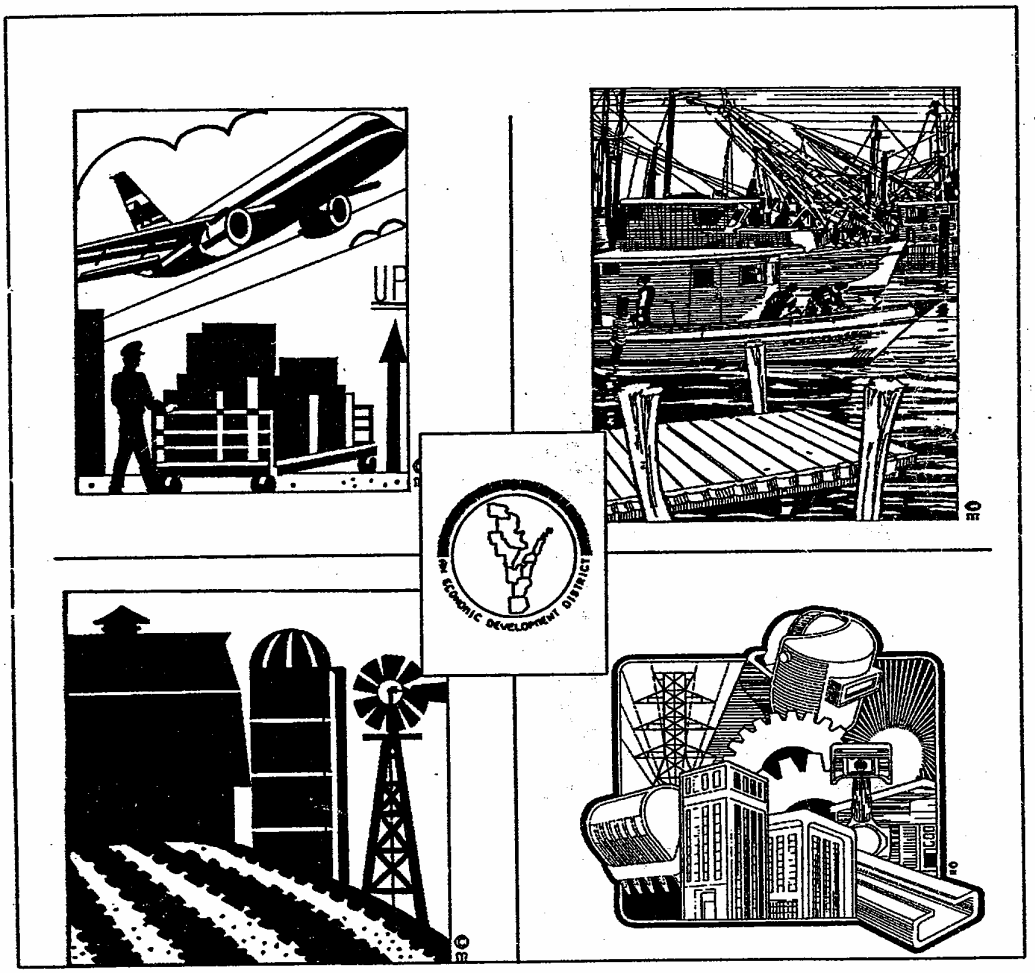
Technical Report No. 63

2015
Sheboygan Urbanized Area Sewer Service Plan



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YEAR 2015
SHEBOYGAN URBANIZED AREA
SEWER SERVICE PLAN

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September 1997

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The regional planning commission for Northeastern Wisconsin serving communities within the counties of:

FLORENCE · MARINETTE · OCONTO · BROWN · DOOR · KEWAUNEE · MANITOWOC · SHEBOYGAN

October 28, 1998

Secretary, Department of Natural Resources
Mayor, City of Sheboygan
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Chair, Town of Sheboygan Falls
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Executive, Sheboygan County
Members of the *Sheboygan Urbanized Area Sewer Service Plan* Technical Advisory Committee (TAC).

Ladies and Gentlemen:

In accordance with contract #52011, the Bay-Lake Regional Planning Commission is pleased to present this Sewer Service Area Plan to the Department of Natural Resources and local officials from the Sheboygan urbanized area.

The *Sheboygan Urbanized Area Sewer Service Plan* represents the WDNR's, Commission's, and the involved communities' commitment to both water quality protection and long term public facility planning. The information contained in this plan provides the WDNR and local officials a framework for which to guide future development in an orderly, cost effective manner while protecting existing environmental corridors.

The delivery of this report constitutes the completion of Bay-Lake Regional Planning Commission's obligation regarding the WDNR's request for assistance in developing the *Sheboygan Urbanized Area Sewer Service Plan.* The Commission and its staff will continue to assist the WDNR in administering the plan and by serving on the plan's Technical Advisory Committee (TAC) to offer objective, professional input regarding future boundary amendment requests.

We trust the information contained in this plan will be helpful to the WDNR, local officials, and the TAC in determining future growth and development patterns within the Sheboygan urbanized area.

Sincerely,

Martin W. Holden

Martin W. Holden
Executive Director

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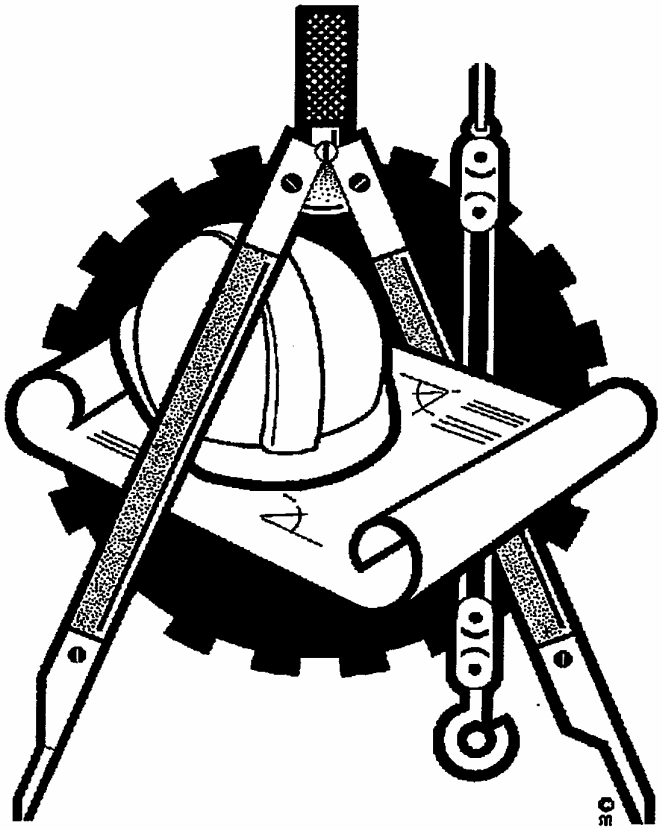


CHAPTER 1
SHEBOYGAN URBANIZED AREA
SEWER SERVICE PLAN
INTRODUCTION

CHAPTER 1:
SHEBOYGAN URBANIZED AREA
SEWER SERVICE PLAN INTRODUCTION

INTRODUCTION

In 1972, the U.S. Congress passed amendments to the Federal Water Pollution Control Act (P.L. 92-500, known as the Clean Water Act). This act called for a national goal of fishable and swimmable waters to be achieved by July 1, 1983 through a comprehensive program of water quality planning, construction grants for municipal wastewater treatment facilities, and a national wastewater discharge permit program for municipal and industrial discharges.

Section 208 of the Clean Water Act requires local agencies, designated by the Governor, or the State Water Quality Agency (in Wisconsin, the Department of Natural Resources herein referred to as WDNR), to prepare area wide water quality management plans. State and Federal regulations also require that these plans indicate the most cost-effective and environmentally sound wastewater treatment configuration for a municipal sewage treatment facility for a 20-year planning period. This is accomplished through the development of a 208 Municipal Point Source Plan, more commonly known as a Sewer Service Area Plan.

In addition to the preparation of the Sewer Service Plan, Section 201 of the Clean Water Act requires the preparation of a facility plan. A 201 Facility Plan is a detailed engineering analysis of the most cost-effective sewage collection and treatment system for a particular planning area. When approved, the Facility Plan and Sewer Service Area Plan form the municipal point source element of a comprehensive area wide water quality management plan.

After the plan is approved by the WDNR, State and Federal regulations require permits to be obtained for wastewater treatment facilities, facility plans, interceptors and sewer extensions and that the treatment facilities be in conformance with the plan.

This plan will serve the following purposes:

1. Project future needs for sewer service and establish the geographic extent of the sewer service area for the year 2015.

2. Identify on-site wastewater treatment alternatives.

3. Provide technical data for designing cost effective and environmentally sound sewage treatment configurations for the planning area.

4. Identify sensitive environmental areas as environmental corridors to protect and improve the quality of both surface and ground waters by permitting no sewer developments in these areas.

5. Define the procedures for reviewing boundary and plan amendments.

6. Serve as a guideline for government interaction and development of community plans.

7. Provide a basis for community officials to direct community growth without urban sprawl and protect environmental, social and economic concerns.

Delineation of the sewer service area not only identifies those areas eligible to receive sanitary sewer service, but also identifies and protects natural areas that are environmentally sensitive from future development and indiscriminate urban growth. Such areas include, but are not limited to, floodplains, shorelands, wetlands, and adjoining steep slopes. Wastewater treatment facilities can then be designed to provide adequate treatment capacity for the anticipated population growth in the sewer service area, while protecting sensitive natural areas and water quality.

A sewer service area identifies the land area intended for sewer services that will be made available during the next 20-year planning period. Delineating a service boundary is critical in designing sewage collection and treatment facilities to serve existing and future residents of the Sheboygan metropolitan area in the most cost-effective and environmentally sound manner.

The service area in this plan is delineated using the 20-year population projection, an acceptable residential population density, and a forecast of non-residential (i.e. commercial, industrial) growth, all of which result in acreage demand and allocation. The service area excludes major areas found to be environmentally or physically unsuitable for sewered development, or where cost analyses show sewer extensions would create financial burdens to the municipality. Land included in the service area is simply deemed eligible to receive sewer service; however, the governmental entities providing sewer service are not obligated to serve specific areas.

Sanitary sewers represent perhaps the greatest catalyst to development within an area. Orderly land use and organized community growth are directly dependent upon the orderly and organized provision of such essential services. A sewer service plan should provide each of the participating municipalities with a valuable tool to manage its growth in the most cost-effective and environmentally acceptable fashion possible.

This plan was originally initiated in 1982 when the Sheboygan County Planning and Resources Department contracted with the Wisconsin Department of Natural Resources to prepare the municipal point source element of the water quality management plan for the Sheboygan River Basin. Sheboygan County planning staff

collected the background information and drafted goals, objectives, and policies for the plan; in 1985 the plan was abandoned. The information was forwarded by the county to the Bay-Lake Regional Planning Commission and was incorporated into the *Sheboygan Urbanized Area Sewer Service Plan* in 1989 with the plan's adoption. In January 1994, the Bay-Lake Regional Planning Commission was again contracted through the Wisconsin Department of Natural Resources to develop an update to the plan.

Once the WDNR approves the sewer service plan, permits for wastewater treatment facilities, facility plans, interceptors, and sewer extensions will need to be in conformance with it. The Sheboygan Urbanized Area Sewer Service Plan Technical Advisory Committee should serve as the local body to review such projects and to ensure plan conformance.

In addition to delineating a sewer service area, the plan provides a framework for further planning among the individual municipalities. Much of the data, trends and projections developed in this plan may be used for detailed community plans. The goals, objectives and policy statements adopted in this plan will provide guidance in developing detailed statements of community direction through the local plans.

This plan also provides a framework for modifying the sewer service boundary, which amends the boundary to provide an equitable and logical means for responding to changing physical and economic conditions. Amendments are subject to WDNR approval. In addition, an update of this 208 Municipal Point Source Plan should be undertaken every five years to address changing conditions in community growth patterns and incorporate new information into the sewer service area amendment process.

DELINEATION OF THE PLANNING AREA

The delineation of the planning area assists in focusing the study efforts on a well-defined geographic area and facilitates a comprehensive examination of data needed in the planning effort. The components that were examined in delineating the area in the *Sheboygan Urbanized Sewer Service Plan* included:

1. The area that potentially could be provided with public sewer service.

2. The recognition of extraterritorial powers for subdivision review and official mapping.

3. The recognition of area wide land use trends and patterns.

4. The recognition that water quality problems are area wide concerns.

5. The delineation of planning areas in previous water quality and related planning efforts.

Based on these components, the planning area for *the Sheboygan Urbanized Area Sewer Service Plan* covers approximately 184 square miles of land within Sheboygan County and includes the cities of Sheboygan Falls and Sheboygan; the villages of Howards Grove and Kohler; and the towns of Herman, Mosel, Sheboygan Falls, Sheboygan, Lima and Wilson. The planning area, cities, villages, and towns are depicted on Map 1.1.

PLAN CONTENTS

Chapter One:
Introduction, delineation of the planning area, goals, objectives, and policies.

Chapter Two:
Discussion of the planning area's wastewater treatment facilities.

Chapter Three:
Discussion of the planning area's land characteristics to include the developable acres and natural features.

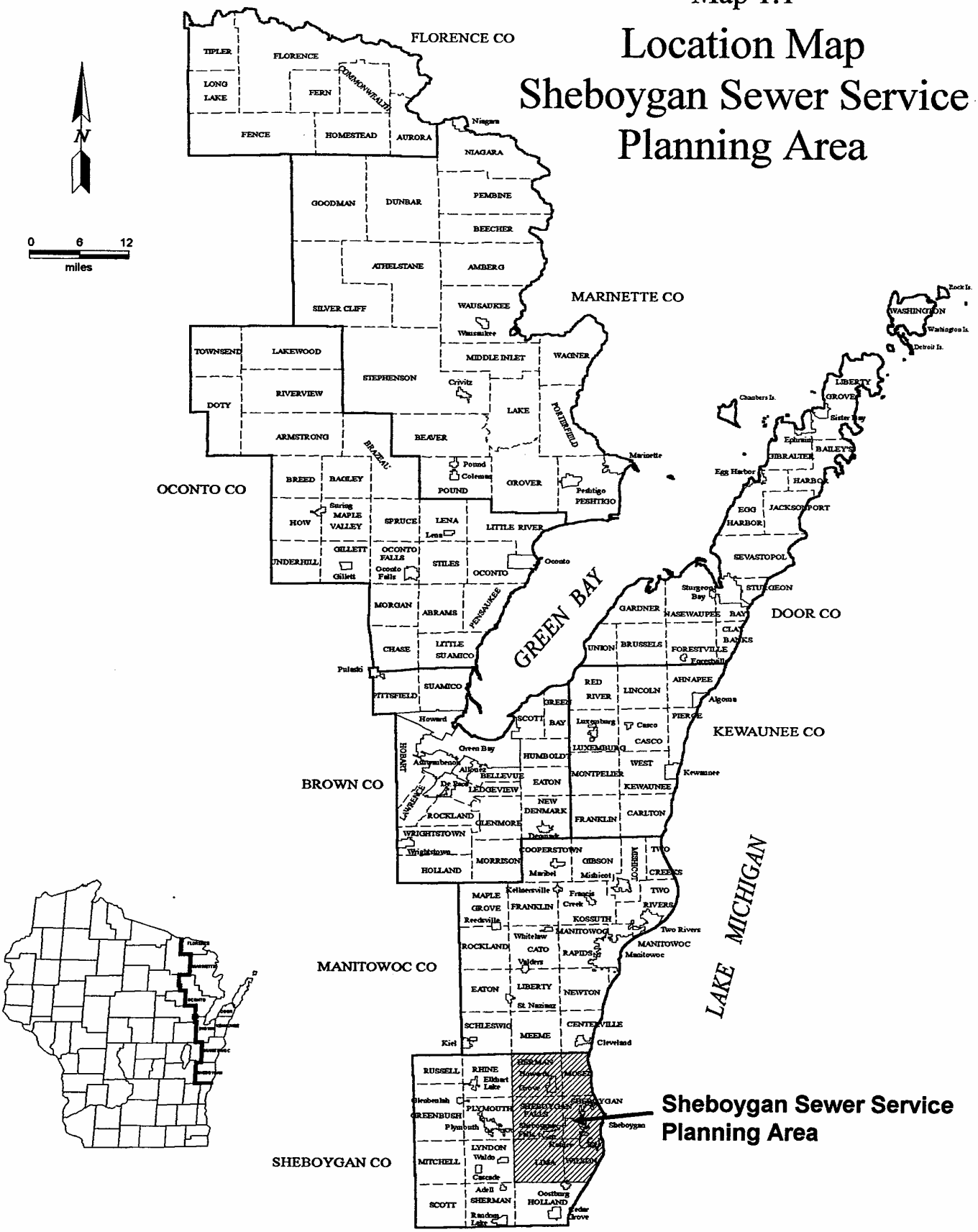
Chapter Four:
Discussion of the planning area's population growth and its population forecast.

Chapter Five:
Overview of the chosen growth strategy chosen for this plan.

Chapter Six:
Outline of the plan's implementation and institutional structure.

Map 1.1

Location Map
Sheboygan Sewer Service Planning Area



SOURCE: Bay-Lake Regional Planning Commission, 1996.

GOALS, OBJECTIVES, AND POLICIES

The planning process establishes goals and objectives to provide a direction and a framework for the development of policies which assist plan implementation. Goals are a statement of direction, objectives consist of measurable results that determine if the goals are being attained. Policies are guidelines for action that achieve the goals and objectives.

Diversity of local community interests requires that common concepts are established for the sewer service area plan. Establishing common concepts, such as goals, objectives and policies, provides a framework for cooperative planning efforts for other areas of inter-community interest such as transportation, recreation and economic development. On April 24,1996, the TAC adopted the following goals, objectives, and policies:

GOAL 1:
Guide the future growth within the defined urban service area in an efficient and orderly manner to promote contiguous and compact development.

OBJECTIVE 1:
Provide sanitary sewer to those existing subdivisions or areas with failing systems, and to those areas where needs are documented and which are economically and environmentally feasible and is in the best interests of the municipalities.

POLICIES:

1. The Sheboygan Urbanized Area Sewer Service Plan should be reviewed and updated every five years to assess population, household and land use conditions and trends.

2. Sewer extensions that reflect the contiguous and compact pattern of development should receive priority over extensions which may cause "sprawl" development.

3. Sewer extensions should not be made beyond the 20-year urban and sewer service area unless the plan is amended.

4. Sewer service should be adequately sized to handle projected sewage and water volumes.

5. New users should pay a percentage share of the cost of the sewage treatment and collection facility based upon the proposed use of their property.

6. Consideration should be given to increasing the residential density in certain areas through rezoning where excess service capacities are available in existing low density residential neighborhoods.

7. Sewer extensions should be used as an important tool to implement community plans and growth policies.

OBJECTIVE 2:
Provide sufficient land area for reasonable future development of municipalities.

POLICIES:
1. Community plans should be developed, adopted and updated every five years to reflect changing economic and physical conditions.

OBJECTIVE 3:
Encourage utilization of vacant lands within municipalities that are currently provided with urban services.

POLICIES:
1. Promote in-fill development and redevelopment.

GOAL 2:
Guide future rural development in an efficient, orderly and compatible manner.

OBJECTIVE 1:
Encourage development that is consistent with city, village, town and county plans.

POLICIES:
1. Planning should be addressed on an area wide basis by the representatives of the participating governing units; however, specific plans should be implemented by the local units of government employing local zoning, subdivision review, urban services standards, and environmental standards.

2. Efforts should continue to be made to increase governmental cooperation regarding the local development in the Sheboygan metropolitan area.

GOAL 3:
Protect water quality, natural resources and sensitive natural areas from the encroachment of urban development.

OBJECTIVE 1:
Delineate environmental corridors and encourage future development to locate in areas that result in minimal environmental impacts.

POLICIES:

1. Local land use plans and zoning ordinances should be adopted or revised by the county, cities, villages and towns as needed to guide urban development away from encroaching upon the plan's designated environmental corridors, as defined by BLRPC.

2. Encourage areas to practice good storm water management.

3. Sewer extensions to natural areas not included in environmental corridors should conform to applicable rules and regulations, which include Wisconsin Administrative Codes NR 116 for shorelands and floodplains, NR 115 and 117 for wetlands and NR 121 for environmental corridors, and should be reviewed on a case by case basis.

4. Sanitary sewer extensions into areas identified as containing prime agricultural and forest land should be given a low priority and be coordinated with the county farmland preservation plan.

5. Sewer extensions should be consistent with the policies set forth in the *Sheboygan County Farmland Preservation Plan* (1985) and the Wisconsin Farmland Preservation Act (Wisconsin Statutes 91).

6. Sewer extensions should not be permitted in areas identified as being in an environmental corridor unless the extension is to serve uses which are compatible with the corridor designation, such as public parks and outdoor recreation facilities.

7. Development should be avoided in outdoor recreation and open space resource areas identified in the *Sheboygan County Comprehensive Outdoor Recreation and Open Space Plan* (1992).

GOAL 4:
Eliminate health hazards associated with failing wastewater disposal systems and protect the quality of the water and land resources in the planning area.

OBJECTIVE 1:
Correct inadequate sewage collection and treatment facilities which result in potential threats to the health and welfare of the public.

POLICIES:

1. Investigate alternative methods that may be used to oversee the installation, maintenance and cleaning of on-site sewage systems.

2. Eliminate inadequate on-site sewage systems within the 20-year sewer service boundary through cost-effective systems which should economically be adapted to the municipality's collection system.

3. Identified health hazard areas contiguous to existing sewered development should be given priority for sewer extension.

4. Based upon cost-effectiveness and environmental suitability, the extension of sanitary sewers or the installation of individual or cluster on-site disposal systems in health hazard/pollution areas should be given high priority.

5. The installation of cluster on-site disposal systems which may be easily connected to municipal collection systems should be encouraged to eliminate health hazards/pollution problems at the outer fringe of the service area.

6. The minimum design and density standards of the County should be used within the towns.

7. Sanitary (1981), Subdivision (1988), and Shoreland-Floodplain (1989) Ordinances should be strictly administered to prevent future health hazards and pollution problems.

8. Development in unsewered areas should be based on the capacity of the soil to accommodate on-site wastewater treatment, as well as on local plans and zoning ordinances.

9. All private and public sewage collection and treatment facilities should be designed and constructed employing the most contemporary engineering standards, consistent with the water quality and environmental criteria of the State of Wisconsin.

OBJECTIVE 2:
Municipalities should assure functional operation of all on-site wastewater systems.

POLICIES:

1. Municipalities should participate in the Wisconsin Fund program for replacement of failing on-site systems.

2. Municipalities should support a county-wide reporting system for pumpings from on-site wastewater systems.

3. Municipalities should support a uniform inspection process for all on-site systems during land transfers.

4. Municipalities should promote education of the responsibilities of owning on-site waste disposal systems.

CHAPTER 2
WASTEWATER TREATMENT

CHAPTER 2: WASTEWATER TREATMENT

WASTEWATER TREATMENT FACILITIES AND COLLECTION SYSTEMS

In the planning area, there are five different wastewater treatment facilities. One is located in the city of Sheboygan and provides wastewater treatment for the city of Sheboygan, city of Sheboygan Falls, village of Kohler, town of Sheboygan, and town of Wilson. The other four facilities are located in the village of Howards Grove, the sanitary districts of Gibbsville and Hingham, and at Lakeland College (Map 2.1).

City of Sheboygan

The Sheboygan Regional Wastewater Treatment Facility is owned and operated by the city of Sheboygan. The wastewater treatment plant was originally constructed in 1936 as a primary treatment facility. During 1957, a trickling filter system was added to treat secondary wastes. Regionalizing the plant was first discussed in the mid 1970's. The WDNR was successful in getting the concept of shared services accepted by the municipalities and the regional facility concept was adopted.

Based on the *Sheboygan Regional Wastewater Treatment 1995 Annual Report*, it was noted that the Facility met nearly all Wisconsin Pollutant Discharge Elimination System (WPDES) discharge permit limits for conventional pollutants in 1995. The WPDES permit is issued by the WDNR and lists specific limits considered necessary to prevent Lake Michigan pollution.

The plant is designed to process 18.5 million gallons per day (mgd); it treats an average daily flow of 10.8 mgd of wastewater (based on 1995 flow). The plant is designed to process a peak flow of 56 mgd and is operating at approximately two-thirds of the hydraulic capacity; the largest recorded peak flow was 33 mgd. The treatment plant achieves more than a 99 percent removal of organic loading. In 1994, the yearly influent concentration of biochemical oxygen demand (BOD) was 199 milligrams per liter (mgl), and the effluent was 8 mgl; the yearly average for suspended solids in 1994 was 232 mgl (influent) and 10 mgl effluent. These levels are well below the 30 mg/l limit set forth by the WDNR for BOD and suspended solids. The average monthly phosphorus level is approximately 0.73 parts per million (ppm) for 1994. The phosphorus level is also below the acceptable phosphorous level set by the WDNR, which is 1 ppm.

The city of Sheboygan is serviced by a wastewater collection system that is comprised of both separate sanitary and storm sewers. The system collects and conveys domestic, commercial and industrial wastewater generated within the city along with some storm water runoff to the wastewater plant for treatment. The wastewater

collection system provides approximately 180 miles of sewer pipe and approximately 3,800 manholes within the city public right-of-way. The average depth of the sewer system is approximately 11 to 12 feet with depths ranging between six and 30 feet throughout the entire system. There are three major lift stations and four major interceptor sewer lines. The lift stations are incorporated into the city's sewer system and are designed to move wastewater from lower areas and then allow it to continue moving by gravity flow. The lift stations are located at Seventh Street and Kentucky Avenue, North Avenue and Lake Michigan, and the wastewater treatment plant. There are four interceptors: Western, South Side, North Avenue, and Sheboygan River. The Western interceptor runs 1,100 feet west of I-43 and along Washington Avenue to the treatment plant. The South Side interceptor runs from the Seventh Street and Kentucky Avenue lift station to the treatment plant. The North Avenue interceptor connects the North Avenue and Lake Michigan lift station to the Seventh Street and Kentucky Avenue lift station. The Sheboygan River interceptor runs along Wisconsin Street and links into the lift station at Seventh Street and Kentucky Avenue.

The town of Sheboygan has seven lift stations. These stations are located at the following locations: at the north end of Riverview Drive; east of County Highway Y between Grote and Longacre Roads; at the south end of North 47th Street; at the south end of North 38th Street; on Blackstock Road; County Road J; and Charter Hills Road.

The town of Wilson has four lift stations. One of the stations is located in Sanitary District #2, the other three stations are located in Sanitary District #1.

The city of Sheboygan Falls has two lift stations. One of the stations is located next to the city's sanitary pump station, located off of Hickory Street and Cleveland Street. The other station is located off of Forest Avenue and Range Line Road.

The village of Kohler has three lift stations. One of the lift stations is located just off of Sunset Road; one is located just off of the intersection of Willow Creek Drive and Woodlake Road; and the other is located off of Riverside Drive.

In discussions with the city's treatment plant superintendent, Dean Falkner, (January 1996) it was noted that at the present time, none of the sewer lines were overloaded during normal conditions, however, excess flow associated with inflow and infiltration (I&I) surcharge the collection system. An analysis of the existing sewer system indicates there may be a potential for isolated points or restrictions within the system where additional flow or sewer extensions would result in overloading. The physical restrictions creating these potential overload areas are the result of sewer segments and limited capacity lift stations.

MAP 2.1: WASTEWATER TREATMENT FACILITIES, SHEBOYGAN SANITARY SEWER SERVICE STUDY AREA

back of Map 2.1

Village of Howards Grove

The village's wastewater treatment facility is located at 1111 Alcott Avenue, next to the Pigeon River. The facility was built in 1964, in conjunction with the construction of the village's package-type Walker Process Spahjair treatment plant.

The wastewater treatment plant was placed into operation in October 1966 and utilized a contact stabilization modification process of the activated sludge with aerobic digestion. In 1980, the plant was upgraded to provide tertiary treatment; the treatment is carried out by biological processes with aerobic digestion. The plant now utilizes two carbonaceous and two nitrogenous contact stabilization modification plants for processing wastewater and is totally dependent upon gravity, since there are no lift stations, other than the one located inside the treatment plant. The average flow for 1988 was 0.2826 mgd. The wastewater treatment plant also achieved removal of approximately 98 percent of organic loading and 99 percent of suspended solids. The average phosphorus level was under the acceptable state standard level of 1.0 ppm. Currently, the facility has an average design flow of 0.285 mgd and a maximum design flow of 0.842 mgd. In discussions with the treatment plant superintendent, the current average flow is approximately 0.200 mgd, which is within the plant's capabilities. The facility, however, cannot handle the maximum design flow, and has to start bypassing around 0.600 mgd. The resulting sludge left from the treatment process is disposed of by land application.

The WDNR designed a rating system called the Compliance Maintenance Report (CMAR) which provides an evaluation of the current condition of each wastewater treatment facility in the state. The CMAR is a yearly assessment that rates various component of wastewater treatment and then gives an overall rating of 0-400 points to a facility. The report has three range categories for determining recommendations for the treatment plant: voluntary (0-70 pts.), departmental recommendation (71-120 pts.), and departmental action (121-400 pts.). According to the 1994 CMAR, the village of Howards Grove Wastewater Treatment Facility has a total rating of 44 points, which places it in the voluntary action range. The major concern for the facility is in not being able to meet its maximum design flow and having to bypass the excess effluent.

Although recent CMARs do not indicate any major problems with the existing facility, an expansion of the facility is likely within the next ten years, in order to deal with the population growth occurring within the village. During the expansion, the addition of a phosphorous removal system, a chloride removal system, and a disinfecting system may all be included.

The wastewater collection system provides more than 11 miles of gravity sewers and more than 215 manholes within the public right-of-way. The average depth of the sewer line system is approximately eight to ten feet in depth, ranging between four and 22.5 feet throughout the entire system. The major areas served with sanitary sewers include industrial, commercial and residential areas. Wastewater generated within the

village of Howards Grove, with the exception of a few remote farm homes, are directed to the municipal sanitary sewage system and are treated at the plant. The wastes are directed by eight inch and ten inch gravity sewer lines to the treatment plant lift station wet well. The wet well contains two 300 gallon per minute centrifugal pumps that lift the wastes to the plant. The wastes are then treated, and the effluents are then discharged into the adjacent Pigeon River.

Gibbsville Sanitary District

The unincorporated area of Gibbsville, located in the town of Lima, established the Gibbsville Sanitary District on August 16th, 1968. The Gibbsville wastewater treatment plant, which was built and placed into operation in 1978, is in its seventeenth year of a twenty year design life. The sanitary district has within its boundary 3.5 miles of sewer main with two low pressure force main extensions and two lift stations. The district currently serves a population of 370 people. The wastewater treatment plant employs a biological process as opposed to a mechanical process for treating the district's waste. Currently, the Gibbsville Wastewater Treatment Plant is meeting the WDNR dictated discharge limits and has a permit to discharge to the Onion River. This permit expires in the year 2000. To help meet the new WDNR standards and to comply with the district's latest permit, the two lagoons which the plant utilizes to treat waste may need to be dredged. This operation would be done (if needed) in the spring of 1996. Dredging the two lagoons is expected to delay the need for a plant upgrade for another four years. The treatment facility has a design flow of 0.034 mgd and a peak flow of 0.060 mgd for 1995. The average daily flow for 1995 was 0.030 mgd during dry periods and 0.034 mgd with I&I during wet periods. I&I is currently a problem due to the locations of many of the manhole covers. These access points are located in ditches, and tend to allow I&I even though they are fitted with gaskets (Lynne Tebeest, Gibbsville Sanitary District Clerk, 1996 pers. comm).

Hingham Sanitary District and Village of Adell

The unincorporated area of Hingham is located in the town of Lima. The Hingham Sanitary District includes the Hingham-Adell wastewater treatment facility. The village of Adell is approximately three miles southwest of Hingham and is located in the town of Lyndon. The regional wastewater treatment facility discharges into the Onion River. In 1990, the WDNR required that Hingham and Adell investigate the option of combining their individual wastewater treatment facilities into one regional facility. A study was conducted by Foth & Van Dyke and completed in 1991 which investigated the alternatives to maintaining the two wastewater treatment facilities. In 1992, the wastewater treatment facility at Hingham was upgraded with laboratory modifications, liquid sludge storage, changed over to an aerobic digester, the addition of an ultraviolet disinfecting system, and a newly constructed lift station and a forcemain from the village of Adell to the Hingham Sanitary District. The current wastewater treatment facility has a design year of 2013 with a design to serve a population of 1,230 persons. The plant is designed to treat an average daily flow of 0.100 mgd and a peak flow of 0.367 mgd. In

1990, the average daily flow of waste for Adell and Hingham was 0.041 mgd and 0.028 mgd, respectively. The population served by the regional wastewater treatment facility is approximately 840 people.

Lakeland College

Lakeland College is located within the town of Herman. Lakeland College has a gravity collection system and activated sludge wastewater treatment facility. The college's wastewater treatment facility was built in 1957 and has had a number of improvements over the years. The treatment facility is in the eastern half of the town's Sanitary District No. 1 yet only serves the college campus and adjoining college owned homes. Based on the *Wastewater Conveyance to Howards Grove Study,* prepared by RUST Environment and Infrastructure in 1996, the average daily wastewater flow to the wastewater treatment facility in 1995 was 0.040 mgd with a projected increase of 0.063 mgd by the year 2015.

The college is currently concerned about the need to make another costly upgrade in which to meet the stricter effluent limits being imposed upon the treatment facility's effluent by the WDNR. Cost studies have been done to determine alternatives to the present system. Two cost efficient and environmentally sound alternatives have been identified. The first is to construct a forcemain to the village of Howards Grove. Intergovernmental agreements will need to be made for this to occur. The second is to a new treatment facility located northwest of the campus. This new facility would have an outfall to the Sheboygan River. During the early stages of this plan's update, the Village President of Howards Grove indicated that alternative one would be acceptable as long as there was an agreement with the city of Sheboygan to allow the village to hook-up to the city's wastewater treatment plant at the time the village's plant needs to be upgraded.

ON-SITE WASTEWATER TREATMENT ALTERNATIVES

In addition to the delineation of a 20-year sewer service boundary for the Sheboygan planning area, one of the objectives of this plan is to identify on-site wastewater disposal problems and alternative solutions. On-site wastewater systems are those which store, treat or dispose of wastewater (or perform a combination of these functions) on the site at which the wastewater is generated. Typical on-site systems include conventional septic tank/absorption field systems, holding tanks or mound systems.

Because of age or poor design, construction or maintenance, many on-site systems fail to provide adequate wastewater treatment and disposal. The three most common causes of failure are:

1. Utilizing on-site systems in areas having soils with limited ability to absorb and purify wastewater.

2. Loading systems beyond their capacity.

3. Failure to regularly clean and maintain systems. When an existing on-site system fails, raw or poorly treated wastewater is allowed to infiltrate the ground surface, surface waters or the groundwater which creates a potential public health hazard or nuisance.

Until the late 1970's and the early 1980's, state codes regulated the installation and design of on-site disposal systems without sound criteria for system design and construction. Prior to that time period, many systems were installed, and as a result, many homes which utilize an on-site system do not meet today's septic system site and design standards. In addition, many systems have been installed on marginal or poor soils and are not large enough to handle the increased burden and use of showers, dishwashers, washing machines and garbage disposals. Since the existing non-sewered area developments utilize some type of on-site disposal system there is a potential for system failure. This is compounded by the fact that much of the undeveloped lands, as well as some of the already developed lands, have soil conditions which are not conducive to the construction and long-term use of a conventional on-site disposal system.

System failure, within the planning area, continues to be limited. Many of the conventional systems that have failed did so as a result of high groundwater, poor soils and/or poor system design and construction. Where these developments occur on unsuitable soils, septic system malfunction and failure is likely to occur sometime in the future. Where septic systems have failed, holding tanks and mound systems have been commonly installed as replacement systems.

The following narrative briefly looks at the three most commonly used types of on-site waste-water disposal systems that are now available and the general cost estimates that are associated with their construction (Mark Leider, Sheboygan County Planning Director, 1996, pers. comm.).

1. Conventional Septic Tank/Soil Absorption Systems: A conventional septic system consists of a tank and accompanying drain field area(s). The tank captures the solids and wastewater that enter the system and internally treats the effluent before it is allowed to enter the drain field system.

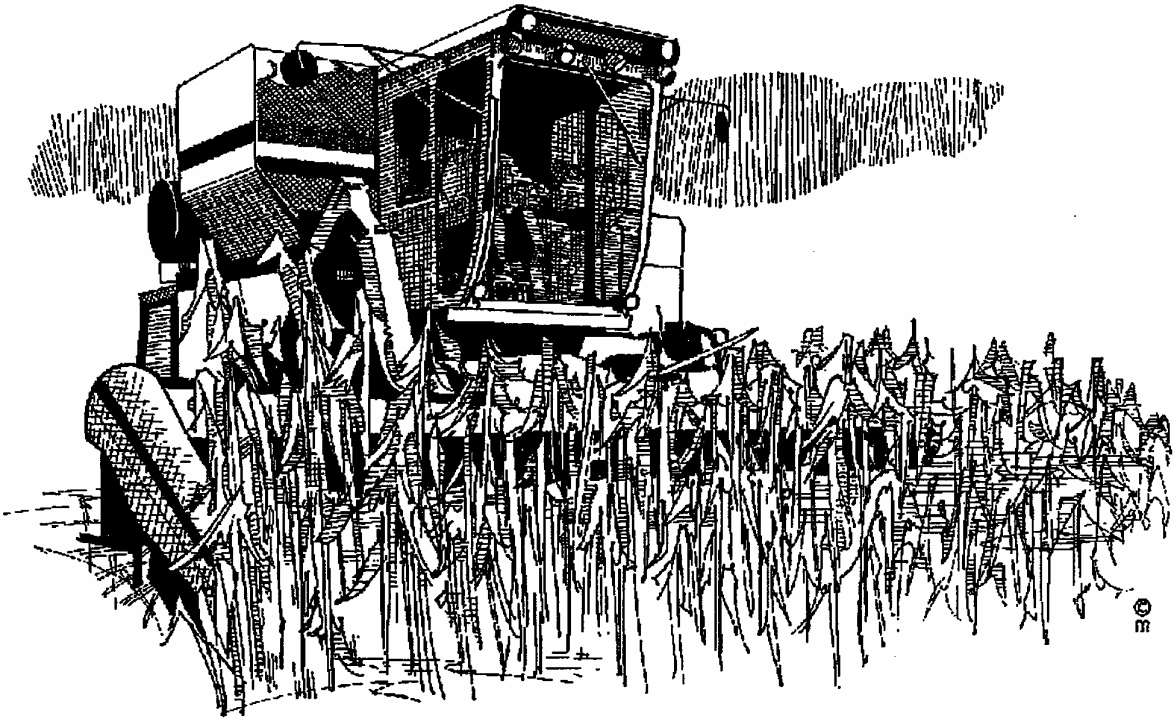
a.	Complete new system	$5,000-7,000/unit
b.	Operation and maintenance	$35/year

2. Holding Tank System: A holding tank is a tank that stores all of the sewage and wastewater generated at a particular site. The contents are normally pumped out on a regular basis (usually 1 to 6 week intervals depending on tank size and household size) and hauled by truck for proper sewage treatment and disposal.

a.	One - 4,000 gallon tank	$4,500-6,500/tank
b.	Operation and maintenance	$2,000/year

3. Mound System: A mound system normally consists of a pumping chamber in which septic tank effluent is collected, a pump, and a distribution system of small diameter perforated pipe. The distribution system is elevated above wet or slowly permeable subsoil and placed in dry, medium textured sand. The major advantage of a mound system is that it can be utilized when site limitations, such as soil permeability, bedrock and/or groundwater would prohibit the construction of a conventional septic system.

a.	One system	$10,000/system
b.	Operation and maintenance	$125/year



CHAPTER 3
LAND USE & PHYSICAL SETTING

CHAPTER 3:
LAND USE & PHYSICAL SETTING

INTRODUCTION

Many physical and biological characteristics that affect land development are often ignored. Builders, elected officials and property owners need to consider these factors in development proposals to eliminate costly mistakes and a variety of construction or environmental problems. Some of the factors that need to be considered include existing land uses, soil types, steep slopes, construction erosion, distance to surface waters, stormwater runoff, high groundwater, wetlands, floodplains, bedrock, wildlife habitats, scientific areas, forest lands and prime agricultural lands.

LAND USE IN THE PLANNING AREA

The existing land uses in the planning area, combined with the most recent trends, may be used in estimating future land use needs. In 1975, the Bay-Lake Regional Planning Commission compiled detailed land use data for all cities, towns, and villages of Sheboygan County as part of the Region's eight county land use report; this information was updated in the 1985 Sheboygan County Farmland Preservation Plan by the Sheboygan County Planning and Resource Department, and in 1995 within the Commission's Sheboygan Area Transportation Plan. The 1995 data has been utilized in determining the existing land use tables and the tables used in reference to determining the future land use needs of the area.

As was outlined in Chapter 1, the planning area for the *Sheboygan Area Sewer Service Plan* encompasses the cities of Sheboygan Falls and Sheboygan; the villages of Howards Grove and Kohler; and the towns of Herman, Mosel, Sheboygan Falls, Sheboygan, Lima and Wilson. The total land area contained within this planning area amounts to more than 117,608 acres or approximately 184 square miles. The cities of the Sheboygan County planning area cover approximately 16.6 square miles, the villages cover approximately 7.5 square miles, and the unincorporated areas cover approximately 159.6 square miles of land.

With nearly 87 percent of the planning area still unincorporated, it is not surprising to find that the two most prevalent land uses are natural areas and agriculture, which cover 83 percent of the planning region. Developed uses, which include residential, commercial and industrial uses, account for approximately 8.5 percent of the total land in the planning area. A further breakdown of the developed uses indicates that residential land use is by far the most prevalent at 6.8 percent of the total land area. Industrial and commercial uses amount to 1.1 percent and 0.5 percent of the planning area, respectively. Of the remaining developed land use types, 5.4 percent is classified as transportation, 0.3 percent as communication/utilities, 0.5 percent as institutional

facilities, 2.4 percent as outdoor recreation and 15.1 percent as natural areas. Map 3.1 depicts the land uses within the sewer service area.

Table 3.1 presents a summary of the land use in the planning area and Table 3.2 details the *"undevelopable"* and *"developable"* lands within the planning area. Undevelopable and developable lands were determined by utilizing the Commission's Geographic Information System (GIS). The Commission was able to use the current 1995 land use data and combine it with the planning area's environmental corridors, determined by the Commission, which included woodlands, WDNR wetlands of two acres or greater, 100-year floodplain, public lands and parks and the perennial shoreland zone. The areas that were already developed and those that fell within the environmental corridors were classified as being not available for development. The lands outside the environmental corridors and were not already developed were classified as being physically developable lands. The planning area currently is detailed within the *Sheboygan County Farmland Preservation Plan* (1985) which delineates exclusive agricultural lands. Unfortunately, in many cases, exclusive agricultural lands are needed to accommodate the study area's future population growth. In allocating the future growth areas for this plan update, the areas classified as being exclusive agricultural were taken into account. Table 3.2 depicts total acreage for exclusive agriculture for each municipality within the planning area.

Table 3.1: Land Use Summary for Sheboygan Urbanized Area Sewer Service Planning Area

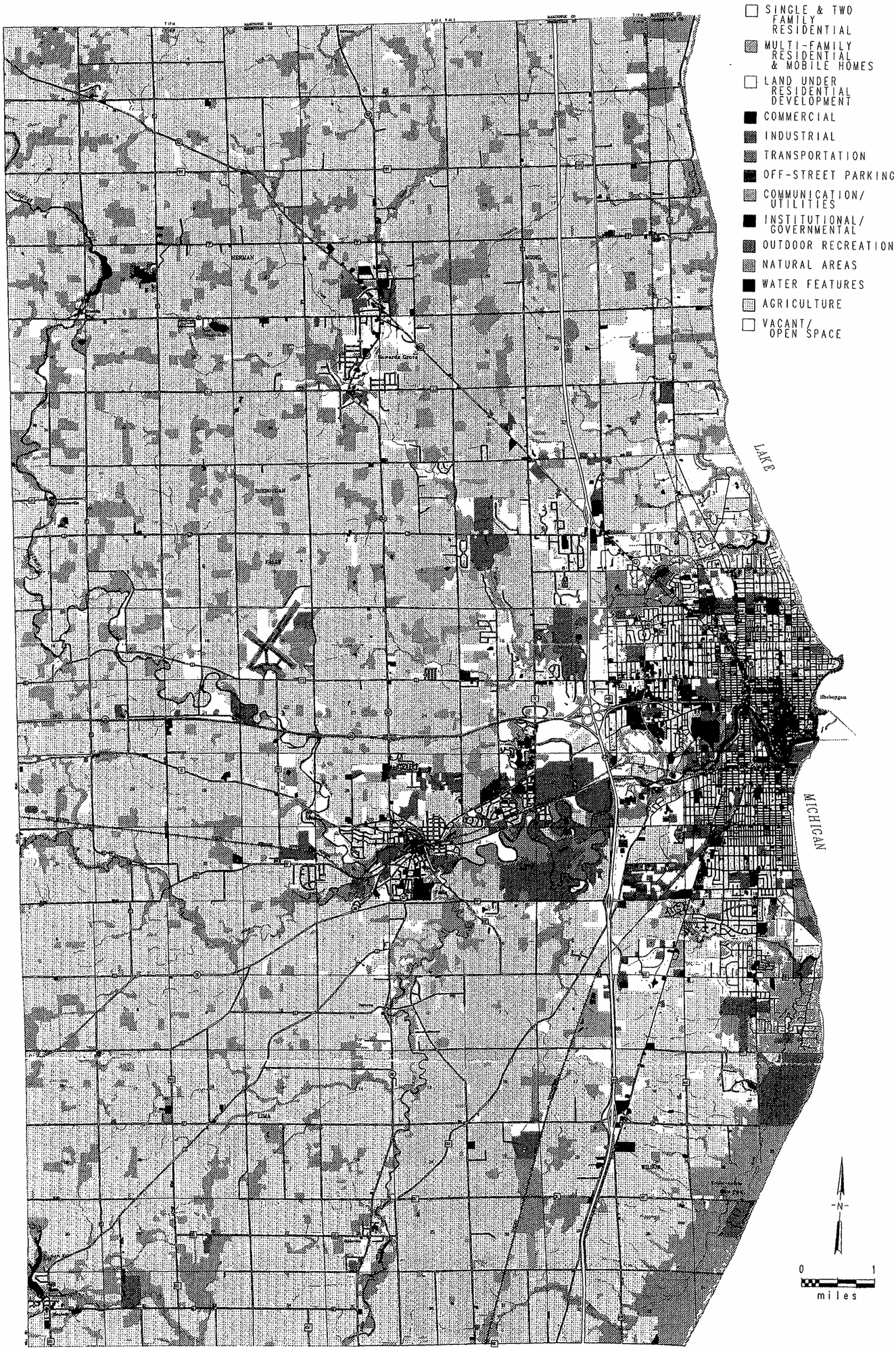
Land Use	Number of Acres	Percent of Total
Residential	8,088	6.8
Commercial	603	0.5
Industrial	1,347	1.2
Transportation	6,431	5.5
Communications/Utilities	328	0.3
Institutional/Government Facilities	610	0.5
Outdoor Recreation	2,768	2.4
Agriculture/Silviculture	79,577	67.5
Natural Areas	17,838	15.1
Total Acres	117,608	100.0

Source: Bay-Lake Regional Planning Commission, 1995.

Sheboygan Sewer Service Study Area

1995 Land Use

Map 3.1



SOURCE: Bay-Lake Regional Planning Commission, 1996.

Table 3.2 Developable Land Totals for Sheboygan Urbanized Area Sewer Service Planning Area

Municipality	Developable Acres	Developable Percent	Undevelopable Acres	Undevelopable Percent	Exclusive Ag. Acres	Exclusive Ag. Percent
Town of Herman	15,243	21.2	6,677	14.6	15,189	24.2
Village of Howards Grove	418	0.6	913	2.0	0	0.0
Village of Kohler	1,049	1.5	2,436	5.3	0	0.0
Town of Lima	17,840	24.8	5,549	12.1	17,422	27.7
Town of Mosel	9,206	12.8	4,364	9.5	9,100	14.5
Town of Sheboygan	3,287	4.6	4,017	8.8	0	0.0
Town of Sheboygan Falls	14,424	20.1	6,627	14.5	14,400	22.9
City of Sheboygan	1,192	1.7	7,385	16.1	0	0.0
City of Sheboygan Falls	556	0.8	1,505	3.3	0	0.0
Town of Wilson	8,605	12.0	6,310	13.8	6,724	10.7
Total Acres	71,820	100.0	45,783	100.0	62,835	100.0

Source: Bay-Lake Regional Planning Commission, 1995.

The cities of Sheboygan Falls and Sheboygan contain slightly more than 10,638 acres of land, which is 9.0 percent of the planning area; 71.5 percent of this land is utilized for developed uses, such as residential, commercial, industrial, transportation, communications/utilities, institutional/government facilities, outdoor recreation, and 28.3 percent is undeveloped agriculture/Silviculture and natural areas. Table 3.3 presents a detailed listing of the land use for the cities in the planning area.

Table 3.3 City Land Use Summary for Sheboygan Urbanized Area Sewer Service Planning Area

Land Use	Number of Acres	Percent of Land Use	Percent of Entire Planning Area
Residential	3,655	34.5	3.1
Commercial	330	3.1	0.3
Industrial	697	6.5	0.6
Transportation	1,854	17.4	1.6
Communications/Utilities	120	1.1	0.1
Institutional/Governmental	347	3.3	0.3
Outdoor Recreation	617	5.8	0.5
Agriculture/Silviculture	2,094	19.7	1.7
Natural Areas	926	8.7	0.8
Total Acres	10,638	100.0	9.0

Source: Bay-Lake Regional Planning Commission, 1995.

The villages of Howards Grove and Kohler contain slightly less than 4,817 acres of land, which is 3.7 percent of the planning area; 46.2 percent of this land is utilized for developed uses and 53.6 percent is undeveloped. Table 3.4 presents a detailed listing of the land use for the villages in the planning area.

Table 3.4 Village Land Use Summary for Sheboygan Urbanized Area Sewer Service Planning Area

Land Use	Number of Acres	Percent of Land Use	Percent of Entire Planning Area
Residential	544	11.3	0.4
Commercial	59	1.2	0.0
Industrial	301	6.2	0.2
Transportation	503	10.4	0.4
Communications/Utilities	3	0.0	0.0
Institutional/Governmental	80	1.6	0.0
Outdoor Recreation	745	15.4	0.6
Agriculture/Silviculture	1,724	35.7	1.4
Natural Areas	859	17.8	0.7
Total Acres	4,817	100.0	3.7

Source: Bay-Lake Regional Planning Commission, 1995.

The towns of Herman, Lima, Mosel, Sheboygan, Sheboygan Falls, and Wilson account for approximately 102,152 acres of land, which is 86.8 percent of the planning area; 10.2 percent of this land is utilized for developed uses and 89.8 percent is undeveloped. Table 3.5 presents a detailed listing of the land use for the towns in the planning area.

Table 3.5 Town Land Use Summary for Sheboygan Urbanized Area Sewer Service Planning Area

Land Use	Number of Acres	Percent of Land Use	Percent of Entire Planning Area
Residential	3,889	3.8	3.3
Commercial	212	0.2	0.2
Industrial	349	0.3	0.3
Transportation	4,074	3.9	3.4
Communications/Utilities	205	0.2	0.2
Institutional/Governmental	203	0.2	0.2
Outdoor Recreation	1,406	1.3	1.2
Agriculture/Silviculture	75,759	74.1	64.4
Natural Areas	16,053	15.7	13.6
Total Acres	102,152	100.0	86.8

Source: Bay-Lake Regional Planning Commission, 1995.

City of Sheboygan

The city of Sheboygan is located within the township of Sheboygan. At this time, the city contains approximately 13 miles of land. In 1980, the city contained approximately 6 percent or 11 square miles of the planning area. The agricultural and natural land covers approximately 24 percent of Sheboygan's total land area. The residential, industrial and commercial developed uses account for approximately 45 percent of the land area. Of the developed uses, residential development accounts for approximately 37 percent of the land use, industrial for 5 percent and commercial for 3 percent. Table 3.6 presents a summary listing of the land use in the city of Sheboygan. A more detailed land use summary for the city of Sheboygan is presented in Appendix A.

Table 3.6 City of Sheboygan Land Use Summary for Sheboygan Urbanized Area Sewer Service Planning Area

Land Use	Number of Acres	Percent of Land Use
Residential	3,170	36.9
Commercial	292	3.4
Industrial	462	5.4
Transportation	1,614	18.8
Communications/Utilities	94	1.0
Institutional/Governmental	276	3.2
Outdoor Recreation	563	6.5
Agriculture/Silviculture	1,416	16.5
Natural Areas	686	7.9
Total Acres	8,577	100.0

Source: Bay-Lake Regional Planning Commission, 1995.

City of Sheboygan Falls

The city of Sheboygan Falls is located within the township of Sheboygan Falls. It contains approximately 2 percent or approximately 3 square miles of the planning area. The most prevalent land use, covering 44 percent of Sheboygan Fall's total land area, is agricultural and natural areas. The residential, industrial and commercial developed uses account for 36 percent of the land area. Of the developed uses, residential development accounts for approximately 24 percent of the land use, industrial for approximately 11 percent, and commercial for 2 percent. Table 3.7 presents a summary listing of the land use in the city of Sheboygan Falls. A more detailed land use summary for the city of Sheboygan Falls is presented in Appendix A.

Table 3.7 City of Sheboygan Falls Land Use Summary for Sheboygan Urbanized Area Sewer Service Planning Area

Land Use	Number of Acres	Percent of Land Use
Residential	485	23.5
Commercial	36	1.7
Industrial	233	11.3
Transportation	240	11.6
Communications/Utilities	26	1.2
Institutional/Government	71	3.4
Outdoor Recreation	54	2.6
Agriculture/Silviculture	677	32.8
Natural Areas	240	11.6
Total Acres	2,061	100.0

Source: Bay-Lake Regional Planning Commission, 1995.

Village of Howards Grove

The village of Howards Grove is located within the township of Herman. It contains 1.1 percent or approximately 2 square miles of the planning area. The most prevalent land use, covering nearly 52 percent of Howards Grove's total land area, is natural or undeveloped lands and developed uses account for slightly more than 48 percent of the land area. Of the developed uses, residential development accounts for approximately 26 percent of the land use, industrial for 1 percent and commercial for 2 percent. Table 3.8 presents a summary listing of the land use in the village of Howards Grove. A more detailed land use summary for Howards Grove is presented in Appendix A.

Table 3.8 Village of Howards Grove Land Use Summary for Sheboygan Urbanized Area Sewer Service Planning Area

Land Use	Number of Acres	Percent of Land Use
Residential	354	26.5
Commercial	27	2.0
Industrial	14	1.0
Transportation	124	9.3
Communications/Utilities	1	0.0
Institutional/Governmental	33	2.4
Outdoor Recreation	91	6.8
Agriculture/Silviculture	528	39.6
Natural Areas	160	12.0
Total Acres	1,332	100.0

Source: Bay-Lake Regional Planning Commission, 1995.

Village of Kohler

The village of Kohler is located within the township of Sheboygan. It contains approximately 3 percent or 5 square miles of the planning area. The most prevalent land use, covering approximately 54 percent of Kohler's total land area, is natural and agricultural lands and developed uses account for approximately 45 percent of the land area. Of the developed uses, residential development accounts for approximately 5 percent of the land use, industrial for 8 percent, and commercial for 0.9 percent. Table 3.9 presents a summary listing of the land use in the village of Kohler. A more detailed land use summary for Kohler is presented in Appendix A.

Table 3.9 Village of Kohler Land Use Summary for Sheboygan Urbanized Area Sewer Service Planning Area

Land Use	Number of Acres	Percent of Land Use
Residential	191	5.4
Commercial	33	0.9
Industrial	287	8.2
Transportation	379	10.8
Communications/Utilities	2	0.0
Institutional/Governmental	47	1.3
Outdoor Recreation	654	18.7
Agriculture/Silviculture	1,196	34.3
Natural Areas	699	20.0
Total Acres	3,486	100.0

Source: Bay-Lake Regional Planning Commission, 1995.

Town of Herman

The town of Herman is located in the northwestern section of the planning area in Township 16 North and Range 22 East. It contains approximately 19 percent or 34 square miles of the planning area. The two most prevalent land uses are natural areas and agriculture which cover almost 17 percent and 77.4 percent of the town of Herman respectively. The residential, commercial and industrial developed uses account for approximately 2 percent of the land in Herman. A further breakdown of the developed land uses indicates that residential accounts for approximately 2 percent, industrial and commercial uses account for 0.1 percent, transportation for nearly 3 percent, institutional facilities for 0.2. Table 3.10 presents a summary listing of the land use in the town of Herman. A more detailed land use summary for Herman is presented in Appendix A.

Table 3.10 Town of Herman Land Use Summary for Sheboygan Urbanized Area Sewer Service Planning Area

Land Use	Number of Acres	Percent of Land Use
Residential	474	2.2
Commercial	24	0.1
Industrial	11	0.0
Transportation	629	2.8
Communications/Utilities	3	0.0
Institutional/Governmental	49	0.2
Outdoor Recreation	20	0.0
Agriculture/Silviculture	16,970	77.4
Natural Areas	3,739	17.0
Total Acres	21,921	100.0

Source: Bay-Lake Regional Planning Commission, 1995.

Town of Lima

The town of Lima is located in the southwestern section of the planning area; it is located in Township 14 North and Range 22 East. It contains approximately 20 percent or 36 square miles of the planning area. The natural areas and agricultural areas cover approximately 93 percent of the town of Lima. The residential, commercial and industrial developed uses account for approximately 3 percent of the land in Lima. A further breakdown of the developed land uses indicates that residential accounts for 3 percent, industrial for 0.1 percent, commercial for 0.1 percent transportation for nearly 3 percent, communication/utilities for 0.1 percent, outdoor recreation for 0.4 percent. Table 3.11 presents a summary listing of the land use in the town of Lima. A more detailed land use summary for Lima is presented in Appendix A.

Table 3.11 Town of Lima Land Use Summary for Sheboygan Urbanized Area Sewer Service Planning Area

Land Use	Number of Acres	Percent of Land Use
Residential	718	3.0
Commercial	18	0.1
Industrial	26	0.1
Transportation	688	2.9
Communications/Utilities	30	0.1
Institutional/Governmental	22	0.1
Outdoor Recreation	92	0.4
Agriculture/Silviculture	18,679	79.8
Natural Areas	3,118	13.3
Total Acres	23,390	100.0

Source: Bay-Lake Regional Planning Commission, 1995.

Town of Mosel

The town of Mosel is located in the northeastern section of the planning area in Township 16 North and Range 23 East. It contains slightly less than 12 percent or 21 square miles of the planning area. The two most prevalent land uses are natural areas and agriculture which cover approximately 14 percent, and slightly more than 78 percent respectively. The residential, commercial and industrial developed uses account for approximately 3 percent of the land in Mosel. A further breakdown of the developed land uses indicates that residential accounts for 2.5 percent, industrial for .5 percent, commercial for 0.1 percent, transportation for nearly 5 percent, institutional facilities for 0.1 percent, outdoor recreation for 0.1 percent. Table 3.12 presents a summary listing of the land in the town of Mosel. A more detailed land use summary for Mosel is presented in Appendix A.

Table 3.12 Town of Mosel Land Use Summary for Sheboygan Urbanized Area Sewer Service Planning Area

Land Use	Number of Acres	Percent of Land Use
Residential	341	2.5
Commercial	20	0.1
Industrial	66	0.5
Transportation	626	4.6
Communications/Utilities	3	0.0
Institutional/Governmental	19	0.1
Outdoor Recreation	17	0.1
Agriculture/Silviculture	10,607	78.1
Natural Areas	1,875	13.8
Total Acres	13,571	100.0

Source: Bay-Lake Regional Planning Commission, 1995.

Town of Sheboygan

The town of Sheboygan is located in the central-eastern section of the planning area in Township 15 North and Range 23 East. It contains approximately 6 percent or 11 square miles of the planning area. The most prevalent land use is undeveloped and includes natural areas and agriculture which cover approximately 14 percent, and 55 percent respectively. The residential, commercial and industrial developed uses account for approximately 16 percent of the land in the town of Sheboygan. A further breakdown of the developed land uses indicates that residential accounts for approximately 14 percent, industrial for 1 percent, commercial for 0.8 percent, transportation for 7 percent, institutional facilities for 0.6 percent, and outdoor recreation for 6 percent. Table 3.13 presents a summary listing of the land use in the town of

Sheboygan. A more detailed land use summary for the town of Sheboygan is presented in Appendix A.

Table 3.13 Town of Sheboygan Land Use Summary for Sheboygan Urbanized Area Sewer Service Planning Area

Land Use	Number of Acres	Percent of Land Use
Residential	1,045	14.3
Commercial	62	0.9
Industrial	88	1.2
Transportation	538	7.3
Communications/Utilities	3	0.0
Institutional/Government	48	0.6
Outdoor Recreation	468	6.4
Agriculture/Silviculture	4,032	55.2
Natural Areas	1,020	13.9
Total Acres	7,304	100.0

Source: Bay-Lake Regional Planning Commission, 1995.

Town of Sheboygan Falls

The town of Sheboygan Falls is located in the central-western section of the planning area in Township 16 North and Range 22 East. It contains slightly less than 18 percent or approximately 33 square miles of the planning area. The two most prevalent land uses are natural areas and agriculture which cover approximately 15 percent, and 77 percent of the town of Sheboygan Falls respectively. The residential, commercial and industrial developed uses account for approximately 3 percent of the land in Sheboygan Falls. A further breakdown of the developed land uses indicates that residential accounts for 2.4 percent, commercial for 0.2 percent, industrial for 0.1 percent, transportation for 4.2 percent, outdoor recreation for 0.8 percent. Table 3.14 presents a summary listing of the land use in the town of Sheboygan Falls. A more detailed land use summary for the planning area and each of its three communities is found in Appendix A.

Table 3.14 Town of Sheboygan Falls Land Use Summary for Sheboygan Urbanized Area Sewer Service Planning Area

Land Use	Number of Acres	Percent of Land Use
Residential	507	2.4
Commercial	47	0.2
Industrial	38	0.1
Transportation	884	4.2
Communications/Utilities	3	0.0
Institutional/Governmental	22	0.1
Outdoor Recreation	184	0.8
Agriculture/Silviculture	16,194	76.9
Natural Areas	3,173	15.0
Total Acres	21,051	100.0

Source: Bay-Lake Regional Planning Commission, 1995.

Town of Wilson

The town of Wilson is located in the southeastern section of the planning area in Township 14 North and Range 23 East. It contains approximately 13 percent or 23 square miles of the planning area. The two most prevalent land uses are natural areas and agriculture which cover almost 21 percent and 62 percent of the town of Wilson respectively. The residential, commercial and industrial developed uses account for approximately 6 percent of the land in Wilson. A further breakdown of the developed land uses indicates that residential accounts for approximately 5 percent, industrial for 0.8 percent, commercial for 0.3 percent, transportation for nearly 5 percent, communication/utilities for 1 percent, institutional facilities for 0.3 percent, and outdoor recreation for 4 percent. Table 3.15 presents a summary listing of the land use in the town of Wilson. A more detailed land use summary for Wilson is presented in Appendix A.

Table 3.15 Town of Wilson Land Use Summary for Sheboygan Urbanized Area Sewer Service Planning Area

Land Use	Number of Acres	Percent of Land Use
Residential	777	5.1
Commercial	43	0.3
Industrial	119	0.8
Transportation	709	4.7
Communications/Utilities	164	1.0
Institutional/Government	43	0.3
Outdoor Recreation	626	4.2
Agriculture/Silviculture	9,276	62.0
Natural Areas	3,157	21.0
Total Acres	14,916	100.0

Source: Bay-Lake Regional Planning Commission, 1995.

NATURAL FEATURES

In planning for the Sheboygan area, areas with unique natural features and environmental significance were identified by the WDNR, the Wisconsin Coastal Management Department, the Sheboygan County Planning and Resources Department and the BLRPC staff. Many of these features are found in corridors that are located along rivers, creeks, shorelines and natural drainageways, and are essential to the maintenance of an ecological balance and diversity, and the preservation of the natural beauty of the area.

The delineation of sensitive environmental areas plays an important role in the planning process and assists in determining where future urban development should occur by the protection of these resources. The natural features which are found in these areas are defined in the following sections.

Surface Waters

The principal surface water resources within the Sheboygan planning area are the Sheboygan River, Pigeon River, Onion and Mullet Rivers, which drain along with their main tributaries directly to Lake Michigan. The rivers provide fishing, boating, swimming and other recreational activities. Lake Michigan is the primary source of Sheboygan's municipal water supply. Most of the areas not served by the Sheboygan Municipal system rely on groundwater. The other surface waters in the planning area include: the Black River, the Pigeon River, and a number of creeks that run directly into Lake Michigan. The study area also contains many navigable tributaries to the main rivers.

Within the planning area there are few lakes. Jetzer's Lake is a 19.4 acre spring fed lake with a maximum depth of 42 feet. Small springs are located near the north and southwest sides of the lake. The fishery consists of largemouth bass, northern pike, and panfish. A cattail marsh on the east end of the lake is used by nesting mallards and teal, but is used very little during the Spring and Fall migrations. One public access site with parking, boat ramp, toilets, and support facilities is provided by Sheboygan County.

Shoreland and Floodplain Zone

Shorelands and floodplains are often viewed by the public and elected officials as valuable recreational and environmental resources in an urbanized area. These areas provide storm water retention and habitat for various kinds of wildlife unique to the area.

Development that is permitted in these areas may have an adverse effect on water quality, wildlife habitat and storm damage. In addition, it may also result in increased development and maintenance costs due to the need for floodproofing, increased flood insurance premiums, extensive site preparation, and maintenance and repairs of roads, sewers and water mains.

As a result, the State of Wisconsin requires that counties adopt shoreland/ floodplain zoning ordinances to address the problems associated with development in floodplain areas. Development in shoreland areas is generally permitted but specific design techniques must be considered. Development in floodplain areas is strictly regulated and in some instances is not permitted. The authority to enact and enforce these types of zoning provisions is set forth in Chapter 59.97 of the *Wisconsin Statutes* and *Wisconsin Administrative Code* NR 116.

Sheboygan County is currently administering a shoreland zoning ordinance in its unincorporated areas. The jurisdiction of the ordinance includes shorelands of navigable waters of the county which are 1,000 feet from the normal high water elevation of a lake, pond or flowage; and 300 feet from the normal high water elevation of a river or stream or to the landward side of a floodplain whichever is greater. Navigable streams, including many of those identified on the USGS topographic maps as perennial or intermittent, are subject to these regulations. The portions of the planning area subject to these regulations are identified on Map 3.2.

Wetlands

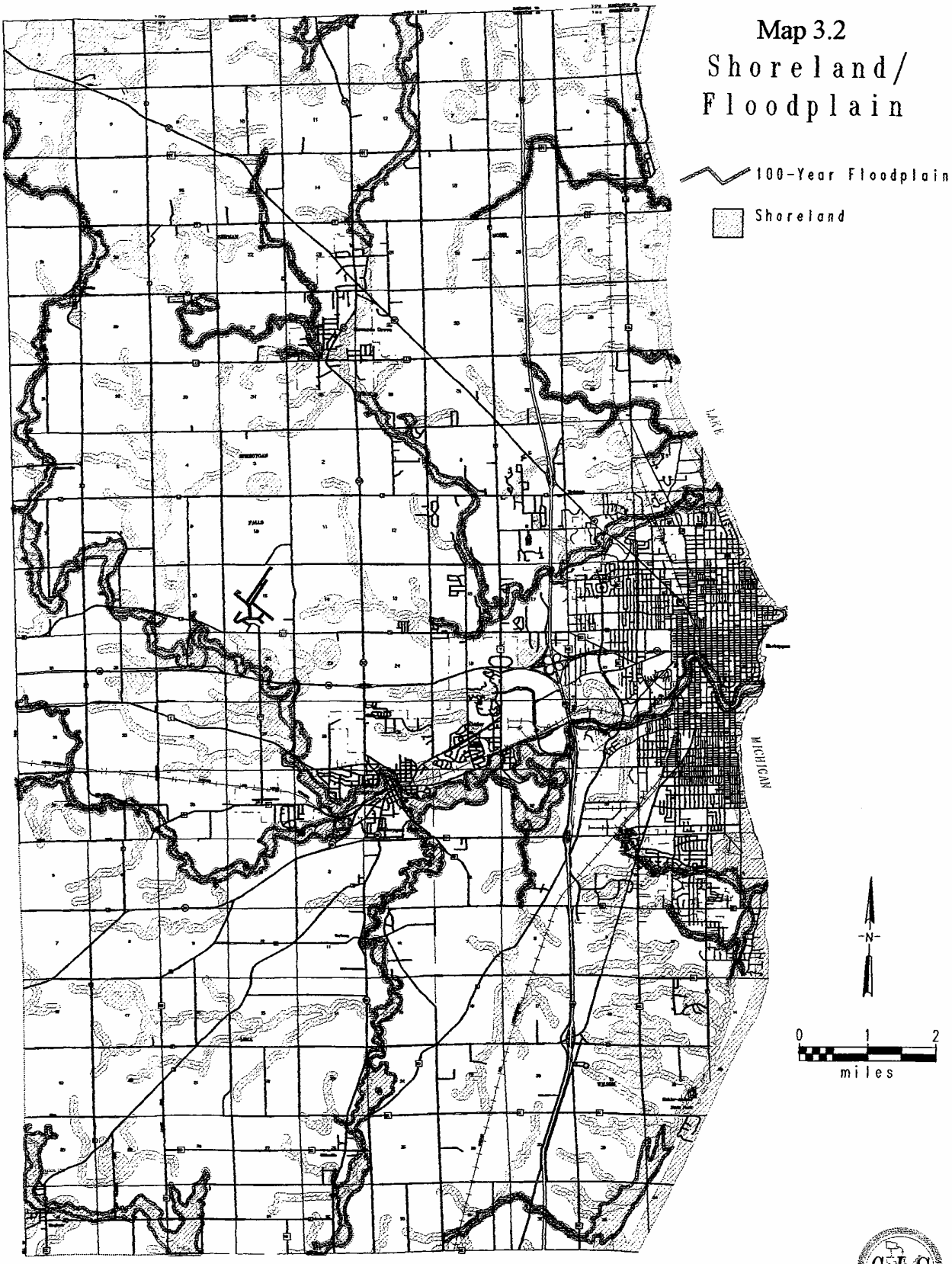
Wetlands are areas where water is at, or above the land surface long enough to be capable of supporting aquatic or hydrophytic vegetation and which has soils indicative of wet conditions. Most wetlands are dominated by plants which can tolerate various degrees of flooding, with species composition and productivity dependent on the variations in the water patterns.

Wetlands play an important role since they serve as a filter system of pollutants, and are invaluable in controlling flood waters, recharging groundwater and retaining water during drought. They also provide habitat for waterfowl and other wildlife and provide excellent cover and travel routes for all forms of wildlife. Wetlands can support fisheries and sanctuaries for rare and endangered species as well. Educational, recreational and aesthetic benefits are also derived from wetland areas while providing natural open space, helping to maintain both surface and groundwater quality and provide water storage areas during periods of flooding and high water.

Wisconsin Administrative Codes NR 115 and NR 117 mandate that wetlands be protected in both the rural and urban areas of the state. In the unincorporated areas, NR 115 provides the legislation to protect all wetlands in a 5 acre complex or more that are within the jurisdiction of county shoreland zoning ordinances. To protect wetlands in the incorporated areas, NR 117 was enacted in 1983 and requires that all shoreland wetlands of 5 acres or more be protected. WDNR has categorized the city of Sheboygan as a priority one community in terms of wetland mapping. The city is required to adopt shoreland zoning provisions to protect the wetland areas that have been delineated on the maps. In addition to NR 115 and 117, Wisconsin Administrative Code NR 1.95 requires that all reasonable alternatives be considered to ensure protection of wetlands and that the least overall environmental impact result from proposed actions, as well as NR 103, which contains the standards for water quality certification.

Placing sanitary sewers in wetland areas or areas with wet soils often requires special installation techniques which are reflected in additional construction costs. Filling or draining of wetlands is also quite costly as it destroys the productive capacity of the ecosystem and may adversely affect surface water quality and drainage. As a result of NR 115 and 117, many of the wetlands that exist today should be protected from future development. Any alterations that are to be made to any wetland regardless of size, need to be reviewed by the U.S. Army Corps of Engineers and the WDNR before any action can be taken. Wetland areas that have been identified in the planning area are delineated on Map 3.3.

Sheboygan Sewer Service Study Area



Map 3.2
Shoreland/ Floodplain

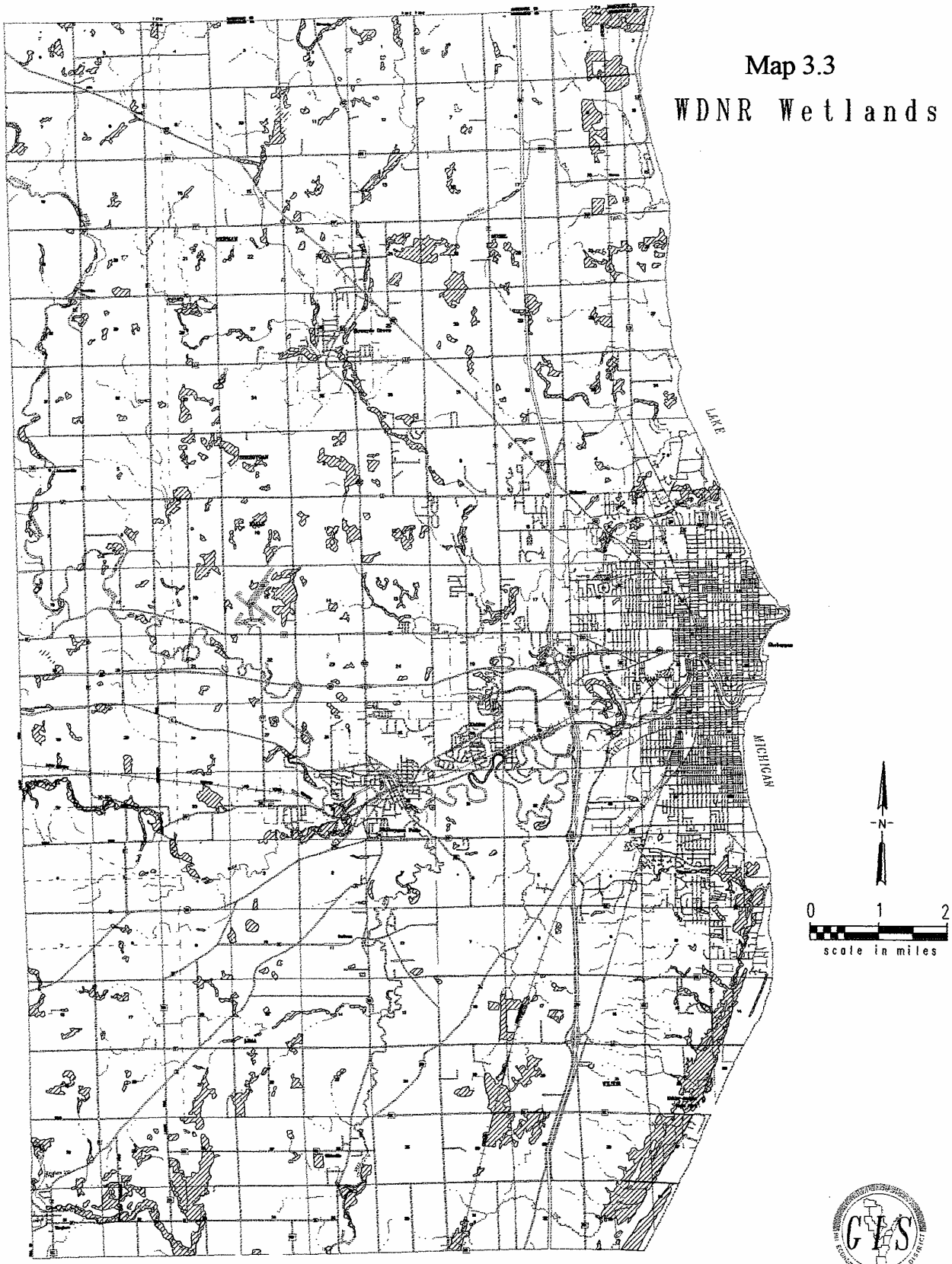
100-Year Floodplain

Shoreland

Source: F.E.M.A., 1978, 1981, 1986; Bay-Lake Regional Planning Commission, 1996.

Sheboygan Sewer Service Planning Area

Map 3.3
WDNR Wetlands



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SOURCE: WDNR, 1987; Bay-Lake Regional Planning Commission, 1996.

Date Plotted: 04/08/96

Topography

The planning area topography varies from level to rolling. For example, along the coast of Lake Michigan, the elevations are slightly less than 600 feet above sea level and in the western part of the planning area, approximately 800 feet (Map 3.4). Along the northeastern half of the coastline, the land formation is generally steep, exhibiting bluffs of 40 to 60 feet. In both the northeastern and southeastern portions, rolling sand dunes are found. The land between the sand dunes and the bluffs is generally low-lying flat areas of fine sand and muck soils. Along the southeastern half, the bluff retreats, at times, inland where the land generally begins to rise and forms a broad band of gently rolling or occasionally flat land, which comprises the bulk of the agricultural lands.

The topography is the result of bedrock configuration and glacial deposition and erosion with streams cutting through the glacial drift in some rock units forming the river drainage system.

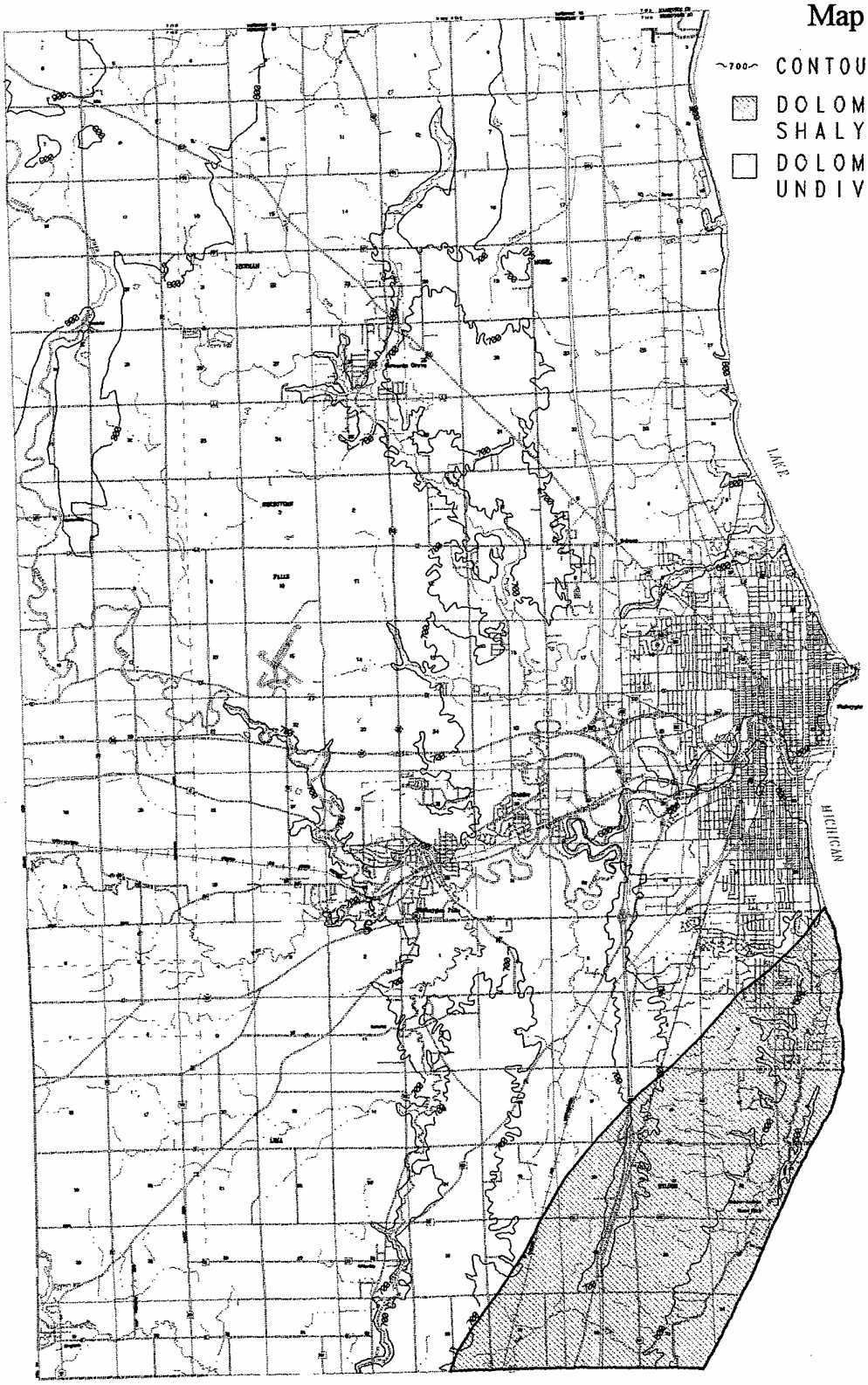
Bedrock Geology

The basin bedrock geology consists of shaly limestone and undivided dolomite and varies in thickness from 0 to 750 feet; (Map 3.4). The uppermost bedrock consists of rich magnesium bedrock known as Niagara dolomite limestone and was formed almost 400,000,000 years ago during the Silurian Period. Overlying the bedrock is glacial drift. The drift was laid down in quiescent water during glaciation; it stores water for recharge of the bedrock and for discharge of rivers and wells. The glacial drift in this area is classified as unsorted till, which is deposited as ground and end moraines. The ground moraines consist primarily of a clayey, silty till which contains deposits of stratified sand and gravel; whereas, end moraines consist primarily of a low permeable till.

In the past, bedrock has not presented any significant problems to development; in areas where bedrock may cause problems, large stones and bedrock exist near the soil surface and have the potential for hindering excavation and considerably increasing the cost of construction. In addition, conventional on-site septic systems cannot function properly, resulting in wastewater passing through the cracked bedrock and contaminating the groundwater.

Topography and Bedrock Geology

Map 3.4



~700~ CONTOUR LINE

DOLOMITE, SHALY LIMESTONE

DOLOMITE, UNDIVIDED

N

0 1 2

scale in miles

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Contract: 52011
SOURCE: USGS, 1986; Wisconsin Geological and Natural History Survey, 982; BLRPC, 1995.

Date Plotted: 11/30/95

Soil Limitations

Soils, in part, determine how much rainfall or snow melt directly flows into the rivers, lakes and wetlands and how much infiltrates the ground. That which infiltrates the ground replenishes soil moisture and recharges the groundwater system. The general soils in this area consist of: Mosel-Oakville-Hebron; Kewaunee-Waymor-Manaw, and Hochheim-Theresa Associations; these soil types are depicted on Map 3.5.

Soil is composed of varying proportions of sand, gravel, silt, clay and organic material. The composition of a soil affects the specific properties of that soil especially in determining the capacity for supporting on-site wastewater treatment facilities. These properties must be evaluated prior to any development. Without such considerations, on-site wastewater treatment systems may fail and collection systems may require expensive and frequent maintenance. Factors which are considered when evaluating soils for on-site waste systems are:

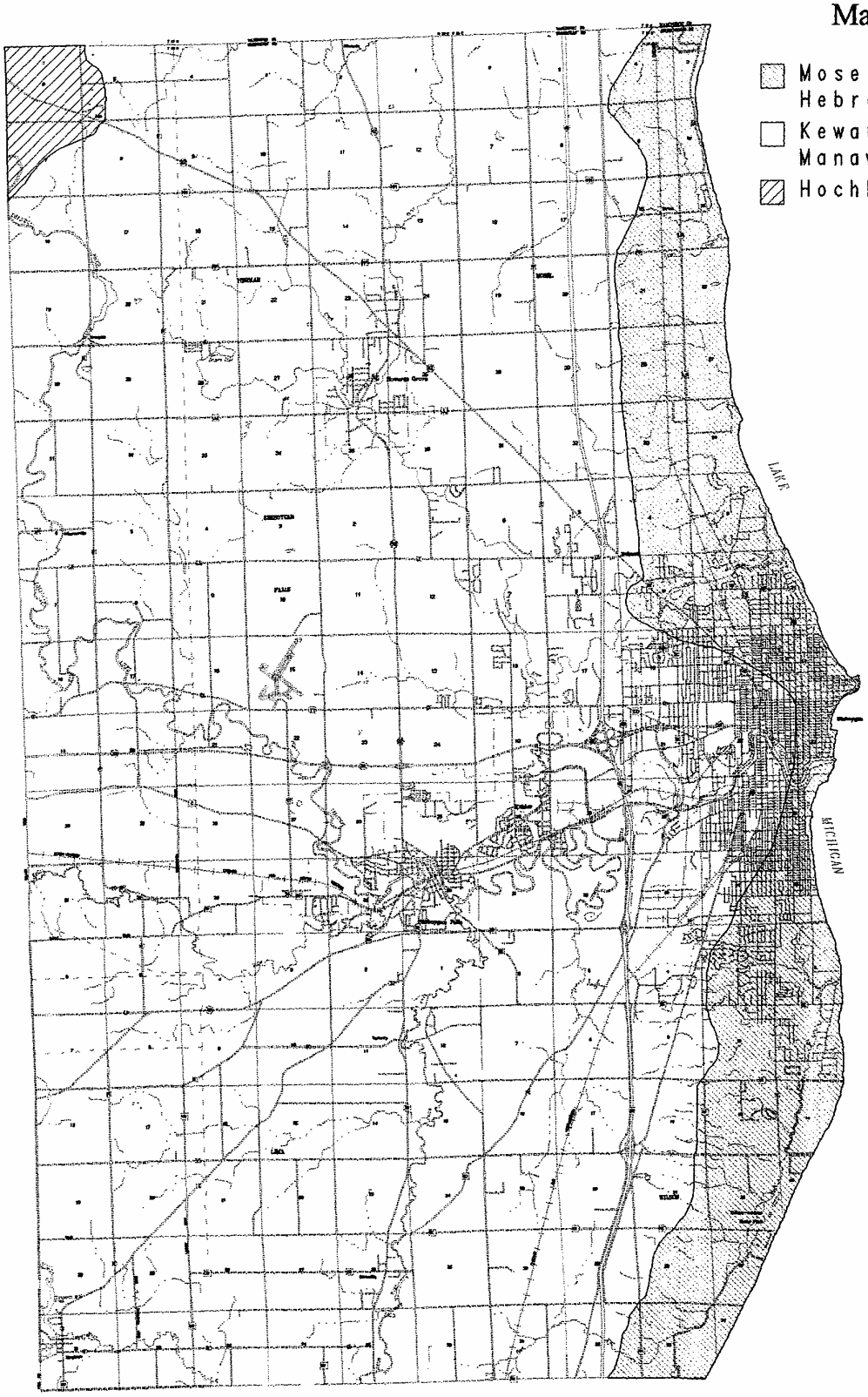
1. **High or Fluctuating Water Table -** When groundwater is near the soil surface, proper filtering cannot take place and often results in on-site systems either backing-up into the home or contamination of groundwater. In addition, construction techniques used to de-water systems are costly. If sewer lines in wet soils have been placed improperly or if they break from the adverse soil conditions, groundwater infiltration occurs. As a result, the additional water would then enter the sewer lines and reduce the available capacity of the pipe and the overall effectiveness of the wastewater treatment plant.

2. **Bedrock -** Large stones or bedrock near the soil surface may hinder excavation and considerably increase the cost of construction. In addition, conventional on-site septic systems cannot function properly, which may result in wastewater passing through the cracked bedrock and contaminating the groundwater.

3. **Soil Permeability -** Permeability refers to the rate at which water flows through the soil. For an on-site disposal system to be successful, the soil must be capable of removing harmful substances and transmitting liquids. When passage is too rapid, groundwater can become polluted. If it is too slow, the soils can become saturated and effluent ponding may result.

General Soils

Map 3.5



- Mosel-Oakfille-Hebron
- Kewaunee-Waymor-Manawa
- Hochheim-Theresa

-N-

0 1 2
scale in miles

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Contract: 52011
SOURCE: U.S.D.A., Soil Conservation Service, 1978; Bay-Lake Regional Planning Commission, 1995.

Date Plotted: 12/05/95

4. **Flooding** - On-site waste disposal systems that are located within a floodplain can result in problems. As water levels rise during periods of flooding, the system becomes saturated and results in untreated solid and liquid waste being discharged into the ground or surface waters.

Agricultural and Forest Lands

In the past 30 years, the conversion of rural land into urban development has presented many land use questions. Urban development has transformed productive farm and forest land into residential and commercial developments. Such development may not always be cost-effective or environmentally sound and often creates conflicts between rural and urban land use types.

Maintaining productive land for agriculture and forest uses has been a long-term goal of Wisconsin. To achieve this goal, the State has enacted several types of legislation which provide monetary incentives to eligible landowners to keep their land in a productive state.

For farmland protection, the Wisconsin Farmland Preservation Program combines local planning and zoning efforts with tax credits. There is one important provision to this program which provides that landowners enrolled cannot have special assessments for sewer and water services levied against their property unless the owner utilizes these services. This provision can have a significant impact on the provision of public sewer and water as well as the future configuration of the urban service area. The effect of this provision is that extensions of sewer mains into certain areas could be delayed or even prevented because the cost of these extensions may have to be absorbed by the community or by adjacent property owners.

On forested lands, forest tax programs do not influence future development to the same degree as the Farmland Preservation Program, but do provide needed property tax relief in return for long-term management of these lands. The woodlands not within wetland areas are depicted on Map 3.6.

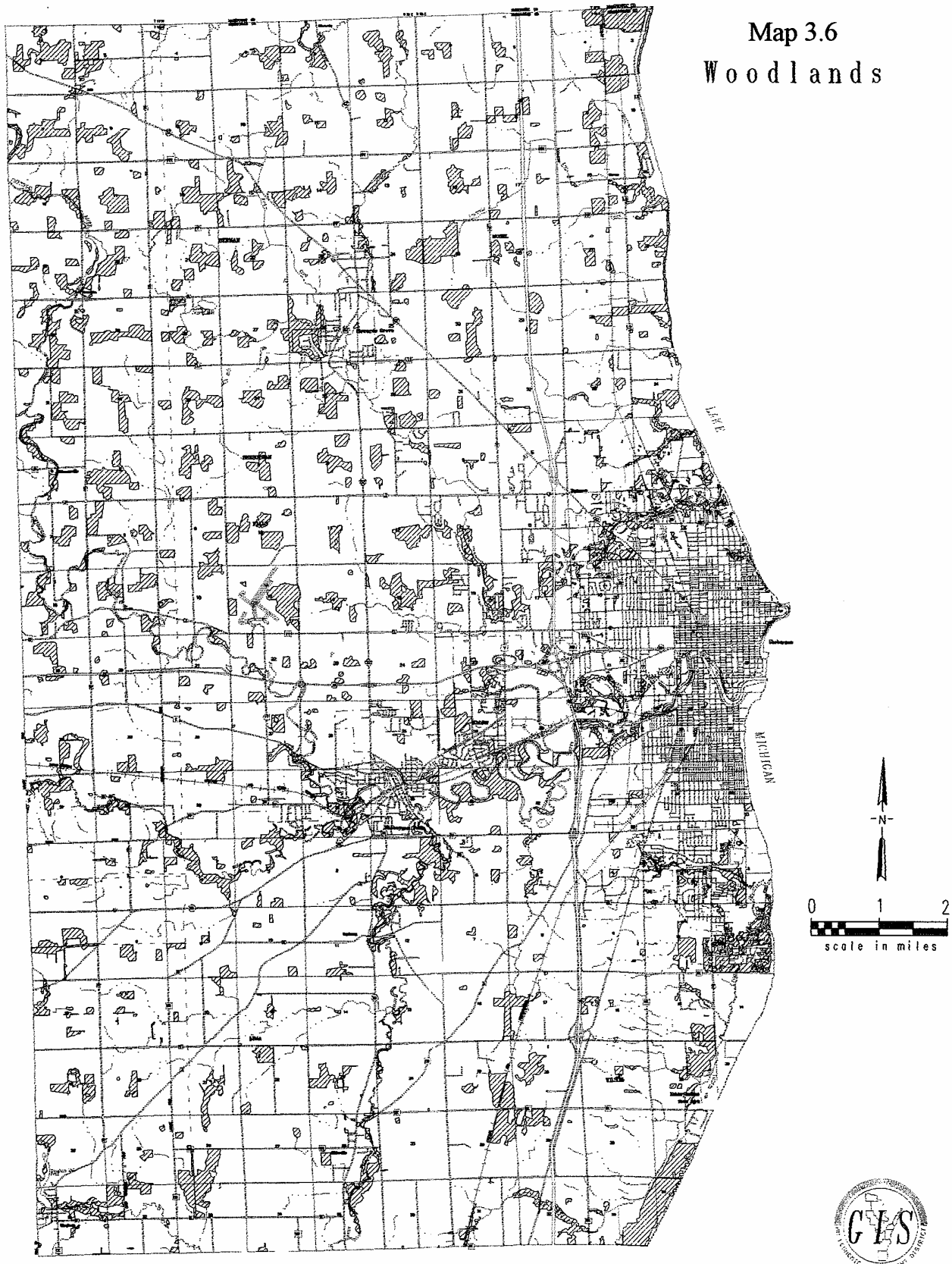
Scientific and Natural Areas

Scientific areas are designated by the WDNR Endangered Resource Unit as tracts of land in a natural or near natural state, which are managed to serve several purposes including scientific research, teaching of resource management, and preservation of rare native plants and ecological communities.

Within the planning area, there are state scientific areas, natural areas and natural history areas. State scientific areas have been designated with state significance, whereas, a natural area may qualify for state significance. Natural history areas also lack state status, but reflect patterns of former vegetation or show the influence of settlement on vegetation.

Sheboygan Sewer Service Planning Area

Map 3.6
Woodlands



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SOURCE: Bay-Lake Regional Planning Commission, 1996.

Date Plotted: 04/08/96

Within the Sheboygan planning area, there are two state scientific areas, five natural areas and three natural history areas. These scientific areas cover approximately 801 acres and have been identified on Map 3.7. A brief description of each of these areas is provided in the following:

1. **Kohler Park Dunes -** This is a state scientific area and consists of 25 acres. It is characterized by Lake Michigan dunes, beach community and remnants of white pine forest; the area is rich in coastal plant species. To help protect these communities, a ten-acre buffer zone has been established on the western edge of the scientific area.

2. **Kohler Park Pines -** This is also a state scientific area and consists of 95 acres, characterized by a conifer-hardwood forest with shrub and wooded wetlands occurring near the river.

3. **Ruth Balzer Schmitt Memorial Forest -** This is a 15-acre preserved mesic (requiring a moderate amount of moisture) forest, consisting of white pine, red oak, red and sugar maple, yellow birch and beech.

4. **Sheboygan County Memorial Arboretum -** This natural area is 22 acres and is characterized by a wet lacustrine swamp. Trails are also provided along the eastern and western swamp fringes.

5. **Sheboygan Campus Oak Woods -** This natural area consists of 30 acres and is characterized by a medium-aged woods situated on the old Sheboygan River banks.

6. **Lake Michigan Pine Hardwoods Dune Forest -** This natural area consists of 400 acres of white pine, red oak, white birch, beech, sugar maple and others; there are also ash-white cedar swamps and alder thickets.

7. **Onion River Forest -** This natural area consists of 80 acres characterized by a large upland forest on the west side of the Onion River; the forest is a mixture of hardwoods.

8. **Gibbsville Mesic Forest -** This is a natural history area with 20 acres of an old growth mesic forest. Past disturbances, such as grazing and timber removal have reduced its natural area value.

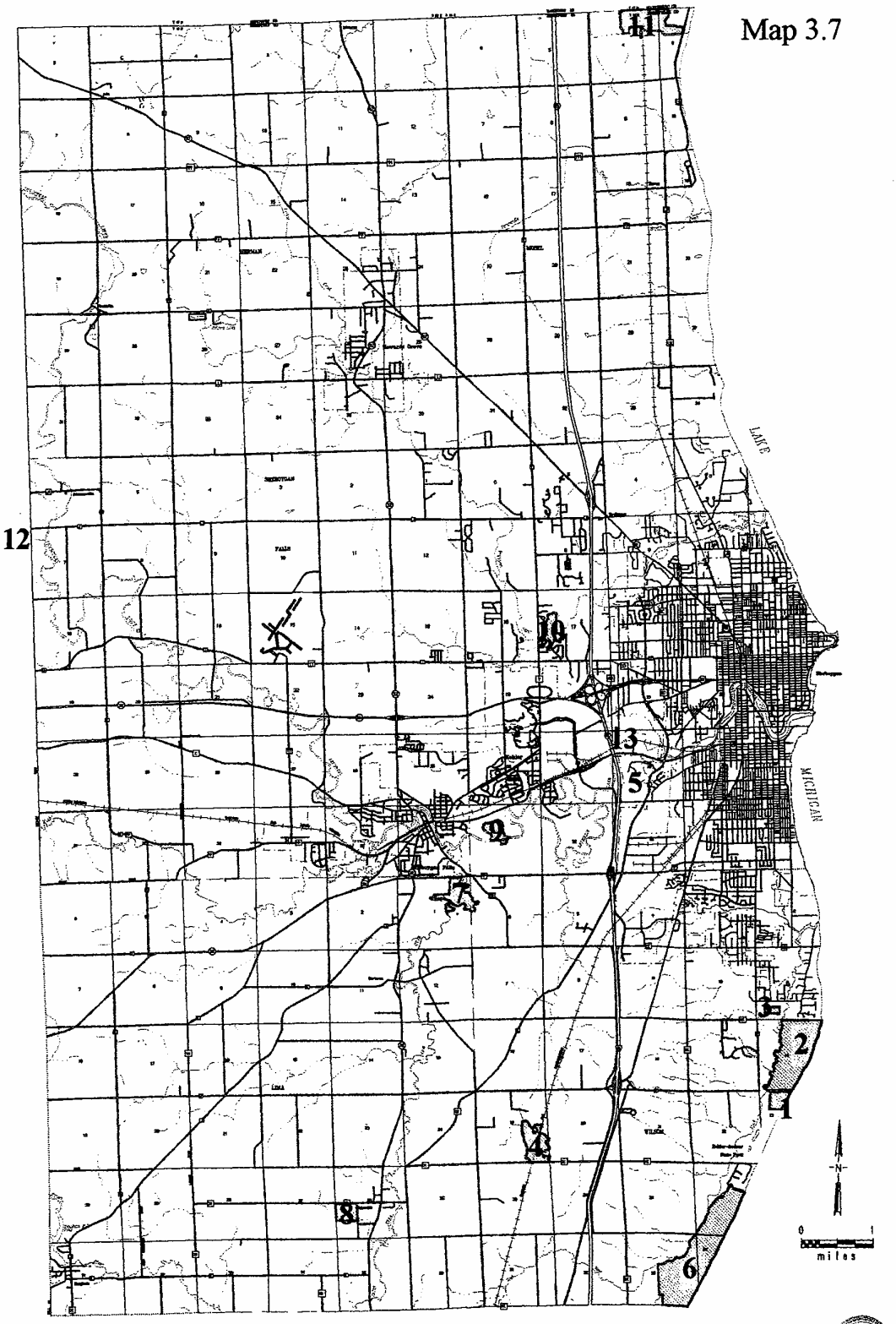
9. **Sheboygan River Woods -** This 70-acre natural history area is characterized by river edge and slope woods; this area has been heavily grazed in the past.

10. **Kohler-Pigeon River Tract -** This is also a natural history area, containing 44 acres, characterized by Pigeon River floodplain with ridges of second growth pine and hardwoods.

Sheboygan Sewer Service Study Area

Scientifc & Natural Areas

Map 3.7



SOURCE: Bay-Lake Regional Planning Commission, 1996.

11. **Cleveland Lacustrine Forest (Centerville Swamp)** - This natural area is an extensive second growth lacustrine forest of elm, ash, and soft maple with white cedar. The area covers portions of Sheboygan and Manitowoc counties and has a history of cutting and drainage.

Some of the previously mentioned sites are recognized for significance or uniqueness due to the existing natural communities. Table 3.16 lists these sites, the species of significance and the species status.

Table 3.16: Natural Communities of Significance

Site	Plant Community or Species	Species Status	Map Key
Onion River Forest	Northern Mesic Forest	Regional	7
	Forked Aster		
Ruth Balzer Schmitt Memorial Forest	Northern Mesic Forest	Regional	3
Kohler Park Pines	Southern Wet-Mesic Forest	State	2
	Alder Thicket	State	
	Northern Dry-Mesic Forest	State	
	Beach	State	
	Lake Dune	State	
Kohler Park Dunes	Lake Dune	State	1
Sheboygan County Memorial Arboretum	Northern Wet-Mesic Forest	Regional	4
	Northern Hardwood Swamp		
	Dune Thistle		
	Interdunal Wetland		
	Beach	State	
Lake Michigan Pine Hardwoods Dune Forest	Northern Wet-Mesic Forest	Regional	6
	Alder Thicket	Regional	
	Northern Mesic Forest	Regional	
Otter Creek	Striped Shiner		12
Sheboygan Campus Oak Woods	Northern Mesic Forest	Regional	5
Greendale Cemetery Ravine	Forked Aster		13
Sheboygan River-Kohler	Queen Snake		9

Source: Bureau of Endangered Resources, Wisconsin Department of Natural Resources; Bay-Lake Regional Planning Commission, 1995.

Wildlife and Fish Habitat

In the Sheboygan planning area, the WDNR wildlife habitat areas have been delineated along the coast according to their level of quality and importance. These areas are shown on Map 3.8 and Map 3.9 and were identified as part of a *WDNR Fish and Wildlife Habitat Study*. In this study, habitat areas were identified as having either top, medium or lower quality which measures the capability of supporting various types of wildlife habitat:

- Class 1 habitat areas 1) have the ability to support a good diversity of wildlife, 2) are of sufficient size to meet all habitat requirements for each species, and 3) are located in close proximity to other wildlife habitat areas.
- Class 2 habitat areas are medium quality generally lacking in one of the three criteria identified for Class 1 habitat.
- Class 3 habitat areas are considered remnant and generally lack two or more of the criteria identified for Class 1, but are in close proximity to high or medium value habitat areas, provide corridors which connect areas , or provide only the available range in the area.

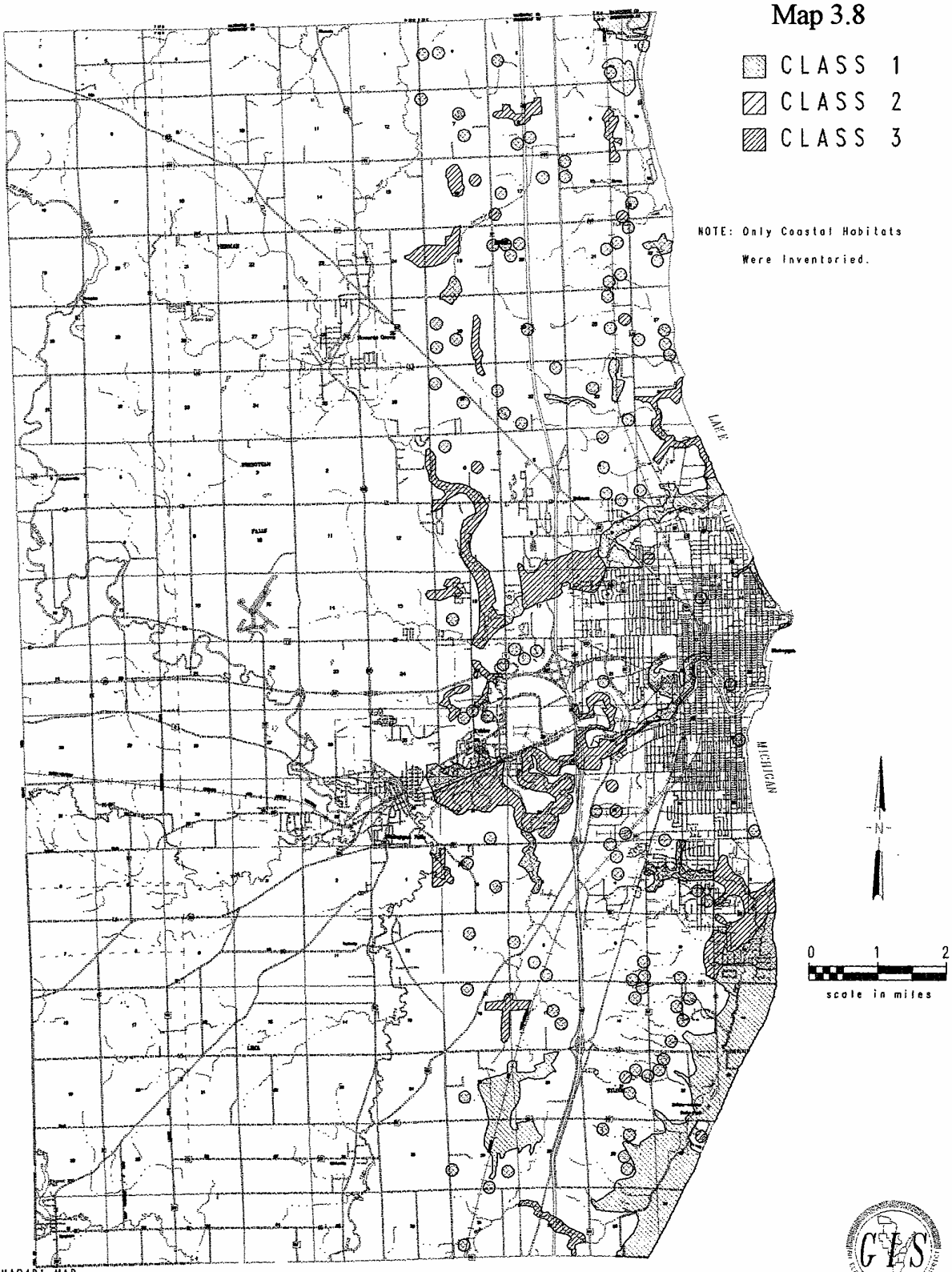
The water bodies were also identified as having various degrees of biological use according to the classifications listed below.

- Class 1 areas are used for trout spawning of seasonal aggregations.
- Class 2 areas support resident populations
- Class 3 areas support forage species if suitably managed.

The WDNR has since changed the fish classification system from the 1976 system to include more representation of the water body's biological use and characteristics. Biological uses for streams are identified in NR 102(04)(3) under fish and aquatic life uses. The following categories represent the biological uses and characteristics:

- *Great Lakes Communities* - This category includes Lake Superior, Lake Michigan and Green Bay including all bays, arms and inlets thereof and including those tributaries which serve as a spawning area for anadromous fish species.
- *Cold Water Communities (COLD)* - This category includes surface waters capable of supporting a community of cold water fish and other aquatic life or serving as a spawning area for cold water fish species.
- *Warm Water Sport Fish Communities (WWSF)* - This category includes surface waters capable of supporting a community of warm water sport fish or serving as a spawning area for warm water sport fish.
- *Warm Water Forage Fish Communities (WWFF)* - This category includes surface waters capable of supporting an abundant, diverse community of forage fish and other aquatic life.
- *Limited Forage Fish Communities (intermediate surface waters)(LFF)* - This category includes surface waters of limited capacity because of low flow, naturally

Wildlife Habitats



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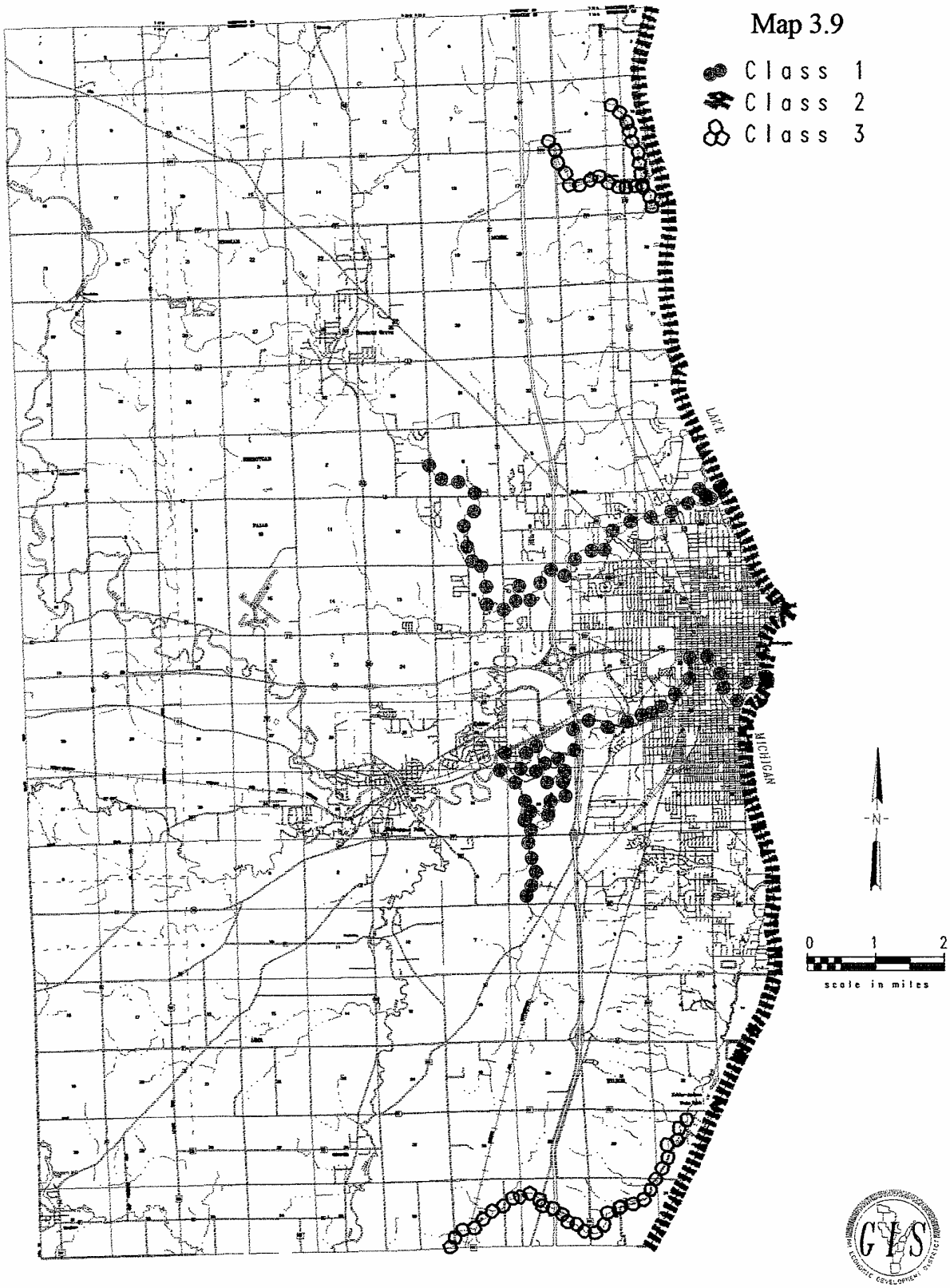
SOURCE: Wisconsin Coastal Management, 1987; Bay-Lake Regional Planning Commission, 1995.

Date Plotted: 12/05/95

Fish Habitats



SOURCE: Wisconsin Coastal Management, 1987; Bay-Lake Regional Planning Commission, 1995.

Date Plotted: 12/05/95

poor water quality, or poor water quality or poor habitat. These surface waters are capable of supporting only a limited community of forage fish and aquatic life.

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

Public, Semi-Public and Institutional Lands

The public, semi-public and institutional lands located within the Sheboygan planning area are identified on Map 3.10. These lands include schools, parks, cemeteries, and hospitals as well as all city, county and state owned property. Because of their current use and ownership status, it may be assumed that most, if not all, of these lands would not be available to accommodate future residential development. If development does occur, it is likely that the development would be either similar to or an expansion of the existing use on the property.

Delineation of Environmental Corridors

Wisconsin Administrative Code NR 121.05(g)(2)(c) describes natural features and sensitive environmental areas that are to be excluded from sewer service areas. These areas are referred to as "environmental corridors" and should include: wetlands; shorelands; floodways, and floodplains; steep slopes or highly erodable soils near drainageways; groundwater recharge areas; and scientific areas or other important natural, historical, archaeological and cultural features that warrant protection from sewered development.

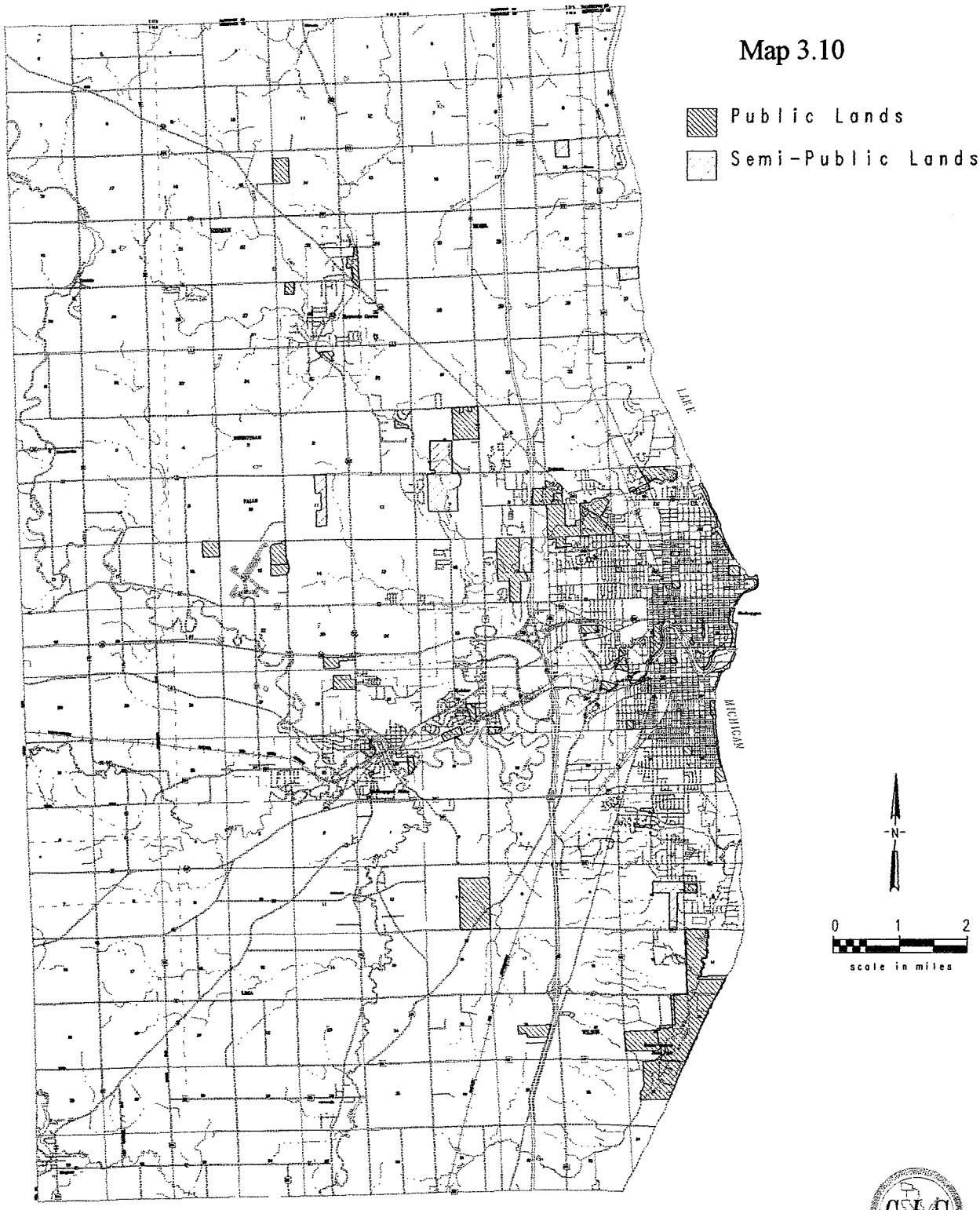
Designation of environmental corridors is intended to:

1. Protect the general public health, safety, and welfare.
2. Protect surface and groundwater quality.
3. Reduce damage from flooding and stormwater runoff.
4. Maintain important wildlife habitats or outdoor recreation areas.
5. Reduce the costs of public utilities and environmental damages.

Some examples of potential cost benefits to the community and individuals include: less property damage from stormwater runoff and sedimentation; fewer insurance claims which result in lower insurance rates; and lower maintenance costs for public utilities.

Sewer extensions for development of environmental corridors will be prohibited. An exception to this exclusion does exist. The plan recognizes that it may be necessary, in some cases, to construct sanitary sewers across and through environmental corridors, and that existing, compatible land uses such as public parks and outdoor recreation facilities may need sewering at a future date. These exceptions will be reviewed on a

Land Ownership



SOURCE: Bay-Lake Regional Planning Commission, 1996.

Date Plotted: 01/19/96

case-by-case basis by the Sheboygan Technical Advisory Committee and WDNR. Pursuant to NR 1.95, when an exception of this particular nature exists, all reasonable alternatives to crossing the environmental corridor with sanitary sewer will be considered. Any changes to the environmental corridor delineation would require a plan amendment and WDNR approval.

The environmental corridor concept has been effectively adopted in many regions of Wisconsin. For this plan, the environmental corridor concept has been applied to the planning area to help preserve remaining undisturbed natural resources. Map 3.11 delineates the environmental corridors as defined by BLRPC. Those data layers which were used in the environmental corridor delineations include: wetlands of two acres or greater from the Wisconsin Department of Natural Resources (WDNR) Wisconsin Wetland Inventory files; 100-year floodplains from Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps; stream and lake setbacks from local ordinances; and all lakes, ponds, rivers, streams and flowages as shown on USGS 1:24,000-scale quadrangle maps. Wooded areas of 20 acres or more adjacent to or contiguous with these features were also included.

Within the planning area, nearly 19,000 acres of environmental corridors are delineated. This includes 7,071 acres of wetlands which overlap portions of the 7,084 acres of woodlands. The area is covered by more than 6,395 acres of floodplain and 6,895 acres of stream and lake setback areas.

Table 3.17: Environmental Corridors Within the Sheboygan Sewer Service Area

	Within Setback				
	Within Floodplain		Outside Floodplain		
	Acres Of Woodlands	Acres With No Woodlands	Acres Of Woodlands	Acres With No Woodlands	Total Acres
Wetlands	179	503	83	506	1,272
No Wetlands	302	1,938	179	3,205	5,624
	Outside Setback				
	Within Floodplain		Outside Floodplain		
	Acres Of Woodlands	Acres With No Woodlands	Acres Of Woodlands	Acres With No Woodlands	Total Acres
Wetlands	272	687	1,991	2,850	5,799
No Wetlands	297	2,217	3,781		6,296
	Wetlands	Floodplain	Setback	Woodlands	
Total	7,071	6,396	6,896	7,085	18,991

Source: Bay-Lake Regional Planning Commission 1996.

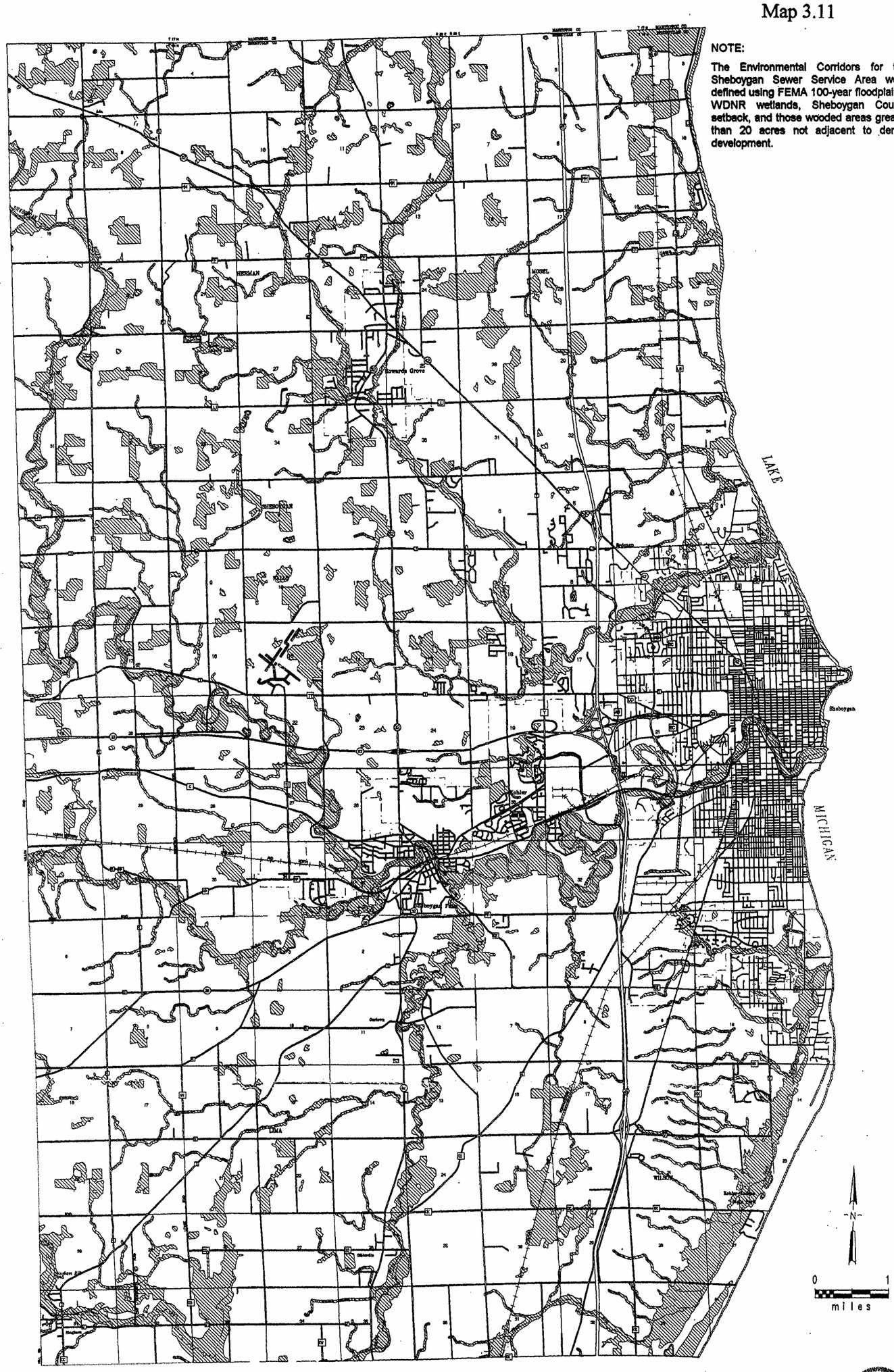
Sheboygan Sewer Service Study Area

Environmental Corridors

Map 3.11

NOTE:

The Environmental Corridors for the Sheboygan Sewer Service Area were defined using FEMA 100-year floodplains, WDNR wetlands, Sheboygan County setback, and those wooded areas greater than 20 acres not adjacent to dense development.



SOURCE: Bay-Lake Regional Planning Commission, 1996.

CHAPTER 4
PLANNING AREA GROWTH

CHAPTER 4:
PLANNING AREA GROWTH

INTRODUCTION

Many conditions or shaping factors affect the future growth of a community. These shaping factors may generally be included in the following three categories:

1. Political, social and economic conditions that affect population change

2. Natural, environmental and engineering limitations that affect land development

3. Existing growth patterns

Political, social and economic conditions are often difficult to predict with any accuracy. The best method to evaluate these factors is to provide a population increase estimate through the use of population projections, and apply that growth to various areas. This will allow for economic evaluation of alternative locations for future growth.

Physical factors directly affect where future development may or should occur. These factors can make development in some areas physically difficult, uneconomical or undesirable. Examples of limiting physical factors include: wetlands, floodplains, shorelands, steep slopes or highly erodable soils near surface waters, rare or endangered wildlife habitat, groundwater recharge/discharge areas or prime agricultural soils.

Existing growth influences development through the location and extension of necessary public facilities and utilities. If future growth is allowed to go uncontrolled and developable areas are abundant, development is likely to occur in a scattered manner.

Careful analysis of all of these factors helps provide a basis for projecting and guiding growth in the planning area. This chapter examines the third factor of "existing growth patterns" and how these patterns may affect future growth in the Sheboygan planning area.

POPULATION ANALYSIS

In order to obtain a clear understanding of the city of Sheboygan and the Sheboygan Planning Area, important factors pertaining to the population of the area must be carefully analyzed. For the majority of the planning decisions, population analysis and projections play an important role. In general terms, an analysis of the population provides several types of information important for long-range planning. The population

size (past, present and projected), population density and household characteristics provide an indication of how much land and the number of housing units that will be needed for future residential land uses and what sewage treatment levels should be. The population distribution also provides an indication of where the various land uses and community facilities should be located in the future. This portion of the study on population has, therefore, been divided into four sections dealing with *population trends*, *population projections*, *land use density*, and *future land use availability*.

POPULATION TRENDS

When viewed as a single geographic area, the Sheboygan County Sewer Service area has exhibited a relatively stable growth in population over the past 60 years (Figure 4.1). The population grew from 53,519 in 1930 to 73,714 persons in 1990 for an increase of 37.7 percent. The population in the county increased from 71,235 in 1930 to 103,877 in 1990, showing a 45.8 percent increase. From the data, it can be noted the planning area has grown significantly over the years, but slightly less than the county as a whole.

Within the planning area, the total city, town and village populations have also increased over the years. The combined city population grew from 42,185 in 1930 to 55,410 in 1990; the combined town population grew from 9,586 in 1930 to 14,158 in 1990; and the combined village population grew from 1,748 in 1930 to 4,146 in 1990. For all of the individual cities, towns, and villages, population trends are presented in Figures 4.2 to 4.4 and in Table 4.1 from 1930 to 1990 by ten-year increments. Table 4.2 presents percent changes over the previously mentioned years for the individual and total populations for cities, towns, and villages.

Table 4.1: Modified Population Trends for the Sheboygan County Sewer Service Planning Area, 1930-1990

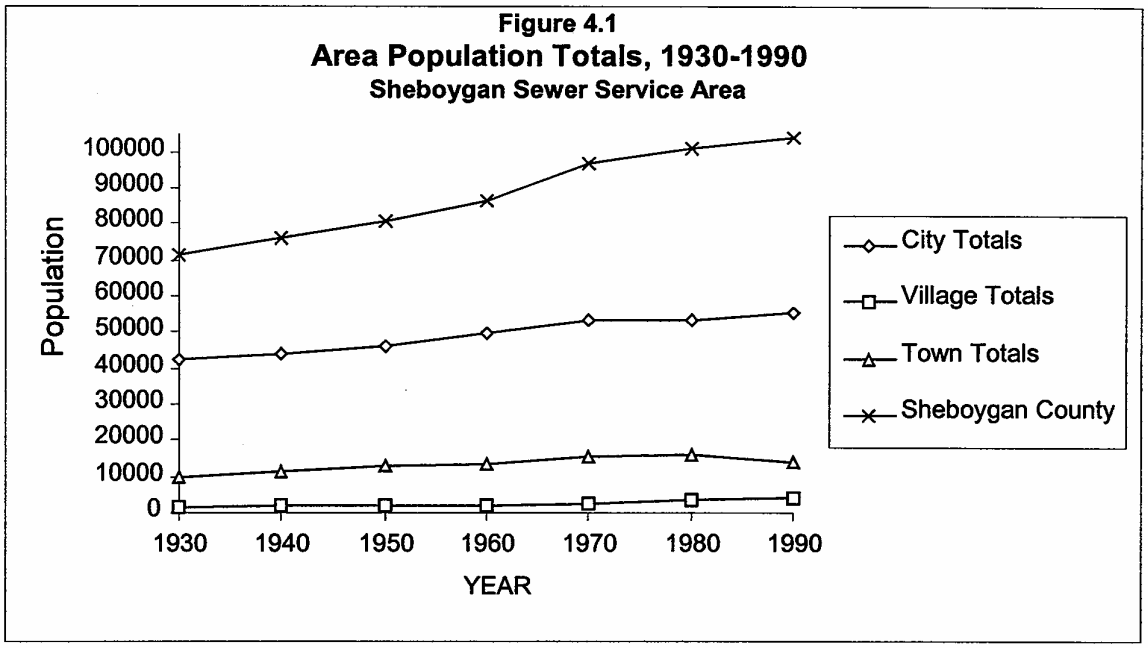
Area	1930	1940	Year 1950	1960	1970	1980	1990
City Totals	42,185	44,033	45,964	49,808	53,255	53,338	55,410
Sheboygan Falls	2,934	3,395	3,599	4,061	4,771	5,253	5,823
Sheboygan	39,251	40,638	42,365	45,747	48,484	48,085	49,587
Village Totals	1,748	2,299	2,306	2,304	2,736	3,489	4,146
Howards Grove	NA	510	590	780	998	1,838	2,329
Kohler	1,748	1,789	1,716	1,524	1,738	1,651	1,817
Town Totals	9,586	11,287	12,752	13,549	15,608	15,786	14,158
Herman	1,798	1,422	1,530	2,438	2,042	2,095	1,820
Mosel	748	830	1,019	906	1,127	1,035	918
Sheboygan Falls	1,519	1,660	1,841	1,870	2,280	2,281	1,908
Sheboygan	2,830	4,328	4,266	3,615	4,246	3,962	3,866
Lima	1,629	1,784	2,257	2,333	2,590	2,809	2,715
Wilson	1,062	1,263	1,839	2,387	3,323	3,604	2,931
Total Study Area	53,519	57,619	61,022	65,661	71,599	72,613	73,714
Sheboygan County	71,235	76,221	80,631	86,484	96,660	100,935	103,877

Source: U. S. Census Bureau, 1980: Wisconsin Department of Administration, Official Population Projections 1995-2015, 1993: and Bay-Lake Regional Planning Commission , 1995.

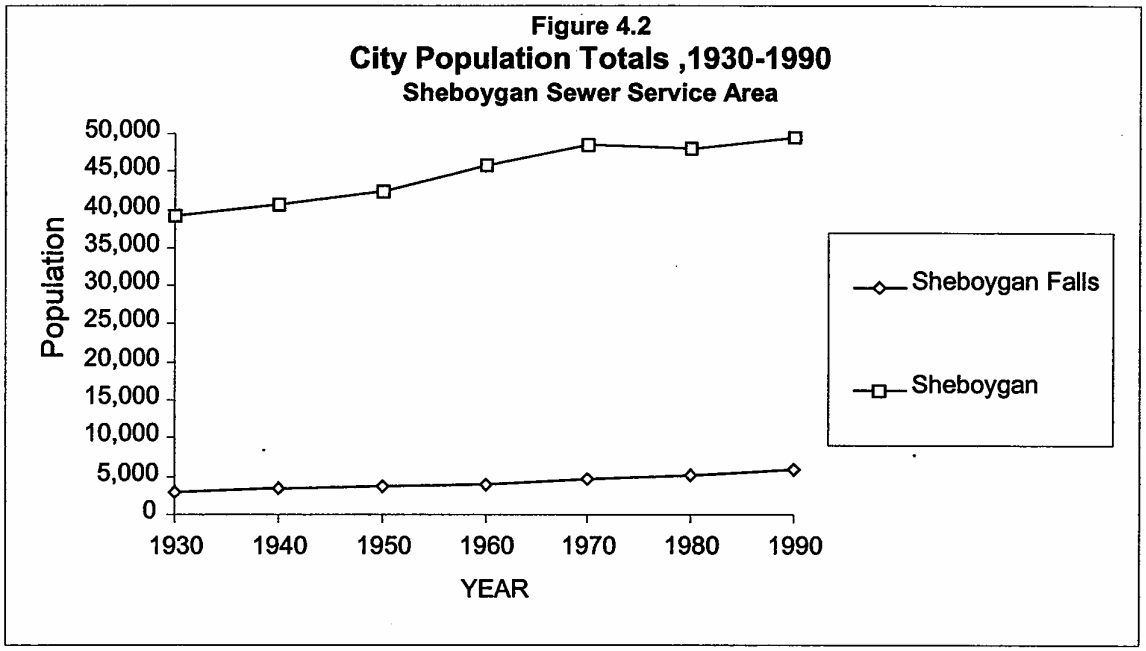
Table 4.2: Percent Change in Population Trends for the Sheboygan County Sewer Service Planning Area, 1930-1990

Area	1930-1940	1940-1950	Year 1950-1960	1960-1970	1970-1980	1980-1990
City Totals	4.38	4.39	8.36	6.92	0.16	3.88
Sheboygan Falls	15.71	6.01	12.84	17.48	10.10	10.85
Sheboygan	3.53	4.25	7.98	5.98	(0.82)	3.12
Town Totals	17.74	12.98	6.25	15.20	1.14	(10.31)
Herman	(20.91)	7.59	59.35	(16.24)	2.60	(13.13)
Mosel	10.96	22.77	(11.09)	24.39	(8.16)	(11.30)
Sheboygan Falls	9.28	10.90	1.58	21.93	0.04	(16.35)
Sheboygan	52.93	(1.43)	(15.26)	17.46	(6.69)	(2.42)
Lima	9.52	26.51	3.37	11.02	8.46	(3.35)
Wilson	18.93	45.61	29.80	39.21	8.46	(18.67)
Village Totals	31.52	0.30	(0.09)	18.75	27.52	18.83
Howards Grove	NA	15.69	32.20	27.95	84.17	26.71
Kohler	2.29	(4.08)	(11.19)	14.04	(5.01)	10.05
Total Study Area	7.66	5.91	7.60	9.04	1.42	1.52

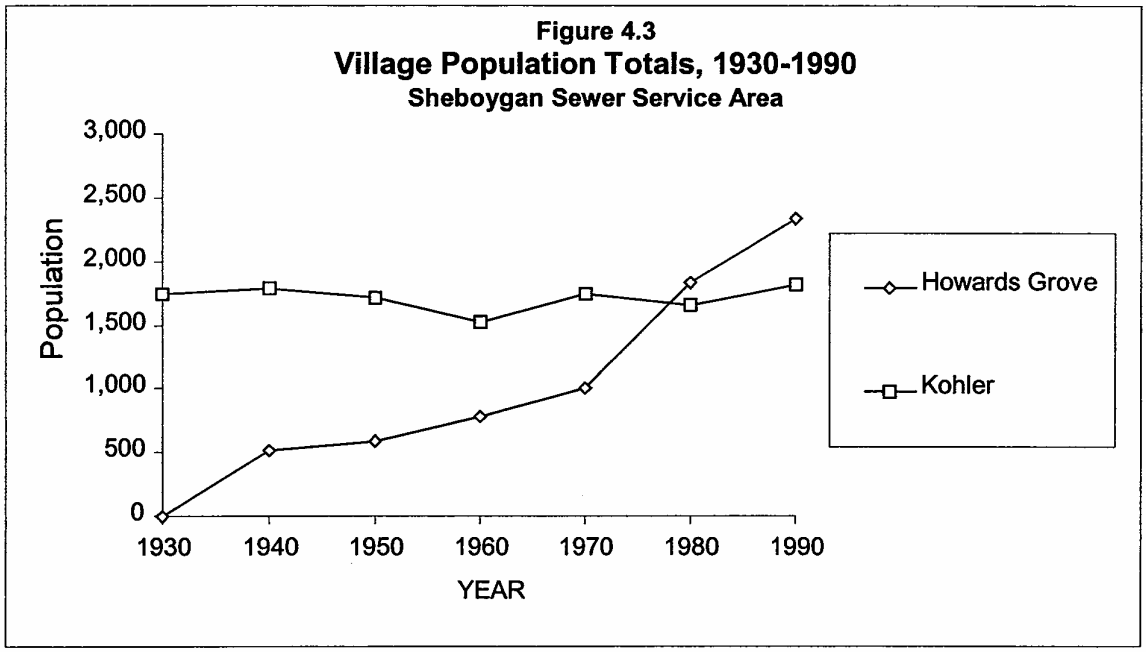
Source: U. S. Census Bureau, 1980: Wisconsin Department of Administration, Official Population Projections 1995-2015, 1993: and Bay-Lake Regional Planning Commission , 1995.



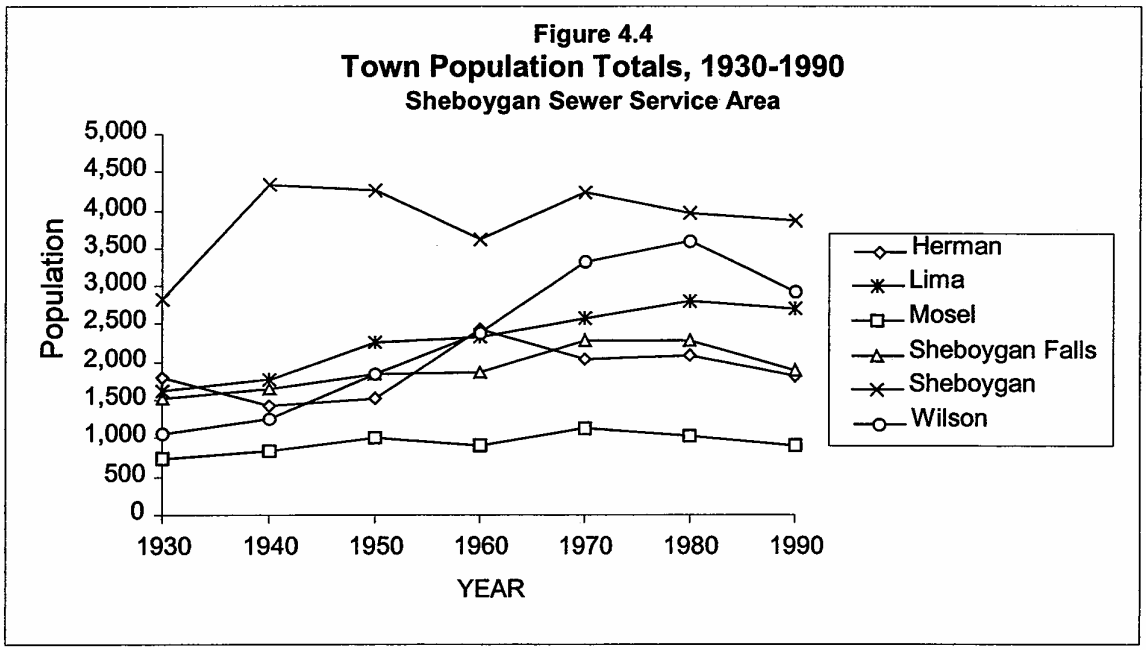
Source: U.S. Bureau of the Census, 1990; and Bay-Lake Regional Planning Commission, 1996.



Source: U.S. Bureau of the Census, 1990; and Bay-Lake Regional Planning Commission, 1996.



Source: U.S. Bureau of the Census, 1990; and Bay-Lake Regional Planning Commission, 1996.



Source: U.S. Bureau of the Census, 1990; and Bay-Lake Regional Planning Commission, 1996.

POPULATION PROJECTIONS

One of the key components of the sewer service area planning process is population projections. These projections play an important role in determining future demands for sewer service; helping local government officials determine how much growth should occur; and assisting in the selection of type and size of wastewater treatment facilities that should be used by the community.

The population projections are shown in Figures 4.5 to 4.8 and Table 4.3. The percent changes are shown in Table 4.4 for the total and individual cities, towns, and villages from 1990 to 2015 by five-year incremental periods. As can be noted by Table 4.3, the total population is projected to increase from 73,714 in 1990 to 77,349 in 2015. The Sheboygan County Sewer Service Area is projected to increase by .2 percent per year for the 1990 to 2015 time period. The combined city population is projected to continue to increase from 55,410 in 1990 to 58,071 in 2015. The combined town population is projected to decrease from 14,158 in 1990 to 13,988 in 2015; and the combined village population is projected to increase from 4,146 in 1990 to 5,290 in 2015.

The projections are based on past trends, which are represented best in Table 4.4 by percent changes. The population is projected to gradually increase to a peak population by the year 2015. As a result, the population projection for the Sheboygan Planning Area indicates an overall increase of approximately 4.9 percent between the years of 1990 and 2015.

Many factors may influence population growth and any major change in one or more of these factors may result in changes in the population projections. These factors may be physical, such as soils suitable for building and for private on-site wastewater treatment systems; social, such as an increase or decrease in birth, death and migration rates; economic, such as plant openings and closings and the availability of new employment opportunities; or political, such as the adoption of local land use policies. The sewer service plan shall be reviewed every two and one-half years and updated every five years, and will therefore be able to account for any significant changes in these factors which may alter future population projections and allow for appropriate adjustments to be made to the sewer service area boundary.

Table 4.3: Population Projections for the Sheboygan Sanitary Sewer Service Planning Area, 1990-2015

Area	Actual 1990	1995	2000	Projected 2005	2010	2015
City Totals	55,410	56,011	56,553	57,068	57,566	58,071
Sheboygan Falls	5,823	6,060	6,223	6,359	6,476	6,599
Sheboygan	49,587	49,951	50,330	50,709	51,090	51,472
Town Totals	14,158	14,308	14,265	14,165	14,105	13,988
Herman	1,820	1,828	1,811	1,787	1,771	1,745
Mosel	918	880	848	812	784	748
Sheboygan Falls	1,908	1,828	1,760	1,685	1,628	1,554
Sheboygan	3,866	4,134	4,262	4,372	4,465	4,565
Lima	2,715	2,706	2,689	2,661	2,643	2,612
Wilson	2,931	2,932	2,895	2,848	2,814	2,764
Village Totals	4,146	4,479	4,711	4,920	5,093	5,290
Howards Grove	2,329	2,536	2,695	2,841	2,961	3,099
Kohler	1,817	1,943	2,016	2,079	2,132	2,191
Total Study Area	73,714	74,798	75,529	76,153	76,764	77,349

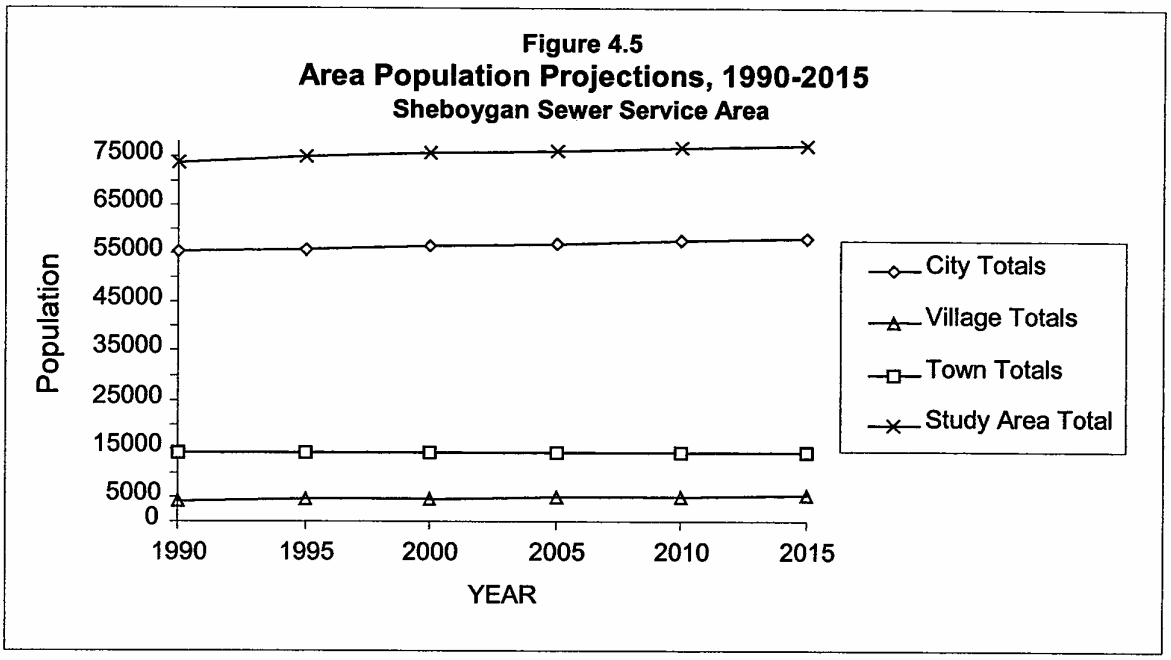
Source: U. S. Census Bureau, 1980: Wisconsin Department of Administration, Official Population Projections 1995-2015, 1993: and Bay-Lake Regional Planning Commission, 1995.
Note: * Population projection may vary with annexation

2007 estimate is 1,758

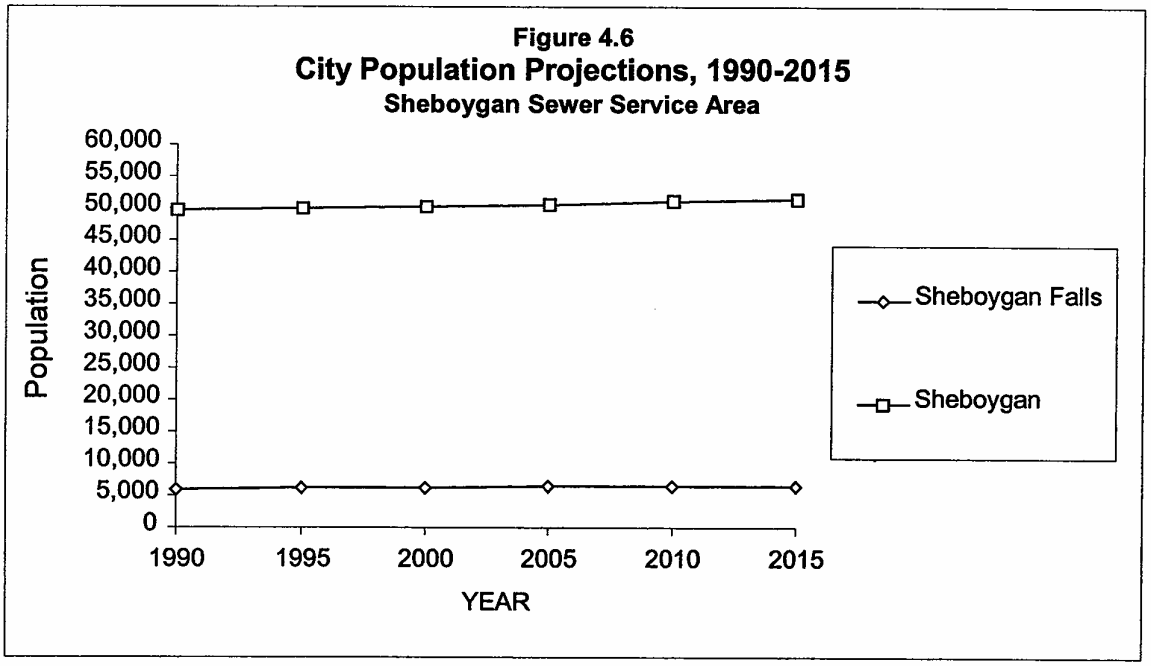
Table 4.4: Percent Change in Population Projections for the Sheboygan Sanitary Sewer Service Planning Area, 1990-2015

Area	Percent Changes 1990-1995	1995-2000	2000-2005	2005-2010	2010-2015
City Totals	1.08	0.97	0.91	0.87	0.88
Sheboygan Falls	3.91	2.62	2.14	1.81	1.90
Sheboygan	0.73	0.75	0.75	0.75	0.75
Town Totals	1.06	(0.30)	(0.70)	(0.42)	(0.83)
Herman	0.44	(0.94)	(1.34)	(0.90)	(1.47)
Mosel	(4.32)	(3.77)	(4.43)	(3.57)	(4.59)
Sheboygan Falls	(4.38)	(3.86)	(4.45)	(3.50)	(4.55)
Sheboygan	6.48	3.00	2.52	2.08	2.24
Lima	(0.33)	(0.63)	(1.05)	(0.68)	(1.17)
Wilson	0.03	(1.28)	(1.65)	(1.21)	(1.78)
Village Totals	8.03	5.18	4.44	3.52	3.87
Howards Grove	8.16	5.90	5.14	4.05	4.66
Kohler	6.48	3.62	3.03	2.49	2.77
Total Study Area	1.47	0.98	0.83	0.80	0.76

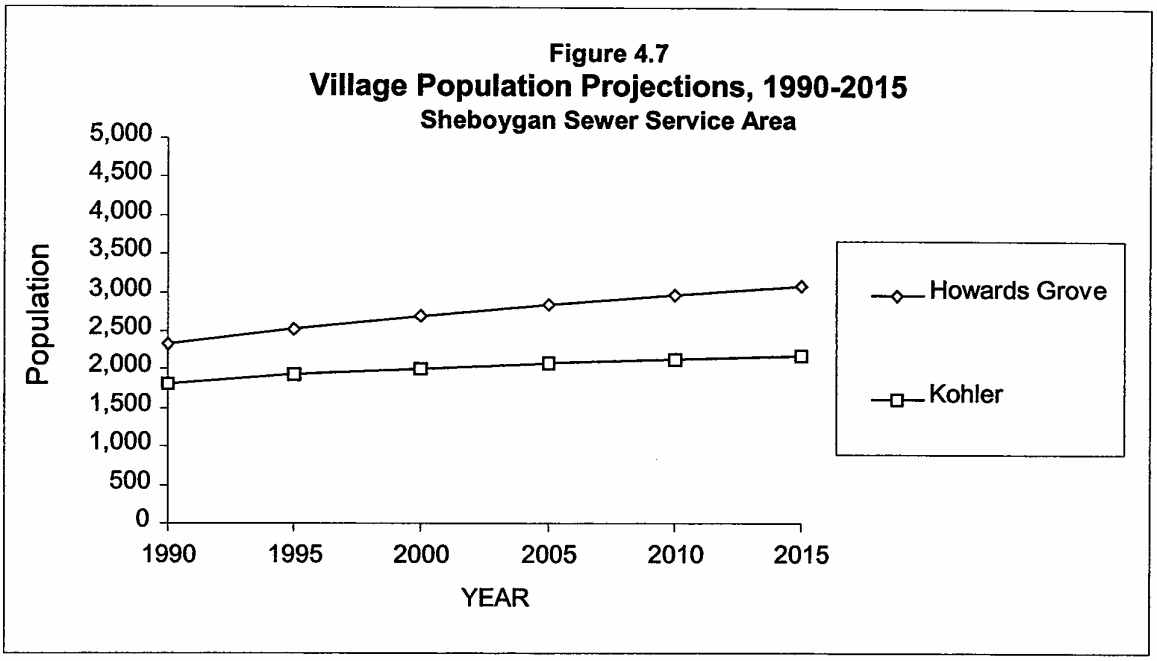
Source: U. S. Census Bureau, 1980: Wisconsin Department of Administration, Official Population Projections 1995-2015, 1993: and Bay-Lake Regional Planning Commission, 1995.



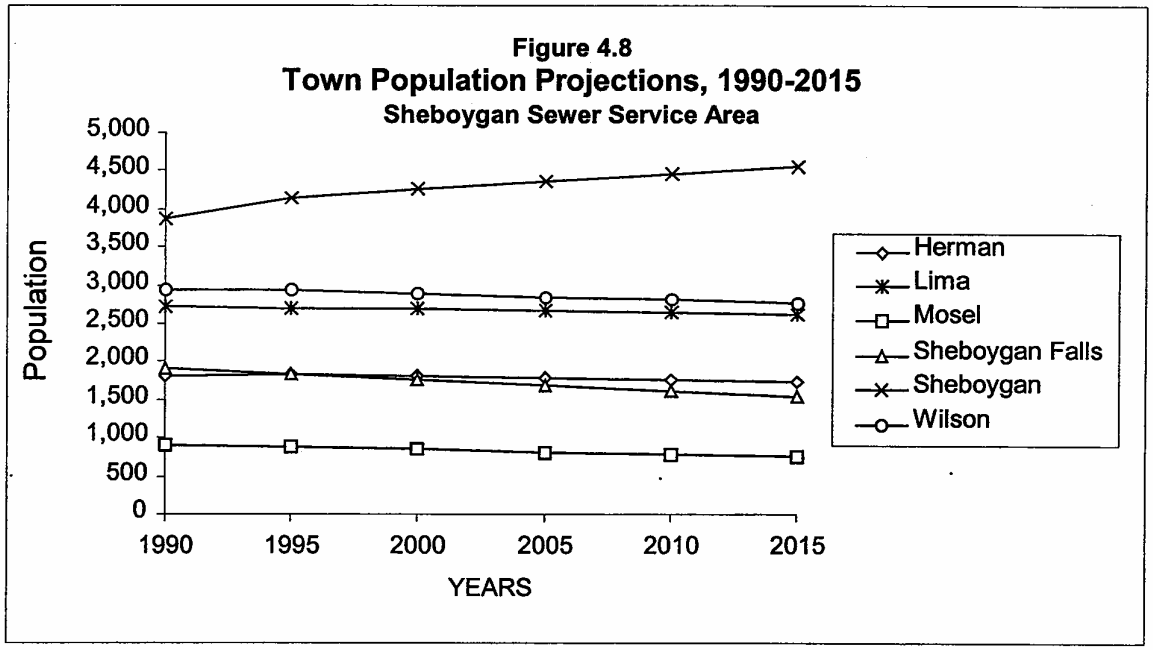
Source: U.S. Bureau of the Census, 1990; and Bay-Lake Regional Planning Commission, 1996.



Source: U.S. Bureau of the Census, 1990; and Bay-Lake Regional Planning Commission, 1996.



Source: U.S. Bureau of the Census, 1990; and Bay-Lake Regional Planning Commission, 1996.



Source: U.S. Bureau of the Census, 1990; and Bay-Lake Regional Planning Commission, 1996.

LAND USE DENSITY

Introduction

Four separate methodologies were used to project the acreage needed to accommodate future development within the sanitary districts. These acreage allocation models include the *population model*, the *EPA model*, the *household size model*, and the *current trend model*.

Population density is a measure of persons per acre of land and is indicative of the amount and proper location of various community facilities. When combined with population projections, an estimate may be made of the number of acres that will be needed to accommodate additional urban development in the year 2015.

Residential population densities were determined for each municipality in the planning area by using the 1990 population figures (Table 4.5) and 1995 land use data (Appendix A). The land use data was available for the planning area from the 1976 land use inventory conducted for the Regional Land Use Plan published by the Bay-Lake Regional Planning Commission and was updated in 1985 by the Sheboygan County Planning and Resources Department; and in 1995 by the Bay-Lake Regional Planning Commission; The population estimates were obtained from the Wisconsin Department of Administration Demographic Services Center. To calculate population densities for this study, a category was defined as developed which included the land use categories: residential, commercial, industrial, transportation, communications-utilities, institutional and governmental facilities, and outdoor recreation. The density ratios were calculated by dividing the 1995 land use into the 1990 population for developed acres and residential acres (Table 4.5).

Table 4.5: 1995 Land Use Density Ratios, Sheboygan Sewer Service Planning Area

GEOGRAPHIC AREA	1990 POPULATION	1995 DEVELOPED LAND (ACRES)	1995 RESIDENTIAL LAND (ACRES)	1995 PERCENT RESIDENTIAL LAND	PERSONS/ DEVELOPED ACRE	PERSONS/ RESIDENTIAL ACRE
Cities						
Sheboygan Falls	5,823	1,143.51	484.78	42.39%	5.09	12.01
Sheboygan	49,587	6,475.11	3,169.86	48.95%	7.66	15.64
Villages						
Howards Grove	2,329	643.24	353.53	54.96%	3.62	6.59
Kohler	1,817	1,591.35	190.75	11.99%	1.14	9.53
Towns						
Herman	1,820	1,210.68	473.98	39.15%	1.50	3.84
Lima	2,715	1,592.80	717.63	45.05%	1.70	3.78
Mosel	918	1,091.09	340.99	31.25%	0.84	2.69
Sheboygan	3,866	2,252.25	1,045.15	46.40%	1.72	3.70
Sheboygan Falls	1,908	1,684.45	507.06	30.10%	1.13	3.76
Wilson	2,931	2,482.36	777.30	31.31%	1.18	3.77
Total	73,714	20,166.84	8,061.03	39.97%	3.66	9.14

Source: U.S. Bureau of the Census, 1990; and Bay-Lake Regional Planning Commission, 1995.

Population Density Model

Based on the persons per acres, and current and future population estimates and projections, future land consumption needs may be calculated. Land consumption is the amount of land that will be needed to accommodate the future urban development. The land consumption needs, based on the population density model, are presented for the total and individual cities, towns, and villages in Table 4.6. As shown by this table, 530 acres are needed to accommodate future residential developments that are expected to occur within the planning area.

Table 4.6: Population Density Model

GEOGRAPHIC AREA	1990 POPULATION	2015 PROJECTION	POPULATION CHANGE	PERSONS/ DEVELOPED ACRE	PERSONS/ RESIDENTIAL ACRE	ACRES NEEDED FOR TOTAL DEVELOPMENT*	ACRES NEEDED FOR RESIDENTIAL DEVELOPMENT**
Cities							
Sheboygan Falls	5,823	6,599	776	5.09	12.01	152	65
Sheboygan	49,587	51,472	1,885	7.66	15.64	246	120
Villages							
Howards Grove	2,329	3,099	770	3.62	6.59	213	117
Kohler	1,817	2,191	374	1.14	9.53	328	39
Towns							
Herman	1,820	1,745	(75)	1.50	3.84	NA	NA
Lima	2,715	2,612	(103)	1.70	3.78	NA	NA
Mosel	918	748	(170)	0.84	2.69	NA	NA
Sheboygan	3,866	4,565	699	1.72	3.70	407	189
Sheboygan Falls	1,908	1,554	(354)	1.13	3.76	NA	NA
Wilson	2,931	2,764	(167)	1.18	3.77	NA	NA
Total	73,714	77,349	3,635	3.66	9.14	1,346	530

Source: U.S. Bureau of the Census, 1990; Census of the Population and Housing Summary, 1991; and Bay-Lake Regional Planning Commission, 1995.

Notes: * Formula: Population Change / Persons Per Developed Acre
** Formula: Population Change / Persons Per Residential Acre
NA - No Allocation (negative number)

EPA Model

The land consumption needs were determined at a density standard of 1.7 persons/acre, which are based on the Environmental Protection Agency minimum accepted standard for sewer extensions for new development. The data are also presented for the total and individual cities, towns, and villages in Table 4.7. As shown by the table, 2,649 and 1,203 acres are needed to accommodate new urban and residential development respectively, by 2015.

Table 4.7: EPA Model

GEOGRAPHIC AREA	1990 POPULATION	2015 PROJECTION	POPULATION CHANGE	1995 RESIDENTIAL LAND	ACRES NEEDED FOR TOTAL DEVELOPMENT*	ACRES NEEDED FOR RESIDENTIAL DEVELOPMENT**
Cities						
Sheboygan Falls	5,823	6,599	776	42.39%	456	194
Sheboygan	49,587	51,472	1,885	48.95%	1,109	543
Villages						
Howards Grove	2,329	3,099	770	54.96%	453	249
Kohler	1,817	2,191	374	11.99%	220	26
Towns						
Herman	1,820	1,745	(75)	39.15%	NA	NA
Lima	2,715	2,612	(103)	45.05%	NA	NA
Mosel	918	748	(170)	31.25%	NA	NA
Sheboygan	3,866	4,565	699	46.40%	411	191
Sheboygan Falls	1,908	1,554	(354)	30.10%	NA	NA
Wilson	2,931	2,764	(167)	31.31%	NA	NA
Total	73,714	77,349	3,635	39.97%	2,649	1,202

Source: Bureau of the Census, 1990; Census of the Population and Housing Summary, 1991; and Bay-Lake Regional Planning Commission, 1995.

Notes: * Formula: Population Change / 1.7 (EPA Persons/Acre Minimum Standard)
** Formula: Population Change / 1.7 x % Residential Land
NA - No Allocation (negative #)

Household Population Model

The change in household size generally reflects changes in the social structure of the population. Table 4.8 shows the persons per household unit for the communities in the study area and the average household size projections for the years of 1990, 1995 and 2015. To project the figures for 1995 and 2015, for the cities, towns and villages, the county's household change was used. The county's figures were used because the figures for the cities, towns, and villages were not available from the Census. The major factors contributing to the declining household size include a decrease in the number of children per family; an increase in the number of young adults forming single-person households and maintaining them for a longer time period; fluctuations in the divorce rate; and an increase in the number of elderly maintaining single-person households.

On a local level, changes in the average number of persons per household are influenced by these factors but probably more so by the mix of housing types and the general age of the housing. When a large proportion of the housing stock is multi-family residences or apartments, a lower average household size usually results. The primary reason is that single people, young or childless couples and elderly people are the primary occupants of multi-family living quarters. Communities with a high proportion of older single-family houses also tend to have a lower number of persons per household because many of these units are occupied by elderly couples or individuals. These one and two person households have a strong influence on reducing a community's average household size.

Table 4.8: Household Ratios, 1990-2015, Sheboygan Sewer Service Area

MUNICIPALITY	ACTUAL 1990 CENSUS PERSONS/HOUSEHOLD	*PROJECTED 1995 CENSUS PERSONS/HOUSEHOLD	**PROJECTED 2015 CENSUS PERSONS/HOUSEHOLD
Cities			
Sheboygan Falls	2.54	2.50	2.30
Sheboygan	2.47	2.43	2.23
Towns			
Herman	3.01	2.96	2.72
Mosel	2.97	2.92	2.68
Sheboygan Falls	2.83	2.79	2.56
Sheboygan	2.78	2.74	2.52
Lima	2.98	2.93	2.69
Wilson	2.79	2.75	2.53
Villages			
Howards Grove	2.92	2.88	2.64
Kohler	2.79	2.75	2.53
County	2.63	2.59	2.38
Total Change*		0.98	0.92

Source: Bureau of the Census, 1990; Census of the Population and Housing Summary, 1991; Wisconsin Department of Administration, 1993; and Bay-Lake Regional Planning Commission, 1996.

NOTES: *County's 1995 Figure/County's 1990 Figure Used as Projected Difference for Municipalities for 1995
**County's 2015 Figure/County's 1995 Figure Used as Projected Difference for Municipalities for 2015

The land consumption needs, based on the household population density model, are presented for the total and individual cities, towns, and villages in Table 4.9. The household population calculations were determined using the 1985 land use data, the 1995 updated data and the 1990 population data, with the assumption that land use needs were met under those existing conditions. From this assumption, a conversion factor was calculated for developed and residential land use needs, by dividing the 1990 population data by the 1995 land use data by the 1990 household density ratio (Table 4.10). Then, this conversion factor was used as a constant in the other equations used to calculate future land use needs. Future needs were calculated by dividing the future population by the conversion factor and by the future household density ratio (Table 4.8). The result of that calculation is then equal to the future land use need; the needs are shown in Table 4.9 for the individual and combined cities, towns, and villages. This future land use need then has the current 1995 land use subtracted from its total to give the actual figure of land needed to accommodate the future growth. This model predicts an additional need of 2,767 and 1,143 acres for urbanized and residential development, respectively, in the year 2015 for the Sheboygan urbanized area.

Table 4.9: Household Population Model

GEOGRAPHIC AREA	DEVELOPED LAND CONVERSION FACTOR	RESIDENTIAL LAND CONVERSION FACTOR	PROJECTED YEAR 2015 POPULATION	PROJECTED PERSONS PER HOUSEHOLD (2015)	ACRES NEEDED FOR TOTAL DEVELOPMENT*	ACRES NEEDED FOR RESIDENTIAL DEVELOPMENT**	DEVELOPED LAND (ACRES) TOTAL RESIDENT.		ACREAGE ALLOCATION TOTAL DEVELOPMENT***	ACREAGE ALLOCATION RESIDENTIAL DEVELOPMENT***
Cities										
Sheboygan Falls	2.00	4.73	6,599	2.30	1,431.12	606.71	1,143.51	484.78	287.61	121.93
Sheboygan	3.10	6.33	51,472	2.23	7,444.62	3,644.48	6,475.11	3,169.86	969.51	474.62
Villages										
Howards Grove	1.24	2.26	3,099	2.64	946.68	520.30	643.24	353.53	303.44	166.77
Kohler	0.41	3.41	2,191	2.53	2,116.10	253.65	1,591.35	190.75	524.75	62.90
Towns										
Herman	0.50	1.28	1,745	2.72	1,284.55	502.90	1,210.68	473.98	NA	NA
Lima	0.57	1.27	2,612	2.69	1,697.57	764.84	1,592.8	717.63	NA	NA
Mosel	0.28	0.91	748	2.68	985.24	307.91	1,091.09	340.99	NA	NA
Sheboygan	0.62	1.33	4,565	2.52	2,933.86	1,361.45	2,252.25	1,045.15	681.61	316.30
Sheboygan Falls	0.40	1.33	1,554	2.56	1,516.62	456.54	1,684.45	507.06	NA	NA
Wilson	0.42	1.35	2,764	2.53	2,581.49	808.34	2,482.36	777.3	NA	NA
Total			77,349	2.38	22,937.86	9,227.12	20,166.84	8,061.03	2,766.93	1,142.52

Source: U.S. Bureau of the Census, 1990; Census of the Population and Housing Summary, 1991; and Bay-Lake Regional Planning Commission, 1995.

Notes: *Formula: Projected Population/Developed Land Conversion Factor/Future Persons Per Household

**Formula: Projected Population/Residential Land Conversion Factor/Future Persons Per Household

***Formula: Acres Needed for Total/Res. Dev.- Existing Acres of Total/Residential Land

Table 4.10: Persons Per Household Conversion Table

GEOGRAPHIC AREA	1990 POPULATION	1995 DEVELOPED LAND (ACRES)	1995 RESIDENTIAL LAND (ACRES)	1990 PERSONS/ HOUSEHOLD	HOUSEHOLDS PER ACRE OF DEVELOPED LAND (1995) DEVELOPED LAND CONVERSION FACTOR*	RESIDENTIAL LAND CONVERSION FACTOR**
Cities						
Sheboygan Falls	5,823	1,143.51	484.78	2.54	2.00	4.73
Sheboygan	49,587	6,475.11	3169.86	2.47	3.10	6.33
Villages						
Howards Grove	2,329	643.24	353.53	2.92	1.24	2.26
Kohler	1,817	1,591.35	190.75	2.79	0.41	3.41
Towns						
Herman	1,820	1,210.68	473.98	3.01	0.50	1.28
Lima	2,715	1,592.80	717.63	2.98	0.57	1.27
Mosel	918	1,091.09	340.99	2.97	0.28	0.91
Sheboygan	3,866	2,252.25	1,045.15	2.78	0.62	1.33
Sheboygan Falls	1,908	1,684.45	507.06	2.83	0.40	1.33
Wilson	2,931	2,482.36	777.30	2.79	0.42	1.35
Total	73,714	20,166.84	8,061.03			

Source: U.S. Bureau of the Census, 1990, Census of the Population and Housing Summary, 1991; and Bay-Lake Regional Planning Commission, 1995.

NOTES: *Formula: 1990 Population / 1995 Dev. Acres / 1990 Persons Per Household
**Formula: 1990 Population / 1995 Res. Acres / 1990 Persons Per Household
***County Persons Per Household Is 2.63 For 1990

CURRENT DEVELOPMENT MODEL

The current development model forecasts the population growth based on the current development trends of an area. In this plan the area that was analyzed included the 814 square miles within the *Sheboygan Urbanized Area Sewer Service Plan's* study area. To help determine the forecasts for this model, the Commission decided to use the Sheboygan Metropolitan Planning Organization's *2020 Sheboygan Area Transportation Plan* (SATP) findings and assumptions.

The land consumption needs for the SATP were determined from the development trends that have occurred in the planning area and which are projected to occur in the near future. The needs for this model have been identified through the extensive work of the Sheboygan Metropolitan Planning Organization (MPO) and its *2020 SATP*. The growth projections for the *SATP* have determined that a total of 3,073 acres of land are needed to accommodate all new urban development and of that total some 2,401 acres are needed to accommodate future residential development by the year 2020.

Sheboygan MPO planning staff, with assistance from the membership of the Sheboygan MPO Technical Advisory and Policy Committees, developed three growth scenarios in order to forecast current trends . These three scenarios were based upon a series of controlled projections, most of which were developed by MPO staff and approved by the Sheboygan MPO Technical Advisory and Policy Committees in 1994. These controlled total projections anticipated a 5.5 percent increase in the population, a 17.6 percent increase in the number of housing units, a 21.0 percent increase in employment, a 17.9 percent increase in the number of registered vehicles, and a 7.1 percent increase in the number of students enrolled in the SATP study area over the period from 1990 to 2020. Scenario Two was the preferred growth

scenario chosen by the Committees. Scenario Two involved growth patterns that were compact and infill development, and assumed that development would take place in a more compact fashion at higher densities than the other two scenarios.

Scenario Two depicted the focus of development to be on those areas designated for such development based on locally adopted land use plans and on *the Sheboygan Area Sewer Service Plan* of 1989. Under Scenario Two, development would be limited to the existing 1989 Sheboygan sewer service boundary (Map 4.1).

The demographic and socioeconomic impacts of the three growth scenarios developed for the SATP study area were calculated in great detail by the Bay-Lake Regional Planning Commission (BLRPC) staff in March, April, and May of 1995. This information is available as a series of three technical memoranda presented to members of the Sheboygan MPO Technical Advisory and Policy Committees during this same period, and is also documented in the *2020 SATP*. Within the *SATP*, this information is presented through several maps and tables, and includes the methodology used to allocate future growth under the three growth scenarios.

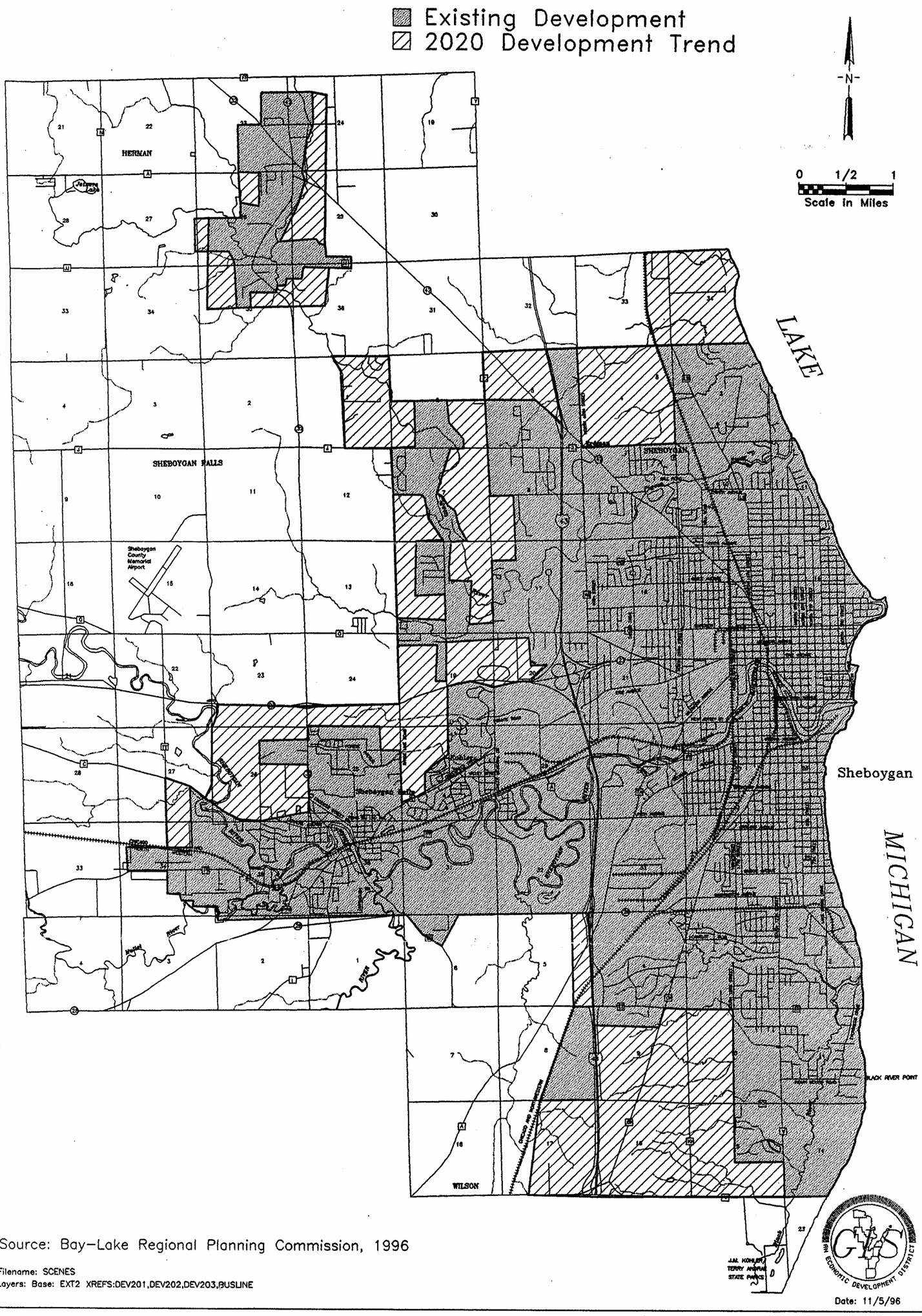
The Sheboygan MPO Technical Advisory and Policy Committees selected Growth Scenario Two as the preferred development vision for the *SATP* study area at their May 25, 1995 joint meeting. This decision came after months of debate over the merits of each growth scenario. Benefits of Growth Scenario Two include its relative compatibility with other local plans (including various comprehensive plans, *the Sheboygan Urbanized Area Sewer Service Plan* (1989), the *Sheboygan Farmland Preservation Plan*, and with recent municipal zoning ordinances.

FUTURE LAND USE AVAILABILITY

The amount of land available for future urban development was calculated from the 1995 update of the 1989 *Sheboygan Urbanized Area Sewer Service Plan*. Undevelopable and developable lands were determined by BLRPC by utilizing the Commission's Geographic Information System. The Commission was able to use the current 1995 land use data and combine it with the planning area's environmental corridors, determined by the Commission, which included woodlands, WDNR identified wetlands of two acres or greater, 100-year floodplain, public lands and parks and the perennial shoreland zone. Note that wetlands regardless of size cannot be altered without permits which are subject to review by the Army Corps of Engineers and WDNR. The areas that were already developed and those that fell within the environmental corridors were classified as being undevelopable. The lands outside the environmental corridors and were not already developed were classified as being developable lands. The totals of developable and undevelopable land use within the Sheboygan urbanized area were calculated and are presented in Table 4.11 along with the land use needs as determined by the Population Density, the EPA, the Household Population, and the MPO Current Development Models. Note that areas zoned exclusive agricultural were not deducted from the developable land sizes. This was done so that an actual land total (in acres) that could be developed without physical modification or improvement first, could be depicted. To aid in future planning, the totals for exclusive agriculture have also been depicted in Table 4.11.

Scenario 2
Compact/Infill Development
Extent of Urban Development Expected in the SATP Study Area

Map 4.1



Source: Bay-Lake Regional Planning Commission, 1996

Filename: SCENES
Layers: Base: EXT2 XREFS:DEV201,DEV202,DEV203,BUSLINE

Date: 11/5/96

Table 4.11: Future Land Use Availability

GEOGRAPHIC AREA	1995 DEVELOPABLE LAND (ACRES)	1995 UNDEVELOPABLE LAND (ACRES)	ACRES OF EXCLUSIVE AGRICULTURE	POP DENSITY MODEL ACRES NEEDED TOTAL DEVELOPMENT	POP DENSITY MODEL ACRES NEEDED RESIDENTIAL DEVELOPMENT	EPA MODEL ACRES NEEDED TOTAL DEVELOPMENT	EPA MODEL ACRES NEEDED RESIDENTIAL DEVELOPMENT	HOUSEHOLD POP MODEL ACRES NEEDED TOTAL DEVELOPMENT	HOUSEHOLD POP MODEL ACRES NEEDED RESIDENTIAL DEVELOPMENT	MPO CURRENT TREND MODEL ACRES NEEDED TOTAL DEVELOPMENT*	MPO CURRENT TREND MODEL ACRES NEEDED RESIDENTIAL DEVELOPMENT*
Cities											
Sheboygan Falls	556	1,505	0	152	65	456	194	288	122	NA	NA
Sheboygan	1,192	7,385	0	246	120	1,109	543	970	475	NA	NA
Villages											
Howards Grove	419	913	0	213	117	453	249	303	167	NA	NA
Kohler	1,050	2,436	0	328	39	220	26	525	63	NA	NA
Towns											
Herman	15,243	6,678	15,189	0	0	0	0	0	0	NA	NA
Lima	17,841	5,549	17,422	0	0	0	0	0	0	NA	NA
Mosel	9,206	4,365	115	0	0	0	0	0	0	NA	NA
Sheboygan	3,287	4,017	0	407	189	411	191	682	316	NA	NA
Sheboygan Falls	14,424	6,627	14,986	0	0	0	0	0	0	NA	NA
Wilson	8,605	6,311	6,724	0	0	0	0	0	0	NA	NA
Total	71,823	45,786	54,436	1,346	530	2,649	1,202	2,767	1,143	3,073	2,401

Source: U.S. Bureau of the Census, 1990, Census of the Population and Housing Summary, 1991; and Bay-Lake Regional Planning Commission, 1995.

Note: *MPO Current Trend Model acreage totals were for Traffic Analysis Zones (TAZ) not specific municipalities, thus information is not identified as in the other three models

CHAPTER 5
DEVELOPMENT OF GROWTH STRATEGY

CHAPTER 5:
DEVELOPMENT OF GROWTH STRATEGY

INTRODUCTION

As was mentioned in the preceding chapters of this document, a variety of physical and economic factors contribute to the future growth of a community. Manipulation of some of these factors may help guide such growth to provide logical and economic development.

For the purpose of this plan, four development alternatives have been evaluated which identify specific areas contiguous to the municipalities to accommodate future residential growth. The size and location of these development areas are based on alternative population density models, land consumption needs, environmental corridors, existing land use, current development trends and proximity to existing municipal services. From these development alternatives, a final sewer service configuration was selected and the future acreage need was determined for the 20-year planning period.

SELECTED STRATEGY

The Sheboygan Urbanized Area Sewer Service Plan Technical Advisory Committee (TAC) and Bay-Lake Regional Planning Commission (BLRPC) evaluated existing population densities and alternative land consumption models and agreed future growth needs, in the *Sheboygan Urbanized Area Sewer Service Plan Update,* would be most accurately identified by using the Current Development Model. The model determined that 3,073 acres of land were needed to accommodate future urban development of which 2,401 acres were to accommodate future residential development by 2020. These figures are very similar to the Household Population and EPA Models' forecasts which projected out to the year 2015. The TAC decided to accept the Current Development Model's forecast as the best indicator of growth for the planning area because the growth projected in the other three models (even after they were modified to show a higher population growth rate) appeared to be forecasting lower population totals than were likely (as determined by the TAC and BLRPC) to occur within the planning area. Due to the other model's lower forecasts, the TAC and BLRPC members were willing to accept the Current Development Model's acreage forecast totals for use in this updated sewer service area plan. The difference in total acres needed to accommodate future growth between the Current Development Model projection for 2020, the EPA Model for 2015, and Household Population Model for 2015, is approximately 350 acres or just over one half of a square mile in size.

BLRPC and the TAC decided to use, as a guide, the growth boundary set in the *2020 SATP* to help determine an updated 2015 sewer service area boundary (SSA). A

couple of benefits occur when using the *2020 SATP's* boundary as an initial guide. The first benefit is that the two plans will be working with similar growth boundaries and thus compliment each other. The second benefit is that the two plans will not work against each other's established long-range goals.

The newer 1996 SSA boundary will be more compact than the two previous boundaries (the 1975 agreement boundary, and the 1989 SSA boundary). A copy of the 1975 Agreement is located in Appendix B of this document - (The 1975 Agreement is a private agreement between the city of Sheboygan and outlying communities which details how the city of Sheboygan will provide sewer service to identified areas within an agreed upon service boundary). The 1996 SSA boundary will include all existing sewer lines (served by the Sheboygan Regional Plant) and the parcels of land being serviced by them. This boundary will also include those annexations that have occurred in the city of Sheboygan Falls since 1989 as well as areas determined by the TAC to have need for wastewater hook-up that are within the 1975 Agreement's boundary and are adjacent to the existing 1989 SSA boundary.

IDENTIFIED SATELLITES

BLRPC staff identified areas, within the planning area, that were not already within the 1989 SSA and had a need for wastewater treatment. These areas (known by the TAC, BLRPC, and WDNR as 'satellites') were then considered by the TAC and BLRPC on whether they should be included within the updated 1996 SSA boundary. The satellites identified for consideration for inclusion into the 1996 update were the Lakeland College Wastewater Treatment Facility, the village of Howards Grove, the Kohler generator plant, the Haven Sanitary District, the proposed Whistling Straits Golf Course, the Sheboygan County Airport with adjacent lands belonging to the town of Sheboygan Falls, and residential/commercial areas in the town of Mosel. In the case of Howards Grove and Lakeland College, the districts are nearing the point in which their sanitary treatment facilities need to be upgraded. By including them into the Sheboygan Regional Plant the level of water quality in the areas and adjacent lands would be improved. To accomplish the goal of transporting the waste from Lakeland College and the village of Howards Grove, to the Sheboygan Regional Plant, a forcemain would need to be constructed to connect the college with the village. Another forcemain would then have to run from the village to the city of Sheboygan.

In the case of the Kohler generator plant, the Haven Sanitary District, the proposed Whistling Straits Golf Course, the Sheboygan County Airport, and the town of Sheboygan Falls, the need to hook-up to the city of Sheboygan is only one option of many for treating waste in these areas. In the case of the town of Sheboygan Falls and the Whistling Straits Golf Course, the arguments for inclusion into the 1996 SSA boundary are for future developments that are still in the planning stages. The town of Mosel (homes along CTH LS) currently has residential properties that have systems that are beyond their life expectancies. The Department of Agriculture Soils Book has identified the soils in the area encompassing these properties to be nonconducive to

septic systems. Thus, the options for this area are very few. To be able to hook-up to the city of Sheboygan may be the most cost effective and environmentally sound option for this area.

Discussions with the city of Sheboygan have indicated that the city is capable of handling the additional flow from all of the outlying areas identified above. Kohler (Whistling Straits) and the town of Mosel are interested in hooking-up to the city's wastewater treatment facility and have taken the first steps in negotiating an agreement for services.

On March 20, 1996, the TAC was asked to make a final recommendation to BLRPC on the areas they thought should be included into the updated 1996 SSA boundary and the reasons for doing so. This final recommendation was conducted by voting on each of the locations following the 1989 Plan's TAC committee makeup. A complete record of the vote is located in Appendix C of this document. In all, there were eleven members voting. One vote for each of the municipalities to include the town of Mosel, town of Sheboygan, town of Sheboygan Falls, town of Wilson, village of Kohler, and Sheboygan County, and four votes for the city of Sheboygan. The Commission then took this recommendation and incorporated it into this document's recommendation for an updated 1996 SSA boundary.

RECOMMENDATIONS

The Commission acknowledges that there is a growing need for wastewater treatment at Lakeland College and Howards Grove as well as in Haven, Whistling Straits, the County Airport, and surrounding towns. One option would be to include all the satellites that wished to be a part of the 1996 SSA. The benefit of this option would be the shutdown of the Lakeland College, Howards Grove, and Kohler Generator wastewater treatment plants. However, a major concern of the TAC and Commission is the promotion of urban sprawl out to those areas along the proposed sewer extensions. Many on the TAC feel that putting in a four mile sewer extension would promote development along the route of the line.

Agreements, regulations, and current technology could effectively stop urban sprawl from occurring along the proposed extensions to the satellites. Adding specific language to the plan as well as to the intergovernmental agreements for wastewater treatment, between the city of Sheboygan and these areas, could effectively stop this from occurring. By constructing forcemains, to carry the wastewater to the city of Sheboygan, could also stop development from occurring. Though these controlling methods exist for limiting the use of sewer extensions (by future developments) and would most likely be used when the sewer lines were constructed, the fear still exists in many minds of the members of the TAC that tomorrow will bring less stringent agreements, leaders less determined to stop urban sprawl, and/or determined developers with lawsuits which could negate these controlling methods.

The city of Sheboygan is one municipality that is very cautious to include outlying areas into the 1996 SSA boundary. One prominent reason is the concern of urban sprawl. The city has stated that they wished to see a tighter, more compact growth pattern occur around the city to help keep service costs down and stop sprawl. Due to this reason, the city opted to vote against the inclusion of the satellites except in the case of the County Airport.

City of Sheboygan Officials have indicated that the city will be willing to negotiate sewer service to the other satellites on a case by case basis, and with certain restrictions. The City representatives expressed strong feelings about extending sewer service to new areas that are not incorporated. With new growth in these areas comes resulting demand for other services (library, roads, schools) when this type of growth occurs.

The city of Sheboygan is not opposed to providing sewage treatment for these areas, but made it clear that some conditions would have to be negotiated with the interested parties for future services.

Map 5.1 depicts the locations of the satellites that were not included into the 1996 SSA boundary. The satellites are identified on the map by the following numbers: (1) Lakeland College, (2) Howards Grove, (3) town of Mosel residential/commercial district, (4) Whistling Straits Golf Course, (5) Haven Sanitary District, (6) town of Mosel residential sub-division, and (7) Kohler Generator Plant.

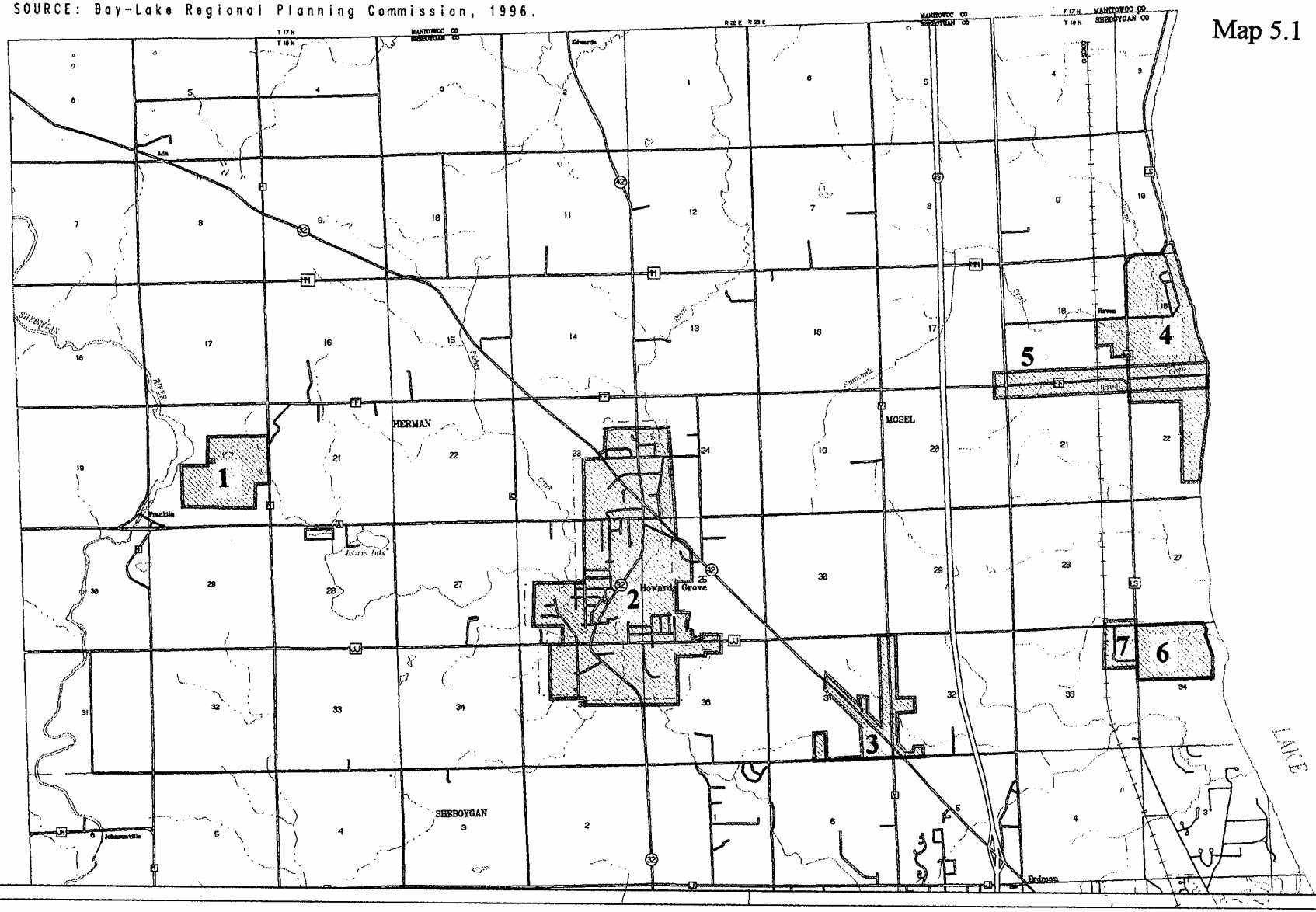
Sheboygan Sewer Service Planning Area
Identified Sewer Service Satellites
Not Included in the 1996 Sewer Service Area

0 1/2 1
miles

N

SOURCE: Bay-Lake Regional Planning Commission, 1996.

Map 5.1



This plan recognizes that each area identified on Map 5.1 has unique needs for wastewater treatment. The timing for each area to satisfy these needs is predicated on several factors, and may be in conflict. Preliminary costs for Lakeland College to connect to the village of Howards Grove and for Howards Grove to connect to the city of Sheboygan's existing wastewater sewer mains is in excess of $4.5 million dollars. The preliminary costs for Lakeland College to construct a new facility is estimated at $750,000. For this reason this plan recommends that Lakeland College not be required to regionalize. Instead, Lakeland College should pursue a cost-effective, environmentally acceptable alternative to meet their wastewater needs.

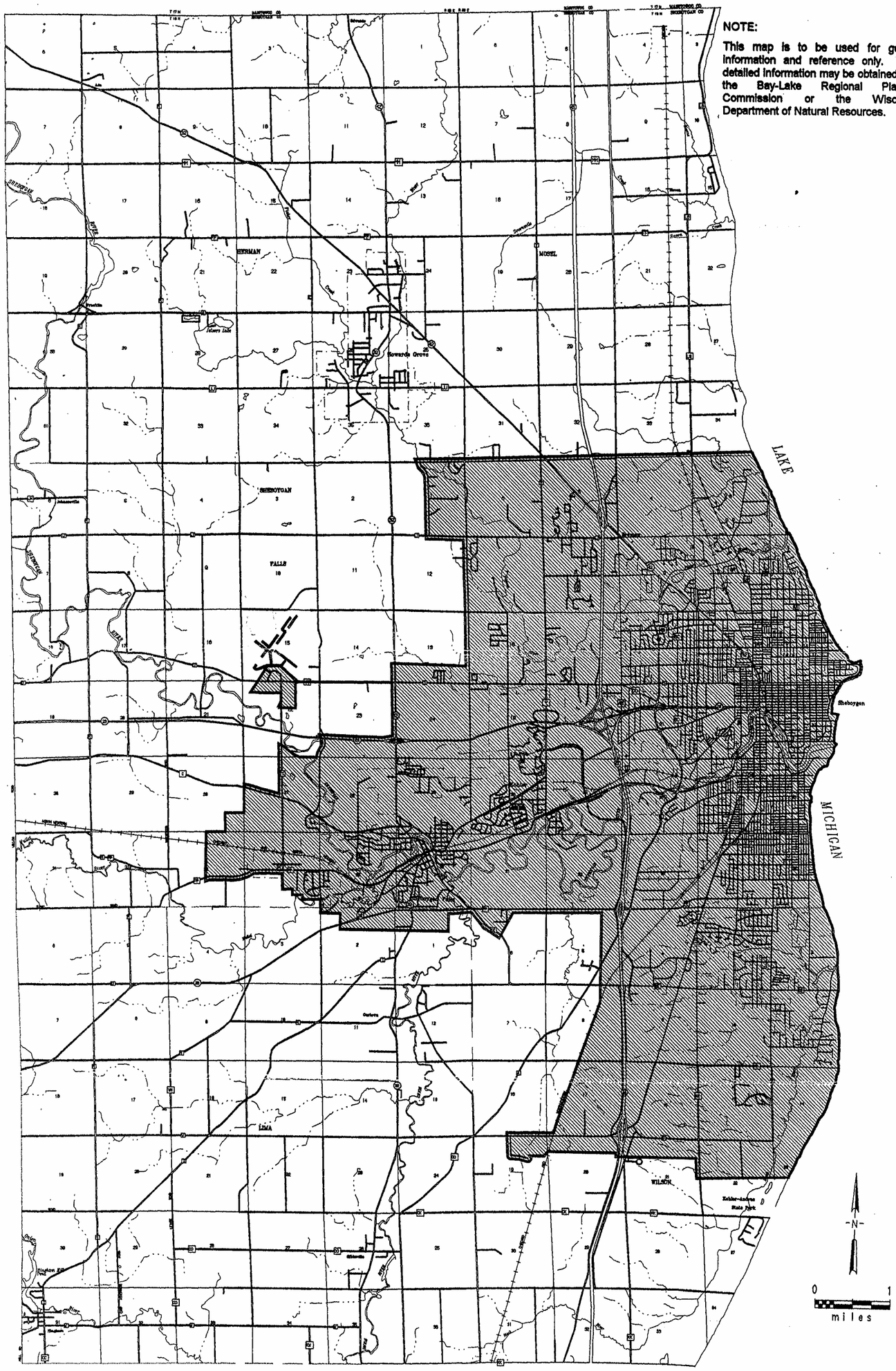
The village of Howards Grove should also pursue the most cost-effective and environmentally acceptable option for meeting their wastewater treatment needs. This does not preclude the village from working out a cooperative agreement with the city of Sheboygan to meet their sludge storage needs.

The fact that the other satellites are not included in this sewer service planning effort, should not keep them from pursuing future cooperative agreements for wastewater treatment. The plan can be amended in the future to reflect these cooperative agreements.

Map 5.2 depicts the area recommended for the 1996 Sheboygan Urbanized Area Sewer Service Plan Update.

Sheboygan Sewer Service Study Area
Proposed 2015 Sewer Service Area Boundary

Map 5.2



SOURCE: Bay-Lake Regional Planning Commission, 1996.

CHAPTER 6
PLAN IMPLEMENTATION AND INSTITUTIONAL STRUCTURE

CHAPTER 6:
PLAN IMPLEMENTATION AND INSTITUTIONAL STRUCTURE

INTRODUCTION

The success of any planning program can best be measured by the extent to which the program is implemented and by how well the plan provides a framework for further investigation into the problems or issues being addressed.

The following sections describe the institutional mechanisms for implementing this plan. These include: Technical Advisory Committee; Procedures for Sewer Extension Review; Wastewater Treatment Facilities Review; Subdivision Review for Plan Conformance; Sewer Service Area Boundary Amendments; Plan Amendments; and Plan Update.

TECHNICAL ADVISORY COMMITTEE

The Technical Advisory Committee (TAC) is the board of members that assisted the Commission in creating this plan. The responsibility of the TAC is to provide information, guidance and recommendations for the proposals and future development within the *Sheboygan Urbanized Area Sewer Service Plan* boundaries. The TAC shall assist BLRPC in overseeing development so that it proceeds in accordance with the goals, objectives and policies of this plan and that all necessary actions be implemented by the Bay-Lake Regional Planning Commission to advance development which is in agreement with this plan. The TAC consists of eight representatives, with the following municipalities having the following committee members:

Municipality	Committee Members/ Municipality	Votes
C. Sheboygan	1	4
C. Sheboygan Falls	1	1
V. Kohler	1	1
T. Mosel	1	1
T. Sheboygan	1	1
T. Sheboygan Falls	1	1
T. Wilson	1	1
Sheboygan County	1	1

The Wisconsin Department of Natural Resources and the Bay-Lake Regional Planning Commission staff representatives will attend the TAC meetings as non-voting members. This Committee structure was informally voted on and accepted, as proposed above, as an interim committee for the next five years or until the plan is officially updated. The TAC shall also hold a minimum of one meeting per year to review the plan.

PROCEDURE FOR SEWER EXTENSION REVIEWS

With the final approval of this plan, the WDNR will require that applications for sewer extensions in the SSA be reviewed by BLRPC to determine if the extensions are in conformance with the plan. This local review process is illustrated in Figure 6.1 and is outlined below:

1. Developers shall petition the local municipality for sewer extensions and the local municipality or their consulting engineers shall submit a letter and a simple plan map of the proposed sewer extension to BLRPC. To avoid delays, this submittal shall be made early in the planning process, prior to completing detailed plans and specifications for the project. Submitting the plans early will ensure that local review is made prior to submittal of the plans to the WDNR and that costly detailed sewer design and specification documents are not prepared for areas that do not conform to the plan and are subsequently rejected by WDNR.

2. The BLRPC will review all submissions for sewer extension and will provide a recommendation to the petitioner as to whether or not the proposed project is in conformance with the plan's boundary, goals, and objectives.

    - The Bay-Lake Regional Planning Commission will review all submissions and will provide the applicant with a review letter within 15 days of receipt of the sewer extension request. If the proposed sewer extension is in conformance with the plan, then the letter from the Commission should be attached to the sewer extension plans and submitted to the WDNR by the applicant.

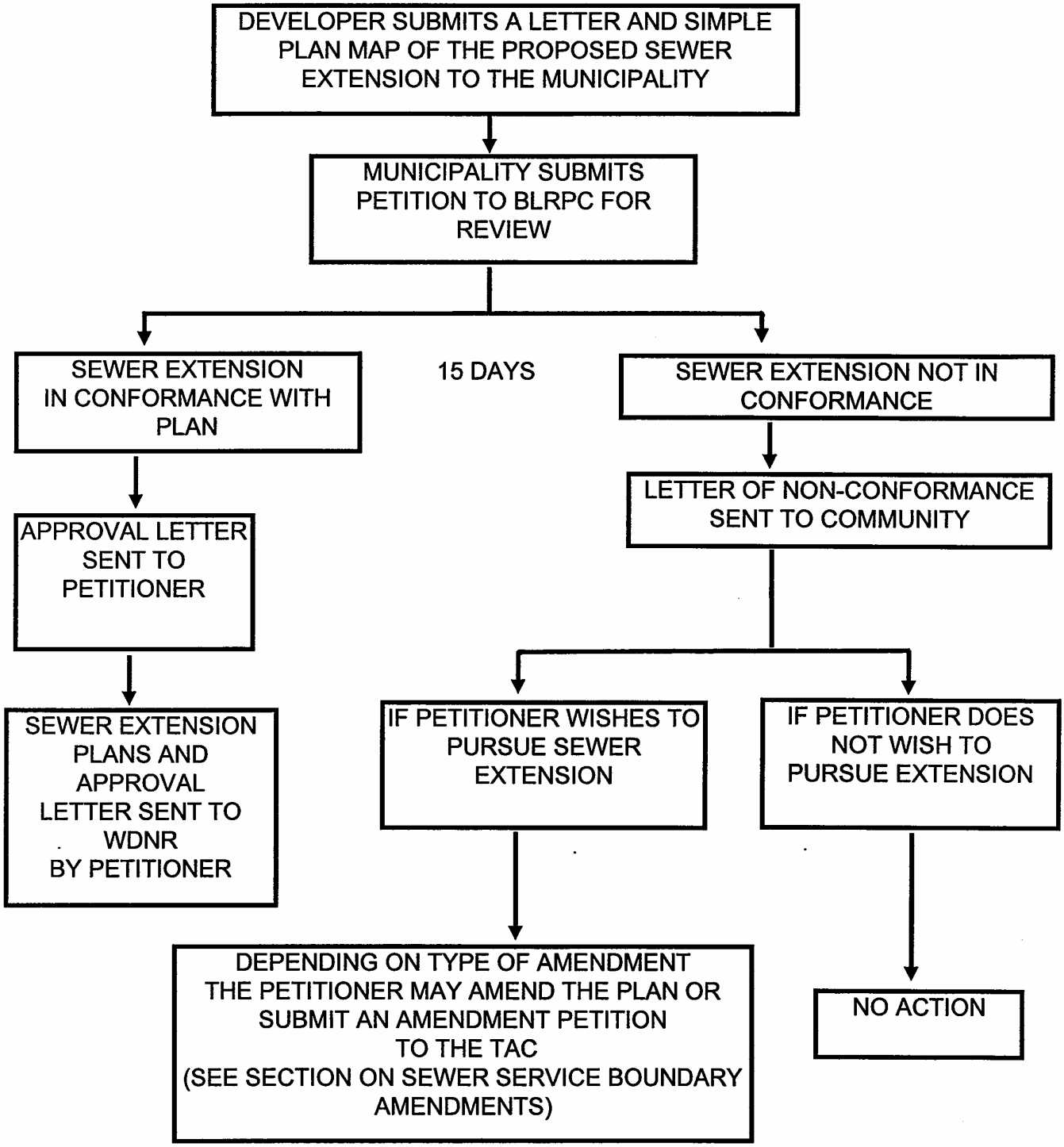
3. If the proposed extension is not in conformance with the plan or if there are questions about consistency, the applicant will be notified by letter within 15 days by the Commission.

4. When it is deemed that the extension is not in conformance then the petitioner should decide if he wishes to further pursue the sewer extension. If the petitioner does not, no further action is necessary.

5. If the sewer extension is pursued, the plan must be amended in order for the proposed extension to be in conformance. The process for adopting plan amendments is discussed in the section entitled, "*Sewer Service Area Boundary Amendments:* ***Standards and Procedures.***"

6. After the plan is amended, the petitioner should submit the proposed sewer extension plan as detailed in number 1 above.

FIGURE 6.1- Flow Diagram of Procedure for Sewer Extension Review



Source: Bay-Lake Regional Planning Commission, 1996.

WASTEWATER TREATMENT FACILITIES REVIEW

The *Sheboygan Urbanized Areas Sewer Service Plan* does not anticipate that there will be any need for additional sewage treatment facilities to serve non-industrial development in the planning area within the next twenty years. Any sewage collection facilities built within the established 20-year sewer service area should be connected to the city of Sheboygan's wastewater treatment plant.

The WDNR has had a long-standing policy against the proliferation of new wastewater treatment facilities. The reasoning behind this policy is embodied in a topical study entitled "*Analysis of Wisconsin's Nonproliferation Policy and Implementation Recommendations*" adopted by the Natural Resources Board in August 1977. The policy was adopted because it was found that:

1. Economies of scale exist in the construction, operation and maintenance of regional treatment plants.

2. Owners of small treatment plants generally have less financial capability to hire a competent operator and carry out necessary maintenance and repairs.

3. The administrative costs are greater with the regulation of large numbers of small plants.

4. In urban areas there usually is a significant investment of public dollars in existing treatment plants designed to serve all anticipated development in the urban area; the provision of additional treatment facilities in these areas is not cost-effective.

   Note: It is also recognized that connection to an existing treatment facility is not always cost-effective or environmentally sound and there may be instances where a small sewage treatment facility is the most feasible solution.

Additional treatment facilities to serve residential, commercial, or public facilities should not be approved by the Sheboygan Urbanized Area TAC as being in conformance with this plan unless it is documented that it is cost effective, environmentally sound, and in the best interest of the municipality. One common reason for the construction of a small wastewater treatment facility is to provide interim sewage treatment service to an area of development until sewers may be extended to serve that area. At such time public sewers are extended to serve the development, the treatment plant may be phased out. This approach may be used to solve wastewater treatment problems in areas which are not currently considered to be cost-effective for regional sewer extensions.

If new wastewater treatment is needed in a particular circumstance, it should only be approved if it satisfies the requirements for specific situations specified in Section

121.05(1)(g) and Section 110.08(5) of the Wisconsin Administrative Code. These situations and subsequent requirements include:

1. Treatment Facility to Serve Existing Residential Development: It is necessary to solve a documented and severe existing water quality (groundwater or surface water) or public health problem related to failing on-site systems; or, it is needed to replace an existing treatment facility which is not in compliance with its Wisconsin Pollutant Discharge Elimination System (WPDES) permit.

- It is the cost-effective solution to the existing problem.
- It is municipally owned, operated and maintained.

2. Interim Treatment Facility: It is necessary to solve a documented and severe existing water quality (groundwater or surface water) or public health problem related to failing on-site systems; or it is needed to replace an existing treatment facility which is not in compliance with its WPDES permit.

- It is the most cost-effective solution to the existing problem.
- It is municipally owned, operated and maintained.
- The sewage collection system is designed so that it may be easily connected to the regional system in the future.
- The service area of the proposed system lies entirely within the planned service area of the regional system as delineated in this plan.
- An agreement is signed by all involved municipalities which provides for a specified date of abandonment and connection; this intermunicipal agreement shall be reviewed and approved by the WDNR prior to facilities plan approval; the WPDES permits shall contain schedules for facilities abandonment and connection.

3. Treatment Facility Serving Isolated Non-Residential Development: The development may not be more rationally and efficiently located in an urban area and thus be accommodated by an existing municipal plant.

- Joint treatment with adjacent wastewater treatment system is not feasible.
- The proposed facility is designed to handle only the waste generated by the development.

- The WPDES permit limits service to the development specified in number 3.

- In the case of a commercial facility, only commercial facilities that serve and facilitate travel on public highways.

4. Treatment Facility to Serve New Residential Development: Proposals for a new treatment facility intended to serve new residential development may be denied.

Note: Variances may be granted only after the general public interest, environmental impacts, and socioeconomic impacts have been considered as well as the impact on orderly development and the provision of general government services and the following criteria have been met:

a. The proposal is consistent with the responsibility to protect, maintain, and improve water quality management.

b. It is municipally owned, operated and maintained.

c. It is the cost-effective solution to the problem.

d. All other federal, state and local approvals and permits have been obtained.

SEWER SERVICE AREA BOUNDARY AMENDMENTS: STANDARDS AND PROCEDURES

Since unforeseen development may take place beyond the area identified to accommodate the projected future growth for the 20-year sewer service area, a mechanism for reviewing and revising the service area boundary is essential. Amendments will provide municipalities and private developers with the needed flexibility to incorporate community growth, additional technical data, new community needs and ongoing public input into the sewer service planning process. The Bay-Lake Regional Planning Commission staff will maintain the records of boundary amendments and update the service area boundary.

Two types of amendments to the service area boundaries may be expected. *Type One Amendments* are required when a municipality's service area boundary changes but the total acreage is not increased. The amendment would be reviewed by the TAC and, if approved according to the Amendment Procedures, a request for a sewer service area amendment is forwarded to the WDNR. *Type Two Amendments* would result in an increase in a municipality's service area acreage. This type of amendment would be used to add to the 3,073 acres that have been projected for land development use to the existing corporate limits or for municipalities that are experiencing population growth in excess of that projected in the Sewer Service Area.

In both types of amendments, procedures exist to provide a fair and reasonable means of reviewing service area boundary changes. These procedures include public notice, public comment period, public hearings, and public records of the proceedings of the hearing. The public notice shall be published in the official paper of the community affected by the amendment. All costs associated with the preparation and publishing of the public notice shall be borne by the petitioner.

There are standards to provide a framework for analyzing the merits of proposed boundary area amendments and to identify basic parameters necessary for amendment evaluation. These amendment standards and their established procedures are outlined in the following:

Amendment Standards

To provide an equitable and uniform basis for revising the sewer service boundaries, all proposed amendments which would add acreage to the service area shall meet standards one through six, and number seven when applicable. Annexations or detachments of territory (as defined in Chapter 66 of the *Wisconsin Statutes*) within the boundaries of the entire sewer service area **do not** constitute amendments to the service boundaries and are therefore not subject to amendment procedures.

1. There shall be minimal adverse impacts on water quality as a result of development stimulated by the amendment.

2. Existing or planned sewage facilities must have sufficient capacity to treat the projected wastewater flows generated by the added territory.

3. The boundary amendment area must be in conformance with adopted local comprehensive plan and zoning regulations and the established goals and objectives of this plan.

4. The configuration of sewer service area boundaries may be modified provided that the amendment area has a common boundary with the current sewer service area, will not create a void in the sewer service area.

5. The modifications of the existing boundary can be shown to be cost-effective, orderly and a logical extension of urban development.

6. The delivery of other services by the existing and proposed community facilities (i.e. parks, schools, fire protection, police protection, etc.) will be available and will be provided for the amended area.

7. When the projected number of acres of the *Sheboygan Urbanized Area Sewer Service Plan* have been developed, the service area may be increased by amending the boundary when it can be demonstrated:

- The current population growth rate exceeds the plan's projected population growth rate for the municipality.
- The population density standard is modified by the TAC to reflect quantifiable changes in the municipality's population distribution..

Amendment Procedures

Type I Amendment: A municipality amends the service area boundaries without increasing the land area the municipality has within the SSA. For every acre added to the municipality's service area, an area of equal size is removed. For this type of amendment, the following procedure is used (A flow diagram of this procedure is shown in Figure 6.2):

1. A petition to include or exclude a particular area from the *Sheboygan Urbanized Area Sewer Service Plan* is filed with the municipality. The petition should include a map showing the location of the property being added or deleted; general development plans for the area including land use proposals and a preliminary timetable for implementing the development plan; and an indication of the specific service needs of the site (i.e., sewer and water line size, water pressure, roadways, etc.).

2. The municipality refers the petition to the TAC for review and recommendation to the WDNR. A copy of the petition will also be sent to BLRPC by the municipality.

3. The TAC holds a public meeting and public hearing, if requested, on the petition following publication of a Class 1 Notice according to Chapter 985 of the *Wisconsin Statutes*. The public notice shall be published in the official paper of the community affected by the amendment. All costs associated with the preparation and publishing of the public notice shall be borne by the petitioner. Representatives submitting the Petition, BLRPC staff, WDNR staff, and interested citizens may testify and present their recommendations. A record of the public hearing proceedings and testimony shall be maintained by the TAC.

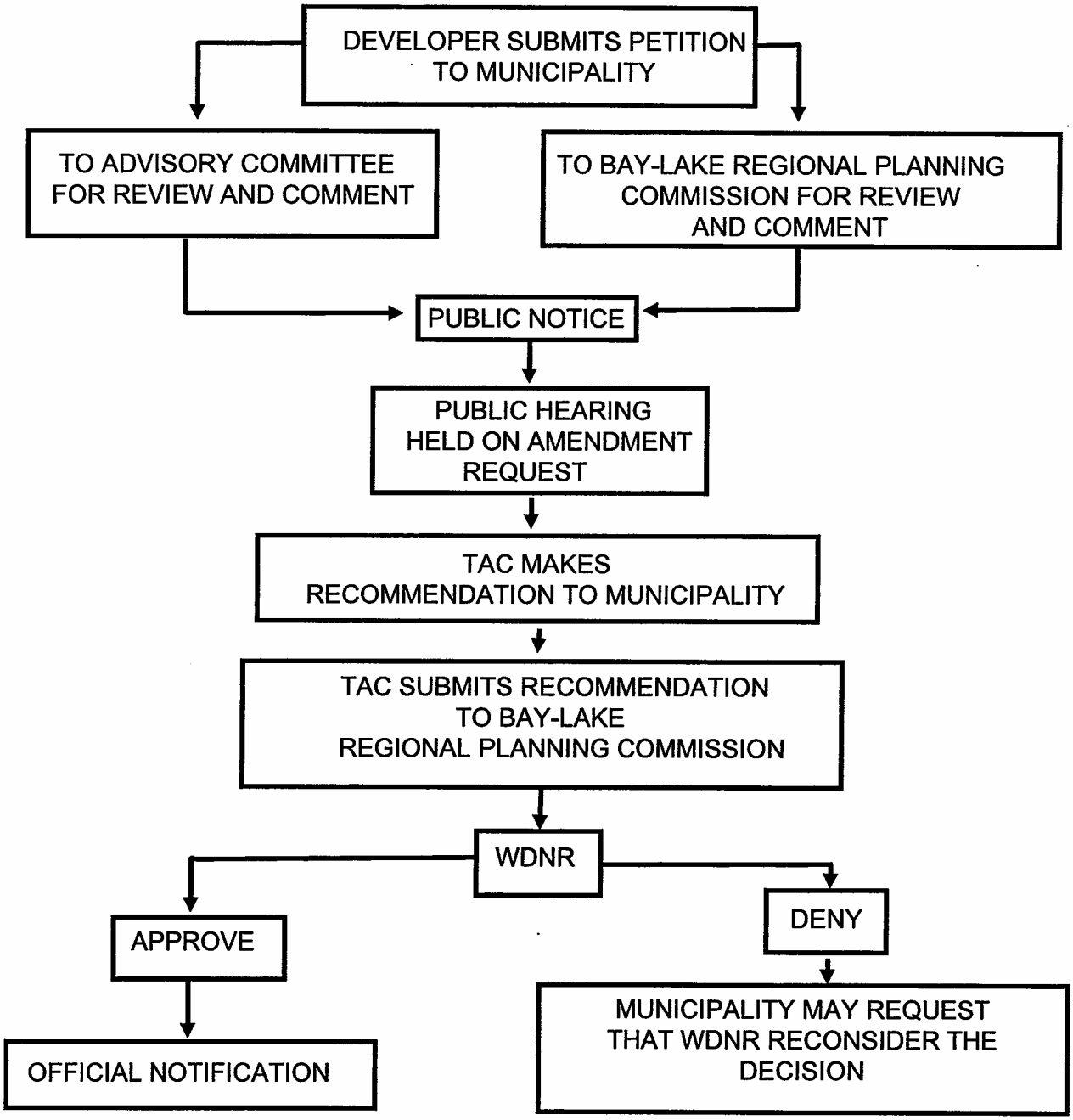
Note: In formulating a recommendation, the TAC should consider: citizen input received at the public meeting; comments from other local committees and the WDNR; conformance with community plans; development trends in the area; possible impacts on the physical environment; and conformance with the adopted Sewer Service Plan goals and objectives and the amendment standards. Land recommended for removal from the service area should have a low development potential in terms of recent development trends in the municipality, inadequate urban services, unique environmental features, or poor site conditions due to soils or groundwater. Additionally, signed statements from affected landowners acknowledging withdrawal from the sewer service area will be required.

4. Following the public meeting, all public comments and recommendations of the TAC, BLRPC and WDNR should be submitted to the municipality within 60 days of receiving the petition.

5. The TAC shall review the recommendations and take final action on the amendment request within 45 days of receiving the amendment . All or any part of the petitioned land may be added to the service area along with additional safeguards or conditions deemed necessary by the TAC to carry out the intent of the sewer service area amendment standards.

6. Amendments approved by the TAC shall be submitted to BLRPC within 30 days of approval. BLRPC shall transmit the amendment to the WDNR. The WDNR will review the amendment and notify the community and BLRPC within 45 days of receiving the amendment. If the WDNR rejects the amendment, the community may request that the Department reconsider the decision.

Figure 6.2-Type I & II Amendment Procedures



Source: Bay-Lake Regional Planning Commission, 1996.

Type II Amendment: A municipality amends the sewer service boundary to increase the total acreage of the service area.

It was previously stated that Type II Amendments would be used when the *Sheboygan Urbanized Area Sewer Service Plan's* boundary is modified to accommodate land for new development over the next 20 years or for municipalities which are experiencing growth in excess of that projected in the sewer service plan. In addition, the plan will be reviewed every two and one-half years and up-dated every five years to incorporate modifications to the service boundary based upon unanticipated growth occurrences. When a Type II Amendment is made, the following procedure is used (A flow diagram of this procedure is shown in Figure 6.2):

1. If the municipality receives a development petition which requires the expansion of the sewer service area a boundary amendment petition is submitted to the municipality. If the municipality seeks to expand the sewer service boundary acreage beyond the allotted acreage, a petition is submitted to the TAC for review and recommendation and to BLRPC for review. In the petition, the municipality should include:

- Comparisons of population projections of the sewer service plan with actual population increases in the municipality.
- Comparisons of land projections in the plan with the actual amount of land vacant.
- Provide data on the current development density of the municipality.
- Supply information on the capacity of existing sewer lines and treatment facilities to serve the area proposed for additions to the sewer service boundary.

2. Within 60 days of receiving the petition, the TAC shall hold a public meeting and public hearing, if requested, on the petition following publication of a Class I Notice according to Chapter 985 of the *Wisconsin Statutes*. The public notice shall be published in the official paper of the community affected by the amendment. All costs associated with the preparation and publishing of the public notice shall be borne by the petitioner. Representatives submitting the petition, BLRPC staff and interested citizens should testify. A record of the public hearing proceedings and testimony shall be maintained by the TAC. Within 30 days of the public hearing, the TAC shall take action on the amendment. The amendment standards, adopted goals and objectives of the *Sheboygan Urbanized Area Sewer Service Plan* and public hearing testimony should be evaluated.

3. Amendments approved by the TAC shall be transmitted by BLRPC to the WDNR for final approval within 30 days of approval. The WDNR will review the amendment and notify the municipality and BLRPC within 45 days of receiving the amendment. If the WDNR rejects the amendment, the municipality may request that the Department reconsider the decision.

4. Approval conflicts between the WDNR and the TAC must be resolved before sewer lines are extended into the new area.

PLAN AMENDMENTS

All amendments to this plan will require approval of the TAC.

Proposed amendments shall be submitted to the Chair of the TAC and BLRPC at least seven days prior to the meeting at which action on the amendment will be taken. Amendments approved by the TAC will be transmitted by BLRPC to the WDNR for review and final action.

PLAN UPDATE

A comprehensive review of the *Sheboygan Urbanized Area Sewer Service Plan* should be undertaken every two and one-half years and updated, if necessary; otherwise updated every five years, with the first such review and update to be completed by 2002. The update should include as a minimum:

1. A review and update of 1990 to 2002 population trends.
2. A review and update of population and demographic projections to the year 2020.
3. A review of population densities, household size, and urban development trends.
4. An assessment of impact from major land use changes or developments.
5. A review of any significant changes to environmentally sensitive lands.
6. A review and revision, if necessary, of the policy statements.
7. A description of relevant events occurring during the preceding five years which impacted on area wide water quality.
8. A description of amendments to the plan and service area boundaries which were made during the preceding five years.
9. A review and revision of service area boundary extended to accommodate the area's population for the next 20-year planning period.
10. A review of changes in the institutional structure for plan review and implementation.
11. An update on citizen participation efforts.

APPENDICES

APPENDIX A: LAND USE INVENTORY TOTALS

Sheet1

CODE	LAND USE CLASSIFICATION	C. Sheboygan	C. Sheboygan Falls	T. HERMAN	T. LIMA	T. MOSEL	T. SHEBOYGAN	T. SHEBOYGAN FALLS	T. WILSON	V. Howards Grove	V. Kohler	Total Acres
100	TOTAL RESIDENTIAL	3,169.86	484.78	473.98	717.63	340.99	1,072.04	507.06	777.30	353.53	190.75	8,087.91
110	Single Family Residential	2,430.23	418.04	421.73	662.84	320.86	1,018.26	471.99	751.07	324.37	177.03	6,996.02
130	Two Family	444.91	36.16	26.18	23.18	10.73	16.74	10.51	6.44	18.95	1.72	595.52
150	Multi-Family	174.52	15.17	5.43	1.19	0.80	7.80	1.63	5.86	2.53	12.00	226.93
170	Group Quarters	1.30	-	11.70	-	-	-	-	-	-	-	13.00
180	Mobile Homes	64.94	14.93	2.18	15.46	0.73	0.17	13.45	1.43	0.42	-	113.72
190	Land Under Residential Development	3.89	0.47	5.66	1.58	5.81	1.31	9.87	0.30	7.26	-	36.16
199	Vacant Residence	1.59	-	0.45	1.72	-	0.87	-	2.23	-	-	6.86
490	Land Under Development	48.45	-	0.65	11.65	2.06	26.90	-	9.97	-	-	99.70
200	TOTAL COMMERCIAL	293.96	36.06	24.16	17.95	20.00	62.22	46.55	42.95	26.72	32.53	603.09
210	Retail Sales	211.94	29.58	22.37	16.07	16.92	40.81	46.55	31.20	23.45	29.51	468.61
230	Shopping Centers	2.68	-	-	-	-	0.40	-	-	-	-	3.08
250	Retail Services	68.18	6.48	1.58	1.60	2.82	20.28	-	11.76	3.18	3.01	118.89
270	Office Parks	2.99	-	-	-	-	0.48	-	-	-	-	3.47
299	Vacant Commercial	8.16	-	-	0.28	0.26	0.27	-	-	0.08	-	9.05
300	TOTAL INDUSTRIAL	463.95	232.57	11.44	26.20	66.19	86.57	37.74	119.26	14.27	286.29	1,346.49
310	Manufacturing	272.09	174.60	1.78	9.72	38.72	44.68	15.77	79.97	3.38	286.29	926.99
340	Wholesaling	20.61	19.09	-	2.47	6.54	10.77	2.46	-	6.67	-	68.60
360	Extractive	-	2.17	-	-	3.38	14.66	13.65	6.41	-	-	40.26
380	Storage	9.20	-	-	2.74	-	0.79	-	-	-	-	12.74
381	Open	121.70	10.97	1.23	6.22	2.51	4.38	-	18.05	2.76	-	169.83
382	Enclosed	33.63	19.67	8.44	3.05	15.04	12.13	5.87	9.63	1.46	-	108.91
399	Vacant Industrial	6.74	6.08	-	-	-	1.13	-	5.20	-	-	19.17
400	TOTAL TRANSPORTATION	1,614.04	239.83	629.05	687.71	625.96	537.94	884.33	709.40	123.62	378.93	6,430.81
410	Motor Vehicle Related	-	-	-	-	-	-	-	7.25	-	-	7.25
411	Federal Highways	-	-	-	-	-	28.26	-	16.31	-	53.28	97.85
412	State Highways	-	-	-	-	-	1.44	1.94	10.20	-	-	13.58
413	County Highways	-	4.89	-	-	-	-	31.49	96.94	0.90	27.28	161.50
414	Local Streets and Roads	983.97	217.13	623.20	684.61	552.47	466.76	646.74	504.92	122.72	255.20	5,057.73
417	Off-Street Parking	449.86	-	4.74	3.11	1.13	29.17	8.43	5.75	-	0.78	502.96
418	Bus Terminals	0.15	0.35	1.12	-	-	-	-	-	-	-	1.62
419	Truck Terminals	17.71	-	-	-	-	-	-	-	-	-	17.71
440	Rail Related	159.38	17.46	-	-	72.31	12.30	46.22	68.03	-	42.38	418.06
460	Air Related	-	-	-	-	0.05	-	149.91	-	-	-	149.96
480	Marine Related	2.99	-	-	-	-	-	-	-	-	-	2.99
500	TOTAL COMMUNICATION/UTILITIES	94.11	25.59	3.06	29.61	2.64	2.90	2.95	164.00	0.83	1.95	327.65
510	Generation/Processing of Communication/Utilities	0.24	2.73	-	0.80	-	0.25	-	-	-	-	4.02
511	Electric Power Plants	29.29	-	-	-	-	-	-	0.61	-	-	29.90
514	Telephone and Telegraph Terminals/Dispatch Centers	1.54	-	-	-	-	0.08	0.33	0.03	-	-	1.97
516	Radio/Television Stations	1.92	-	-	-	-	0.14	-	-	0.52	-	2.18
521	Natural Gas Terminals/Plants	11.82	-	0.34	-	-	-	-	-	-	-	12.06
535	Water Supply Filter Treatment Plants	5.29	-	-	-	-	-	-	-	-	-	5.29
537	Water Supply Wells	-	-	0.45	-	-	-	-	-	-	-	0.45
540	Transmission of Communication/Utilities	0.72	-	-	-	-	-	-	-	-	-	0.72
542	Electric Power Substations	10.23	3.86	-	1.87	-	1.56	-	-	-	-	17.52
546	Radio/Television Transmission Towers/Antennae	0.45	0.37	-	-	-	-	-	0.22	-	-	1.05
552	Natural Gas Substations	0.05	-	-	-	-	0.52	2.29	-	-	-	2.86
556	Other Liquid Fuel Substations	-	-	-	-	-	-	0.33	-	-	-	0.33
572	Water Supply Booster/Pumping Stations	1.19	-	-	2.18	-	0.32	-	0.64	-	0.19	4.48
577	Water Supply Storage Tanks/Reservoirs	1.13	0.80	-	0.42	2.64	0.03	-	11.09	-	1.76	17.87
580	Waste Processing/Disposal/Recycling	5.53	-	-	-	-	-	-	-	-	-	5.53
581	Trash/Garbage Landfills	-	17.82	-	8.18	-	-	-	-	-	-	26.00
582	Other Trash/Garbage Dumps	-	-	-	0.95	-	-	-	-	-	-	0.95
583	Sewage Treatment Plants	15.10	-	1.08	1.71	-	-	-	-	0.31	-	18.21
584	Sewage Sludge or Water Supply Chemical Disposals	-	-	-	-	-	-	-	1.81	-	-	1.81
585	Fly Ash and Other Fire Residue Disposal	-	-	-	-	-	-	-	114.78	-	-	114.78
586	Auto Salvage/Recycling/Disposals	3.60	-	-	13.37	-	-	-	34.83	-	-	51.80
591	Solid Waste Separation/Recycling Plants	5.04	-	1.30	0.14	-	-	-	-	-	-	6.47
595	Incinerators	1.41	-	-	-	-	-	-	-	-	-	1.41
600	TOTAL INSTITUTIONAL/GOVERNMENTAL FACILITIES	276.17	70.90	49.22	22.08	18.72	47.73	21.64	43.41	32.93	46.90	629.70
610	Administrative Institutions/Governmental Facilities	2.85	-	-	-	-	0.78	-	-	-	-	3.63
611	Administrative Buildings	7.39	10.69	0.18	0.71	1.05	0.46	1.32	9.60	1.41	0.37	29.18
612	Post Offices	0.49	0.32	-	-	-	-	-	-	-	-	0.81
613	Military Installations	3.71	-	-	-	-	0.04	-	-	-	-	3.75
614	Municipal Garages*	3.30	-	-	-	-	-	-	-	-	3.71	7.01
631	Police/Fire Stations/Offices	2.39	-	0.91	-	0.41	0.48	0.37	0.25	1.10	0.53	6.41
637	Ancillary Municipal Safety Facilities	1.93	-	-	-	-	-	-	-	-	-	1.93
638	Prisons or Jails	1.18	-	-	-	-	-	-	-	-	-	1.18
640	Educational Institutions/Governmental Facilities	2.75	40.46	-	-	-	-	-	4.15	0.41	-	47.77
641	Pre-School/Day Care	4.62	-	-	-	-	0.03	-	-	-	-	4.65
642	Primary Schools	15.00	0.46	0.34	-	3.20	9.04	-	-	14.19	-	42.23
643	Middle Schools	21.76	5.24	-	-	-	-	-	-	-	-	26.99
644	Secondary Schools	14.17	-	-	-	-	-	-	0.37	11.54	11.59	37.67
647	Two-Year Colleges/Universities	5.63	-	-	-	-	-	-	-	-	-	5.63
648	Four-Year and Graduate Colleges/Universities	-	-	21.13	-	-	-	-	-	-	-	21.13
651	Libraries	1.24	0.41	-	-	-	-	-	-	-	-	1.65
655	Museums	2.13	0.12	-	-	-	-	-	-	-	0.80	3.05
661	Hospitals	5.65	-	-	-	-	-	-	-	-	-	5.65
663	Clinics	8.63	1.35	-	-	-	-	-	0.23	0.93	-	11.15
665	Long-Term Health Care Facilities	8.23	4.34	-	5.86	-	-	-	-	-	-	18.43
682	Gymnasiums	0.70	-	2.88	-	-	-	-	-	-	-	3.58
683	Sports Stadia/Arenas	2.07	-	-	-	-	-	-	2.48	-	-	4.55
684	Fraternal Organizations/Clubhouses	13.87	1.98	1.40	0.54	4.53	9.83	0.74	1.94	0.87	-	35.71
690	Religious and Related Facilities	3.72	-	-	-	-	-	-	-	-	-	3.72
691	Churches/Temples/Synagogues	36.59	5.54	9.45	4.69	3.22	8.28	6.85	1.96	2.49	3.46	83.53
694	Cemeteries	103.82	-	13.93	10.29	6.31	18.79	12.36	26.45	-	26.45	218.40
699	Vacant Institutional	0.34	-	-	-	-	-	-	-	-	-	0.34
700	TOTAL OUTDOOR RECREATION	563.02	53.78	19.77	91.62	16.59	467.74	184.18	626.04	91.34	653.70	2,767.77
710	Cultural/Natural Activities	0.13	-	-	-	-	-	-	-	-	-	0.13
716	Nature Study Areas	2.69	-	-	-	-	-	-	48.17	-	-	50.86
721	Designated Historic/Cultural/Archaeological Sites	12.13	-	-	-	-	-	-	8.41	-	-	20.54
731	Campgrounds	1.87	-	-	66.31	-	0.29	54.12	66.03	-	-	188.61
735	Lawns/Yards	168.27	-	3.94	12.58	10.66	52.00	15.86	2.62	-	4.40	270.31
736	Parks/Parkways/Forest-Related Picnic Areas	202.25	29.39	0.03	-	-	10.14	1.13	388.31	31.21	72.03	734.49
737	Separate Picnic Areas	2.00	-	-	-	-	-	-	-	-	-	2.00
741	Playfields/Ball Diamonds/Volleyball Courts	26.72	0.97	-	-	1.14	-	-	0.26	-	-	28.69
745	Swimming/Wading Pools	0.03	-	-	-	-	-	-	-	-	-	0.03
746	Tennis Courts	7.86	-	2.17	-	-	1.73	-	-	-	0.20	11.96
747	Trails	-	-	-	-	-	3.03	67.62	-	-	15.65	86.30
751	Athletic Fields	122.34	-	13.36	12.74	1.04	7.90	-	0.22	6.24	16.14	179.96
756	Ice Skating Rinks	1.29	-	-	-	-	-	-	-	-	-	1.29
761	Golf Courses	0.00	23.82	-	-	-	382.55	-	107.74	53.89	545.27	1,113.27
766	Archery/Gun/Skeet Ranges	0.24	-	-	-	3.78	10.10	35.70	4.13	-	-	53.95
769	Race Tracks	-	-	-	-	-	-	9.75	-	-	-	9.75
770	Other	0.77	-	-	-	-	-	-	-	-	-	0.77
780	Water Related Activities	0.43	-	-	-	-	-	-	-	-	-	0.43
781	Boat Launching Sites/Areas	3.49	-	0.28	-	-	-	-	-	-	-	3.77
782	Other Water Access Sites/Areas	8.75	-	-	-	-	-	-	0.15	-	-	8.90
783	Marinas	1.78	-	-	-	-	-	-	-	-	-	1.78
800	TOTAL AGRICULTURE/SILVICULTURE	1,416.45	677.02	16,970.47	18,679.08	10,607.15	4,031.98	16,194.18	9,276.23	928.45	1,196.01	79,577.01
805	Open Space	1,043.72	267.44	465.90	177.42	641.67	1,541.64	844.49	734.59	224.81	431.02	6,372.70
810	Croplands/Pastures	366.66	395.99	16,201.10	19,200.39	9,764.66	2,417.70	15,045.79	8,304.21	296.96	687.24	71,681.20
830	Long-Term Specialty Crops	2.16	-	23.73	23.42	5.57	-	5.88	32.32	-	-	93.09
850	Animal Husbandry	2.30	5.84	3.25	4.75	6.80	2.86	9.34	47.68	-	76.47	159.29
870	Farm Buildings/Accessories	1.60	7.76	276.49	270.78	188.44	69.78	289.10	157.13	6.68	1.28	1,269.03
899	Vacant Farms	-	-	-	1.71	-	-	-	-	-	-	1.71
900	TOTAL NATURAL AREAS	685.68	240.60	3,739.43	3,117.84	1,872.67	993.15	3,172.49	3,157.06	160.00	698.68	17,837.60
911	Lakes	-	3.26	15.97	-	-	-	2.29	-	-	11.53	33.15
912	Reservoirs and Ponds	20.83	4.83	17.52	44.14	4.64	16.17	15.27	36.98	-	20.46	180.87
913	Rivers and Streams	105.22	52.73	106.62	90.53	-	28.01	195.40	18.94	-	100.70	698.14
937	Designated Scientific Sites/Areas	2.41	-	-	-	-	-	-	79.21	-	0.07	81.68
950	Other Natural Areas	81.15	21.64	777.47	1,229.38	308.16	139.89	648.41	1,363.65	22.53	76.83	4,619.12
951	Woodlands	430.46	156.13	2,871.53	1,753.79	1,513.35	801.09	2,306.33	1,553.03	137.47	489.10	12,014.27
953	Grasslands	2.32	-	-	-	4.04	1.70	4.70	23.42	-	-	36.19
954	Beaches	43.30	-	0.33	-	42.48	6.30	-	81.83	-	-	174.23
	Total Acres	8,577.24	2,061.11	21,920.59	23,389.72	13,570.91	7,304.27	21,051.11	14,915.66	1,331.69	3,485.74	117,608.02

*Village of Oostburg is not in the Service Area, but overlaps into it.

APPENDIX B:
1975 AGREEMENT

SUBMITTED WITH
R.O. 7-77-78
C.P. 10

1975

JOINT

SEWAGE TREATMENT

AGREEMENT

FOR THE

SHEBOYGAN REGION

Supplemental Signature Page for Town of Wilson, Dated 9/6/77, attached.

Supplemental Signature Page for Town of Sheboygan Sanitary District No. 2, Dated 10/27/78, attached.

02/23/96 15:01 FAX 4144583463 SHEBOYGAN WWT 002

1975
JOINT
SEWAGE TREATMENT
AGREEMENT
FOR THE
SHEBOYGAN REGION

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1975
JOINT
SEWAGE TREATMENT
AGREEMENT
FOR THE
SHEBOYGAN REGION

THIS AGREEMENT is entered into by and between the CITY OF SHEBOYGAN, hereinafter referred to as "Sheboygan" or "party of the first part", and the TOWN OF SHEBOYGAN, the TOWN OF SHEBOYGAN SANITARY DISTRICT NO. 2, the TOWN OF SHEBOYGAN FALLS, the TOWN OF WILSON, the TOWN OF LIMA, the VILLAGE OF KOHLER and the CITY OF SHEBOYGAN FALLS, each in their individual capacities and sometimes hereinafter referred to as "parties of the second part". All of the above named parties are municipal corporations being political subdivisions of the State of Wisconsin. In some instances the above Town parties may organize within their political boundaries one or more sanitary districts and in each such instance the sanitary district shall become a party to this agreement by action between the sanitary district and the town governing body through such town governing body, which intent shall be evidenced by appropriate conforming resolution which shall be attached to this agreement and such parties shall then stand in

the place both collectively and individually of the town.

W I T N E S S E T H:

WHEREAS, "Sheboygan" is presently under Order of the State of Wisconsin, Department of Natural Resources, Division of Environmental Protection, to provide adequate sewage treatment facilities and "Sheboygan" has received from its consulting engineers a Preliminary Report - Wastewater Treatment Facilities recommending a new wastewater treatment plant and that such plant be designed to service an area, hereinafter sometimes referred to as "Region"; and,

WHEREAS, "Sheboygan" intends to construct a wastewater treatment facility to up-date and replace its present inadequate treatment plant of a sufficient size and capacity to treat the sewage from within the region which hereinafter shall be set forth in greater detail; and,

WHEREAS, the parties of the second part desire to, through their mutual cooperation, enter into this agreement pursuant to the applicable provisions of section 66.30, Wis. Stats., so that they may transmit to "Sheboygan" for treatment their sewage;

NOW, THEREFORE, in consideration of the mutual covenants hereinafter set forth, it is hereby agreed as follows:

1. Treatment of Sewage: "Sheboygan" hereby agrees that it will accept, treat and dispose of all of the sewage generated within the region as hereinafter defined upon such terms and conditions set forth herein, and the parties of the second part agree to purchase such service from the City of Sheboygan, on the terms and conditions hereinafter set forth.

2. Region Service Area: The service area for which "Sheboygan" agrees to provide such wastewater treatment service shall be such designed area as set forth on the attached map which is made a part hereof by reference. Additional areas may be added, but only to the extent of the design capacity of the "Sheboygan" wastewater treatment plant herein referred to, upon the mutual agreement of the parties hereto.

3. Construction of Plant: "Sheboygan" agrees to finance and construct a wastewater treatment plant (hereinafter known as the "Plant"). Such financing contemplates the receipt of State and Federal Funds equivalent to not less than eighty per cent (80%) of

the "Plant" construction costs, and "Sheboygan" is not obligated to start construction of the "Plant" until such time as such grants have been approved and the funds are available.

4. Construction of Collection and Interceptor Systems: The "Municipalities" shall each be responsible for transporting their own sewage to "Sheboygan" and to that end the "Municipalities" shall design, construct and maintain collection systems for sewage originating within its boundaries. In addition, the parties hereto may jointly combine to construct "Interceptor" sewers which will be used to transport the sewage directly to the "Plant". Agreements for constructing "Interceptors" and their use entered into between the parties involved in a specific "Interceptor" shall be appended hereto as supplemental documents.

5. Depository of Plans: All parties to this contract shall maintain complete and accurate as-built plans of any collection and interceptor sewers constructed to carry out the provisions of this agreement. A copy of as-built plans for interceptor sewers shall be filed with "Sheboygan". Plans for collection

systems shall be made available to other municipalities upon request.

6. Use Regulations: Each party will establish a sewer use ordinance which will be directed toward regulating or controlling the wastes placed into the system and the charges to be levied for the use of the system by the parties within the respective municipalities.

(a) Deleterious Sewage: The parties also agree to make adequate provisions by ordinance to insure that no deleterious sewage be introduced into the system and further agree to accept from its contributors of wastewater for acceptance into the system only such flows amenable to treatment. Flows which are not amenable to treatment shall be pre-treated or corrected so that they are readily amenable to treatment and if this cannot be done, such flows are not to be delivered to or accepted by the plant for treatment. It is contemplated by this contract that the sewage flow from the region shall be of normal sewage quality. If the quality is

below such standard, the municipality contributing such sewage, for such period of time as "Sheboygan" may allow for conversion for pre-treatment or removal of such sewage from the system shall pay an additional charge based upon "Sheboygan's" increased cost of treatment.

(b) Ordinance Standards: The standards of these ordinances shall meet the regulations established by the United States Environmental Protection Agency and the Wisconsin Department of Natural Resources. The basic minimum elements which shall be included in each ordinance shall be recommended by the Board (established under paragraph 11).

7. Metering Pits: Each municipal unit's sewage shall be metered and therefore, whenever required, such unit shall design, construct and maintain metering pits within the region and install therein meters through which meters shall pass all sanitary sewage emanating

in the region before it passes into the City System.

(a) Costs: The costs of construction, maintenance, and repair of said meters and metering pits shall be at the expense of the affected municipality.

(b) Access: All parties to this agreement shall have access to said pits and the right to inspect said meters.

(c) Change of Boundaries: In the event that any metering pit shall become located within a different municipality (including "Sheboygan") through a change of boundaries within the region, a survey shall promptly be made by a representative designated by each municipal unit affected to determine as accurately as possible the volume of sewage emanating from each municipality. If said representatives are unable to agree on a computation thereof, and in the opinion of the said municipal units it has become impracticable

to determine the allocation of the volume by survey, they may, from a study of a closely paralleled area, charged for under this agreement, determine an experienced-based flow or volume for the region of the area served by said metering pit. If said representatives are unable to agree on said volume computation, the municipal units affected shall promptly, mutually designate a third representative who shall be a qualified sanitary engineer, and the decision thereon shall be made by any two of said three representatives. The cost of the third representative shall be paid equally by the affected municipal units. The decision of said representatives shall be final and binding upon the parties hereto, subject to the provisions of section 298.10 and 298.11 of the Wisconsin Statutes and any acts amendatory thereto. Any municipal unit affected may elect at any time (the arbitration procedure not

withstanding), at its expense to move said metering pit to exclude all sewage from the other municipality.

(d) Change in Volume: In the event there shall be a change of conditions resulting in a change of flow in areas where the flow has been determined under the provisions of Section 7 (c) of this agreement, either party may require that a new survey and determination be made under said section and the cost thereof shall be paid by the party requesting the survey.

8. Sewage Treatment Charges: Each municipality hereby agrees to pay to "Sheboygan" a sewage treatment charge for all of its sewage treated by "Sheboygan" which charge shall be equal to the respective municipalities "prorata share" of the "cost of treatment". It is contemplated that the services hereunder shall be furnished at net cost without any override or profit or loss to "Sheboygan".

(a) "Cost of Treatment": The cost of treatment shall be the sum of

all the direct expenses and all the indirect expenses.

(i) "Direct expenses" includes all expenses arising out of operating the "Plant", such as (but not limited thereto because of this enumeration): wages, utilities, supplies, insurances, interest, capital outlays for vehicles, machinery, equipment and depreciation for the remaining life or until replaced in accordance with the attached schedule. (Additions and deletions to the depreciation schedule shall be permitted at such rates as set by the involved project engineers in accordance with customarily established useful life projections for similar buildings or equipment. If any dispute arises as to the rate of depreciation the grievant may

submit the issue to the Wisconsin Public Service Commission for determination.)

(ii) "Indirect expenses" shall be determined by multiplying the "Administrative Expenses" by the "indirect expense factor".

A. The "indirect expense factor" shall be determined by dividing the direct expenses (Section 8(a)(i)) by the total expenditures for operation and maintenance (including interest) of the City of Sheboygan.

B. "Administrative Expenses" shall be the sum total of the cost of operating the following departments:

City Council,
Mayor,
Personnel,
City Clerk,
City Attorney,
Comptroller-Treasurer,
Data Processing,
Special Accounting or Auditing,
City Engineer,
Engineering Department,
Department of Public Works,
City Hall Buildings,
Municipal Service Building,
Printing and Duplication.

(b) "Prorata Share": The prorata share of each municipality shall be the ratio resulting from dividing the total number of gallons treated by the "Plant" by the number of gallons treated for the contributing municipality during the same period.

(c) Charge Review: The formula provided for in this paragraph (8) shall be reviewed at five (5) year intervals or more frequently if any party to this agreement requests such review by written notice to all other parties.

(d) Approval: It is further understood and agreed that the charges contained herein are subject to approval of the United States Environmental Protection Agency (EPA), the Wisconsin Department of Natural Resources (DNR), and the Wisconsin Public Service Commission (W.P.S.C.) and should such agencies require modifications to the charges in order to make them comply with their regulations, or with regard to the W.P.S.C.

authority to be fair and reasonable such changes shall be made after due notification to and ratification by all parties to this agreement.

9. Payment of Charges: Meters shall be read and billings made quarterly during each contract year; the payment of said billings shall be made to "Sheboygan" by the parties of the second part within sixty (60) days of the receipt of said billings. Delinquent payments shall be subject to an interest charge of one per cent (1%) per month or fraction thereof not to exceed eight per cent (8%) per year.

(a) Meter Reading: "Sheboygan" shall, before reading said meters, notify the parties of the second part to enable them to have representatives present at said time.

(b) Cost from Previous Year: It is understood that the billings shall be based upon current quarterly meter readings computed on the costs of "Sheboygan's" previous fiscal year determined as set forth in Section 8 of this agreement.

10. Documentation: "Sheboygan" and the parties of the second part mutually agree to keep accurate cost and depreciation records for the respective systems to facilitate adjustment in this agreement and to exchange such records yearly. The parties of the second part and "Sheboygan" shall, with reasonable notice, be allowed free access to each others books and records for the purpose of verifying the total charges as required to be paid under this agreement.

11. Board of Sewage Commissioners:

(a) Establishment: There is hereby created, a Board of Sewage Commissioners. One commissioner shall be appointed by each party to this agreement for a term of three (3) years. Such commissioners shall serve without compensation.

(b) Organization: The Board shall elect annually from among its members a chairman, vice chairman, and secretary. The secretary shall keep a separate record of all proceedings and accurate minutes of all meetings. The Board shall hold meetings

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as it deems necessary on the call of the chairman or a majority of its members.

(c) Functions and Duties: The commissioners shall review and consider the operation, maintenance, and planning of the regional wastewater treatment system, including the treatment plant, and make such recommendations to the various municipalities that are deemed essential for the efficient and continued functioning of the system and plant.

The functions and duties of the commissioners are solely advisory in nature and its recommendations are not final and binding as to any municipality. No act or failure to act by the Board shall bind any municipality under this contract.

Upon request from individual municipal units the Board shall furnish such relevant information in its possession as to carry out the intent and purpose of this agreement. To assist the Board in carrying out its functions and duties

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each municipality shall furnish to the Board upon request, such records and documents in their possession which are relevant to the request.

(d) Creation of Debt or Liability: The commissioners shall incur no debts or obligations which would create any liability on the part of any municipality.

12. Duration of Contract: It is hereby agreed that the term of the contract is for as long as the parties of the second part are dependent upon "Sheboygan" to treat its sewage, unless other terms are mutually agreed upon by the parties hereto.

13. Option to Purchase: At any time during the term of the herein agreement, "Sheboygan" agrees that it will, in good faith, negotiate with the parties of the second part, the purchase from "Sheboygan" of the sewage treatment plant referred to herein.

(a) Purchase Price: The purchase price payable shall be as mutually agreed upon.

(b) Notice of Purchase: Six (6) months notice of the exercise of such option

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to purchase shall be given in writing to "Sheboygan" accompanied by enabling resolutions from the municipal units providing assurances that such governing body will proceed with such purchase.

(c) Conveyance: "Sheboygan" shall, within sixty (60) days after agreement is reached, execute and deliver appropriate documents of title making such conveyance.

14. Similar Terms: If any party to this agreement or if any party which may hereafter become party to this agreement or any addendum thereto shall be granted a more favorable term or provision than the terms or provisions presently existing, then such favorable term or provision shall also be granted to all other parties to this agreement.

15. Separability: If any clause, provision or section of this agreement be ruled invalid by any court of competent jurisdiction, the invalidity of such clause, provision or section shall not affect any of the remaining provisions hereof.

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IN WITNESS WHEREOF the undersigned bodies, acting pursuant to enabling resolutions adopted by their respective governing bodies, have subscribed the herein agreement on the dates thereafter set forth.

CITY OF SHEBOYGAN

By Richard W. Suscha
Richard W. Suscha, Mayor

Date 4/10/75

Attest: Melvin Mohr
Melvin Mohr, City Clerk

Date 4/15/75

Attest: LeRoy Metscher
LeRoy L. Metscher, City Comptroller-Treasurer

Date 4-15-75

CITY OF SHEBOYGAN FALLS

By Gladys M. Morken
~~Ronald A. Born~~, Mayor

Date 2/22/77

Attest: Corby D. Felsher
Corby D. Felsher, City Clerk

Date 2/22/77

VILLAGE OF KOHLER

By Wilmer G. Weinhold
Wilmer G. Weinhold, Village President

Date Apr. 8, 1975

Attest: Dennis J. Kopf
Dennis J. Kopf, Village Clerk

Date Apr. 8, 1975

02/23/96 13:01 FAX 4144593463 SHEBOYGAN WWT 022

TOWN OF SHEBOYGAN

By _____
Jack M. Meyer, Chairman

Date 8/14/75

_____
Edwin M. Blindauer, Supervisor

Date 8-14-75

_____
~~Robert J. Nickodem,~~ Supervisor

Date 8-14-75

TOWN OF SHEBOYGAN FALLS

By _____
Robert Fenner, Chairman

Date 3-9-77

_____
LARRY G. GUMM, Supervisor

Date MARCH 16 1977

_____
Helmuth H. Dassow, Supervisor

Date June 17, 1977

TOWN OF WILSON

By _____
Raymond F. Neumann, Chairman

Date _____

02/23/96 13:01 FAX 4144593463 SHEBOYGAN WWT 023

Harold E. Lindemann, Supervisor

Date _____

GILBERT RAMMER Supervisor

Date _____

TOWN OF LIMA

By _____
Arthur C. Sebald, Chairman

Date _____

Hugo Lorenz, Supervisor

Date _____

Chauncey Murphy, Supervisor

Date _____

TOWN OF SHEBOYGAN SANITARY DISTRICT NO. 2

By _____
Maynard Oleson, President

Date _____

James Worminghaus, Secretary

Date _____

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DEPRECIATION SCHEDULE
(Paragraph 8(a), i))

(a) New Plant: The new plant capital improvements shall be the cost of said plant less grants, contributions or payments by other municipalities or by the federal or state governments plus any costs remaining on the old plant being used as part of the new plant.

(b) Interceptors: The new interceptors capital improvements shall be the cost of said interceptors less grants, contributions or payments by other municipalities or by the federal or state governments plus any costs remaining on the old interceptors being used as part of the new interceptors. Such depreciation shall be charged to each municipal unit using said interceptors.

(c) Old Plant: The depreciation listed on this Schedule for interceptors and old plant, upon completion of said new plant or interceptors shall be reduced by the amount of obsolete and unuseable buildings or interceptors in the old system.

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Description of Item	Remaining Useful Life	Total Cost	Rate	Annual Amount Depreciable
1936 Treatment Plant and Lift Stations*	11 years	$338,142	2%	$ 6,763
1940 Plant Additions	15 years	64,992	2%	1,298
1956 Secondary Treatment	31 years	841,292	2%	16,826
1967 Treatment Plant	42 years	555,528	2%	11,111
1970 Treatment Plant Addition	45 years	34,494	2%	690
1977 New Plant**				

* to be separated later
** to be determined later by project engineers

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LAW OFFICE OF
HOPP, HODSON & POWELL
801 NORTH 5TH STREET
P.O. BOX 128
SHEBOYGAN, WISCONSIN 53081

ALEXANDER HOPP
EUGENE F. HODSON
WILLIAM R. POWELL

WALTER, HOPP & HODSON
1968-1973

AREA CODE 414
TELEPHONE 458-6138

September 22, 1977

RECEIVED
1977 SEP 23 PM 12: 57
CITY CLERK
SHEBOYGAN, WIS.

Signatory Parties to the
Joint Sewage Treatment Agreement
For The Sheboygan Region:

Enclosed each one of you will find a Supplemental Signature Page for the Town of Wilson, which has now determined to become a party to your Joint Sewage Treatment Agreement.

Sincerely,

HOPP, HODSON & POWELL

By Alexander Hopp

AH:kjm
Enc.

02/23/96 15:01 FAX 4144583463 SHEBOYGAN WWT 027

SUPPLEMENTAL SIGNATURE PAGE
TO
1975 JOINT SEWAGE TREATMENT AGREEMENT
FOR THE SHEBOYGAN REGION

WHEREAS, the undersigned Town Board of the Town of Wilson is desirous of indicating its consent to the 1975 Joint Sewage Treatment Agreement for the Sheboygan Region, which Agreement is made a part hereof by reference and was signed by the City of Sheboygan in April of 1975, by the City of Sheboygan Falls in February of 1977, by the Village of Kohler in April of 1975, by the Town of Sheboygan in August of 1975, and by the Town of Sheboygan Falls in March of 1977.

NOW, THEREFORE, the undersigned Town Board of the Town of Wilson does hereby affix its signature so that it may be a signator party to the above agreement, and does hereby consent to the attachment of this signature page as a supplemental signature page in lieu of signing page 19 of the original Agreement, which has already been distributed to all the interested parties.

Dated on the dates indicated after the signature lines.

TOWN OF WILSON

By Harold E. Lindemann
Harold E. Lindemann, Chairman

Date Sept. 6-1977

Wilbert H. Rammer
Wilbert H. Rammer, Supervisor

Date Sept 6 1977

Richard G. Kaat
Richard G. Kaat, Supervisor

Date Sept 6 1977

SUPPLEMENTAL SIGNATURE PAGE
TO
1975 JOINT SEWAGE TREATMENT AGREEMENT
FOR THE SHEBOYGAN REGION

WHEREAS, the undersigned Commissioners of Sanitary District No. 2 of the Town of Sheboygan are desirous of indicating their consent to the 1975 Joint Sewage Treatment Agreement for the Sheboygan Region, which Agreement is made a part hereof by reference and was signed by the City of Sheboygan in April of 1975, by the City of Sheboygan Falls in February of 1977, by the Village of Kohler in April of 1975, by the Town of Sheboygan in August of 1975, by the Town of Sheboygan Falls in March of 1977, and by Supplemental Signature Page by the Town of Wilson in September of 1977.

NOW, THEREFORE, the undersigned Commissioners of Sanitary District No. 2 of the Town of Sheboygan do hereby affix their signatures so that they may be a signator party to the above agreement, and do hereby consent to the attachment of this signature page as a supplemental signature page in lieu of signing page 20 of the Original Agreement, which has already been distributed to all the interested parties.

Dated on the dates indicated after the signature lines.

TOWN OF SHEBOYGAN SANITARY DISTRICT NO. 2 OF THE TOWN OF SHEBOYGAN

By Maynard Oleson
Maynard Oleson, President

Date 10-27-78

James Worminghaus
James Worminghaus, Secretary

Date 10-27-78

R.O. 22-[illegible]. By City Clerk.
Executing agreement to treat / passage of mentioned municipalities.

AMENDMENT TO JOINT SEWAGE TREATMENT AGREEMENT

THIS AMENDMENT entered into by and between the City of Sheboygan, hereinafter referred to as the "City," and the Town of Sheboygan, the Town of Sheboygan Falls, the Town of Wilson, the Town of Lima, the Village of Kohler, the City of Sheboygan Falls, and the Town of Sheboygan Sanitary District No. 2, each in their individual capacities, hereinafter referred to as the Municipalities, have entered into this amendment to the Joint Sewage Treatment Agreement, wherein the City agreed to treat the sewage of the municipalities.

WITNESSETH:

WHEREAS, the above stated master agreement dated in 1975 requires the Municipalities to pay to the City a portion of the City's administrative cost, "indirect expenses," which are related to the mayor's salary, City Council's salaries, etc. The master agreement should be amended to drop the whole requirement of municipalities paying the City a portion of the "City's indirect expenses" as required by EPA, and

WHEREAS, according to the master agreement, the pro rata share of each Municipality is based on the ratio resulting from dividing the number of gallons treated for the Municipality to the total number of gallons treated by the "plant." The master agreement should be amended to include the new definition of pro rata share to conform with the new sewer service charge and ICR system.

NOW, THEREFORE, in consideration of the mutual covenants hereinafter set forth, the said master agreement between the parties named above shall be amended as follows:

A. Index page i - Item 8(a)(ii) - "Indirect Expenses" should be eliminated.

B. Page 9 - Item 8(a) - The definition of "Cost of Treatment" should be as follows: "The cost of treatment shall be the sum of all the direct expenses."

C. Page 11 - Item 8(a)(ii) - The paragraph about "Indirect Expenses" should be eliminated.

D. Page 12 - Item 8(b) - The definition of "Pro Rata Share" should read as follows:

"The pro rata share of each municipality shall be the ratio resulting from dividing the number of gallons, pounds of BOD, pounds of suspended solids, and pounds of phosphorus treated for the contributing municipality by the total number of gallons, total pounds of BOD, total pounds of suspended solids, and total pounds of phosphorus resepctively treated by the "Plant" during the same period. Pro rata share may have to be redefined in the future to include other parameters that may be required through local, state, or federal rules and regulations."

IN WITNESS WHEREOF, the undersigned bodies, acting pursuant to enabling resolutions adopted by their respective governing bodies, have subscribed the herein agreement on the dates thereafter set forth.

CITY OF SHEBOYGAN

By Richard W. Suscha
Richard W. Suscha, Mayor

Date 8/28/79

Attest:

Lawrence Felten

Lawrence Felten, City Clerk

Date 8/28/79

Attest:

LeRoy L. Metscher

LeRoy L. Metscher, City Comptroller-Treasurer

Date 8/28/79

CITY OF SHEBOYGAN FALLS

By Gladys M. Bohenstengel

Gladys M. Bohenstengel, Mayor

Date 9/18/79

Attest:

Corby D. Felsher, City Clerk

Date 9/18/79

VILLAGE OF KOHLER

By See "3b"

Wesley L. Prange, Village President

Date _____

Attest:

Dennis J. Kopf, Village Clerk

Date _____

02/23/96 13:01 FAX 4144593463 SHEBOYGAN WWT 032

Attest:

Lawrence Felten

Lawrence Felten, City Clerk

Date 8/28/79

Attest:

LeRoy L. Metscher

LeRoy L. Metscher, City Comptroller-Treasurer

Date 8/28/79

CITY OF SHEBOYGAN FALLS

By See "3a"

Gladys M. Bohenstengel, Mayor

Date _____

Attest:

_____

Corby D. Feisher, City Clerk

Date _____

VILLAGE OF KOHLER

By Wesley L. Prange

Wesley L. Prange, Village President

Date 1/7/80

Attest: Dennis J. Kopf

Dennis J. Kopf, Village Clerk

Date 1/7/80

02/23/96 13:01 FAX 4144593463 SHEBOYGAN WWT 033

MS29(L)

TOWN OF SHEBOYGAN

By Fritz F. Fischer
Fritz F. Fischer, Chairman

Date 11-13-79

Roger E. Schelk
Roger Schelk, Supervisor

Date 11-13-79

Edwin M. Blindauer
Edwin M. Blindauer, Supervisor

Date 11-13-79

TOWN OF SHEBOYGAN FALLS

By Helmuth H. Dassow
Helmuth H. Dassow, Chairman

Date 12-18-79

Ralph D. Smith
Ralph DeSmith, Supervisor

Date 12/18/79

Lonny Bigler
Lonny Bigler, Supervisor

Date 12-18-79

TOWN OF WILSON

By Harold B. Lindemann
Harold B. Lindemann, Chairman

02/23/96 13:01 FAX 4144593463 SHEBOYGAN WWT 034

Date Feb 4 1980

Wilbert Rammer

Wilbert Rammer, Supervisor

Date _____

Richard Kaat

Richard Kaat, Supervisor

Date 2/4/80

TOWN OF LIMA

By Walter Doane

~~Arthur C. Sebald,~~ Chairman

Date 11/12/79

Hugo Lorenz

Hugo Lorenz, Supervisor

Date 11/12/79

John McLayne

~~Chauncey Murphy, Supervisor~~

Date 11/12/79

TOWN OF SHEBOYGAN
SANITARY DISTRICT NO. 2

By Maynard Oleson

Maynard Oleson, President

Date 10-16-79

02/23/96 13:01 FAX 4144593463 SHEBOYGAN WWT 035

MS29(L)

James Worminghaus

James Worminghaus, Secretary

Date Oct. 10- 1979

02/23/96 13:01 FAX 4144593463 SHEBOYGAN WWT 036

APPENDIX C:
TAC VOTES
PUBLIC REVIEW

PUBLIC INFORMATIONAL MEETING

Sheboygan Urbanized Area
Sewer Service Area Plan

The Bay-Lake Regional Planning commission (BLRPC), in conjunction with the Wisconsin Department of Natural Resources (WDNR) will be holding a public informational meting/public hearing on the draft Sheboygan Urbanized Area Sewer Service Area Plan (SSA Plan).

The purpose of the SSA Plan is to define: 1) sensitive natural areas as "environmental corridors" which would not be allowed to contain publicly sewered development, and; 2) delineate a 20-year sewer service area boundary.

The public informational meeting/public-hearing will be conducted on:

Friday, September 12, 1997
12:00 Noon-3:00 p.m.
Sheboygan County Highway Department
Second Floor
1211 N. 23rd St.
Sheboygan, Wisconsin

The informational meeting will be conducted in an "open house" format with BLRPC, and the WDNR staff available for questions. Maps and other materials will be available for public review. Public comments in written or oral form, may also be submitted on the contents of the plan. Copies of the draft plan are available for review (Sept. 12 through Oct. 12) at the Town Hall, Town of Sheboygan, 3932 Superior Ave. and the Bay-Lake Regional Planning Commission office. Written comments should be sent to Bay-Lake Regional Planning Commission, Suite 211, 211 N. Broadway, Green Bay, WI 54303. The deadline for written comments is October 13, 1997.

If special arrangements are necessary to accommodate individuals with disabilities, please contact Dale W. Mohr at (920) 448-2820 prior to the meeting.

TOWN OF MOSEL

W980 CTH FF
Sheboygan WI 53083
(414) 565-3700

August 25, 1997

Mr. Dale Mohr
Bay-Lake Regional Planning Commission
Suite 211, 211 North Broadway
Green Bay WI 54303

Dear Mr. Mohr:

The Town of Mosel opposes the Year 2015 Sheboygan Urbanized Area Sewer Service Plan as presented to the public. The first purpose as stated in the plan is to "[p]roject future needs for sewer service and establish the geographic extent of the sewer service area for the year 2015." The plan as proposed fails to achieve this objective for the following reasons.

- Residents in the southeast corner of Mosel (an area that is included in the current version) have sanitary systems that have met or exceeded their projected life expectancy. We know these systems will have to be replaced within the next 20 years. A majority of residents in this area have already filed a petition with the Town Board indicating an interest in annexation with the Town of Sheboygan Sanitary District No. 2 to correct this situation.

- The Mosel Town Board adopted a Land Use Plan in February 1997 that reflects the parameters of projected development as indicated in surveys completed by town residents and landowners. Given the location of Whistling Straits Golf Course adjacent to the Haven Sanitary District, it is reasonable to assume that development pressures will continue to grow in this area within the next twenty years.

- Resident surveys indicated a strong desire to retain an open, rural atmosphere. All residential development delineated in the Land Use Plan is low- to medium-density and incorporates the parcels that were included in the 1986 sewer service area. The Mosel Town Board supports the minimization of urban sprawl yet recognizes the need to properly service the current population.

In addition, the DNR representatives made it clear that the Department would not support a plan to which the City of Sheboygan did not agree on the grounds that the city owns the treatment plant. In fact, the TAC voted 7-4 on March 20, 1996, to include all of the satellites (Town Mosel, Lakeland College, Howards Grove, and the Sheboygan County Airport) in the sewer service base area; however, the four negative votes cast by the City

of Sheboygan took precedence over the seven votes of the remainder of the committee. The TAC was forced to exclude all satellites but the County Airport from the base area. The Mosel representative accepted these terms with the provision that the satellites be discussed before the plan was presented to the public: This discussion never occurred. The TAC meeting of June 30, 1997, was the first in 14 months; the committee was informed at this meeting that the DNR met separately with each satellite except Town Mosel. The DNR never approached Town Mosel nor was the inclusion of Mosel addressed at any time after approval of the base area in March 1996.

Since the Town of Mosel does not have an existing agreement with the City of Sheboygan (as many other municipalities do) that requires any flow we generate be accepted, interagency agreements would be required before sanitary sewer service could begin. Inclusion of the Town of Mosel in this plan does not commit the city in any way. Exclusion of the Town of Mosel from this plan is contrary to the very purpose of the plan.

In conclusion, the removal of the Town of Mosel from the Sanitary Sewer Service Plan is a disservice to our taxpayers. The document is not a realistic reflection of Mosel's future needs and therefore is not adequate as a planning tool. Instead of providing the community with a valuable product, we have wasted tax dollars and will waste more when we meet to include an area that should never have been removed and an area that should have been added.

Sincerely,

Jerald Holub
Chairman

Barbara Bitter
Supervisor

Allen Gabsch
Supervisor

KOHLER CO. KOHLER, WISCONSIN 53044 FOUNDED IN 1873 PHONE 920-457-4441 FAX 920-803-4855

RECEIVED
OCT 13 1997
BY BAY-LAKE RPC

DALE E. SNYDER
SENIOR VICE PRESIDENT
TECHNICAL SERVICES

October 10, 1997

Dear Mr. Holden:

Kohler Co. objects to the proposed revisions to the 1973 Bay Lake Regional Planning Commission 20 Year Sewer Service Area Plan. More specifically, we object to the removal of Section 34, located in the Town of Mosel, from the sewer plan. Kohler Co. Generator Division is located in Section 34. Kohler Co. has used the existing Sewer Service Plan for strategic planning purposes. While sewer is not required under current regulations, the ever increasing environmental regulation by State and Federal agencies may well make sewer a requirement in the future. If sewer was not available at that point, the existing Generator plant would no longer be a viable manufacturing location, thereby jeopardizing 732 jobs. The negative impact on the employees as well as the local economy from loss of those jobs would be tremendous. We do not, therefore, believe that removal of Section 34 from the sewer service area plan is in the best interest of Kohler Co., its employees, or the public at large.

Kohler Co. strives to support and invest in the local community. To that end, Kohler Co. Has been working very closely with the town of Mosel on sewer related issues. Development in the town has primarily occurred in Section 34, adjacent to Generator Division. In the future, if sewer service to Generator Division becomes a reality, we will most

likely work in tandem with the town to service the homes in Section 34. This will be the most cost effective means to service the local community.

By removing Section 34 from the Sewer Service Plan, Kohler Co. may have to consider alternate plans for the future of Generator Division. We sincerely hope that the Commission does not create a situation which has such tremendous negative implications. If this area is to remain an attractive site for manufacturing, the Commission can ill afford to create the adverse publicity which would inevitably result from taking a position which would have the effect of jeopardizing the jobs of local residents and the future of local businesses. We therefore urge the Commission to look beyond the territorial disputes which have sometimes clouded its deliberations and request that the status quo be maintained with Section 34 remaining in the Sewer Service Plan.

Sincerely,

Bay-Lake Regional Planning Commission
Mr. Martin Holden
Executive Director
Suite 211, 211 North Broadway
Green Bay, WI 54303

Sheboygan Press, Fri., 12/19/97.

Area sewer plan leaves question of boundaries unanswered

By JAMI LEMKE
OF THE PRESS STAFF

A proposed update to the Sheboygan area sewer plan is going to the Department of Natural Resources, although a key issue remains under contention.

The Technical Advisory Committee set up by the Bay-Lake Regional Planning Commission voted 7-1 Thursday to send the draft to the DNR.

The DNR hired Bay-Lake to update the plan, which was created in 1989. The commission, in turn, created the committee, which has representatives from the municipalities involved.

The primary dispute among those municipalities has been the boundaries of the area that could be served by the city of Sheboygan's wastewater treatment plant.

The boundaries are significant because areas outside them cannot get permits for sewer extensions.

A majority of the committee members voted to include six "satellites" — isolated areas seeking sewer service. However, the city of Sheboygan's representatives voted against all but the Sheboygan County Airport.

And, since the DNR said the city should have final say over those areas, the remaining five satellites were removed from the plan.

But that did not keep several committee members from again pointing out that it makes no sense to have a plan that does not include all areas likely to need sewers.

"Calling this a plan is generous," said Stacy Grunwald, Mosel town clerk. "We see a need now."

The city of Sheboygan does not have a big problem serving existing homes in the town or the Kohler Generator plant, said Robert Peterson, the city's development director.

However, it wants to negotiate agreements with those areas — before allowing them to be included in the plan, Peterson said. The boundaries can be changed after the plan is adopted, he said.

But Mark Leider, county planner, said existing homes might have an immediate need if their septic systems fail. Making them wait until the committee can approve a boundary change might take too long, he said.

Dale Mohr, who has facilitated this two-year process, said the two sides are at loggerheads and unlikely to come to agreement even with continued discussion.

"We've done our job," he said. "It's not going to be resolved. Let's pass it to the DNR."

The DNR will review the plan, and might send a list of things that need correction, Mohr said. It also might approve part of the document and ask for additional discussion on other parts.

Peterson urged the group to look at the positive thing the committee has accomplished: shrinking the area eligible for sewers and thereby reducing the likelihood of urban sprawl.

Leider agreed. "There is far too much we agree with to not send it to the DNR," he said.

The city's four representatives were joined by Leider and representatives of city of Sheboygan Falls and the village of Kohler in voting to forward the plan to the DNR.

Grunwald, representing the town of Mosel, voted no. The towns of Sheboygan and Wilson abstained.

A representative of the town of Sheboygan Falls was not at the meeting, but called Mohr to indicate he would have voted no.

Sheboygan Sewer Service Area Plan
Technical Advisory Committee

December 18, 1997

A motion to accept the plan as is and to submit the plan update to the WDNR for approval was made. The TAC vote was 7-1 for submittal.

(Community)	(Aye)	(Nay)	(Abstain)
City of Sheboygan	4		
City of Sheboygan Falls	1		
Village of Kohler	1		
Town of Mosel		1	
Town of Sheboygan			1
Town of Sheboygan Falls			Not Present
Town of Wilson			1
Sheboygan County	1		

See TAC voting structure in Chapter Six of the Plan Update

Dale William Mohr

Dale William Mohr

Technical Advisory Committee Chair/Secretary

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APPENDIX D
DEFINITIONS AND REFERENCES

DEFINITIONS

Plan - A plan is an expression of what a community wants; it is a guide for decision making by the planning commission, the city council, and the mayor or manager. The advantages of reviewing the plan as an instrument of policy include the following:

1. The essential and uncluttered statements of policy facilitate public participation in and understanding of the planning process
2. A plan that is a statement of policy encourages or even demands involvement on the part of public officials
3. The plan as policy provides stability and a consistency in that it is less likely to be made obsolete by changing conditions
4. Finally, the plan is a guide to the legislative bodies responsible for adopting land use controls, the commissions or boards that administer them, and the courts which must judge their fairness and reasonableness.

Sewage - Sewage refers to the wastewater flow from residential, commercial, and industrial establishments through the pipes to a treatment plant.

Sewerage - Sewerage refers to the system of sewers, physical facilities employed to transport, treat, and discharge sewage.

Sewer - Sewer refers to the pipe, conduit, or other physical facility used to carry off wastewater.

Sewer Extension - A sewer extension is a main/submain, trunk or interceptor sewer.

House connection - Sometimes referred to as house laterals, house connections are the points of contact between the individual dwelling unit and the sewerage system.

Lateral - A lateral is the pipe to which individual houses and business establishments attach. If one considers the analogy of a tree, the laterals represent twigs.

Main/Submain - The word main is frequently used loosely to indicate a large pipe which is not a lateral and not an interceptor. Like a trunk, a main or submain frequently forms one of the larger branches of a complex collection system.

Trunk - A trunk sewer is one of a set of large pipes which form the branches of the sewerage system. In many communities, it would be the pipe which collects sewage from a large portion of a community and then discharges it into an interceptor.

Interceptor - Interceptor sewers derive their name from their original design purpose in older cities in which they intercepted the flow of smaller trunk sewers that was going directly and untreated into a river or a stream and carried that flow to a downstream

treatment facility. Interceptor now refers to any pipe, regardless of size, that carries wastewater to the treatment plant.

Sewer outfalls - Sewer outfalls, or effluent outfalls, are interceptor- sized pipes which transport, after treatment, the effluent of the sewage treatment plant to the final receiving body.

Primary Treatment - Primary treatment refers to the removal of between 30 and 35 percent of the organic pollutants and up to one-half of the suspended solids. Generally, the processes involved are a screening process for removal of heavy solids, a skimming process which removes floating solids, and a settling period to remove heavier suspended materials.

Secondary Treatment - Secondary treatment removes between 80 and 90 percent of the organic materials and over 80 percent of the suspended solids. It generally requires a multiple-step process involving one biological process and one or more processes for settling of suspended solids. Biological processes include activated sludge, stabilization ponds, and trickling filters. The objective of all of the steps in the secondary treatment process is to increase the amount of both organic and suspended matter which is removed.

Tertiary Treatment - Because of the large quantities of synthetic organic compounds and inorganic ions in the waste stream, many localities are being asked to extend their treatment processes. Tertiary or advanced waste treatment adds additional steps to primary and secondary treatment in order to provide additional removal of standard organic pollutants or to remove one or more specific organic compounds or inorganic ions from the stream. Common pollutants removed are phosphate and nitrate. The actual process chosen depends upon the ions or synthetic organic compounds to be removed.

Sewer moratorium - A ban or quota on new sewers, connections, building permits, subdivision approval or rezoning which is regulated at the state or local level.

Refusal to sewer - A rural fringe and community refuses to provide sewerage which is regulated at the local level but may be overridden by state.

NEPA review - A mandatory agency and public review of federally funded projects to encourage consideration of secondary impacts which is regulated at the federal level with all levels involved in review process.

Facility design - A selection of physical options to encourage certain types of land use, e.g., force mains, smaller treatment plants which is regulated at the county/ regional level.

Facility sizing - A limit of excess capacity in projects to preserve future land use options which is regulated at the local, county/regional level.

Service area - The establishment of "urban service area" within which public services will be provided which is regulated at the county, local, regional level.

Staging policy - A staging of individual facilities to promote certain development patterns which is regulated at the county/regional level.

**The above definitions were taken directly from: David S. Arnold, The Practice of Local Government Planning publication in cooperation with the American Planning Association by the International City Management Association.*

NR 115 Wisconsin Shoreland Management Program

(4) **"Floodplain"** means the land which has been or may be hereafter covered by flood water during the regional flood. The floodplain includes the floodway and the flood fringe as those terms are defined in ch. NR 116.

(5) **"Navigable waters"** means Lake Superior, Lake Michigan, all natural inland lakes within Wisconsin and all streams, ponds, sloughs, flowages and other waters within the territorial limits of this state, including the Wisconsin portion of boundary waters, which are navigable under the laws of this state. Under s. 144.26 (2)(d), Stats., notwithstanding any other provision of law or administrative rule promulgated thereunder, shoreland ordinances required under s. 59.971, Stats., and this chapter do not apply to lands adjacent to farm drainage ditches if:

(a) Such lands are not adjacent to a natural navigable stream or river;

(b) Those parts of such drainage ditches adjacent to such lands were non-navigable streams before ditching or had no previous stream history; and

(c) Such lands are maintained in nonstructural agricultural use.

(8) **"Shorelands"** means lands within the following distances from the ordinary high-water mark of navigable waters: 1,000 feet from a lake, pond or flowage; and 300 feet from a river or stream or to the landward side of the floodplain, whichever distance is greater.

(13) **"Wetlands"** means those areas where water is at, near or above the land surface long enough to be capable of supporting aquatic or hydrophytic vegetation, and which have soils indicative of wet conditions.

NR 115.05 Shoreland Regulation Standards and Criteria

(8) **"Industrial wastewater treatment facility"** means a privately owned wastewater treatment plant for treating liquid wastes resulting from any process of industry, manufacture, trade or business or the development of any natural resources.

(10) **"Major contributing industry"** means an industrial or commercial facility that is a user of a publicly owned wastewater treatment plant, and has a waste which the department determines has, or may have, a significant impact, either singly or in combination with other wastes, on the publicly owned wastewater treatment plant or on the quality of effluent from such plants.

(11) **"Municipal water system"** means a community water system owned by or a private utility serving a county, city, village, town, town sanitary district, utility district or a county-owned or state-owned public institution for congregate care or correction, which includes but is not limited to correctional institutions, correctional camp systems, county jails or houses of correction, mental health institutes, schools for the handicapped, hospitals, infirmaries and asylums.

NR 116 Wisconsin's Floodplain Management Program

(8) **"Developed area"** means an area within a floodplain designated by a municipality and approved by the department which contains a minimum of 20 potential residential lots or a minimum of 5 acres of land zoned commercial, industrial or institutional wherein existing structures constitute a minimum of 50% of the structures that could be accommodated by the respective zoning density. The limits of the developed area are defined by a line connecting the existing structures on the outer perimeter of the majority of the structures. Vacant lots within that boundary are treated the same as lots with existing structures.

(9) **"Development"** means any artificial change to improved or unimproved real estate, including, but not limited to, the construction of buildings, structures or accessory structures; the construction of additions or substantial improvements to buildings, structures or accessory structures; the placement of buildings or structures; mining, dredging, filling, grading, paving, excavation or drilling operations; and the storage, deposition or extraction of materials.

(12) **"Flood"** or **"flooding"** means a general and temporary condition of partial or complete inundation of normally dry land areas caused by:

(a) The overflow or rise of inland waters;
(b) The rapid accumulation or runoff of surface waters from any source;
(c) The inundation caused by waves or currents of water exceeding anticipated cyclical levels along the shore of Lake Michigan or Lake Superior; and

(d) The sudden increase caused by an unusually high water level in a natural body of water, accompanied by a severe storm, or by an unanticipated force of nature, such as a seiche, or by some similarly unusual event.

(16) **"Floodplain"** means that land which has been or may be covered by flood water during the regional flood. The floodplain includes the floodway, floodfringe, shallow depth flooding, flood storage and coastal floodplain areas.

(18) **"Floodplain management"** means the full range of public policy and action for insuring wise use of floodplains. It includes everything from the collection and dissemination of flood data to the acquisition of floodplain lands and the enactment and administration of codes, ordinances and statutes for land use in the floodplain.

(31) **"Municipality"** or **"municipal"** means a county, city or village.

(38) **"Private sewage system"** means a sewage treatment and disposal system serving a single structure with a septic tank and soil absorption field located on the same parcel as the structure. This term also means an alternative sewage system approved by the department of industry, labor and human relations including a substitute for the septic tank or soil absorption field, a holding tank, a system serving more than on structure or a system located on a different parcel than the structure.

(39) **"Public utilities"** means those utilities which employ underground or overhead transmission lines such as electric, telephone and telegraph, and distribution and collection systems such as water, sanitary sewer and storm sewer.

(47) **"Undeveloped area"** means an area which is not a developed area.

NR 117 Wisconsin's City and Village Shoreland-Wetland Protection Program

(3) **"Environmental control facility"** means any facility, temporary or permanent, which is reasonably expected to abate, reduce or aid in the prevention, measurement, control or monitoring of noise, air or water pollutants, solid waste and thermal, radiation or other pollutants, including facilities installed principally to supplement or to replace existing property or equipment not meeting or allegedly not meeting acceptable pollution control standards or which are to be supplemented or replaced by other pollution control facilities.

(5) **"Floodplain"** means the land which has been or may be covered by flood water during the "regional flood," as that term is defined in s. NR 116.03. The floodplain includes the floodway and the flood fringe.

(7) **"Navigable water"** or "navigable waters," as defined in s. 144.26(2)(d), Stats., means Lake Superior, Lake Michigan, all natural inland lakes within this state and all streams, ponds, sloughs, flowages and other waters within the territorial limits of this

state, including the Wisconsin portion of boundary waters, which are navigable under the laws of this state. Notwithstanding any other provision of law or administrative rule, a shoreland zoning ordinance required under s. 59.971, Stats., and this chapter or a wetland zoning ordinance required under s. 61.351 or 62.231, Stats., and this chapter does not apply to lands adjacent to farm drainage ditches if:

1. Such lands are not adjacent to a natural navigable stream or river;
2. Those parts of the drainage ditches adjacent to these lands were non-navigable streams before ditching; and
3. Such lands are maintained in nonstructural agricultural use.

(9) **"Shorelands"**, as defined in s.59.971(1), Stats., means the area within the following distances from the ordinary high-water mark of navigable waters, as defined in s. 144.26(2)(d), Stats.:

(a) One thousand feet from a lake, pond or flowage. If the navigable water is a glacial pothole lake, this distance shall be measured from the high-water mark of the lake.
(b) Three hundred feet from a river or a stream or to the landward side of the floodplain, whichever distance is greater.

(12) **"Wetland"**, as defined in s. 23.32(1), Stats., means an area where water is at, near or above the land surface long enough to be capable of supporting aquatic or hydrophytic vegetation and which has soils indicative of wet conditions.

NR 121 Areawide Water Quality Management Plans

(1) Subject to sub. (2), the following elements shall be included in each areawide water quality management plan prepared or approved by the department.

(a) Planning area boundaries. The delineation in map form of the area for which the plan is being prepared.
(b) Water quality assessment. An assessment of existing and potential water quality problems within the planning area including a general assessment of both point and non-point sources of pollution contributing to the problems.
(c) Inventories and forecasts:
1. An inventory of municipal and industrial source of pollutants.
2. Current demographic and economic growth data.
3. Population forecasts for 20 years in 5-year increments developed in the following manner:
a. The state population forecast for the state water quality management plan shall be consistent with that generated by the Wisconsin department of administration (DOA) and with the forecast provided by the U.S. department of commerce, bureau of economic analysis (BEA).

b. Single county forecasts prepared by multi-county regional planning agencies (established in s. 66.945, Stats.) for the purpose of areawide water quality management planning shall be consistent with the range of the regional forecast generated by DOA. Single county forecasts prepared by single county planning agencies shall be expressed within the range of the county forecast generated by DOA. Single county forecasts inconsistent with the range of DOA regional forecasts and single family [county] forecasts falling outside of the range provided by DOA may be used if special approval is obtained from the natural resources board.

(Reviser's Note: Due to an apparent error, "family" was substituted for "county" in Natural Resources Board Order No. WQ-55-80, which amended subpar. b.)

c. The population forecasting methodology used by designated regional or county planning agencies to apportion county forecasts to minor civil divisions (MCD) and individual sewer service areas shall be consistent with standards developed by DOA. If these agencies do not prepare MCD forecasts, the department will request that DOA do so. If DOA chooses not to prepare MCD forecasts, the department will do so.

4. Existing and projected land use patterns including the delineation of sewer service areas as described in par. (g).

(d) Water quality standards. Applicable state water quality standards and any suggested revision of such water quality standards.

(e) Total maximum daily loads. For each water quality limited segment, the total allowable maximum daily load of pollutants during critical water quality conditions for each specific water quality criterion being violated or expected to be violated.

(f) Waste load allocations. For each water quality limited segment, the individual load allocation for point sources of pollutants for the 5-year period following plan preparation.

(g) Non-industrial wastewater treatment and collection system plan: 1. The most cost-effective regional wastewater systems for all urban areas shall be identified over a 20-year planning period based upon an analysis of alternative waste treatment system configurations. Wherever possible, applicable recommendations of approved facility plans shall be used to determine the urban area's treatment needs. This analysis shall be consistent with s. NR 110.09, and shall include a cost-effectiveness analysis of regional versus individual treatment plants for the outlying areas including subsurface waste disposal systems. Water quality and other environmental impacts shall be considered.

2. Sewage collection system needs shall be identified through the delineation of a sewer service area for existing and proposed treatment systems for the 20-year planning period such that:

a. The sewer service area is determined in such a fashion as to promote cost-effective and environmentally sound waste collection and treatment.

b. The sewer service areas are delineated based on a 20-year population forecast approved by the department, and municipally approved population density standards.

c. Major areas unsuitable for the installation of waste treatment systems because of physical or environmental constraints are to be excluded from the service area. Areas to be considered for exclusion from the sewer service area because of the potential for adverse impacts on the quality of the waters of the state from both point and non-point sources of pollution include but are not limited to wetlands, shorelands, floodways and floodplains, steep slopes, highly erodible soils and other limiting soil types, groundwater recharge areas, and other such physical constraints.

d. Ten-year service area boundaries may also be included in addition to the 20-year sewer service boundaries.

3. The plan shall include criteria for the construction of future treatment systems within the areawide planning area. These criteria shall be consistent with, but may be more specific or restrictive than those contained in s. NR 110.08(5), if warranted by regional and local considerations.

4. For non-designated areas of the state, a detailed identification of the regional waste treatment system, including the delineation of sewer service areas will be carried out for selected urban areas within standard metropolitan statistical areas and for urban areas with a population of over 10,000.

a. The preparation of the plan will be carried out if possible by a local planning agency under contract with the department.

b. A local policy advisory committee made up of representatives of the various local units of government in the planning area shall be established, or an existing body used, to assist the department in the preparation of the plan and to act in an advisory role to the department in matters concerning the implementation of the plan.

(h) Industrial waste treatment system needs. The anticipated industrial point source waste load reductions required to attain and maintain applicable water quality standards and effluent limitations for at least a 20-year planning period.

(i) Non-point source control needs:

1. The best management practices needed to produce a basic level of control of non-point source of pollutants throughout the planning area shall be identified and evaluated. Watersheds will be identified in the plan and the general water quality problems for each assessed.

2. Priority watershed plans shall be prepared for [on] a priority basis by the department and applicable designated agencies. The contents of priority watershed plans are described in s. NR 120.08.

(Revisor's Note: Due to an apparent error "for" was substituted for "on" in Natural Resources Board Order No. WQ-55-80, which amended subd. (2.)

(j) Residual waste control needs. An identification of the necessary controls to be established over the disposition of residual wastes.
(k) Land disposal needs. An identification of the necessary controls to be established for the disposal of pollutants on land or in a subsurface excavation site.
(l) Target abatement dates. Target abatement dates or schedules of compliance for all significant dischargers, nonpoint source control measures, residual and land disposal controls and stormwater system needs.
(m) Recommended regulatory programs needed to implement the state water quality management plan.
(n) Designated management agencies. The identification of those agencies recommended for designation to carry out the provisions of the areawide plan.
(o) Environmental, social, economic impact. An assessment of the environmental, social and economic impacts of carrying out specific significant recommendations of the plan.

(2) The department may waive inclusion of any of these elements upon a determination by the department that special conditions exist in the planning area which preclude their inclusion or that financial resources are not adequate to allow their inclusion.

* The above definitions were taken directly from: *The Wisconsin Administrative Code, Administrative Rules of State Agencies*. Published Pursuant to Chapter 227 *Wisconsin Statutes* Volume 12.

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APPENDIX E
WDNR APPROVAL DOCUMENTATION

Bay-Lake Regional Planning Commission

Commission Members

Brown County
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Paul Jadin
Clarence Lamers

Door County
L. George Evenson
Charles Jarman
Norbert D. Schachtner

Florence County
Edwin Kelley
Yvonne Van Pembrook
John Zoeller

Kewaunee County
Merritt Bussiere
Robert Entringer, Vice-Chairperson
Paul J. Wolske, Chairperson

Manitowoc County
Gregory E. Buckley
Kevin M. Crawford
Donald C. Markwardt

Marinette County
Florence Magnuson
Cheryl R. Maxwell
Mary G. Meyer

Oconto County
Donald A. Glynn
Austin C. Makholm
Lois L. Trever

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