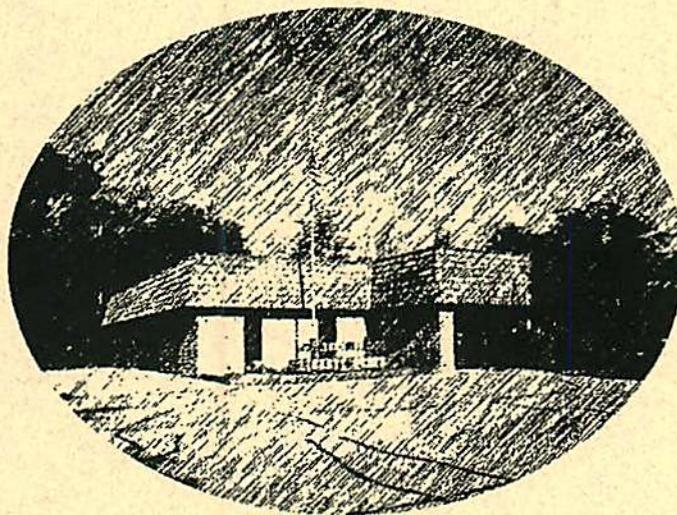


Town of Liberty Grove

COMPREHENSIVE PLAN

2003



**Town Of Liberty Grove
County of Door
11161 Old Stage Road
Sister Bay, WI 54234
November 19, 2003**

TOWN OF LIBERTY GROVE

Town Board

Charles Most, Chairman
Denise Bremer
William Casey
John Mahoney
MaryKay Shumway

Plan Commission

Charles Most, Chairman
Denise Bremer
Alysanne Burkhardt
Russell Forkert
Nancy Goss
Daniel Mortier
MaryKay Shumway

Walter Kalms, Clerk/Administrator
Janet Johnson, Town Treasurer

An Open Letter to the Citizens of Liberty Grove

The attached document is the work of many people. The Liberty Grove Town Board initiated this project in September 2000. At that time, it was decided to utilize the services of Bay-Lake Regional Planning Commission (BLRPC), an agency of the State of Wisconsin.

On September 21, 2000, the Town Board, under the chairmanship of Kubet Luchterhand, contracted with BLRPC to prepare a comprehensive plan in accordance with Wisconsin's Smart Growth law. The projected cost was \$26,600, and it was to be completed by March 31, 2002. The contract was extended three times subsequently; first to May 31, 2002, then to August 31, 2002, and finally to December 31, 2002.

Several meetings were held at the Liberty Grove Town Hall during the development of the document. The first of these was held in October 2000. Over 100 citizens attended, and issues of importance in the Town were discussed and identified.

A second meeting was held in January 2001, to prioritize these issues. The resulting document, incorporating over 600 changes, was submitted to the Plan Commission by Bay-Lake in May 2003. Copies were distributed to each member of the Plan Commission, and one was placed at the Town Hall to be available to all Citizens of Liberty Grove. At that time, it was also determined that further changes, if necessary, would be made by Liberty Grove, then forwarded to Bay-Lake.

The final editing process took an additional 3½ months and resulted in five additional drafts incorporating over 1,500 changes. The final draft was presented to the Citizens of the Town of Liberty Grove at an Open House July 31, 2003. Final changes were then incorporated, resulting in the document presented herein.

The present members of the Town of Liberty Grove Board sincerely wish to thank the individual members of the Liberty Grove Plan Commission, the Liberty Grove Planning Committee, the four major subcommittees (Land Use, Transportation, Housing & Economic Development and Utilities & Community Facilities), the Bay-Lake Regional Planning Commission, and all the other individuals who contributed their time and talents during the three year period this process has taken. Their work is greatly appreciated and is hereby acknowledged.

This document is submitted, therefore, to all the Citizens of Liberty Grove. It is hoped it will clearly outline the future course of the Town of Liberty Grove, to make our Town a growing community, yet retain all the qualities that has made it so desirable today.

Respectfully submitted,
The Town of Liberty Grove

ACKNOWLEDGEMENTS

Since the inception of this project in September of 2000, many individuals have given numerous volunteer hours in order to construct a Comprehensive Plan of the highest quality. In addition to the committees listed on the preceding pages, some citizens and organizations should be recognized herein:

Robert Brogan - For his invaluable assistance on the Comprehensive Plan as a Planning Committee and Plan Commission member

David Burkhardt - Who edited and coordinated the final revisions of the document for printing and presentation to the Town Board

Joseph Carpenter - For his many months of attendance at Plan Commission meetings and his assistance in the review and editing process

Jack Travis - For sharing his expertise in the writing of the chapter on natural resources.

All members of the Initial Planning Committee:

Robert Forsberg – Chairman

Jerry Babel

Denise Bremer

Robert Brogan

Jill Karkau

Werner Krause

MaryKay Shumway

Alternates

Bryan Follingstad

Michael Mead

Jim Seaquist

All members of the Planning Subcommittees:

Land Use

Transportation

Housing & Economic Development

Utilities, Community Facilities and Intergovernmental Cooperation

Planning Subcommittees
Liberty Grove “Smart Growth” Plan

A. Biking Trails, Transportation (Roads, Traffic, Hiking & Off-Street Parking)

George Hoyt – Chairperson

Rudie Baack
Denise Bremer
Joe Carpenter
Bryan Follingstad

Lloyd Gerrits
Virginia Johnson
Charles Most
Frank Weber

BF. Housing & Economic Development

Stephanie Devooght – Chairperson

Jerry Babel
Dave Brandt
Alysanne Burkhardt
David Burkhardt
George Krall

Georgine Kretzmann
Ann Lewis
Jewel Ouradnik
MaryKay Shumway
Meg Vermillion

CD. Land Use (Agricultural, Natural and Cultural Resources; Conservation; Preservation; Open Space; Land Use; Environment; Development; Zoning)

Jack Travis – Chairperson

Robert Brogan
Patty Chaudoir
Paul Goodman
Jill Karkau

Werner Krause
Don Luker
Sharon Pluff
Peter Reddin

Jim Seaquist
Bernie Shumway
David Vermillion

EG. Utilities, Community Facilities and Intergovernmental Cooperation (Parks, Public Spaces, Boating Water quality, Sanitation, Machinery & Equipment)

Russ Forkert – Chairperson

Mike Kahr – Chairperson
Alysanne Burkhardt
David Burkhardt
Steve Jacobson

Ann Lewis
John Mahoney
Bob Pluff

TOWN OF LIBERTY GROVE

COMPREHENSIVE PLAN

2003

Prepared by
Liberty Grove Town Board
Liberty Grove Plan Commission
Bay-Lake Regional Planning Commission

November 19, 2003

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Chapter 1 - ISSUES AND OPPORTUNITIES ELEMENT

INTRODUCTION

This Comprehensive Plan is an update to the *1988 Town of Liberty Grove General Plan Design*. The plan was prepared to meet the requirements of Wisconsin's "Smart Growth" law (1999 Wisconsin Act 9) and adopted under the authority granted by Section 66.1001 of the Wisconsin Statutes. That statute states, in part, that "Beginning on January 1, 2010, any program or action of a local governmental unit that affects land use shall be consistent with that local governmental unit's comprehensive plan."

The comprehensive plan is a policy document that provides a specific guide as to where future conservation, growth and development should occur within the community. The plan should be consulted when the Town makes decisions concerning land use and other issues impacting the development of the Town including:

- Municipal incorporation procedures under s. 66.012, 66.013 or 66.014
- Annexation procedures under s. 66.021, 66.024 or 66.025
- Cooperative boundary agreements entered into under s. 66.023
- Consolidation of territory under s. 66.02
- Detachment of territory under s. 66.022
- Municipal boundary agreements fixed by judgment under s. 66.027
- Official mapping established or amended under s. 62.23 (6)
- Local subdivision regulation under s. 236.45 or 236.46
- Extraterritorial plat review within a city's or village's extraterritorial plat approval jurisdiction, as defined in s. 236.02(5)
- County zoning ordinances enacted or amended under s. 59.69
- City or village zoning ordinances enacted or amended under s. 62.23 (7)
- Town zoning ordinances enacted or amended under s. 60.61 or 60.62
- An improvement of a transportation facility that is undertaken under s. 84.185
- Agricultural preservation plans prepared or revised under subchapter. IV of chapter 91
- Impact fee ordinances that are enacted or amended under s. 66.55
- Land acquisition for recreational lands and parks under s. 23.09 (20)
- Zoning of shorelands or wetlands in shorelands under s. 59.692, 61.351 or 62.231
- Construction site erosion control and storm water management zoning under s. 59.693, 61.354 or 62.234
- Any other ordinance, plan or regulation of a local governmental unit that relates to land use

CONTRACT WITH BAY-LAKE REGIONAL PLANNING COMMISSION

The Liberty Grove Town Board entered into a contract (#56064) with the Bay-Lake Regional Planning Commission (BLRPC) to prepare a comprehensive plan in accordance with Wisconsin's Smart Growth law in September, 2000. An 18-month time period was initially established for the completion of the plan. This timeline was modified to a 36 month time period with a beginning date of September, 2000 and end date in the Fall of 2003 to allow

seasonal residents of the Town to stay involved in the planning process. The plan was prepared by the Town Plan Commission with the help of planning subcommittees and approved by the Plan Commission, Town Board, and citizens of the Town of Liberty Grove.

DESCRIPTION OF THE PLANNING AREA

The Town of Liberty Grove consists of approximately 36,331 acres (approximately 57 square miles) and is located in the northern end of Door County. Communities that surround Liberty Grove include the Towns of Baileys Harbor and Gibraltar, and the Villages of Ephraim and Sister Bay; the Town of Washington covers Washington Island to the north across the Port de Morts Strait.

COMMUNITY COMPREHENSIVE PLANNING PROCESS

The planning process was essentially completed in four stages. *Initially*, the Town Plan Committee, with help from Robert E. Lee & Associates, mailed a community wide survey to residents to identify issues and concerns relative to land use and development within the Town.

The *second stage*, inventory and interpretation, began with the collection of data on existing conditions within the community. The data was then analyzed to identify existing and potential problem areas. Using results from the community-wide survey, as well as background data compiled during the inventory stage, the Comprehensive Plan Subcommittees developed goals and objectives. The Plan Commission developed policies and programs for each of the nine elements required in the comprehensive plan.

The *third stage* was the development of the General Plan Design. The first two stages were combined to create a recommended land use plan to guide future conservation, growth and development within the Town over the next twenty years. The preliminary General Plan Design was presented to the citizens of the community for their review and comment. The comments were considered and included in the final General Plan Design map and document.

The *fourth stage* established the tools necessary for implementation of the plan. Recommendations for regulatory techniques including zoning, and an action plan, were established to ensure that the intent of the plan would be achieved.

PLAN CONTENTS

This Comprehensive Plan contains nine chapters that generally correspond to the nine elements required by Section 66.0295 of the Wisconsin Statutes:

- Chapter 1: Issues and Opportunities**, contains the background information on the Town and a statement of overall goals and objectives of the plan;
- Chapter 2: Agricultural, Natural and Cultural Resources**, provides a description of the physical setting and cultural resources of the planning area;
- Chapter 3: Housing and Population**, presents information on the demographics of the Town and on future population, housing and economic growth;

- Chapter 4: Transportation**, presents an inventory of the existing transportation system and an overview of transportation needs;
- Chapter 5: Utility and Community Facilities**, contains an inventory of the Town's community facilities, including schools, recreational opportunities and Town utilities;
- Chapter 6: Economic Development**, contains a development strategy regarding future and existing economic conditions within the Town, including an inventory of the labor force and an analysis of the Town's economic base
- Chapter 7: Intergovernmental Cooperation**, contains objectives, goals and policies for joint planning and decision making with other jurisdictions, including school districts and adjacent local governmental units
- Chapter 8: Land Use**, contains a land use inventory for the Town, a projection of future land use demands, and the General Plan Design for the Town; and,
- Chapter 9: Implementation**, contains a strategy and action plan to ensure implementation efforts move quickly.

SURVEY RESULTS

The Town of Liberty Grove contracted Robert E. Lee Assoc. to conduct a town-wide survey in 1998. The results of the survey showed a broad level of concern and support for preserving open spaces and protecting natural resources. Support was also indicated for developing and implementing local ordinances, acquiring public land and a purchase of development rights program.

PUBLIC PARTICIPATION

A major element of the comprehensive planning process is public participation. Wisconsin's Smart Growth law establishes adoption requirements that create a base level of public participation. At the beginning of the comprehensive planning process, the Planning Committee expanded on these adoption requirements and made additional recommendations to the Town Board that were adopted as "Written Procedures to Foster Public Participation" throughout the comprehensive planning process. A copy of these procedures has been included in Appendix A.

On Saturday, October 21, 2000, 110 citizens of the Town of Liberty Grove, members of the Town Plan Committee and Town Board were involved in a Nominal Group Process in order to produce a list of issues and concerns regarding future development in the Town of Liberty Grove. The Nominal Group workshop was held near the beginning of the planning process to identify issues of importance to the residents of the Town as well as to verify the results of the 1998 survey. The list was important to the planning process as it was used in formulating goals and objectives for the Town of Liberty Grove Land Use Plan. In addition, the issues identified were used as a checklist to ensure that they were addressed within the plan, and discussed by the Planning Committee during the planning and research phase. The results of the Nominal Group process are included in Appendix B.

Four subcommittees were created based on the results of the Nominal Group and the level of interest in the planning process. Each subcommittee was given the task of identifying goals and objectives for each of the issues identified under an element of the plan. The subcommittees addressed goals and objectives for:

- 1) Transportation,
- 2) Land Use and Natural & Cultural Resources,
- 3) Utilities and Community Facilities, and,
- 4) Housing and Economics.

The work of these committees has been integrated into the plan under each element.

VISION STATEMENT

The Town conducted a visioning workshop in January 2001 to help define a vision for this plan. The initial workshop identified the aspects of the vision that were important to residents of the Town. The Planning Committee then reviewed and edited the vision statement to come up with the following:

The Town of Liberty Grove is a diverse, progressive, community with management standards based on the Town's Comprehensive Plan fostering employment opportunities, environmental quality, and a rural atmosphere with scenic beauty and abundant natural resources.

SUMMARY OF PLAN GOALS

The following is a list of the overall goal for each element of the comprehensive plan. A detailed list of the goals, objectives, policies and programs for each element is included in each chapter.

Goal: Agricultural Resources

Provide for the protection of the existing agricultural lands and to preserve the natural and rural character of the Town.

Objectives:

1. Encourage protection of existing agricultural land uses
2. Encourage expansion of agricultural land uses
3. Encourage the use of sound agricultural and soil conservation methods to minimize soil erosion and groundwater contamination

Goal: Natural Resources

Identify, protect, and preserve the Town's significant natural, scenic, and open space areas for enjoyment by its residents and visitors for present and future generations.

Objectives:

1. Maintain and improve the quality of ground water and surface waters within the confines of the Town
2. Preserve wetlands

3. Maintain the natural beauty and integrity of the Lake Michigan and Green Bay shorelines as seen from land and water while providing for public use and access
4. Preserve and protect the unique geological features that exist in the Town
5. Discourage artificial light pollution, while preserving the safety of the residents of the Town
6. Encourage provision of natural corridors for species exchange between major environmental land holdings
7. Provide potential sources of infrastructure materials for future development (i.e. sand, gravel, stone, etc.) within the Town
8. Encourage the sound management and preservation of the Town's forested areas

Goal: Historic And Cultural Resources

Encourage the preservation of the historical, cultural, and archaeological resources that are symbolic of the Town and its residents, both past and present.

Objective:

Encourage the identification and preservation areas of historic, cultural, and archaeological significance to the Town

Goal: Housing

Provide Affordable Housing.

Objectives:

1. Encourage overall atmosphere and policies for affordable housing
2. Encourage policies for seasonal employee housing
3. Encourage continued use and re-use of existing housing stock

Goal: Development

Manage, through planning, high-density development to preserve rural, open, and natural character of the Town of Liberty Grove.

Objectives:

1. Manage, through planning, development of multi-unit housing
2. Minimize environmental impact of multi-unit housing
3. Minimize visual impact of multi-unit housing
4. Minimize social impact of multi-unit housing

Goal: Rural Character

Retain natural and rural character of Town, while providing sufficient land area for development of residential needs to meet population projections for the next 20 years.

Objective:

Ensure that all growth and development occurs in a planned and coordinated manner that will maintain or improve the quality of life associated with the rural character of the Town for both existing and future residents

Goal: Transportation

Establish a safe and efficient transportation system for motor vehicles, pedestrians, and bicycles that is compatible with the Town's adopted Year 2020 Comprehensive Plan.

Objectives:

1. Develop a transportation system, which minimizes the impact on the geographical character of the land and yet efficiently provides for all modes of transportation
2. Assure that safety issues are addressed for all transportation modes
3. Provide a safe system of bicycle, walking and motorized recreational vehicle paths and trails
4. Plan for and designate future road rights-of-way within the Town as needed
5. Explore the need for additional public transportation options

Vision statement:

To balance the need for Town growth with the cost of providing public and private utilities and community facilities

Goal: Water Resources

Preserve clean water, establish programs to monitor on-site treatment systems, and plan for cost-effective treatment of waste as growth occurs.

Objectives:

1. Provide for orderly development of safe water and sanitary sewer systems
2. Promote adequate and redundant power transmission facilities to accommodate future growth in the Town and explore alternative energy sources
3. Establish a solid waste disposal plan for future growth that will be cost effective, efficient and environmentally sound
4. Provide for future growth and for redundancy of telecommunications

Goal: Town Facilities

Continue to supply accessible and adequate Town facilities that will meet the needs of a growing community.

Objectives:

1. Expand the Town facilities, as needed and within budget restraints, to enhance efficient administrative and service functions
2. Continue to operate a park system that provides recreational and open space with safe, passive and active opportunities for residents and visitors
3. Encourage the concentration of waterfront recreational facilities to where such uses currently exist or where future development is practicable to mitigate environmental impacts
4. To provide adequate police, fire, and emergency medical protection for all citizens of and visitors to the Town of Liberty Grove
5. To provide adequate burial locations for Liberty Grove residents and property owners

Goal: Economic Development

Achieve economic stability by maintaining and enhancing our present diversity of commercial, agricultural, professional, service, construction and tourism related uses while simultaneously working to attract new economic development.

Objectives:

1. Focus on enhancing the number and value of wage earner positions in order to expand overall community resources
2. Remain sensitive to the aesthetic and image appeal of shoreline in the Town of Liberty Grove, while considering the need for economic use of the shoreline to enhance the Town of Liberty Grove's economy
3. Seek to maintain and build a skilled labor force. Attract required labor by providing information on appropriate training
4. Emphasize business retention as a key economic development strategy in job and community wealth growth. Explore the expansion of technological, consultation and information based business opportunities in the Town of Liberty Grove

Goal: Property Tax

Work to mitigate property tax impact of businesses

Objectives:

1. Work independently and intergovernmentally to cause legislative change and to formulate policies to reduce property taxes
2. Obtain an equitable return of tax revenue and services to Liberty Grove

Goal: Intergovernmental Cooperation

Promote cooperation between the Town of Liberty Grove and any other governmental agency that makes decisions impacting the Town.

Objectives:

1. Work with neighboring communities to discuss any unique natural features and other land uses which span municipal boundaries
2. Explore the possibility of sharing municipal services, facilities, and programs with neighboring municipalities
3. Work with surrounding municipalities to address possible boundary issues to minimize conflict

Goal: Land Use

Promote future development that will meet the needs of the Town while protecting and enhancing its visual character. This includes promoting environmental protection, conserving natural resources, meeting the needs of social and economic forces, providing for adequate services and facilities, and ensuring compatibility of future land uses.

Objectives:

1. Ensure that all growth and development occurs in a planned and coordinated manner that will maintain or improve the quality of life associated with the rural character of the Town for both existing and future residents
2. Encourage ground water protection within the Town
3. Encourage preservation of water resources, unique open spaces, and other cultural and natural resources while considering the future integration of existing natural areas (contiguous woodlands, meadows, open spaces, marshes, wetlands, etc.) into site designs creating environmental corridors throughout the Town for wildlife habitat and/or pedestrian linkages

4. Encourage the promotion of policies that assist the development of affordable year round housing
5. Encourage harmonious and well-planned commercial development that will serve the needs for the town and area residents, as well as the STH 42 and STH 57 corridors.
6. Provide for additional light industrial zoning
7. Encourage increasing the acreage that is protected from development by public ownership, environmental trust ownership, private conservation easements or other appropriate mean
8. To meet the needs of projected population growth, while retaining the stability and integrity of existing open space areas, encourage new higher density residential development in and around the present population centers
9. Continue to provide public services throughout the planning period in order to reach the desired vision of this plan regarding future land use development

BACKGROUND INFORMATION SUMMARY

The following summary includes information regarding population and employment forecasts, as well as demographic trends, age distribution, education levels, income levels and employment characteristics that exist within the Town.

Existing Conditions

Demographic Trends

The population of Liberty Grove declined during most of the twentieth century until 1980 (see Table 1.1). Communities within the County have shown growth as high as 38.8 percent in the decades since 1900. While the Towns of Liberty Grove and Baileys Harbor, the Village of Sister Bay and the County all saw significant growth in the decade from 1970 to 1980, only Sister Bay and Liberty Grove saw growth in the period from 1980 to 1990. All the communities saw significant growth from 1990 to 2000, though Door County's growth was at a slower rate.

Table 1.1: Population Trends, 1900-2000, Town of Liberty Grove & Selected Areas

Year	Town of Liberty Grove		Town of Baileys Harbor		Village of Sister Bay		Door County	
	No.	Annual Change	No.	Annual Change	No.	Annual Change	No.	Annual Change
1900	1,550		645		NA		17,583	
1910	1,529	-1.4%	628	-2.6%	NA	NA	18,711	6.4%
1920	1,410	-7.8%	679	8.1%	190	NA	19,073	1.9%
1930	1,275	-9.6%	641	-5.6%	238	25.3%	18,182	-4.7%
1940	1,358	6.5%	677	5.6%	309	29.8%	19,095	5.0%
1950	1,332	-1.9%	715	5.6%	429	38.8%	20,870	9.3%
1960	1,190	-10.7%	654	-8.5%	520	21.2%	20,685	-0.9%
1970	1,174	-1.3%	615	-6.0%	483	-7.1%	20,106	-2.8%
1980	1,313	11.8%	799	29.9%	564	16.8%	25,029	24.5%
1990	1,506	14.7%	780	-2.4%	675	19.7%	25,690	2.6%
2000	1,858	23.4%	1,003	28.6%	886	31.3%	27,961	8.8%

Source: Population Characteristics of the Bay-Lake Region, Bay-Lake Regional Planning Commission, August, 1993; General Population Characteristics 1840-1970, Bay-Lake Regional Planning Commission, December, 1975 and 2002.

Age Distribution

The age distribution within Liberty Grove's population is consistent with trends found at the county and state levels (see Table 1.2), with one notable exception: more than 24 percent of the population of Liberty Grove was over the age of 65 in 2000, a significantly higher percentage than found in state statistics. Due to the aging of the baby-boomer population, older population segments are expected to continue to increase.

Table 1.2: Population by Age Groups & Sex, 2000, Town of Liberty Grove & Selected Areas

Age Groups	Town of Liberty Grove				Door County Percent	Wisconsin Percent
	Male	Female	Total	Percent		
School Age						
5-11	77	60	137	7.4%	8.9%	10.1%
12-14	43	33	76	4.1%	4.2%	4.5%
15-17	28	38	66	3.6%	4.4%	4.5%
Working & Voting Age						
16+	730	824	1,554	83.6%	80.8%	77.5%
16-64	526	574	1,100	59.2%	62.1%	64.4%
18+	712	799	1,511	81.3%	77.9%	74.5%
18-64	520	563	1,083	58.3%	59.2%	61.4%
Retirement Age						
65+	204	250	454	24.4%	18.7%	13.1%
Total	897	961	1,858			

Source: U.S. Bureau of the Census, 2000 Census of Population and Housing, SF-1; and Bay-Lake Regional Planning Commission, 2002.

Education Levels

The level of education that is attained by the population of a community will often be an indicator of the type of jobs in the area and the standard of living. In 2000, the greatest percentage of persons age 25 and over in Liberty Grove had achieved the High School or equivalent attainment level (see Table 1.3); however, the percentage of people with some college or a college degree was over 48 percent.

Table 1.3: Educational Attainment for Persons 25 Years and Over, 2000, Town of Liberty Grove & Selected Areas, by Percent

Level of Attainment	Town of Liberty Grove	Town of Baileys Harbor	Village of Sister Bay	Door County	State of Wisconsin
Less than 9th Grade	2.3%	3.0%	7.0%	4.6%	5.4%
9th to 12th Grade, No Diploma	6.0%	5.3%	5.5%	7.6%	9.6%
High School Diploma or Eq.	26.9%	30.4%	34.2%	38.6%	34.6%
Some College, no Degree	23.7%	24.4%	19.3%	21.2%	20.6%
Associate Degree	5.1%	6.7%	3.6%	6.6%	7.5%
Bachelor Degree	24.6%	19.8%	20.9%	14.6%	15.3%
Graduate or Professional Degree	11.2%	10.3%	9.6%	6.8%	7.2%
Total Persons 25 Years and Over	100.0%	100.0%	100.0%	100.0%	100.0%

Source: Wisconsin Department of Administration, Demographic Services, June 1992; and Bay-Lake Regional Planning Commission, 2002.

Income Levels

In 2000, the median income in the Town of Liberty Grove was \$43,472. In 1997, Door County had a per capita personal income (PCPI) of \$16,602 according to the Bureau of Economic Analysis. This PCPI, for the County, ranked 64th in the State, and was 69 percent

of the State average, and 66 percent of the national average. This was a 3.2 percent increase from 1996.

Employment Characteristics

In 2000, the civilian labor force for Liberty Grove was 851, with an unemployment rate of 5.2 percent. For Door County, the unemployment rate has been steadily declining while the total number of people in the workforce has been increasing (see Table 1.4). However, in the past year the county experienced a decline in the total workforce.

Table 1.4: Civilian Labor Force, 1990-2001, Door County

Year	Total Force	Unemployed		Employed
		Number	Percent	
1990	14,742	995	6.7%	13,747
1991	14,419	1120	7.8%	13,299
1992	14,665	1142	7.8%	13,523
1993	14,498	1226	8.5%	13,272
1994	14,837	1412	9.5%	13,425
1995	14,847	1002	6.7%	13,845
1996	15,599	971	6.2%	14,628
1997	15,717	948	6.0%	14,769
1998	15,665	821	5.2%	14,844
1999	15,107	662	4.4%	14,445
2000	15,483	706	4.6%	14,777
2001	16,132	833	5.2%	15,299

Source: Wisconsin Department of Industry, Labor and Human Relations, Civilian Labor Force Estimates, for years cited; and Bay-Lake Regional Planning Commission, 2002.

In 2000, the majority of people in the workforce in Liberty Grove, Baileys Harbor and Sister Bay were employed by the arts, entertainment, recreation, accommodation and food service industry (see Table 1.5), while the manufacturing industry employed the most people countywide. The retail trade industry was the second highest employer for Liberty Grove at 15.5 percent, followed by the construction industry with 14.7 percent of total employment for 2000.

Table 1.5: Employment, 2000, Town of Liberty Grove & Selected Areas

Industry	Liberty Grove		Baileys Harbor		Sister Bay		Door County	
	Number	% of Total	Number	% of Total	Number	% of Total	Number	% of Total
Agriculture, forestry, fishing and hunting, and mining	32	3.8%	14	2.7%	2	0.6%	625	4.5%
Construction	125	14.7%	82	15.7%	27	8.6%	1,392	10.0%
Manufacturing	35	4.1%	44	8.4%	18	5.7%	2,607	18.8%
Wholesale trade	9	1.1%	5	1.0%	2	0.6%	200	1.4%
Retail trade	132	15.5%	81	15.5%	71	22.6%	1,881	13.5%
Transportation, warehousing, utilities	12	1.4%	9	1.7%	3	1.0%	388	2.8%
Information	10	1.2%	8	1.5%	0	0.0%	198	1.4%
Finance, Insurance, real estate, and rental and leasing	71	8.3%	28	5.4%	24	7.6%	717	5.2%
Professional, scientific, mngmnt, admin, waste mngmnt	64	7.5%	27	5.2%	8	2.5%	865	6.2%
Educational, health, social services	115	13.5%	83	15.9%	23	7.3%	2,096	15.1%
Arts, entertainment, recreation, accommodation, food	194	22.8%	106	20.3%	112	35.7%	1,919	13.8%
Other services (except public administration)	36	4.2%	29	5.6%	14	4.5%	572	4.1%
Public administration	16	1.9%	6	1.1%	10	3.2%	441	3.2%
Total	851	100.0%	522	100.0%	314	100.0%	13,901	100.0%

Source: 2000 Census of Population and Housing SF3, General Profiles; and Bay-Lake Regional Planning Commission, 2002.

FORECASTS

Population

A “Low Growth” projection was created from the share-of-the-county methodology. According to Commission forecast, the projected 2005 population for Liberty Grove will be 2,009 persons. The projected 2010 population is 2,083 persons, the projected year 2015 population is 2,145, and the 2020 projected population is 2,179 persons. The projected 2020 population is a 17.3 percent increase from the actual 2000 population. It should be noted that small changes in the community or the region in the future might cause significant changes to these projections.

A “High Growth” projection was developed by using the 1970, 1980, 1990 and 2000 Census figures and creating a growth trend series to the year 2020. This method identified a projected year 2005 population of 1,941 persons, a projected year 2010 population of 2,104 persons, a projected 2015 population of 2,136, and a projected year 2020 population of 2,448. According to this “High Growth” projection, the Town of Liberty Grove’s 2000 population will increase by 31.8 percent by the year 2020.

Housing

Using the census housing counts from 1970 to 2000, a trend was created to the year 2020. This created a housing unit projection, which indicated that by 2020 the Town of Liberty Grove would have 1,128 total housing units or an increase of 304 housing units (Figure 3.4).

By using the High and Low population projections to 2020 and the projected Persons Per Household number to 2020, one can predict another range in the number of new housing units needed by 2020. The High population projection of 2,448 persons (with a persons per household projection of 2.24) would equal a new housing demand of 674 units. The Low population projection of 2,179 people would still mean that an additional 257 housing units would be needed for the permanent residents.

Employment

In 1996, the Wisconsin Department of Workforce Development created projections for industries, occupations, and the labor force called the *Northeast Wisconsin Projections: 1992-2005*. These projections are for all of Northeast Wisconsin, including Door County. The study concluded that overall employment is expected to increase by more than 20 percent in the region. Unemployment rates will remain low through 2005, and labor shortages may be common in some occupations.

In 2005, the manufacturing industry is projected to continue to be the industry with the largest share of employment. However, although manufacturing jobs will continue to increase, the rate of increase will slow down. Occupations in manufacturing are expected to move away from general labor positions to more semi-skilled and skilled operator and technician jobs. This is due primarily to production processes that are more efficient and new available technology.

Service industry employers will add approximately 18,400 jobs to the region's labor market by 2005. The largest divisions within this industry group will be business and health services with a similar growth in professional or technical jobs. With the aging of the population, the demand for such services will continue to increase. The overall health of the Northeast Wisconsin economy is projected to be strong with no major projected decreases in any occupation or industry.

Annual earnings in Door County are typically less than they are for similar jobs in other parts of Wisconsin. In addition, the seasonality of many Door County industries, especially tourism, means annual incomes often have to be earned in six months or less. Consequently, hourly wages that are above average still produce a below average annual earned income. In order for Door County businesses to compete globally, they may not have the option to simply raise wage rates without becoming price-uncompetitive.

Door County is experiencing an atypical relationship between wage rates and housing costs. Often areas that have low wage rates will have low housing costs. Unfortunately, that is not the case in Door County, which has lower than average wages and higher than average housing costs. The housing issue is closely linked to the labor shortage problem because if new employees are indeed attracted to the area, they may be unable to afford housing.

Chapter 2 - AGRICULTURAL, NATURAL & CULTURAL RESOURCES

INTRODUCTION

The Town of Liberty Grove is located at the northern end of the Door County Peninsula. State Highways 42 and 57 provide access to the Town of Liberty Grove from the City of Sturgeon Bay which is located approximately twenty-seven miles south (Map 2.1).

Historically, the Town has derived much of its revenue from cordwood sales, farming, fishing, and tourism. Presently, the Town serves as an important recreational and residential center for northern Door County.

The Liberty Grove planning area, delineated on Map 2.2, contains a variety of natural resources. The natural resource base of the planning area is the primary determinant of its development potential and ability to provide a pleasant and habitable environment. The principal elements of the natural resource base are climate, topography, geology, soils, and natural areas, including woodlands, wetlands, and water resources. Knowledge and recognition of these elements and their interrelationships is essential. Alteration and human use of the natural environment must not place slowly renewable, or nonrenewable, resources at risk. Such usage can incur the additional hazard of major public expenditures.

SUMMARY AND IMPLICATIONS

The Town of Liberty Grove is a mix of agricultural and open space lands with its most productive agricultural lands being in the center of the Town. The Town has many natural amenities including Europe Lake, Mink River, Bay of Green Bay and Lake Michigan, woodlands, approximately 5,480 acres of wetlands, and numerous historic and archeological sites. The Town also has features that enhance the quality of life for residents of the Town and State including water access and public recreational facilities. The Town relies on groundwater sources to provide its residents with safe drinkable water. Due to the shallow soils and fractured bedrock, land uses within the Town continue to pose a threat to the groundwater. The Town's parks and undeveloped areas provide ample room for a variety of both threatened and endangered plant and animal species.

The natural resources of the Town will need to be monitored and, in some cases protected, in order to preserve them for future generations. As growth pressures begin to climb, the Town will need to consider future impacts on these resources against any proposed future gains. Community "character" will be of importance as well. Preserving/promoting a sense of place is key for all communities. Protecting entryways into the Town as well as considering the visual impacts along transportation corridors will greatly assist the Town in reaching its vision. The Town will need to work closely with businesses and the County in order to best manage these high profile locations.

RESOURCES STRATEGY

The following Goals, Objectives, Policies, and Programs will help guide the Town in protecting and utilizing the natural resources within the Town. The following statements are a

compilation of broad and specific statements reflecting many popular attitudes and beliefs of Town residents, communities adjacent to the Town, and State agencies.

Goal: Agricultural Resources

To provide for the protection of the existing agricultural lands and to preserve the natural and rural character of the Town.

Objectives:

1. Encourage protection of existing agricultural land uses

Policies:

- A. Assist agricultural use landowners in protecting their land from development by directing them to the appropriate governmental or private agency/organization
- B. When practicable, classify existing agricultural use land as Natural Area or Agricultural/Woodland/Open Space as identified in the General Plan Design

2. Encourage expansion of agricultural land uses.

Policy:

When practicable classify prime agricultural land as designated by the soil survey of Door County as Natural Area or Agricultural/Woodland/Open Space as identified in the General Plan Design

3. Encourage the use of sound agricultural and soil conservation methods to minimize soil erosion and groundwater contamination.

Policies:

- A. Cooperate with governmental agencies and Door County Soil and Water Conservation Department to promote soil conservation and erosion control
- B. Cooperate with governmental agencies and Door County Soil and Water Conservation Department to prevent groundwater contamination

Goal: Natural Resources

To identify, protect, and preserve the Town's significant natural, scenic, and open space areas for enjoyment by its residents and visitors for present and future generations.

Objectives:

1. Maintain and improve the quality of ground water and surface waters within the confines of the Town.

Policies:

- A. Cooperate with governmental agencies to prevent groundwater contamination
- B. Create an ad-hoc committee to consider planning for a sanitary sewer and potable water system
- C. Encourage citizens to have their well water tested on an annual basis to protect the health and safety of the citizens and visitors of the Town

2. Preserve wetlands.

Policy:

Protect all wetlands within the Town by establishing buffers to control development on the recharge areas of the wetlands. Buffer area to be defined as a five hundred (500) foot area contiguous to the sensitive and fragile environmental areas of Europe Lake, the Mink River Estuary, the Three Springs Creek area, and the Mud Lake watershed as defined by the WDNR wetland map. A natural area buffer of one hundred (100) feet for all wetlands within the Town of Liberty Grove that are non-contiguous to Europe Lake, the Mink River Estuary, the Three Springs Creek area, and the Mud Lake watershed as defined by the WDNR wetlands map

3. Maintain the natural beauty and integrity of the Lake Michigan and Green Bay shorelines as seen from land and water while providing for public use and access.

Policies:

- A. Maintain zoning restrictions limiting shoreline vegetation removal
- B. Maintain current shoreline building setbacks as defined by the State of Wisconsin and the Door County Planning Department
- C. Encourage the preservation and protection of the Lake Michigan and Green Bay shoreline without infringing on statutory riparian rights

4. Preserve and protect the unique geological features that exist in the Town.

Policies:

- A. Encourage zoning restrictions that mitigate the visual impact of bluffscape vegetation clearing
- B. Support preservation of natural features, as listed in chapter 5 of the Door County Zoning Ordinance, including but not limited to, escarpments, drumlins, dunes, and rockledges
- C. Cooperate with public and private agencies in determining future uses and purchases of escarpment areas

5. Discourage artificial light pollution, while preserving the safety of the residents of the Town.

Policies:

- A. Encourage down lighting whenever practicable
- B. Encourage the use of low wattage, high efficiency lighting fixtures when practicable
- C. Adopt the practice of replacing obsolete intersection lights with high efficiency down light fixtures

6. Encourage provision of natural corridors for species exchange between major environmental land holdings.

Policies:

- A. Create natural area buffers around wetlands
- B. Create natural area corridors and zones to connect major environmental areas

7. Provide potential sources of infrastructure materials for future development (i.e. sand, gravel, stone, etc.) within the Town.

Policies:

- A. Identify suitable sites for sourcing infrastructure material, i.e., sand, gravel, and stone, and zone accordingly, including adequate buffers around identified areas
 - B. Support Door County enforcement for non-metallic mining reclamation requirements
8. Encourage the sound management and preservation of the Town's forested areas.

Policies:

- A. Refer private landowners, who wish to preserve forested areas, to the appropriate public and private organizations
- B. Encourage responsible tree removal in identified woodland areas
- C. Consider an overlay to address a tree plan for major land divisions in identified woodland areas

Goal: Historic And Cultural Resources

To encourage the preservation of the historical, cultural, and archaeological resources that are symbolic of the Town and its residents, both past and present.

Objective:

Encourage the identification and preservation areas of historic, cultural, and archaeological significance to the Town.

Policies:

- A. Encourage third parties, i.e. historical societies, etc., to preserve historic structures, areas, and cultural resources within the Town
- B. Encourage residents to comply with the State Historical Society's Burial Site Preservation Program

CLIMATE

The climate of Liberty Grove is modified by the Bay of Green Bay and Lake Michigan. The cool waters of the Lake and Bay delay spring, while relatively warm water in fall retards early frost. Summers, on the average, are mild due to the community's proximity to water which moderates daily extremes.

The annual average temperature for Liberty Grove is 42.5 degrees Fahrenheit. January has the lowest average monthly temperature of 16.5 degrees, while July has the highest average temperature of 65.7 degrees. Frost generally leaves by mid-May and reoccurs during the first week of October. The resultant growing season is about 135 days. Ice forms on the Bay of Green Bay in late December and generally covers the Bay by mid-January. During mild winters, the Bay may not freeze completely to the top of the Peninsula. Ice breakup usually occurs in early April.

The average annual heating degrees for the area is 8,427 with July having the lowest average number of heating degree days at 47, while January has the highest with 1,502. A heating

degree day is equal to the difference between the mean daily temperature and 65 degrees Fahrenheit. If the mean daily temperature is greater than 65 degrees, the number of heating degree days is considered to be zero.

The normal annual total precipitation is 28.92 inches. The lowest monthly average of 0.97 inches occurs in February, while the highest of 3.60 inches occurs in June. More than one-half the average annual precipitation falls between May and September. The first half of June and middle of August are likely to receive the heaviest summer rains. The end of August is normally the driest summer period.

GEOLOGY

The Town of Liberty Grove, at the northern end of the Door Peninsula in northeastern Wisconsin, is a narrow, ice-scoured, drift veneered bedrock upland situated between Lake Michigan and Green Bay. Two different types of geologic settings, Quaternary geology and bedrock geology, characterize the Town of Liberty Grove. Quaternary geology refers primarily to the effects that continental glaciation has had on the region and to a lesser extent the surface effects of more recent erosion and deposition. Bedrock geology refers to the solid rock layers that lie beneath Quaternary sediments.

Bedrock Geology

The bedrock units, which underlie the Liberty Grove planning area, range in age from Precambrian at depth to Silurian at the surface. The oldest are impermeable crystalline rock of Precambrian age at depths that average more than 1,500 feet below the land surface. These are overlain by consolidated sedimentary rocks of Cambrian, Ordovician, and Silurian ages. These sedimentary rocks are solidified marine sediments that dip to the southeast towards the center of Michigan at approximately 45 feet per mile.

Silurian dolomite, often referred to as Niagara, is the uppermost bedrock in the Town and is exposed in outcroppings throughout the planning area but primarily along the bluffs near the waters of Green Bay. This dolomite reaches in thickness up to 580 feet.

Rocks underlying the Niagara dolomite are not visible in the Town. Below the Niagara dolomite is a shale formation known as Maquoketa. It reaches a maximum thickness of 450 feet. The Maquoketa Shale overlies a dolomite formation, termed Platteville-Galena, which is approximately 500 feet in thickness. This rock formation, in turn, overlies Cambrian sandstones which are 450 feet thick. All of these sedimentary rock formations overlie Precambrian igneous rocks.

The Silurian or "Niagara" dolomite is perhaps the most notable and influential bedrock unit within the planning area. The rock dips gently to the southeast and is best exposed along the southern shore of Green Bay as a 60 to 90 foot cliff in the Town. This cliff is known as the "Niagara Escarpment". The Niagara dolomite is exposed as low-lying cliffs in some areas of the Town along the western shore of Lake Michigan. The Niagara dolomite in Door County has been subjected to considerable groundwater activity as evidenced by the presence of sinkholes, enlarged joint openings with azimuthal trends of 72 and 155 degrees, cave

systems, and other solution features. Glacial sediments, however, obscure the Niagara dolomite in most of the inland areas of the Town. Because of the dolomite's proximity to the surface, especially in the western portions of the planning area, little agriculture, with the exception of orchard cultivation, is practiced. The Silurian dolomite is also the primary source of groundwater for the planning area.

Glacial Geology

The last glacial ice of Quaternary glaciation, which left the planning area approximately 10,000 years ago, modified the bedrock surface by scouring highlands and depositing this material in lowlands created by pre-glacial erosion. Six types of Quaternary deposits are recognized within the planning area. These include till, glaciofluvial sediments, dune sands, shoreline deposits, organic deposits, and some lacustrine sediment deposited in late-glacial and postglacial lakes. (Map 2.3).

Till or unstratified drift is a mixture of unsorted, angular- to round-shaped sediments ranging in size from clay to boulders. Tills are ice-contact deposits originating directly from glacial ice. The till that covers the bedrock within the planning area is a coarse-grained, yellowish-brown to buff color, dolomite-rich till and is known as the Liberty Grove member of the Horicon Formation (Mickelson and others, 1984).

Unlike till, glaciofluvial sediments are sorted by particle size that delineates the stratification. Glaciofluvial sediments were deposited in a fluvio-glacial environment involving glacial meltwater flow. Each individual layer of glaciofluvial sediments are characterized by a given grain size, ranging from pebbles and cobbles to sand or finer.

Two types of topographic landforms that consist primarily of till are found in the planning area. They are ground moraine and drumlins. Ground moraine is an irregular surface of till, which was deposited by a receding glacier. A drumlin is an elongate, asymmetrical hill consisting of till deposited by an advancing glacier. The steeper slope points in the direction from which the glacier advanced.

At least one type of topographic landform consisting of glaciofluvial sediments occurs in some areas of the planning area. This type of topographic feature is an outwash plain, which is an apron of well-sorted, stratified sand and gravel deposited by glacial meltwater. It may extend for miles beyond the ice front.

Several abandoned shorelines of late-glacial and postglacial phases of Great Lakes are present in the planning area. These abandoned shorelines are recognized by the presence of wave-cut cliffs and terraces, dune ridges, and gravelly beach ridges.

The most prominent ancient shoreline in the area is that of the Nipissing Great Lakes phase, which usually occurs at an elevation of 600-605 feet above sea level. The highest ancient shoreline in the area is that of the Algonquin phase, which occurs at elevations between 620 and 658 feet above sea level.

SOIL CHARACTERISTICS

General Soils Description

Soils are grouped into general soil associations which have similar patterns of relief and drainage. These associations typically consist of one or more major soils and some minor soils. The general character of the soils of the planning area is largely the result of various types of glacial deposits overlying the Silurian dolomite. Within the Town, there are three general soil associations (Map 2.4):

Carbondale-Seelyeville-Markey:

Soils in this association consist of very deep, very poorly drained soils in outwash plains, lake plains, and glacial moraines. The Carbondale series consists of very deep, very poorly drained soils formed in organic deposits more than 51 inches thick on ground moraines, outwash plains, and lake plains. These soils have moderately slow to moderately rapid permeability. Slopes range from 0 to 2 percent. The Seelyeville series consists of very deep, very poorly drained soils that formed in organic materials more than 51 inches thick. These soils are on glacial outwash plains, valley trains, flood plains, glacial lake plains, and glacial moraines. They have moderately rapid to moderately slow permeability. Slopes are 0 to 15 percent. The Markey series consists of very deep, very poorly drained organic soils. They formed in herbaceous organic material 16 to 51 inches thick overlying sandy deposits in depressions on outwash plains, lake plains, flood plains, river terraces, valley trains and moraines. Permeability is moderately slow to moderately rapid in the organic layers and rapid or very rapid in the sandy material. Slopes range from 0 to 2 percent.

Longrie-Summerville-Kolberg:

These soils are shallow to deep, level to moderately steep, well drained, and have a sandy loam or loam subsoil over sandy loam or fine sandy loam till or dolomite bedrock. The Longrie series consists of moderately deep, well-drained soils formed in loamy glacial deposits underlain by limestone bedrock at a depth of 20 to 40 inches on ground moraines, glacial lake benches, and terraces. Permeability is moderate. Slopes range from 0 to 25 percent. The Summerville series consists of shallow, well-drained soils formed in loamy materials overlying limestone on ground moraines, end moraines, and glacial lake benches. Permeability is moderate. Slopes range from 0 to 45 percent. The Kolberg series consists of well-drained soils moderately deep to limestone. These upland soils formed in thin, loamy deposits and the underlying moderately fine or fine textured glacial till. Permeability is moderately slow or slow. Slopes range from 0 to 12 percent.

Rousseau-Wainola-Shawano

The Rousseau series consists of well drained soils formed in sandy eolian deposits on dunes, lake plains, and outwash plains. Permeability is rapid. Slopes range from 0 to 70 percent. The Wainola series consists of deep, somewhat poorly drained soils formed in fine sandy glaciofluvial deposits on outwash plains, lake plains, and glacial lake deltas. Permeability is rapid. Slopes range from 0 to 4 percent. The Shawano series consists of very deep, excessively drained soils formed in sandy outwash or eolian deposits on outwash plains, outwash terraces, lake plains, and moraines. Permeability is rapid. Slopes range from 0 to 35 percent.

On-Site Sewage Disposal Systems

Map 2.5 depicts soil limitations for septic tank absorption fields. These are subsurface systems of tile or perforated pipe that disperse effluent from a septic tank into the natural soil. If the degree of soil limitation is slight, soils are favorable for absorption fields, and limitations are minor and easily overcome. Soils with a moderate rating indicate that soil properties or site features are generally unfavorable for absorption fields, but limitations can be overcome by special planning and design. A severe rating indicates that soil properties or site features are so unfavorable or difficult to overcome that major soil reclamation, special designs, or intensive maintenance are required. Soils that have slight limitations for absorption fields generally are well-drained and have sufficient depth before encountering bedrock or groundwater. They are located primarily in the central areas of the planning area, in a general diagonal band extending from the northeast to southwest boundaries of the planning area. Soils with moderate and severe limitations generally have insufficient depths to bedrock or groundwater, percolate slowly, and are subject to flooding. Soils with moderate limitations are generally scattered throughout the planning area, while soils with severe limitations are encountered extensively within the planning area.

Without consideration of the properties of these soils, 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:

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.

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.

Soil Permeability - Permeability refers to the rate at which water flows through the soil. When passage is too rapid, groundwater can become polluted. If it is too slow, the soils can become saturated and effluent ponding may result.

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, which results in untreated solid and liquid waste being discharged into the ground or surface waters.

Small privately owned on-site wastewater treatment facilities are regulated under chapter COM 83 of the Wisconsin Administrative Code. COM 83 includes performance-based provisions that provide flexibility in design of on-site systems.

Housing and population density are likely to increase due to the revised COM 83 code. This in turn may increase the need for land use planning and integration of environmental corridors to address the adverse impacts related to development. Planning along with land use controls such as zoning will help achieve more efficient development patterns.

Prime Agricultural Lands

According to the *Soil Survey of Door County*, almost 43 percent of the Town's land is classified as prime agriculture land with minimal modifications. These lands are located in the center of the Town, usually away from the shoreline. The Natural Resources Conservation Service identified two classes of prime farmland; those areas where all land is prime farmland (33 percent), and those areas that are considered prime farmland only where drained (nine percent). The rest of the Town is not classified as prime farmland. Map 2.6 shows these areas of prime farmland.

Basements

Over 60 percent of the Town has severe limitations for dwellings with basements. According to the *Soil Survey of Door County*, severe limitations indicate one or more soil properties or site features that are so unfavorable or difficult to overcome that a major increase in construction effort, special design, or intensive maintenance is required. For some soils rated severe, such costly measures may not be feasible. In the Town, the main limitation for dwellings with basements is depth to bedrock or wetness. The areas in the Town that are severe are located along the shoreline and in the wetlands. The rest of the Town is rated either moderate (seven percent) or slight (27 percent). These areas are mostly located in the central part of the Town. Map 2.7 shows these limitations.

TOPOGRAPHY

The attractiveness of the Liberty Grove area is due, in part, to a variety of topographic features. Controlled primarily by the underlying bedrock, these features can be grouped into three general categories of topographic expression. The first of these includes three separate areas with relief in excess of 700 feet above mean sea level. They are located within the extreme southwest portion of the planning area between Sister Bay and Ephraim, the area immediately south of Ellison Bay, and the area within the north central sections of the planning area. The areas are characterized by relatively level tops, similar to plateaus, with steep slopes dipping to the southeast. Many of the steep slopes are near vertical bluffs, especially in the areas immediately adjacent to the waters of Green Bay (Map 2.8). These areas are undoubtedly the most obvious in terms of topographic expression within the Town.

A second group of topographic features includes the eastern and southern portions of the planning area. This large area is characterized by a flat to gently rolling land surface occasionally marked by small depressions. The area slopes gently to the southeast.

The central area of Liberty Grove is located upon the third general relief category. The area consists of a low relatively level plain marked by several depressions. The lowest elevation within the planning area is found within the center of the Town.

WATER RESOURCES

Three Springs Creek and the Mink River drain the planning area. Direction of precipitation runoff is primarily southeasterly towards Lake Michigan for the majority of planning area. Runoff into Green Bay is limited to a narrow zone along the coast.

Watersheds and Sub-Watersheds

The Town of Liberty Grove lies within the Upper Door County watershed. Within this watershed, there are five sub-watersheds. The Lake Michigan watershed covers the eastern half of the Town. The Green Bay watershed covers the western part of the Town, about 20 percent of the study area. Three Springs Creek covers the south central part of the Town, and the Mink River watershed lies in the north central part of the Town. Finally, the Ephraim Creek watershed covers a small portion in the southwest part of Liberty Grove. Map 2.9 shows these sub-watersheds in the Town.

Groundwater

In Wisconsin, the primary sources of groundwater contamination are agricultural activities, municipal landfills, leaky underground storage tanks, abandoned hazardous waste sites, and spills. Septic tanks and land application of wastewater are also sources for possible contamination. The most common ground water contaminant is nitrate-nitrogen, which comes from fertilizers, animal waste storage sites, feedlots, municipal and industrial wastewater, sludge disposal, refuse disposal areas, and leaking septic systems.

Groundwater is derived primarily from the Silurian dolomite aquifer. Well depths range from 60 to 700 feet with yields as high as 1,200 gallons per minute. Water from the Silurian dolomite is a very hard calcium magnesium bicarbonate type with varying concentrations of iron and nitrate. The dolomite has numerous joints and crevices which allow water to move relatively easily through the rock. Pollutants may also enter the groundwater supply via these fractures. The dolomite aquifer is recharged by surface seepage of direct precipitation and snowmelt.

Surface Waters

Surface waters within the planning area include Europe Lake, the Mink River and Three Springs Creek (Map 2.9). The largest surface water resources impacting the planning area are the Bay of Green Bay and Lake Michigan.

Shoreland Corridors

Coastal areas within the study boundaries include the steep dolomite bluffs adjacent to the waters of Green Bay and the wooded wetland areas adjacent to Lake Michigan. There are approximately 45 miles of Great Lakes shoreline within the planning area. This large amount of shoreline makes residential development very attractive.

Floodplains

Floodplains are often viewed as valuable recreational and environmental resources. These areas provide for storm water retention, ground water recharge, and habitat for various kinds of wildlife unique to the water.

Development permitted to take place in these areas is susceptible to storm damage and can have an adverse effect on water quality and wildlife habitat. In addition, it can also result in increased development and maintenance costs such as: providing flood proofing, repairing damage associated with flooding and high water, increased flood insurance premiums,

extensive site preparation, and repairing water related damage to roads, sewers, and water mains. Some communities have special ordinances for remodeling and expanding buildings within the floodplain. New expansions may have to be compliant to the rules of floodplain construction.

As a result, the State of Wisconsin requires that counties, cities, and villages 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. For planning and regulatory purposes, the floodplain is normally defined as those areas, excluding the stream channel, that are subject to inundation by the 100-year recurrence interval flood event. This event has a one percent chance of occurring in any given year. Because of this chance of flooding, development in the floodplain should be discouraged and the development of park and open space in these areas encouraged.

The authority to enact and enforce these types of zoning provisions in counties is set forth in Chapter 59.97 of the Wisconsin Statutes and Wisconsin Administrative Code NR 116. This same authority is also vested to cities and villages in Chapter 62.23 of the Wisconsin Statutes.

The extensive wetland area on the Lake Michigan coast is also subject to flooding. This flood hazard area is located on the southeastern portion of the planning area and is largely undeveloped at the present time (Map 2.10).

Wetlands

According to the Wisconsin Department of Natural Resources, wetlands are areas where water is at, near, or above the land surface long enough to be capable of supporting aquatic or hydrophilic vegetation. Other common names for wetlands are swamps, bogs, or marshes. Wetlands serve as a valuable natural resource. They provide scenic open spaces in both urban and rural areas.

Wetlands act as natural pollution filters, making many lakes, streams and drinking water cleaner. They act as groundwater discharge areas, and retain floodwaters. Finally, they provide valuable and irreplaceable habitat for many plants and animals.

Because of their importance, there are strict regulations regarding wetlands. Wisconsin Administrative Codes NR 115 and NR 117 fall under the jurisdiction of the Wisconsin Department of Natural Resources and mandate that shoreland wetlands be protected in both the rural and urban areas of the state. In the unincorporated areas, NR 115 provides the legislation to protect wetlands of five acres or more that are within the jurisdiction of county shoreland zoning ordinances. Wetlands not in the shoreland zone are protected from development by the federal government and the WDNR through Section 404 of the Clean Water Act and NR 103 and NR 350, respectively.

Wetlands within the planning boundaries include an extensive area along the eastern and southern boundaries. The major wetland area within the planning area includes an extensive wetland which extends from North Bay north along the Lake Michigan coast to the Rowleys Bay area. This wetland is part of a major series of Lake Michigan coastal wetlands, which also extend south to Baileys Harbor.

Within the Town, there are approximately 5,480 acres of wetlands. Map 2.11 shows the WDNR inventoried wetlands greater than two acres. It should be noted that all wetlands, no matter how small, are subject to WDNR and possible federal regulations if they meet the state definition.

FORESTS AND WOODLANDS

Woodlands in the Town are comprised primarily of sugar maple, yellow birch, American beech, basswood, red oak and red pine in northern Liberty Grove. Sugar maple, paper birch, aspen and white cedar are predominant in the area from Europe Lake to Newport State Park, with the northern hardwood species again predominant in the park. The forested area adjacent to Lake Michigan in the Mink River area and Three Springs Creek area are composed of balsam, tamarack, white cedar, white oak and red maple with smaller stands of pine. The western and central portions of the Town are composed of smaller stands of the northern hardwood species. The western and northern edges of the Town, along the shores of Green Bay, are dominated by white cedar. These woodlands provide an aesthetic and natural purpose, providing habitat to many animals. Map 2.12 shows the woodlands, both upland and lowland, within the Town.

AIR QUALITY ISSUES

Door County is in a non-attainment zone for the ozone air quality standard. An area is designated as non-attainment when it does not meet the minimum standards for air quality (NAAQS) set by the Environmental Protection Agency (EPA). The clean air act classification is marginal which is derived from the pollutant concentration (in parts per million) recorded by air quality monitoring devices. Newport State Park is a monitoring station that records such data.

Door County is classified as a rural transport area. This means that industries in other cities impact the air quality in Door County. According to the EPA, it was recently found that ozone formed in one area can drift on air currents to add to air quality problems elsewhere.

The air contaminants in Door County are purported to originate principally in the industrial and metropolitan areas at the southern end of Lake Michigan and are carried by wind currents up the shore of the lake. Research shows that this "transported ozone" contributes significantly to high ozone levels in Wisconsin. Facilities wishing to move into the Town may be subject to additional requirements because Door County is designated as a non-attainment area.

WILDLIFE HABITAT

All large remaining wooded and wetland areas within the planning boundaries have been designated as Class I (most desirable) wildlife habitats by the Wisconsin Department of Natural Resources. The areas include:

The Lake Michigan coastal shoreline, including both the Three Springs Creek and Mink River areas, and the coastal shoreline adjacent to Green Bay are designated Class I wildlife areas. Scattered throughout the central portion of the planning area are remnant wildlife areas of Class I, II and III values. See Appendix C for definitions of classes for fish and wildlife habitats.

Major wildlife species using these habitats include songbirds, deer, ruffed grouse, and squirrels. Other common species include snowshoe hare, coyote, gray fox, raccoon, red fox, skunk, turkey, and porcupine. Black bears have also been reported in this part of Door County. Muskrat, mink, beaver, and otter have been identified in the wetland area. Several species of gulls, terns, geese, and ducks inhabit the area. Some of the old fields, depicted on the map as desirable habitat, provide habitat for pheasants.

In addition, the planning area lies within an important migratory corridor for songbirds, shorebirds, cranes, waterfowl, and raptors. These birds, possibly including some threatened or endangered species, use the wooded and wetland areas for food and rest.

The variety of habitat types within the planning area is a key to the number of species found in the area. The high bluff shoreline woodlands, the wetlands, the grassy fields, and inland woodlands are each important to certain species.

The Wisconsin Department of Natural Resources has also designated the waters of Green Bay, which border the planning area as desirable fish habitat. Fish species include, but are not limited to, small mouth bass, yellow perch, northern pike, rock bass, rainbow trout, lake trout, and brown trout and whitefish.

THREATENED AND ENDANGERED SPECIES

Door County has many rare, threatened, and endangered species. Exact locations of these species are not published, but care should be taken before development occurs to not disturb potential habitats for these flora and fauna. Appendix D lists all the rare, threatened, and endangered species and natural communities in Door County identified in the Wisconsin DNR Natural Heritage Inventory.

PARKS AND OPEN SPACES

Outdoor recreation facilities are important features of community life. Interest in providing good recreational facilities in the Town of Liberty Grove has been generated as the community experiences increasing needs for improvements to their recreation areas. The Town of Liberty Grove is well aware of the need to have an organized plan for recreation improvement and development to meet the demands of both the resident and nonresident population using the recreation facilities in the area.

The following parks located in the Town of Liberty Grove were identified in the 1979-1984 Door County plan inventory and the *1988 Town of Liberty Grove Comprehensive Plan*, and have been updated with information provided by Town of Liberty Grove officials (Map 2.13).

Town Parks

1. Porte des Morts Town Park 1.2 Acres
Facilities -- Toilets (portable); two picnic tables; one grill
Features of note -- excellent view of Washington Island and Plum Island; not well marked

2. Wisconsin Bay State Park 0.5 Acres
Facilities -- Undeveloped; parking along road for two cars
Features of note -- Poorly marked; no toilets; no beach; good view toward Washington Island

3. Gills Rock Memorial Park 10.53 Acres
Facilities -- Playground equipment; flush toilets; picnic shelter; four picnic tables; grass play area
Features of note -- Centrally located in Gills Rock (adjacent to the Maritime Museum); marked; expansive area

4. Fitzgerald Park (Old School Site) 7.75 Acres
Facilities -- Ball diamond; skating area; picnic shelter; maintenance building and warming house; playground equipment; two picnic tables; two basketball hoops; portable toilet facilities

5. Wills Park and Marina 1.52 Acres
Facilities -- Portable toilets; 22 boat slips w/electricity; one boat ramp; and parking
Features of note -- Dockage; centrally located in Ellison Bay

6. Europe Bay Town Park 3.0 Acres
Facilities -- Three picnic tables; toilets (pump out); excellent sand beach; six grills; parking
Features of note -- Not well marked; surrounded by Newport State Park; pleasant "off the beaten path" facility features a good location for a multi-use community park, including picnic areas and educational/cultural activity areas

7. Ellison Bay Community Center (Women's Club) 3.0 Acres
Facilities -- Seven picnic tables; two swimming beaches separated by a dock/break-water (one beach very sandy); four grills; maintained grass field; informational marker; flush toilets; meeting house (rental available); two tennis courts and playground equipment; two horseshoe pits and gazebo
Features of note -- Lawn games possible; pleasant setting; parking area provided; ideal for large group gatherings