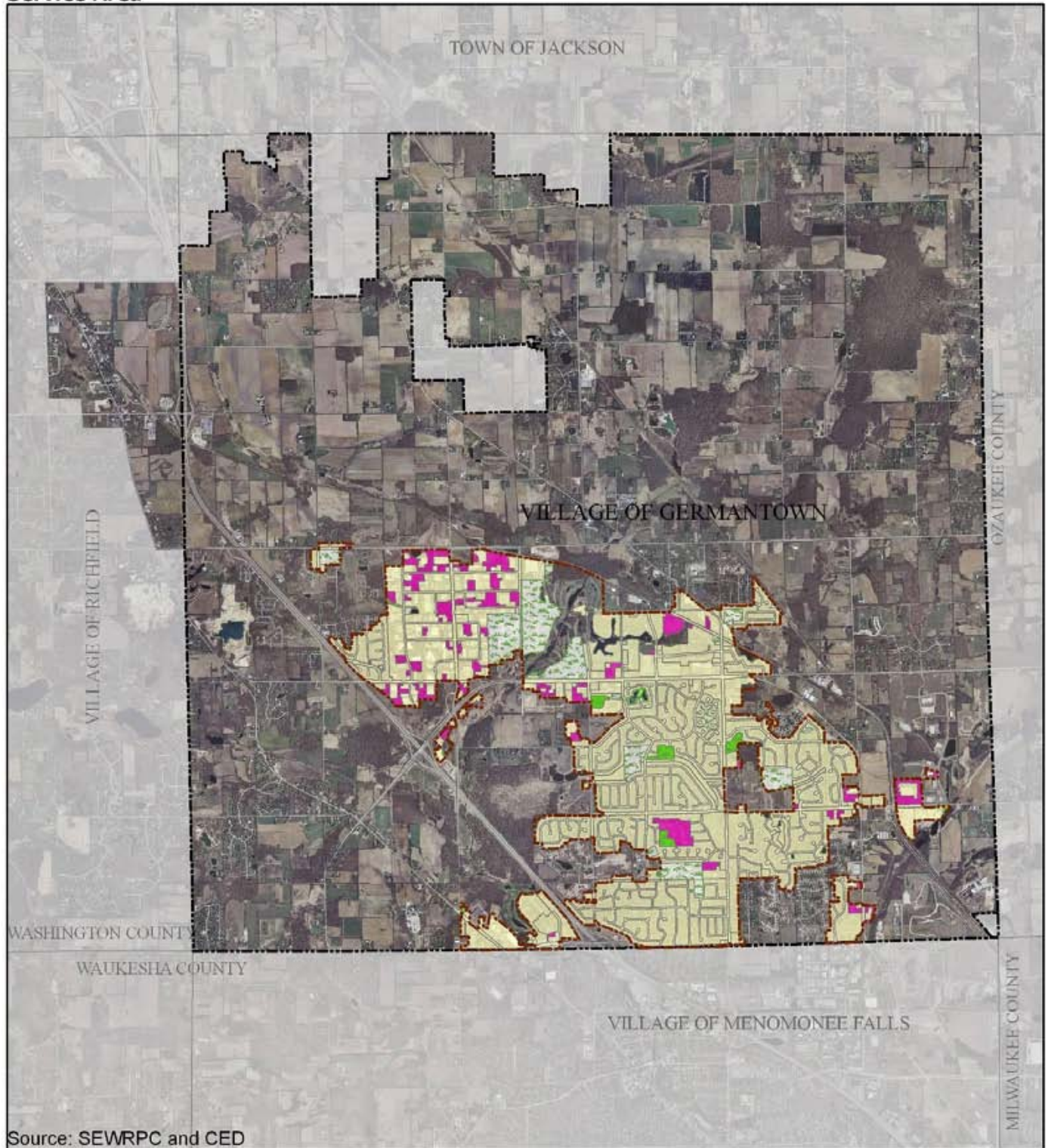
Map F-7B: Development within the Year 2035 City of Cedarburg Light and Water Commission Projected Service Area



- Areas to be Developed and Served within the 2035 Projected Service Area (as of Year 2005)
- Areas Developed as of 2005
- Environmental Corridors
- Parks, and Open Spaces (very limited services)
- Projected Farmland and Lands to be Preserved, not to be served under Smart Growth Plan and RLUP
- Projected Areas With Proposed Development not to be served under Smart Growth Plan and RLUP

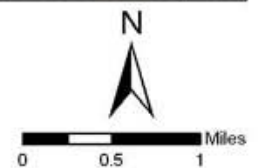


Map D-8A: Development within the Year 2000 Village of Germantown Water Utility Service Area

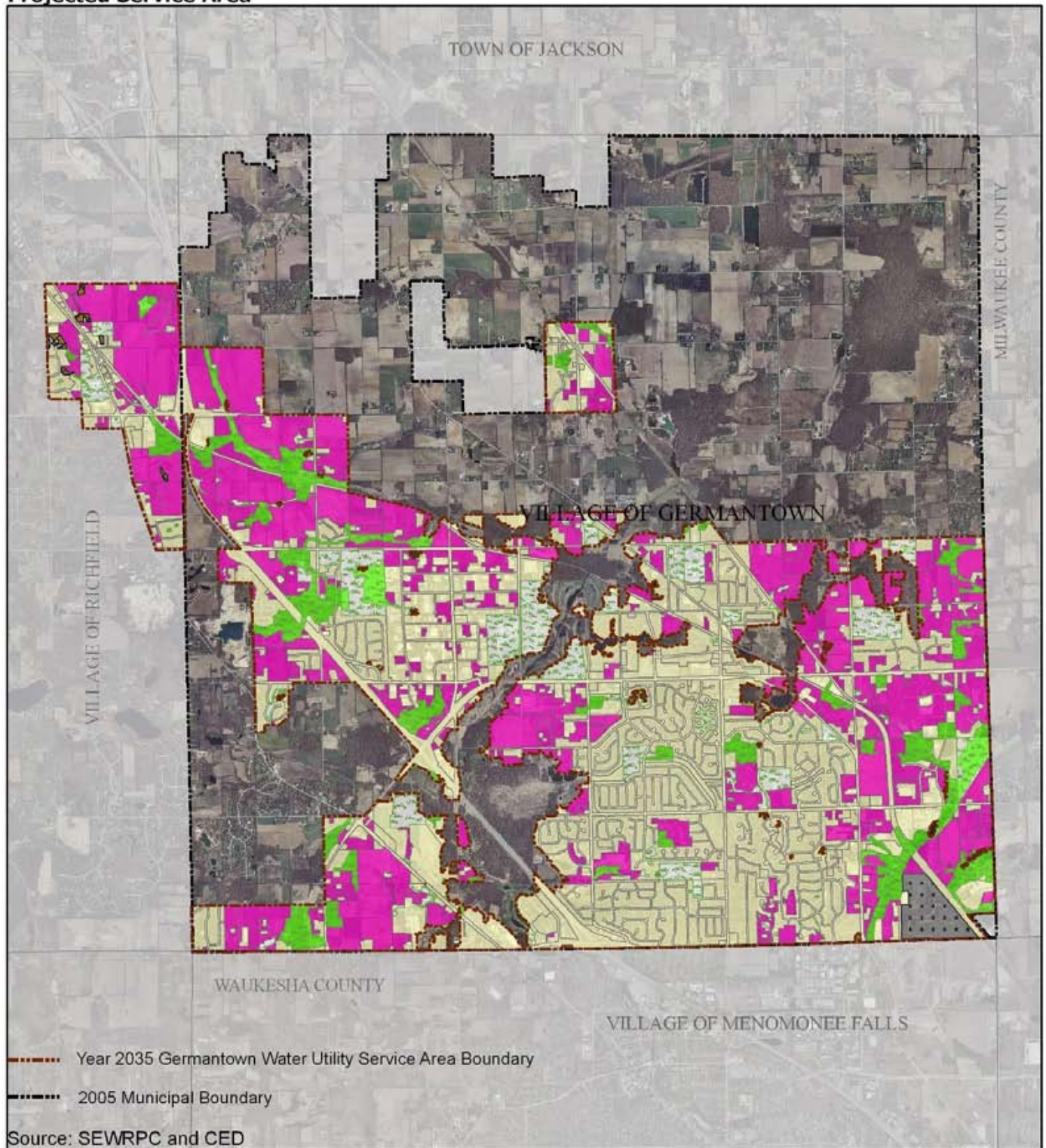


Source: SEWRPC and CED

- Areas to be Developed and Served within the Year 2000 Service Area (as of Year 2005)
- Areas Developed as of 2005
- Environmental Corridors
- Parks and Open Spaces (very limited services)
- Year 2000 Germantown Water Utility Service Area Boundary
- 2005 Municipal Boundary



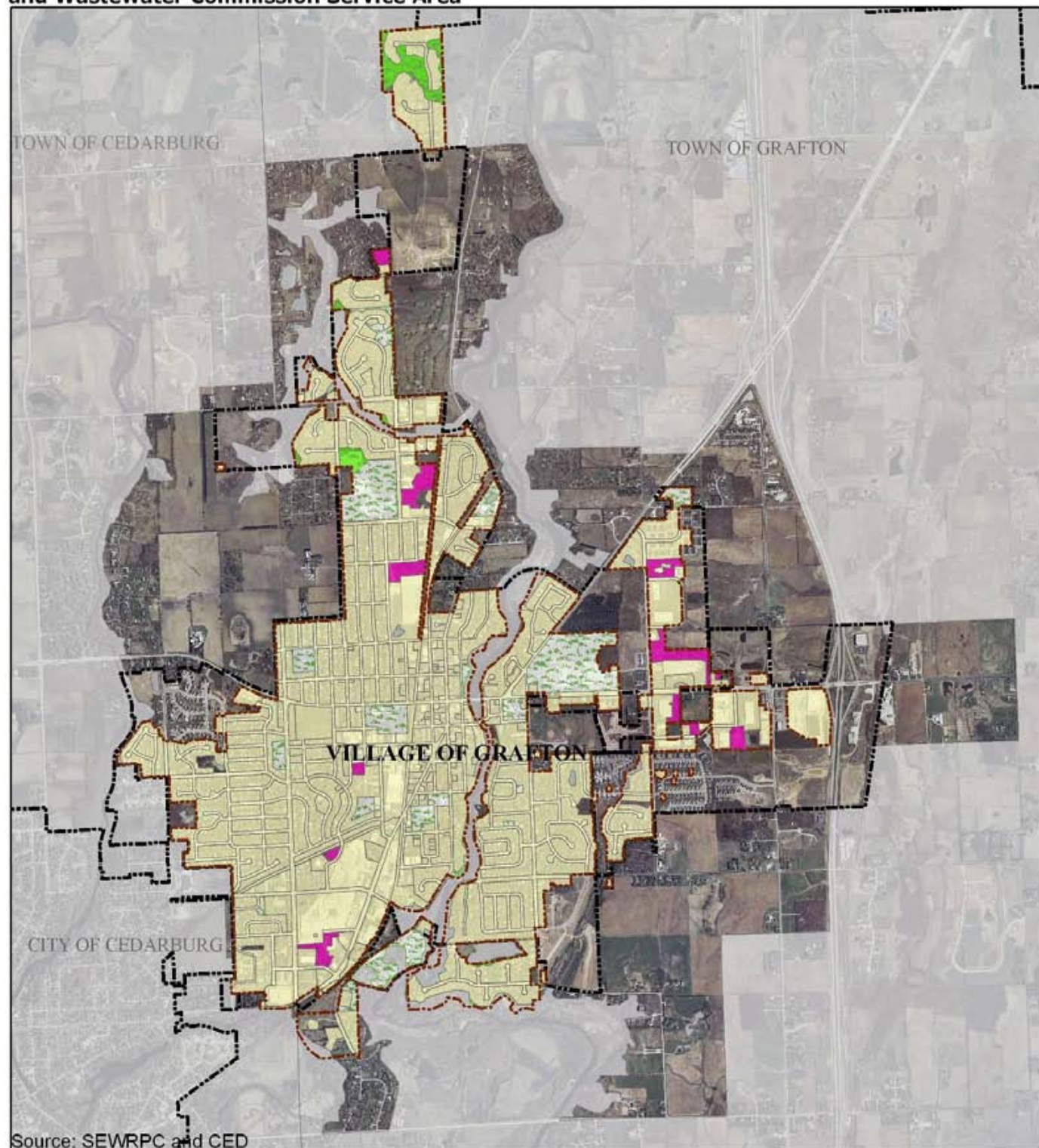
Map D-8B: Development within the Year 2035 Village of Germantown Water Utility Projected Service Area



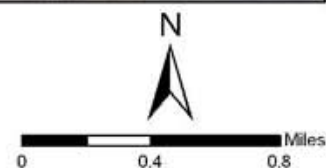
- Areas to be Developed and Served within the 2035 Projected Service Area (as of Year 2005)
- Areas Developed as of 2005
- Environmental Corridors
- Parks, and Open Spaces (very limited services)
- Other Conservancy Lands to Be Preserved, not to be served under Smart Growth and RLUP
- Landfill



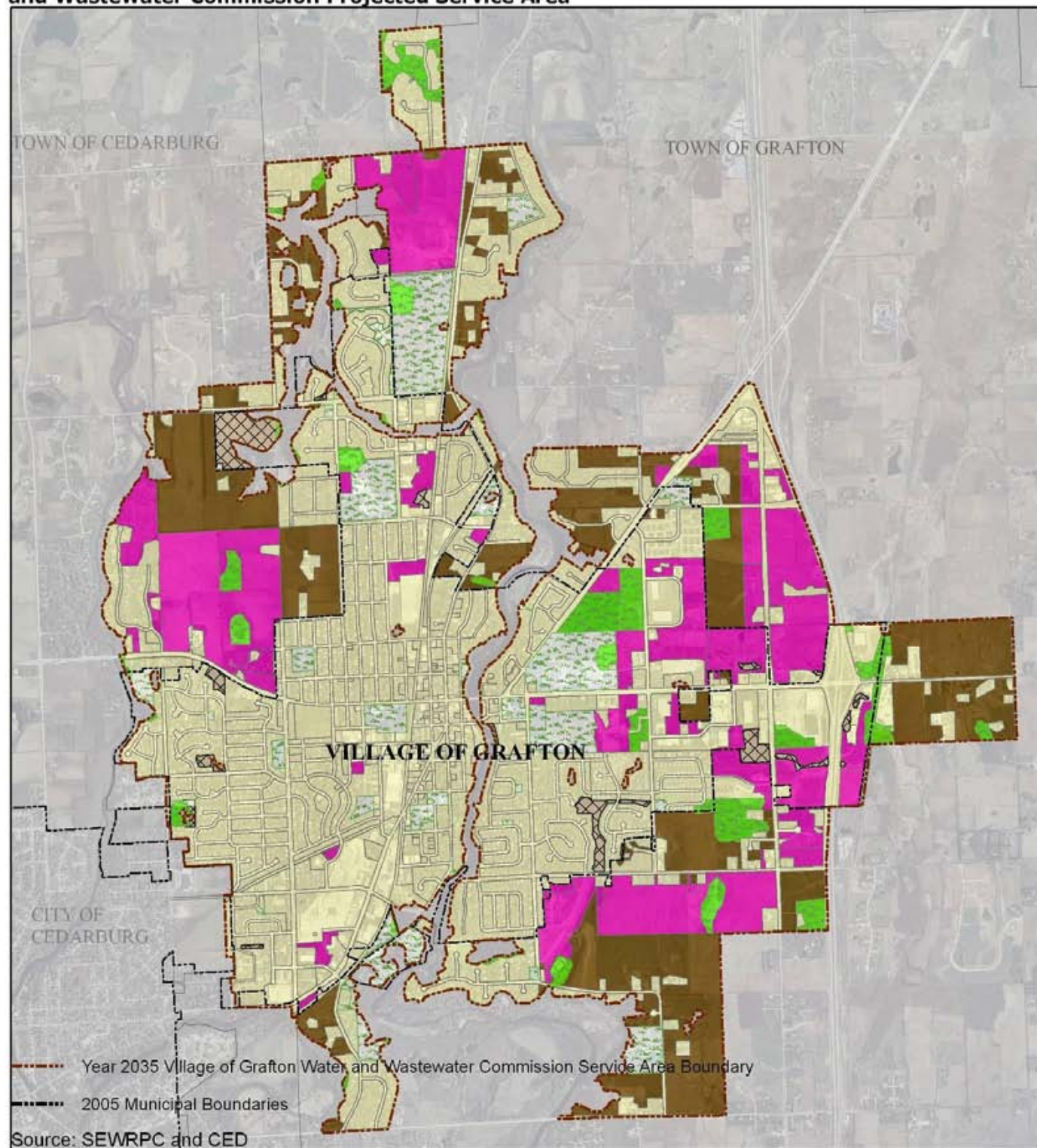
Map D-9A: Development within the Year 2000 Village of Grafton Water and Wastewater Commission Service Area



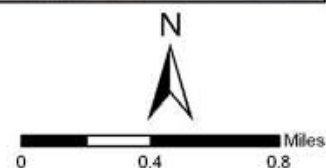
- Areas to be Developed and Served within the Year 2000 Service Area (as of Year 2005)
- Areas Developed as of 2005
- Environmental Corridors
- Parks and Open Spaces (very limited services)
- Year 2035 Village of Grafton Water and Wastewater Commission Service Area Boundary
- 2005 Municipal Boundaries



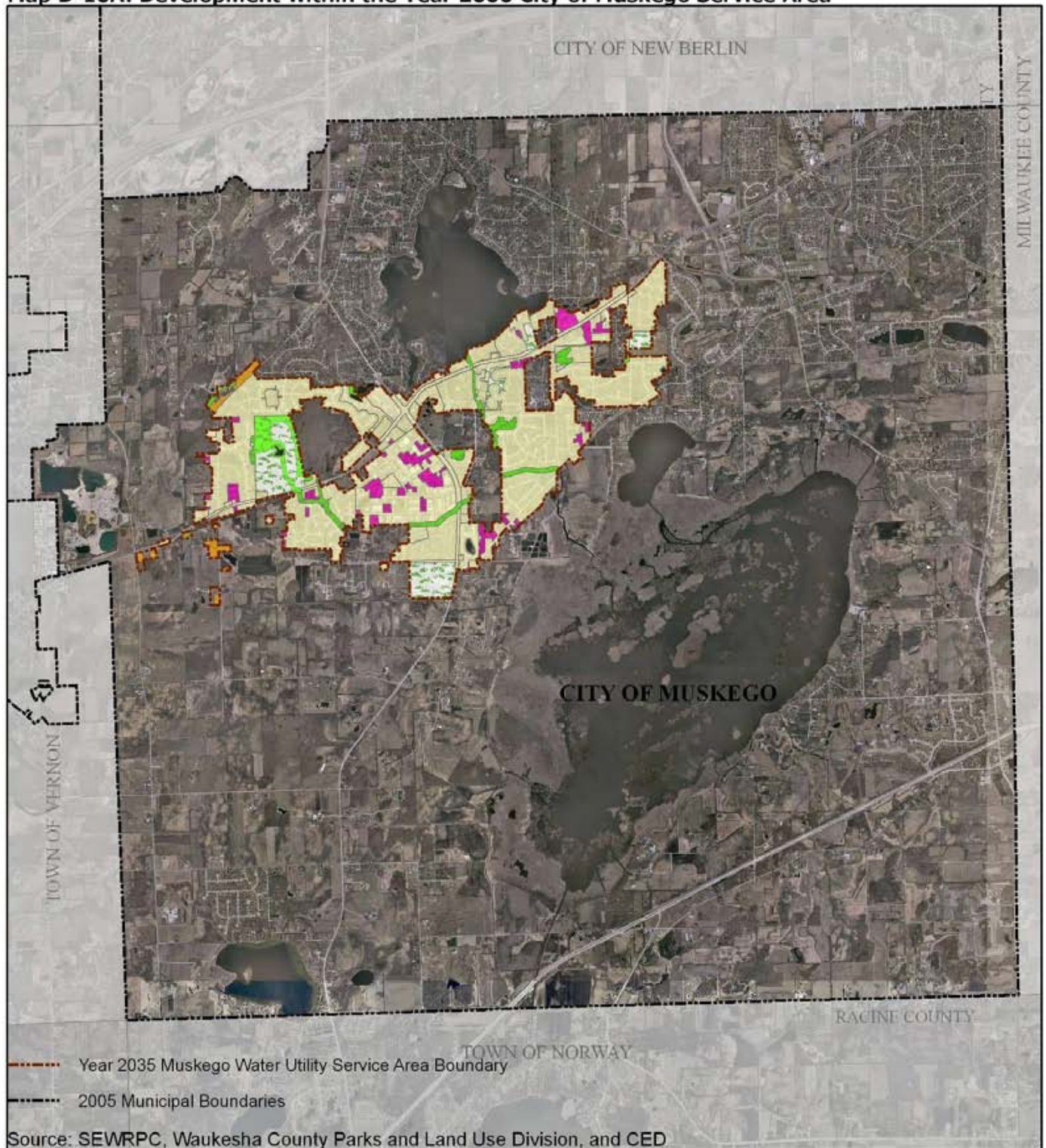
Map D-9B: Development within the Year 2035 Village of Grafton Water and Wastewater Commission Projected Service Area



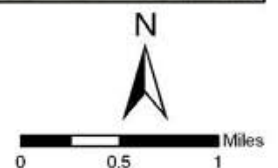
- Areas to be Developed and Served within the 2035 Projected Service Area (as of Year 2005)
- Areas Developed as of 2005
- Environmental Corridors
- Parks, and Open Spaces (very limited services, if any - need to ask about recreational areas if serviceable)
- Projected Farmland and Lands to be Preserved, not to be served under Smart Growth Plan and RLUP
- Projected Areas With Proposed Development not to be served under Smart Growth Plan and RLUP



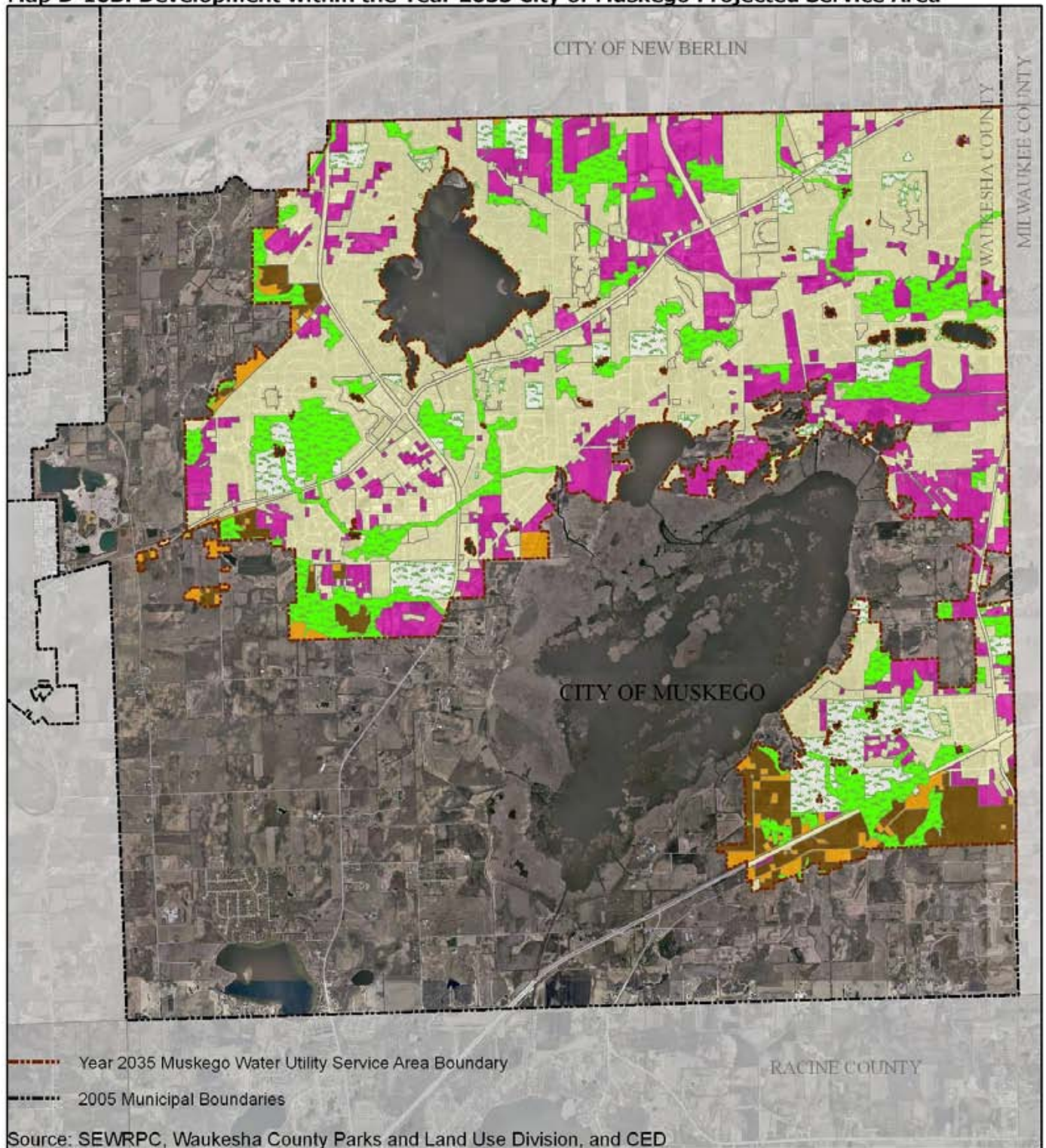
Map D-10A: Development within the Year 2000 City of Muskego Service Area



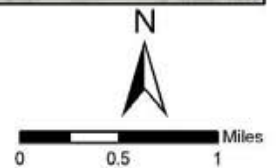
- Areas to be Developed and Served within the Year 2000 Service Area (as of Year 2005)
- Areas Developed as of 2005
- Environmental Corridors
- Parks and Open Spaces (very limited services)
- Areas With Existing Development not to be served under Smart Growth Plan and RLUP



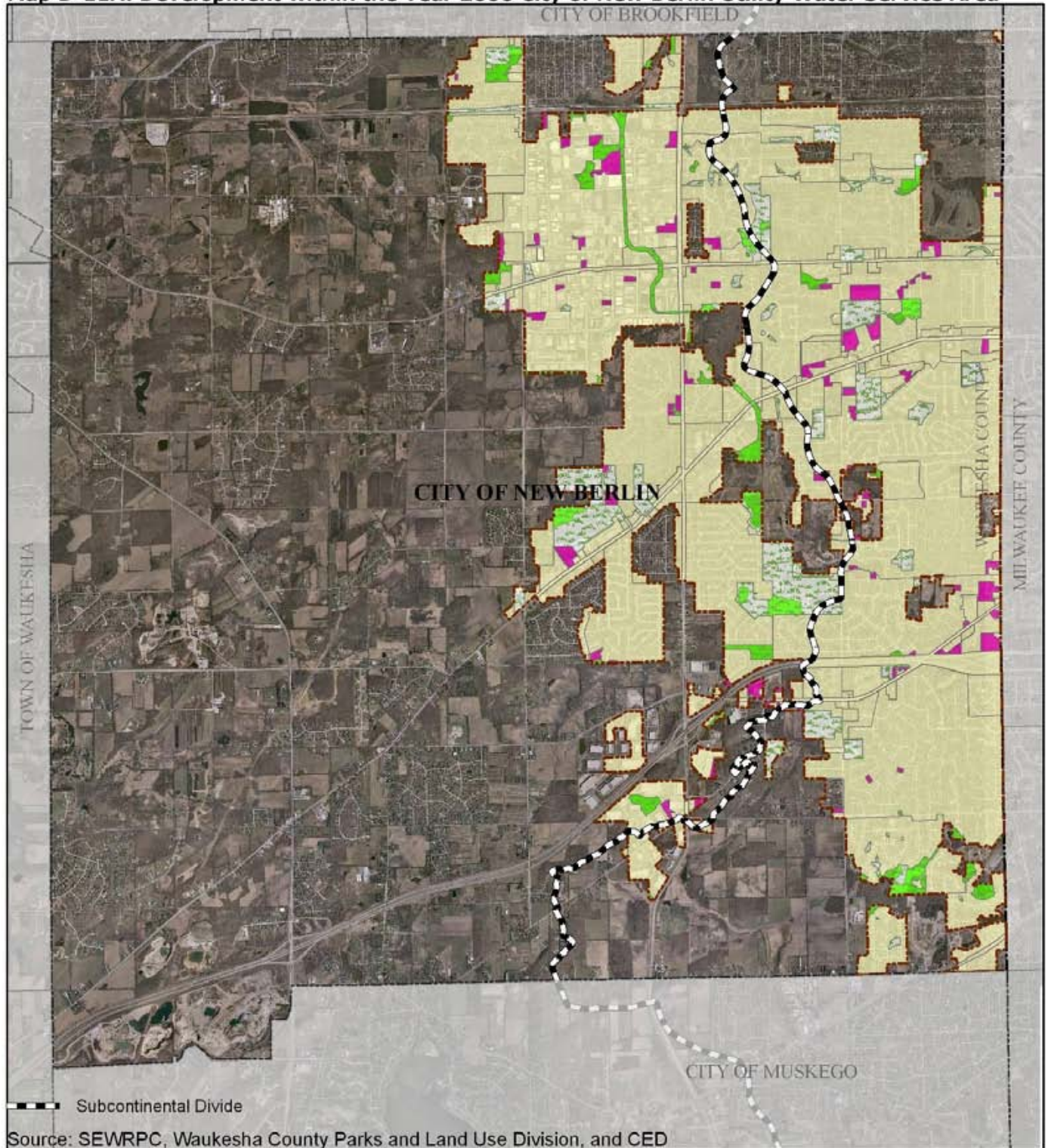
Map D-10B: Development within the Year 2035 City of Muskego Projected Service Area



- Areas to be Developed and Served within the 2035 Projected Service Area (as of Year 2005)
- Areas Developed as of 2005
- Environmental Corridors
- Parks and Open Spaces (very limited services)
- Areas With Existing Development not to be served under Smart Growth Plan and RLUP
- Projected Areas With Proposed Development not to be served under Smart Growth Plan and RLUP



Map D-11A: Development within the Year 2000 City of New Berlin Utility Water Service Area



Subcontinental Divide

Source: SEWRPC, Waukesha County Parks and Land Use Division, and CED

Areas to be Developed and Served within the Year 2000 Service Area (as of Year 2005)

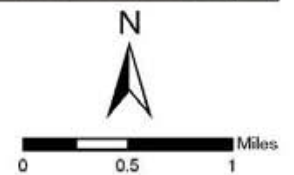
Areas Developed as of 2005

Environmental Corridors

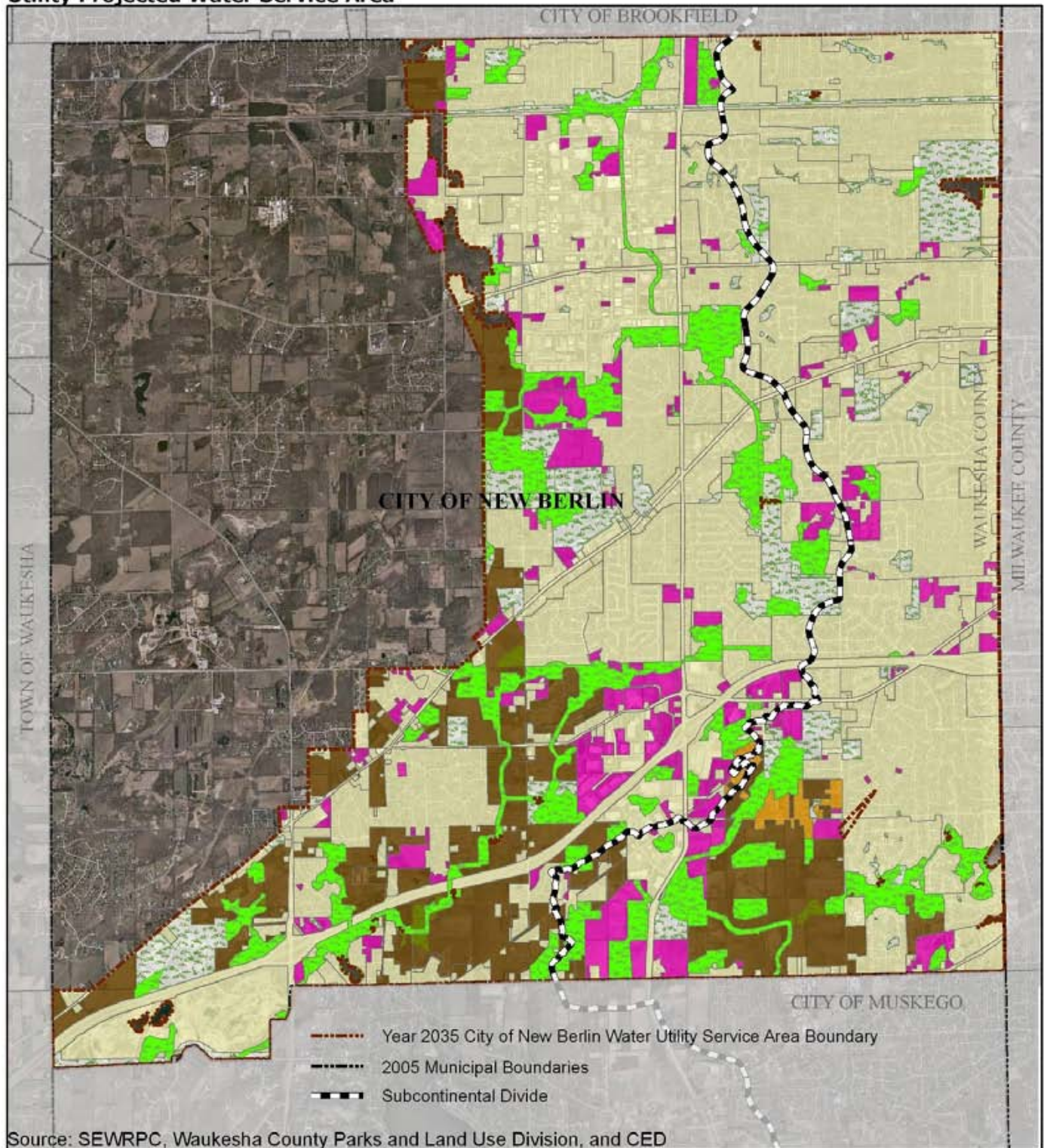
Parks and Open Spaces (very limited services)

Year 2000 City of New Berlin Water Utility Service Area Boundary

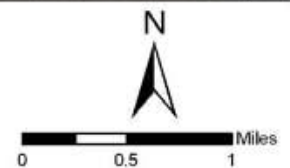
2005 Municipal Boundaries



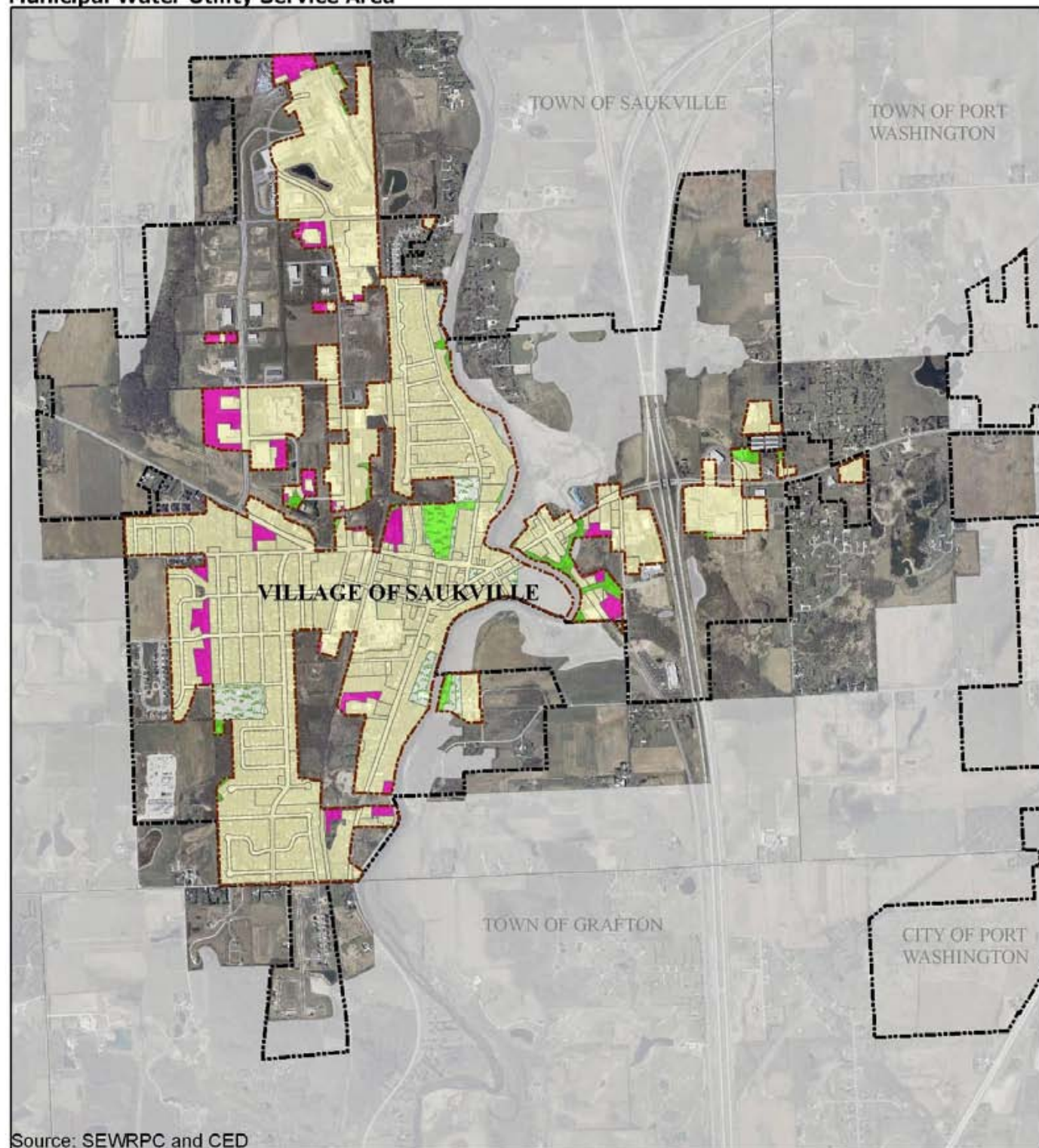
**Map D-11B: Development within the Year 2035 City of New Berlin
Utility Projected Water Service Area**



- Areas to be Developed and Served within the 2035 Projected Service Area (as of Year 2005)
- Areas Developed as of 2005
- Environmental Corridors
- Parks, and Open Spaces (very limited services)
- Areas With Existing Development not to be served under Smart Growth Plan and RLUP
- Projected Areas With Proposed Development not to be served under Smart Growth Plan and RLUP

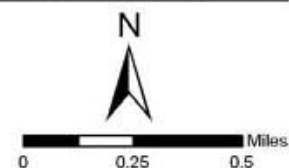


**Map D-12A: Development within the Year 2000 Village of Saukville
Municipal Water Utility Service Area**

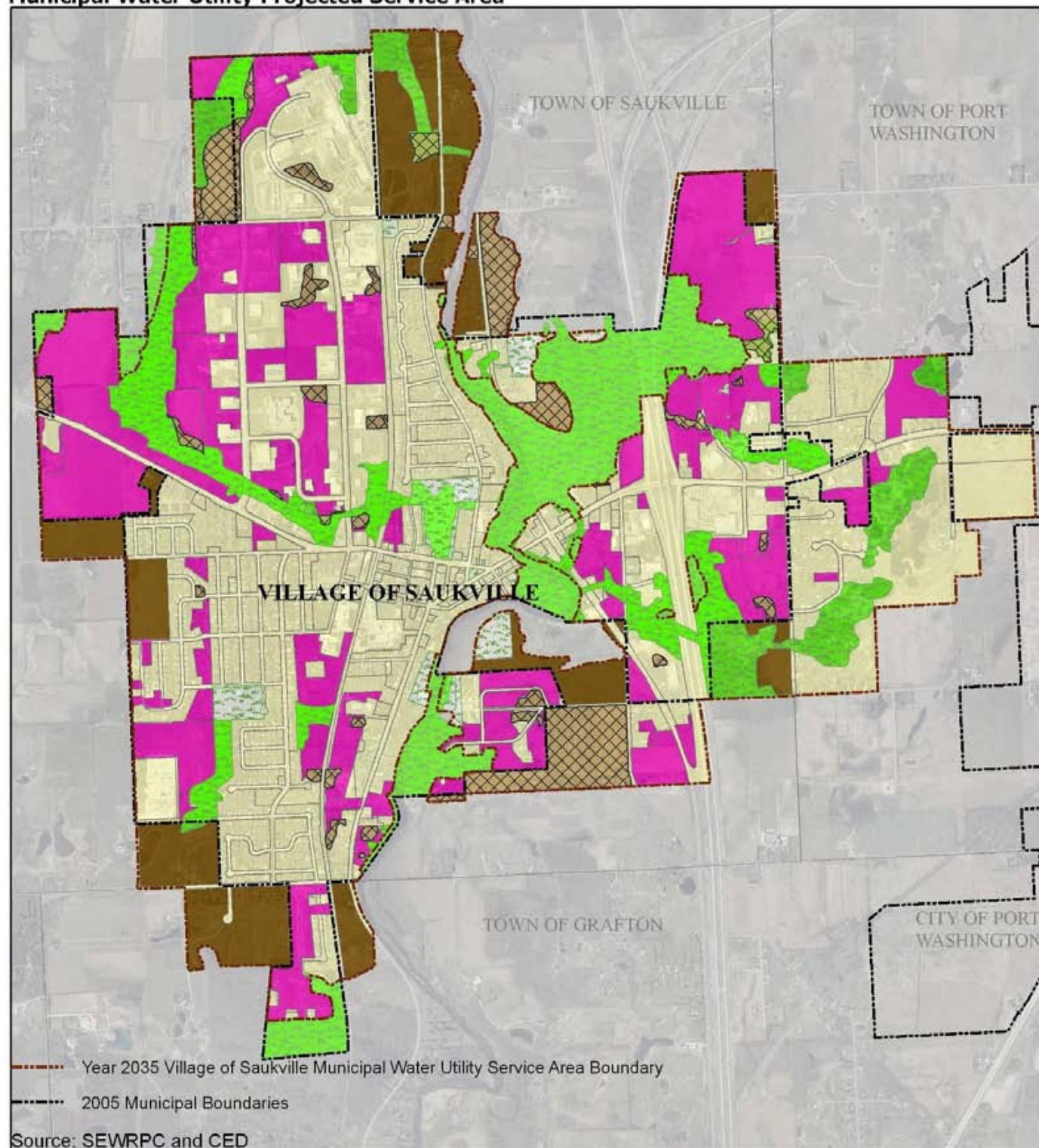


Source: SEWRPC and CED

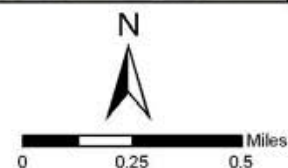
- Areas to be Developed and Served within the Year 2000 Service Area (as of Year 2005)
- Areas Developed as of 2005
- Environmental Corridors
- Parks and Open Spaces (very limited services)
- Year 2000 Village of Saukville Municipal Water Utility Service Area Boundary
- 2005 Municipal Boundaries



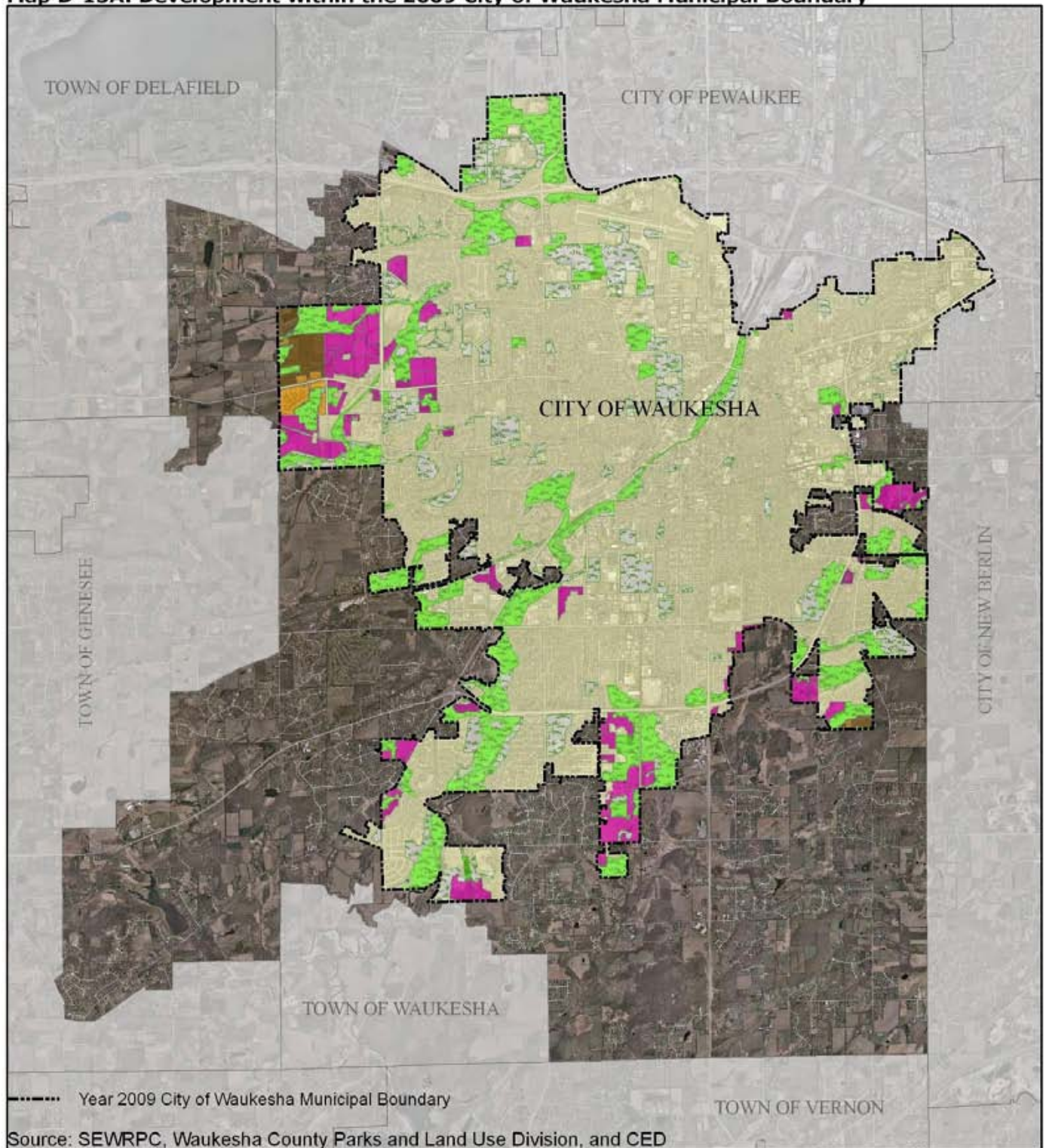
**Map D-12B: Development within the Year 2035 Village of Saukville
Municipal Water Utility Projected Service Area**



- Areas to be Developed and Served within the 2035 Projected Service Area (as of Year 2005)
- Areas Developed as of 2005
- Environmental Corridors
- Parks, and Open Spaces (very limited services)
- Projected Farmland and Lands to be Preserved, not to be served under Smart Growth Plan and RLUP
- Projected Areas With Proposed Development not to be served under Smart Growth Plan and RLUP



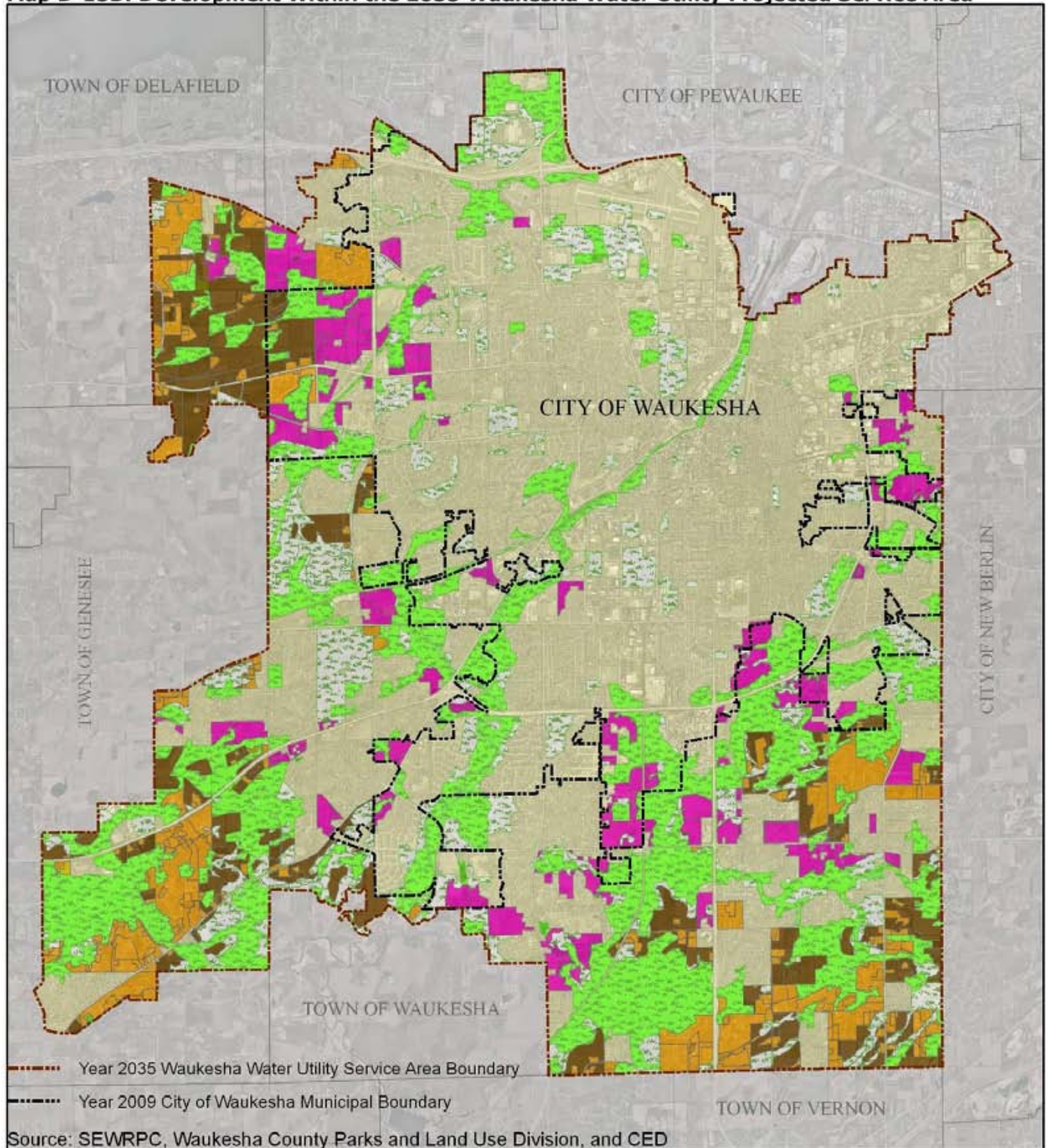
Map D-13A: Development within the 2009 City of Waukesha Municipal Boundary



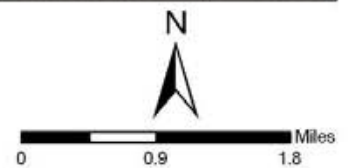
- Areas to be Developed and Served within the Year 2009 City of Waukesha Municipal Boundary
- Areas Developed as of 2009
- Environmental Corridors
- Parks, and Open Spaces (very limited services)
- Areas With Existing Development not to be served under Smart Growth Plan and RLUP
- Projected Areas With Proposed Development not to be served under Smart Growth Plan and RLUP



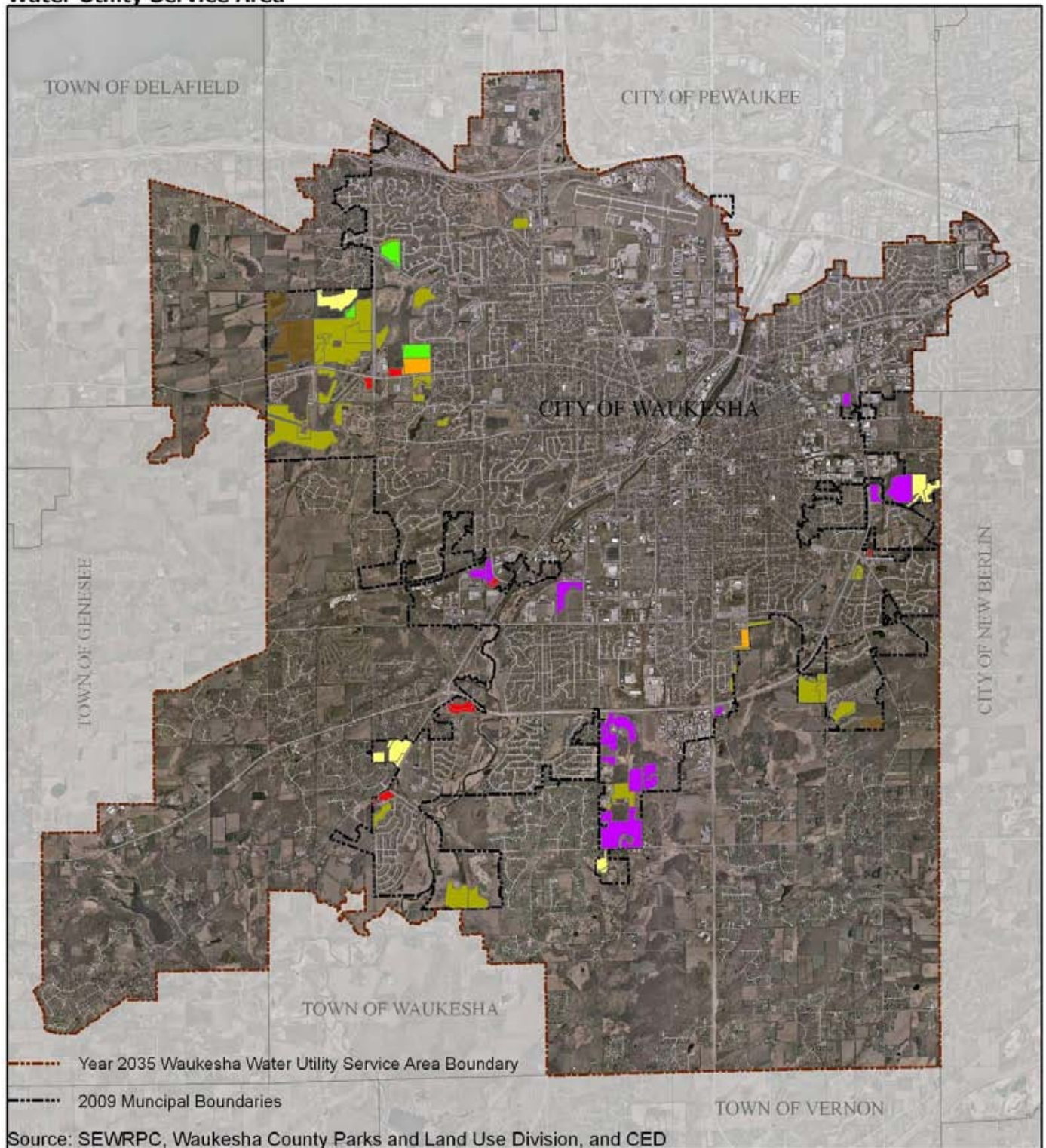
Map D-13B: Development Within the 2035 Waukesha Water Utility Projected Service Area



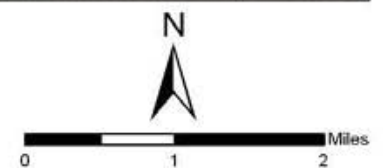
- Areas to be Developed and Served within the 2035 Projected Service Area (as of Year 2009)
- Areas Developed as of 2009
- Environmental Corridors
- Parks and Open Spaces (very limited services)
- Areas With Existing Development not to be served under Smart Growth Plan and RLUP
- Projected Areas With Proposed Development not to be served under Smart Growth Plan and RLUP



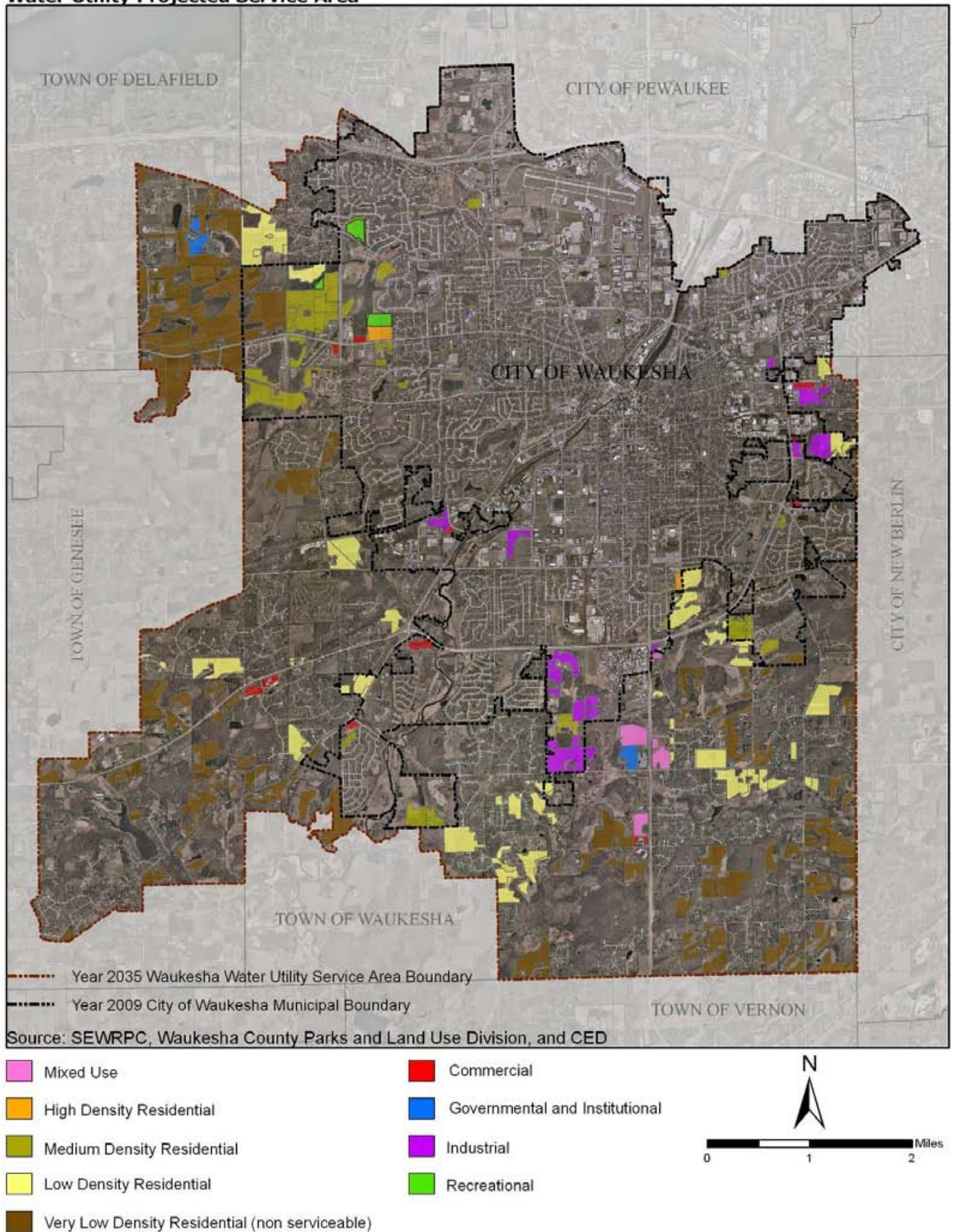
Map D-13C: Projected Development and Planned Land Uses Within the 2009 Waukesha Water Utility Service Area



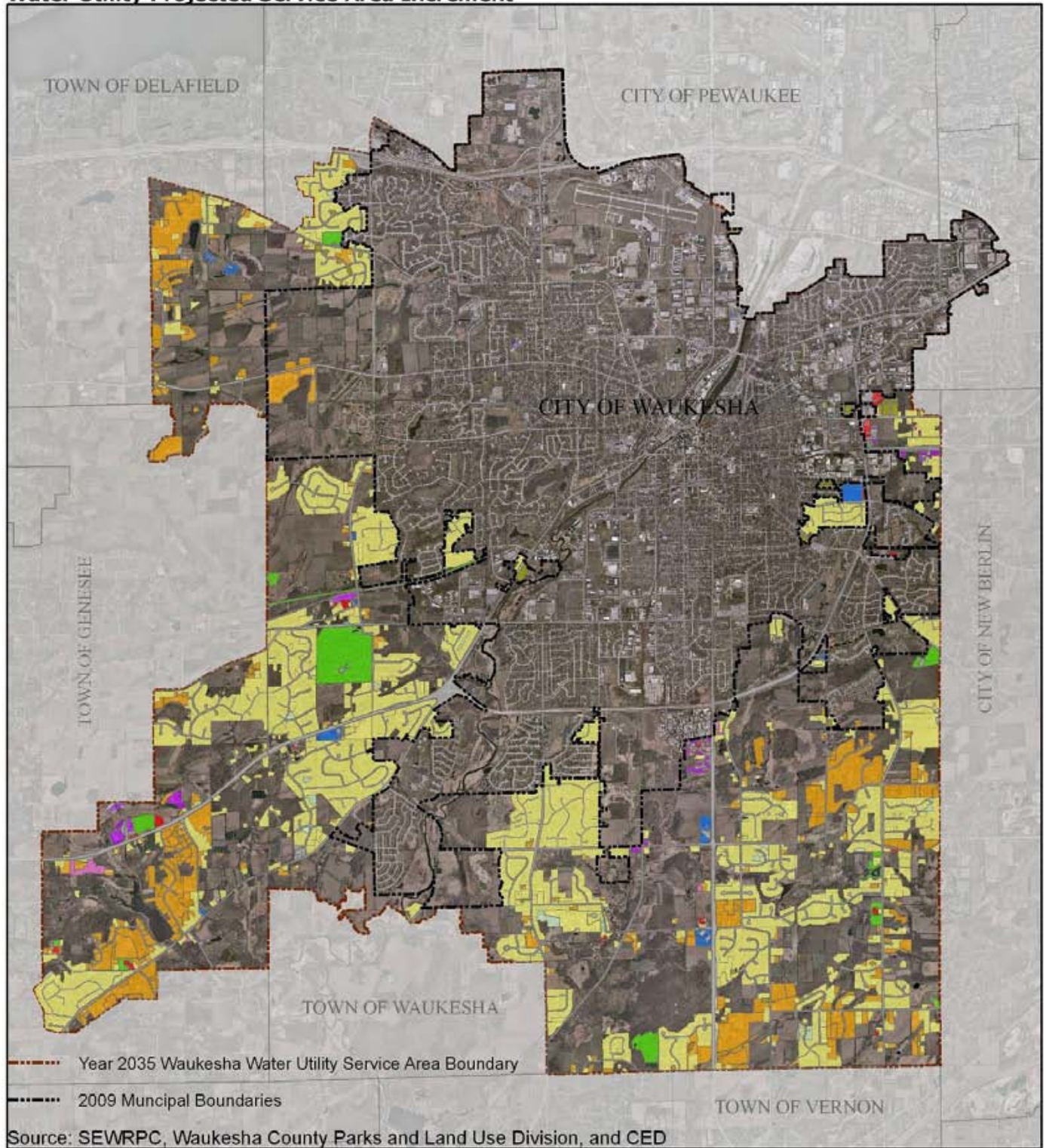
- | | |
|--|---|
| Mixed Use | Commercial |
| High Density Residential | Governmental and Institutional |
| Medium Density Residential | Industrial |
| Low Density Residential | Recreational |
| Very Low Density Residential (non serviceable) | |



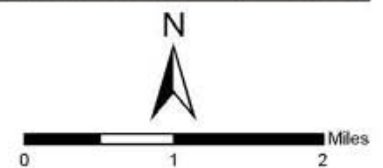
Map D-13D: Projected Development and Planned Land Uses Within the 2035 Waukesha Water Utility Projected Service Area



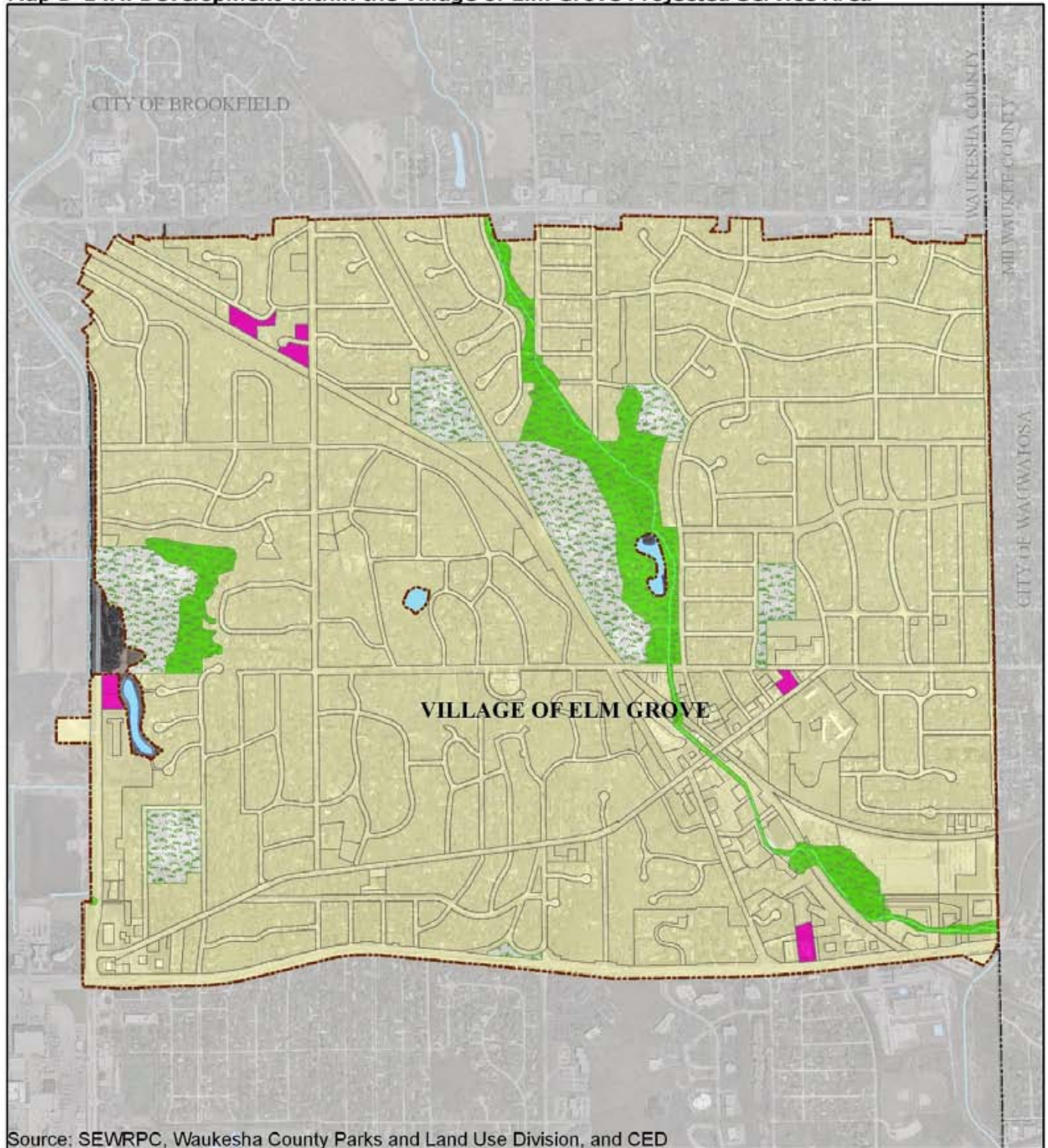
Map D-13E: Existing (2009) Land Uses Within the 2035 Waukesha Water Utility Projected Service Area Increment



- | | |
|---|---|
| Mixed Use | Commercial |
| Medium Density Residential | Governmental and Institutional |
| Low Density Residential | Industrial |
| Very Low Density Residential (non serviceable) | Recreational |
| Roads and Utilities | |

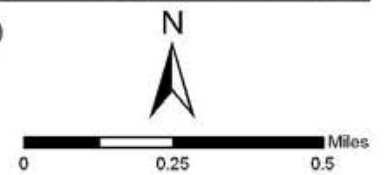


Map D-14A: Development within the Village of Elm Grove Projected Service Area

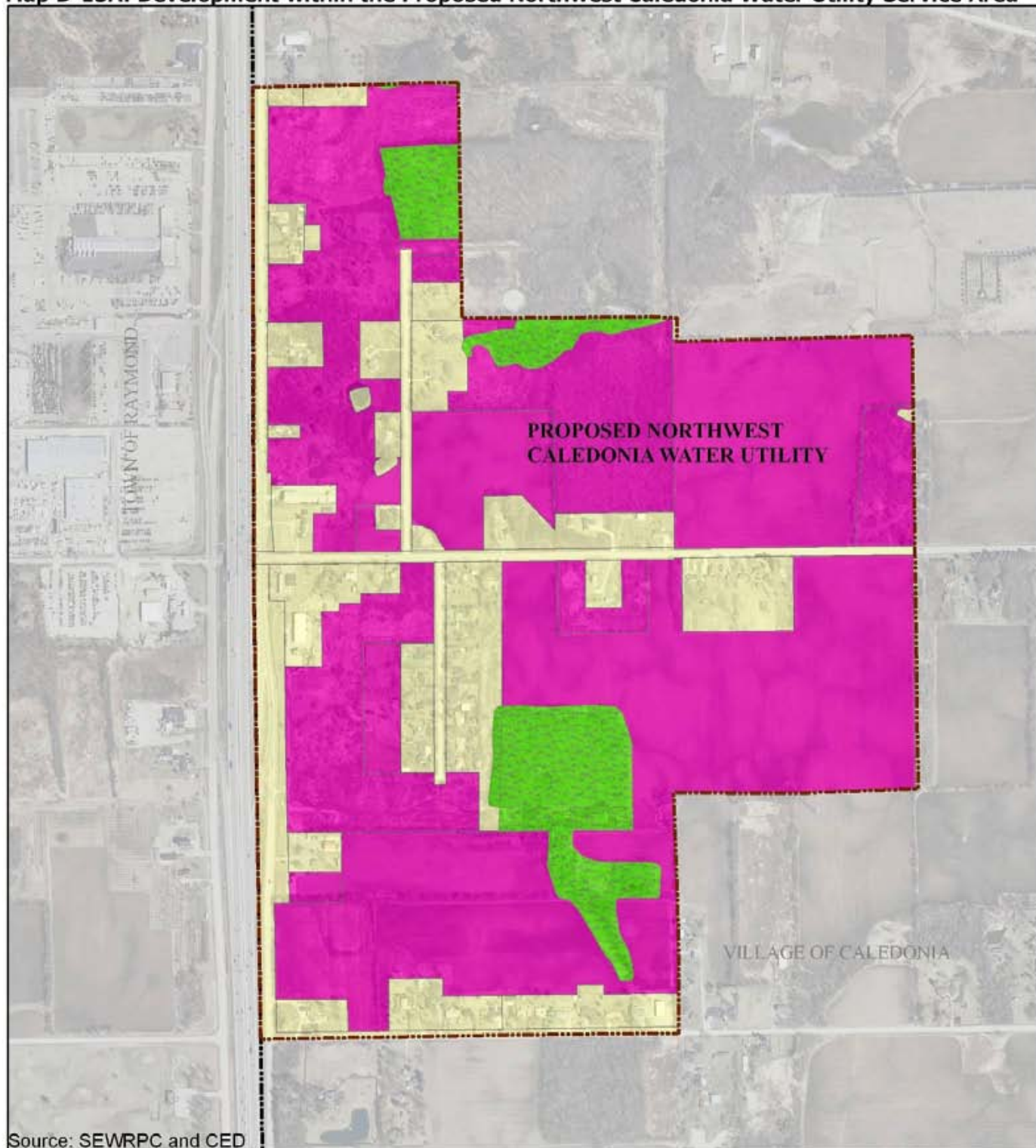


Source: SEWRPC, Waukesha County Parks and Land Use Division, and CED

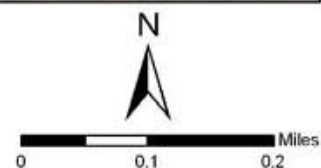
- Areas to be Developed and Served within the 2035 Projected Service Area (as of Year 2005)
- Areas Developed as of 2005
- Environmental Corridors
- Parks, and Open Spaces (very limited services)
- Year 2035 Proposed Elm Grove Service Area Boundary



Map D-15A: Development within the Proposed Northwest Caledonia Water Utility Service Area



- Areas to be Developed and Served within the 2035 Projected Service Area (as of Year 2005)
- Areas Developed as of 2005
- Environmental Corridors
- Parks, and Open Spaces (very limited services)
- Year 2035 Proposed Northwest Caledonia Water Service Area Boundary
- 2005 Municipal Boundaries

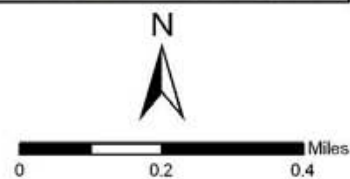


Map D-16A: Development within the Year 2000 Yorkville Utility District No. 1 Service Area

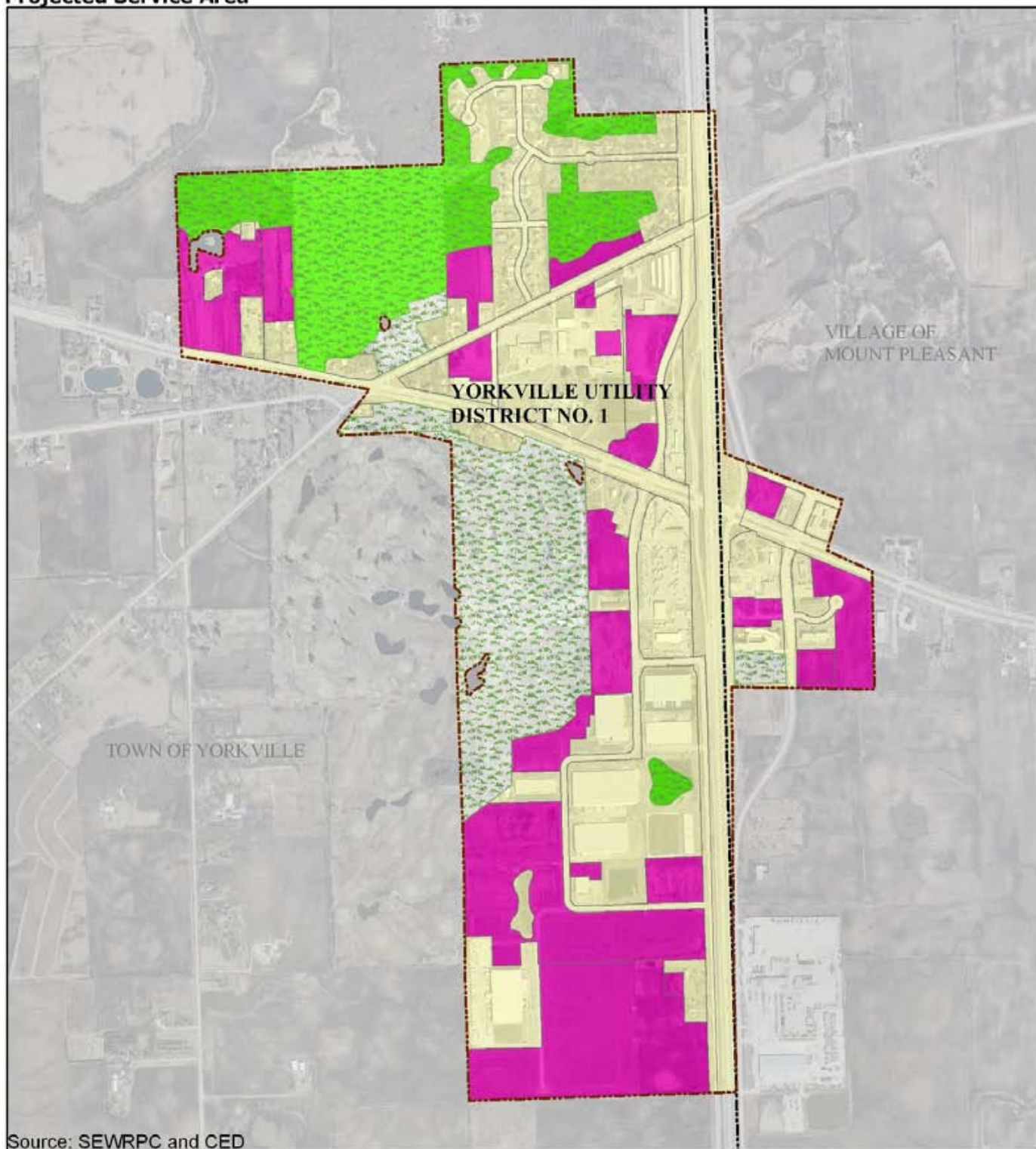


Source: SEWRPC and CED

- Areas to be Developed and Served within the Year 2000 Service Area (as of Year 2005)
- Areas Developed as of 2005
- Environmental Corridors
- Parks, and Open Spaces (very limited services)
- Year 2000 Yorkville Utility District No. 1 Service Area Boundary
- 2005 Municipal Boundary

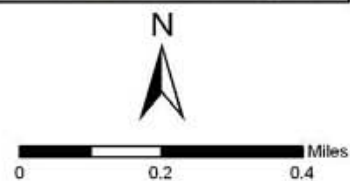


**Map D-16B: Development within the Year 2035 Yorkville Utility District No. 1
Projected Service Area**



Source: SEWRPC and CED

- Areas to be Developed and Served within the 2035 Projected Service Area (as of Year 2005)
- Areas Developed as of 2005
- Environmental Corridors
- Parks, and Open Spaces (very limited services)
- Year 2035 Yorkville Utility District No. 1 Service Area Boundary
- 2005 Municipal Boundaries



Appendix E: Great Lakes

The Great Lakes Basin Compact

Overview

The Great Lakes Commission is the only regional organization with a statutory mandate to represent the eight Great Lakes states on a variety of environmental and economic issues.

The Great Lakes Basin Compact -- created through the collective legislative action of its member states and later granted congressional consent through Public Law 90-419 -- established five general areas of responsibility for the Great Lakes Commission, listed in Article I (*see Compact, below*).

Great Lakes Basin Compact

With State & Federal Legislative History

The party states solemnly agree:

Article I

The purposes of this compact are, through means of joint or cooperative action:

1. To promote the orderly, integrated, and comprehensive development, use, and conservation of the water resources of the Great Lakes Basin (hereinafter called the Basin).
2. To plan for the welfare and development of the water resources of the Basin as a whole as well as for those portions of the Basin which may have problems of special concern.
3. To make it possible for the states of the Basin and their people to derive the maximum benefit from utilization of public works, in the form of navigational aids or otherwise, which may exist or which may be constructed from time to time.
4. To advise in securing and maintaining a proper balance among industrial, commercial, agricultural, water supply, residential, recreational, and other legitimate uses of the water resources of the Basin.
5. To establish and maintain an intergovernmental agency the end that the purposes of this compact may be accomplished more effectively.

Article II

A. This compact shall enter into force and become effective and binding when it has been enacted by the legislature of any four of the States of Illinois, Indiana, Michigan, Minnesota, New York, Ohio, Pennsylvania, and Wisconsin and thereafter shall enter into force and become effective and binding as to any other of said states when enacted by the legislature thereof.

B. The Province of Ontario and the Province of Quebec, or either of them, may become states party to this compact by taking such action as their laws and the laws of the Government of Canada may prescribe for adherence thereto. For the purposes of this compact the word "state" shall be construed to include a Province of Canada.

Article III

The Great Lakes Commission created by Article IV of this compact shall exercise its powers and perform its functions in respect to the Basin which, for the purposes of this compact shall consist of so much of the following as may be within the party states:

1. Lakes Erie, Huron, Michigan, Ontario, St. Clair, Superior, and the St. Lawrence River, together with any and all natural or manmade water interconnections between or among them.

2. All rivers, ponds, lakes, streams, and other watercourses which, in their natural state or in their prevailing conditions, are tributary to Lakes Erie, Huron, Michigan, Ontario, St. Clair, and Superior or any of them or which comprise part of any watershed draining into any of said lakes.

Article IV

A. There is hereby created an agency of the party states to be known as The Great Lakes Commission (hereinafter called the Commission). In that name the Commission may sue and be sued, acquire, hold and convey real and personal property and any interest therein. The Commission shall have a seal with the words, "The Great Lakes Commission" and such other design as it may prescribe engraved thereon by which it shall authenticate its proceedings. Transactions involving real or personal property shall conform to the laws of the state in which the property is located, and the Commission may by by-laws provide for the execution and acknowledgement of all instruments in its behalf.

B. The Commission shall be composed of not less than three commissioners nor more than five commissioners from each party state designated or appointed accordance with the law of the state which they represent and serving and subject to removal in accordance with such law.

C. Each state delegation shall be entitled to three votes in the Commission. The presence of commissioners from a majority of the party states shall constitute a quorum for the transaction of business at any meeting of the Commission. Actions of the Commission shall be by a majority of the votes cast except that any recommendations made pursuant to Article VI of this compact shall require an affirmative vote of not less than a majority of the votes cast from each of a majority of the states present and voting.

D. The commissioners of any two or more party states may meet separately to consider problems of particular interest to their states but no action taken at any such meeting shall be deemed an action of the Commission unless and until the Commission shall specifically approve the same.

E. In the absence of any commissioner, his vote may be cast by another representative or commissioner of his state provided that said commissioner or other representative casting said vote shall have a written proxy in proper form as may be required by the Commission.

F. The Commission shall elect annually from among its members a chairman and vice-chairman. The Commission shall appoint an Executive Director who shall also act as secretary-treasurer, and who shall be bonded in such amount as the Commission may require. The Executive Director shall serve at the pleasure of the Commission and at such compensation and under such terms and conditions as may be fixed by it. The Executive Director shall be custodian of the records of the Commission with authority to affix the Commission's official seal and to attest to and certify such records or copies thereof.

G. The Executive Director, subject to the approval of the Commission in such cases as its by-laws may provide, shall appoint and remove or discharge such personnel as may be necessary for the performance of the Commission's function. Subject to the aforesaid approval, the Executive Director may fix their compensation, define their duties, and require bonds of such of them as the Commission may designate.

H. The Executive Director, on behalf of, as trustee for, and with the approval of the Commission, may borrow, accept, or contract for the services of personnel from any state or government or any subdivision or agency thereof, from any inter-governmental agency, or from any institution, person, firm or corporation; and may accept for any of the Commissions purposes and functions under this compact any and all donations, gifts, and grants of money, equipment, supplies, materials, and services from any state or government of any subdivision or agency thereof or inter-governmental agency or from any institution, person, firm or corporation and may receive and utilize the same.

I. The Commission may establish and maintain one or more offices for the transacting of its business and for such purposes the Executive Director, on behalf of, as trustee for, and with the approval of the Commission, may acquire, hold and dispose of real and personal property necessary to the performance of its functions.

J. No tax levied or imposed by any party state or any political subdivision thereof shall be deemed to apply to property, transactions, or income of the Commission.

K. The Commission may adopt, amend and rescind by-laws, rules and regulations for the conduct of its business.

L. The organization meeting of the Commission shall be held within six months from the effective date of the compact.

M. The Commission and its Executive Director shall make available to the party states any information within its possession and shall always provide free access to its records by duly authorized representatives of such party states.

N. The Commission shall keep a written record of its meetings and proceedings and shall annually make a report thereof to be submitted to the duly designated official of each party state.

O. The Commission shall make and transmit annually to the legislature and Governor of each party state a report covering the activities of the Commission for the preceding year and embodying such recommendations as may have been adopted by the Commission. The Commission may issue such additional reports as it may deem desirable.

Article V

A. The members of the Commission shall serve without compensation, but the expenses of each commission shall be met by the state which he represents in accordance with the law of that state. All other expenses incurred by the Commission in the course of exercising the powers conferred upon it by this compact, unless met in some other manner specifically provided by this compact, shall be paid by the Commission out of its own funds.

B. The Commission shall submit to the executive head or designated officer of each party state a budget of its estimated expenditures for such period as may be required by the laws of that state for presentation to the legislature thereof.

C. Each of the Commission's budgets of estimated expenditures shall contain specific recommendations of the amount or amounts to be appropriated by each of the party states. Detailed commission budgets shall be recommended by a majority of the votes cast, and the costs shall be allocated equitably among the party states in accordance with their respective interests.

D. The Commission shall not pledge the credit of any party state. The Commission may meet any of its obligations in whole or in part with funds available to it under Article IV(H) of this compact, provided that the Commission takes specific action setting aside such funds prior to the incurring of any obligations to be met in whole or in part in this manner. Except where the Commission makes use of funds available to it under Article IV (H) hereof, the Commission shall not incur any obligations prior to the allotment of funds by the party states adequate to meet the same.

E. The Commission shall keep accurate accounts of all receipts and disbursements. The receipts and disbursements of the Commission shall be subject to the audit and accounting procedures established under the by-laws. However, all receipts and disbursements of funds handled by the Commission shall be audited yearly by a qualified public accountant and the report of the audit shall be included in and become a part of the annual report of the Commission.

F. The accounts of the Commission shall be open at any reasonable time for inspection by such agency, representative of the party states as may be duly constituted for that purpose and by others who may be authorized by the Commission.

Article VI

The Commission shall have power to:

1. Collect, correlate, interpret, and report on data relating to the water resources and the use thereof in the Basin or any portion thereof.
2. Recommend methods for the orderly, efficient, and balanced development, use and conservation of the water resources of the Basin or any portion thereof to the party state and to any other governments or agencies having interests in or jurisdiction over the Basin or any portion thereof.
3. Consider the need for and desirability of public works and improvements relating to the water resources in the Basin or any portion thereof.
4. Consider means of improving navigation and port facilities in the Basin or any other portion thereof.
5. Consider means of improving and maintaining the fisheries of the Basin or any portion thereof.
6. Recommend policies relating to water resources including the institution and alteration of flood plain and other zoning laws, ordinances and regulations.
7. Recommend uniform or other laws, ordinances, or regulations relating to the development, use and conservation of the Basin's water resources to the party states or any of them and to other governments, political subdivisions, agencies of inter-governmental bodies having interests or in jurisdiction sufficient to affect conditions in the Basin or any portion thereof.
8. Consider and recommend amendments or agreements supplementary to this compact to the party states or any of them, and assist in the formulation and drafting of such amendments or supplementary agreements.
9. Prepare and publish reports, bulletins, and publications appropriate to this work and fix reasonable sales prices therefore.
10. With respect to the water resources of the Basin or any portion thereof, recommend agreements between the governments of the United States and Canada.
11. Recommend mutual arrangements expressed by concurrent or reciprocal legislation on the part of Congress and the Parliament of Canada including but not limited to such agreements and mutual arrangements as are provided for by Article XIII of the Treaty of 1909 Relating to Boundary Waters and Questions Arising Between the United States and Canada. (Treaty Series, No 548).
12. Cooperate with the governments of the United States and of Canada, the party states and any public or private agencies or bodies having interests in or jurisdiction sufficient to affect the Basin or any portion thereof.
13. At the request of the United States, or in the event that a Province shall be a party state, at the request of the Government of Canada, assist in the negotiation and formulation of any treaty or other mutual agreement between the United States and Canada with reference to the Basin or any portion thereof.
14. Make any recommendation and do all things necessary and proper to carry out the powers conferred upon the Commission by this compact, provided that no action of the Commission shall have the force of law in, or be binding upon, any party state.

Article VII

Each party state agrees to consider the action the Commission recommends in respect to:

1. Stabilization of lake levels.
2. Measures for combating pollution, beach erosion, floods and shore inundation.
3. Uniformity in navigation regulations within the constitutional powers of the states.
4. Proposed navigation aids and improvements.

5. Uniformity or effective coordinating action in fishing laws and regulations and cooperative action to eradicate destructive and parasitical forces endangering the fisheries, wildlife and other water resources.
6. Suitable hydroelectric power developments.
7. Cooperative programs for control of soil and bank erosion for the general improvement of the Basin.
8. Diversion of waters from and into the Basin.
9. Other measures the Commission may recommend to the states pursuant to Article VI of this compact.

Article VIII

This compact shall continue in force and remain upon each party state until renounced by the act of the legislature of such state, in such form and manner as it may choose and as may be valid and effective to repeal a statute of said state, provided that such renunciation shall not become effective until six months after notice of such action shall have been officially communicated in writing to the executive head of the other party states.

Article IX

It is intended that the provisions of this compact shall be reasonably and liberally construed to effectuate the purposes thereof. The provisions of this compact shall be severable and if any phrase, clause, sentence or provision of this compact is declared to be contrary to the constitution of any party state or of the United States, or in the case of a Province, to the British North America Act of 1867 as amended, or the applicability thereof to any state, agency, person or circumstances is held invalid, the constitutionality of the remainder of this compact and the applicability thereof to any state, agency, person or circumstance shall not be affected thereby, provided further that if this compact shall be held contrary to the constitution of the United States, or in the case of a Province, to the British North America Act of 1867 as amended, or of any party state, the compact shall remain in full force and effect as to the remaining states and in full force and effect as to the state affected as to all severable matters.

State Legislative History

Illinois: (69th GA House Bill, No. 983, 1955)

Indiana: (Chapter 220 (H. 216, Approved March 10, 1955)

Michigan: (Act No. 28, Public Acts of 1955, Approved by Governor April 14, 1955)

Minnesota: (Laws of Minnesota 1955, Chapter 691; S.F. No. 1982)

New York: (Chapter 643, Laws of 1960)

Ohio: (Amended House Bill 415, Effective October 9, 1963, 105 General Assembly)

Pennsylvania: (Act of Pennsylvania General Assembly, No. 421, 1955-56 Session)

Wisconsin: (No. 294 A, Chapter 275, Laws of 1955)

The Commission was officially organized and established December 12, 1955 subsequent to ratification of the compact by five states (Illinois, Indiana, Michigan, Minnesota and Wisconsin). The Commission office was established on the Campus of the University of Michigan in early 1956.

Congressional Consent: Legislation

All interstate compacts require Congressional consent (Article I, Sec. 10, Clause 3, Constitution of the United States) in order to achieve full force and effect. Numerous bills were considered beginning in 1956. In 1968, Congress enacted S. 660 (PL 90-419) giving limited consent to the compact as follows:

"Public Law 90-419
90th Congress, S 660
July 24, 1968

"An Act

"Granting the consent of Congress to a Great Lakes Basin Compact, and for other purposes.

"Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the consent of Congress is hereby given, to the extent and subject to the conditions hereinafter set forth, to the Great Lakes Basin Compact which has been entered into by the States of Illinois, Indiana, Michigan, Minnesota, New York, Ohio, Pennsylvania and Wisconsin in the form as follows:

"Great Lakes Basin Compact"

(The full text of the State adopted Compact text is included in PL 90-419 at this point.)

"SEC. 2. The consent herein granted does not extend to paragraph B of article II or to paragraphs J, K, and M or article VI of the compact, or to other provisions of article VI of the compact which purpose to authorize recommendations to, or cooperation with, any foreign or international governments, political subdivisions, agencies or bodies. In carrying out its functions under this Act the Commission shall be solely a consultative and recommendatory agency which will cooperate with the agencies of the United States. It shall furnish to the Congress and to the President, or to any official designated by the President, copies of its reports submitted to the party states pursuant to paragraph O of article IV of the compact.

"SEC. 3. Nothing contained in this Act or in the compact consented to hereby shall be construed to affect the jurisdiction on, powers, or prerogatives of any department, agency, or officer of the United States Government or of the Great Lakes Basin Committee established under title II of the Water Resources Planning Act, or of any international commission or agency over or in the Great Lakes Basin or any portion thereof, nor shall anything contained herein be construed to establish an international agency or to limit or affect in any way the exercises of the treaty-making power or any other power or right of the United States.

"SEC 4. The right to alter, amend, or repeal this Act is expressly reserved. "Approved July 24, 1968."

Federal Legislative History

Public Law 90-419 (90th Congress, S 660)

House Report No. 1640 (Comm. on Foreign Affairs)

Senate Report No. 1178 (Comm. on the Judiciary)

Congressional Record, Vol. 114 (1968):

- **June 12:** Considered and passed Senate
- **July 15:** Considered and passed House
- **July 24:** Signed by the President

Appendix F: Environmental Justice

PRINCIPLES OF ENVIRONMENTAL JUSTICE

PREAMBLE

WE THE PEOPLE OF COLOR, gathered together at this multinational People of Color Environmental Leadership Summit, to begin to build a national and international movement of all peoples of color to fight the destruction and taking of our lands and communities, do hereby re-establish our spiritual interdependence to the sacredness of our Mother Earth; to respect and celebrate each of our cultures, languages and beliefs about the natural world and our roles in healing ourselves; to insure environmental justice; to promote economic alternatives which would contribute to the development of environmentally safe livelihoods; and, to secure our political, economic and cultural liberation that has been denied for over 500 years of colonization and oppression, resulting in the poisoning of our communities and land and the genocide of our peoples, do affirm and adopt these Principles of Environmental Justice:

1. Environmental justice affirms the sacredness of Mother Earth, ecological unity and the interdependence of all species, and the right to be free from ecological destruction.
2. Environmental justice demands that public policy be based on mutual respect and justice for all peoples, free from any form of discrimination or bias.
3. Environmental justice mandates the right to ethical, balanced and responsible uses of land and renewable resources in the interest of a sustainable planet for humans and other living things.
4. Environmental justice calls for universal protection from nuclear testing, extraction, production and disposal of toxic/hazardous wastes and poisons and nuclear testing that threaten the fundamental right to clean air, land, water, and food.
5. Environmental justice affirms the fundamental right to political, economic, cultural and environmental self-determination of all peoples.
6. Environmental justice demands the cessation of the production of all toxins, hazardous wastes, and radioactive materials, and that all past and current producers be held strictly accountable to the people for detoxification and the containment at the point of production.
7. Environmental justice demands the right to participate as equal partners at every level of decision-making including needs assessment, planning, implementation, enforcement and evaluation.
8. Environmental justice affirms the right of all workers to a safe and healthy work environment, without being forced to choose between an unsafe livelihood and unemployment. It also affirms the right of those who work at home to be free from environmental hazards.
9. Environmental justice protects the right of victims of environmental injustice to receive full compensation and reparations for damages as well as quality health care.

10. Environmental justice considers governmental acts of environmental injustice a violation of international law, the Universal Declaration On Human Rights, and the United Nations Convention on Genocide.

11. Environmental justice must recognize a special legal and natural relationship of Native Peoples to the U.S. government through treaties, agreements, compacts, and covenants affirming sovereignty and self-determination.

12. Environmental justice affirms the need for urban and rural ecological policies to clean up and rebuild our cities and rural areas in balance with nature, honoring the cultural integrity of all our communities, and providing fair access for all to the full range of resources.

13. Environmental justice calls for the strict enforcement of principles of informed consent, and a halt to the testing of experimental reproductive and medical procedures and vaccinations on people of color.

14. Environmental justice opposes the destructive operations of multi-national corporations.

15. Environmental justice opposes military occupation, repression and exploitation of lands, peoples and cultures, and other life forms.

16. Environmental justice calls for the education of present and future generations which emphasizes social and environmental issues, based on our experience and an appreciation of our diverse cultural perspectives.

17. Environmental justice requires that we, as individuals, make personal and consumer choices to consume as little of Mother Earth's resources and to produce as little waste as possible; and make the conscious decision to challenge and reprioritize our lifestyles to insure the health of the natural world for present and future generations.

Adopted today, October 27, 1991, in Washington, D.C.

EXECUTIVE ORDER 12898

FEDERAL ACTIONS TO ADDRESS ENVIRONMENTAL JUSTICE IN MINORITY POPULATIONS AND LOW-INCOME POPULATIONS

February 11, 1994

By the authority vested in me as President by the Constitution and the laws of the United States of America, it is hereby ordered as follows:

SECTION 1-1. Implementation

1-101. Agency Responsibilities

To the greatest extent practicable and permitted by law, and consistent with the principles set forth in the report on the National Performance Review, each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations in the United States and its territories and possessions, the District of Columbia, the Commonwealth of Puerto Rico, and the Commonwealth of the Mariana Islands.

1-102. Creation of an Interagency Working Group on Environmental Justice

- a. Within 3 months of the date of this order, the Administrator of the Environmental Protection Agency ("Administrator") or the Administrator's designee shall convene an interagency Federal Working Group on Environmental Justice ("Working Group"). The Working Group shall comprise the heads of the following executive agencies and offices, or their designees:
 - a. Department of Defense;
 - b. Department of Health and Human Services;
 - c. Department of Housing and Urban Development;
 - d. Department of Labor;
 - e. Department of Agriculture;
 - f. Department of Transportation;
 - g. Department of Justice;
 - h. Department of the Interior;
 - i. Department of Commerce;
 - j. Department of Energy;
 - k. Environmental Protection Agency;
 - l. Office of Management and Budget;
 - m. Office of Science and Technology Policy;
 - n. Office of the Deputy Assistant to the President for Environmental Policy;
 - o. Office of the Assistant to the President for Domestic Policy;
 - p. National Economic Council;
 - q. Council of Economic Advisers; and
 - r. such other Government officials as the President may designate.

The Working Group shall report to the President through the Deputy Assistant to the President for Environmental Policy and the Assistant to the President for Domestic Policy.

- a. The Working Group shall:
 1. provide guidance to Federal agencies on criteria for identifying disproportionately high and adverse human health or environmental effects on minority populations and low-income populations;
 2. coordinate with, provide guidance to, and serve as a clearinghouse for, each Federal agency as it develops an environmental justice strategy as required by section 1-103 of this order, in order to ensure that the administration, interpretation and enforcement of programs, activities and policies are undertaken in a consistent manner;
 3. assist in coordinating research by, and stimulating cooperation among, the Environmental Protection Agency, the Department of Health and Human Services, the Department of Housing and Urban Development, and other agencies conducting research or other activities in accordance with section 3-3 of this order;
 4. assist in coordinating data collection, required by this order;
 5. examine existing data and studies on environmental justice;
 6. hold public meetings as required in section 5-502(d) of this order; and
 7. develop interagency model projects on environmental justice that evidence cooperation among Federal agencies.

1-103. Development of Agency Strategies

- a. Except as provided in section 6- 605 of this order, each Federal agency shall develop an agency-wide environmental justice strategy, as set forth in subsections (b)-(e) of this section that identifies and addresses disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations. The environmental justice strategy shall list programs, policies, planning and public participation processes, enforcement, and/or rulemakings related to human health or the environment that should be revised to, at a minimum:
 1. promote enforcement of all health and environmental statutes in areas with minority populations and low-income populations;
 2. ensure greater public participation;
 3. improve research and data collection relating to the health of and environment of minority populations and low-income populations; and
 4. identify differential patterns of consumption of natural resources among minority populations and low-income populations. In addition, the environmental justice strategy shall include, where appropriate, a timetable for undertaking identified revisions and consideration of economic and social implications of the revisions.

- b. Within 4 months of the date of this order, each Federal agency shall identify an internal administrative process for developing its environmental justice strategy, and shall inform the Working Group of the process.
- c. Within 6 months of the date of this order, each Federal agency shall provide the Working Group with an outline of its proposed environmental justice strategy.
- d. Within 10 months of the date of this order, each Federal agency shall provide the Working Group with its proposed environmental justice strategy.
- e. Within 12 months of the date of this order, each Federal agency shall finalize its environmental justice strategy and provide a copy and written description of its strategy to the Working Group. During the 12 month period from the date of this order, each Federal agency, as part of its environmental justice strategy, shall identify several specific projects that can be promptly undertaken to address particular concerns identified during the development of the proposed environmental justice strategy, and a schedule for implementing those projects.
- f. Within 24 months of the date of this order, each Federal agency shall report to the Working Group on its progress in implementing its agency-wide environmental justice strategy.
- g. Federal agencies shall provide additional periodic reports to the Working Group as requested by the Working Group. 1-104. Reports to the President. Within 14 months of the date of this order, the Working Group shall submit to the President, through the Office of the Deputy Assistant to the President for Environmental Policy and the Office of the Assistant to the President for Domestic Policy, a report that describes the implementation of this order, and includes the final environmental justice strategies described in section 1-103(e) of this order.

SECTION 2-2. Federal Agency Responsibilities for Federal Programs

Each Federal agency shall conduct its programs, policies, and activities that substantially affect human health or the environment, in a manner that ensures that such programs, policies, and activities do not have the effect of excluding persons (including populations) from participation in, denying persons (including populations) the benefits of, or subjecting persons (including populations) to discrimination under, such programs, policies, and activities, because of their race, color, or national origin.

SECTION. 3-3. Research, Data Collection, and Analysis

3-301. Human Health and Environmental Research and Analysis

- a. Environmental human health research, whenever practicable and appropriate, shall include diverse segments of the population in epidemiological and clinical studies, including segments at high risk from environmental hazards, such as minority populations, low-income populations and workers who may be exposed to substantial environmental hazards.
- b. Environmental human health analyses, whenever practicable and appropriate, shall identify multiple and cumulative exposures.

- c. Federal agencies shall provide minority populations and low-income populations the opportunity to comment on the development and design of research strategies undertaken pursuant to this order.

3-302. Human Health and Environmental Data Collection and Analysis

To the extent permitted by existing law, including the Privacy Act, as amended (5 U.S.C. section 552a):

- a. Each Federal agency, whenever practicable and appropriate, shall collect, maintain, and analyze information assessing and comparing environmental and human health risks borne by populations identified by race, national origin, or income. To the extent practical and appropriate, Federal agencies shall use this information to determine whether their programs, policies, and activities have disproportionately high and adverse human health or environmental effects on minority populations and low-income populations;
- b. In connection with the development and implementation of agency strategies in section 1-103 of this order, each Federal agency, whenever practicable and appropriate, shall collect, maintain and analyze information on the race, national origin, income level, and other readily accessible and appropriate information for areas surrounding facilities or sites expected to have a substantial environmental, human health, or economic effect on the surrounding populations, when such facilities or sites become the subject of a substantial Federal environmental administrative or judicial action. Such information shall be made available to the public, unless prohibited by law; and
- c. Each Federal agency, whenever practicable and appropriate, shall collect, maintain, and analyze information on the race, national origin, income level, and other readily accessible and appropriate information for areas surrounding Federal facilities that are:
 - 1. subject to the reporting requirements under the Emergency Planning and Community Right-to-Know Act, 42 U.S.C. section 11001-11050 as mandated in Executive Order No. 12856; and
 - 2. expected to have a substantial environmental, human health, or economic effect on surrounding populations. Such information shall be made available to the public, unless prohibited by law.
- d. In carrying out the responsibilities in this section, each Federal agency, whenever practicable and appropriate, shall share information and eliminate unnecessary duplication of efforts through the use of existing data systems and cooperative agreements among Federal agencies and with State, local, and tribal governments.

SECTION 4-4. Subsistence Consumption of Fish and Wildlife

4-401. Consumption Patterns

In order to assist in identifying the need for ensuring protection of populations with differential patterns of subsistence consumption of fish and wildlife, Federal agencies,

whenever practicable and appropriate, shall collect, maintain, and analyze information on the consumption patterns of populations who principally rely on fish and/or wildlife for subsistence. Federal agencies shall communicate to the public the risks of those consumption patterns.

4-402. Guidance

Federal agencies, whenever practicable and appropriate, shall work in a coordinated manner to publish guidance reflecting the latest scientific information available concerning methods for evaluating the human health risks associated with the consumption of pollutant-bearing fish or wildlife. Agencies shall consider such guidance in developing their policies and rules.

SECTION 5-5. Public Participation and Access to Information

- a. The public may submit recommendations to Federal agencies relating to the incorporation of environmental justice principles into Federal agency programs or policies. Each Federal agency shall convey such recommendations to the Working Group.
- b. Each Federal agency may, whenever practicable and appropriate, translate crucial public documents, notices, and hearings relating to human health or the environment for limited English speaking populations.
- c. Each Federal agency shall work to ensure that public documents, notices, and hearings relating to human health or the environment are concise, understandable, and readily accessible to the public.
- d. The Working Group shall hold public meetings, as appropriate, for the purpose of fact-finding, receiving public comments, and conducting inquiries concerning environmental justice. The Working Group shall prepare for public review a summary of the comments and recommendations discussed at the public meetings.

SECTION 6-6. General Provisions

6-601. Responsibility for Agency Implementation

The head of each Federal agency shall be responsible for ensuring compliance with this order. Each Federal agency shall conduct internal reviews and take such other steps as may be necessary to monitor compliance with this order.

6-602. Executive Order No. 12250

This Executive order is intended to supplement but not supersede Executive Order No. 12250, which requires consistent and effective implementation of various laws prohibiting discriminatory practices in programs receiving Federal financial assistance. Nothing herein shall limit the effect or mandate of Executive Order No. 12250.

6-603. Executive Order No. 12875

This Executive order is not intended to limit the effect or mandate of Executive Order No. 12875.

6-604. Scope

For purposes of this order, Federal agency means any agency on the Working Group, and such other agencies as may be designated by the President, that conducts any Federal program or activity that substantially affects human health or the environment.

Independent agencies are requested to comply with the provisions of this order. 6-605.

Petitions for Exemptions. The head of a Federal agency may petition the President for an exemption from the requirements of this order on the grounds that all or some of the petitioning agency's programs or activities should not be subject to the requirements of this order.

6-606. Native American Programs

Each Federal agency responsibility set forth under this order shall apply equally to Native American programs. In addition, the Department of the Interior, in coordination with the Working Group, and, after consultation with tribal leaders, shall coordinate steps to be taken pursuant to this order that address Federally-recognized Indian Tribes.

6-607. Costs

Unless otherwise provided by law, Federal agencies shall assume the financial costs of complying with this order.

6-608. General

Federal agencies shall implement this order consistent with, and to the extent permitted by, existing law.

6-609. Judicial Review

This order is intended only to improve the internal management of the executive branch and is not intended to, nor does it create any right, benefit, or trust responsibility, substantive or procedural, enforceable at law or equity by a party against the United States, its agencies, its officers, or any person. This order shall not be construed to create any right to judicial review involving the compliance or noncompliance of the United States, its agencies, its officers, or any other person with this order.

William J. Clinton

THE WHITE HOUSE,

February 11, 1994.

Exec. Order No. 12898, 59 FR 7629, 1994 WL 43891 (Pres.)

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