Notice

This study contains information that was gathered over a three-year period, from December 1998 through October 2001. Since development plans in communities change over time, as plans are updated and new plans are adopted, this study may contain some outdated information. In addition, certain economic developments could not be named for competitive reasons, but were included in a general or aggregate sense.

While county planners and economic development specialists provided most of the planning and development information in this study, there was no response from a few counties. In such cases, WisDOT relied on internal information, business databases, the Internet, and community and county marketing materials.

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TRANSPORTATION INVESTMENT, ECONOMIC DEVELOPMENT, AND LAND USE GOALS IN WISCONSIN

June 2002

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16. Abstract

Transportation Investment, Economic Development, and Land Use Goals Study contains land use and economic development profiles of Wisconsin's 8 transportation districts, providing transportation planners with important background information on current and projected economic activity and development and land use planning issues.

This report is intended to improve WisDOT's transportation investment planning process by better accommodating local development needs on both a project-specific and district-wide basis. The report also provides WisDOT planners and engineers with a general overview of Wisconsin counties' economic activity, development issues, and land use planning.

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Executive summary

Transportation Investment, Economic Development, and Land Use Goals in Wisconsin study was undertaken to provide economic development and land use-related input into the Wisconsin transportation districts' 6-year program development process. The stimulus for the study came from the Department of Transportation's strategic plan to "consider state and local economic and land use goals in transportation investment decisions". This strategy was further supported by the federal transportation reauthorization acts, Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991 and Transportation Equity Act for the 21st Century (TEA-21) of 1998, both of which required the consideration of local social, economic, and environmental impacts in the transportation planning process.

The study was designed to accomplish the following objectives:

1. To develop an inventory of local, county, and regional plans that will be factored into the transportation planning process;

2. To develop detailed regional economic profiles using an economic forecasting model. This model summarizes the current and estimated future economic activity in a region and the anticipated truck volumes generated within each of Wisconsin's eight transportation districts;

3. To gather regional development information to assist local planners and local development organizations to more efficiently plan economic development projects on or near transportation corridors; and

4. To analyze the economic influence of bordering counties in Minnesota and Illinois on Wisconsin's land use planning and transportation using an economic forecasting model.

Since the majority of state highway projects are initiated at the transportation district level, the above information was organized according to the state's eight transportation districts. In contrast, transportation projects in non-highway modes (rails, harbors, and airports) are site-specific and managed on a statewide basis. The organization of economic data and land use plans by district allows transportation investment managers for all modes to evaluate a project's impacts in the context of its surrounding region.

The majority of the report describes the planning and economic activities within each transportation district. This includes general information about the area, population, land use planning, geographic features of the region, and economic growth forecasts. Economic activity in the district was measured using Gross Regional Product, exports, Value-Added, employment, business-mix, and population growth, and was then compared to overall Wisconsin economic activity. Regional Economic Models, Inc. (REMI), an economic forecasting and simulation model, was used to forecast each transportation district's level of economic growth, high-growth industries, and the industries with the highest projected future demand for trucking services.

For illustration purposes, each Transportation District Profile includes a sample county Geographic Information System (GIS) map, illustrating where local planning and economic development professionals anticipate future economic growth in their county. Although this report contains only a sample map for each transportation district, GIS maps were obtained or created for the majority of the state's 72 counties.[1] Researchers obtained maps directly from county planning departments or created them from information gathered during the interviews.

According to analysis of the state's eight transportation districts using the REMI model and the Transportation Satellite Accounts (TSA),[2] the Machinery & Computer Manufacturing and Electrical Equipment Manufacturing industries are forecast to show the greatest growth in manufacturing and commercial trucking activity over

[1] It is important to note that county land use GIS maps were provided for unincorporated areas, with some exceptions where planning or economic development staff also had knowledge of future developments in incorporated communities.

[2] A U.S. Department of Transportation dataset on transportation spending by various industries.

the 2000-2015 analysis period. Wholesale Trade, a large industry with a high level of truck spending, also will expand significantly in all the districts. This substantial expansion will maintain this industry's relative importance in the state's economy and is expected to generate large increases in statewide commercial trucking activity over the analysis period.

Major highway corridors serving businesses in the Machinery & Computer Manufacturing, Electrical Equipment Manufacturing, and Wholesale Trade industries can be expected to bear heavy increases in commercial truck traffic in the future. However, the greatest growth in employment will be in the Services sector, with Health/Medical Services, Business Services, and Professional Services industries showing the largest percentage increases. Growing activity in these economic sectors will increase transportation demand by firms, employees, and customers. It is important for communities to incorporate information about these sectors into their transportation planning to benefit both the community and the businesses.

By 2015, 43% of the total number of jobs in Wisconsin will be in the Retail Sales, Health/Medical Services, Business Services, Eating & Drinking Establishments, and Wholesale Trade industries. Currently, most of the economic activity in Wisconsin, as measured by Value-Added,[3] occurs in the state's eastern and southeastern regions, i.e., Districts 1, 2, and 3. Eighty percent of the 2000 state Gross Regional Product is generated in these three districts. This proportion is not likely to change over the 2000-2015 period.

The study's transportation district profiles include data from interviews with local planning and economic development officials, descriptions of areas of anticipated economic growth, and forecasts of economic activity. This study will be provided to district planners. Existing and future electronic land use maps also will be provided. For planning and analysis, these maps can be superimposed on maps of planned transportation improvements.

The study discusses the significance of Wisconsin's 1999 Comprehensive Planning Legislation (Smart Growth), designed to address the phenomenon of unplanned developments around urban fringe areas and the lack of coordination of planning efforts around the state. This law requires that by January 1, 2010, all of a local governmental unit's land use-related actions must be consistent with an adopted comprehensive plan. The law also provides standards for the development of comprehensive plans.

Local governments' compliance with the comprehensive planning legislation should improve statewide planning coordination and foster the development of more effective multi-modal transportation plans. The researchers conclude that comprehensive planning and the consideration of local planning goals in the Wisconsin Department of Transportation's (WisDOT) investment decisions are critical in achieving a viable statewide transportation planning process.

Anticipated use of the study

The study's final report and detailed county land use and economic development profiles will:

1. Provide WisDOT Central Office and district transportation planners with important background information on transportation districts' current and future economic activity as well as development and land use planning issues.

2. Provide planners in each WisDOT transportation district with information on its counties' prominent development areas, issues, and levels of local land use planning.

This data is intended to improve WisDOT's transportation investment planning process by better accommodating local development needs on both a project-specific and district-wide basis. This information should also be useful to

[3] Value-Added is a measure of manufacturing activity, obtained by subtracting inputs, i.e., the cost of materials, fuel, supplies, containers, etc., from the value of the shipment after processing or manufacturing. Value-Added is considered the best measure of value available for comparing the relative economic importance of manufacturing among industries and geographic regions.

WisDOT planners and engineers in providing them with a general background overview of transportation districts' and counties' economic activity, development issues, and land use planning.

As of January 2002, two transportation districts have already used the draft economic development and planning information in developing their transportation investment strategies. In addition, two transportation districts have indicated that while they currently use electronic mapping software for highway and rail network maps, corridor-studies, and access control analysis, they are interested in expanding the use of this software in their planning efforts. The study's electronic county land use maps are expected to not only provide the districts with necessary land use and development data, but also help them attain this software goal.

Preface

> "Transportation and land use are inexorably connected. Everything that happens to land use has transportation implications and every transportation action affects land use…
> Transportation investment can be an important factor in influencing economic growth."[4]

Under the Federal 1991 Intermodal Surface Transportation Efficiency Act (ISTEA) and its 1998 reauthorization, the Transportation Equity Act for the 21st Century (TEA-21), emphasis is placed on improving partnerships with stakeholders and interest groups as part of the transportation planning process. Transportation planning is required to encompass a broader, multi-modal planning perspective, and coordinate statewide transportation plans with both metropolitan and non-metropolitan transportation plans. Planners need to take into consideration the social, economic, and environmental impacts of transportation plans.

As part of this new approach to transportation planning, in November 1996, WisDOT adopted a new Strategic Plan that served as a stimulus for this research proposal. The Department's economic development goal was to:

"Consider state and local economic and land use goals in transportation investment decisions".

To attain this goal, the Department recommended three strategies, which the study sought to accomplish:

Strategy 1	*Develop criteria that measure the impact of transportation alternatives on economic development.*
Strategy 2	*Coordinate local development plans with Department programs.*
Strategy 3	*Develop formal partnerships with other state agencies to link transportation decisions with economic development activities.*

Wisconsin's Comprehensive Planning Legislation

In 1999, comprehensive planning in Wisconsin took a major step forward when the State of Wisconsin passed the Comprehensive Planning Legislation (Smart Growth) as part of the 1999-2001 State Biennial Budget. With the passage of this legislation, the Governor and state legislature joined a national movement to address the phenomenon of declining city-centers and suburbs, as well as sprawling developments around urban fringe areas. Since it is commonly recognized that good land use planning sustains and promotes a community's desired quality of life for its residents, Wisconsin's Comprehensive Planning Legislation is designed to encourage better planning within and among its local governments and provide minimum standards for the development of comprehensive plans.

[4] An Overview: *Land Use and Economic Development in Statewide Transportation Planning*, U.S. Department of Transportation, Federal Highway Administration, May 1999. p. 10,13 (Prepared by Center for Urban Transportation Studies, UW-Milwaukee in cooperation with WisDOT).

To assist communities in developing comprehensive plans, the Office of Land Information Services, as well as other state agencies and educational institutions are developing a series of guidelines for the development of nine mandatory elements of a comprehensive plan. A new comprehensive planning grant program was also initiated through the legislation. This competitive grant program, administered by the Office of Land Information Services, is available to all local governments for the development of a comprehensive plan under the new statutory requirements. While it is still in the developmental stage, additional state aid, referred to as the Smart Growth Dividend Aid Program, may also be available in 2005 for municipalities and counties to provide a financial incentive for the development of compact and affordable housing. One requirement of the program is that in order to be eligible to receive this aid, a community must have an adopted comprehensive plan as well as ordinances that are consistent with the plan.

A major feature of Wisconsin's Comprehensive Planning Legislation is that local governments continue to manage and control their own land use decisions. The legislation provides a framework for local governments to develop comprehensive plans, which will help communities make better-informed land use decisions. The new legislation's intent is to create local comprehensive plans to guide future development in an informed manner and with the public's participation. The following are the four main components of the Comprehensive Planning Law. For more information, please refer to s. 66.1001, Wis. Stats. in Appendix 2.

A. The legislation defines a "comprehensive plan" as having the same status and meaning as a "master plan" for towns with village powers, villages, cities, and regional planning commissions, and as a "county development plan" for counties.

B. The statutes require that nine elements be included in a comprehensive plan. The element requirements include information and data, various policies to be developed, and maps:

- **An issues and opportunities element.** This element provides background information on the local government unit and a statement of its objectives, policies, and goals to guide the development and redevelopment of the governmental unit over a 20-year period.

- **A land use element.** This element requires description of the types and density of existing land use and a plan for the future development and redevelopment of public and private property, including a 20-year projection for land uses and utility service areas.
- **An agricultural, natural, and cultural resources element.** This element requires objectives, policies, goals, and maps for the conservation and management of resources such as groundwater, forests, floodplains, wetlands, wildlife habitat, parks, and recreational resources.
- **A utilities and community facilities element.** This element includes guidance on existing and future development of facilities such as sewers, water supplies, waste disposal, on-site wastewater treatment, recycling, parks, telecommunications, power plants and transmission lines, cemeteries, health care, police and fire services, libraries, and schools.
- **A transportation element.** This element requires an examination of existing and future modes of transportation within the planning jurisdiction and how they will relate to regional and state transportation plans.
- **A housing element.** This element requires an inventory of the existing housing stock and proposals for programs to promote a range of housing choices.
- **An economic development element.** This element requires an analysis of the community's existing labor force, ability to attract and retain businesses, and provisions for promoting redevelopment of environmentally contaminated sites.
- **An intergovernmental cooperation element.** This element requires a review of intergovernmental issues related to land use decision-making, identification of conflicts with other jurisdictions, and analysis of the government unit's relationship with regional and state government.

- **An implementation element.** This element requires strategies that describe how the elements will be integrated and how progress toward achieving the plan's goals will be measured. Under this element, the plan is required to be updated at least once every 10 years.

C. By January 1, 2010, all of a local government's land use actions, such as new or revised ordinances, zoning, subdivision plat approvals, and other land use-related plans or regulations must be consistent with its adopted comprehensive plan. If a community does not base its land use decisions on a comprehensive plan, those decisions may not be considered legal under Wisconsin State Statutes.

D. The comprehensive plan statutes require local governments to follow a number of administrative procedures including procedures regarding: establishing and adopting procedures for public participation, requirements for plan distribution, plan adoption, and required public hearings.

Research on *Transportation Investment, Economic Development, and Land Use Goals* fits within the realm of the state's Comprehensive Planning initiative. This study is a preview of both the level of land use planning and economic development resources and coordination efforts already in place as well as the *additional* resources and efforts needed by Wisconsin communities for compliance with the new Comprehensive Planning Law.

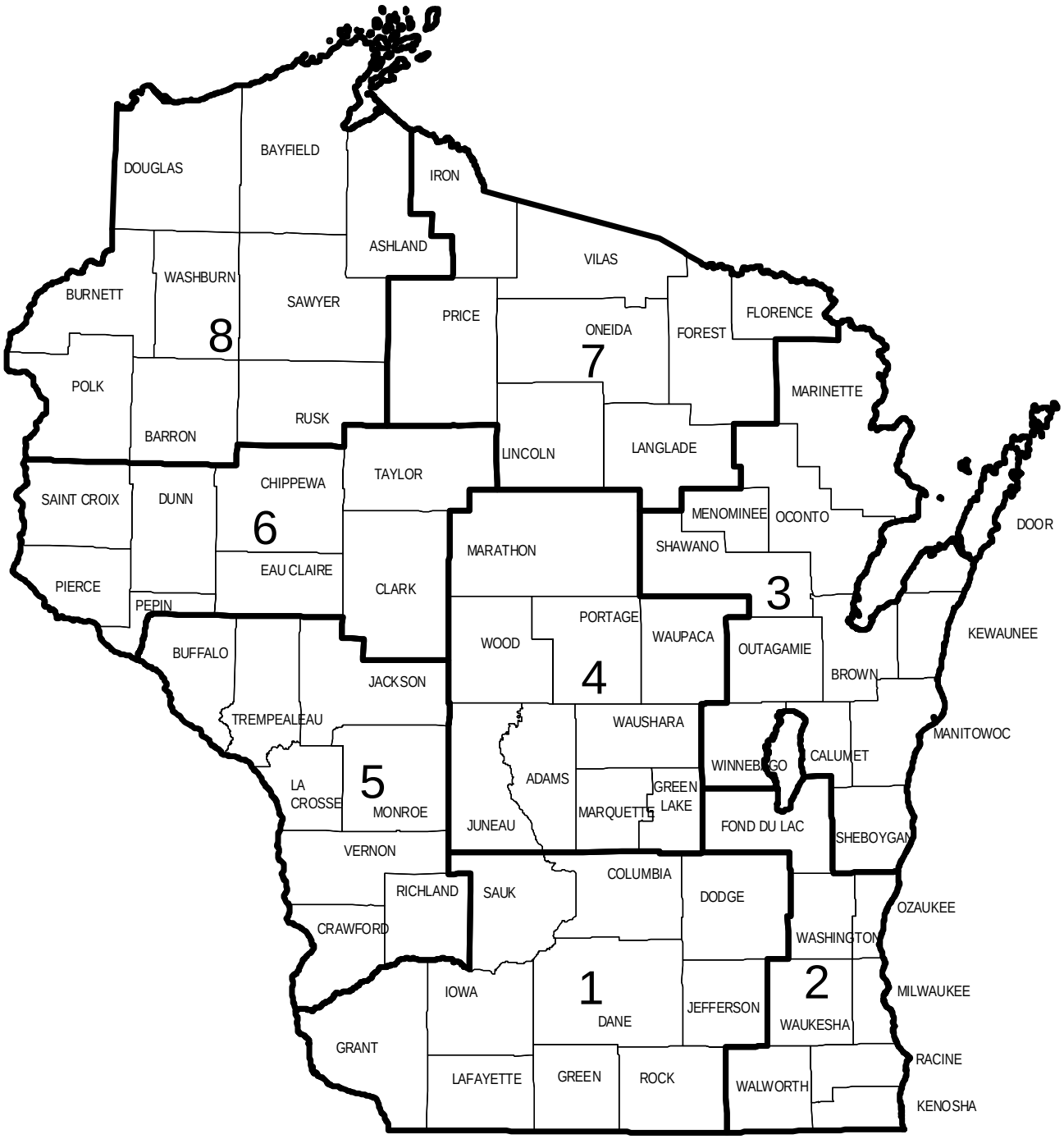
Wisconsin Department of Transportation efforts

The Wisconsin Department of Transportation is placing a high priority on examining the transportation-land use relationship and on ways to improve coordination in land use and transportation planning and the decision-making process among the state, transportation districts, regions, and local communities. The Department is continuing its efforts to develop consistent Department-wide policies and procedures to help balance between the state's transportation needs and community goals. Some efforts underway, relating to the transportation-land use relationship include: developing a coordinated information-sharing framework for WisDOT management and key staff; expanding WisDOT staff knowledge; and, developing a Department culture for coordinated and consistent policy-making, information-sharing, and staff understanding of the Department's land use-related policies.

From a transportation planning perspective, the development of local comprehensive plans, as required in the legislation, will provide a means to improve coordination and develop more effective multi-modal transportation plans. WisDOT believes that building and maintaining strong relationships with external partners, especially local governments, is critical in developing and sustaining a viable statewide transportation planning process. Coordination between a community's existing and planned land use, public utilities (sewer, water, gas), local road systems, scheduled transportation improvements, safety, and access and mobility issues within local, regional, and state transportation plans are examples of mutually beneficial and necessary areas of cooperation.

The map in Figure 1 on the following page illustrates Wisconsin's eight transportation districts.

Figure 1 - Wisconsin transportation districts



Study background

This study was undertaken in an effort to develop a methodology of integrating local land use plans and economic development initiatives into transportation investment (funding) decisions. As a result of the state's Comprehensive Planning Legislation, many communities are, or will in the future be engaging in comprehensive planning under s. 66.1001, Stats. It is anticipated that the next several years will bring about a substantial change in the level of planning by local governments in Wisconsin. Traditionally, state transportation investment decisions have been based on needs generated by structural pavement deficiencies, bridge, rail crossing, and capacity improvement needs. Other considerations affecting transportation investment decisions include safety, environmental, congestion, and accessibility issues. Economic and local land use goals have traditionally not received the same level of emphasis by WisDOT.

Current and future transportation funding will continue to operate under very constrained budgets, and may result in less funding for capacity improvements and major transportation projects. New commercial and industrial development should be coordinated with a region's transportation facilities; otherwise, economic goals may not be realized.

This research effort evaluated methods to better integrate transportation planning and investment decisions with local comprehensive plans and economic goals. One benefit of the study will be statewide data that will help to anticipate where economic growth may occur in the future and develop appropriate investment strategies to accommodate and further stimulate it.

Objectives

The primary objectives of the study were to:

1. Develop an inventory of local, county, and regional planning efforts. This data will serve a variety of functions, including (a) providing input into transportation and regional planning, (b) aid in developing strategies for transportation investment management, and (c) serve as an analytical tool for economic development planning.

2. Develop detailed regional economic profiles and forecasts. The section's economic models will estimate future changes in industrial output and employment, to help evaluate current and anticipated economic activity in the state. This information will provide Transportation District System Planning and Operations supervisors and staff with important information to help determine appropriate transportation investment decisions to best accommodate economic activity in their region.

3. Gather area development information that will be used to assist local planners and local development organizations to plan more efficiently economic development projects on or near existing and planned transportation corridors. This coordination will allow for the development of a more efficient transportation system, as well as provide better access and flow of traffic to and from commercial and industrial centers.

4. Analyze, using an economic forecasting model, the economic influence of Minnesota and Illinois counties along the state border on Wisconsin's land use planning and transportation. These out-of-state counties have a significant economic influence on Wisconsin's western and southern regional economies.

Staff from the Economic Planning & Development Section of WisDOT's Division of Transportation Investment Management served as the primary researchers for the study. Public officials, county planning directors, local planners, economic development coordinators, county zoning administrators, University of Wisconsin-Extension agents, and representatives from other state agencies were interviewed to obtain economic development and land use planning information. The Economic Planning & Development Section also hired limited term employees to assist with interviews and gather land use plans. Business databases, econometric models, Geographic Information System (GIS), and other research methodologies were used to develop economic profiles, illustrate transportation corridors, and display land use information. WisDOT staff is experienced in conducting economic impact analyses, forecasting economic activity, and creating GIS representations of economic data using the Department's computer mapping system.

Research process

I. Collection of land use plans and their integration into WisDOT's GIS system

In 1998, the University of Wisconsin-Madison/Extension published *An Inventory of Land Use Plans in Wisconsin*. In this report, Professor Brian Ohm and graduate student Erich Schmidtke from the Department of Urban and Regional Planning listed the status of regional, county, city, village, and town land use plans in Wisconsin. The research was funded by the U.S. Department of Agriculture-Wisconsin Rural Development State Office, and included interviews with planners, administrators, elected officials, and county extension educators. A list of communities with land use plans was compiled, including the plans' year of adoption, where applicable, and the names of the agencies responsible for the plans' preparation. The report covered Wisconsin's 72 counties. Based on its findings, the following is a summary of adopted land use plans by level of government.[5] A complete database of the plans is available from the Wisconsin Department of Administration, Office of Land Information Services.

Table 1 – Adopted plans in Wisconsin

	Land use plan	No land use Plan	Percentage of total with land use plans
Counties	25	46	35%
Cities	152	37	80%
Villages	145	250	37%
Towns	231	1,035	18%

Source: UW-Extension, *An Inventory of Land Use Plans in Wisconsin, December 1998.* A Complete database of plans is available from the Wisconsin Department of Administration, Office of Land Information Services.

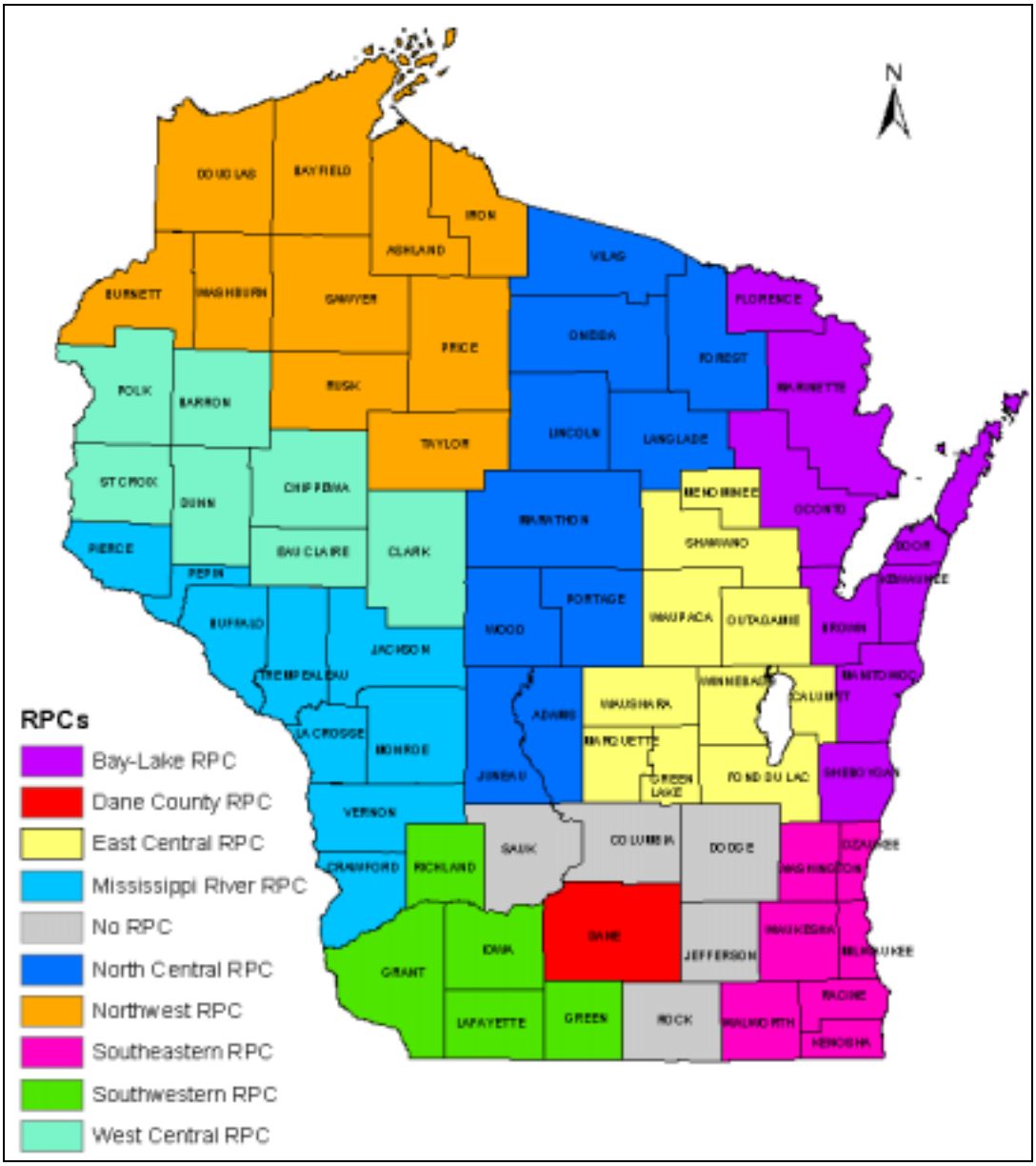
Many of the plans listed in Ohm and Schmidtke's report were neighborhood plans, agriculture preservation plans, etc., and not comprehensive plans as defined by the Wisconsin Statutes. It is critical to note that the report was written prior to the 1999 changes in the state's comprehensive planning statutes and that more communities now have comprehensive plans in progress under the requirements of s. 66.1001, Wis. Stats**.** The UW-Extension report was invaluable in providing an overview of existing plans in Wisconsin. Through a process similar to that of the UW-Extension, WisDOT initially contacted each of the state's nine regional planning commissions (RPCs) for an overview of land use planning efforts for the counties within their jurisdiction.

Wisconsin's RPCs provide intergovernmental planning and coordination for the physical, social, and economic development of their respective regions.[6] RPC regional plans are advisory in nature and vary in comprehensiveness due to many factors, including the availability of funding, information, and staff levels. Wisconsin counties may also elect to not belong to a RPC. Of 72 Wisconsin counties, 67 are part of a RPC coverage area.[7] WisDOT and the RPCs have traditionally had well-established relationships, which serve as conduits for both federal and state funds. In the 1999-2001 budget, for example, WisDOT provided approximately $562,000 to the RPCs for the provision of assistance to local communities, coordination of state and federal programs, multimodal transportation corridor-studies, and land use planning activities.

The following is a map of Wisconsin's RPCs.

[5] Prior to the Comprehensive Planning Legislation, the adoption of a plan by an elected governing body was not required, and adoption by a plan commission or other bodies was sufficient to make the plan official.
[6] WisDOT website, http://www.dot.state.wi.us/dtim/bop/planning-rpc.htm.
[7] Some counties are not members, even though they are located within an RPC region. For example, Shawano County is part of the East Central RPC district but is not a "member" by way of paying dues to the RPC.

Figure 2 - Wisconsin Regional Planning Commissions



First, each RPC was contacted for the names of their counties' Planning Directors and Economic Development Coordinators. When a county did not have a planning department or an economic development organization, at least one of the following sources was consulted:

- County Zoning Office
- University of Wisconsin Extension agent
- Regional Planning Commission staff
- County Land Conservation Department
- Industrial Development Corporation
- Chamber of Commerce
- County Executive's Office
- Wisconsin Department of Commerce-Area Development Manager

Interviews were subsequently conducted, in which participants were asked a series of land use and economic development questions developed exclusively for this study (please see Interview section on page 10 for more details). During the interview, county and major metropolitan area representatives were requested to provide an adopted land use plan and its computerized map, or a hand-drawn map of current and planned land use.[8] The digital maps were incorporated into WisDOT's GIS inventory.

When local and county governments did not have an adopted plan or GIS capabilities, or when local or county GIS maps were technically incompatible with WisDOT's computer system, the researchers used paper county maps with color-coded "dots of concentration" to illustrate major county land use centers. The dots of concentration were based on the local economic development officials' identification of new or expanded locations of major economic centers: industrial parks, commercial areas, retail, and service sector areas. The hand-drawn maps were subsequently digitized by WisDOT staff. These land use graphic maps will be superimposed by transportation planners on maps of proposed transportation improvements. By comparing the proposed transportation improvements with the land use plans it will be possible to assess the improvements' compatibility with the plans and make appropriate adjustments to foster "fair, predictable and cost effective" development.[9]

II. Interview

It is important to note that in Wisconsin, counties have statutory authority to plan for unincorporated municipalities (towns). However, zoning authority varies in each county and town. Planned land use of incorporated communities (cities and villages) is often included within a county plan for informational purposes. Cities and villages have statutory authority to develop their own plans and zoning and often include extraterritorial planning areas around the municipality's jurisdiction.

Whenever possible, an economic development coordinator was interviewed together with a planning director. In some counties, additional interviews were conducted with local officials to acquire a better understanding of economic activity in high economic growth areas. Each interview was divided into six parts:

1. **Overview** – number of municipalities in the county, most active land use and economic development organizations, key transportation corridors, discussion of general trends in economic development;

2. **Existing land use plans, planning bodies** – identification of existing county plans, zoning ordinances, discussion of the role of the RPC in the county's land use planning activities;

3. **Dominant operations** – major county industrial sectors, major employers, location of major commercial, institutional, and office buildings, and recreational destinations and activities;

4. **Locations of economic activity** – location of existing and planned industrial, commercial, and retail trade centers;

5. **Limiting factors to development** – discussion of factors that shape or steer economic development, such as limitations of the transportation system, topography, local infrastructure, labor availability, local political disputes; and

6. **Local or regional economic development partnerships** – existing support networks for economic development such as technical colleges, UW-Extension staff/programs, colleges and universities, local business alliances, and chambers of commerce.

The interview was intended to provide background information for the development of county profiles. Since the state has diverse natural and economic features, there were numerous varying opinions and approaches to planning.

[8] Adopted land use plans and digital land use plan maps were requested from each county. When a county plan was not available, a "future (forecasted) development" map was prepared by Economic Planning & Development Section staff based on information provided by the county's planning and economic development experts.
[9] www.smartgrowth.org.

In addition, as with most in-person interviews, this process elicited candid observations and opinions regarding land use and economic development dynamics in Wisconsin.

III. Economic forecasting

In addition to developing an inventory of economic development and land use planning information, economic forecasts were also made using REMI (Regional Economic Models, Inc.) economic modeling and Transportation Satellite Accounts (TSA), described below. This information was incorporated into the transportation district profiles.

REMI economic modeling

To forecast economic activity by district, based on current and new economic development initiatives, this study contracted with REMI for the use of an economic forecasting and simulation model. The REMI model enables the analyst to perform economic analysis with changing variables: i.e., adding employment to a region, increasing the private investment level of a large corporation, or simulating the economic impact of a decrease or increase in the population of a region. With a change in one economic variable, the model can simulate the economic impact on a region's employment, personal income, or industrial output.

Since most WisDOT transportation projects' investment decisions are made on a transportation district basis, REMI economic forecasts were developed for the state's eight transportation districts and the four major metropolitan areas bordering Wisconsin (Minneapolis-St. Paul, Duluth/Superior, Chicago, and Rockford).

U.S Transportation Satellite Accounts (TSA)

Each district's economy is comprised of a different mix of industries, which will grow at varying rates. Some, such as Computer & Machinery Manufacturing, will experience high growth over the next twenty years, while others, such as Leather Goods Manufacturing, will grow relatively little. The economies of the various districts are projected to grow at different rates because of differing mixes of industries.

Each industry spends money on trucking services from outside providers and/or in-house provision of trucking services. Some industries, such as Trucking & Warehousing or Wholesale, spend a relatively high portion of their total output on trucking costs, while in transportation costs for other industries, such as Communications or Instruments Manufacturing, trucking costs are not as significant. Data on transportation spending by various industries is provided by TSA, a dataset developed by the U.S. Department of Transportation. TSA data indicates which industries rely heavily on transportation services and what share of various industries' total production costs is comprised of transportation services.

Researchers chose to focus on current and projected commercial trucking in this study. Rail and water are generally used to transport high-bulk and low-value commodities when speed of delivery is not a critical factor. Industries that are highly reliant on rail and water transport are not projected to grow the most over the analysis period, so their demand for transportation services will not affect future land use patterns as heavily as industries reliant on truck usage.

When measured in terms of transportation districts' projected growth in spending on commercial trucking services, there are four types of industries. The first type is an industry that spends a relatively high portion of its total income on trucking services and is projected to grow rapidly over the study analysis period. The second type is an industry with relatively high spending on trucking services, but with a lower projected expansion over the study period. A third type is an industry with relatively low expenditures on trucking, but large projected growth. Finally, the fourth industry type has relatively low trucking expenditures and is not expected to grow significantly over the study period.

The level of money spent on trucking by industries is a direct indicator of the level of trucking activity and traffic in a region. Just as projections of output and Value-Added will differ among regions or districts, so will spending on trucking, because of different industry mixes and their different truck use. This report identifies the heaviest industrial generators of commercial truck activity for each district, as well as the industries projected to generate the largest increases in trucking activity in the future.

IV. Incorporation of study products into WisDOT Planning

At the conclusion of the research process, the Economic Planning and Development Section forwarded transcripts of the interviews, economic forecasting information, and land use maps to each transportation district's System Planning and Operations Chief to help in the development and coordination of land use and economic information in the transportation district's planning processes.

The results of the interviews will serve as a general overview of economic growth areas according to local planning and economic development professionals. The maps can help transportation district planners to better visualize the areas of planned and proposed business activity within a geographic region. Since these maps were created using ArcView software, which is also used in transportation districts, the district planners will be able to overlay maps of planned highway improvements over the study's land use maps depicting regions of anticipated economic activity. The district economic profiles and industry forecasting information will help indicate the type of industries likely to experience particularly high increases in trucking activity. It is anticipated that the Economic Planning and Development Section will periodically provide updates to the districts of the study's economic profiles and forecasting information.

Upon consultation with WisDOT's district planners and Traffic Forecasting Section, potential improvements to the transportation network will be evaluated and investments in infrastructure improvements will be recommended based on anticipated economic growth, traffic projections, and local development plans. As of September 2001, two district offices have already incorporated some of the study's findings into their Six-Year Highway Improvement Programs.[10]

In Wisconsin, funding cycles for non-highway transportation modes such as airports, harbors, and rail occur on an annual or biennial basis. The study findings were therefore also shared with modal program managers to strive to and promote better coordination of non-highway program activities with community, county, and regional plans.

Economic Planning and Development Section staff can continue to work with the transportation districts' System Planning and Operations supervisors and staff to review comprehensive plans and economic goals for communities within their transportation district. The section currently provides transportation districts with economic impact analyses for bridges, interchanges, bypasses, and highway capacity improvements and evaluates the Department's proposed major[11] highway improvement projects. The economic planning section uses its methods and data to assist the transportation districts in evaluating the economic and land use impacts of projects that may have a significant impact on communities and businesses along an improvement corridor. The districts' Systems Planning Chiefs and planners will need to further evaluate this study's findings and determine how to incorporate them into their district's implementation plan.

As an emerging issue, WisDOT is working toward developing a consistent message on land use issues, including ways to better coordinate Wisconsin's state transportation plans, policies, and anticipated projects with local comprehensive planning efforts. One area in which transportation districts will need to further evaluate ways to incorporate this study's findings within their work efforts is enhancing district coordination efforts with local governments, counties, and RPCs as they prepare comprehensive plans.

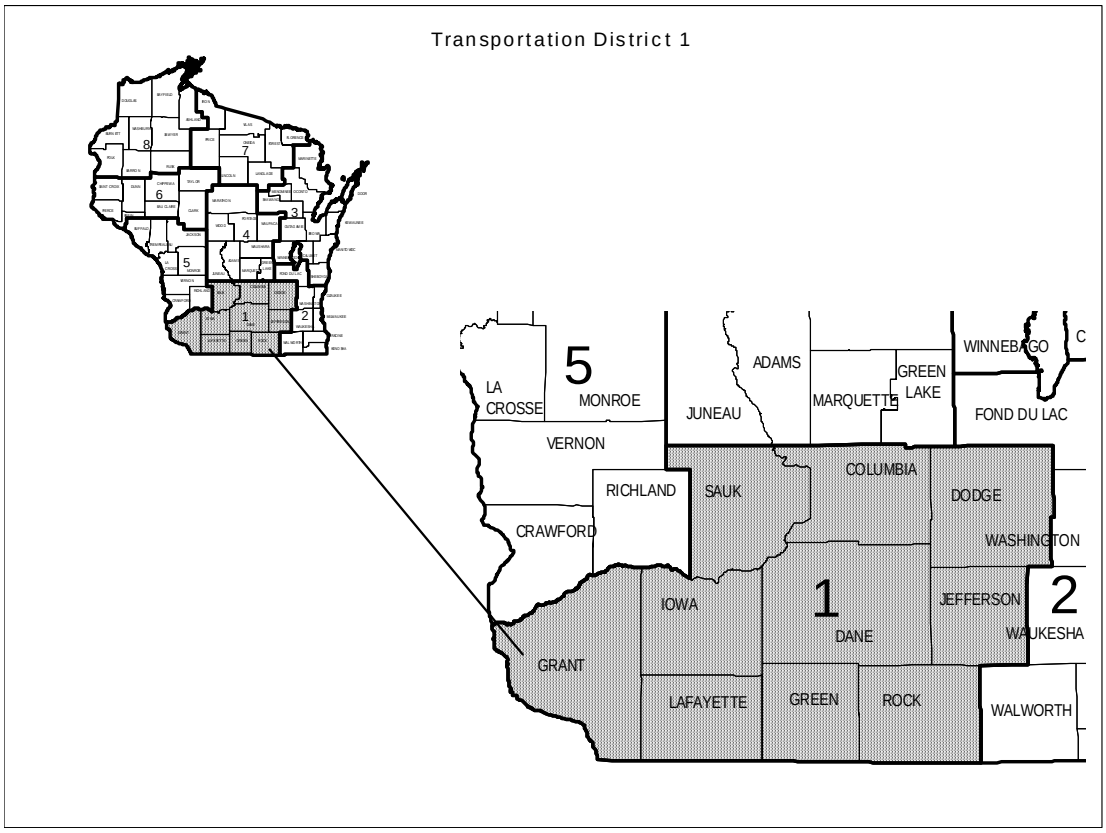
[10] In WisDOT's Six-Year Highway Improvement Program, highway projects are scheduled and published.
[11] Projects that are high-cost and longer than 3 miles.

Transportation district profiles

The following are transportation district summaries of the interviews that were conducted with county planning and economic development officials. Each transportation district was subsequently provided with a detailed transcript of each county interview and a future land use map for each of its counties.

Transportation District 1: headquarters – Madison, Wisconsin

Figure 3 – District 1



Transportation District 1 is located in southwestern and south central Wisconsin. This region is flanked by the Southwestern Uplands, which are characterized by sandstone outcroppings and river valleys, and by the Southeastern Wisconsin Ridge, characterized by steep hills, hidden valleys, wetlands, and striking rock formations from glacial deposits in the region. District 1 is one of the largest transportation districts, covering 7,941 square miles or 14.6% of the total state land area. The district contains 10 counties and approximately 18% of the total state population (954,838 for the ten-county region).[12] The region's economy is diverse, with a broad spectrum of industry sectors ranging from agriculture to tourism to education to biotechnology to research. Industrial groups represented within this district are some of the drivers of Wisconsin's economy. Dane County's City of Madison is the state capital and location of numerous state and federal government offices.

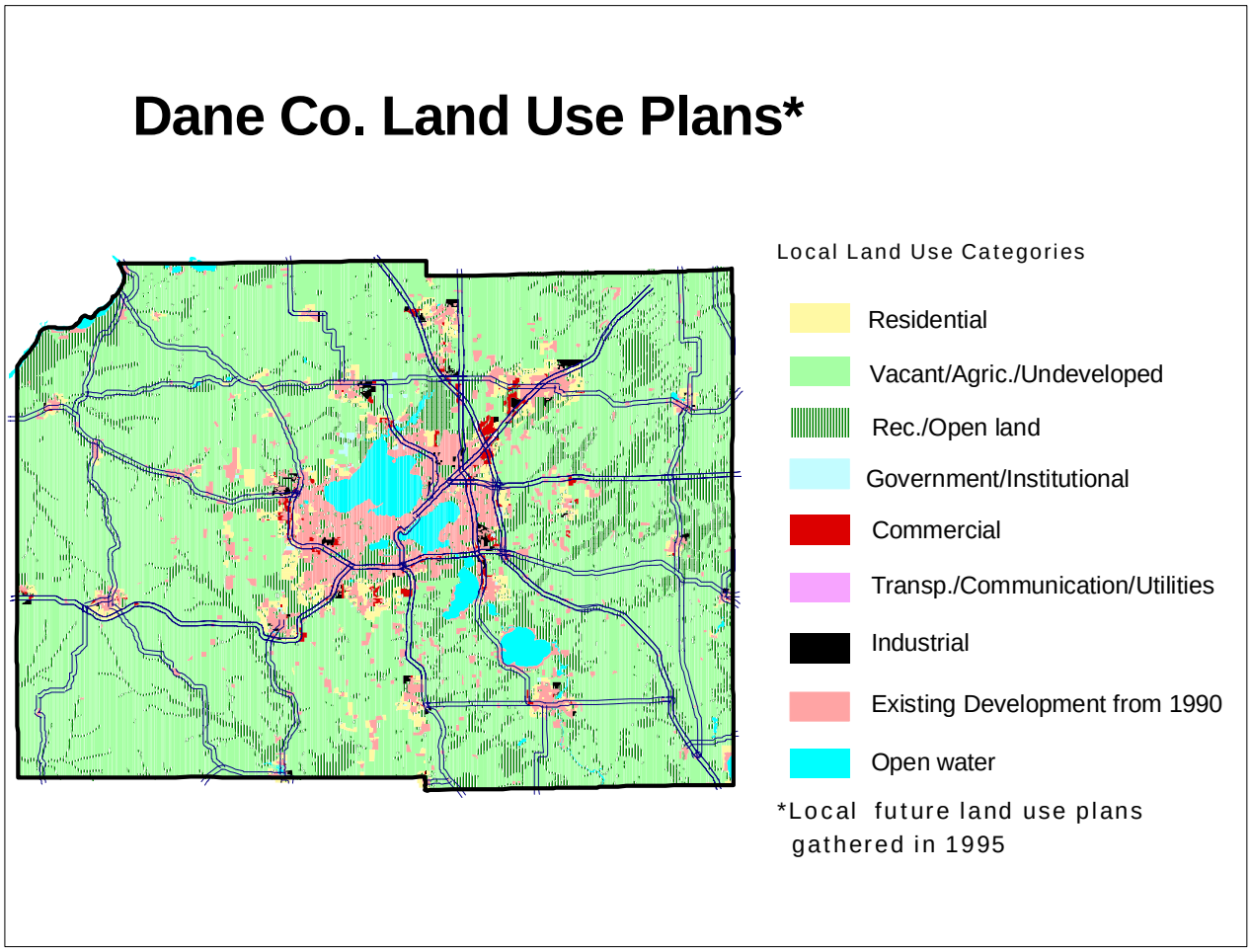
In 2000, the second highest level of highway usage in the state, approximately 20% of total Wisconsin Vehicle Miles Traveled (VMT), occurred in Transportation District 1.[13] The district's 18,561 miles of roads represent 17% of the total state road mileage.

[12] Wisconsin Department of Administration-Demographic Services Center, 2000.
[13] Wisconsin Department of Transportation.

All ten of the district's counties have been very active in land use planning at all levels of government. Eight counties have adopted plans. Of the 47 cities, 42, or 89% have adopted plans. Fifty-five percent of the villages and 46% of the towns also have plans. Dane County, one of the fastest growing counties in the state, is the most aggressive in Wisconsin with regard to community planning, with each of its 8 cities, 34 towns, and 15 out of 19 villages having a plan in place.

As a sample of District 1's land use maps, the following map illustrates planned land use in Dane County, as compiled in 1995 from local land use plans by Dane County Regional Planning Commission.

Figure – 3A
Sample future land use map–Dane County



Source: Dane County RPC

The District 1 region is mostly agricultural and includes areas of highly concentrated and diverse manufacturing, distribution, finance, insurance, retail (including several major regional shopping centers), service, government, and education operations. The southwestern counties of Green, Lafayette, Grant, and Iowa are predominantly farmland. Agriculture is the major industry in these counties, but there are significant commercial and industrial businesses located in some of the larger cities and villages. There are a few major employers such as Lands' End in Dodgeville, Swiss Colony and Monroe Truck Equipment in Monroe, and Argyle Industries in Argyle, representing a significant percentage of the local economy's employment and output. For example, over 40% of Green County's residents work in the City of Monroe (population 10,700).[14] It is also important to note about this district that

[14] Wisconsin Department of Administration-Demographic Services Center, 2000.

Lafayette County experienced hard economic times due to the shrinking farm economy. The prospect of a Native-American casino has been the primary focus of Lafayette County's recent economic development efforts.

Based on interviews with Green and Grant Counties' economic development coordinators, most of the expected industrial, commercial, and retail growth will be within cities and villages, particularly in Monroe, Brodhead, and New Glarus in Green County, and in Boscobel, Fennimore, Lancaster, Muscoda, Platteville, and Livingston in Grant County. There are high expectations for the completion of the four-lane expansion of USH 151 through Grant County to provide an economic impetus for development in southwestern Wisconsin. Transportation issues in the area involve pavement conditions and seasonal weight limits for milk trucks. Emphasis has also been placed on the completion of the USH 151 expansion to provide an infrastructure amenity for attracting industries to this region of the state and serve as a commuter route to job centers in nearby counties.

Although the counties of Columbia, Dane, Dodge, Jefferson, and Rock have a strong agricultural base, each of these counties also has other distinct economic features. Dane County has the lowest unemployment rate in the state and is often thought of as "recession-proof" due to the government, education, insurance, and financial institutions found in the Madison area. The City of Madison and surrounding communities have experienced a high rate of population and economic growth and there are plans for more business and industrial parks on the outskirts of the Madison Metropolitan Area. Communities such as Deforest, Fitchburg, Middleton, Sun Prairie, Verona, and Waunakee have, over the years, expanded commercial and industrial capacity near major state highways to accommodate growth. It is likely that future economic growth will continue to locate in Madison and surrounding communities. Dane County's land use plan calls for transportation improvements that are necessary to serve planned developments, thereby emphasizing the anticipated expansion of existing areas of economic activity in the county.

Interstate highways, state highways, and railroads serve Columbia County and adjacent Sauk County. The location of rail lines has been a major factor in the location of several large economic development projects in Columbia County, which has a strong manufacturing employment base, representing 27% of the county's total jobs. Significant employment centers in Columbia County include Columbus, Cambria, Portage, Fall River, Pardeeville, Randolph, and Wisconsin Dells. Sauk County's employment centers and industrial parks are located in Baraboo, Reedsburg, Sauk Prairie, and Spring Green. Baraboo is also the location of several large warehousing and distribution centers and Ho-Chunk Casino, a major traffic generator.

Both Sauk and Columbia Counties share a large segment of District 1's tourism revenues, which are primarily generated by the Lake Delton and Wisconsin Dells area and estimated at $122.8 million for Sauk County and $26.2 million for Columbia County.[15] Both counties also have very active economic development organizations and encourage new business and industrial development to locate contiguously to similar kinds of existing businesses. Significant Sauk County land use issues are the proposed USH 12 expansion and the reuse of the Badger Army Ammunition Plant, a former 7,354-acre ammunition manufacturing facility.

General Motors (GM) truck assembly plant in Janesville dominates Rock County's economy. Based on a previous WisDOT economic impact analysis, the GM plant has an average employment of 5,000 direct jobs with an estimated average 3.6 employment multiplier, yielding approximately 18,130 total jobs. The average yearly impact of wages on the total economy of the GM plant and subcontractors is $969 million. Janesville, Beloit, and Edgerton, along the I-90 corridor, all have significant plans for economic development growth. In addition to the GM plant, Rock County has large food processing plants in Beloit such as Frito-Lay, Hormel, and Kerry Ingredients. Rock County also has significant economic developments in the smaller communities of Clinton, Evansville, and Milton, and the county's proximity to the Illinois border makes it a gateway to Wisconsin tourist destinations. Two major intersecting Interstate highways (I-90 and I-43) and four rail lines (Canadian Pacific, Union Pacific, I & M, and Wisconsin Southern) provide excellent logistics for increasing the prospects for manufacturing, warehousing, and distribution facilities.

Adjacent Dodge and Jefferson Counties are experiencing contrasting land use development pressures**.** While Dodge County has been able to retain its rural character, Jefferson County is experiencing development pressures from both the east and west, since it is located between Dane and Waukesha Counties, two of the fastest growing counties in the state. Both Dodge and Jefferson Counties have active economic development organizations.

[15] Wisconsin Department of Tourism, 2000.

Dodge County's development approach is to focus "most of the projected urbanized development near areas of existing development" in order to maintain the county's rural character.[16] Potential economic growth areas for Dodge County are likely to occur in the printing, publication, metal fabrication, farm equipment, and food processing facilities in the communities of Beaver Dam, Horicon, Lomira, Mayville, and Waupun. Emphasis is currently placed on concentrating industrial development along the new four-lane USH 151 corridor from Columbus to Waupun.

Jefferson County has a diverse economy, ranging from bicycle assembly to printing and publishing to manufacturing portable generators to processing food products. Similarly to the development approach in Dodge County's plan, Jefferson County's plan emphasizes future economic growth within planned business and industrial parks, near I-94. This indicates an expansion of economic activity in the communities of Jefferson, Johnson Creek, Lake Mills, Watertown, and Whitewater. There are significant planned highway improvements in Jefferson County, including the STH 67 bypass.

Tables 2 and 3 list the number of business establishments and employees by industry type for the district.

Table 2 - Number of businesses in Transportation District 1

	Agriculture, Forestry & Mining	Construction & Contractors	Manufacturing	Transportation, Communication & Utilities	Trade (wholesale & retail)	Services	Total
Columbia	91	295	161	128	901	1,111	2,687
Dane	524	1,603	1,199	629	5,535	9,720	19,210
Dodge	73	249	190	123	744	866	2,245
Grant	109	218	128	128	789	845	2,217
Green	66	178	106	79	519	654	1,602
Green Lake	40	124	79	34	338	376	991
Iowa	32	93	64	44	311	321	865
Jefferson	103	338	257	134	1,054	1,288	3,174
Lafayette	34	48	31	40	199	224	576
Rock	178	558	402	225	1,736	2,492	5,591
Sauk	107	281	177	116	851	1,066	2,598
District 1 total	1,357	3,985	2,794	1,680	12,977	18,963	41,756
% of all employers	3%	10%	7%	4%	31%	45%	100%

Source: ReferenceUSA.com. Multiple counts of a business are possible due to multiple business specializations. The Total column reflects the listed industrial classifications only. Total number of all businesses is 44,561.

[16] *Dodge County Comprehensive Plan*, April 20, 1999, p. xix.

Table 3 - Transportation District 1 employees

	Agriculture, Forestry & Mining	Construction & Contractors	Manufacturing	Transportation, Communication & Utilities	Trade (wholesale & retail)	Services	Total
Columbia	253	779	4,570	1,003	4,150	5,012	15,767
Dane	2,606	11,494	27,680	11,361	52,600	94,410	200,151
Dodge	411	1,768	12,113	1,310	5,140	7,355	28,097
Grant		465	3,363	746	3,618	5,418	13,610
Green	143	335	2,641	493	2,872	3,360	9,844
Green Lake	248	341	1,690	332	1,293	2,093	5,997
Iowa	193	508	617	428	5,603	2,030	9,379
Jefferson	551	938	12,346	1,657	7,031	8,096	30,619
Lafayette	128	89	496	270	794	789	2,566
Rock	511	2,490	24,597	2,542	14,414	17,781	62,335
Sauk	489	1,236	6,814	1,064	8,017	7,421	25,041
District 1 Total	5,533	20,443	96,927	21,206	105,532	153,765	403,406
% of employees	1%	5%	24%	5%	26%	38%	100%

Source: Wisconsin Department of Workforce Development. The above employment numbers are reported under the State Unemployment Compensation Compliance Program. *Self-employed individuals with no employees are not included.*

Transportation District 1 economic forecast[17]

District 1 comprises the most diverse and third largest regional economy in the state, accounting for 18% of total Value-Added in Wisconsin in 1999. Activity in District 1, as measured by Gross Regional Product, is expected to grow slightly less than in Wisconsin as a whole: 39.5% between 2000 and 2015 versus 42.2% for the entire state. Employment growth will be about the same as statewide: 14% between 2000 and 2015 versus 13.2% in Wisconsin as a whole. Exports from the region will grow only slightly faster than imports into the region, reflecting the strong linkages between manufacturing activities in the district and industries in other districts. Real disposable personal income growth in District 1 will be marginally higher than statewide. Population growth in the district between 2000 and 2015 is also projected to be marginally greater than in Wisconsin as a whole: about 9.4% versus about 9% for the state.

Currently, the largest industrial sectors in District 1 in terms of Value-Added are Real Estate, Retail Sales, Wholesale Sales, Machinery & Computer Manufacturing, and Medical Services. The district's fastest growing industries, by *percent increase* in Value-Added, are shown in Table 4. This table shows that Machinery & Computer Manufacturing is projected to grow the most between 2000 and 2015, followed by Leather Manufacturing and Electrical Equipment Manufacturing. Machinery & Computer Manufacturing and Electrical Equipment Manufacturing are closely related sectors, and by 2015, the Electrical Equipment industry will be one of the top ten industries in District 1.

[17] It is important to bear in mind that this economic forecast was generated using the REMI economic model, which uses 1990 U.S. Census data, as well as other economic data. The above transportation district economic forecast may therefore differ from state and county economic forecasts by other sources.

Table 4 - District 1
Fastest–growing* industries
By Value-Added (billions 92 dollars)

	2000	2015	Projected real growth 2000-2015
Machin. & Comput.	1.54	3.58	133%
Leather	0.01	0.03	92%
Electric. Equip.	0.60	1.14	89%
Rubber & Plastics	0.48	0.80	65%
Misc. Bus. Serv.	0.91	1.49	64%
Wholesale	1.87	3.03	62%
Primary Metals	0.16	0.25	61%
Apparel	0.02	0.03	55%
Credit & Finance	0.10	0.15	53%

Source: WisDOT analysis using REMI
* Industries expected to grow by at least 50% by the year 2015

Table 4A lists projected *absolute* growth of industries in Value-Added dollars. This table shows that the greatest overall growth during 2000-2015 will be in Machinery & Computers, Wholesale Sales, Retail Sales, and Medical Services.

Table 4A – District 1
Growth of major industries
By Value-Added (billions 92 dollars)

	2000	2015	Growth	Projected real growth 2000-2015
Machin. & Comput.	1.537	3.577	2.04	133%
Wholesale	1.865	3.027	1.162	62%
Rest of Retail	2.136	2.828	0.692	32%
Medical Services	1.49	2.112	0.622	41%
Misc. Bus. Serv.	0.906	1.487	0.581	64%
Real Estate	2.734	3.28	0.546	20%
Electric. Equip.	0.601	1.137	0.536	89%
Misc. Prof. Serv.	1.038	1.397	0.359	35%
Rubber & Plastics	0.484	0.799	0.315	65%
Food	1.114	1.407	0.293	26%

Source: WisDOT analysis using REMI

As seen in Table 5 on page 19, the industries spending the most money on trucking services in District 1 are Construction, Food Manufacturing, Trucking & Warehousing, Retail Sales, Wholesale Sales, Motor Vehicle Manufacturing, and Machinery & Computer Manufacturing. These industries are also major generators of commercial trucking activity in the Chicago Metropolitan Region (Table 7), bordered by District 1's Rock County. Of these high-trucking generating industries, Machinery & Computers and Wholesale Sales are also high-growth industries in the district, so they can be expected to generate significantly more commercial traffic in the region. By 2015, Machinery & Computer Manufacturing will increase truck spending the most, to become the fifth largest in trucking activity in the district by 2015 (Table 6). Food Manufacturing is also expected to significantly increase

commercial trucking activity over the period. Construction and Trucking & Warehousing are projected to remain major commercial trucking activities in the district.

Table 5 - Largest trucking generators, District 1, 2000

	Truck spending 2000	Projected increase 2000-2015
Construction	$ 189,691,355	18%
Food	$ 160,459,353	22%
Truck. & Warehou.	$ 152,618,000	38%
Rest of Retail	$ 124,223,987	30%
Wholesale	$ 113,688,419	59%
Motor Vehicles	$ 77,551,031	24%
Machin. & Comput.	$ 76,285,676	126%

Sources: WisDOT analysis using REMI, TSA

Table 6 - Projected largest trucking generators, District 1, 2015

	Projected truck spending 2015	Projected increase 2000-2015
Construction	$ 224,442,868	18%
Truck. & Warehou.	$ 210,405,398	38%
Food	$ 195,884,399	22%
Wholesale	$ 180,657,872	59%
Machin. & Comput.	$ 172,366,430	126%
Rest of Retail	$ 161,087,365	30%
Motor Vehicles	$ 95,972,743	24%

Sources: WisDOT analysis using REMI, TSA

Table 7 - Largest trucking generators, Chicago area, 2000

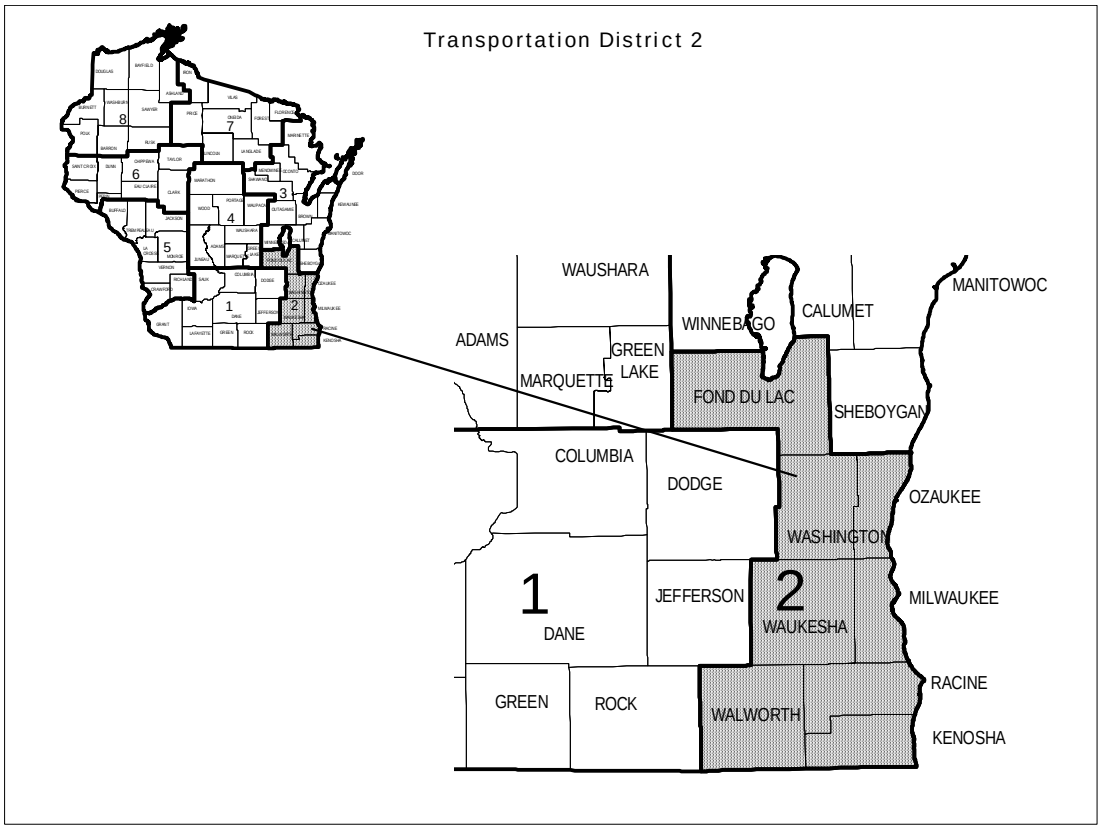
	Truck spending 2000	Projected truck spending 2015	Projected increase 2000-2015
Construction	$ 1,221,638,279	$ 1,441,466,838	18%
Wholesale	$ 1,129,027,671	$ 1,733,685,365	54%
Truck. & Warehou.	$ 1,031,653,227	$ 1,400,788,753	36%
Rest of Retail	$ 753,460,262	$ 988,754,167	31%
Misc. Prof. Serv.	$ 663,388,988	$ 852,184,306	28%
Food	$ 631,424,597	$ 763,597,589	21%

Sources: WisDOT analysis using REMI, TSA

In sum, major growth is expected in the Computer & Machinery industry, as well as in the associated Electrical Equipment industry. Wholesale Sales is also an industry projected to grow significantly. Both the Machinery & Computer Manufacturing industry and the Wholesale Sales industry can also be expected to generate significant increases in trucking activity as they grow. Population in the district will grow slightly more than in the state as a whole, increasing by 9.4% between 2000 and 2015. This is the second highest projected regional population growth rate over the study period, second only to that of District 2.

Transportation District 2: headquarters – Waukesha, Wisconsin

Figure 4 – District 2



District 2 is the industrial heartland of Wisconsin's economy. The district represents just 6% of the total land area of Wisconsin but contains over 38% of the state's population (district population 2,024,377).[18] The district's counties have over 39% of state's manufacturing facilities and 34% of its wholesale and retail establishments.[19] In total, 35% of the state's agriculture, construction, manufacturing, transportation, retail, and service industries are located within the district's 3,342 square mile area.[20]

In 2000, over one-third, or approximately 19.2 billion, of Wisconsin's Vehicle Miles Traveled (VMT) were recorded in District 2.[21] This high degree of road usage is further emphasized by the district's disproportionately low share of Wisconsin's total road mileage: only 12%, or 13,637 miles.

The presence of the state's largest manufacturers and professional services establishments drives the district's economy by generating $34 billion, or 43% of the total wages earned in the state. The higher wages also reflect the higher per capita income of this district's residents. Based on Wisconsin Department of Workforce Development 1999 statistics on wages and income, the per capita income of the eight counties that comprise District 2 is $29,770, higher than the $26,284 state average. These higher wages and salaries translate into higher consumer spending in the local economy.

The majority of the local governments that make up this transportation district are very active in land use planning. All 35 cities and over 76% of the 68 villages have completed plans. Sixty one percent of the towns already have or

[18] Wisconsin Department of Administration-Demographic Services Center, 2000.
[19] www.ReferenceUSA.com.
[20] www.ReferenceUSA.com, Wisconsin Blue Book 1999-2000.
[21] Wisconsin Department of Transportation.

are in the process of developing a plan. With the exception of Milwaukee County, which has only fully incorporated local municipalities and no planning or zoning function, and Fond du Lac County, the remaining six counties have plans. All of Milwaukee County's cities and six of its nine villages have plans and local zoning ordinances.[22] Although advisory in nature, the Southeastern Wisconsin Regional Planning Commission (SEWRPC) has been very active in providing planning assistance throughout the region. Several of the counties have adopted the plans developed by SEWRPC. There are also small-scale, more focused plans for individual neighborhoods and business improvement districts.

The entire southeastern Wisconsin freeway system is considered vital to the region's economy. Substantial major investments in freeway rehabilitation, including high-cost bridge reconstruction and interchange upgrades will be on-going during the next 20 to 25 years. Further emphasizing the economic importance of this freeway system, WisDOT GIS mapping analysis reveals that 34% of District 2 manufacturers with 100 or more employees are located within one mile of the freeway system, and 57% of all manufacturers are located within 2 miles of the freeway system.

Milwaukee and Waukesha Counties

Waukesha and Milwaukee Counties contain 4,170, or nearly 26% of all the manufacturing plants in the state.[23] Milwaukee County has significantly less land available for industrial and commercial development than Waukesha County, especially, in the City of Milwaukee, where many of the industrial facilities are mixed with retail establishments and residential neighborhoods. Much of the recent new industrial development has taken place in adjacent Waukesha County.

Although Waukesha County has more land for development, Milwaukee County has stronger transportation linkages in its major rail corridors, harbor facilities, and Interstate and multi-lane state highways, all converging near the center of the City of Milwaukee. General Mitchell International Airport, Wisconsin's largest freight and passenger service airport, is also located in Milwaukee County.

In comparison to Milwaukee County, Waukesha County has experienced significant industrial growth over the past 10 years. Manufacturing activity, in job growth, has increased over 20% since the mid-1990s. The average wage of workers in Waukesha County is 16% higher than in the state as a whole. Most of the new economic development has occurred in the county's eastern sections, in Brookfield, New Berlin, Waukesha, Butler, Menomonee Falls, Sussex, and Pewaukee.

In Milwaukee County, significant new industrial capacity is planned for the Menomonee Valley (located southeast of the City of Milwaukee) and near General Mitchell International Airport. It is anticipated that the new 80-acre industrial park near the airport will have capacity for 25 to 30 new businesses, creating up to 2,500 new jobs. In Waukesha County, over 6,420 acres of land have been planned for the county's 34 industrial and business parks, which still have about 1,500 acres available for development. Plans are also proposed for Pabst Farms, a 1,500-acre commercial and residential development at the intersection of I-94 and STH 67, near Oconomowoc. Future growth and economic activity is also likely to continue in Brookfield, New Berlin, Waukesha, Butler, Menomonee Falls, Sussex, and Pewaukee. Tourism activity and expenditures are very high in Milwaukee County due to attractions such as lakefront festivals, parks, major league sports, museums, and cultural centers and events.

Racine, Kenosha, and Walworth Counties

Racine, Kenosha, and Walworth Counties are located in the southeast corner of the state, forming a gateway between Illinois and Wisconsin. Over 1,200 manufacturers are located in these three counties, as well as another 5,200 retail and wholesale trade establishments. Racine County has six new industrial parks, four near I-94, one in Burlington, and one in Union Grove. Racine County has a diverse manufacturing economy, including household appliances, industrial equipment, household cleaners and supplies, food processing, and printing and publishing. One third of Racine County's workforce is employed in manufacturing, mostly in durable goods. Tourism and retail

[22] The City of Milwaukee has no single, all-encompassing city plan, but rather several area-specific comprehensive plans.
[23] www.ReferenceUSA.com.

are also strong economic sectors in this county. Racine County transportation issues include a future bypass route of Burlington and a need to provide affordable public transportation for area residents.

Kenosha County is strategically located next to the Chicago area, the largest metropolitan center in the Midwest. During the study's interviews, comments were made regarding the "urbanization" of Kenosha County through economic forces from across the Wisconsin state-line. Over 40% of Kenosha's workforce travel outside the county for employment. Within the county borders, workers are almost equally divided among manufacturing, retail, and services. Two large-scale expansions are currently underway in Lakeview Corporate and Bristol Industrial Parks and will add industrial capacity to the region. Similarly to Racine County, Kenosha County's industrial clusters are diverse and include auto, machinery and metals, food processing, and plastics. Long-term transportation issues for Kenosha County include the upgrade of interchanges along the I-94 corridor.

Walworth County, particularly the Lake Geneva area, has been known for many years as a tourist destination. Eating and drinking establishments form the county's largest industry, however, the manufacturing sector also plays a significant role in the county economy, with 30% of the jobs. Several communities have significant manufacturing facilities, including Elkhorn, Delavan, East Troy, Lake Geneva, and Whitewater. The City of Whitewater added 235 acres of industrial land in 1997, and has opened up over one million square feet of manufacturing space between 1997-1999. It is anticipated that future economic growth will continue in communities near the I-43 corridor. Walworth County is also an active member of the Regional Economic Partnership, which promotes mutual economic development activities within a seven-county region.

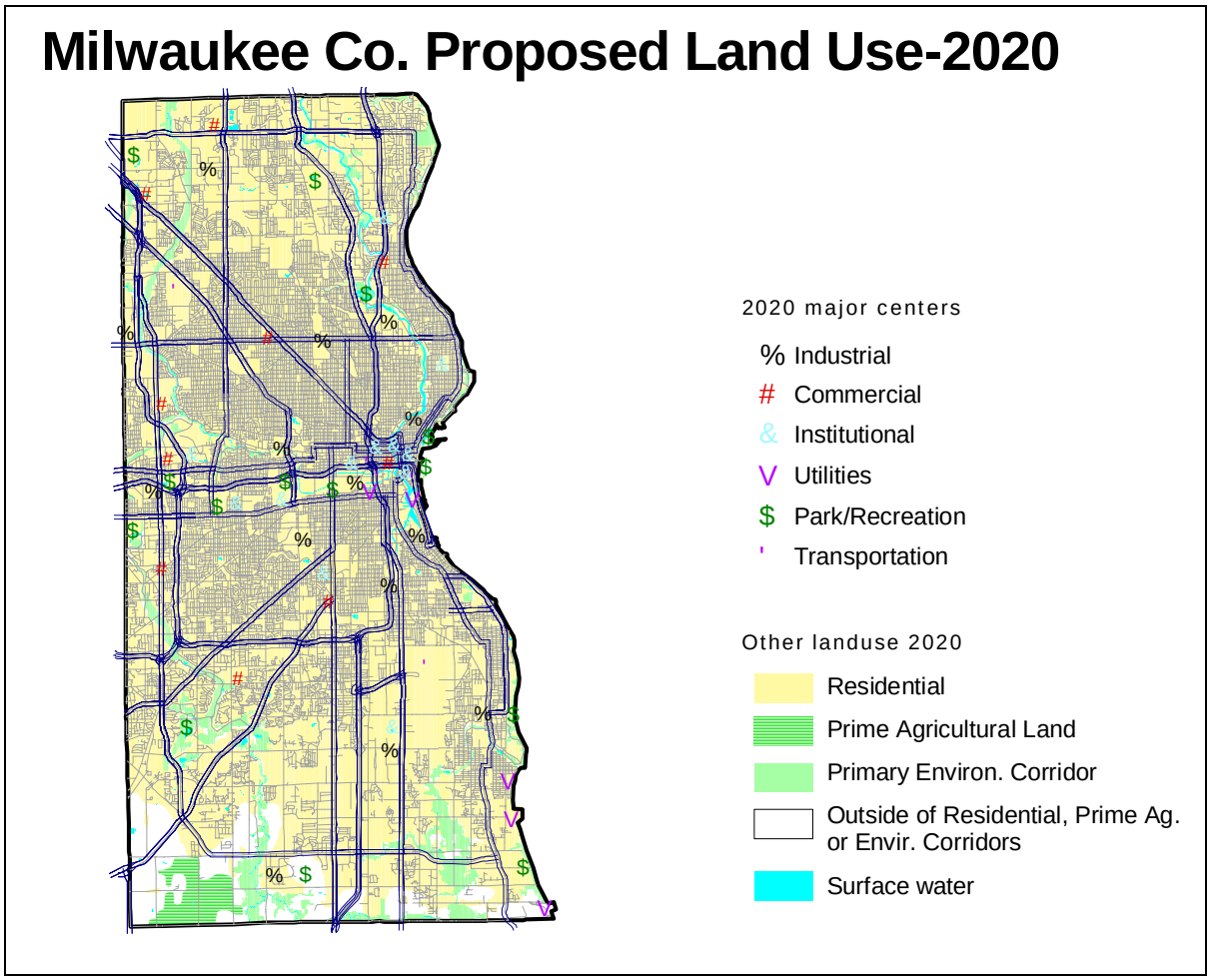
Ozaukee, Washington, and Fond du Lac Counties

Ozaukee and Washington Counties are located directly north of Milwaukee, with diverse economies and a good balance of agriculture, food processing (particularly dairy products), and manufacturing facilities. Due to these counties' close proximity to the Metropolitan Milwaukee Area, 46-50% of their workforce commutes to jobs outside their borders. According to SEWRPC, 33-34% of both Ozaukee and Washington Counties' workforce is employed in manufacturing, and both of these counties have gained significant numbers of manufacturing and "Big Box" retail establishments since the 1990's. Large manufacturers dominate the local landscape and produce machinery, fabricated metals, electrical equipment, electrical motors, small engines, household appliances, plastics, printing, and food. Economic growth is expected to continue in the industrial parks of medium-size communities.

Fond du Lac is Transportation District 2's northernmost county. It is uniquely situated between two of the state's largest economic areas, the Fox River Valley to the north, and Metropolitan Milwaukee to the south, and has a strong local economy of its own. The majority of the industrial growth is concentrated in and near the City of Fond du Lac (adjacent to USH 41) along with most of the county's population and major manufacturing plants. Firms such as Mercury Marine, Giddings and Lewis, Ahrens Aluminum, and Wells Manufacturing are well established and have been in the community for many years. The City of Fond du Lac also recently announced the planned expansion of Charter Steel, a large manufacturer of steel wire, rods, and bars products. The Fond du Lac County economy also has a strong agricultural component, anchored by Ripon Foods, Stella Cheese, and Alto Dairy Cooperative. Significant transportation improvements in the county are targeted for the USH 41/151 interchange and the USH 151 bypass. Economic growth is anticipated along USH 41, on the east and southwest of the City of Fond du Lac.

As a sample of District 2's land use maps, the following illustrates proposed land use in Milwaukee County.

Figure – 4A
Sample future land use map–Milwaukee County



Source: SEWRPC

Tables 8 and 9 list the number of business establishments and employees by industry type for District 2 counties.

Table 8 - Number of businesses in Transportation District 2

	Agriculture, Forestry & Mining	Construction & Contractors	Manufacturing	Transportation, Communication & Utilities	Trade (wholesale & retail)	Services	Total
Fond du Lac	137	425	276	187	1,322	1,671	4,018
Kenosha	133	399	337	157	1,548	1,950	4,524
Milwaukee	382	1,728	2,351	1,116	10,112	17,917	33,606
Ozaukee	133	357	339	122	1,233	1,714	3,898
Racine	220	686	567	247	2,215	2,979	6,914
Walworth	190	557	308	231	1,507	1,819	4,612
Washington	147	516	426	165	1,403	1,668	4,325
Waukesha	431	1,729	1,819	466	5,322	7,332	17,099
District 2 total	1,773	6,397	6,423	2,691	24,662	37,050	78,996
% of all employers	2%	8%	8%	3%	31%	47%	100%

Source: ReferenceUSA.com. Multiple counts of a business are possible due to multiple business specializations. The Total column reflects the listed industrial classifications only. Total number of all businesses is 84,827.

Table 9 - Transportation District 2 employees

	Agriculture, Forestry & Mining	Construction & Contractors	Manufacturing	Transportation, Communication & Utilities	Trade (wholesale & retail)	Services	Total
Fond du Lac	544	2,103	11,567	1,942	9,184	11,552	36,892
Kenosha	377	1,926	12,503	1,733	11,713	14,065	42,317
Milwaukee	1,452	11,379	87,520	33,538	93,444	189,554	416,887
Ozaukee	434	1,219	12,377	1,005	7,462	9,871	32,368
Racine	507	2,849	24,255	2,617	14,617	22,156	67,001
Walworth	316	1,556	9,697	1,478	7,875	9,712	30,634
Washington	654	2,195	14,735	2,001	9,018	10,768	39,371
Waukesha	1,974	12,608	51,346	9,042	48,658	56,145	179,773
District 2 total	6,258	35,835	224,000	53,356	201,971	323,823	845,243
% of employees	1%	4%	27%	6%	24%	38%	100%

Source: Wisconsin Department of Workforce Development. The above employment numbers are reported under the State Unemployment Compensation Compliance Program. *Self-employed individuals with no employees are not included.*

Transportation District 2 economic forecast[24]

District 2 comprises the largest and most diverse regional economy in the state, accounting for 43% of total Value-Added in Wisconsin in 1999. Activity in the district, as measured by Gross Regional Product, is expected to grow slightly more than in Wisconsin as a whole: 45.4% between 2000 and 2015 as opposed to 42.2% for the entire state. Employment growth will also be greater than in the rest of Wisconsin: 15.5% between 2000 and 2015 versus 13.2% statewide. Exports from the region will grow only slightly faster than imports into the region, reflecting strong linkages between district manufacturing activities and industries in other districts and the Chicago Metropolitan Region. Industries in District 2 import large amounts of inputs in order to produce their relatively large proportion of the state's output. Real disposable personal income growth will be marginally higher than statewide. Population growth in the district is projected to be greater than in Wisconsin as a whole: about 12% between 2000 and 2015 versus about 9% for the state.

District 2 borders and is closely linked to the Chicago Metropolitan Region. Both regions are projected to experience similar rates of growth in population and disposable personal income during the 2000-2015-analysis period. The projected high-growth industries in both regions are also similar. Gross Regional Product will grow more in District 2 than in the Chicago Metropolitan Region: 45.4% between 2000 and 2015 versus about 39% in Metropolitan Chicago.

Currently, the largest industrial sectors in District 2 (in Value-Added) are Real Estate, Machinery & Computer Manufacturing, Wholesale Sales, Retail Sales, Medical Services, Business Services, and Electrical Equipment Manufacturing. As seen in Table 10, Machinery & Computer Manufacturing is projected to grow the most between 2000 and 2015, followed by Electrical Equipment Manufacturing, both of which comprise high-tech sectors in the economy. It is important to note that these two industries will also show the greatest growth in the neighboring Chicago Metropolitan Region. In 2015, the largest industries in District 2 are expected to be Machinery & Computers, Wholesale Sales, Real Estate, Retail Sales, Business Services, and Medical Services.

Table 10 - District 2
Fastest-growing* industries
By Value-Added (billions 92 dollars)

	2000	2015	Projected real growth 2000-2015
Machin. & Comput.	5.805	13.57	134%
Electric. Equip.	2.393	4.11	72%
Wholesale	5.272	8.92	69%
Misc. Bus. Serv.	3.033	5.061	67%
Auto Rep. & Serv.	0.713	1.102	55%
Primary Metals	0.829	1.273	54%
Rubber & Plastics	0.737	1.131	53%
Credit & Finance	0.52	0.789	52%

Source: WisDOT analysis using REMI
* Industries expected to grow by at least 50% by the year 2015

Table 10A lists projected *absolute* growth of industries in Value-Added dollars. This table shows that the greatest overall growth during 2000-2015 will be in Machinery & Computers, Wholesale, and Miscellaneous Business Services.

[24] It is important to bear in mind that this economic forecast was generated using the REMI economic model, which uses 1990 U.S. Census data, as well as other economic data. The above transportation district economic forecast may therefore differ from state and county economic forecasts by other sources.

Table 10A – District 2
Growth of major industries
By Value-Added (billions 92 dollars)

	2000	2015	Growth	Projected real growth 2000-2015
Machin. & Comput.	5.805	13.57	7.765	134%
Wholesale	5.272	8.92	3.648	69%
Misc. Bus. Serv.	3.033	5.061	2.028	67%
Electric. Equip.	2.393	4.11	1.717	72%
Real Estate	6.728	8.102	1.374	20%
Rest of Retail	3.968	5.307	1.339	34%
Medical	3.716	4.903	1.187	32%
Misc. Prof. Serv.	2.37	3.204	0.834	35%
Instruments	1.579	2.154	0.575	36%
Construction	2.18	2.727	0.547	25%

Source: WisDOT analysis using REMI

As seen in Table 11, the industries spending the most money on trucking services in District 2 are Construction, Trucking & Warehousing, Wholesale Sales, Retail Sales, Machinery & Computer Manufacturing, Professional Services, and Food Manufacturing. Of these industries, Machinery & Computers and Wholesale Sales are also high-growth sectors in the district, so they can be expected to generate significantly more commercial traffic in the region.

Table 11 - Largest trucking generators, District 2, 2000

	Truck spending 2000	Projected increase 2000-2015
Construction	$ 355,518,080	22%
Truck. & Warehou.	$ 350,243,492	38%
Wholesale	$ 321,360,944	66%
Rest of Retail	$ 230,775,942	31%
Machin. & Comput.	$ 224,741,221	119%
Misc. Prof. Serv.	$ 143,522,201	33%
Food	$ 123,236,219	23%
Eating & Drinking	$ 107,195,963	25%

Sources: WisDOT analysis using REMI, TSA

Table 12 shows the district's projected largest trucking generating industries in 2015. From this table, it is evident that Machinery & Computer Manufacturing will increase truck spending the most over the analysis period, reaching the second highest level of trucking activity in the district by 2015. The Wholesale Sales industry already has a high level of trucking activity, which will rise by an additional 66% during the analysis period. Conversely, Construction, Food Manufacturing, Professional Services, and Trucking & Warehousing will have relatively small growth in trucking activity.

Table 12 - Projected largest trucking generators, District 2, 2015

	Projected truck spending 2015	Projected increase 2000-2015
Wholesale	$ 532,478,573	66%
Machin & Comput.	$ 493,218,558	119%
Truck. & Warehou.	$ 484,895,538	38%
Construction	$ 432,591,458	22%
Rest of Retail	$ 302,263,708	31%
Misc. Prof. Serv.	$ 190,456,717	33%
Food	$ 151,388,395	23%
Eating & Drinking	$ 134,107,083	25%

Sources: WisDOT analysis using REMI, TSA

Table 13 shows a similar truck spending growth pattern in the Chicago Metropolitan Region, where besides the Wholesale Sales sector, none of the other high trucking activity generators are expected to increase trucking activity by over 50%.

Table 13 - Largest trucking generators, Chicago Area, 2000

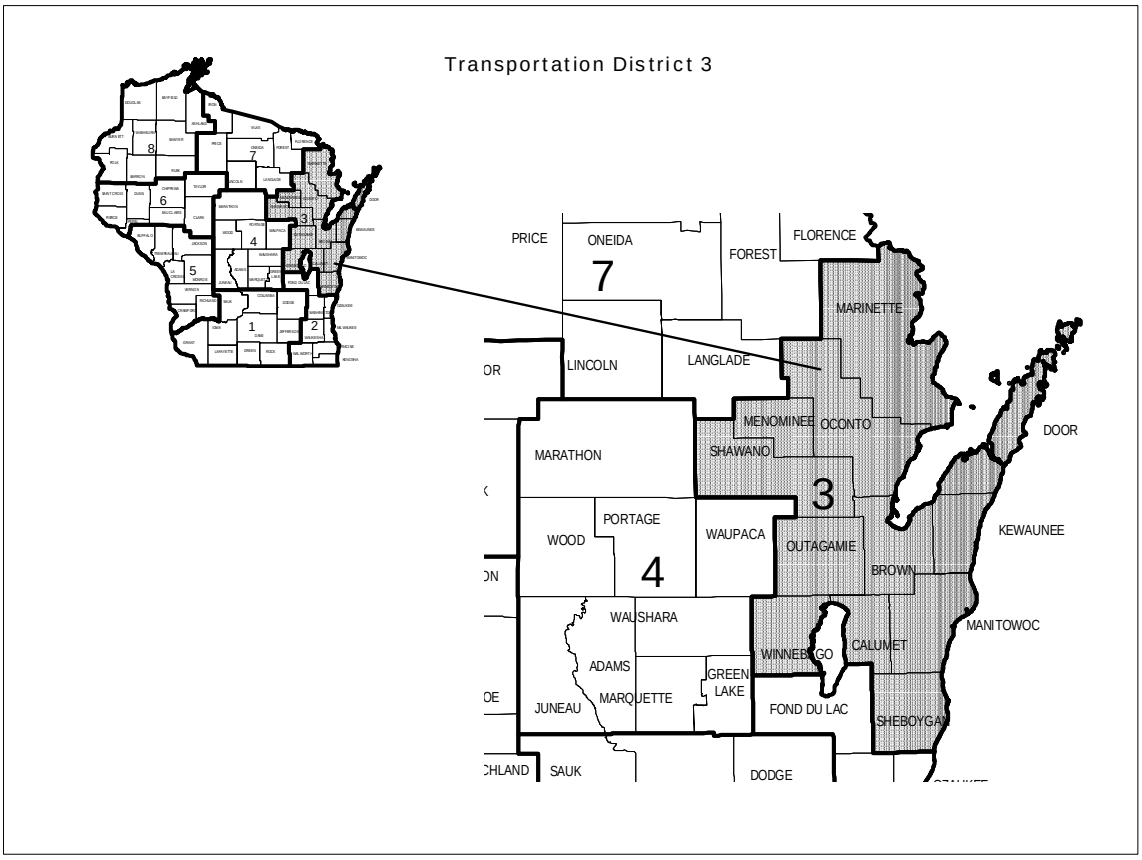
	Truck spending 2000	Projected truck spending 2015	Projected increase 2000-2015
Construction	$ 1,221,638,279	$ 1,441,466,838	18%
Wholesale	$ 1,129,027,671	$ 1,733,685,365	54%
Truck. & Warehou.	$ 1,031,653,227	$ 1,400,788,753	36%
Rest of Retail	$ 753,460,262	$ 988,754,167	31%
Misc. Prof. Serv.	$ 663,388,988	$ 852,184,306	28%
Food	$ 631,424,597	$ 763,597,589	21%

Sources: WisDOT analysis using REMI, TSA

In sum, major growth is expected in the Computer & Machinery industry, as well as in the associated Electrical Equipment sector. Wholesale Sales is also an industry projected to grow significantly. Both the Machinery & Computer Manufacturing industry and the Wholesale Sales industry can be expected to generate significant increases in trucking activity as they grow. Population in the district will grow more than in the state as a whole, increasing by 12% between 2000 and 2015. This projected growth mirrors the projected population growth of the neighboring Chicago Metropolitan Area.

Transportation District 3: headquarters – Green Bay, Wisconsin

Figure 5 – District 3



Transportation District 3 is comprised of twelve counties in northwest Wisconsin. Dense forests, undulating and rolling hills, wetlands, and red clay characterize this district's terrain. District 3's area is 54,313.7 square miles, or 13.8% of Wisconsin's total land area.[25] The district's 2000 population of 945,005, or 18% of the state total[26] includes the Appleton-Oshkosh-Neenah and Green Bay Metropolitan Statistical Areas (MSA), the state's third and fourth largest metropolitan areas, respectively.[27] In 2000, 16%, or approximately 9.3 billion vehicle miles were traveled in District 3, ranking third in the state by road usage.[28] Proportionally, 16% of the state's total road mileage (18,210 miles) is also located in District 3.

District 3 consists of 34 cities, 65 villages, and 185 towns, of which 85.3%, 50.8%, and 23.8%, respectively, have adopted plans. Only four of the district's 12 counties have adopted plans, and several counties are now in the process of developing a comprehensive plan. The East Central Wisconsin and Bay Lake Regional Planning Commissions provide planning and economic development assistance to this region.

[25] 1999-2000 Wisconsin Blue Book.
[26] Wisconsin Department of Administration-Demographic Services Center, 2000.
[27] An MSA consists of one or more counties that contain a city of 50,000 or more inhabitants, *or* contain a Census Bureau-defined urbanized area, and have a total population of at least 100,000 (http://www.census.gov/dmd/www/products.html).
[28] Wisconsin Department of Transportation.

I-43 and USH 41 are highways of high significance to District 3's economy, connecting to the Milwaukee area (District 2). Also important are USH 141 to Michigan and USH 151 to South Wisconsin. STH 42 and STH 57 run along northern Door County's west and east, respectively, merge near Sturgeon Bay, and traverse southern Door County's east and west, respectively. STH 29 links Green Bay to Kewaunee, the Metropolitan Wausau and Eau Claire areas, and the Twin Cities.

The Cities of Green Bay, Marinette, Sturgeon Bay, and Manitowoc have ports, with the Port of Green Bay conducting the bulk of the district's commerce. Sturgeon Bay's port has no actual movement of freight or passengers but is the location of several shipbuilders and ship refurbishing factories.

With the exception of Door County, Transportation District 3 counties are served by rail. Several counties have, however, expressed concern over the inadequacy of their rail system.

Lake Michigan, Lake Winnebago, other smaller lakes, Green Bay and Sturgeon Bay waters, and the Wolf River are prime destinations for water-recreation and fishing. In 2001, there were 1,126 lodging facilities in District 3, more than in any other Wisconsin transportation district. According to the Wisconsin Department of Tourism, in 2000, the district generated $1.9 billion, or 19% of the state's tourism expenditures, ranking third after Districts 2 and 1. Door County alone is a prime tourist destination, leading the district in annual tourism expenditures ($415,538,496 in 2000), followed by Brown County ($412,253,639 in 2000).

Other popular District 3 tourist attractions and events include Oshkosh's world famous Experimental Aircraft Association Annual Convention, Lambeau Field, Brown County Arena, Menominee Nation Contest Pow Wow, Veterans Memorial Pow Wow, Kohler Design Center, casinos in Keshena, Bowler, and Green Bay, state parks, weekend festivals, museums, restaurants, historic districts, and shops.

With the exceptions noted, District 3's retail centers are predominantly located in cities' and villages' downtowns. There is, however, a definite decentralization trend, in which retail stores are locating in or relocating to peripheral locations.

Tables 14 and 15 list the number of business establishments and employees by industry type for District 3 counties. By total number of business establishments, District 3 ranks third in the state, after Districts 2 and 1. Of Wisconsin's 16,279 manufacturers, 3,065 or 19% are located in District 3. Sixty percent of the district's businesses are located in the tri-county Fox River Valley, a region of unique economic and physical characteristics that is discussed beginning on page 31.

Table 14 – Number of businesses in Transportation District 3

	Agriculture, Forestry & Mining	Construction & Contractors	Manufacturing	Transportation, Communication & Utilities	Trade (wholesale & retail)	Services	Total
Brown	246	944	787	418	3,374	4,199	9,968
Door	69	238	103	101	934	919	2,364
Calumet	54	116	83	49	291	336	929
Kewaunee	34	85	55	31	267	311	783
Manitowoc	103	355	268	160	1,065	1,271	3,222
Marinette	60	207	140	105	738	727	1,977
Menominee	2	13	1	6	17	35	74
Oconto	54	153	84	76	422	449	1,238
Outagamie	216	754	591	275	2,480	3,060	7,376
Shawano	65	186	106	91	590	548	1,586
Sheboygan	143	393	348	177	1,383	1,749	4,193
Winnebago	145	580	499	248	1,810	2,602	5,884
District 3 total	1,191	4,024	3,065	1,737	13,371	16,206	39,594
% of all employers	3%	10%	8%	4%	34%	41%	100%

Source: ReferenceUSA.com. Multiple counts of a business are possible due to multiple business specializations. The Total column reflects the listed industrial classifications only. Total number of all businesses is 41,144.

Table 15 – Transportation District 3 employees

	Agriculture, Forestry & Mining	Construction & contractors	Manufacturing	Transportation, Communication & Utilities	Trade (wholesale & retail)	Services	Total
Brown	833	6,260	26,789	11,427	28,563	38,695	112,567
Calumet	288	539	5,428	340	2,400	1,648	10,643
Door	157	666	1,950	231	2,502	3,264	8,770
Kewaunee	331	482	1,351	227	888	1,294	4,573
Manitowoc	597	1,269	11,736	1,770	6,166	7,642	29,180
Marinette	143	450	5,249	874	3,521	4,547	14,784
Menominee	1	16	363	16	41	1,471	1,908
Oconto	152	302	2,919	536	1,547	1,999	7,455
Outagamie	779	6,197	17,677	4,893	20,397	24,445	74,388
Shawano	240	444	2,126	679	2,631	3,316	9,436
Sheboygan	466	2,369	24,665	1,710	9,575	13,308	52,093
Winnebago	370	3,450	29,001	3,844	14,384	20,846	71,895
District 3 Total	4,357	22,444	129,254	26,547	92,615	122,475	397,692
% of employees	1%	6%	33%	7%	23%	31%	100%

Source: Wisconsin Department of Workforce Development. The above employment numbers are reported under the State Unemployment Compensation Compliance Program. *Self-employed individuals with no employees are not included.*

The Fox River Valley (Appleton-Oshkosh-Neenah Metropolitan Area) - economic characteristics

Located on the north side of Lake Winnebago, the Fox River Valley Area, also known as the Appleton-Oshkosh-Neenah Metropolitan Statistical Area (MSA), is comprised of three counties (Outagamie, Winnebago, and Calumet) and over 18 municipalities. The population of the Appleton-Oshkosh-Neenah MSA is nearly 360,000, according to the 2000 U.S. Census. The area's largest municipalities are the City of Appleton (with a population of over 70,000) and City of Oshkosh (population of over 60,000). Other cities in the area include Kaukauna, Menasha, and Neenah. The Villages of Algoma, Combined Locks, Hortonville, Little Chute, Kimberly, and Sherwood, and the Towns of Buchanan, Clayton, Harrison, Grand Chute, Greenville, Menasha, Neenah, Omro, and Vandenbroek add their own uniqueness to the area.

A major development and traffic generator is the Fox River Mall, located west of USH 41 in the Town of Grand Chute, less than two miles from Appleton. The region's economy focuses on paper, machinery, food, and, to a lesser extent, on lumber and wood products. Although the area economy is diversifying, it has historically been dependent on the paper and manufacturing industrial sectors, which account for 28.6% of the area's employment. The Appleton-Oshkosh-Neenah MSA currently has the highest concentration of papermaking facilities in the world. Paper production is the largest employment sector, with two-thirds of all paper-related employment found in the pulp mills. Major papermaking and paper products corporations in the region include Kimberly-Clark, Appleton Papers, the Menasha Corporation, P.H. Glatfelter, and Wisconsin Tissue Mills.

Several major printing companies, as well as paper industry machinery and parts manufacturers, also operate in the Appleton-Oshkosh-Neenah MSA. Major printing and related companies include Atlas Tag & Label, Banta, Crystal Print, The Menasha Corporation (several divisions), Outlook Group Corporation, National Graphic Solutions, The Appleton Post-Crescent, Printron Engravers, and Webex Incorporated. Supporting manufacturers include Valmet, J.M. Voith, Thermo Wisconsin, Albany International, Appleton Mills, Asten Forming Fabrics, Regal-Beloit, Hayes Core-Division, and KRC, as well as various packaging companies. In addition to the printing and paper companies, many other machine and tool shops and engineering firms service the paper industry and the employment of the region.

There has been recent concern by the U.S. Environmental Protection Agency about the Fox River sediments' contamination with PCBs accumulated through the dumping of wastes by paper plants. Negotiations regarding the river's cleanup and restoration are ongoing among several government agencies and manufacturers. A majority of the paper manufacturers is still active today and located in the City of Appleton area.

Also of significance in paper manufacturing is the City of Oshkosh. Located on Lake Winnebago's western shoreline and nicknamed "the Sawdust City" for its lumber industry in the mid-1800s, Oshkosh's economy is now diverse and includes operations in the plastics, printing, and metal casting industries. The lumber industry is still present but is gradually fading in importance. Oshkosh B'Gosh, Rockwell International, Miles Kimball, Morgan Manufacturing, Banner Packaging, Hoffmaster, Leach Company, Pluswood, Oshkosh Truck Corporation, Square D Company, and Nercon Engineering and Manufacturing are some of the major Oshkosh area manufacturers.

The Appleton-Oshkosh-Neenah MSA is also experiencing growth in high-tech industries. Plexus Corporation is the largest of these companies, employing over 2,000 employees. Printed circuit, engineering, computer and communications, and other high technology companies have also made the area their home. Area high-tech companies include Athenet Data Exchange, Airadigm Communications, Inc., Surface Mount Technology Corporation, Hitech Control Systems, Marathon Engineers/Architects/Planners LLC, OMNNI Associates, SMPC Design, and U.S. Oil Company, Inc. These companies represent the adaptation of the Appleton-Oshkosh-Neenah MSA to high technology, manufacturing, and industry.

While Outagamie and Winnebago Counties comprise the large industrial centers of the Appleton-Oshkosh-Neenah MSA, Calumet County has a more agricultural economy. Calumet is more rural, with 79% of its land used for farming, in contrast with lower percentages of farmland in neighboring counties. Calumet County's largest employers include Tecumseh Products, Brillion Iron Works, Ariens Company, Chilton Products, Ameriquip Corporation, Endries, Inc., Kaytee Products, Calumet Medical Center, and Foley/ASC. Calumet County is also a "bedroom county", exporting almost half of its resident workers to Brown, Outagamie, Winnebago, Fond du Lac, and Sheboygan Counties.

In general, major institutional centers in the Appleton-Oshkosh-Neenah MSA are located in the downtowns of incorporated communities, with commercial corridors along the highways connecting them. According to planning officials, the following areas of commercial, office, industrial (including manufacturing), and institutional development are planned or anticipated:

- In downtown Appleton: a commercial and institutional district currently under development. This district will have a new Fox Cities Performing Arts Center which will be a destination center for arts and entertainment;
- In the Town of Grand Chute: 1) an industrial development north of STH 96, along STH 15, northwest of Appleton, 2) commercial development on South STH 96, west of Appleton;
- At Neenah's south edge: industrial development on USH 41;
- East of STH 441: commercial and industrial development on the far southeast side of Appleton and in the Towns of Harrison and Buchanan;
- In the Town of Menasha, along USH 10: commercial, industrial, and institutional development, and
- Industrial growth along USH 45, as it bypasses New London.

Limitations to development in the Fox River Valley region, as identified by local officials, include high water-tables, stormwater runoff regulations, and political conflicts over annexation. However, organizations such as The Fox Cities Economic Development Partnership work to provide industries and companies interested in the area with additional incentives to invest in the region. Other limitations in the area are signs of rapid growth, such as labor shortages and transportation challenges.
A labor shortage occurred in the area during the last decade of growth. During that time, the area saw an employment growth of 24%, which outpaced the area's total population growth of 13.7%. The issue of labor shortage is also one of transportation. Transportation issues, as identified by various local officials, include a rail right-of-way through the downtowns of Appleton and Neenah and high traffic levels on USH 441, where year 2020 projected traffic levels have already been reached. The area is, however, awaiting the completion of USH 10, which will ease some of these labor shortage constraints by opening up employment opportunities to areas just west of the metropolitan area. In addition, the planned $12 million expansion of the Outagamie County Regional Airport will increase the ease of air travel to and from the area.

The Appleton-Oshkosh-Neenah MSA also has many post-secondary educational institutions, enrolling over 25,000 students per year, and other colleges and universities are within an hour's drive. These institutions include: University of Wisconsin-Oshkosh, University of Wisconsin-Green Bay, University of Wisconsin-Fox Valley, St. Norbert College, and Lawrence University. Recently, The University of Wisconsin-Fox Valley has collaborated with The University of Wisconsin-Platteville's Engineering Program, providing students the opportunity to obtain a bachelor's degree in mechanical engineering instead of having to travel to Madison or Milwaukee for an equivalent education.

Green Bay Metropolitan Area - economic characteristics

The City of Green Bay is the Brown County Seat and the core of the Green Bay Metropolitan area. The area's largest employment category is health services, followed by tourism and hospitality (amusement, recreation, and eating & drinking places), business services (advertising, personnel supply, and hotels and lodging), paper manufacturing computer services, and paper & allied products manufacturing. The City of Green Bay contains two large paper mills as well as the country's largest cheese processing and shipping center.[29]

The area between Appleton and Green Bay is potentially strategic for manufacturing development. Large concentrations of manufacturing plants and commercial centers are also found along the freeway beltline around Green Bay. Commercial centers are located in downtown Green Bay, Oneida St. in Ashwaubenon, W. Mason St. in Green Bay and Ashwaubenon, and Main St. in Green Bay.

Among the larger development projects identified in Brown County were Lambeau Field (home of the Green Bay Packers, a professional football team) and the Arena Convention Center. Future development is also possible in

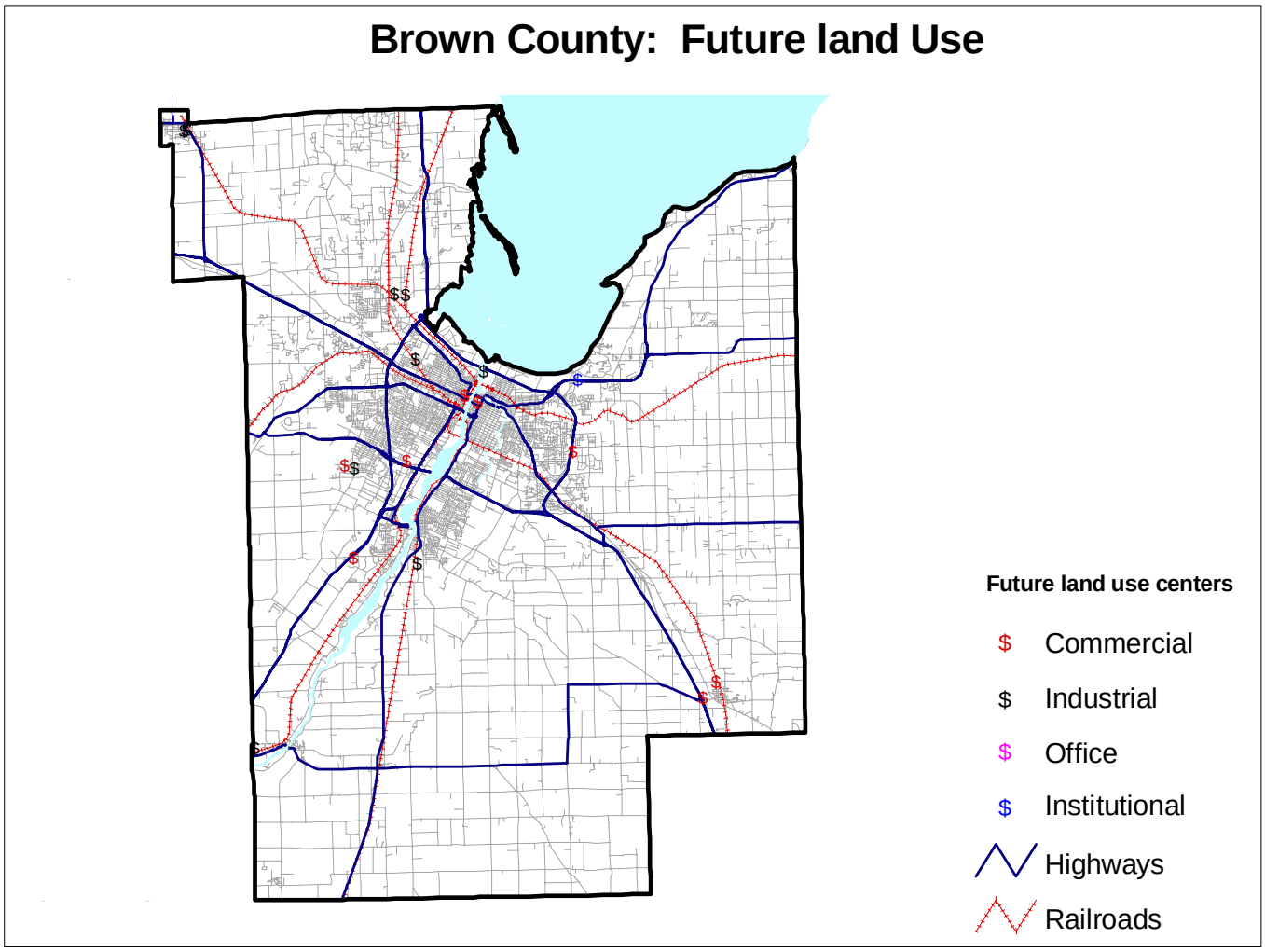
[29] Green Bay Area Chamber of Commerce website, http://www.titletown.org/.

existing industrial parks, particularly on the approximately 300 available acres of Ashwaubenon's Business Center. Future commercial and industrial growth is anticipated in several locations, including south of the Green Bay waters, near the county's airports and hospitals, and at the intersection of I-43 and STH 96, near Denmark.

Significant impediments to development, according to various local officials in the Green Bay area, include labor force shortages, problems associated with contaminated or polluted land, and lake dredging.

As a sample of District 3's land use maps, the following map illustrates future land use in Brown County.

Figure – 5A
Sample future land use map–Brown County[30]



Sources: Development forecast by Brown County Planning Commission and Green Bay Area Chamber of Commerce, 2001. Electronic map developed by Economic Planning & Development Section, WisDOT

Economic characteristics of remaining District 3 counties

Manufacturing dominates employment in Manitowoc, Marinette, Oconto, and Sheboygan Counties, but, as is the trend in the rest of the country, the manufacturing sector's share of the economy is declining. Door, Kewaunee, Shawano, and Menominee Counties' labor force is, on the other hand, predominantly services oriented.

The entire area of Menominee County is an Indian reservation, which has sovereignty over all government activities. By both state and national standards, Menominee County has traditionally had a high unemployment rate (9.4% in 2000) and a low per capita income level ($13,797 in 1999).[31] The Menominee Nation is the county's largest employer and operates a casino in Keshena. Menominee County has very few manufacturers, the largest of which is Menominee Enterprises, a lumber mill employing 400 workers.

[30] Future development data provided for unincorporated areas, with some exceptions.
[31] Wisconsin Department of Workforce Development.

With its lakefront, historical districts, and other attractions, Sheboygan County visitors generated almost $220 million in tourism in 2000, an expenditure level that is among District 3's highest. Future combined commercial and industrial development is anticipated in the Village of Random Lake, east of the City of Plymouth on STH 23, and on I-43, east of the Village of Oostburg. Future commercial development is most likely to be in the Town of Sheboygan, on STH 42, and at the intersection of STH 28 and STH 32, in the City of Sheboygan Falls.

The City of Marinette is the retail hub of southern Marinette County. Pine Tree Mall in southwest Marinette is a major retail center. Marinette is also the entire county's medical hub. Future commercial development is anticipated on USH 41 in Marinette and Peshtigo, and on USH 141 in Pembine. Future industrial development is likely on USH 8 in Dunbar and Goodman, on USH 141 in Niagara, and west of USH 141, near Pound.

In Door and Kewaunee Counties, future development is planned within existing commercial, industrial, and institutional areas. Door County's Green Bay Road in Sturgeon Bay is a developing commercial strip.

Physical and infrastructure-related obstacles to development in Manitowoc, Marinette, Oconto, Sheboygan, Door, Kewaunee, Shawano, and Menominee Counties include bodies of water, wetlands, and lack of satisfactory rail service. Needed highway improvements, according to various local officials, include an expansion of USH 141 to four lanes in Marinette County, all the way north to Michigan. Social constraints to development include labor shortages, the attraction of workers to better-paying jobs in Green Bay and the Fox Valley, manufacturing plants' workforce reductions, and movement to the periphery of commercial establishments, i.e. sprawl.

Transportation District 3 economic forecast[32]

District 3 comprises the second largest regional economy in Wisconsin. With 19% of total Value-Added in the state, this district's economy is more than twice as large as every other district's except Districts 1 and 2. Between 2000 and 2015, economic activity in District 3, as measured by Gross Regional Product, is expected to increase by roughly the same percentage as in Wisconsin as a whole: 41.5% versus 42.2% statewide. Employment growth in the district will lag slightly behind the state average: 12.4% versus 13.2% statewide. This reflects the slower population growth in the district compared to population growth in the entire state: 7.2% between 2000 and 2015 versus about 9% statewide. Exports from the region will grow faster than imports into the region, and will parallel a similar trend in Wisconsin as a whole. Real disposable personal income growth will be slightly slower than statewide, again reflecting the district's slower than average population growth.

Currently, the largest industrial sectors in District 3, in Value-Added dollars, are Paper Manufacturing, Real Estate, Machinery & Computer Manufacturing, Retail Sales, Wholesale Sales, and Medical Services. Of these principal industries, only the Machinery & Computers and the Wholesale Sales industries are projected to grow by over 50% over the analysis period. Measured by *percent increase* in Value-Added, Table 16 on page 36 shows that Machinery & Computer Manufacturing is projected to grow the most between 2000 and 2015, followed by the related Electrical Equipment Manufacturing sector. By 2015, Machinery & Computer Manufacturing is projected to become District 3's largest industry in Value-Added dollars, followed by Paper, Wholesale, Real Estate, Retail, and Medical Services.

[32] It is important to bear in mind that this economic forecast was generated using the REMI economic model, which uses 1990 U.S. Census data, as well as other economic data. The above transportation district economic forecast may therefore differ from state and county economic forecasts by other sources.

Table 16 - District 3
Fastest–growing* industries
By Value-Added (billions 92 dollars)

	2000	2015	Projected real growth 2000-2015
Machin. & Comput.	1.938	4.646	140%
Electric. Equip.	0.416	0.839	102%
Misc. Bus. Serv.	0.765	1.275	67%
Primary Metals	0.375	0.614	64%
Wholesale	1.698	2.777	64%
Rubber & Plastics	0.509	0.832	63%
Auto Rep. & Serv.	0.249	0.395	59%
Credit & Finance	0.099	0.157	59%

Source: WisDOT analysis using REMI
* Industries expected to grow by at least 50% by the year 2015

Table 16A lists projected *absolute* growth of industries in Value-Added dollars. This table shows that the greatest overall growth during 2000-2015 will be in Machinery & Computers, Wholesale Sales, and Paper.

Table 16A – District 3
Growth of major industries
By Value-Added (billions 92 dollars)

	2000	2015	Growth	Projected real growth 2000-2015
Machin. & Comput.	1.938	4.646	2.708	140%
Wholesale	1.698	2.777	1.079	64%
Paper	2.863	3.879	1.016	35%
Medical	1.567	2.178	0.611	39%
Rest of Retail	1.828	2.354	0.526	29%
Misc. Bus. Serv.	0.765	1.275	0.510	67%
Real Estate	2.224	2.69	0.466	21%
Electric. Equip.	0.416	0.839	0.423	102%
Rubber & Plastics	0.509	0.832	0.323	63%
Trucking	0.728	1.028	0.300	41%

Source: WisDOT analysis using REMI

As seen in Table 17 on page 37, the industries spending the most money on trucking services in District 3 are Trucking & Warehousing, Paper Manufacturing, Construction, Food Manufacturing, Retail Sales, Wholesale Sales, and Machinery & Computer Manufacturing. Of these industries, both Machinery & Computers and Wholesale Sales are also among the high-growth sectors in the district. With the exception of Machinery & Computers, the industries generating the most trucking activity in the district spend a significant portion of their total production costs on trucking. The regional economy tends to be relatively trucking-reliant.

Tables 17 and 18 show that by 2015 Machinery & Computer Manufacturing will increase truck spending the most over the analysis period, making it the fourth largest trucking activity in the district. Similarly, Wholesale Sales will increase truck spending by a sizable percentage to become the fifth largest industry in trucking activity. Both of these industries are also among the high-growth industries in District 3. Electrical Equipment Manufacturing, an industry closely linked to Machinery & Computer Manufacturing, will nearly double truck spending by 2015, but its truck spending in absolute dollar terms will remain relatively small.

Table 17 - Largest trucking generators, District 3, 2000

	Truck Spending 2000	Projected increase 2000-2015
Truck. & Warehou.	$ 253,375,514	38%
Paper	$ 246,396,007	32%
Construction	$ 196,180,226	15%
Food	$ 115,265,583	21%
Rest of Retail	$ 106,272,082	26%
Wholesale	$ 103,479,148	60%
Machin. & Comput.	$ 87,155,631	135%

Sources: WisDOT analysis using REMI, TSA

Table 18 - Projected largest trucking generators, District 3, 2015

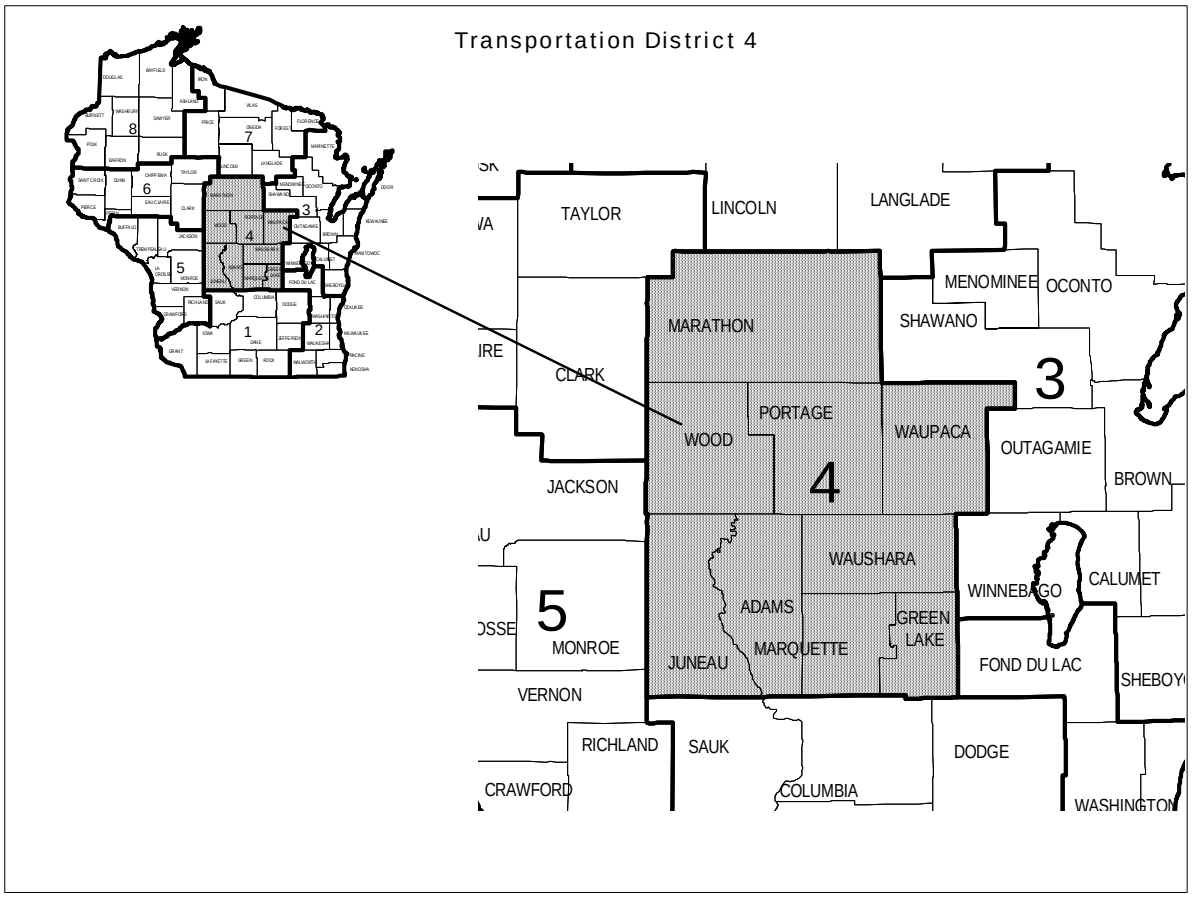
	Projected Truck spending 2015	Projected increase 2000-2015
Truck. & Warehou.	$ 350,613,924	38%
Paper	$ 325,796,988	32%
Construction	$ 225,235,953	15%
Machin. & Comput.	$ 204,855,686	135%
Wholesale	$ 165,743,094	60%
Food	$ 139,123,815	21%
Rest of Retail	$ 134,099,534	26%

Sources: WisDOT analysis using REMI, TSA

In sum, major growth is expected in the Computer & Machinery industry, as well as in the associated Electrical Equipment sector. Wholesale Sales is projected to significantly increase commercial trucking activity, and will remain very important in terms of overall output. As it grows, the Machinery & Computer Manufacturing industry is also expected to generate significant increases in trucking activity. Population growth in the district will be slightly less than the state average, increasing by about 7% between 2000 and 2015.

Transportation District 4: headquarters – Wisconsin Rapids, Wisconsin

Figure 6 – District 4



District 4 is located in the central part of the state in what is known as the Central Sands Region. This area includes a combination of sandstone buttes in the west and rolling hills in the east, beyond the Wisconsin River. In some parts, the land is nearly level with areas of natural and restored marshes, meadows, and lowland hardwoods. Cranberry operations, pasture, and agricultural land uses dominate the landscape of the nine counties that comprise Transportation District 4. Economic development organizations actively promote tourism to this region for its rural character and natural attributes.

The district's area is approximately 6,747 square miles, or 12% of the total land area of the state, within a nine county area.[33] The district is sparsely populated, with 433,049 residents, representing less than 10% of the total state population.[34] Similarly to other rural transportation districts, cities in District 4 are most active in land use planning, with 21 of 29 cities having adopted plans. Only 21% of the 57 villages and 181 towns have plans. Six of nine counties have either already adopted, are in the process of revising, or are developing a plan.

From an economic perspective, the majority of District 3's land is used for agriculture. Some of the state's largest commercial food processing plants are located in this district. The transportation system plays a major role in transporting farm products to nearby processing plants. Many of the growers have direct contracts with processing plants such as Ore-Ida, Stokley, Del Monte, Schreiber Foods, and Ocean Spray.

[33] 1999-2000 Wisconsin Blue Book.
[34] Ibid.

There are significant manufacturing facilities in Adams, Green, Juneau, Marquette, Waupaca, and Waushara Counties, which have a low population growth rate and have remained rural in character. Similarly to other communities in the U.S., one or two manufacturing plants may be present in a community, and when one plant closes, extreme hardships are felt in the local economy. Recovery from the downsizing closures is slow, at best. Juneau County, for example, reported significant downsizing and plant closures by Rayovac Corporation in Wonewoc, and Brenner Tank and Best Power Technology have recently shut down operations in Mauston.

Surveys of District 4 counties reveal available capacity in the region's industrial parks. The acreage remaining for industrial development is, however, relatively small (less than 40 available acres at most industrial sites). Many residents of the district's counties tend to leave the area and commute to work in larger employment centers in nearby counties. For example, Green and Marquette Counties export 42-47% of their workers to jobs in other counties.

Major manufacturing and employment centers are located in Marathon, Portage, and Wood Counties. Waupaca County listed six cities and villages with significant manufacturing facilities, including manufacturers of iron castings, transportation equipment, plastics, processed wood products, printing and publishing, and periodicals and marketing materials. Waupaca County also continues to lead the nation in milk and cheese production, and has an active and well-organized economic development corporation which helps to contribute to the county's low unemployment rate.

In Marathon County, industries located within the City of Wausau and surrounding communities provide steady employment and add stability to the regional economy. Paper mills, wood processing, metal fabrication, and food (cheese) processing industries have been the traditional economic anchors of the region. Services and health care facilities are also significant growth-industries in the district.

Portage and Wood Counties have similar employment centers, located in Stevens Point, Wisconsin Rapids, and Marshfield. Together with Wausau, these areas represent the "four corners" of economic development in the district. Paper mills, health care, insurance, food processing, distribution, and warehousing include these counties' major employer categories. A regional cooperative partnership exists among the communities of Marshfield, Wisconsin Rapids, Stevens Point, and Plover to collaborate on mutual economic issues and initiatives.

Tables 19 and 20 list the number of business establishments and employees by industry type for District 4 counties.

Table 19 - Number of businesses in Transportation District 4

	Agriculture, Forestry & Mining	Construction & Contractors	Manufacturing	Transportation, Communication & Utilities	Trade (wholesale & retail)	Services	Total
Adams	10	43	18	18	122	151	362
Green Lake	41	139	87	36	371	418	1,092
Juneau	33	84	70	53	360	402	1,002
Marathon	163	499	338	212	1,592	1,879	4,683
Marquette	31	62	40	34	198	234	599
Portage	106	269	163	165	885	1,179	2,767
Waupaca	99	709	204	127	923	968	3,030
Waushara	40	305	53	39	321	346	1,104
Wood	151	410	214	180	1,205	1,548	3,708
District 4 total	674	2,520	1,187	864	5,977	7,125	18,347
% of all employers	4%	14%	6%	5%	33%	39%	100%

Source: ReferenceUSA.com. Multiple counts of a business are possible due to multiple business specializations. The Total column reflects the listed industrial classifications only. Total number of all businesses is 19,087.

Table 20 - Transportation District 4 employees

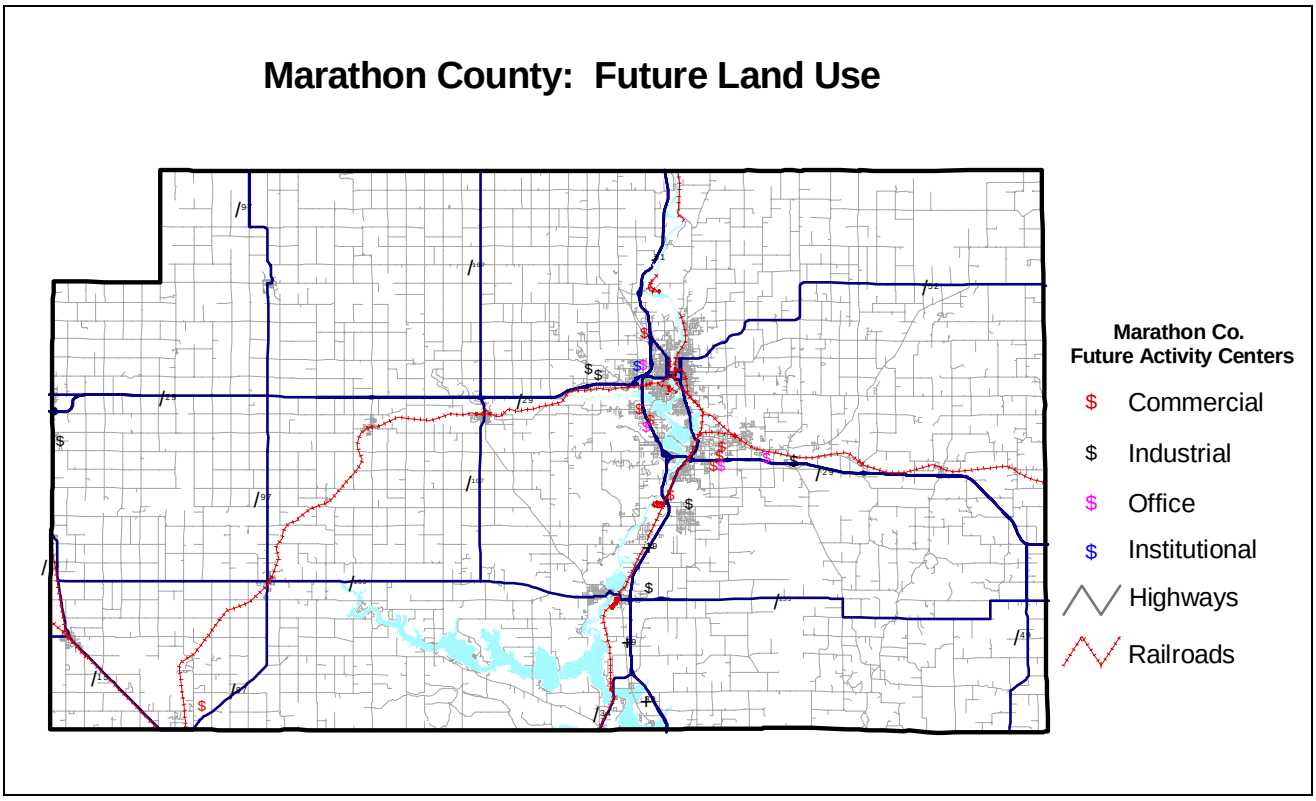
	Agriculture, Forestry & Mining	Construction & Contractors	Manufacturing	Transportation, Communication & Utilities	Trade (wholesale & retail)	Services	Total
Adams	135	130	163	203	632	1,093	2,356
Green Lake	248	341	1,690	332	1,293	2,093	5,997
Juneau	117	265	2,092	414	1,636	2,107	6,631
Marathon	632	2,308	16,089	3,467	15,276	13,707	51,479
Marquette	178	152	1,034	173	659	819	3,015
Portage	699	782	5,765	1,683	6,291	7,167	22,387
Waupaca	219	716	5,827	826	4,466	5,440	17,494
Waushara	358	148	701	339	1,108	1,280	3,934
Wood	509	1,533	5,980	3,251	8,197	14,184	33,654
District 4 total	3,095	6,375	39,341	10,688	39,558	47,890	146,947
% of employees	2%	4%	27%	7%	27%	33%	100%

Source: Wisconsin Department of Workforce Development. The above employment numbers are reported under the State Unemployment Compensation Compliance Program. *Self-employed individuals with no employees are not included.*

Major Interstate highways I-90 and I-39 provide access to most of the district's counties. Land use patterns along these highways are changing to provide access to new industrial and retail areas. Most of the economic activity is along the north-south route of I-39 and includes the Stevens Point, Plover, Mosinee, and Wausau areas. The recent approval of $160 million for interchange improvements in the Wausau area represents a significant transportation investment needed to accommodate the growth of traffic and economic activity along the area's interchanges. USH 10 and State Highways 21, 23, and 54 are important east-west routes, connecting workers to jobs in the major employment centers. USH 10 will be widened to four lanes between Stevens Point and Plover in 2007. In Stevens Point, the intermodal facility operated by the Wisconsin Central Railroad provides logistical support for long distance freight hauling.

As a sample of District 4's land use maps, the following map depicts future land use in Marathon County.

Figure – 6A
Sample future land use map–Marathon County[35]



Sources: Development forecast by Marathon County Development Corporation and Wausau MPO, 1998
Electronic map developed by Economic Planning & Development Section, WisDOT

[35] Future development data provided for unincorporated areas, with some exceptions.

Transportation District 4 economic forecast[36]

Economic activity in District 4, as measured by Gross Regional Product, is expected to increase by nearly 5% less than in Wisconsin as a whole: 37.5% between 2000 and 2015 versus 42.2% statewide. Employment growth in district 4 will also lag behind the state average: about 9% between 2000 and 2015 versus 13.2% statewide. This reflects the slower rate of population growth in the district compared to that of the entire state: 5.6% between 2000 and 2015 versus about 9% statewide. Exports from the district will grow faster than imports, and will do so more sharply than in Wisconsin as a whole. Real disposable personal income growth will be slightly slower in the district than statewide, again reflecting the district's slower than average population growth rate.

Currently, the largest industrial sectors in District 4 (in terms of Value-Added in the region) are Paper Manufacturing, Wholesale Sales, Professional Services, Hotels, Eating & Drinking Establishments, and Credit & Financial Services. Of these principal industries, only the Hotel industry is projected to grow by over 50% over the analysis period. As seen in Table 21, Machinery & Computer Manufacturing is projected to grow the most between 2000 and 2015, followed by the related Electrical Equipment Manufacturing sector. By 2015, these two industries will move from being the 8th and 16th largest industrial sectors in the district, respectively, to 3rd and 11th place.

In 2015, the other large industries in District 4 are expected to be Paper, Hotels, Professional Services, Wholesale Sales, and Eating & Drinking Establishments.

Table 21 - District 4
Fastest–growing* industries
By Value-Added (billions 92 dollars)

			Projected real Growth
	2000	2015	2000-2015
Machin. & Comput.	0.414	1.063	157%
Electric. Equip.	0.171	0.358	109%
Mining	0.009	0.016	78%
Amuse. & Rec.	0.185	0.301	63%
Hotels	0.758	1.199	58%
Leather	0.057	0.09	58%
Primary Metals	0.102	0.161	58%
Misc. Bus. Serv.	0.098	0.152	55%
Real Estate	0.03	0.045	50%

Source: WisDOT analysis using REMI
* Industries expected to grow by at least 50% by the year 2015

Table 21A lists projected *absolute* growth of industries in Value-Added dollars. This table shows that the greatest overall growth during 2000-2015 will be in Machinery & Computers, Hotels, Paper, Miscellaneous Professional Services, and Wholesale Sales.

[36] It is important to bear in mind that this economic forecast was generated using the REMI economic model, which uses 1990 U.S. Census data, as well as other economic data. The above transportation district economic forecast may therefore differ from state and county economic forecasts by other sources.

Table 21A – District 4
Growth of major industries
By Value-Added (billions 92 dollars)

	2000	2015	Growth	Projected real growth 2000-2015
Machin. & Comput.	0.414	1.063	0.649	157%
Hotels	0.758	1.199	0.441	58%
Paper	0.968	1.308	0.340	35%
Misc. Prof. Serv.	0.786	1.051	0.265	34%
Wholesale	0.812	1.035	0.223	27%
Electric. Equip.	0.171	0.358	0.187	109%
Local & Interurban Transit	0.445	0.621	0.176	40%
Credit & Finance	0.448	0.57	0.122	27%
Amuse. & Rec.	0.185	0.301	0.116	63%
Eating & Drinking	0.559	0.672	0.113	20%

Source: WisDOT analysis using REMI

As seen in Table 22, the industries spending the most money on trucking services in District 4 are Trucking & Warehousing, Paper Manufacturing, Construction, Retail Sales, Wholesale Sales, and Food Manufacturing. Of these industries, none are high-growth sectors in the district. Trucking costs represent a significant portion of total production costs for all of the industries generating the most trucking activity in District 4. The district's regional economy tends to be relatively trucking-reliant.

Table 22 - Largest trucking generators, District 4, 2000

	Truck spending 2000	Projected increase 2000-2015
Trucking	$155,025,808	37%
Paper	$ 82,648,002	32%
Construction	$ 67,484,268	14%
Rest of Retail	$ 47,218,709	25%
Wholesale	$ 46,172,791	55%
Food	$ 40,470,431	18%

Sources: WisDOT analysis using REMI, TSA

Table 23 shows that Machinery & Computer Manufacturing will increase truck spending the most over the analysis period, making it the seventh largest in level of trucking activity in District 4 by 2015. Similarly, Wholesale Sales will increase truck spending by a sizable percentage to become the fourth largest in the level of trucking activity. It is important to note that Machinery & Computer Manufacturing is also a high-growth industry in District 4. Finally, Electrical Equipment Manufacturing, an industry closely linked to Machinery & Computer Manufacturing, will double its truck spending by 2015, generating significant increases in commercial trucking activity.

Table 23 - Projected largest trucking generators, District 4, 2015

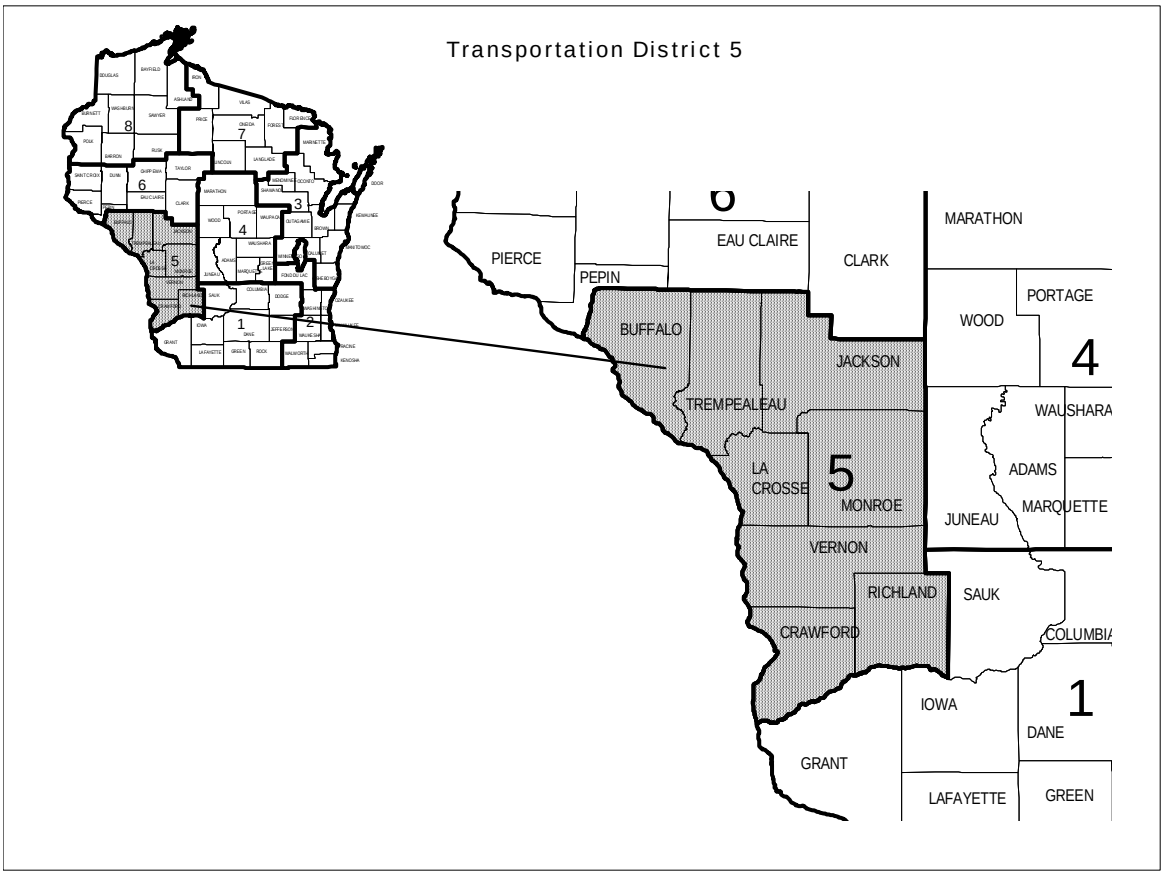
	Projected truck spending 2015	Projected increase 2000-2015
Truck. & Warehou.	$211,887,126	37%
Paper	$109,379,288	32%
Construction	$ 76,640,787	14%
Wholesale	$ 71,548,920	55%
Rest of Retail	$ 58,973,409	25%
Food	$ 47,796,974	18%
Machin. & Comput.	$ 41,354,073	150%

Sources: WisDOT analysis using REMI, TSA

In sum, major growth is expected in the Computer & Machinery industry, as well as in the associated Electrical Equipment sector. Wholesale Sales is projected to increase commercial trucking activity significantly, and will remain a very important sector in terms of overall output. The Machinery & Computer Manufacturing, Electrical Equipment Manufacturing, and Trucking & Warehousing industries can also be expected to generate significant increases in trucking activity as they grow. Population in the district will grow at roughly two-thirds the state average, increasing by about 5.6% between 2000 and 2015.

Transportation District 5: headquarters – La Crosse, Wisconsin

Figure 7 – District 5



There are eight counties, 20 cities, 48 villages, and 137 towns within District 5. The region occupies approximately 5,721 miles, or 10.5% of the total area of Wisconsin. The district's total population represents about 5% of the state population (267,033 for the eight-county region).[37] La Crosse County is the district's most heavily populated area, and has experienced its highest rate of population growth (9.28%) since the 1990 Census. Moderate to low future population growth is anticipated for many of the district's municipalities. It is also important to note that the La Crosse area, which includes the City of La Crosse and nearby communities, is District 5's largest regional trade center.

With the exception of La Crosse County, Transportation District 5 can be characterized as rural and sparsely populated. Five counties are located in Wisconsin's Southwestern Upland region, bordering the Mississippi River. Sandstone outcroppings, stream bottoms, and river valleys characterize much of the land. Pastureland is more common in this area than anywhere else in the state. The region also provides varying degrees of elevation in many of the counties bordering the Mississippi River. I-90 and I-94 are important principal arterials serving District 5. STH 35, running along this region's western border, is commonly referred to as the Wisconsin "Great River Road" because it follows the Mississippi River, providing many of the cities and towns along it with scenic views and vistas that appeal to tourists and the traveling public. The Great River Road was recently granted National Scenic Byway status, in recognition of the drive along it as one of the most outstanding examples of the nation's scenic, cultural, and recreational experiences.

[37] Wisconsin Department of Administration-Demographic Services Center, 2000.

According to interviews with county officials, land use planning has not been a high priority for many of the counties and towns in the district. In assessing past land use planning efforts, it was found that only one county in District 5 has a plan and two counties are in the process of developing comprehensive plans. Two other counties have indicated that they "see themselves as rural" and their future land use planning efforts will likely strive to maintain their rural character. Planning efforts are most active in the cities, of which 65% have adopted plans. Past land use planning efforts by villages and towns have been less prevalent (14% of villages and 17% of towns have plans). There is a strong emphasis on preserving the recreational amenities and rural character of the region. Although the Mississippi River restricts some of the growth potential along it with scenic easements, floodplain, and wetland restrictions, there is a strong emphasis on strengthening tourism promotion efforts along the Great River Road. The Mississippi River RPC and the Southwest Wisconsin RPC assist the district's counties in planning and development.

The district's largest economic growth center is the La Crosse Metropolitan Area, also serving as the district's transportation hub. An Interstate highway, five railroads, a regional airport, and harbor facilities for commercial barging operations on the Mississippi River serve the area. The City of La Crosse is home to manufacturers and distributors of plastics, laminates, air conditioners, and food products. There are several large medical facilities, Gunderson Lutheran Medical Center and Franciscan Skemp Healthcare, providing medical services to a multi-state area. Tables 24 and 25 list the number of businesses and employees by industry type within each county in District 5, also illustrating the economic significance of La Crosse County.

Very significant to the area's economy is the 60,000-acre Fort McCoy army training-center, located approximately seven miles west of Tomah. Fort McCoy is the only U.S. Army installation in Wisconsin and Monroe County's largest employer, with over 1,600 civilians and more than 400 permanent-party military personnel at the installation.[38] The Cities of Tomah and Sparta, also located in Monroe County, along I-90, have a significant manufacturing base that includes plastic molding, lawn equipment, insulated glass, food processing, and food distribution. Study interviews also noted 3M and Cabela's new distribution center in Prairie du Chien. Other District 5 counties have significant manufacturing industries in Arcadia, Black River Falls, Prairie du Chien, Richland Center, and Viroqua. Area county economic development organizations also anticipate future economic activity near these communities.

[38] http://www.mccoy.army.mil/

Table 24 - Number of businesses in Transportation District 5

	Agriculture, Forestry & Mining	Construction & Contractors	Manufacturing	Transportation, Communication & Utilities	Trade (wholesale & retail)	Services	Total
Buffalo	49	60	22	29	214	205	579
Crawford	25	54	42	41	246	273	681
Jackson	20	54	39	29	252	280	674
La Crosse	95	468	282	192	1,526	2,280	4,843
Monroe	62	163	90	92	558	666	1,631
Richland	33	60	40	30	241	290	694
Trempealeau	53	110	83	66	436	353	1,101
Vernon	77	163	64	71	382	465	1,222
District 5 total	414	1,132	662	550	3,855	4,812	11,425
% of all employers	4%	10%	6%	5%	34%	42%	100%

Source: ReferenceUSA.com. Multiple counts of a business are possible due to multiple business specializations. The Total column reflects the listed industrial classifications only. Total number of all businesses is 12,847.

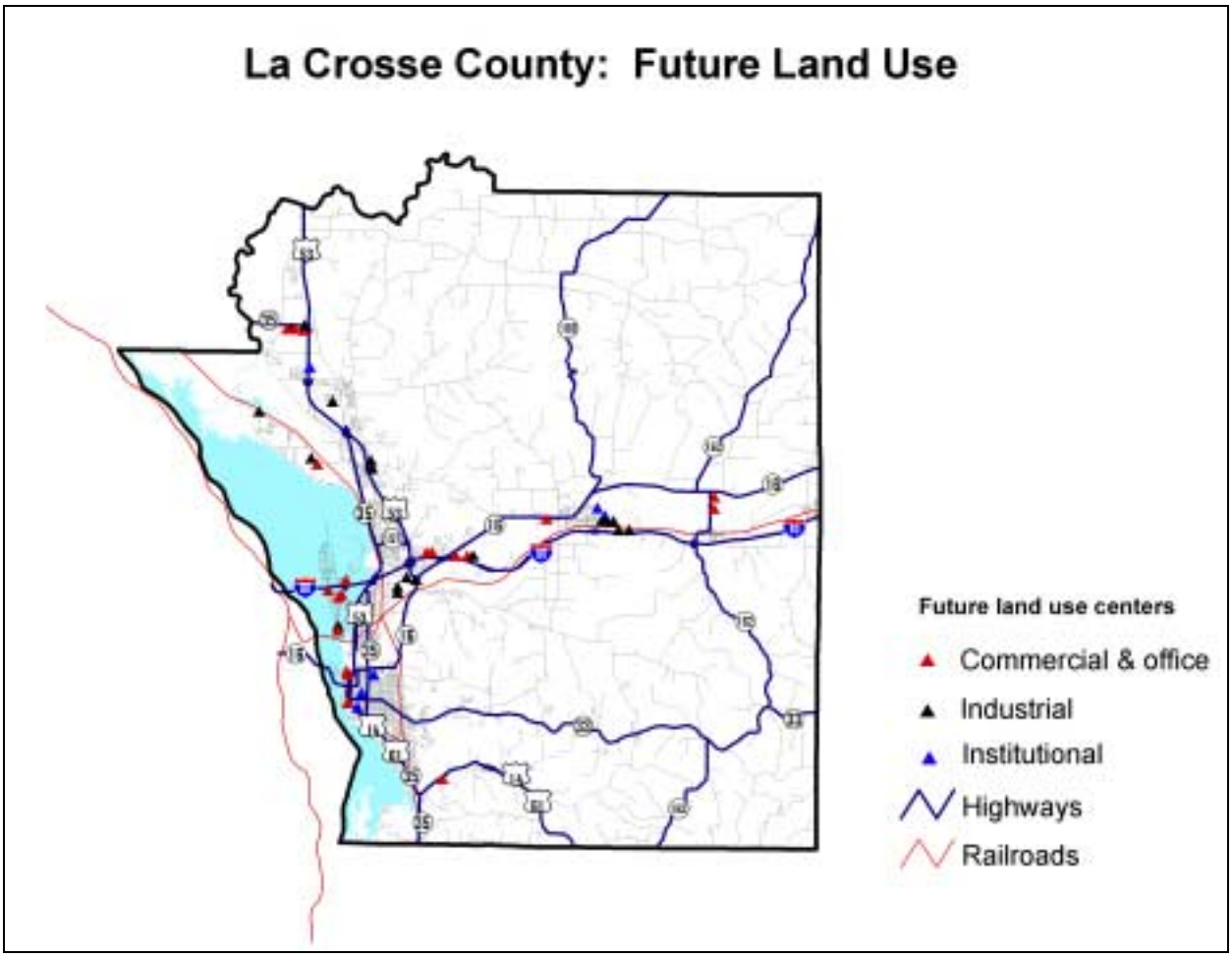
Table 25 - Transportation District 5 employees

	Agriculture, Forestry & Mining	Construction & Contractors	Manufacturing	Transportation, Communication & Utilities	Trade (wholesale & retail)	Services	Total
Buffalo	89	132	312	1,461	725	1,204	3,923
Crawford	51	178	2,067	243	1,342	1,823	5,704
Jackson	302	510	918	839	1,308	4,084	7,961
La Crosse	239	2,168	10,203	2,699	15,449	24,062	54,820
Monroe	176	340	3,011	1,129	3,404	4,527	12,587
Richland	169	163	1,858	186	1,219	1,352	4,947
Trempealeau	130	247	4,658	557	1,569	2,893	10,054
Vernon	127	142	752	386	1,814	2,785	6,006
District 5 total	1,283	3,880	23,779	7,500	26,830	42,730	106,002
% of employees	1%	4%	22%	7%	25%	40%	100%

Source: Wisconsin Department of Workforce Development. The above employment numbers are reported under the State Unemployment Compensation Compliance Program. *Self-employed individuals with no employees are not included.*

As a sample of District 5's land use maps, the following map illustrates future land use in La Crosse County.

Figure – 7A
Sample future land use map–La Crosse County[39]



Source: Development forecast and electronic map by La Crosse County Zoning and Land Information Department, 2000

[39] Future development data provided for unincorporated areas, with some exceptions.

Transportation District 5 economic forecast[40]

Over the 2000-2015 forecast period, economic activity in District 5, as measured by Gross Regional Product, is expected to increase by 41%, or approximately the same amount as Wisconsin as a whole (42.2%). Employment growth will lag behind the state average, however, and is projected to be about 10% versus 13.2% statewide. This reflects the slower population growth in the district compared to the entire state: 3.3% growth between 2000 and 2015 versus about 9% statewide. Exports from the region will grow faster than imports into the region and will show larger growth than the state total. Real disposable personal income growth will be slightly slower than statewide, again reflecting the slower than average population growth in the district.

Currently, the largest industrial sectors in District 5 in Value-Added in the region are Retail Sales, Medical Services, Wholesale Sales, Machinery & Computers, and Real Estate. As shown in Table 26, Machinery & Computer Manufacturing is projected to grow the most in percent Value-Added between 2000 and 2015, followed by the related Electrical Equipment Manufacturing sector. Currently, Electrical Equipment Manufacturing is the 13th largest industry in the region, and is projected to grow into the eighth largest industry by 2015, when the largest industries in District 5 are expected to be Machinery & Computers, Wholesale Sales, Medical Services, Retail Sales, and Real Estate.

Table 26 – District 5
Fastest–growing* industries
By Value-Added (billions 92 dollars)

	2000	2015	Projected real growth 2000-2015
Machin. & Comput.	0.489	1.197	145%
Electric. Equip.	0.135	0.261	93%
Wholesale	0.511	0.874	71%
Misc. Bus. Serv.	0.129	0.213	65%
Primary Metals	0.023	0.037	61%
Auto Rep. & Serv.	0.065	0.101	55%
Rubber & Plastics	0.139	0.210	51%
Credit & Finance	0.012	0.018	50%

Source: WisDOT analysis using REMI
* Industries expected to grow by at least 50% by the year 2015

[40] It is important to bear in mind that this economic forecast was generated using the REMI economic model, which uses 1990 U.S. Census data, as well as other economic data. The above transportation district economic forecast may therefore differ from state and county economic forecasts by other sources.

Table 26A lists projected *absolute* growth of industries in Value-Added dollars. This table shows that the greatest overall growth during 2000-2015 will be in Machinery & Computers and Wholesale.

Table 26A – District 5
Growth of major industries
By Value-Added (billions 92 dollars)

	2000	2015	Growth	Projected real growth 2000-2015
Machin. & Comput.	0.489	1.197	0.708	145%
Wholesale	0.511	0.874	0.363	71%
Medical	0.546	0.731	0.185	34%
Rest of Retail	0.541	0.69	0.149	28%
Electric. Equip.	0.135	0.261	0.126	93%
Trucking	0.235	0.326	0.091	39%
Real Estate	0.447	0.538	0.091	20%
Misc. Bus. Serv.	0.129	0.213	0.084	65%
Rubber & Plastics	0.139	0.21	0.071	51%
Public Utilities	0.174	0.234	0.060	34%

Source: WisDOT analysis using REMI

As seen in Table 27, the industries spending the most money on trucking services in District 5 are Trucking & Warehousing, Construction, Retail Sales, Wholesale Sales, and Machinery & Computers. Of these industries, Machinery & Computers and Wholesale Sales are also high-growth sectors in the district, so they can be expected to generate significantly more commercial traffic in the region. Trucking costs represent a significant portion of total production costs for industries generating the most trucking activity in District 5, with the exception of Machinery & Computer Manufacturing. The district's regional economy tends to be relatively trucking-reliant.

Table 27 - Largest trucking generators, District 5, 2000

	Truck spending 2000	Projected Increase 2000-2015
Truck. & Warehou.	$ 81,680,264	36%
Construction	$ 41,745,076	16%
Rest of Retail	$ 31,465,812	25%
Wholesale	$ 31,173,986	67%
Machin. & Comput.	$ 21,920,825	145%
Food	$ 17,766,197	19%
Eating & Drinking	$ 16,146,672	25%
Rubber & Plastics	$ 11,517,070	48%

Sources: WisDOT analysis using REMI, TSA

As Table 28 shows, Machinery & Computer Manufacturing will increase truck spending the most over the analysis period, making it the second largest trucking activity in the district by 2015. Similarly, Wholesale Sales will increase truck spending by a sizable percentage, attaining the third highest level of trucking activity. Both of these industries are also among the high-growth industries in District 5. While it does not appear in these tables, Electrical Equipment Manufacturing, an industry closely linked to Machinery & Computer Manufacturing, is currently the 11th largest industry in the region. Electrical Equipment Manufacturing is expected to become the ninth largest industry by 2015 and generate a significant, 83% increase in commercial trucking activity.

Table 28 - Projected largest trucking generators, District 5, 2015

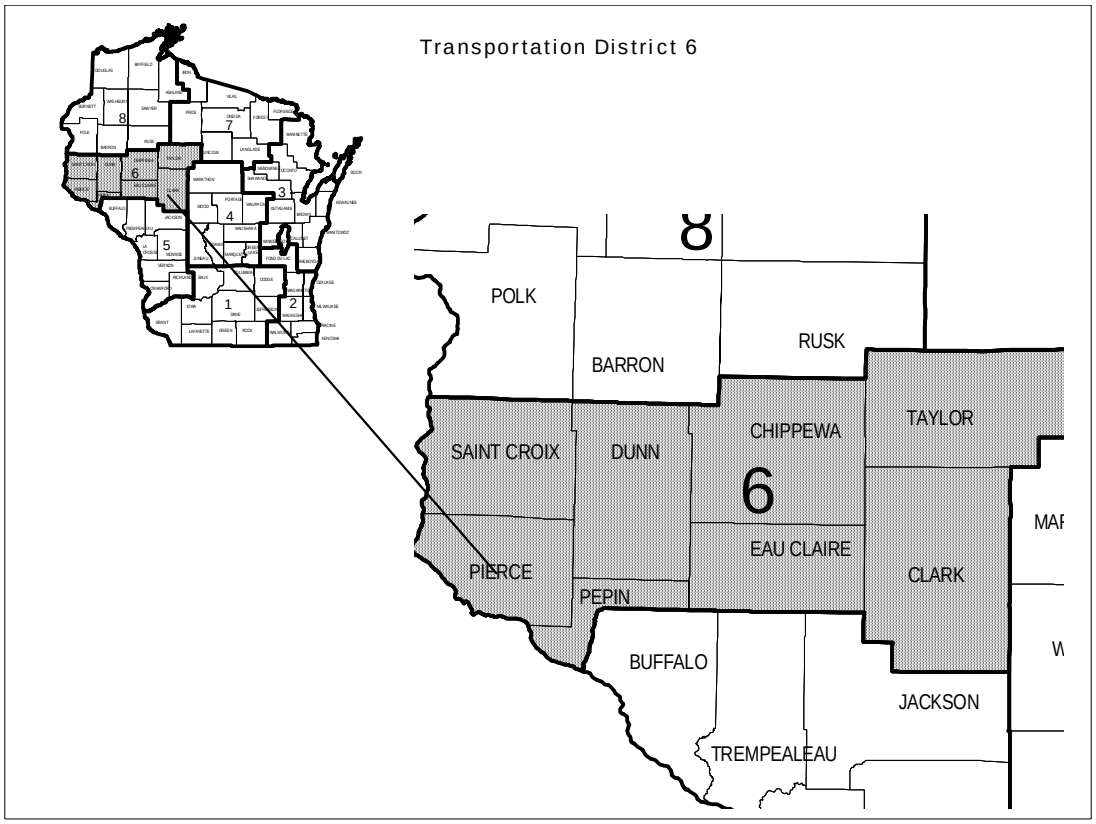
	Projected truck spending 2015	Projected increase 2000-2015
Truck. & Warehou.	$ 111,129,611	36%
Machin. & Comput.	$ 53,807,031	145%
Wholesale	$ 52,180,715	67%
Construction	$ 48,378,145	16%
Rest of Retail	$ 39,302,278	25%
Food	$ 21,120,841	19%
Eating & Drinking	$ 20,183,340	25%
Rubber & Plastics	$ 17,075,782	48%

Sources: WisDOT analysis using REMI, TSA

In sum, major growth is expected in the Computer & Machinery industry, as well as in the associated Electrical Equipment sector. Wholesale Sales is also projected to grow significantly, and will remain a relatively important sector in terms of overall output. The Machinery & Computer Manufacturing, Electrical Equipment Manufacturing, Trucking & Warehousing, and Wholesale Sales industries can be expected to generate significant increases in trucking activity as they grow. Population in the district will grow at less than half the state average rate, increasing by about 3.3% between 2000 and 2015.

Transportation District 6: headquarters – Eau Claire, Wisconsin

Figure 8 – District 6



Transportation District 6 represents Wisconsin's west central region. There are eight counties within the transportation district, served by three major four-lane highways, I-94, USH 53, and STH 29. The majority of the economic activity is located along these principal highways. The area represents about 11.6% of the state's total land area and 6.4% (341,853 for the eight-county region)[41] of the state's population. This region is known as a transitional area and is referred to as the "Gateway to Northwest Wisconsin". From a geologic and natural resources perspective, the region transitions from the Southwestern Uplands, characterized by sandstone outcroppings, river valleys, and pasturelands, to the Northern Wisconsin Highlands, which are dotted with numerous lakes, forest areas, and wildlife habitats with many types of animals and birds. Many Wisconsin vacationers notice the transition in the landscape upon passing between this region and tourist locations in Transportation District 8.

The district has 21 cities, 37 villages and 159 towns. Three of its eight counties have plans; however, one of them was completed in 1978 and is seldom used. Cities in the district are most active in land use planning, with 76% already having adopted plans. However, villages and towns are just getting involved in planning. Only 16% of the villages and 9% of the towns have completed land use plans. Three of the most active counties involved in land use planning, Eau Claire, St. Croix and Chippewa, along with communities along the I-94 corridor, contain the district's largest commercial, industrial, and retail centers.

Interviews with the counties within District 6 revealed the existence of strong economic development initiatives in the majority of the cities and villages. The major regional growth areas for commercial, retail, and industrial centers are located in Eau Claire, Chippewa Falls, and Menomonie, an area also known as the Chippewa Valley. These communities have already anticipated the next wave of business expansions by planning the future location of new and expanded companies, industrial parks, and commercial centers. The Chippewa Valley is home to several large

[41] Wisconsin Department of Administration-Demographic Services Center, 2000.

manufacturers of supercomputers, chips, monitors, circuit boards, and computer furniture, and has been referred to as the "Silicon alley of the Midwest" by former Wisconsin Governor Tommy G. Thompson.

The district has other strong economic activity in many of its smaller communities. It is noteworthy that the City of Medford in Taylor County has a strong localized industrial cluster of door and window manufacturers as well as food processing plants. Clark County has several communities with industrial parks and manufacturers, located along the recently completed four-lane STH 29: Abbotsford, Curtiss, Owen, Withee, and Thorp. Other notable Clark County communities with significant economic activity include Colby, Dorchester, Greenwood, Loyal, and Neillsville. Notable commercial centers are also located in Prescott and River Falls in Pierce County, and in Boyceville in Dunn County.

There is noticeable spillover to District 6 of economic activity from the state of Minnesota. Along the I-94 corridor, there has been increasing economic activity and interest in locating businesses in industrial parks near the Interstate highways as well as intersecting state highways. New Richmond, Hudson, and River Falls have active planning departments and economic development organizations. Smaller communities such as Hammond, Roberts, Woodville, Baldwin, and Somerset have industrial parks ranging in size from 90 to 200 acres.

The West Central Wisconsin Regional Planning Commission (WCRPC) serves five of the district's eight counties and is active in providing reports and technical assistance in land use and economic development to the communities in the region. Specific technical assistance activities and projects are discussed in the *1999-2000 Annual Report, Comprehensive Economic Development Strategy for the West Central Wisconsin Region*. The Northwest RPC and the Mississippi River RPC serve the other three counties.

Tables 29 and 30 list the number of business establishments and employees by industry type for District 6 counties. Following the national trend, the number of establishments in the services and retail sectors are relatively high**,** however, the manufacturing sector continues to remain very strong in this transportation district. Although manufacturing firms represent only 6% of the total number of businesses in the district, these manufacturers are large corporations, employing thousands of people in the region.

Table 29 - Number of businesses in Transportation District 6

	Agriculture, Forestry & Mining	Construction & Contractors	Manufacturing	Transportation, Communication & Utilities	Trade (wholesale & retail)	Services	Total
Chippewa	72	288	168	109	774	816	2,227
Clark	58	156	123	68	492	411	1,308
Dunn	73	158	102	87	463	563	1,446
Eau Claire	92	343	238	167	1,344	2,021	4,205
Pepin	25	47	14	32	140	130	388
Pierce	74	153	91	92	475	568	1,453
St. Croix	144	306	194	132	769	996	2,541
Taylor	30	77	60	52	279	289	787
District 6 total	568	1,528	990	739	4,736	5,794	14,355
% of all employers	4%	11%	7%	5%	33%	40%	100%

Source: ReferenceUSA.com. Multiple counts of a business are possible due to multiple business specializations. The Total column reflects the listed industrial classifications only. Total number of all businesses is 16,087.

Table 30 - Transportation District 6 employees

	Agriculture, Forestry & Mining	Construction & Contractors	Manufacturing	Transportation, Communication & Utilities	Trade (wholesale & retail)	Services	Total
Chippewa	132	790	6,696	5,662	771	4,364	18,415
Clark	286	286	2,739	2,077	416	1,858	7,662
Dunn	232	490	2,132	4,873	471	4,460	12,658
Eau Claire	175	1,543	6,017	17,973	2,843	17,280	45,831
Pepin	17	145	152	590	124	683	1,711
Pierce	78	328	1,040	3,247	630	1,957	7,280
St. Croix	329	924	6,661	6,583	1,099	4,783	20,379
Taylor	124	181	3,114	1,596	482	1,638	7,135
District 6 Total	1,378	4,724	28,719	42,862	6,872	37,281	121,836
% of employees	1%	4%	24%	35%	6%	31%	100%

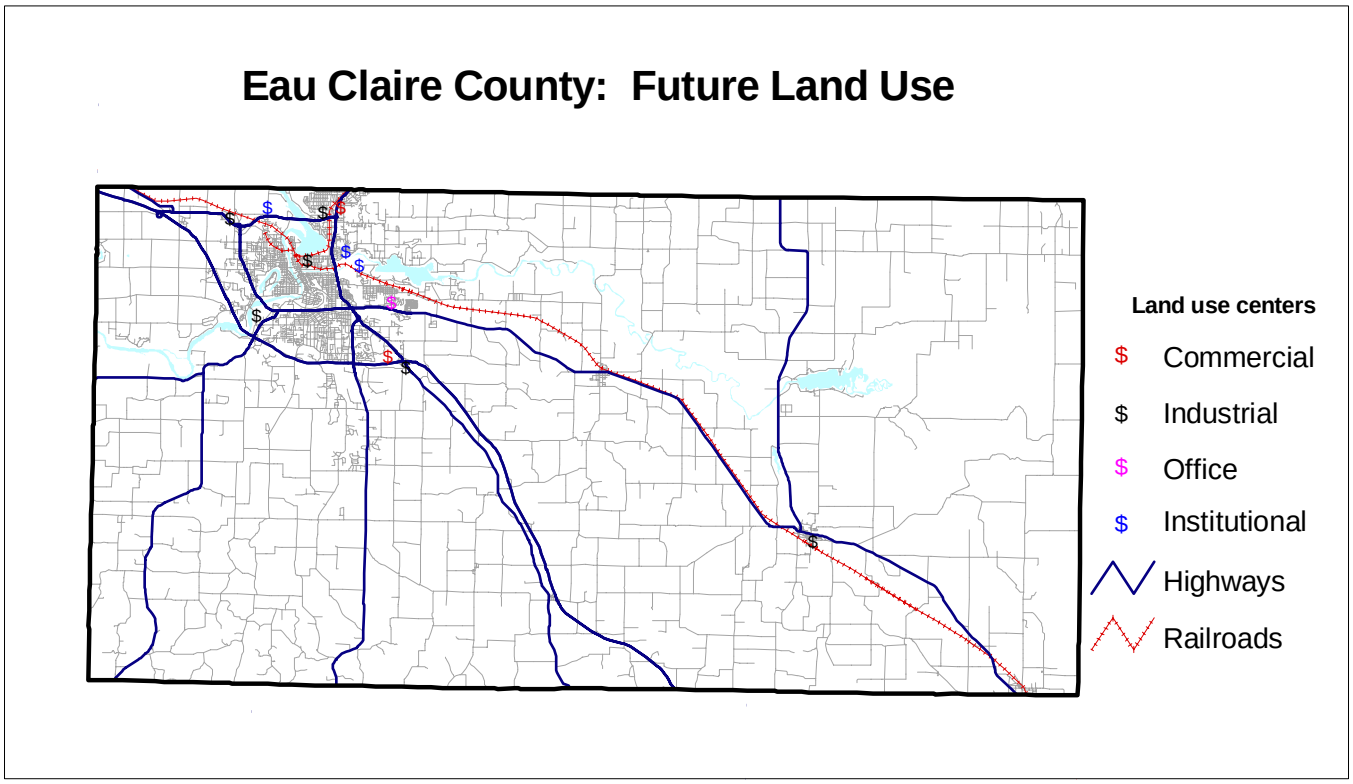
Source: Wisconsin Department of Workforce Development. The above employment numbers are reported under the State Unemployment Compensation Compliance Program. *Self-employed individuals with no employees are not included.*

WisDOT research shows that one of Wisconsin's high economic growth regions lies in District 6.[42] As mentioned earlier, the information technology and data processing business cluster is well represented by Chippewa Valley's high-tech companies. There are also several large wood processing plants that manufacture window and door products for the residential and commercial construction industry. Additionally, plastic extrusion and injection molding operations have been and continue to be a growth industry in the region. District 6 is well served with four-lane and state highways, interchanges, and railroads, attracting warehousing and distribution centers to the region.

[42] *State Highway Plan Global Evaluation: An Assessment of Trends Affecting Transportation through 2020.* WisDOT Bureau of Planning, P. 10.

As a sample of District 6's land use maps, the following map illustrates future land use in Eau Claire County.

Figure – 8A
Sample future land use map–Eau Claire County[43]



Source: Development forecast by Eau Claire County Planning and Development Department, 2000
Electronic map developed by Economic Planning & Development Section, WisDOT

[43] Future development data provided for unincorporated areas, with some exceptions.

Transportation District 6 economic forecast[44]

Over the 2000-2015 period, economic activity in District 6, as measured by Gross Regional Product, is expected to grow by 41.1% or at about the same rate as Wisconsin as a whole (42.2%). Employment growth, however, will be slower: about 11% between 2000 and 2015 versus 13.2% statewide. Exports from the region will grow faster than imports into the region, and will show greater growth than Wisconsin overall. Real disposable personal income growth in District 6 will be marginally slower than statewide.

District 6 borders and is affected by Minnesota's Twin Cities region. While population growth in the district is projected to be modest, roughly one-third the growth of Wisconsin as a whole, population growth of the neighboring Twin Cities region will be dramatic, twice that of Wisconsin. Over the 2000-2015-analysis period, economic in-migration of population is expected into District 6 from the Twin Cities region.

Currently, the largest industrial sectors in District 6 (in terms of Value-Added in the region) are Retail Sales, Machinery & Computer Manufacturing, Medical Services, Real Estate, Wholesale Sales, and Construction. As seen in Table 31, Machinery & Computer Manufacturing is projected to grow most by percent Value-Added between 2000 and 2015, followed by Electrical Equipment Manufacturing. Both industries are high-tech sectors in the district's economy and will show the greatest growth also in the neighboring Twin Cities region. In 2015, the largest industries in District 6 are expected to be Machinery & Computers, Retail Sales, Medical Services, Wholesale Sales, and Real Estate.

Table 31 - District 6
Fastest growing* industries
By Value-Added (billions 92 dollars)

	2000	2015	Projected real growth 2000-2015
Machin. & Comput.	0.627	1.402	124%
Electric. Equip.	0.185	0.351	90%
Misc. Bus. Serv.	0.234	0.39	67%
Primary Metals	0.012	0.02	67%
Rubber & Plastics	0.179	0.294	64%
Wholesale	0.454	0.736	62%
Instruments	0.036	0.055	53%

Source: WisDOT analysis using REMI
* Industries expected to grow by at least 50% by the year 2015

[44] It is important to bear in mind that this economic forecast was generated using the REMI economic model, which uses 1990 U.S. Census data, as well as other economic data. The above transportation district economic forecast may therefore differ from state and county economic forecasts by other sources.

Table 31A lists projected *absolute* growth of industries in Value-Added dollars. This table shows that the greatest overall growth during 2000-2015 will be in Machinery & Computers, Wholesale Sales, Retail, and Medical Services.

Table 31A – District 6
Growth of major industries
By Value-Added (billions 92 dollars)

	2000	2015	Growth	Projected real growth 2000-2015
Machin. & Comput.	0.627	1.402	0.775	124%
Wholesale	0.454	0.736	0.282	62%
Rest of Retail	0.787	1.023	0.236	30%
Medical	0.558	0.784	0.226	40%
Electric. Equip.	0.185	0.351	0.166	90%
Misc. Bus. Serv.	0.234	0.39	0.156	67%
Rubber & Plastics	0.179	0.294	0.115	64%
Real Estate	0.502	0.608	0.106	21%
Trucking	0.212	0.294	0.082	39%
Misc. Prof. Serv.	0.227	0.305	0.078	34%

Source: WisDOT analysis using REMI

As shown in Table 32, the industries spending the most money on trucking services in District 6 are Trucking & Warehousing, Construction, Retail Sales, Food Manufacturing, and Wholesale Sales. Of these industries, Retail Sales and Wholesale Sales are also high-growth sectors in the district, so they can be expected to generate significantly more commercial traffic in the region.

Table 32 - Largest trucking generators, District 6, 2000

	Truck spending 2000	Projected Increase 2000-2015
Truck. & Warehou.	$ 73,715,976	36%
Construction	$ 52,127,271	15%
Rest of Retail	$ 45,739,376	27%
Food	$ 28,715,757	16%
Wholesale	$ 27,644,856	59%
Machin. & Comput.	$ 21,785,139	134%

Sources: WisDOT analysis using REMI, TSA

Table 33 shows that Machinery & Computer Manufacturing will increase truck spending the most over the 2000-2015 analysis period, reaching the fourth highest level of trucking activity in the district by 2015. Conversely, Construction, Retail Sales, and Food Manufacturing will have relatively small growth in trucking activity. Wholesale Sales, an industry with an already high level of truck spending, will increase this spending level by nearly 60%. This pattern is also expected in the Twin Cities region.

Table 33 - Projected largest trucking generators, District 6, 2015

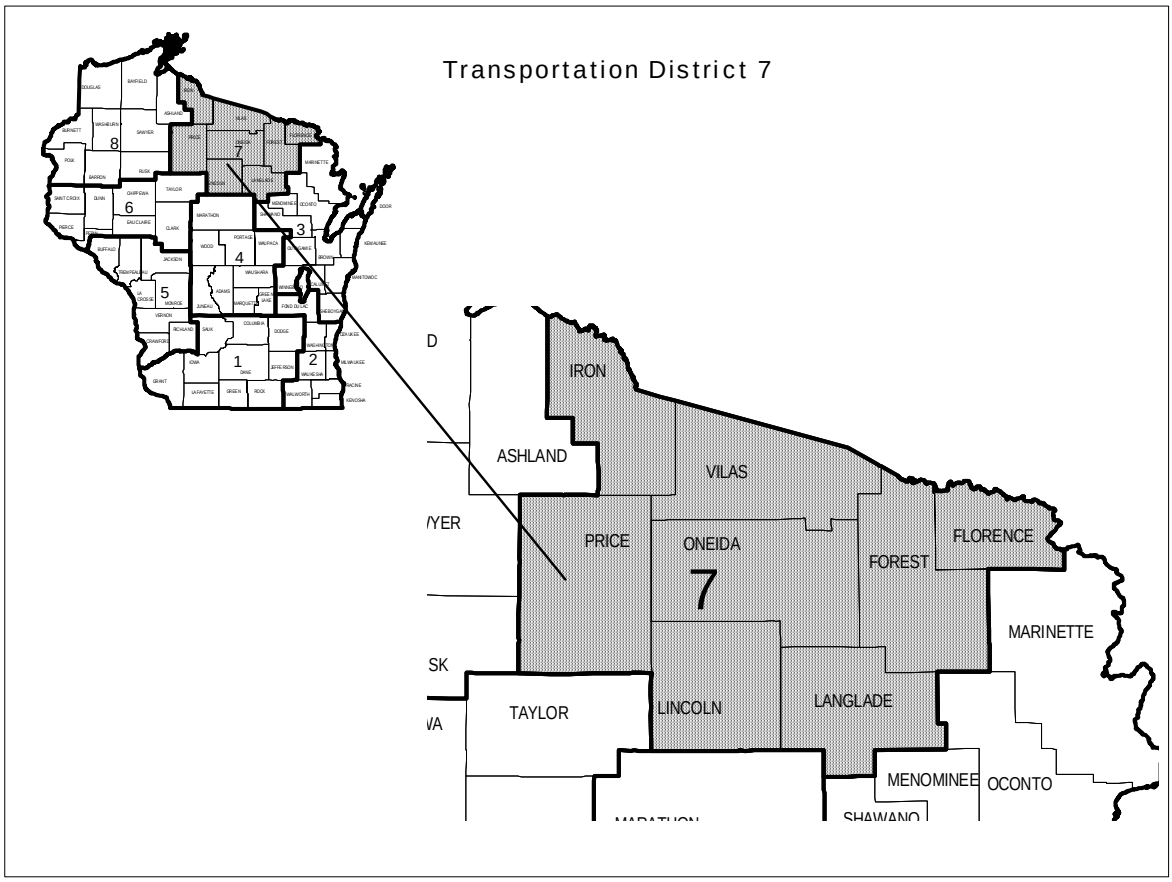
	Projected Truck spending		Projected increase
		2015	2000-2015
Truck. & Warehou.	$	100,201,866	36%
Construction	$	59,913,917	15%
Rest of Retail	$	58,253,733	27%
Machin. & Comput.	$	50,912,397	134%
Wholesale	$	43,946,078	59%
Food	$	33,358,584	16%

Source: WisDOT analysis using REMI, TSA

In sum, population in the district is forecast to grow slowly, increasing by only 3% between 2000 and 2015. Major growth is expected in the Computer & Machinery industry, as well as in the associated Electrical Equipment sector. Wholesale Sales is also projected to grow significantly. Both the Machinery & Computer Manufacturing industry and the Wholesale Sales industry can be expected to generate significant increases in trucking activity as they grow. This expected growth pattern reflects similar expected growth in the neighboring Twin Cities region.

Transportation District 7: headquarters – Rhinelander, Wisconsin

Figure 9 – District 7



Transportation District 7 is comprised of eight counties in north central Wisconsin. Variable elevations, forests, lakes, and wetlands characterize this 7,265.4 square mile area, accounting for 13.4% of Wisconsin's total land area.[45] Only 141,700 persons, or 2.6% of the state total, live in District 7.[46] It is predominantly rural, with a low population density and covered with over a quarter of the state's total lake and forest acreage.

District 7 consists of 10 cities, 4 villages, and 116 towns. All of the district's cities, but only 25% of the villages and less than 7% of the towns have adopted plans in place. Only two of the eight counties have adopted comprehensive county plans, and several counties are now in the process of developing a plan. Three Regional Planning Commissions, Bay-Lake RPC, North Central RPC, and Northwest RPC provide advisory planning and economic development services to the district.

USH 141 links the area to Green Bay and northern Michigan. STH 70 and USH 8 link northern Wisconsin to Minnesota, and USH 45, 51, and STH 13 connect the area to the far north and central portions of the state. Some counties are served by rail; however, several railroads have been abandoned or converted to recreational trails through the Wisconsin Department of Natural Resources' Rails-to-Trails program.

The district's lakes and forests provide a multitude of opportunities for tourism and recreation, and have a major impact on the area's transportation system. In 2000, over 1,000 lodging facilities were operating in the district, with relatively high annual tourism expenditures in Vilas and Oneida Counties ($186 million and $165 million,

[45] 1999-2000 Wisconsin Blue Book.
[46] Wisconsin Department of Administration-Demographic Services Center, 2000.

respectively). Total District 7 tourism expenditures, however, comprise a relatively low share (5% in 2000) of the state total in comparison with Districts 1, 2, 3, 4, and 8.[47]

Commercial, office, and institutional centers are primarily found in cities and villages. However, in several District 7 counties that do not have cities and/or villages, major commercial, office, and institutional centers are located in towns. Langlade County has reported a decentralization of these activity centers to peripheral locations.

According to plans and planning officials, the following areas of commercial and industrial (including manufacturing) areas of development are anticipated:[48]

- In Lincoln County, commercial development is anticipated at the intersection of STH 86 and USH 51. Office development is anticipated at the intersection of USH 51 and CTH G.

- In Iron County, future industrial development is anticipated along the rail corridor, west of Hurley, and southeast of the Town of Mercer. Commercial development is anticipated on north CTH A in the Town of Saxon. Future office development is foreseen west of Hurley.

- In Florence County, future highway commercial corridors are planned on: STH 139 at the highway's northern and southern intersections with STH 70, south of Porcupine Lake on STH 70, on USH 2/141 northwest and southeast of the Town of Florence, in the Town of Commonwealth on CTH N (south of Fisher Lake), and at the intersection of CTH N and CTH B west of the Town of Aurora. Light manufacturing is planned north of the intersection of CTH N and CTH B.

- In Langlade County, industrial development is likely to occur in the Town of Elcho at the intersection of CTH K and STH 47, and in the Village of White Lake north of White Lake. Future commercial development is foreseen on Antigo's northern border, on USH 45.

South of Crandon, on the Wolf River in Forest County, is the location of an extremely contentious proposal for an underground zinc and copper mine. Since 1994, the Wisconsin Department of Natural Resources has been reviewing documents submitted by Nicolet Minerals Company to evaluate the Crandon Mine Project's potential impacts and alternatives. While Nicolet Minerals Company, who would own, build, and operate the mine, promises that it would generate hundreds of jobs and millions of tax dollars, opponents to the mine believe that it would harm the environment by destroying the Wolf River's ecosystem that is integral to the tourist appeal of the Wisconsin Northwoods.

The district's 9,368 businesses comprise 4% of Wisconsin's total, the smallest number of businesses found among the eight transportation districts. With the exception of Lincoln and Price Counties, most of the district's workforce is employed in services and trade. Lincoln County's manufacturers produce a wide range of products that are distributed worldwide, including motorcycle accessories and parts, wood, paper, and metal products. Price County's largest employers are primarily manufacturers of industrial equipment, paper products, and rubber and plastics products. The district's largest employers include Marquip, Fraser Papers, Rose Wreath Company, Blount, Lincoln Wood Products, Northern Wire, Semling-Menke Co., Weinbrenner Shoe Co., Harley Davidson, Packaging Corporation of America, Hurd Millwork Company, and Phillips Plastics. Tables 34 and 35 list the number of business establishments and employees by industry type for District 7 counties.

[47] Wisconsin Department of Tourism.
[48] Vilas, Oneida, Price, and Forest Counties did not list future development centers.

Table 34 - Number of businesses in Transportation District 7

	Agriculture, Forestry & Mining	Construction & Contractors	Manufacturing	Transportation, Communication & Utilities	Trade (wholesale & retail)	Services	Total
Florence	8	19	12	14	67	57	177
Forest	14	63	47	29	171	183	507
Iron	9	49	17	13	133	125	346
Langlade	28	98	72	55	355	329	937
Lincoln	34	131	83	68	466	436	1,218
Oneida	87	401	142	137	928	1,218	2,913
Price	18	84	64	41	285	316	808
Vilas	53	257	77	91	595	724	1,797
District 7 total	251	1,102	514	448	3,000	3,388	8,703
% of all employers	3%	13%	6%	5%	34%	39%	100%

Source: ReferenceUSA.com. Multiple counts of a business are possible due to multiple business specializations. The Total column reflects the listed industrial classifications only. Total number of all businesses is 9,368.

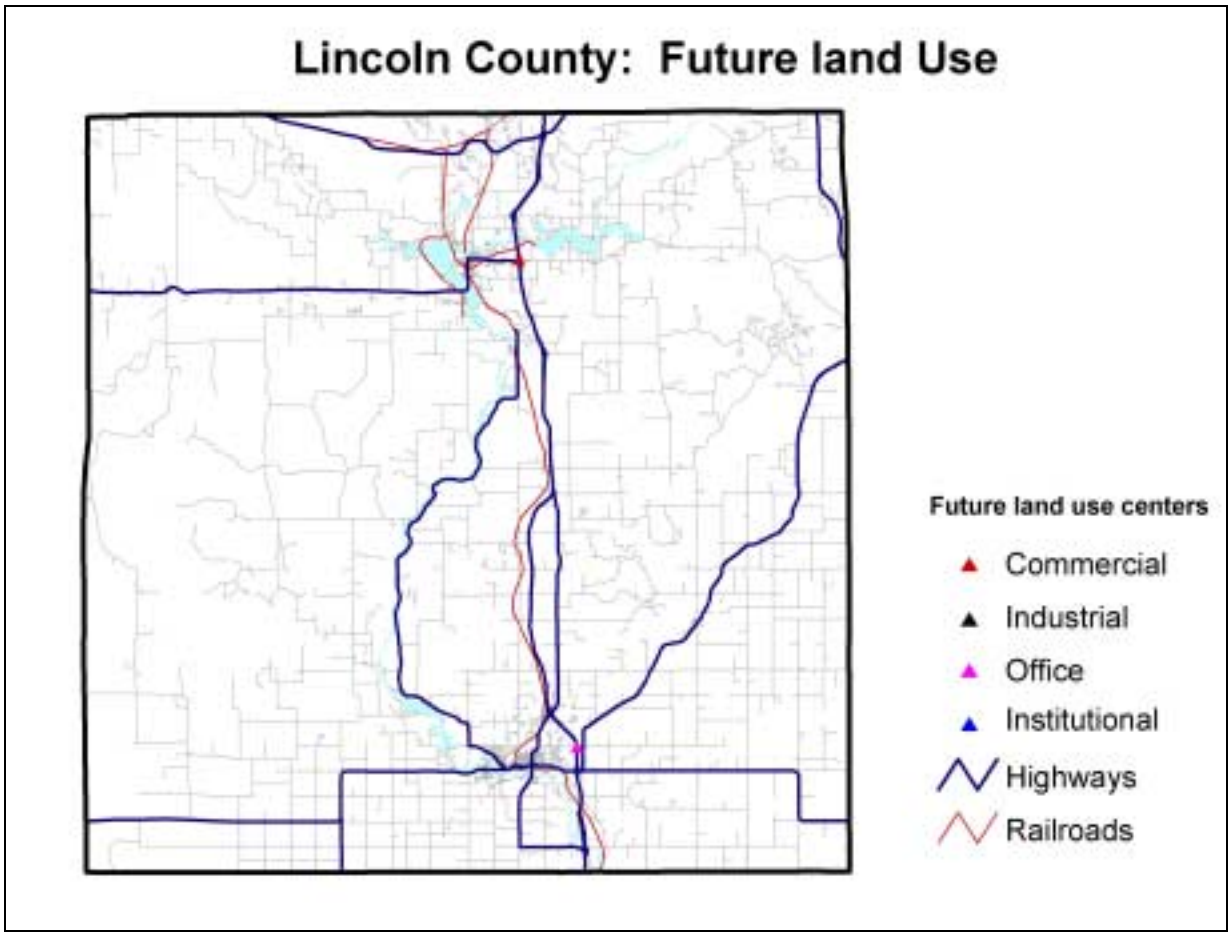
Table 35 - Transportation District 7 employees

	Agriculture, Forestry & Mining	Construction & Contractors	Manufacturing	Transportation, Communication & Utilities	Trade (wholesale & retail)	Services	Total
Florence	5	37	168	36	258	261	765
Forest	3	38	486	179	463	1,240	2,409
Iron	0	159	453	70	555	730	1,967
Langlade	403	264	1,745	473	1,986	1,766	6,637
Lincoln	95	374	3,233	506	2,326	2,263	8,797
Oneida	398	768	1,712	726	4,079	5,250	12,933
Price	53	122	1,984	219	927	1,579	4,884
Vilas	82	578	583	220	1,723	2,464	5,650
District 7 total	1,039	2,340	10,364	2,429	12,317	15,553	44,042
% of employees	2%	5%	24%	6%	28%	35%	100%

Source: Wisconsin Department of Workforce Development. The above employment numbers are reported under the State Unemployment Compensation Compliance Program. *Self-employed individuals with no employees are not included.*

The following map illustrates future land use in Lincoln County, as a sample of District 7's land use maps.

Figure – 9A
Sample future land use map–Lincoln County[49]



Source: Development forecast by Lincoln County Economic Development Corporation, 2001
Electronic map developed by Economic Planning & Development Section, WisDOT

Impediments to development identified by District 7 county planning officials include:

- wetlands,
- brownfields,
- skilled workforce shortages,
- sewer/water/utilities infrastructure limitations,
- political conflicts,
- lack of rail lines/service,
- lack of competitors in air-carrier service and rail service,
- need for highway bypasses,
- local air-brake limitations by ordinance, causing reduced truck volumes,
- truck weight limits by ordinance, causing reduced truck volumes,
- bodies of water that increase travel distances and complicate access to buildings and sites, and
- high water-table.

[49] Future development data provided for unincorporated areas, with some exceptions.

Interestingly, secondary home and land ownership, often by out of state residents, is becoming prevalent in the district's northern counties. Property assessments, especially on lakefront property, are increasing to such high levels that local ownership has become prohibitive for some local residents.

Transportation District 7 Economic forecast[50]

Over the 2000-2015-analysis period, economic activity in District 7, as measured by Gross Regional Product is expected to increase by 39.2%, or 3% less than Wisconsin as a whole. Employment growth will also lag behind the state average: about 9% between 2000 and 2015 versus 13.2% statewide. This reflects the slightly slower population growth in the district compared to the entire state: 6% growth between 2000 and 2015 versus about 9% statewide. Exports from the region will grow faster than imports into the region, and will show larger growth than the state total. Real disposable personal income growth will be slower in District 7 than statewide, again reflecting the slower than average population growth rate in the district.

The largest industrial sectors in District 7, in terms of Value-Added dollars, are currently Medical Services, Real Estate, Retail Sales, Machinery & Computers, Paper, and Wholesale Sales. As seen in Table 36, Machinery & Computer Manufacturing is projected to grow the most between 2000 and 2015, followed by the related Electrical Equipment Manufacturing sector, and Leather Manufacturing. Currently, Electrical Equipment Manufacturing is the 23rd largest industry in the region and will grow into the 16th largest industry by 2015, when the largest industries in District 7 are expected to be Machinery & Computers, Medical Services, Retail Sales, Real Estate, Paper Manufacturing, and Wholesale Sales.

Table 36 - District 7
Fastest–growing* industries
By Value-Added (billions 92 dollars)

	2000	2015	Projected real growth 2000-2015
Machin. & Comput.	0.268	0.648	142%
Leather	0.005	0.011	120%
Electric. Equip.	0.026	0.049	88%
Rubber & Plastics	0.028	0.048	71%
Wholesale	0.163	0.270	66%
Misc. Bus. Serv.	0.046	0.073	59%
Credit & Finance	0.004	0.006	50%

Source: WisDOT analysis using REMI
* Industries expected to grow by at least 50% by the year 2015

Table 36A lists projected *absolute* growth in Value-Added. This table shows that the greatest overall growth during 2000-2015 will be in Machinery & Computers and Wholesale Sales.

[50] It is important to bear in mind that this economic forecast was generated using the REMI economic model, which uses 1990 U.S. Census data, as well as other economic data. The above transportation district economic forecast may therefore differ from state and county economic forecasts by other sources.

Table 36A – District 7
Growth of major industries
By Value-Added (billions 92 dollars)

	2000	2015	Growth	Projected real growth 2000-2015
Machin. & Comput.	0.268	0.648	0.380	141%
Wholesale	0.163	0.270	0.107	66%
Paper	0.207	0.279	0.072	35%
Rest of Retail	0.276	0.343	0.067	24%
Medical	0.286	0.353	0.067	23%
Real Estate	0.278	0.328	0.050	18%
Trucking	0.098	0.137	0.039	40%
Construction	0.160	0.191	0.031	19%
Lumber	0.109	0.138	0.029	27%
Misc. Bus. Serv.	0.046	0.073	0.027	59%

Source: WisDOT analysis using REMI

As seen in Table 37, the industries spending the most money on trucking services in District 7 are Trucking & Warehousing, Construction, Paper, Retail Sales, Machinery & Computer, and Lumber. Of these industries, Machinery & Computers and Wholesale Sales are also among the high-growth sectors in the district, and can be expected to generate significantly more commercial traffic in the region. Trucking costs represent a substantial portion of total production costs for all but one of the industries generating the most trucking activity in District 7 (Machinery & Computer Manufacturing). The regional economy of District 7, like that of Districts 3, 4, and 5 tends to be relatively trucking-reliant.

Table 37 - Largest trucking generators, District 7, 2000

	Truck spending 2000	Projected increase 2000-2015
Truck. & Warehou.	$ 34,079,748	37%
Construction	$ 26,099,685	16%
Paper	$ 17,405,541	31%
Rest of Retail	$ 16,072,753	21%
Machin. & Comput.	$ 11,608,690	143%
Lumber	$ 10,221,496	24%
Wholesale	$ 9,957,190	62%

Sources: WisDOT analysis using REMI, TSA

Table 38 shows that Machinery & Computer Manufacturing will increase truck spending the most over the analysis period, making it the third largest trucking activity in the district by 2015. Similarly, Wholesale Sales and Rubber & Plastics Manufacturing will also increase truck spending by a sizable percentage to reach significant levels. Electrical Equipment Manufacturing, an industry closely linked to Machinery & Computer Manufacturing, will increase truck spending by a sizable percentage, but does not show up in the table, since it will remain much smaller in absolute truck spending dollars than the high-growth Machinery & Computers, Wholesale Sales, and Rubber & Plastics industries.

Table 38 - Largest trucking generators, District 7, 2015

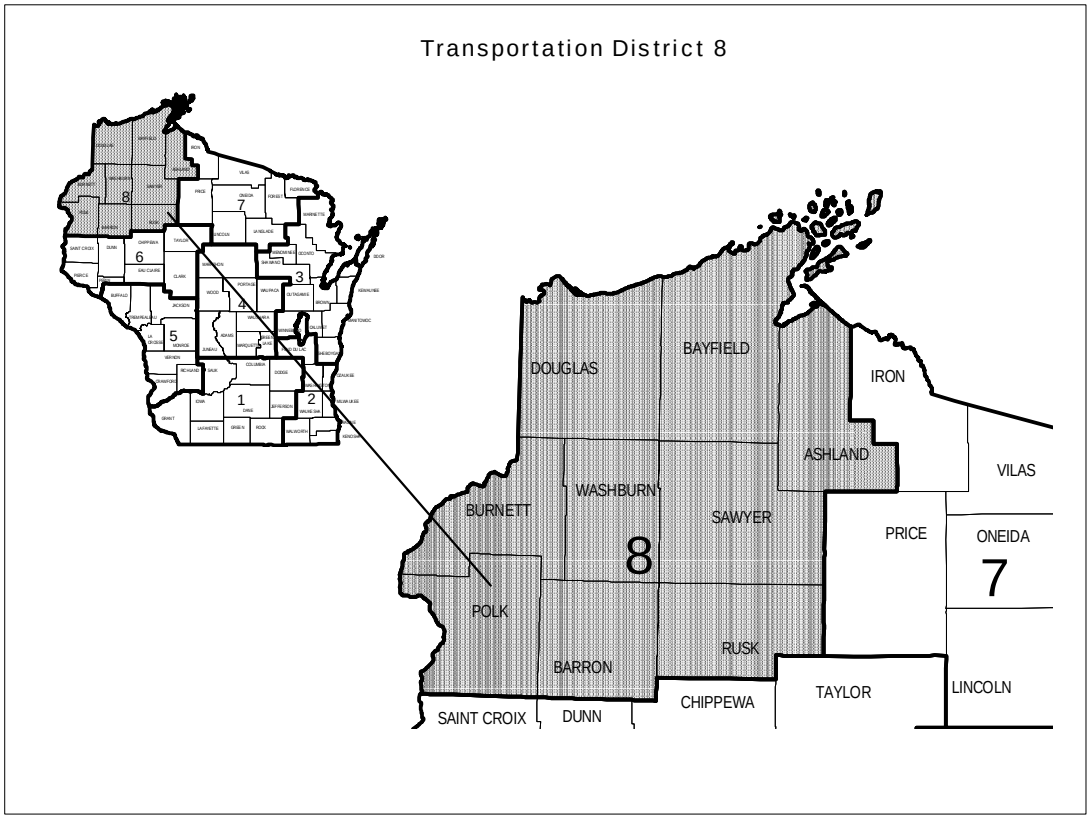
	Projected Truck spending 2015	Projected Increase 2000-2015
Truck. & Warehou.	$ 46,674,437	37%
Construction	$ 30,353,501	16%
Machin. & Comput.	$ 28,237,761	143%
Paper	$ 22,842,413	31%
Rest of Retail	$ 19,511,202	21%
Wholesale	$ 16,091,155	62%
Lumber	$ 12,672,075	24%
Eating & Drinking	$ 10,629,893	22%
Medical	$ 6,724,241	21%
Rubber & Plastics	$ 4,178,117	64%

Sources: WisDOT analysis using REMI, TSA

In sum, major growth is expected in the Computer & Machinery industry, as well as in the associated Electrical Equipment sector. Rubber & Plastics Manufacturing and Wholesale Sales sectors are also projected to grow significantly, and will remain relatively important in terms of overall output. Machinery & Computer Manufacturing, Electrical Equipment Manufacturing, Trucking & Warehousing, and the Wholesale Sales industries can be expected to generate significant increases in trucking activity as they grow. Population in the district will grow by less than the state average, increasing by about 6% between 2000 and 2015.

Transportation District 8: headquarters – Superior, Wisconsin

Figure 10 – District 8



Transportation District 8 consists of nine counties in the northwest region of the state. These counties have a broad range of economic activity including tourism, lumber and wood processing, as well as large food production operations. The area represents approximately 17% of the state's land area and slightly over 4% of the total state population (the nine-county population is 215,495).[51] A significant amount of the land (approximately 30%) is publicly owned and provides public access and recreational opportunities in many of the natural and undeveloped areas of the state.

The district is predominantly rural, and includes 187 towns, 14 cities and 40 villages. Towns comprise the majority of the land area. Many of the land use changes take place in the towns, mostly due to requests for zoning changes within town boundaries. In a majority of the counties in this district, county governments approve land use changes through the zoning process. As a courtesy to the towns, many counties seek consultation and recommendations from the local municipalities before granting or denying zoning changes and variances. There is, in general, cooperation between county and municipal governments in land use changes and planning efforts. Many counties work directly with the towns to develop local land use plans that will be incorporated into the counties' comprehensive plans.

Two of the nine counties reported completing land use plans, and the remaining counties are currently in the process of developing plans. Eighty six percent of cities, 18% of villages, and only 2% of towns have plans. Washburn and Sawyer Counties, as well as a number of other communities, applied for state assistance in the development of comprehensive plans through the Comprehensive Planning Grant Program. Washburn County, the Town of Milltown in Polk County, and the City of Rice Lake were subsequently successful in receiving state funds.

[51] Wisconsin Department of Administration-Demographic Services Center, 2000.

Superior and Ashland are the largest cities in the transportation district's northern fringe. Both cities are regional trade centers, representing a large number of retail businesses and manufacturers. The Cities of Superior and Ashland both have harbor, rail, and nearby airport facilities. Other major regional employment centers in the district include Barron, Rice Lake, Osceola, St. Croix Falls, Amery, Siren, Spooner, Grantsburg, Webster, Danbury, Hayward, and Ladysmith. These municipalities are also active in land use planning and have strong economic development organizations.

There has been a noticeable influence of Minnesota-based businesses in communities along the Wisconsin-Minnesota border. The communities of Osceola, St. Croix Falls, Dresser, Luck, and Amery have therefore expanded their business parks over the years to accommodate this growth. Tables 39 and 40 list the number of business establishments and employees by industry type for District 8 counties.

Table 39 - Number of businesses in Transportation District 8

	Agriculture, Forestry & Mining	Construction & Contractors	Manufacturing	Transportation, Communication & Utilities	Trade (wholesale & retail)	Services	Total
Ashland	26	73	63	51	344	430	987
Barron	106	244	138	116	730	859	2,193
Bayfield	38	102	43	74	312	332	901
Burnett	29	111	49	42	244	270	745
Douglas	44	195	100	122	660	798	1,919
Polk	99	227	142	91	583	719	1,861
Rusk	23	62	44	47	225	225	626
Sawyer	52	127	75	54	397	477	1,182
Washburn	44	151	69	48	344	405	1,061
District 8 total	461	1,292	723	645	3,839	4,515	11,475
% of all employers	4%	11%	6%	6%	33%	39%	100%

Source: ReferenceUSA.com. Multiple counts of a business are possible due to multiple business specializations. The Total column reflects the listed industrial classifications only. Total number of all businesses is 13,078.

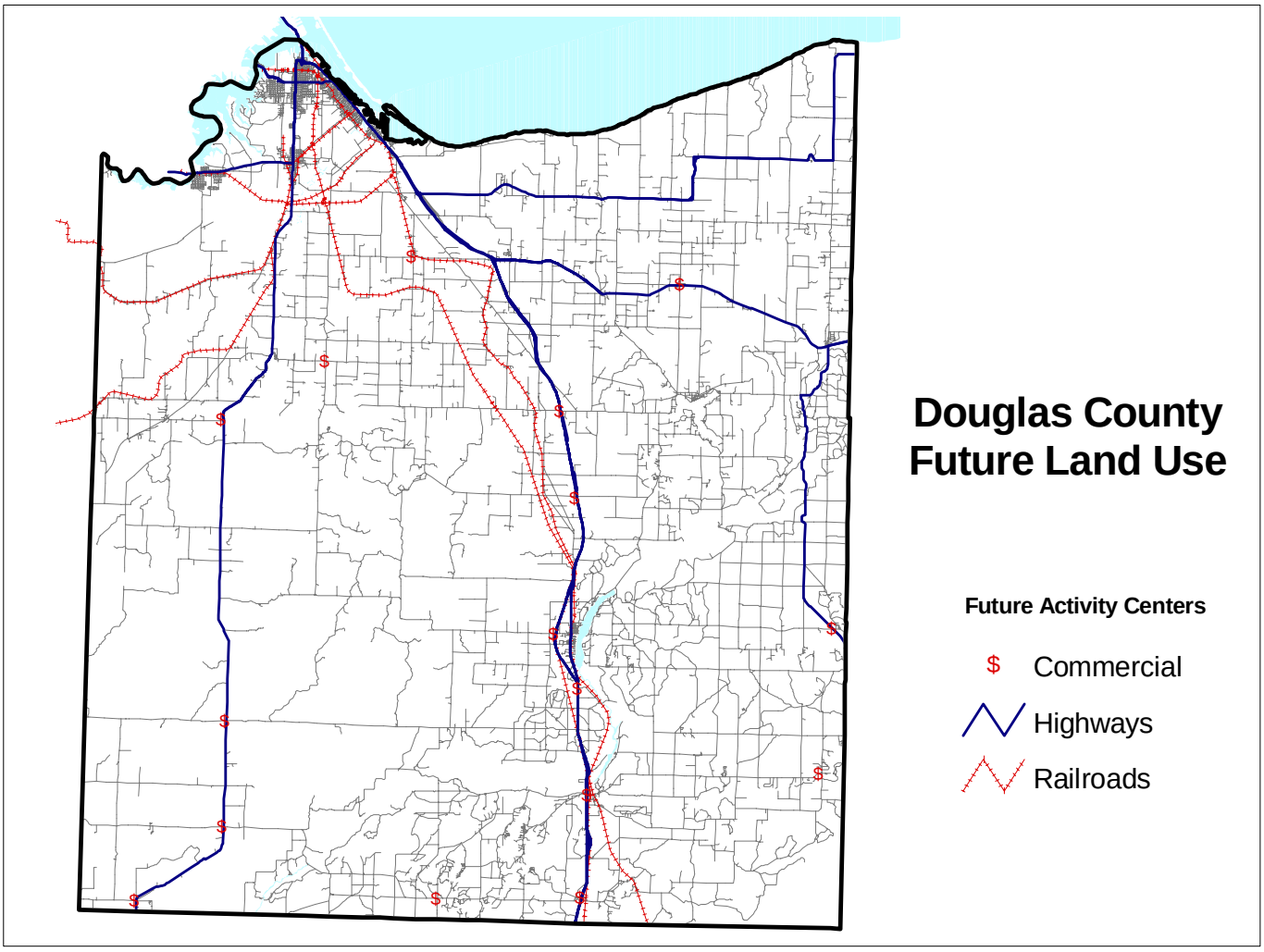
Table 40 - Transportation District 8 employees

	Agriculture, Forestry & Mining	Construction & Contractors	Manufacturing	Transportation, Communication & Utilities	Trade (wholesale & retail)	Services	Total
Ashland	63	217	1,423	339	1,324	2,916	6,282
Barron	246	500	5,172	759	3,949	4,469	15,095
Bayfield	2	139	203	253	638	1,225	2,460
Burnett	26	143	1,024	198	748	2,412	4,551
Douglas	58	615	1,475	1,597	3,866	5,009	12,620
Polk	139	529	3,326	655	2,408	3,744	10,801
Rusk	92	141	2,073	256	1,009	1,333	4,904
Sawyer	68	178	752	185	1,409	2,297	4,889
Washburn	38	119	928	331	1,200	1,515	4,131
District 8 total	732	2,581	16,376	4,573	16,551	24,920	65,733
% of employees	1%	4%	25%	7%	25%	38%	100%

Source: Wisconsin Department of Workforce Development. The above employment numbers are reported under the State Unemployment Compensation Compliance Program. *Self-employed individuals with no employees are not included.*

In the district's northern counties, secondary home and land ownership, often by out of state residents, is becoming prevalent. Property assessments, especially on lakefront property, are increasing to such high levels that local ownership has become cost prohibitive for some local residents. As a sample of District 8's land use maps, the following map illustrates future land use in Douglas County.

Figure – 10A
Sample future land use map–Douglas County[52]



Source: Development forecast by Douglas County Zoning Office, 2000
Electronic map developed by Economic Planning & Development Section, WisDOT

Northwest Wisconsin Regional Planning Commission's (NWRPC) *2000 Comprehensive Economic Development Strategy* describes District 8 transportation facilities as inadequate and underutilized. Geographically, the region is removed from large urban population centers and logistically situated away from some of the major industrial clusters driving Wisconsin's economy. The economic significance of industrial clusters is identified in *Critical Success Factors for Knowledge-Based Industrial Clusters in Wisconsin*.[53]

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[52] Future development data provided for unincorporated areas.
[53] *Critical Success Factors for Knowledge-Based Industrial Clusters in Wisconsin*, Mark Mone, John B. Torinus Jr., Brenda Blanchard, Timothy Sheehy, Joseph J. Shepley, Wisconsin Economic Summit 11/29/2000-12/1/2000, Milwaukee.

The industrial clusters included the following:

> Agricultural Business/Food Processing, Biotechnology/Bioinformatics, Business Services/Supply Chain Management, Finance/Insurance, Information Technology/Data Processing, Machinery Manufacturing/Automation, Manufacturing/Materials, Medical Devices/Medical Informatics, Papermaking/Forest Products, and Printing.

NWRPC identified inadequate or underutilized transportation facilities as an important source of the area's economic problems. According to NWRPC, highway improvements have not kept up with traffic volumes and have not been coordinated with the region's economic needs. Rail abandonment and a reduction in rail services have caused freight rates to increase and communities to lose rail service. Lake Superior ports have changed in character and usage from handling a large volume of bulk commodities such as coal and wheat to more recreational uses such as marinas, boat slip rentals, lakefront housing, and retail development. In addition, rail and harbor facilities also appear to be moving towards more recreational uses, in response to market and community demands.

Although the transportation network has some shortfalls, NWRPC indicated that in all five of its counties highways are the most important and heavily used transportation mode, linking the region to the rest of the state, as well as nearby markets in Minnesota. Many county planning and economic development agencies felt that some highways should be expanded to accommodate the commuters and businesses within the district. It was also reported that the quality of the region's highways is also considered important in helping local efforts utilize and promote the region's tourism potential.

In Burnett County's Land use Plan, commercial economic growth areas along highways were referred to as "highway commercial corridors". Burnett County believes that these corridors are under significant development pressure and emphasizes their need for access control. *Burnett County's 1998 Land Use Plan* expressed a desire to cluster business services on the commercial corridors to facilitate better land use and highway access management. Recommendations were also made to consider ways to enhance the "Northwoods experience" through pavement improvements and the development of a highway beautification plan. This type of needs-identification-process, developed by Burnett County, as well as county mapping efforts, will provide the district's transportation planners with the necessary tools to develop investment strategies to better integrate transportation projects with communities' land use and economic development goals.

Transportation District 8 economic forecast[54]

Economic activity in District 8, as measured by Gross Regional Product, is expected to lag behind the growth of Wisconsin as a whole: 35.3% between 2000 and 2015 versus 42.2% statewide. Employment growth will also be slower: about 9% between 2000 and 2015 versus 13.2% statewide. This reflects the slower population growth in the district compared to the entire state: 4.2% growth between 2000 and 2015 versus about 9% statewide. Exports from the region will grow faster than imports into the region, and will show roughly the same growth as statewide. Real disposable personal income growth will be slower than statewide, again reflecting the slower than average population growth in the district.

District 8 borders Minnesota's Duluth area, which in this analysis includes St. Louis and Carlton Counties. While population growth in District 8 is projected to be modest and a little less than half the growth of Wisconsin as a whole, the population growth rate of the Duluth region is projected to decline by nearly 1%. The population of the entire Duluth-Superior MSA, which is comprised of St. Louis County in Minnesota and Douglas County in Wisconsin, is projected to decline by about 4% over the analysis period, while the population of the Douglas County portion of the MSA is projected to stay constant or increase slightly.

The largest industrial sectors in District 8, in terms of Value-Added in the region, are currently Retail Sales, Medical Services, Real Estate, Food, and Machinery & Computers. As seen in Table 41, between 2000 and 2015 Machinery & Computer Manufacturing is projected to grow the most by percent Value-Added, followed by Electrical Equipment Manufacturing. In 2015, the largest industries in District 8 are expected to be Machinery & Computers, Retail Sales, Medical Services, Wholesale Sales, and Real Estate.

[54] It is important to bear in mind that this economic forecast was generated using the REMI economic model, which uses 1990 U.S. Census data, as well as other economic data. The above transportation district economic forecast may therefore differ from state and county economic forecasts by other sources.

Table 41 - District 8
Fastest–growing* industries
By Value-Added (billions 92 dollars)

	2000	2015	Projected real growth 2000-2015
Machin. & Comput.	0.251	0.623	148%
Electric. Equip.	0.017	0.038	124%
Rubber & Plastics	0.079	0.132	67%
Misc. Bus. Serv.	0.051	0.083	63%
Primary Metals	0.008	0.013	63%
Credit & Finance	0.008	0.013	63%
Wholesale	0.224	0.362	62%
Instruments	0.031	0.049	58%

Source: WisDOT analysis using REMI

* Industries expected to grow by at least 50% by the year 2015

Table 41A lists projected *absolute* growth of industries in Value-Added dollars. This table shows that the greatest overall growth during 2000-2015 will be in Machinery & Computers, Wholesale Sales, Retail, and Medical Services.

Table 41A – District 8
Growth of major industries
By Value-Added (billions 92 dollars)

	2000	2015	Growth	Projected real growth 2000-2015
Machin. & Comput.	0.251	0.623	0.372	148%
Wholesale	0.224	0.362	0.138	61%
Rest of Retail	0.382	0.472	0.090	23%
Medical	0.306	0.391	0.085	27%
Food	0.279	0.353	0.074	26%
Public Utilities	0.173	0.229	0.056	32%
Trucking	0.139	0.194	0.055	39%
Real Estate	0.300	0.355	0.055	18%
Rubber & Plastics	0.079	0.132	0.053	67%
Fabricated Metals	0.149	0.195	0.046	30%

Source: WisDOT analysis using REMI

As seen in Table 42, the industries spending the most money on trucking services in District 8 are Trucking & Warehousing, Construction, Food Manufacturing, Retail Sales, and Wholesale Sales. Of these industries, Wholesale Sales is also a high-growth sector in the district, and can be expected to generate significantly more commercial traffic in the region.

Table 42 - Largest trucking generators, District 8, 2000

	Truck Spending 2000	Projected Increase 2000-2015
Truck. & Warehou.	$ 48,526,597	36.6%
Construction	$ 35,977,190	15.8%
Food	$ 22,596,885	24.3%
Rest of Retail	$ 22,229,976	20.9%
Wholesale	$ 13,654,374	58.2%
Lumber	$ 11,221,074	24.7%
Eating & Drinking	$ 11,168,115	21.7%
Machin. & Comput.	$ 10,749,345	147.1%

Sources: WisDOT analysis using REMI, TSA

Table 43 shows that Machinery & Computer Manufacturing will increase truck spending the most over the analysis period, reaching the fifth highest level of trucking activity in the district by 2015. Conversely, Construction, Retail Sales, and Food Manufacturing will have relatively small growth in trucking activity. The Wholesale Sales industry already has a high level of trucking activity in District 8, and will increase this activity by nearly 60%, making this industry the sixth largest generator of commercial trucking activity in 2015.

Table 43 - Projected largest trucking generators, District 8, 2015

	Projected truck spending 2015	Projected increase 2000-2015
Truck. & Warehou.	$ 66,307,335	36.6%
Construction	$ 41,672,977	15.8%
Food	$ 28,098,502	24.3%
Rest of Retail	$ 26,867,885	20.9%
Machin. & Comput.	$ 26,564,301	147.1%
Wholesale	$ 21,594,918	58.2%
Lumber	$ 13,994,098	24.7%
Eating & Drinking	$ 13,590,116	21.7%
Rubber & Plastics	$ 11,517,070	63.4%

Sources: WisDOT analysis using REMI, TSA

In sum, major growth is expected in the Computer & Machinery industry, as well as in the associated Electrical Equipment sector, although the latter will remain a relatively small sector in the district in absolute truck spending. Wholesale Sales is also projected to grow significantly, and will remain a relatively important sector in terms of overall output. Machinery & Computer Manufacturing, Trucking & Warehousing, and the Wholesale Sales industries can be expected to generate significant increases in trucking activity as they grow. Population in the district will grow at roughly half the state average rate, increasing by about 4% between 2000 and 2015.

Conclusions and general observations

Based on interviews with local officials and observations by the researchers, the following are the principal findings of the study, categorized into three areas: 1) Transportation infrastructure, 2) Planning and economic development, and 3) Challenges arising over the course of the study.

Transportation infrastructure

1. As a general observation, the majority of the county planners and economic development coordinators indicated that the existing transportation infrastructure adequately served their respective regions. Most of the respondents did not consider transportation projects as a hindrance to economic development. There was general consensus that continued transportation improvements are needed to help stimulate local economic activity. Several county planners identified the following to be congested highway segments, and areas needing highway capacity improvements: USH 8 in northern Wisconsin, USH 441 in Winnebago and Calumet Counties, and USH 141 in Marinette County.

2. Due to the lack of a freight-rail customer base, consolidation of rail service providers, rail abandonment, and rails-to-trails conversion initiatives, planners and economic development coordinators from several northern Wisconsin counties felt that rail service was lacking in their county.

3. For the most part, the transportation district offices are involved with the regional planning commissions, metropolitan planning organizations, and local municipal governments in identifying needed transportation projects in their region. Overall, the district offices provide adequate information to communities regarding highway rehabilitation and maintenance projects.

Planning and economic development

1. Land use planning in Wisconsin's counties ranges from thorough and detailed plans to nonexistent or outdated plans. Certain counties have active, organized planning departments with adopted plans in place and digitized land use maps. Other counties, in northern Wisconsin, for example, have no county planning department or plan and often outdated zoning ordinances. Following the 1999 Comprehensive Planning Legislation, which required an adopted comprehensive plan by the year 2010 for regulation of growth and development, the study researchers have noticed a surge in interest in land use planning.

   At the time of the study, several counties have applied for state planning assistance funds and/or hired private consultants or regional planning commissions to help develop plans. Many counties have initiated their own county process in mobilizing and educating municipalities on the principles and decision-making processes of land use planning.

2. Even where local plans exist, they are not always followed. Many of the plans often serve as guidance documents and are not adhered to when new housing and economic development projects are proposed to the governing body. Many planning officials noted that developers, as opposed to citizen groups and the government, sometimes drive local land use decisions in Wisconsin, making long-term transportation planning more difficult.

3. Counties, cities, and villages with adequate staff and resources are generally better able to anticipate, prepare for, and manage growth. This was evident from the plans reviewed and gathered by the research staff. The majority of the local plans were developed by counties, cities, and villages.

4. Following a national trend, Wisconsin downtowns continue to lose businesses to outlying areas. At the same time, downtown revitalization efforts such as Business Improvement Districts (BIDS), the Main Street Program, and other programs are being actively pursued to help bring businesses to downtowns. Regional shopping centers continue to grow while smaller Main Street businesses continue to provide basic goods and services and serve niche markets.

Conclusions and general observations (cont.)

5. County planning officials and economic development directors indicate that land use, transportation planning, and economic development have become more political. Over time, many members of the public have increased their understanding of the interaction among these three elements. Because of increased public awareness, development approvals have become more complex, especially if there is distrust between the planning/development groups and the public. Potentially affected groups tend to oppose projects with even the slightest negative impact possibilities. Public outreach and ongoing involvement of these groups is therefore essential in making any development project move beyond the conceptual stage.

6. In the majority of the counties interviewed, concern was expressed about economic development suffering from a lack of a skilled labor force. Education and job training remain a high priority for local and state government.

7. According to Transportation Districts 3, 7, and 8, secondary home and land ownership, often by out of state residents, is becoming prevalent in Northern Wisconsin. Property assessments, especially on lakefront property, are increasing to such high levels that local ownership has become prohibitive for some local residents.

8. Many of the smaller villages and towns in Wisconsin have manufacturing operations. These manufacturers often provide significant employment levels and higher wages. Several counties reported that some of their large manufacturers have downsized or shut down, leaving unemployed workers and underutilized supporting industries. Due to an already depressed farm economy and such an unstable manufacturing sector, planning for economic development has become increasingly difficult.

9. According to the economic forecasting models:

    a. The REMI model and Transportation Satellite Accounts (TSA) show that that the Machinery & Computer Manufacturing and related Electrical Equipment Manufacturing industries will show the greatest growth over the over the 2000-2015 analysis period, both in manufacturing activity and the generation of commercial trucking activity. Although neither of these high-tech sectors relies as heavily on truck transportation as other industries, their expansion will make them among the largest spenders on truck transportation services.

    b. Wholesale Trade, a large industry with a high level of truck spending, will expand significantly in all the transportation districts. This substantial expansion will maintain the industry's relative importance and is expected to generate large increases in statewide commercial trucking activity over the analysis period.

    c. Major highway corridors serving businesses in the Machinery & Computer Manufacturing, Electrical Equipment Manufacturing, and Wholesale Trade industries can expect to bear heavy increases in commercial truck traffic over the analysis period.

    d. While Machinery & Computer Manufacturing, Electrical Equipment Manufacturing, and Wholesale Trade will generate large increases in Value-Added, these industries will not show the largest employment growth. The greatest growth in employment will be in Services, with Health/Medical Services, Business Services, and Professional Services showing the largest percentage increases. Growing activity in these economic sectors will increase transportation demand by both employees and customers. It is important for communities to incorporate information about these sectors into their transportation planning to the benefit of both communities and businesses.

Conclusions and general observations (cont.)

e. By 2015, over 60% of Wisconsin jobs will be in Retail Sales, Health/Medical Services, Business Services, Eating & Drinking Establishments, Wholesale Trade industries, Non-profit Organizations, Construction, Machinery & Computer Manufacturing, and Professional Services.

f. Several manufacturing industries such as Paper, Food, and Lumber, traditionally mainstays of the Wisconsin economy, will grow more slowly, becoming relatively less important in the future. Meanwhile, service industries such as Health/Medical Services and Business Services will become relatively more important to the state economy.

g. Most of the economic activity in Wisconsin, as measured by Value-Added, occurs in its eastern and southeastern regions, in Transportation Districts 1, 2, and 3. This phenomenon is expected to continue throughout the analysis period. In 2000, 80% of the state Gross Regional Product was generated in these three districts, a proportion that will remain essentially unchanged.

Challenges arising over the course of the study

1. During the study's data collection process, no single source had all the planning, economic, and map information that the researchers requested about a particular government unit.

2. Wisconsin county planning & zoning departments adopt zoning ordinances and plans for unincorporated communities only, while cities and villages have their own plans. Obtaining city and village plans and GIS land use maps in addition to county plans and land use maps required additional staff time and effort, and was done for only a few major metropolitan areas, reducing the study's degree of accuracy in urban areas.

3. While county planners and economic development specialists provided information for most of the counties, no response was received from several counties. Even after several reminders, several counties did not provide WisDOT with land use maps and/or background economic development information. In such cases, the staff relied on available business databases, the Internet, and community marketing publications.

4. Another difficulty faced in the study process was the inherent dynamic nature of the planning process. Over the course of the study, local plans were sometimes updated after staff conducted the interview. Some counties and communities were in the process of preparing a plan but adopted it only after this study was finished, making it extremely difficult to maintain a plan inventory with 100% accuracy.

5. In most cases, requested data for county profiles on anticipated development square footage and major business and industrial park expansion plans was either unavailable or proprietary.

6. Finally, governmental units throughout Wisconsin vary greatly in their use of GIS and their computer systems' compatibility with WisDOT's. Even when county and community land use plans were available electronically, it was sometimes extremely time-consuming or impossible for both WisDOT and the external data providers to translate files into formats readable by WisDOT. Until these differences are reconciled, planning cooperation between WisDOT and governmental units may be more time consuming and less productive than if electronic land use maps were directly transferable.

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Cover:

Background art provided with permission by Thomas Dabareiner (photo) and
Vandewalle and Associates (background map)

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Appendices

Appendix 1 - Interview questions

I. Overview

What is the county/community land area?

_____ miles^2
_____ acres

How many cities, villages, and townships are inside the county?

_____ cities
_____ villages
_____ towns

What are the most active land use and economic development governmental units?

How powerful are their decisions and actions as far as adopting and adhering to land use plans? How consistently are the adopted plans adhered to?

What are the significant transportation corridors (highways, rail, air, and harbor)?

Highways

Rail

Air

What are current general trends in economic development?

Commercial (retail, services, financial, trade, stores, offices)

Manufacturing (also warehousing activities)

Institutional

II. Existing Land Use Plans, Planning Bodies

For counties: Who are the administering bodies for land use planning in your county?

Is there an adopted land use/development plan? If so, we would like a copy.

Do the communities support it?

If there is no county plan, does zoning substitute for a comprehensive plan?

Which communities have adopted the county zoning ordinance?

Which communities have their own zoning ordinances?

Which communities have no zoning at all?

If there is no county planning body, does the county designate the RPC as its official planning body?

Do other government-type districts, such as sewer/sanitation districts and transit service/commission districts have a significant role in determining land use?

III. Dominant Operations

<u>County-wide level or community-wide level</u>:
What are the major industrial sectors driving the economy?

What are the major businesses (including their locations) driving the economy?
If available, we would like any known statistics about the major employers including size of output, sales, any expansion plans, and money to be invested:

Name	City	SIC	Employees

Where are the major commercial centers (retail, services, financial, trade, offices)?

Where are the major institutional centers (schools, hospitals, government)?

Where is there a significant collection of office buildings? Who are the tenants? Where are these located?

Is agriculture/agricultural processing a major sector by land area or labor force?

What are the major recreational destinations, activities, and seasons?

IV. Locations Of Activity

Industrial Parks (name, acres available, total acres, expansion plans if available)

Name	Community	Avail. Acres	Total Acres

Downtown districts - Have any communities adopted the Main Street Program or created Business Improvement Districts?

Commercial Strips (mostly along older highways) - are they self-renewing or are they being abandoned?

Have any major tenants of these commercial areas recently relocated to a newer, more peripheral location?

V. Please describe if any of the following are limiting factors to development

Transportation systems (roads, rail, etc.)

Bodies of water (rivers, lakes, wetlands)

Topography

Infrastructure (sewer/water, electricity, gas, etc.)

Politics

Employment base

Available buildings/sites

Brownfields (abandoned, contaminated, tax-delinquent, and/or underutilized)

VI. Please describe if any of the following act as partners in economic development (providing technical assistance or financial assistance)

County and local public/private sector economic development groups

Internet sites/ Home pages

Universities, Colleges, and Technical Schools- have they entered into formal cooperative ventures for training and/or economic development?

> **What kinds of training programs (usually technical schools) or business development programs (usually colleges) do they have?**

Appendix 2 - Wisconsin Comprehensive Planning Legislation

Wisconsin Statutes

Chapter 66: General Municipality Law

66.1001 Comprehensive planning.

(1) DEFINITIONS. In this section:

(a) "Comprehensive plan" means:

1. For a county, a development plan that is prepared or amended under s. 59.69 (2) or (3).
2. For a city or a village, or for a town that exercises village powers under s. 60.22 (3), a master plan that is adopted or amended under s. 62.23 (2) or (3).
3. For a regional planning commission, a master plan that is adopted or amended under s. 66.0309 (8), (9) or (10).

(b) "Local governmental unit" means a city, village, town, county or regional planning commission that may adopt, prepare or amend a comprehensive plan.

(2) CONTENTS OF A COMPREHENSIVE PLAN. A comprehensive plan shall contain all of the following elements:

(a) *Issues and opportunities element.* Background information on the local governmental unit and a statement of overall objectives, policies, goals and programs of the local governmental unit to guide the future development and redevelopment of the local governmental unit over a 20–year planning period. Background information shall include population, household and employment forecasts that the local governmental unit uses in developing its comprehensive plan, and demographic trends, age distribution, educational levels, income levels and employment characteristics that exist within the local governmental unit.

(b) *Housing element.* A compilation of objectives, policies, goals, maps and programs of the local governmental unit to provide an adequate housing supply that meets existing and forecasted housing demand in the local governmental unit. The element shall assess the age, structural, value and occupancy characteristics of the local governmental unit's housing stock. The element shall also identify specific policies and programs that promote the development of housing for residents of the local governmental unit and provide a range of housing choices that meet the needs of persons of all income levels and of all age groups and persons with special needs, policies and programs that promote the availability of land for the development or redevelopment of low–income and moderate–income housing, and policies and programs to maintain or rehabilitate the local governmental unit's existing housing stock.

(c) *Transportation element.* A compilation of objectives, policies, goals, maps and programs to guide the future development of the various modes of transportation, including highways, transit, transportation systems for persons with disabilities, bicycles, walking, railroads, air transportation, trucking and water transportation. The element shall compare the local governmental unit's objectives, policies, goals and programs to state and regional transportation plans. The element shall also identify highways within the local governmental unit by function and incorporate state, regional and other applicable transportation plans, including transportation corridor plans, county highway functional and jurisdictional studies, urban area and rural area transportation plans, airport master plans and rail plans that apply in the local governmental unit.

(d) *Utilities and community facilities element.* A compilation of objectives, policies, goals, maps and programs to guide the future development of utilities and community facilities in the local governmental

unit such as sanitary sewer service, storm water management, water supply, solid waste disposal, on–site wastewater treatment technologies, recycling facilities, parks, telecommunications facilities, power–generating plants and transmission lines, cemeteries, health care facilities, child care facilities and other public facilities, such as police, fire and rescue facilities, libraries, schools and other governmental facilities. The element shall describe the location, use and capacity of existing public utilities and community facilities that serve the local governmental unit, shall include an approximate timetable that forecasts the need in the local governmental unit to expand or rehabilitate existing utilities and facilities or to create new utilities and facilities and shall assess future needs for government services in the local governmental unit that are related to such utilities and facilities.

(e) *Agricultural, natural and cultural resources element.* A compilation of objectives, policies, goals, maps and programs for the conservation, and promotion of the effective management, of natural resources such as groundwater, forests, productive agricultural areas, environmentally sensitive areas, threatened and endangered species, stream corridors, surface water, floodplains, wetlands, wildlife habitat, metallic and nonmetallic mineral resources, parks, open spaces, historical and cultural resources, community design, recreational resources and other natural resources.

(f) *Economic development element.* A compilation of objectives, policies, goals, maps and programs to promote the stabilization, retention or expansion, of the economic base and quality employment opportunities in the local governmental unit, including an analysis of the labor force and economic base of the local governmental unit. The element shall assess categories or particular types of new businesses and industries that are desired by the local governmental unit. The element shall assess the local governmental unit's strengths and weaknesses with respect to attracting and retaining businesses and industries, and shall designate an adequate number of sites for such businesses and industries. The element shall also evaluate and promote the use of environmentally contaminated sites for commercial or industrial uses. The element shall also identify county, regional and state economic development programs that apply to the local governmental unit.

(g) *Intergovernmental cooperation element.* A compilation of objectives, policies, goals, maps and programs for joint planning and decision making with other jurisdictions, including school districts and adjacent local governmental units, for siting and building public facilities and sharing public services. The element shall analyze the relationship of the local governmental unit to school districts and adjacent local governmental units, and to the region, the state and other governmental units. The element shall incorporate any plans or agreements to which the local governmental unit is a party under s. 66.0301, 66.0307 or 66.0309. The element shall identify existing or potential conflicts between the local governmental unit and other governmental units that are specified in this paragraph and describe processes to resolve such conflicts.

(h) *Land–use element*. A compilation of objectives, policies, goals, maps and programs to guide the future development and redevelopment of public and private property. The element shall contain a listing of the amount, type, intensity and net density of existing uses of land in the local governmental unit, such as agricultural, residential, commercial, industrial and other public and private uses. The element shall analyze trends in the supply, demand and price of land, opportunities for redevelopment and existing and potential land–use conflicts. The element shall contain projections, based on the background information specified in par. (a), for 20 years, in 5–year increments, of future residential, agricultural, commercial and industrial land uses including the assumptions of net densities or other spatial assumptions upon which the projections are based. The element shall also include a series of maps that shows current land uses and future land uses that indicate productive agricultural soils, natural limitations for building site development, floodplains, wetlands and other environmentally sensitive lands, the boundaries of areas to which services of public utilities and community facilities, as those terms are used in par. (d), will be provided in the future, consistent with the timetable described in par. (d), and the general location of future land uses by net density or other classifications.

(i) *Implementation element*. A compilation of programs and specific actions to be completed in a stated sequence, including proposed changes to any applicable zoning ordinances, official maps, sign regulations, erosion and storm water control ordinances, historic preservation ordinances, site plan regulations, design review ordinances, building codes, mechanical codes, housing codes, sanitary codes or subdivision ordinances, to implement the objectives, policies, plans and programs contained in pars. (a) to (h). The element shall describe how each of the elements of the comprehensive plan will be integrated and made consistent with the other elements of the comprehensive plan, and shall include a mechanism to measure the local governmental unit's progress toward achieving all aspects of the comprehensive plan. The element shall include a process for updating the comprehensive plan. A comprehensive plan under this subsection shall be updated no less than once every 10 years.

(3) ACTIONS, PROCEDURES THAT MUST BE CONSISTENT WITH COMPREHENSIVE PLANS.
Beginning on January 1, 2010, any program or action of a local governmental unit that affects land use shall be consistent with that local governmental unit's comprehensive plan, including all of the following:

(a) Municipal incorporation procedures under s. 66.0201, 66.0203 or 66.0215.
(b) Annexation procedures under s. 66.0217, 66.0219, or 66.0223.
(c) Cooperative boundary agreements entered into under s. 66.0307.
(d) Consolidation of territory under s. 66.0229.
(e) Detachment of territory under s. 66.0227.
(f) Municipal boundary agreements fixed by judgment under s. 66.0225.
(g) Official mapping established or amended under s. 62.23 (6).
(h) Local subdivision regulation under s. 236.45 or 236.46.
(i) Extraterritorial plat review within a city's or village's extraterritorial plat approval jurisdiction, as is defined in s. 236.02 (5).
(j) County zoning ordinances enacted or amended under s. 59.69.
(k) City or village zoning ordinances enacted or amended under s. 62.23 (7).
(l) Town zoning ordinances enacted or amended under s. 60.61 or 60.62.
(m) An improvement of a transportation facility that is undertaken under s. 84.185.
(n) Agricultural preservation plans that are prepared or revised under subch. IV of chapter 91.
(o) Impact fee ordinances that are enacted or amended under s. 66.0617.
(p) Land acquisition for recreational lands and parks under s. 23.09 (20).
(q) Zoning of shorelands or wetlands in shorelands under s. 59.692, 61.351 or 62.231.
(r) Construction site erosion control and storm water management zoning under s. 59.693, 61.354 or 62.234.
(s) Any other ordinance, plan or regulation of a local governmental unit that relates to land use.

(4) PROCEDURES FOR ADOPTING COMPREHENSIVE PLANS. A local governmental unit shall comply with all of the following before its comprehensive plan may take effect:

(a) The governing body of a local governmental unit shall adopt written procedures that are designed to foster public participation, including open discussion, communication programs, information services and public meetings for which advance notice has been provided, in every stage of the preparation of a comprehensive plan. The written procedures shall provide for wide distribution of proposed, alternative or amended elements of a comprehensive plan and shall provide an opportunity for written comments on the plan to be submitted by members of the public to the governing body and for the governing body to respond to such written comments.

(b) The plan commission or other body of a local governmental unit that is authorized to prepare or amend a comprehensive plan may recommend the adoption or amendment of a comprehensive plan only by adopting a resolution by a majority vote of the entire commission. The vote shall be recorded in the official minutes of the plan commission or other body. The resolution shall refer to maps and other descriptive materials that relate to one or more elements of a comprehensive plan. One copy of an adopted comprehensive plan, or of an amendment to such a plan, shall be sent to all of the following:

1. Every governmental body that is located in whole or in part within the boundaries of the local governmental unit.
2. The clerk of every local governmental unit that is adjacent to the local governmental unit which is the subject of the plan that is adopted or amended as described in par. (b) (intro.).
3. The Wisconsin Land Council.
4. After September 1, 2003, the department of administration.
5. The regional planning commission in which the local governmental unit is located.
6. The public library that serves the area in which the local governmental unit is located.

(c) No comprehensive plan that is recommended for adoption or amendment under par. (b) may take effect until the local governmental unit enacts an ordinance that adopts the plan or amendment. The local governmental unit may not enact an ordinance under this paragraph unless the comprehensive plan contains all of the elements specified in sub. (2). An ordinance may be enacted under this paragraph only by a majority vote of the members elect, as defined in s. 59.001 (2m), of the governing body. An ordinance that is enacted under this paragraph, and the plan to which it relates, shall be filed with at least all of the entities specified under par. (b).

(d) No local governmental unit may enact an ordinance under par. (c) unless the local governmental unit holds at least one public hearing at which the proposed ordinance is discussed. That hearing must be preceded by a class 1 notice under ch. 985 that is published at least 30 days before the hearing is held. The local governmental unit may also provide notice of the hearing by any other means it considers appropriate. The class 1 notice shall contain at least the following information:

1. The date, time and place of the hearing.
2. A summary, which may include a map, of the proposed comprehensive plan or amendment to such a plan.
3. The name of an individual employed by the local governmental unit who may provide additional information regarding the proposed ordinance.
4. Information relating to where and when the proposed comprehensive plan or amendment to such a plan may be inspected before the hearing, and how a copy of the plan or amendment may be obtained.