

WHITEHALL TOWNSHIP

LAND USE PLAN

2004

Prepared by the Whitehall Township Planning Commission in conjunction with the West Michigan Shoreline Regional Development Commission.

WEST MICHIGAN SHORELINE REGIONAL DEVELOPMENT COMMISSION (WMSRDC)

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TABLE OF CONTENTS

Chapter 1

Section A	Executive Summary	1
Section B	The Purpose of the Plan	3
Section C	Plan Formulation	5
Section D	The Plan's Relationship with Zoning.....	6
Section E	The Planning Process	7

Chapter 2 **Community Profile**..... 8

A.	Geographic Context.....	8
B.	Transportation.....	8
C.	History.....	9
D.	Natural Resources and Features	10
i.	Topography.....	10
ii.	Water Features.....	10
a.	Wetlands.....	11
b.	Groundwater.....	11
iii.	Soils	12
a.	Soil Maps.....	13
b.	Septic Suitability.....	14
c.	Erosion.....	17
d.	Flooding.....	17
e.	Groundwater Resources and Protection.....	18
E.	Population Characteristics.....	20
i.	Population Trends and Projections.....	20
ii.	Age Distribution.....	21
F.	Housing Characteristics	24
G.	Township Government	27
H.	Recreation Facilities, and Public Open Spaces.....	28
I.	Current Land Use/Cover	28
J.	Zoning in the Township of Whitehall.....	29

Chapter 3 **Goals, Objectives, and Implementation Strategies**..... 31

A.	Preservation of Natural Features.....	32
B.	Township Economic Growth.....	33
C.	Parks, Recreation and Community Center.....	34
D.	Planning, Zoning and Growth Management.....	35
E.	Adequate Infrastructure/Community Protection.....	36
F.	Regional/Jurisdictional Cooperation	38
G.	Housing, Neighborhoods and Community	39
H.	Government and Finance.....	40

Chapter 4	Whitehall Township Development Concepts	41
	A. Basic Assumptions.....	41
	B. Growth Management	41
	C. Settlement Patterns.....	42
Chapter 5	Recommended Future Land Use Districts	43
	A. Future Land Use Categories.....	44
	B. General Implementation Tools and Techniques	45
	i. Zoning Ordinance	45
Chapter 6	Recommendations	47
	A. Natural Resources	47
	B. Open Space and Small Farm.....	47
	C. Economic Development	47
	D. Housing	48
	E. Public Facilities and Services	48
Chapter 7	Conclusion	49
	Bibliography	51
	Future Land Use Map	53
	Zoning Map	54
	Appendix A (Public Viewing Notice)	55
	Appendix B (Public Hearing Notice)	56
	Appendix C (Minutes from Planning Commission Public Hearing)	57
	Appendix D (Minutes from Township meeting for adoption of Plan).....	58
	Appendix E (Whitehall Township Recreation Plan).....	60

ILLUSTRATIONS

TABLES

Table 1 - Whitehall Township Limitations of Soils for Residential, Industrial, and Related Non-Farm Uses.....	16
Table 2 - Degree of Limitations Affecting Use.....	16
Table 3 - Whitehall Township Building Permits Issues	26
Table 4 - Whitehall Township General Operating Fund Budget	27

FIGURES

Figure 1 – Whitehall Township Population Projections.....	20
Figure 2 – Whitehall Township Age Distribution	22

GRAPHS

Graph 1 - Population Increase.....	21
Graph 2 - Breakdown of Age.....	23
Graph 3 - Whitehall Township Housing Stock.....	24
Graph 4 - Breakdown of Housing Values.....	26

Chapter 1

Section A

Executive Summary

This document, the Whitehall Township Comprehensive Land Use Plan, is intended to serve as a guide for future Township actions and decisions pertaining to land use throughout its jurisdictional boundaries. **Its function is to guide growth using long-range goals and objectives and to generally indicate the location of land uses.** This plan represents the commitment of Whitehall Township to retain and strengthen the local quality of life. This Plan has provided opportunities for all citizens to play a key role in determining their community's future by incorporating their recommendations and comments. This plan should be considered as the foundation for the regulations contained in the zoning ordinance. It is recommended that the comprehensive plan be reviewed annually and updated accordingly. It is also recommended that the current set of zoning ordinances is reviewed and amended as the situation warrants and as deemed appropriate.

The fundamental purpose of the Plan is to enable Whitehall Township to establish a future direction for the community's physical development. Through a thorough planning process, Whitehall Township believes that it will be better prepared to proactively respond to changes and challenges through means in its best interest. The Plan shall serve as a *guide* for the amendment of applicable Township ordinances governing land use.

This plan is enabled by Michigan law, but does not carry the power of statutory law or ordinance. Its principles are derived from the Township Planning Act (Public Act 168 of 1959), which states, in part, that:

Section 2. The purpose of plans prepared pursuant to this act shall be to promote public health, safety, and general welfare; to encourage the use of resources in accordance with their character and adaptability; to avoid the overcrowding of land by buildings or people; to lessen congestion on public roads and streets; to facilitate provision for a system of transportation, sewage disposal, safe and adequate water supply, recreation and other public improvements; and to consider the character of each township and its suitability for particular uses judged in terms of such factors as the trend in land and population development.

Section 3. (125.326). The township board of any township may create, by resolution, a township planning commission with power to make, adopt, extend, add to or otherwise amend, and to carry out plans for the unincorporated portions of the township as provided in this act.

Once amended, adopted, and maintained, this Comprehensive Plan will serve as an *advisory guide* for the physical conservation of certain areas and for the development of others.

The decisions and actions of a community must be made with the knowledge that their affect will be felt beyond the community's immediate boundaries. When making land use decisions, it is not difficult to focus decisions around individuals and current situations. However, it is imperative that decisions be based upon the community's vision for the future. This will ensure that the decisions made will consider the impact on the Township in its entirety for years to come. This plan is a comprehensive and continuing process, the purpose of which is to help public and private decision makers, in Whitehall Township, arrive at decisions which promote the common good of society. This document outlines the preferred future for Whitehall Township. The plan is appropriately general, recognizing that planning for the future is a delicate blend of art and science and that sufficient flexibility will be needed to respond to the challenges Whitehall Township faces in the future.

Because of the constant changes in our social and economic structures, as well as activities, the Plan must be maintained through periodic review and revision so that it reflects the needs of Whitehall Township while continuing to maintain the Township's established Long-Range goals. The plan will be successful to the extent that it:

- ❑ Reflects the needs and desires of the citizens of Whitehall Township;
- ❑ Realistically interprets and reflects the conditions, trends, and the economic and or social pressures that are brought about by change; and
- ❑ Encourages agreement and support among the various public agencies, developers, and citizens of the Township toward achieving common goals.

Section B

The Purpose of the Plan

Whitehall Township currently has a comprehensive land use plan in place but has determined that it needs to be updated to accurately reflect the current land use concerns that have arisen since implementation of the original document. The plan preparation process began with several objectives.

- First, it was important to achieve an understanding of the likely future trends in the community and its surrounding areas.
- Secondly, Whitehall Township sought to clearly define the community priorities with regard to growth, development, and land use.
- Thirdly, the planning process was seen as an opportunity to build and strengthen a community consensus about the future land use patterns in the Township.
- Finally, Whitehall Township sought to address specific issues, land use challenges, and to develop realistic and effective mechanisms to achieve the plan's objectives.

The planning process strives to combine the needs and desires of the citizenry with the land's suitability and capability for sustaining those uses, balanced with the municipality's ability and desire to provide public services throughout its jurisdiction. Such planning will minimize the potential for land use conflicts and inappropriate uses of land, for the betterment of all residents.

This Plan accomplishes these objectives. More specifically this plan will serve Whitehall Township in the following ways:

1. The plan provides a means of integrating proposals that look years ahead to meet future needs regarding general and major aspects of the physical conservation and development throughout the Township.
2. It serves as the official advisory policy statement for encouraging orderly and efficient use of the land for residences, agriculture, businesses, and industry, as well as coordinating these uses of land with each other and with other necessary public facilities and services.
3. It creates a logical basis for zoning, subdivision design, and public improvement plans. It also is for facilitating and guiding the work of the Planning Commission, Zoning Board of Appeals, the Township Board, as well as, other public and private endeavors dealing with the physical conservation and development of the Township.

4. It provides a means for private organizations and individuals to determine how they may relate their building and development projects and policies to official Township planning policies.
5. It offers a means of relating the plans of Whitehall Township to the plans of other communities whose borders are adjacent and abutting those of the Township. This is important as newly adopted legislation is mandating that future updates, amendments and/or redesign of a community's plan are required to be reviewed by those municipal/jurisdictional boundaries affected, the Regional Planning Commission Agency (if applicable), and the County.
6. It provides means in which to improve the physical environment of the community as a setting for human activities; to make it more functional, beautiful, healthful, interesting, and efficient.
7. It offers opportunities for promotion of the interest of the community at large, rather than the interests of individuals or special groups within the community.
8. It allows for injection of long-range considerations into the determination of short-range actions.
9. It brings professional and technical knowledge to bear on the making of political decisions concerning the physical development of the community.

Section C

Plan Formulation

The planning process involved five inter-related phases:

Data analysis- Up to Date Appraisal - The first phase of the effort involved a summary review and analysis of available data gathered from local and regional sources. During the first phase, demographic, economic, and land use data was gathered to support the Plan. The purpose of this effort was to develop a comprehensive impression of the patterns of growth and the challenges that will impact the Township, as growth and development continue.

Plan Preparation- Analysis of the Issues and Definition of the Preferred Future - The objective of the second phase involved drawing together the input from the previous two and updating the Comprehensive Land Use Plan. This process included meetings with Township representatives, as well as, a special public meeting to gather general community input in which to receive comments from the public.

Goals and Objectives- Designing a Policy Basis - The third phase established a policy basis for the Township's planning and land use regulations that are consistent with the desires of the community. It is also important to note that there are additional projects currently underway and ongoing in Muskegon County that should be taken into consideration when formulating this comprehensive land use plan and reviewed when making land use decisions. First, the Muskegon Area-Wide Plan (MAP), that addresses all local jurisdictions in the county as whole and evaluates existing conditions and possible build out of those. Second, a corridor study, looking into transportation and land use issues along Whitehall Road, should be examined and where appropriate in both these instances, similar land use decisions or complimentary land use decisions should be utilized.

Implementation Strategies - The fourth phase provided techniques applicable for implementation of the Whitehall Township Comprehensive Land Use Plan.

Recommendations - The final phase, section VI, of the process involved was providing recommendations and specific strategies, tools, and techniques to carry out the plan. At the conclusion of the final phase, the Planning Commission held a public hearing on the plan and followed this by voting for adoption of the Plan.

Section D

The Plan's Relationship with Zoning

While most understand that there is a relationship between a land use plan (with its land use map) and a zoning ordinance (with its zoning map), it is often misinterpreted and used inappropriately. The relationship is a very important one, *because you can not utilize one without having the other*. A formal definition of a land use plan is simply that it is a policy document in which the zoning ordinance(s) is a regulatory tool that is used to implement the goals and objectives of the land use plan. *In other words, the land use plan and map are designed to provide the community with a glimpse of where they desire their community to head, and a zoning ordinance and map provides the means to arrive at this point.*

The policy and regulation relationship between a land use plan and a zoning ordinance is a familiar one. Changes to the zoning ordinance or zoning map are the primary tools available to change the regulations affecting land or the types of use land may be used for. The land use plan and map are used to guide the process of changing land uses. In other words, the future land use plan and map will be utilized to regulate what zoning changes will occur and where they will occur. For example, rezoning requests are often required to be consistent with the future land use plan's use designation as they identify the community's desires for their future.

Instituted on December 15th, 2002, any amendments to a community's plan must be submitted, for review and comment, to all bordering jurisdictions and the acting regional planning commission, if applicable. The comments derived from those then must be submitted to the County where they are reviewed and a final comment is made on the changes to the plan and is then submitted back to the originating municipality. While presently these comments have no regulatory implications, it is the first step in working towards a collaborative effort amongst bordering municipalities encouraging similar land uses on adjacent parcels.

Section E

The Planning Process

In the fall of 2002, Whitehall Township contracted with the West Michigan Shoreline Regional Development Commission to assist in the development of a Land Use Plan. Every effort has been made to present information that is both current and accurate. The Whitehall Township Board, the Whitehall Township Planning Commission, and the West Michigan Shoreline Regional Development Commission shall not be held liable for any errors and/or omissions that are related to this Plan. This Plan is a *general* document; therefore, a thorough investigation with original research materials should be undertaken before proceeding with any specific implementation decisions.

Citizen input is paramount in identifying and discerning the issues facing Township residents as a whole. Therefore, all citizens were invited and encouraged to take part, as well as the bordering municipalities. The opportunity for input and comment was provided through Planning Commission meetings, a special meeting held by the Planning Commission, and a public hearing. Notices of these meetings were published in the White Lake Beacon (the local area newspaper), as well as, announced through signs posted at the Township Hall and the White Lake Community Library.

The goals and objectives set forth in this Plan for the Township should be reviewed on a regular basis. When appropriate, the Land Use Plan should be modified to reflect changes of a physical nature or those of general public sentiment. By new legislation, the Land Use Plan must be reviewed, at a minimum, every *five years* to determine that the Land Use Plan is consistent in maintaining the community's goals. The planning process strives to combine the needs and desires of the citizenry with the land's suitability and capability for sustaining those uses. It also balances the Township's ability and desire to provide public services throughout its jurisdiction.

Chapter 2

COMMUNITY PROFILE

A. Geographic Context

Muskegon County, home of Whitehall Township, is located along the shore of Lake Michigan halfway between the Indiana border and the Grand Traverse Bay. Whitehall Township is a rural-suburban forested area, located in the northern portion of Muskegon County. Whitehall Township is located in the southeast portion of Township 12 North, Range 17 West.

Whitehall Township is a general law township comprised of approximately 9.6 sections of land (therefore, approximately 9.6 square miles). The township is bordered by Montague Township to the north, the City of Whitehall to the west, Blue Lake Township to the east, Fruitland Township to the south, and the Village of Lakewood Club to the southeast. Whitehall Township is a part of what is known as the “White Lake Area”. The area is comprised of the Cities of Whitehall and Montague and the Townships of Whitehall, Montague, Blue Lake, Fruitland, and White River. The county seat, the City of Muskegon, is located approximately 14 miles to the south.

In addition to its position to serve both rural and urban areas, Whitehall Township has a few other notable features:

- The White River flows through the Township from the northeast to the southwest.
- US-31 Expressway traverses the Township diagonally from the northwest to the southeast.
- Over 800 acres of publicly owned forestland (in addition to the 700 acres contained in the Wastewater property) is scattered throughout the Township.

B. Transportation

Whitehall Township is approximately 14 miles northwest of the City of Muskegon (county-seat). The US-31 Expressway, a major north/south route that runs along Michigan's western lakeshore, runs through the township's municipal boundaries connecting it to the county-seat and its northern neighbors. I-96 is approximately 20 miles to the south and US-10 is approximately 50 miles to the north of Whitehall Township.

Another form of transportation accessible to the Township is the Muskegon County International Airport, which is approximately 20 miles to the south. The township has 23.88 miles of local roads, which includes primary roads, with 3.78 miles (15%), unpaved.

C. History

The greater White Lake area saw its first permanent European settler in approximately 1790. About that time, the Astor Fur Trading Company set up a permanent trading post at Duck Lake. The trading post was abandoned in 1834, but the permanent settlement of the White Lake area by Europeans had begun in earnest.

In 1874, Whitehall Township was organized out of Ferry Township and was comprised of 13 sections. Today the township is comprised of approximately 9.6 sections (6145 acres), sections 13, 14, fractional 22, 23-26, fractional 27 and 34, and 35-36. The first township meeting occurred shortly thereafter on April 10, 1874. The neighboring community of Whitehall had already incorporated as a Village seven years earlier. It later became a City in 1942.

Lumbering was the initial driving force of development in the White Lake region and remained the most important industry for the area's first fifty years of development. Beginning in 1837, saw mills were built by enterprising businessmen on all the area's major streams. Small company-owned or dominated communities sprang up around each mill. In the White Lake area, there were the small mill-centered communities of Whitehall, Mason's Landing, Long Point, and The Mouth (at the mouth of White Lake itself). Diverse mixes of immigrants were lured by jobs created for cutting and processing the 75, 100, and 150-foot tall White Pine trees. The demand for West Michigan lumber was greatly increased after the Chicago fire of 1871. "Lumber from Western Michigan largely rebuilt the huge city, and the process of supplying the demand made fortunes for the shrewd, the lucky, and the unscrupulous" (100 Years: Whitehall, Michigan 1860-1960 3). At the peak of the lumbering era in 1882, a million feet of logs per year were being cut and processed. Most of the lumbermen were out of business three years later because the seemingly endless timber supply had been completely depleted.

Around the turn of the century as the lumbering era was ending, farmers around White Lake began to put emphasis on attracting summer visitors by establishing "camps" for family and friends. In the years that followed, summer resorts developed in the area. At that time, there were only two practical ways to reach White Lake; by steamer or rail. Trains traveled from Chicago to the White Lake area six times a day. Due to the difficulty of travel, families would stay for vacation all summer. This of course was a benefit to local merchants and resort keepers alike.

Another summer development was the establishment of summer camps for boys and girls. The Chicago Boy Scout Council developed its first camp on Crystal Lake in the southeast corner of the township in 1910. The camp housed forty boys on thirty acres of land. The years following saw the development and expansion of numerous children's camps in the area. The resorts and children's camps

established the White Lake area as a prime location for outdoor recreation. Tourism today continues to be an important industry to the White Lake area.

D. Natural Resources

Natural resources and features are important factors in the planning process because they aid in determining the land's suitability for different types of development, and because they significantly contribute to a positive quality of life for residents. If growth is not appropriately controlled and site planning is not monitored, natural features can be lost, and the ecological functions they perform can be destroyed or altered to such an extent as to severely retard their functioning capabilities.

i. Topography

Whitehall Township's topography is the result of a complex glacial process including the Wisconsin glacial ice sheet and more specifically its Lake Michigan Lobe. The White River and its accompanying tributaries flow from the northeast to the southwest through the northern portion of the township. Small lakes and ponds dot the eastern portion of the township, while the western portion is characterized by higher ground.

ii. Water Features

There are several lakes and ponds within Whitehall Township. Whitehall Township has Crystal Lake (the largest), Schneider Lake, and Mill Pond, all of which must be used wisely to prevent environmental damage. Measures to prevent erosion, manage fertilizers and pesticides, and implement other precautions to protect the surface water resources of Whitehall Township.

Due to Whitehall Township's dependence on groundwater for potable water, the protection of wetlands should be an environmental priority. The largest area of wetlands can be found adjacent to the White River. Small pockets of wetlands are scattered throughout the township, most notably near Crystal and Schneider Lakes.

The White River and its accompanying tributary, Silver Creek, traverse Whitehall Township. The White River is the main drainage course for Whitehall Township and surrounding areas. Harmful materials from roads, lawn care chemicals, farms, and residential sewage can pollute surface runoff within the White River drainage basin. In addition, siltation and fertilizers are harmful effects of erosion and polluted runoff that also impact waterways. In 1975, the Natural Resources Commission designated portions of the White River and its tributaries as a *Country-Scenic River* in accordance with the Natural River Act (Public Act 231 of 1970). *Country-Scenic Rivers* are defined as rivers in an agricultural setting with pastoral

borders and a few readily accessible homes. The Natural River Act of 1970 is intended to identify rivers that need their natural qualities protected from unwise use and development (Michigan Department of Natural Resources, Michigan's Natural Rivers Program). A Natural River Plan was adopted at the time of designation in 1975. The Michigan Department of Natural Resources administers the Natural River zoning of the White River and Silver Creek within Whitehall Township (Michigan Department of Natural Resources, White River Natural River Zoning). These zoning regulations are the local controls to carry out the recommendations of the Natural River Plan.

In conclusion, the health of lakes, wetlands, and waterways located within Whitehall Township are all equally important to maintaining the ecological health of the township's resources. These resources must be protected in order for Whitehall Township to maintain its current standard of living and prosperity.

a. *Wetlands*

Wetlands should be given serious attention in the Land Use Plan process and in all future development decisions, due to the importance of preserving their natural functions. Wetlands also impact planning because they are protected under the Goemare-Anderson Wetland Protection Act (Act 203 of the Public Acts of 1979) which restricts and/or prohibits development in areas of significant wetlands.

Also, wetlands are another important water resource. Wetlands are areas where water is present, either in or on the land. They are defined by the interaction-taking place between land and water, and more specifically, by the biological activity that takes place. Wetlands provide needed habitat for many organisms and serve as a filter for water as it seeps into the groundwater supply. This filtering process includes the removing of many pollutants from surface water, a vital function in maintaining a healthy water supply. The filtered water then recharges groundwater supplies.

b. *Groundwater*

Township residents depend upon groundwater as their only source of potable water. Currently there is one resident who receives public water from the City of Whitehall. Along Colby/Whitehall-Holton Road, eleven commercial businesses receive public water from the City of Whitehall with one more scheduled to receive it. The protection of groundwater and surface water features should be an environmental priority for Whitehall Township. The

potential for groundwater contamination depends upon the type of soil present. For example, sand is very permeable and thus allows for a greater amount of infiltration of surface water into the groundwater supply, whereas clay is very impermeable and retards contamination. However, if clay is near enough to the surface, it will cause water to pond or runoff to more permeable soils.

Whitehall Township is a semi-rural Township, which is referred to by community members as a bedroom community. It is surrounded by scattered residences, agricultural lands, and open space that continue experiencing increasing development. Because the Township has been experiencing residential expansion, the Township, through appropriate zoning, has limited the number of dwellings per lot and minimum lot sizes. The availability and cost of property has made the Township an attractive place to take up residence.

At this time, Whitehall Township's residents only have septic systems (with one exception). Therefore, groundwater contamination is a concern, especially as the population and development continues to increase. Several major sources for groundwater contamination exist. Private residential septic systems can carry harmful pollutants into the water supply.

The most promising methods of groundwater protection are proper land use management, pollution regulations, and regulated soil testing where appropriate. Land use management is the first step in the process of protecting groundwater resources. By itself, planning does not sufficiently protect sensitive groundwater areas but does provide the basis for land development controls such as zoning, which can assist in groundwater protection.

iii. Soils

For the majority of rural Michigan soil, the type of development it allows or restricts, is a key factor in determining where future development will occur. The suitability of soils for roads, foundations, wells, and septic systems is critical in determining the location and intensity of development. Whitehall Township does not have sewer utilities. Therefore, future development and growth must be monitored to determine its current and potential impact on the Township's need for future infrastructure. Various soil characteristics such as depth, permeability, wetness, shrink-swell potential, erosion potential, slope, and weight-bearing capacity are all factors that make a soil suitable or not for a given use. Often, appropriate design and management can overcome the soil characteristics that create development limitations.

Soil surveys assist in determining the extent of flood prone areas, access to aquifers, erosion and sedimentation potential, the ability for site septic tanks and absorption fields, and the limitations for construction. Soil information is important in the planning process because it can geographically depict areas that should or should not be developed in a particular manner, based upon the soil suitability. In some instances, mitigation measures can be used to alleviate some or all of the limitations for a particular soil type. However, these measures are often costly, both to the developer or owner, and to society at large (via the natural environment). Because of this, soil survey manuals often become an important guide for determining future development.

a. *Soil Maps*

There are four dominant soil series located within Whitehall Township according to the Soil Survey of Muskegon County, Michigan. They are: Grayling, Kerston, Nester, and Rubicon soil series.

Grayling Series: Grayling series soils are located on either side of the White River and along the east-central edge of the township. This series consists of well-drained, sandy soils on the rolling sand hills. Grayling soils have very rapid permeability. Their natural fertility and available moisture capacity are low. These loose, dry soils are susceptible to blowing and water erosion where the vegetative cover has been removed.

Kerston Series: Kerston series soils are located on either side of the White River and in the northwest corner of the township. This series consists of very poorly drained soils and consist of alternate layers of sand and muck. The water table is at or near the surface year-round and, because they are located adjacent to waterways, is prone to flooding. Crops are susceptible to damage by frost in the spring.

Nester Series: Nester series soils are found on the hilly ground in the southwest corner of the township and occupy rolling to hilly areas on till plains and moraines. These soils consist of well-drained and moderately well drained soils that developed in limy clay-loam material. These soils are naturally fertile and have high available moisture capacity and moderately slow permeability. Management is needed to control water erosion and to maintain fertility and the content of organic matter.

Rubicon Series: Rubicon soils series are located in a wide arc across the township from the northeast to the southeast. This

series consists of well-drained, deep, sandy, soils on nearly level, dry wash plains and rolling sand hills. These soils are permeable, have a low supply of plant nutrients, and are low in available moisture capacity. The soil's acidity, lack of nutrients, and moisture content make it adequate for optimum growth of crop. They are found largely in forested areas, and are well suited for Christmas tree farms.

Soil series that encompass the entire township and are comprised of a combination of soils also need to be viewed. Table 1 is a brief summary of septic suitability and building site development for these four series.

b. *Septic Suitability*

The location of soils, suitable for septic systems to properly function, is critical in determining the extent and location where development can occur *without* the need for public utilities. The soil is not considered to be suitable for septic systems if it has excessively high or low permeability, if the slope is excessive, or the water table is too close to the surface. The permeability and coarseness of soil has a direct impact on its ability to properly filter toxins (i.e. septic material) as they pass through the soil. As previously mentioned, the majority of Whitehall Township's soils have low to rapid permeability (United States Department of Agriculture [Soil Conservation of Oceana County, Michigan](#)). This is an important concern because toxin-laden water may pass too quickly through the soil to be properly filtered, causing groundwater contamination. In order to reduce the amount of pollution released from septic tanks, citizens should refrain from disposing of household chemicals such as ammonia, bleach, or other hazardous substances into the septic system and perform routine proper septic maintenance. Septic tanks should be maintained on a regular schedule by adding necessary chemicals and cleaning and using them only to capacity.

Table 2 describes the limitations that a particular use has on a particular soil type. It is important to note that for any specific property, exact soil limitations need to be determined with an onsite soil investigation. Depending on local conditions, in the Township and on the parcel, there may be limitations for septic operation. For instance, septic tanks may operate safely and effectively during a dry summer, but the very same tanks may malfunction or flood during an extraordinarily rainy spring. The limitations for septic system absorption fields listed are moderate to severe due to the rapid permeability of the sandy soil and due to

poor filtering capabilities of the soil found within the Township. The Township has considerable difficulty in its physical makeup to have multiple septic tanks placed throughout, as the majority of the land has been recognized as severe. This makes it even more important that soil surveys, per parcel, be completed prior to starting any development and the necessary measures taken to protect the environment from contamination.

As previously mentioned, the main concern with septic suitability is the pollution of groundwater. When the soil becomes saturated due to intense rain or flooding, toxins are removed from septic tanks and flow into groundwater or surface water. Septic systems contain materials such as household cleaners, bacteria, and other toxic nuisances that are more hazardous than human waste.

Therefore, when a septic system fails, many different pollutants are released into both groundwater and surface water. This means that a septic system **should** be emptied at a minimum of every seven years, but more preferable is every other year.

Table 1

Whitehall Township Limitations of Soils for Building Site Development: Residential and Light Industry and Commercial Development and Roadways					
Soil Series	Degree of Limitations Affecting Use For-				
	Residential Development	Sanitary Facilities: Septic tank absorption fields	Sewage Lagoon Areas	Buildings for Commercial and Light Industry	Local roads & streets
Grayling	Moderate	Severe, poor filter	Severe, seepage, to sandy	Severe	Severe: droughty
Kerston	Severe: flooding, ponding	Severe, flooding, ponding perks slowly	Severe, seepage, flooding excess humus	Severe, flooding, ponding	Slight
Nester	Severe	Severe, perks slowly	Moderate to severe	Severe	Severe
Rubicon	Slight	Severe, poor filter,	Severe, seepage	Slight	Severe: droughty

Slight- Soil properties and site features are generally favorable for the indicated use and limitations are minor and easily overcome.

Moderate- Soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations.

Severe- Soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increases in construction costs, and possibly increased maintenance are required.

Source: United States Department of Agriculture, Natural Resources Conservation Service and Forest Service. [Soil Survey of Muskegon County, Michigan 1968/addendum 1995](#)

Table 2

Soil Series	Degree of Limitations Affecting Use For-			
	Paths and trails	Camp Areas	Picnic Areas	Playground
Grayling	Severe: too sandy	Severe: too sandy	Severe: too sandy	Severe: too sandy
Kerston	Severe: ponding	Severe: ponding	Severe: ponding	Severe: ponding, flooding
Nester	Severe: erodes easily	Moderate: perks slowly	Moderate: perks slowly	Moderate: small stones, perks slowly
Rubicon	Severe: too sandy	Severe: too sandy	Severe: too sandy	Severe: too sandy

Source: United States Department of Agriculture, Natural Resources Conservation Service and Forest Service. [Soil Survey of Muskegon County, Michigan 1968/addendum 1995](#)

c. *Erosion*

Another indicator as to whether or not an area is suitable for development is the tendency for soil erosion by water and/or wind. Natural plant cover helps to prevent soil loss because roots hold the soil in place, even during heavy rainfalls. All four dominant individual soil series located in Whitehall Township are susceptible to soil blowing and erosion if their protective/vegetative cover is removed. It should be noted that a change in land use patterns could create substantial changes to the balance between natural plant cover and impervious surfaces. The loss of natural plant cover would increase soil loss rates for the Township. Therefore, it is imperative to protect the areas most susceptible to erosion and minimize their exposure to extensive development.

A change in land use patterns will often create substantial changes to the balance between natural plant cover and impervious surfaces. The more impervious surfaces there are, the greater the probability that soil erosion will occur. The following are some general principals regarding soil erosion:

1. The amount of sediment-laden runoff generated is dependent upon the type of soil and the kind of land use prevalent in a given area.
2. Natural areas, where vegetation remains intact, are almost always better equipped to absorb and retain water than are areas in either agricultural or urban use.
3. Those areas best able to absorb and retain rainfall include forests and other areas of dense vegetation.
4. Those areas, which have the greatest impact on the amount of runoff created, include urban lands with high percentages of impervious surfaces and agricultural lands in row crops.

d. *Flooding*

Another important element relevant to soils is the frequency of flooding. This factor is perhaps most important in terms of residential development, since direct and expensive property damage can occur from either frequent, or prolonged flood events. Flooding is much more difficult to control than other soil related issues.

Flood frequency is determined by how often an area is inundated with water. For example, a floodplain, which is regularly inundated, would have a frequent classification. Floods are caused when the ground becomes saturated beyond its absorption capacity, or when the precipitation is too intense for quick absorption. The less permeable the soil and/or the higher the water table, the more prone an area is to flooding. Areas that have a high probability of flooding should not be extensively developed. Open spaces, adjacent to flood prone areas, are an ideal land use to help prevent extensive and expensive property damage when a flood occurs. This is accomplished by diverting water to the open space.

There are areas in the Township that collect water and flood. This is especially prevalent in those areas that are in the vicinity of wetlands. In situations of flooding, the result could possibly be transmittal of pollutants (such as oil and salt) from streets, parking lots, and soils into surface waterways. Because there are not a large number of impervious surfaces in the Township, there is less risk of surface water contamination. Flooding can also cause severe soil erosion. However, where natural plant cover exists, there is a low probability of severe soil erosion due to the extensive root systems.

In conclusion, the potential for any toxic substance to enter the water supply through the process of surface flooding is rather minimal. On the other hand, the potential for groundwater contamination due to septic system failures is a real threat. This is the case in most rural Townships where there are limited or no public sewer systems.

e. Groundwater resources and protection

All Whitehall Township residents depend upon groundwater as their only source of potable water so contamination of should be watched closely. The potential for groundwater contamination depends upon the type of soil present at differing locations throughout the township. For example, sand is very permeable and thus allows for a greater amount of infiltration of surface water into the groundwater supply. Whereas clay, is very impermeable and retards contamination. However, if clay is near enough to the surface, it will cause the water to puddle or runoff to more permeable soils.

Whitehall Township is comprised of rural forested land and limited developed residential land. It also has experienced low to moderate development pressures. Therefore, there is less potential for groundwater contamination from residential septic systems at this

time, with the exception of multiple homesteads/dwellings on a given parcel sharing a septic system. The following discussion concerns the major sources for groundwater contamination (Libby and Kovan).

Waste: Land continues to be the primary medium for water treatment in Michigan. As water passes through decomposing waste it can transmit organic and inorganic pollutants into an aquifer. Outflow from a conventional system, a land disposal system for municipal waste, or even a private residential septic system, can carry harmful nitrates into the water supply. Indiscriminate dumping and junk storage also contribute to groundwater contamination.

Farms: Potential contaminants from farms include nutrients, pesticides, salt, and other toxic organic material. Nutrients like phosphates and nitrates are residuals of fertilizers and have the potential to contribute to eutrophication. Nitrates can also be leached from concentrations of animal waste or decomposing material.

The most promising methods for groundwater protection include proper land use management, pollution regulation, and land use acquisition. Land use management is the first step in the process of protecting groundwater resources. Defensive regulation or control must be built on the base of logic and foresight contained in a comprehensive development plan. By itself, planning does not sufficiently protect sensitive groundwater area, but does provide the basis for land development controls, such as zoning, which can assist in groundwater protection.

Conventional zoning provides a mechanism by which to regulate new land development, but does not apply to existing non-conforming uses. Specialized zoning, which promotes conditional use of land only after strict assurances have been given that the groundwater resources will not be harmed, might require locating dangerous developments in areas that provide greater protection on the groundwater. For instance, a landfill would have to be located on a thick layer of highly impermeable clay instead of a much less costly parcel composed of sandy loam. Pollution regulation is another alternative for protecting groundwater resources and recharge areas. This procedure requires accurate and dependable data in order to be defensible.

E. Population Characteristics

Planners attempt to make projections based on past patterns, for items such as growth, age distribution, income, and educational characteristics. The analysis of these factors helps to provide a clearer picture of the future in regards to population. These next sections will look closely at the population, as primarily described in the 2000 U.S. Census of Population and Housing.

i. Population Trends and Projections

In 1990, Whitehall Township had a population of 1,464 persons, and by 2000, the Bureau of the Census verified a 12.5% increase to 1,648 persons. According to the population projections of the West Michigan Shoreline Regional Development Commission, this trend will continue and the Township is expected to experience steady growth through 2025, as shown in Figure 1 below. These forecasts are based on Census Bureau historical information that includes an analysis of births, deaths and migration rates. Graph 1 on the following page shows population increase by year.

Figure 1

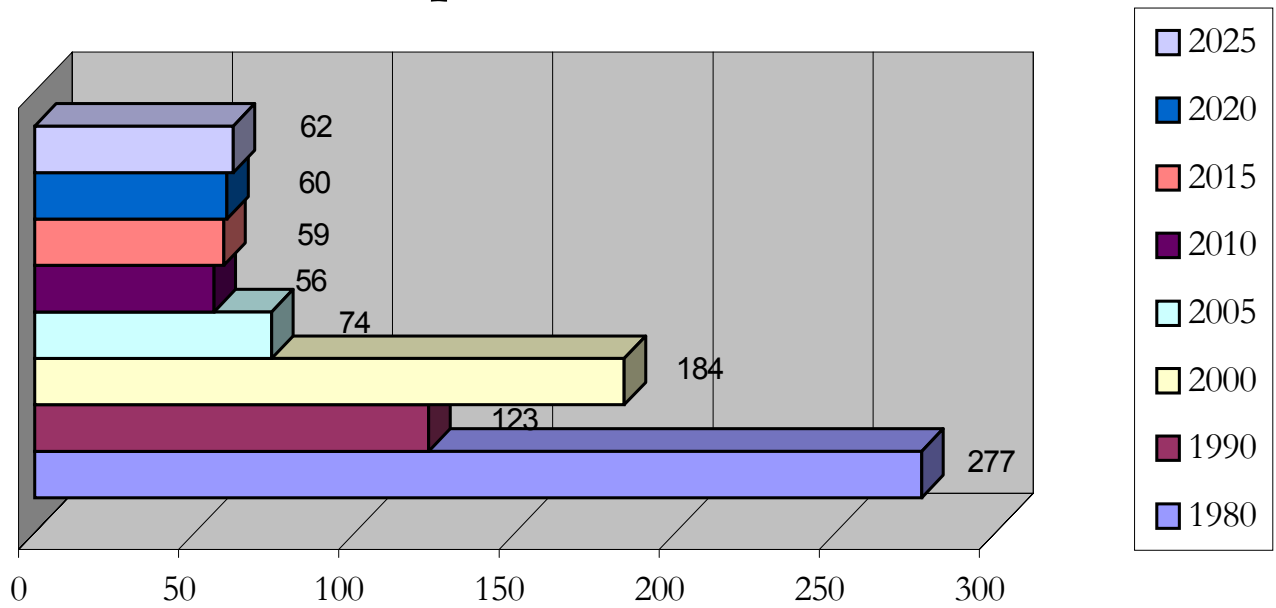
YEAR	1970	1980	1990	2000	2005*	2010*	2015*	2020*	2025*
Number of Persons	1,064	1,341	1,464	1,648	1,722	1,778	1,837	1,897	1,959

Source: U.S. Bureau of the Census 2000 *Projections calculated by WMSRDC

The aforementioned population projections indicate that Whitehall Township's 2000 population was approximately 1,648 persons, and will reach 1,764 by 2010. Additional population forecasts are less reliable, but the prediction is for a total of 1,954 persons by the year 2025.

When looking at these figures, it should be recognized that portions of the land in Whitehall Township might be unsuitable for development. This is in part due to a significant part of the land having severe difficulty to filter water properly for septic tanks. It is also in part due to the large volume of Township acres owned by the National Forest Administration, the County of Muskegon (Hilt's Landing), the Muskegon Conservation District, and the Township itself. Thus, the buildable area available is reduced and the true population density is higher than a straight calculation would indicate. Currently, approximately 60% of Whitehall Township is undeveloped. If one third of the available 60% were developed, the resulting population growth would greatly impact the population projections provided here.

Population Increase



Graph 1

Source: U.S. Bureau of the Census 2000 *Projections based on estimates from WMSRDC

ii. Age Distribution

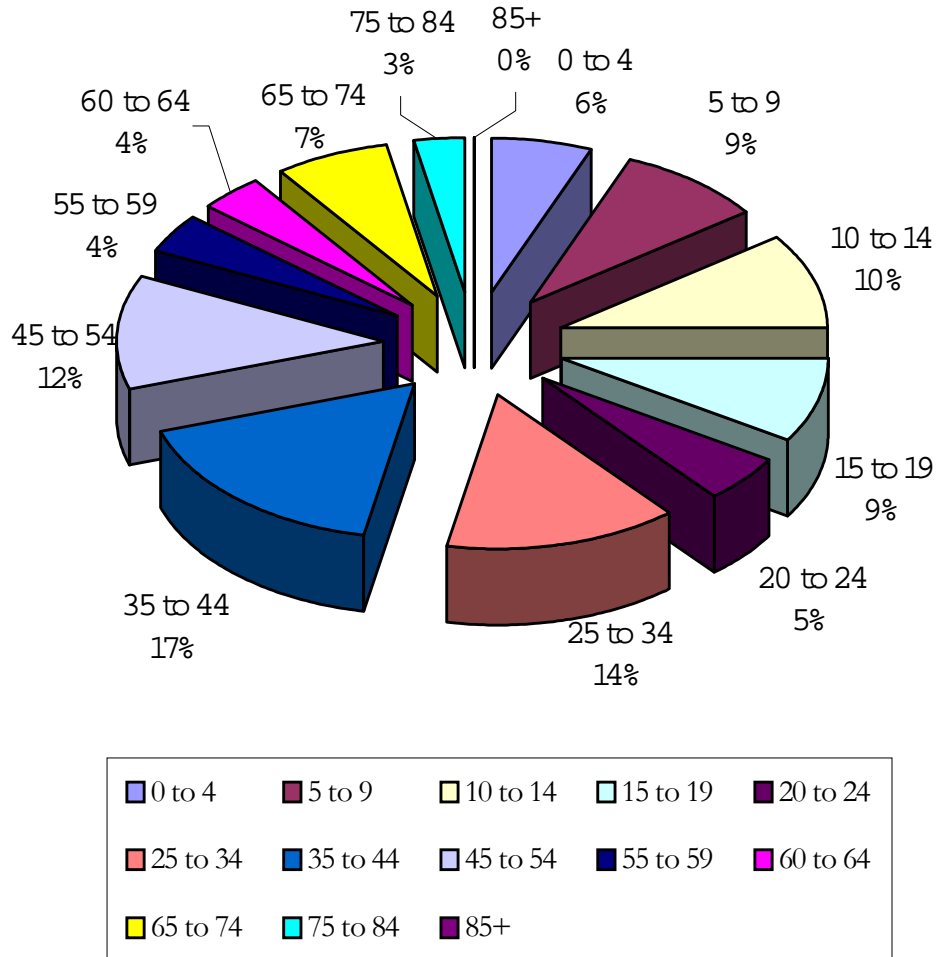
It is useful to note an increase or decrease in certain population groups, specifically in the school and retirement age populations. These population groups can indicate whether or not there is an increased need for capital and service expenditures. As can be seen in Figure and Graph 2, there are two main age groups in Whitehall Township, which comprise the majority of people. In the Township, the largest age groups include person's 25 to 34 and 35 to 44 years old. Persons fewer than 9 years make up 15% of the population and persons between the ages of 10 and 24 also comprise 24% of the population. Whitehall Township's 2000 age distribution indicates that the largest age groups contain residents of childbearing age. There is a greater potential for more residents if those of childbearing age continue residing in Whitehall Township.

Figure 2

WHITEHALL TOWNSHIP AGE DISTRIBUTION				
AGE	1990		2000	
	NUMBER OF PERSONS	PERCENT OF PERSONS	NUMBER OF PERSONS	PERCENT OF PERSONS
0-4	87	6%	99	6%
5-9	128	9%	113	7%
10-14	141	10%	121	7%
15-19	126	9%	159	10%
20-24	79	5%	73	4%
25-34	199	14%	161	10%
35-44	263	17%	276	17%
45-54	182	12%	288	17%
55-59	61	4%	114	7%
60-64	56	4%	75	5%
65-74	96	7%	89	5%
75-84	43	3%	66	4%
85+	3	0%	14	1%
Total	1464	100%	1648	100%

Source: U.S. Bureau of the Census 2000

Whitehall Township Age Breakdown



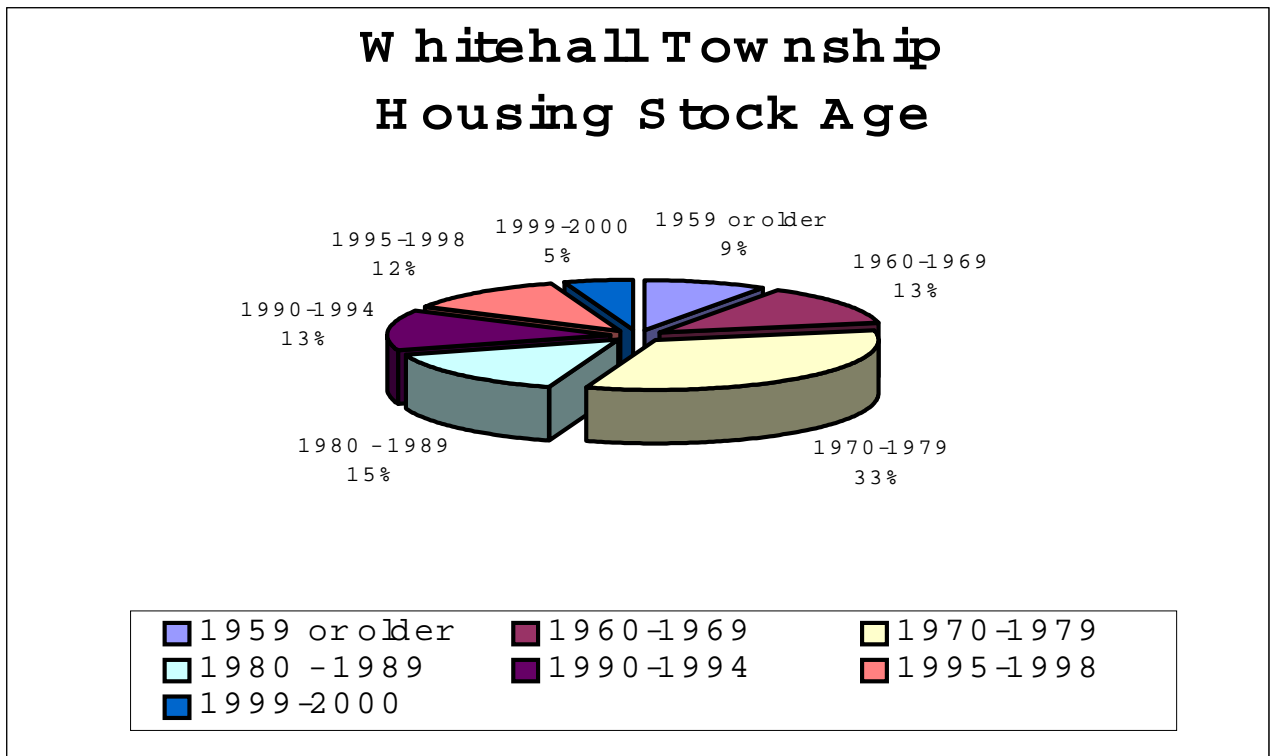
Graph 2 Source: US Bureau of the Census 2000

F. Housing Characteristics

Housing, and its associated uses, occupies the most significant proportion of all uses in terms of the amount of land utilized. Generally, significant changes with an area’s housing stock, be it the number of housing units, the percentage of different housing types, or the number of building permits issued, are important factors which affect planning decisions. It is important to note that changing trends related to housing stock are often the first indications that important changes are taking place with the population base and land uses.

The housing characteristics for Whitehall Township are based upon the 2000 U.S. Census of Population and Housing summary data, and thus do not reflect recent changes that have occurred in the last two years. Looking at Graph 3 it can be seen that the housing stock within the Township is diversified in age. Therefore, the age of the housing stock does not appear as though it will be an issue if the population grows as projected and the current building rates continue.

Graph 3



Source: U.S. Bureau of the Census 2000

Another important aspect of housing stock to consider is the variety of housing types present in the Township (i.e. traditional single-family homes, duplexes, and mobile homes). Having a variety of housing types contributes to affordable

housing opportunities for Township residents. It is obvious that the traditional single-family home is predominating in Whitehall Township. This is perhaps due to several factors, including a lack of appropriate building sites for other homes. For example, multiple-family housing units often require water and sewer utilities. In the Township, 71.7% of the homesteads are one unit detached while 172 units (or 26.1%) are mobile homes/manufactured homes.

Approximately 34.8% of Whitehall Township's housing units are rental units. It is important to have an appropriate balance between renter and owner-occupied housing units' in order to provide housing for all segments of the population and to maintain housing stock values. Housing occupancy for homeowners is 92.3%. There are no homesteads that are without complete plumbing facilities and 27 (10.8%) that have no telephone service (U.S. Bureau of the Census 2000).

The numbers back in Figure 2 can also be used to predict other elements, such as the need for additional dwelling units. With the Township's projected additional persons by the year 2025, the Township will need 133 additional dwelling units to house those persons if the average of 2.3 persons per dwelling unit holds true. Therefore, at a minimum and to keep up with population increases, Whitehall Township will need to be proactive in addressing housing issues.

The breakdown of housing values in Whitehall Township consists of solid economic diversity making homeownership attainable in Whitehall Township (see graph 4). Along these lines, the median household income for Whitehall Township residents is \$37,641, while the median family income is \$50,944 with 5.5% of families in the Township falling below the federally established poverty level.

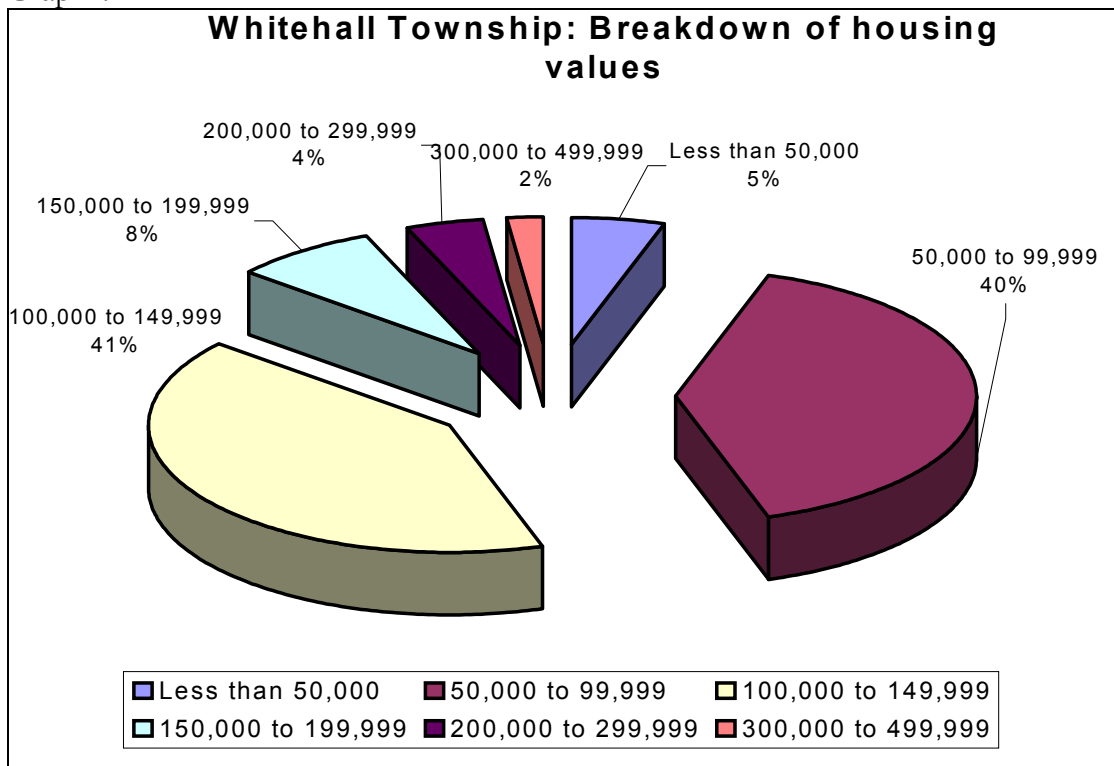
The information contained in Table 3, concerns the number of building permits Whitehall Township has issued for the year's 1996 through the 2002. These permits can range from additions, decks, mobile homes, garages, pole barns, and new structures. Thirty seven percent of the permits issued were for residential buildings.

Table 3

Year	Permits Issued By Type			
	New Homestead	Manufactured Mobile/Home	Pole Barn/ Garage	Addition, Deck Shed, Misc.
1996	13	1	9	11
1997	14	1	23	5
1998	10	3	9	8
1999	14	10	15	10
2000	21	4	28	8
2001	8	3	9	12
2002	8	2	4	4
Totals	67	24	97	68
%	26%	9%	38%	27%

Source: Whitehall Township's Building inspectors' office, 2002

Graph 4



Source: U.S. Bureau of the Census 2000

G. Township Government

Whitehall Township was incorporated on March 24, 1874 from Ferry Township. It operates under a Supervisor-Trustee form of government. The Township Board, under an annual budget for the fiscal year, establishes priorities for capital expenditures, operations, and maintenance.

The Township Supervisor, Clerk, Treasurer, and support staff handles all day-to-day administration activities. Whitehall Township operates on a general operating fund budget as outlined in Table 4.

Table 4

Whitehall Township General Fund Budget Proposed 2002-2003			
Revenues		Expenditures	
Current Property Tax	\$48,600.00	Township Board	\$42,240.00
Delinquent Property Tax from County	\$3,500.00	Supervisor	\$11,980.00
Delinquent Personal Property Tax	\$285.00	Election Commission	\$2,650.00
Taxes-Trailer	\$850.00	Assessor	\$16,311.00
Penalties and Interest	\$2,000.00	Clerk	\$16,385.00
Per. Tax Administration Fee	\$15,900.00	Board of Review	\$2,270.00
Delinquent Per. Tax Admin. Fee	\$80.00	Treasurer	\$16,885.00
Cable TV Franchise Fee	\$5,500.00	Township Hall	\$26,055.00
License and Penalties	\$1,000.00	Township Playground	\$26,055.00
State Shared Revenue	\$130,556.00	Township Property	\$11,200.00
Fees and Sales	\$55,000.00	Police	\$7,620.00
Interest	\$6,000.00	White Lake Ambulance	\$15,500.00
Special Assessments	\$0.00	Audit	\$4,500.00
Reimbursements	\$20,000.00	Building inspection	\$500.00
Misc. Revenue	\$1,000.00	Planning Commission	\$22,400.00
Total Revenues:	\$290,271.00	ZBA	\$9,580.00
		Highways & Streets	\$20,000.00
		Street Lighting	\$9,000.00
		Transfer Station	\$2,500.00
		DPW	\$500.00
		Pension Plan	\$6,206.00
		Social Security	\$4,500.00
		Insurance and Bonds	\$6,200.00
		Contingency	\$50,000.00
		Total Expenditures:	\$341,760

Source: Whitehall Township's General Fund Budget FY 2002-2003 (Proposed)

H. Recreational Facilities and Public Open Spaces

Recreation facilities in the surrounding areas of Whitehall Township are a combined effort of public and quasi-public entities. Whitehall Township has numerous outdoor active and passive recreation areas available for use. They consist primarily of bodies of water, as well as the Manistee National Forest and the Muskegon Conservation District, which owns 400 acres within the township. It is open for public use that can be utilized as recreational facilities in the form of trails. The Township also has three lakes, one river, and four creeks that run throughout its jurisdictional boundaries.

Hilt's Landing, owned by Muskegon County, is in Whitehall Township. The 232-acre parcel is located east of U.S.-31, immediately south of the White River and is accessed from Durham Road. It is an unimproved area with river frontage and natural areas to explore.

Whitehall Township owns 185 acres of land scattered in the southern portion of the township. The land encompasses forestland, the Township Hall, and a cemetery. The Township Hall, located at 7644 Durham Road, has a playground, a picnic pavilion, and tennis courts adjacent to it. Whitehall Township is in the first year of a two-year project to develop a disc golf course on its property on Lorenson Road. The Township has one officially designated and owned park located at the Township Hall. The small inactive Township cemetery is known as the Old Sprague Cemetery and is located on the north side of White Lake Drive west of its intersection with Whitehall Road.

Finally, the privately owned Hickory Knoll Golf Course provides 36 holes of golf for the area's golf enthusiasts. It is open to the public and is located off Alice Street. All the aforementioned parks, recreational facilities, and open spaces make Whitehall Township an extremely attractive focal point for recreational activities for both residents and visitors.

I. Current Land Use/Cover

As mentioned previously, Whitehall Township is largely forested and has several lakes, streams, and a river. Forest and small lakes and ponds dominate the northern and the eastern portion of the township. The White River, with its accompanying wetlands, cut a wide swath through the township from the northeast to the northwest. In addition, there are small pockets of agriculture on the township's western edge.

The amount of publicly owned land in Whitehall Township is significant. Whitehall Township, Muskegon County, the Muskegon Conservation District, and the United States federal government combined own approximately 1,210 acres in Whitehall Township. Large land uses such as the sanitary landfill, golf course, and U.S.-31 occupy more land.

Much of the residential development in the township is located within a rough triangle formed by Benston Road to the south, Durham Road to the west, and the U.S.-31 expressway to the east. There has been residential development occurring in several areas of the township, but most notably around Crystal Lake in sections 25 and 36.

Commercial and Industrial uses are concentrated primarily along Colby/Holton-Whitehall Road between the City of Whitehall's municipal limits and the interchange with U.S.-31 expressway. There are a few such uses scattered elsewhere in the township.

Whitehall Township fits well into the regional land use pattern. Montague, Blue Lake, and Fruitland Townships have similar land uses to Whitehall Township in the areas where they are adjacent to Whitehall Township. The land uses adjacent to Whitehall Township's western edge are land uses that are expected to be found in urbanizing areas. The City of Whitehall has forest, agriculture, a cemetery, commercial, and industrial land uses adjacent to Whitehall Township's western edge.

J. Zoning in Whitehall Township

Whitehall Township has been a zoned community since July 23rd, 1959. The original ordinance was replaced on April 27th, 1978, on March 20th, 1989, and again on August 21st, 1995, by more comprehensive ordinances. It is the August 21st, 1995 Whitehall Township Zoning Ordinance as amended that the Township now operates under and enforces.

When the 1995 Whitehall Township Zoning Ordinance was being developed, great care was taken to provide rationale for zoning decisions and the geographic context within which they are to be made. Therefore, to the greatest extent possible, the Whitehall Township Zoning Ordinance was used to guide the process of developing future land use districts.

The 1995 Whitehall Township Zoning Ordinance provides for ten zoning districts. They are as follows:

- County Government
- Open Space and Waterbody Conservation
- Highway Service Commercial
- General Commercial
- Limited Industrial
- Small Farm Residential
- Low Density Residential
- Higher Density Residential
- Multiple Family Residential
- Mobile Home Residential

These districts provide for a land use pattern which predominately fits the current character of the township by limiting development to low densities in the majority

of the township. The areas, which are allowed higher densities, are those few areas that have partially developed in a dense pattern, which are near transportation facilities.

The residential zoning districts (except the Mobile Home Residential District) provide for lot sizes ranging from 15,000 square feet (0.3 acre) with public sewer and water in the Higher Density Residential District to 90,000 square feet (2.1 acres) in the Multiple Family Residential District. In certain instances, residences are allowed in the Open Space and Waterbody Conservation district with a minimum lot size of 5 acres. In general, the level of density set in each zone is appropriate to the *level* of development capable of being supported.

GOALS AND OBJECTIVES

As a part of the means utilized to develop this Plan, a general consensus regarding the preferred future of Whitehall Township had to be established. This process underwent means to accomplish this, including; a review of the existing Comprehensive Land Use Plan, meetings with both elected leaders and appointed representatives of Whitehall Township, and a public meeting to receive comments from residents, community members, as well as neighboring communities. In accord with the goals and objectives, a further detailed analysis of what the community perceives as its strengths, weaknesses, opportunities, and threats (S.W.O.T. analysis) should also be embarked on separate from the Comprehensive Land Use Plan.

**Eight
broad
goal
statements
supported
by specific
objectives
to reach
attainment
of these
goals**

The result of these activities led to a series of eight broad goal statements, each supported by more specific objectives designed as a tool to attain these goals.

The Comprehensive Land Use Plan is founded on the policies outlined in the following statements. The goals are intended to describe a desirable end state or condition of the Township twenty to twenty-five years into the future. The goals and objectives are intentionally general but all are felt to be attainable through a collaborative community effort. The objective statements tend to be more specific and may be viewed as milestones used in the process to achieve the larger goal.

The following statements set forth the fundamental goals of Whitehall Township's Land Use Plan. These goals and objectives are in no particular order.

A. PRESERVATION OF NATURAL FEATURES

GOAL

Contributing to the community's character are the natural features of Whitehall Township. Its undisturbed woodlands, conservation district, riverfront, wetlands, lakes, and the natural features will continue to contribute to the quality of life for Township residents. In return, the community's commitment to its natural features will be reflected in effective measures for preservation, improvements, and enhancements to its lakes, rivers, streams, groundwater, woodlands, and wildlife habitat.

**The community's
commitment to its
natural features
will be reflected in
effective
measures for
preservation,
improvements,
and
enhancements to
its lakes, rivers,
streams,
groundwater,
woodlands and
wildlife habitat**

OBJECTIVES

1. Preparation of a permanent Township record identifying both public and private natural features of the community. Classification of the Township's treasured uniqueness, its probable threats, and the comparative preference among the numerous natural resources.
2. Build and strengthen relationships with state and federal agencies to further the community's goals for the protection of natural features.
3. Institute and build up cooperative and supportive relationships with neighboring communities to protect and preserve natural features from possible contamination, inappropriate development, and erosion.
4. Create, update, maintain, and continually strengthen a community concession to sustain rational and responsible growth management strategies to be utilized by Whitehall Township elected and appointed leaders.
5. Cultivate and establish systems to monitor the viability of natural features and a process to control and limit development in affected areas.

B. TOWNSHIP ECONOMIC GROWTH

An on-going commitment to renew and develop will assure a stable economic base and the formation of a strong core identity for the Township within the regional context of Muskegon County and Western Michigan

GOAL

Whitehall Township's economic vitality will be secured through a rational and chronological pattern of land uses that promote clean and desirable development. An on-going commitment to develop and renew will assure a stable economic base and the formation of a strong core identity for the Township within the regional context of Muskegon County and Western Michigan.

OBJECTIVES

1. Develop and design an inventory of important economic assets and mechanisms to strengthen them.
2. Evaluate, amending if necessary, zoning designations for its impact on economic development and develop appropriate ordinances to foster desired investment.
3. Develop and implement procedures to evaluate planned and proposed development for its impacts on the economic health of the community.
4. Define the community's core and develop and implement mechanisms to establish and strengthen that core area.

C. PARKS, RECREATION, AND COMMUNITY CENTER

Exploration of the need for a community center providing additional places for social activities, recreational facilities, and programming to meet the needs of all residents in the Township and surrounding areas

GOAL

The quality of life for Whitehall Township's residents will be enhanced through a combination of public and private recreation facilities and activities that serve the social and recreational needs of all. Further exploring the need for a community center with additional places for social activities, recreational facilities, and programming to meet the needs of all. Investigate a system of bike and pedestrian paths, public access points to the area's natural features, the White River and creeks, and a community wide network of parks and open spaces that will be key elements of the Township's recreational framework.

OBJECTIVES

1. Create an inventory of the significant recreational assets of the Township and determine an appropriate and sustainable level of public use for each. As part of this inventory, identify key sites and appropriate mechanisms to acquire public title or easements for their continued use.
2. Maintain and update the Township's Recreation Plan to prioritize needs, mark progress towards full implementation, and to position the Township for available financial support.
3. Develop and implement a plan to establish a system of bike and pedestrian paths, public access points to the area's natural features, and a community wide network of parks and open spaces.
4. Develop techniques to build and strengthen the community consensus concerning recreation and the public's role in providing the necessary facilities.

**D. PLANNING, ZONING, AND GROWTH
MANAGEMENT**

**Arrangement of
Land Uses to
protect open and
green areas, to
foster an
appropriate
measure of
commercial and
industrial expansion
within defined
areas, to encourage
a diverse range of
housing types and
cultural
backgrounds, and to
continually improve
and enhance the
aesthetic qualities
of the Township**

GOAL

Land uses in Whitehall Township will be arranged to protect open and green areas, to foster an appropriate measure of commercial and industrial development and/or expansion within defined areas, to encourage a diverse range of housing types and cultural backgrounds, and to continually improve and enhance the aesthetic qualities of the Township. Land use decisions will be made in accord with a current and continually reviewed Land Use Plan and will be reached with broad community involvement and support.

OBJECTIVES

1. Evaluate and amend as necessary the Whitehall Township Zoning Ordinance to further the goals of the Land Use Plan as they arise.
2. Establish incentives for development patterns that support the Township's goals and disincentives for patterns that encourage sprawl or development outside the "future" plans of the Township.
3. Develop an inventory of infill opportunities and tools to encourage investment and reuse of underutilized properties.
4. Create an informed and educated community concerning the advantages of managed/controlled growth.
5. Foster and maintain a community commitment to continuous improvement and to re-energize the Land Use Plan.

E. ADEQUATE INFRASTRUCTRE/COMMUNITY PROTECTION

Minimize unnecessary public expenditures for infrastructure and services by controlling the location, density, pattern, and type of future development

GOAL

Minimize unnecessary public expenditures for infrastructure and services by controlling the location, density, pattern, and type of future development. Continue to promote water quality, septic planning, and future sewage planning to ensure the health, safety, and welfare of Township residents. Continue to develop and maintain roadway priorities through a working relationship with the Muskegon County Road Commission and other transportation agencies. Explore programs or expend resources that will allow the Township to continue to provide a PINS officer within the Township limits. This will help to deter criminal activity and increase the safety of Township residents.

OBJECTIVES

1. Develop and implement an infrastructure improvements and maintenance program; roads, sidewalks and high-tech communications, incorporating streetscape improvements to be made by business owners and community members.
2. Develop and implement a program exploring long-term possibilities for the development of a municipal water and sewer system.
3. Develop and implement a subdivision ordinance, to include provisions for developers to help bear the financial burdens of municipal infrastructure cost and installation.
4. Develop and implement a plan that balances maintenance of existing roads with the development of new roads. Building and improving existing roadways should only be undertaken if adequate funding or demand exists.
5. Explore the possibility of expansion that will allow for growth in the Township Hall.

6. Develop and implement a program of community involvement in public safety and service activities to strengthen neighborhoods and communication channels.

F. REGIONAL/JURISDICTIONAL COOPERATION

GOAL

Whitehall Township will play a regional leadership role in promoting cooperation and mutual support between and among the surrounding municipalities of the Townships of Blue Lake, Fruitland, Montague, and White River, and the Cities of Montague and Whitehall. Appropriate consolidation of services will be undertaken to provide the citizens of the region with the most responsive and efficient services possible.

OBJECTIVES

1. Inventory existing relationships with local, county, regional and state units of government and evaluate the Township's role and the effectiveness of the relationship.
2. Maintain continuous and active participation in regional activities, capital improvements, economic development, watershed planning, land use planning, and transportation planning.
3. Continually seek common regional goals and cooperative approaches to meet them.
4. Seek consolidation of services that will enhance the services and lead to more availability of those services.

Initiate a regional leadership role in promoting cooperation and mutual support between and among the bordering boundaries

G. HOUSING, NEIGHBORHOODS AND COMMUNITY

GOAL

The residents of Whitehall Township will help shape the Township's identity through strong community values and a deep sense of pride in the Township.

OBJECTIVES

Define the Township's identity through a deep sense of pride and strong community values of those residing in the Township

1. Develop and implement housing to be consistent with providing for the general health, safety, and welfare of the Township's residents and to promote an aesthetic atmosphere of Whitehall Township.
2. Develop and implement tools to foster a range of housing types including "starter" homes for young families, efficient and attractive housing for seniors, and provide for solid subdivisions/neighborhoods for future area residents.
3. Develop and implement programs to renew and improve existing housing and pursue funding to renew areas that require attention.
4. Define what the aesthetic values for Whitehall Township homesteads are and develop vehicles to strengthen them.
5. Develop and implement effective programs to strengthen code enforcement measures assuring safe, sanitary, and pleasing homesteads.

H. GOVERNMENT AND FINANCE

Commitment to the finest quality services delivered efficiently and effectively in exchange for citizen investment in the affairs of government and the necessary revenue base to maintain those services

GOAL

The citizens of Whitehall Township and their elected and appointed leaders will design and share a covenant based on a commitment to the finest quality services delivered efficiently and effectively. In exchange, citizen investment in the affairs of government and the necessary revenue base to maintain those services are required. The community will expect efficiency and innovation and the use of proven approaches to service delivery and will support a diverse mix of land uses.

OBJECTIVES

1. Develop and implement a program to educate citizens concerning the challenges of local government and to establish consensus building and communications within the community.
2. Continually encourage citizen involvement in the affairs of the Township.
3. Provide assistance to strengthen listening skills among Township elected representatives and leaders.
4. Develop and implement a long-term financial plan with a capital improvements plan for the Township coordinated with and supportive of the Township's Comprehensive Land Use Plan's goals and objectives.
5. Continually evaluate needed services and determine the most effective delivery approaches to accomplish this.

Chapter 4

WHITEHALL TOWNSHIP DEVELOPMENT CONCEPTS

Development concepts serve as a bridge between the Township's goals and objectives, and the Recommended Future Land Use Districts and Map. Development concepts are the broad explanations of basic assumptions and supporting ideas that are used to develop the Recommended Future Land Use Districts and Map.

A. Basic Assumptions

Based upon the Township's goals and objectives, two key assumptions about the growth and development of Whitehall Township needed to be established:

- The population of the Township will continue to grow at a moderate rate from 1,648 persons in 2000, to a projected total of 1,959 persons in the year 2025, a 15.7% increase.
- As the Township continues to grow, preserving the community's rural character, protecting its natural resources, promoting healthy smart growth, and the cooperation, collaboration, and communication with neighboring communities will be vital to the overall development of Whitehall Township.

B. Growth Management

Growth, in terms of population and employment, changes land use patterns and the character of a community. The open spaces, lack of traffic congestion, and general rural settings found in and around low residential density, is how townships often entices people to move to such areas. However, as growth occurs, the very things that were enticements can be lost. The results of growth can be expensive (cost of infrastructure, school facilities) and potentially harmful to environmental resources. Residential development pressure will most likely increase as Whitehall Township continues to grow.

Orderly development, which provides for the protection of environmental resources as well as the character of the Township, should be promoted through responsible growth management strategies and techniques. Growth management refers to the systematic attempt, by a community, to guide the type, rate, location, timing, public cost of, and often the quality and character of land re-development (Michigan Department of Natural Resources, Michigan Coastal Management Program 1). The Whitehall Township Planning Commission supports this concept as a means of controlling future development.

C. Settlement Patterns

The manner in which a Township develops (i.e. settlement pattern) has a tremendous impact upon its character as well as recreational opportunities. For the most part, land is a finite resource, and therefore, must be used wisely. Once land is fully developed (i.e. residentially, commercially or industrially), it is near impossible to revert the land back to its original natural state. Therefore, conserving open spaces at the beginning or onset of development is imperative.

The full development of an entire parcel of land is usually permitted and sometimes dictated by local zoning and subdivision ordinances. This often results in large residential lots that are 'too large to mow and too small to plow' (Arendt, 'Conservation' 3). "Until now, the zoning regulations in most communities have established a 'one size fits all' approach to regulating lot sizes in each of their various districts, essentially creating a single standard size for new house lots, which frequently results in checkerboard layouts of nearly identical lots covering the entire parcel" (Arendt, 'Creating' 3). When controlling patterns of development, primarily by the use of minimum lot sizes, caution needs to be taken. The resultant patterns of development, after completely developing land according to minimum lot size requirements, will be checkerboard development with lots of 'elbow room' (i.e. yards) between houses and nothing else.

This is not the only method of development. Full density can be achieved on a much smaller portion of land by allowing flexible standards for lot size and frontage. This leaves the balance in permanent conservation. The open-space subdivision design approach, as well as the newly adopted open space preservation legislation permits the conservation of more than floodplains, wetlands and steep slopes. It allows for the protections of mature or healthy and diverse forest lands, meadows, wildlife habitats, historic buildings, scenic views, or whatever the Township deems worth conserving to protect its character and environmental resources. The development and infrastructure costs will also be minimized, by reducing the amount of land utilized by homes.

Chapter 5

RECOMMENDED FUTURE LAND USE DISTRICTS

The following recommendations should be used as a guide for growth and development in Whitehall Township. The following describes the Recommended Future Land Use Districts that are the narrative explanations of the districts contained on the Future Land Use Map.

A Future Land Use Plan and a zoning ordinance are related. A zoning ordinance is the legal arm of a Future Land Use Plan. It is the most frequently used and effective regulatory tool to implement a Future Land Use Plan, as it regulates land use. The word ‘district’ is often used in both kinds of documents; however, the term must be used carefully. Using similar terms for the various land use designations is one way to demonstrate the relationship between the two documents, and it helps to avoid confusion and translation difficulties. **It is also important to realize that a future land use map and a zoning map are not necessarily the same thing.** For example, the use of the term ‘Commercial’ on a future land use map does not necessarily translate into specific numbers in terms of lot sizes and other elements of zoning. In some cases, a designated district on a future land use map might not ‘convert’ for the flexible interpretation of other zones. The map should not be confused with the Township’s zoning district map, which is a current (short-term) mechanism for shaping development. The plan categories generally correspond to zoning districts, but there is some overlap to allow for specific site conditions. The Future Land Use Map is intended to serve as a guide for land use decisions over a longer period of time. The following recommended future land use districts will have some overlap in purpose and implementation. Also, see the discussion on the Zoning Ordinance under the section titled *General Implementation Tools and Techniques*, on how to use this Plan and its Recommended Future Land Use Districts.

As a part of this planning process, eight future land use districts have been recommended. These districts are the result of an analysis of current land uses, environmental suitability, the existence of, or ability to, provide services, and the compatibility with goals and objectives previously identified in the Plan. The eight districts are:

- Small Farm
- Low Density Residential
- High Density Residential
- Mobile Home Residential
- Commercial
- Limited Industrial
- Forestry-Recreational
- Open Space

A. Future Land Use Categories

Small Farm: This designation identifies that this area shall remain in agricultural use, or for development of intensive farming operations. As these areas currently do not have public sewer systems, nor have any immediate plans to be serviced, they can only support a low-density residential development and will consist of parcels of at least five (5) acres.

Low Density Residential: This designation identifies that this area shall develop as single family residential located on the fringe between the rural areas and the more highly dense residential areas of the Township. Many of the areas have natural limitations, such as wooded areas, rolling hills, wetlands, or severe soil limitations, and are not planned for sanitary sewer.

High Density Residential: This designation refers to small lot, single-family residential homes. This designation is found within areas currently served, or those that are planned to be served, by sanitary sewer. Development will be at a density consistent with the infrastructure and land capabilities. Public water or a community well generally serves developments in these areas well.

Mobile Home Residential: This designation refers to manufactured housing/mobile home parks located within Whitehall Township. This designation is found within areas currently served, or those that are planned to be served, by sanitary sewer. Development will be at a density consistent with the infrastructure and land capabilities. Public water or a community well generally serves developments in these areas well. These locations should be conveniently located to shopping and transportation.

Commercial: The commercial district is intended to include retail, office, and service establishments, as well as, medium density duplexes, attached condominiums, apartments, and other multiple dwelling units. This category is best served when densely grouped, due to the large generation of vehicular traffic and to minimize the effects on adjacent districts. Businesses that serve the requirements of the community at large, including neighboring municipalities and pass-by traffic, are designated by this category.

Limited Industrial: The intent is to develop industrial uses such as research, wholesale, and warehouse activities and light industrial operations which manufacture, compounding, process, package, and assemble and/or treat finished or semi-finished products from previously prepared material.

Forestry-Recreational: The intent is to protect and preserve suitable land for recreational purposes and forested areas. It is designed to regulate and limit the location of buildings and structures to protect the natural resources, including, but not limited to, natural habitats of wildlife, waterways and water bodies, forestry capabilities, public and private recreational uses, and human, plant, and animal life.

Uses permitted include, golf courses, parks, playgrounds, sports fields, camping, and sustained forestry uses.

Open Space: The preservation of open space within the Township is the intent of this district. It includes areas that are not able to be developed, including land that has unique characteristics, are environmentally sensitive, and/or perform important natural functions. Open spaces provide scenic views, groundwater recharge areas, and erosion protection. This area includes the White River and its river bottom flats.

B. General Implementation Tools and Techniques

Implementing the ideas generated through the planning process is the culmination of the analysis, goal setting, and interaction activities, which took place during the creation of the Future Land Use Plan. This portion of the Plan is designed to guide the community in taking the actions necessary to achieve its goals and objectives.

The Whitehall Township Comprehensive Land Use Plan is intended to be a working document that provides the Whitehall Township's decision-makers with information and guidance regarding the goals of the community. Whenever land use issues arise, the Plan should be considered. A continuous effort on the part of the Township Planning Commission, Township Board, and the community at large, is required for the successful implementation of the Plan. It is essential that each member of the Commission and Board understand the Plan, know their own role as it relates to the Plan, and promote implementation of the Plan by the Township Planning Commission, Township Board, and appropriate agencies, community groups, and citizens.

The goals and objectives of the Whitehall Township Comprehensive Land Use Plan can be implemented through the use of the following described tools and techniques that Whitehall Township can utilize. The following list of tools and techniques are certainly not an exhaustive list, however, some are more applicable to the Township than others. Many of the tools and techniques can be used for multiple purposes by Whitehall Township to achieve its goals and objectives, even though they are listed under specific headings.

i. Zoning Ordinance

A zoning ordinance is the primary regulatory tool used to implement future land use plans. Following the adoption of the Plan, Whitehall Township will complete an internal inventory and review its priorities. From these, they will amend the Whitehall Township Zoning Ordinances.

This will ensure that the zoning ordinance will be consistent with the completed Whitehall Township Comprehensive Land Use Plan. The

zoning ordinance itself will reflect the Whitehall Township Comprehensive Land Use Plan; however, the zoning map does not necessarily reflect the future land use map.

The Planning Commission first needs to consult the Whitehall Township Comprehensive Land Use Plan when a proposal for a special land use permit, variance request, or other development is brought before Whitehall Township's Planning Commission. What the Plan has to say about the particular proposal within *the Goals, Objectives, and Implementation Strategies* section, the *Recommended Future Land Use Districts* section, and all other applicable sections must be consulted and reviewed. The decision to grant the request needs to be made by first determining if the request is consistent or inconsistent with the Whitehall Township Comprehensive Land Use Plan and then whether or not it meets the intent and requirements of the developed Whitehall Township Zoning Ordinance.

Chapter 6

RECOMMENDATIONS

A. Natural Resources Recommendations

Protection of Whitehall Township's natural and cultural resources is an essential element of the overall Plan. Therefore, it is recommended to take steps to address runoff and pollution as part of a long-term strategy to improve water quality in Whitehall Township's lakes, river, creeks, and wetlands, in addition to the source of its drinking water.

B. Open Space and Small Farm Recommendations

The open space and small farm sections outline a multi-pronged protection strategy that includes:

- Retaining currently owned Township property.
- Increasing the size of breakdown parcels to a minimum of five acres.
- Working with the Muskegon Conservation District and Muskegon County (Hilt's Landing) to preserve the natural attributes.
- Protecting significant amounts of land in the rural areas by seeking the involvement of nonprofit trusts and other private parties.
- Containing significant wildlife habitat.
- Preserving the pastoral character of the Township's rural sections.

C. Economic Development Recommendations

The most important step that Whitehall Township can take to promote desired economic development is to ensure an appropriate quantity and location of commercially and industrially zoned sites. To encourage developers to build in Whitehall Township's general commercial or industrial areas, the Township should streamline its zoning requirement to eliminate unnecessary obstacles to appropriate economic development. This does not mean that the Township should allow environmentally destructive or high-impact developments, but rather that it should allow a certain amount of flexibility so that developers can propose projects that benefit both themselves and the Township. In addition, the Township should target future infrastructure development (water, sewer, and communications) to areas that are zoned for such uses. In order to retain its ability to attract *desired businesses* to Whitehall Township, they should continue enlisting the aid of Muskegon Area First (the Muskegon County economic development organization).

D. Housing Recommendations

Whitehall Township has traditionally had a range of housing options, as many family units were developed in the Township during the 1970's and 1980's. Whitehall Township has also experienced a significant number (91) of new homesteads being built from 1996 through 2002 (Whitehall Township building permit records). Of these new homesteads, 26% were mobile or modular homes, while 74% were stick built. It appears that economically diversified housing is not a substantial issue for Whitehall Townships as the costs associated with housing often time presents economic challenges. Rising housing costs can threaten the vitality of the community by way of encouraging gentrification of the current economic diversity throughout the Township.

E. Public Facilities and Services Recommendations

To prepare for future growth, the Township should examine the potential need for public facilities such as water and sewer and possibly perform a feasibility study to determine the cost/benefit and the approximate time frame that implementation of such may be necessary. It should continue participation in the PINS program. Also, it should develop new recreational venues, as they are needed.

Chapter 7

CONCLUSION

Value of a Land Use Plan

The aspirations for change included in a land use plan will occur as a result of cumulative private and public decisions about such things as opening a business, locating a residential development, and installing a public park. That is, the inter-workings of investments by private actors, individual entrepreneurs, as well as development decisions by public and quasi-public agencies, bring about physical change to a municipality. If properly used, the Land Use Plan can inform government about where public development, such as playgrounds, should go. It can give potential investors a general sense of where the community would prefer residential, commercial, and industrial development to be located. In short, the purpose of a land use plan is to offer guidance to any and all actors whose decisions affect land. In more particular terms, this land use plan offers several professional suggestions for achieving commonly held aspirations for the Township's future development.

This Land Use Plan provides a clear vision for Whitehall Township's future growth and development. It describes where various types of future land uses, through the Future Land Use Map, and where development should be located, as well as providing clear guidance as to the form, characteristics, and appearance that are desired for future development. However, the vision embodied by this Plan is but the first step in making those visions a reality.

The Whitehall Township Comprehensive Land Use Plan presents agreement about ways to steer change in the Township, based on modes of development, which sustain and support the community in a sensible and responsible manner. The magnitude of expected change is relatively small: the rate of population increase is expected to continue with the number of residents increasing over the next few years throughout the Township. Throughout the Township, the average household income will increase moderately. The long term economic growth projection is for slow but steady growth, meaning that dramatic land use changes may or may not occur in a very few areas and that if these come, these dramatic changes will require several years to be completed. Therefore, the most direct objectives of the Whitehall Township Comprehensive Land Use Plan are improvement in the quality of life for residents and the environment. These objectives are consistent with the goals and objectives identified and might best be summarized as planning to make the best of the assets that Whitehall Township has and wishes to retain.

Beyond this categorized list, is the need for a commitment by the Township to dedicate the necessary resources for review of this Comprehensive Land Use Plan a minimum of every five years. This will enable the Planning Commission to track progress of implementation, while taking the pulse of the community to determine

whether the goals are still appropriate and if additional goals should be added. Following are specific steps that are recommended following adoption of this Plan in order to ensure its implementation. The actions that are recommended will take effort and commitment on the part of Township Planning Commission, Township Board, and its residents.

Recommendations are not given in order of priority.

1. Amend existing zoning ordinances so that they are consistent with the flavor of the land use plan.
2. Increase cooperation and coordination between Planning and Zoning, and other Township organizations, committees, and residents.
3. Cooperate and coordinate with other White Lake area jurisdictions.
4. Develop and revise, as needed, internal review policies and procedures for site plan review to support the Comprehensive Land Use Plan.
5. Commitment to review the Comprehensive Land Use Plan a minimum every five years.
6. Renewed enthusiasm for the historical significance of Whitehall Township. Whitehall Township exists in a beautiful natural setting defined by the White River, Crystal Lake, forested areas, wetlands, and open spaces.

The plan should be consulted regularly, as it is a guide for land use decisions, and should be updated accordingly as the local situation warrants. It is important to note that change is inevitable, and managing that change will be the key to Whitehall Township's success in the control of development and the desired build-out of the Township.

BIBLIOGRAPHY

Arendt, Randall. 'Conservation Subdivision Design: A Four-Step Process'. Natural Lands Trust. February 1995: 1-8.

Arendt, Randall. 'Creating Open Space Networks'. Environment and Development. May/June 1996: 1-4.

Libby and Kovan. Rural Groundwater Contamination: Impacts and Potential Benefits From Land Use Planning and Zoning. East Lansing, MI: Department of Agricultural Economics, Michigan State University.

Michigan Department of Natural Resources, Michigan Coastal Management Program. Growth Management Tools and Techniques. Lansing, MI, April 1995.

Michigan Department of Natural Resources, Real Estate Division. 'Farmlands and Open Space Program.' Lansing, MI, March 27, 1997.

The Natural Lands Trust, 'Open Space Design offers Townships Fair Means to Preserve Rural Landscape.' Pennsylvania Township News. August 1995: 10-15.

Planning and Zoning Center, Inc. Michigan Society of Planning Official's Community Planning Handbook: Tools for Guiding Community Change. 2nd ed., Lansing MI March 1992.

Planning and Zoning Center, Inc.. 'Purchase of Development rights Legislation Signed' Planning and Zoning News. February 1997: 4.

United States Department of Agriculture, Natural Resource Conservation Service and Forest Service. Soil Survey of Oceana County, Michigan. Washington D.C.: GPO, April 1996.

United States Department of Commerce, Bureau of the Census. 1980 Census of Population. Volume I, Characteristics of Population, Chapter C, General Social and Economic Characteristics, Part 24: Michigan, Sections 1 and 2. Washington D.C.: GPO, August 1983.

United States Department of Commerce, Bureau of the Census. 1990 Census of Population and Housing. Washington D.C.: GPO, November 1992.

United States Department of Commerce, Bureau of the Census. 2000 Census of Population and Housing. Washington D.C.: GPO, June 2002.

United States Department of Commerce, Economics and Statistics

Administration, Bureau of Economic Analysis, Regional Economic Measurement Division. Regional Economic Information System: 1969-1993. Washington D.C. GPO, May 1995.

Warbach, John and Mark A. Wyckoff. Growth Management Tools and Techniques. Lansing, MI: Michigan Coastal Management Program, Michigan Department of Natural Resources, April 1995.