# BERLIN TOWNSHIP

# MASTER PLAN

**Prepared by**:

BERLIN TOWNSHIP PLANNING COMMISSION

**Assisted by**:

Community Planning & Management, P.C.
48970 Schoenherr Road
Shelby Township, Michigan 48315

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Community Planning & Management, P.C.
Shelby Township, Michigan

# INTRODUCTION

A Master Plan is a long-range guide to future development; it is a look into the future. It is a statement as to how you wish the Township to look in the future. To that end, the Plan is based upon inventories and analysis of existing conditions, trends and developmental influences. These findings are then coordinated with goals, objectives, and sound principles of planning to create the Master Plan document.

The Master Plan then becomes a document composed of text and a map which reflects the goals and objectives and desired policies of the Township. It is not a regulatory document in itself. Implementation of the Master Plan is achieved through the Zoning Ordinance and Zoning Map which are official ordinances adopted by the Township Board after public hearing and consideration. The Plan, therefore, presents a policy guide in adopting zoning and other developmental controls. As a policy guide, it must remain objective and dynamic and, thereby, is subject to periodic review and updating. It is important to remember that in making any updates that they also remain committed to meeting the general public health, safety and welfare. These prerequisites are common to all planning and zoning decisions.

Within the framework, the Master Plan for future land use development in Berlin Township will present various reviews of basic objectives, inventories of existing conditions, and prospects for the future. Implementation will occur over a period of time and require ongoing monitoring and refinements. In the end, the Plan focuses on making Berlin Township a better place in which to live and achieve this in an orderly and efficient manner.

# GENERAL GOALS AND OBJECTIVES

The basic goal and objective of any Master Plan is to provide a more "desirable" community. By definition, this word means: having pleasing qualities or properties; attractive; worth seeking or doing as advantageous, beneficial or wise; advisable. All of these words or phrases are applicable to a Master Plan. The basic framework and attitudes reflected in the foregoing are certainly indicative of a dynamic program and environment. Ultimately, the goals, objectives and concepts set forth in the Master Plan are implemented through various regulatory and fiscal measures enacted by the Township Board.

Throughout the planning process, the Master Plan deals with a variety of social, economic, demographic and technical components which are dynamic and, therefore, subject to ongoing changes and refinements. Therefore, goals and objectives cannot be constantly evaluated in terms of their conformance to precise formulae. Their value lies in creating the desired framework, rather than the precise standards for implementation. These statements serve to establish the tenets under which the Plan is formulated and the necessary guides in interpreting the Plan, should any questions arise in the future.

Planning goals and objectives may also be interpreted as reflecting basic policies. To that end, they are reflected in specific legislative and budgetary instruments which implement the many facets of the planning process. Within another context, goals and objectives are reflected in the general attitudes and postures of the various individuals who are administrators, advisors, members of Commissions or Boards, or the elected officials participating in community development.

The establishment of goals and objectives involves a variety of land use elements, together with related services and facilities. These statements are often generalized in nature, while some become more specific. They can mean many things to many people; obviously, there will be differences of opinion or emphasis on some issues. In the end analysis, planning decisions must be based upon the public health, safety and welfare.

Determining the question of community needs is, perhaps, one of the most difficult responsibilities in planning. Community needs are not determined by counting a show of hands at a meeting. They are determined by adherence to objective evaluations of development proposals and/or alternatives within a framework of accepted principles of land use planning, precedent, and specific applicable conditions in the area, all tied up in a summary called "findings of fact." This process does require reasonable equities for parties on either side, though some equities may be more imagined or contrived than they are real or reasonable.

In order to be successful, planning and the planning process must continually look toward the updating and broadening of its data base. Planning must also continually seek to better understand interrelationships between uses, the causes and effects. These latter efforts are most important when we seek to depart from the more conventional and chart new paths. Planning is not an exact science, but it must also avoid being "seat-of-the-pants" or emotionally inspired and decided.

This Master Plan element is prepared to set forth the goals and objectives of the Township and ultimately integrate these aims into the various land use proposals. A summary of the various goals are presented in the following pages, beginning with the general and progressing for those with special emphasis on each of the major land use categories. They will look to both short and long-range needs, which will obviously change as a large and more diverse population is experienced.

## GENERAL GOALS

A primary goal of any Master Plan is adherence to its basic concepts and realization of the Plan. The underlying purpose, or long-range goal, of the Plan is maintaining and making Berlin Township a more desirable and efficient community in which to live. Proper land use types and arrangements are necessary elements; however, it must also be recognized that community appearance is important, particularly in terms of the pride and dignity it instills in residents and the resulting improvements engendered throughout the entire community.

1. Promote the preservation and improvement of visual and functional community assets.

2. Allocate and arrange land use patterns so as to be mutually compatible. Uses which complement each other should be grouped, while potentially conflicting uses should be separated by transitional land uses or other buffering devices or zones.

3. Provide for the reasonable protection, preservation and enhancement of fragile environmental areas, together with other important natural assets and features.

4. Develop innovative zoning and other developmental requirements which coordinate rural and urban desires.

5. While planning builds on the past and looks to the future, the provisions for proper and desirable long-range planning shall not be bound to repeat the outmoded and/or undesirable features and standards of yesterday.

6. Encourage and promote the upgrading of older buildings and uses to meet contemporary needs.

7. Encourage and promote public awareness of comprehensive planning needs. Assist special interest groups in coordinating their goals and desires into planning proposals which also reflect the needs of the community-at-large.

8. Maintain a dynamic approach to planning and zoning, but one which continually adheres to established and acceptable principles of planning. Planning Commission, administrative and legislative functions must constantly strive to be fair, firm and consistent.

## RESIDENTIAL GOALS

Residential goals and objectives center around providing safe and decent housing in attractive and desirable settings. Typically, this involves a diversity of housing types; in the case of Berlin, this has a more limited application due to the lack of public sewers and generally poor conditions for on-site sewage treatment.

A summary of basic residential goals and objectives are as follows:

1. A majority of the vacant residential land is on heavy soils and/or subject to high water tables. This indicates the need to emphasize lower density single-family uses in these areas.

2. Higher density multiple-family developments are not envisioned as providing any meaningful element of residential growth within the predominantly rural environment of the Township and its soil conditions.

3. Promote rear and side lot relationships between single-family homes and abutting collector and major thoroughfares wherever possible.

4. Seek to achieve improved land use or natural buffer transitions between residential and more intensive nonresidential uses.

5. Discourage strip residential uses along major roads which isolate interior vacant acreages.

6. Provide for the preservation and protection of fragile and other environmentally sensitive features and coordination of these areas into developments which accomplish these goals.

7. Provide lots of sufficient size to accommodate primary and secondary sewage disposal fields and storm water detention.

8. Promote the preservation of trees and other natural filtering plantings to both existing and new developments.

9. Provide for reasonable residential development alternatives subject to stated conditions, avoidance of conflicts with abutting and neighboring residents and conformance with density patterns and requirements in the general area.

## COMMERCIAL GOALS

Retail and other ancillary service facilities provide a concern within community development and planning. Since Berlin Township is characterized by predominantly problem soils, a rural low density characteristic will prevail. Consequently, the feasibility and need for retail and service is limited. Sites for these areas will, therefore, be limited. Uses will also be limited with respect to disposal needs. Within these basic premises, other goals are as follows:

1. Promote the strengthening of established commercial centers, rather than creating new complexes.

2. Discourage random strip commercial development.

3. Avoid rezoning of nonconforming uses and expansion of marginal commercial uses and use areas, unless they can be converted to productive and valuable community facilities.

4. Promote the rehabilitation of older commercial areas, preferably in joint cooperative efforts involving two or more establishments.

5. Coordinate commercial centers with thoroughfare/freeway and transportation improvements.

6. Continually seek to consolidate and control parking lots and vehicular access points to provide safer and more efficient traffic flows.

7. Develop a liaison and cooperation between Township site plan review and approval of curb cuts by County and State agencies.

8. Periodically review zoning development standards for conformance with current trends and Master Plan proposals.

9. Discourage large and more numerous commercial signs to minimize distractions and confusion.

10. Develop more stringent controls regarding buffer zones, environmental preservation, landscape requirements and site plan review procedures and sewage treatment facilities.

11. Coordinate non-residential development with County Drain Commission to avoid unacceptable increases in storm water runoff.

## INDUSTRIAL GOALS

Industrial facilities, as with commercial activities, contribute to the tax base and employment opportunities. These facilities assume a variety of faces and also present variations in relative assets and liabilities. Soil limitations will influence the types of uses feasible. Locations convenient to major thoroughfares and travel patterns should be provided. Additional goals are as follows:

1. Seek to work with any industrial activity utilizing dangerous elements to eliminate or avoid hazardous environmental conditions.

2. Promote the development of industrial activities in planned industrial environments.

3. Seek to eliminate any conflicting uses which detract from more compatible and viable industrial development areas.

4. Adhere to environmentally responsible requirements in the development and regulation of industrial uses to avoid degradation of the Township's natural resources.

5. Regulate and/or isolate industrial uses with potentially annoying and/or adverse operational features to areas which do not conflict with adjacent and neighboring uses.

6. Seek to create an attractive visual appearance of industrial establishments. Emphasize the provision of front lawn and other landscaped site features which reflect and complement the rural and attractive natural settings which characterize much of Berlin Township.

7. Coordinate on-site sewage treatment with adequate backup areas. Coordinate storm water runoff with Drain Commission to avoid unacceptable increases in volumes.

## RECREATION GOALS

Recreational needs will increase with population growth. Recreation is often viewed or associated primarily with active sports facilities. In reality, this important element of community development also includes a variety of social, cultural, passive and aesthetic considerations. As communities mature, so do the typical residents and the range of age groups, and the required facilities necessary to meet these needs increases. The coordination of environmentally sensitive areas into a system of coordinated open space areas also contributes to the overall community environment and appearance and is pleasing to the eye and mind. In combination, active and passive areas contribute to a more dynamic community and, consequently, one with a better reputation and sustained property values. A review of other major goals is as follows:

1. Provide a balanced recreation program with adequate space and facilities to fulfill current and future needs of a changing population with changing demographic characteristics. The lower density characteristics of Berlin may serve to reduce some recreational needs, but active playfields for youth and adult facilities will still be necessary.

2. Coordinate Township recreational facilities and programs with public schools to maximize benefits to the taxpayers.

3. Recognize the availability and reasonable role that quasi-public and private recreational facilities may play in the overall program.

4. Initiate an orderly improvement program to meet the expanding needs of a growing senior population in coming years.

5. Facilitate the preservation and protection of environmentally sensitive areas and/or the provision of recreational facilities or other open spaces by private developers.

6. Facilitate achieving title to, or acquiring permanent public easements to, lands deemed to offer significant public benefit. Mechanisms may include gifts, scenic easements, assignments to conservancy districts, etc., which result in mutual benefits to donors and recipients.

7. Coordinate floodplain, wetland and other environmentally sensitive areas into preserving undeveloped open space as passive aesthetic features benefitting the image of the Township.

8. Coordinate public access and/or viewing areas of natural resource areas which protect the resources, while expanding opportunities and benefits to the public. Limited passive use or visibility of a resource is a measurable benefit.

## ENVIRONMENTAL GOALS

Environmental features and resources are, or should be, considered in all of the land use elements. Existing natural features require varying and appropriate levels of protection. This requires reasonable consideration of public versus private rights. It is also prudent, desirable and reasonable to require certain replacements and/or improvements to the landscape which assist in nature being able to cope, at least in part, with the effects of increased urbanization. An integral element in this evolving process is public awareness and education. Other major goals include:

1. Preservation and protection of wetlands in a coordinated enforcement program with the Michigan Department of Natural Resources and/or other technically competent agencies.

2. Establish review conditions and development requirements regarding changes in the character and quality of water runoff from urbanized improvements to wetland areas, and the latter's ability to naturally and properly filter or otherwise combat adverse effects of such runoff.

3. Relate the concerns of item #2 above to streams, rivers, ponds and lakes.

4. Institute an ongoing program of public information regarding the short and long-term effects of fertilizers, pesticides, engine oils, fuels, road salts/de-icers, grass clippings, leaves, etc., on wetlands, water bodies and aquifers.

5. Develop a more comprehensive understanding and public awareness regarding on-site sewage disposal and proper site disposal needs.

6. Develop information and refine requirements for well-head protection to minimize risks of contaminating sub-surface water supplies.

7. Promote the preservation and enhancement of tree cover, but also recognize the need for reasonable tree removals for purposes of construction and/or woodlot management purposes.

8. Promote additional tree plantings through refinements to site plan improvement requirements, subdivision regulations and institution of a property owners' participation program.

9. Require impact assessments for special approval land uses and rezonings which analyze and reasonably protect other basic environmental features not reviewed under floodplain or wetland requirements.

10. Promote the dedication and/or reservation of scenic easements, etc., through Township cooperation and participation in the various conservancy district, open space, etc., programs available to property owners.

11. Promote program(s) of waste collection which will ultimately result in waste separation and recycling.

12. Institute and maintain a program of data collection regarding environmental concerns and standards. Utilize this data in periodic reassessment of land development requirements and preparation of popular consumption programs.

13. Continuously seek to interrelate appropriate and reasonable environmental practices in administering development programs and periodic amendatory updates of development standards and criteria.

## TRANSPORTATION GOALS

The efficient and safe movement of people and goods is a paramount goal of any Master Plan. All of these elements must be inter-coordinated with local land uses, major traffic destinations, and with State and County transportation agencies who are responsible for major improvements along their respective corridors. Basic goals include:

1. Cooperate in developing a Thoroughfare Plan classifying and arranging public roadways in such a manner to most efficiently and safely move people and goods through and throughout the Township in minimum time.

2. Pursue a program of tighter control on the review and approval of curb cuts along major rights-of-way. This requires the cooperation of the County Road Commission who actually regulates these cuts.

3. Promote the ultimate elimination of parking in rights-of-way, with particular emphasis upon parking movements which back into moving traffic lanes. This will require alternate parking areas in a number of situations.

4. Pursue the reduction in curb cuts along major routes by the consolidation of driveways and parking lots. Coordinate driveway locations with neighboring curb cuts, bypass, acceleration/deceleration lanes and turning lanes.

5. Pursue and assist, where possible, rehabilitation projects which seek to reduce curb cuts and inter-coordinated parking areas.

6. Promote rehabilitation projects by offering technical, planning, building and engineering advisory services to coordinate development/redevelopment projects.

7. Coordinate building, parking and landscape requirements with the provision of reasonable and desirable sight distances and turning movement patterns.

8. Provide for proper separations between customers, delivery vehicles and pedestrians. This includes internal site considerations, as well as to abutting thoroughfares.

9. Seek to eliminate hazardous intersections and other problem areas before traffic grows any heavier.

10. During the process of reviewing development proposals, the Township should increase its review and requirements regarding several issues:

    a. Coordinating control of curb cuts with State and County agencies to improve traffic control and safety.

    b. Develop and coordinate more effective requirements for open space, planting areas and vehicular/pedestrian circulation patterns to facilitate improved functional and visual environments.

    c. Discourage/prohibit new vehicular patterns which would unreasonably increase traffic volumes through interior residential planning areas.

11. Work with County and State officials in their planned improvements in and near Berlin Township.

## COMMUNITY FACILITY GOALS

Community facilities include the public structures involved in providing or facilitating Township administration, meeting space, library, police, fire and ambulance, public works, community centers., etc. To the extent possible, school facilities are integrated into the planning process and close coordination and cooperation between the Township and the School Board is extremely valuable due to both their goals of more efficiently and effectively serving the public. It is recognized that today's needs in Berlin are different than those which will be required to serve the expanding population in coming years. A primary concern at this point in time is reserving/acquiring any lands which may be necessary for future Township development. Major goals and objectives are as follows:

1. Evaluate present building to determine its physical and functional abilities to fulfill current and long-range building, parking and barrier-free needs.

2. Evaluate future public service needs relative to fire and police services.

3. Evaluate other public service needs, such as library, public services, etc.

4. Seek to acquire any projected land need in a location which would permit multiple use of the site in the most efficient manner.

5. Acquire any necessary sites in advance of urbanization to assure desirable location, minimize site costs, and permit phased construction of a building complex/facility in accordance with a site master plan.

# HISTORICAL FACTORS

Initial development in Berlin Township occurred at Baker's Corners, now known as Berville, when William Baker arrived in 1836 or 1837. Shortly after Cyrus Stoddard settled three miles to the north on the Banks of the Belle River, Albert Doty also arrived in 1837, and located just northeast of the Stoddard family. These three families were reported to have a total of 22 children which, together with their parents, would have produced an average family size of 9.3 persons. This is certainly different than the 3.1 persons per household recorded in 1990. Other early settlers included the Bruce's, Lathrop's, Charles Lester, and Lewis Smith. All of the early families came from New York and the New England States. For the most part, they tended to located along the River.

The first commercial venture, a saw mill, was started by Mr. Bruce along the Belle River north of Berville. Mr. Lester bought out the partially completed building, finished it, and some years later added a grist mill to the operation.

In 1843, the first school was built on the corner of the Stoddard farm. The first school building was a log cabin and the site is the same as later occupied by Stoddard schools. A number of Indian families lived in the area and their children also attended the school. It was reported, however, that they had a tendency to bolt through the door if they spied a rabbit or squirrel. The school also served as the first church.

About this same time, Berlin Township was formed, which also included the areas now known as Mussey and Lynn Townships. The Township was named after Berlin Germany. The first Township meeting was held in a bachelor's shanty, one mile west of Berville. Mr. Lewis Smith was the first pathmaster and responsible for completing a list of non-resident landowners. This list grew to be longer than the door on which it was posted, and suggests there was land speculation in those days too.

In the early 1840's, several settlers began development in the western part of the Township, then referred to as half town. These early pioneers cut their own trail in from Romeo, 18 miles away. Romeo was the closest trading post and was referred to at that time as the "settlement." There were few horses in those days, and even fewer wagons. It was not uncommon for men to carry maple sugar to Romeo, trade it for flour or groceries, and return home that night. Romeo also was the closest location for a doctor for many years. Similar foot treks for trading and supplies were also made to Almont.

The nearest post office was in Armada, then known as Burk's Corners, eight miles to the south. Mail from Detroit went once a week by stagecoach to Romeo and then by horseback to Armada. Berville was the site of the first post office in Berlin Township in the early 1850's. Deliveries grew from once to twice a week and in 1865, three deliveries a week were provided.

A single railroad track was built between Almont and Berville during early times. Since it had no round house, the train traveled both backward and forward. This train was a popular source of travel, especially when the circus was in Port Huron. It also provided transportation for agricultural crops.

The hotel in Berville received the first telephone in 1899. In 1923, the hotel's first electrical lights were installed.

Over the years, agriculture has played an important role in Berlin Township. With the exception of several mills, stores and the hotel, the local economy was dominated by farming. Its rich farmlands resulted in its being dubbed the "garden center" of St. Clair County. The relative farming strength of the area was noted as late as 1969, when 80 percent of St. Clair County's vegetable production was attributed to Berlin Township. Today, agriculture remains an important asset, but a variety of pressures combine to make it a challenge pursued primarily by large-scale operations.

Today, settlements remain concentrated in the Berville and Allenton areas. Some 125 of the approximately 800 dwellings reported in 1990 are located in these two areas. Growth in the outlying portions of the Township continues to increase. Today, the communities of Romeo, Armada and Almont remain significant activity centers, as do Capac and Port Huron. The original orientation toward the central city (Detroit) has also reflected itself in primary employment centers in Warren and Sterling Heights. There is again an outward movement of significant jobs as illustrated by the Romeo complex. History seems to be running another cycle.

# PHYSICAL FEATURES

While a variety of geographic, economic and social elements influence growth in a community, its physical characteristics are also of major concern. The types of soils, topography, drainage and load bearing capabilities are significant features to residential, commercial and industrial builders. It is, therefore, important to review and understand the basic physical features affecting Berlin Township in its future growth and development.

In the following pages, a review of basic geological, topographic, soils, water bodies, woodlands and wetlands will be presented. These elements represent nature's contribution to the Township's environment. Collectively, these features may complement or conflict with various forms of development.

When integrated properly into development proposals, physical features serve to enhance the character and appearance of the constructed environment. Conversely, ignoring physical features, or misusing them, can have significant, long-term negative consequences. Some well-defined physical features serve as a barrier to development and may be difficult to overcome, except at considerable expense. It is usually better to design with nature than to attempt to substantially change an area's physical environment.

## GEOLOGY AND TOPOGRAPHY

Michigan's physical setting, as we know it today, including the Great Lakes that surround the State, are the result of the interaction of glacial action on the bedrock formation that underlay the State. The bedrock formations of the State consist largely of sandstone, limestone and shale, which were particularly vulnerable to the weight and movement of the glaciers. The weight of the glaciers depressed the land mass surrounding Michigan, forming basins that would eventually become the Great Lakes.

Southeast Michigan's physical setting consists of three well-defined regions, two of which directly influence Berlin Township. The first of these areas is known as the Erie-St. Clair plain. This area extends for a depth of approximately 25 miles along the shoreline of Lake Huron, Lake St. Clair and Lake Erie, from Michigan's thumb area on the north to Toledo on the south. It also extends east into Canada, encompassing the entire "panhandle" portion of Ontario. This area is a nearly level glacial plain that rises gradually to the west. It is crossed by numerous streams emptying out into the Great Lakes system.

ILLUSTRATION 1

TOPOGRAPHY

The last period of glaciers that covered Michigan was directly responsible for the Township's basic land forms. As these glaciers moved south, they accumulated large quantities of soil that were eventually deposited across southern Michigan and neighboring States. This soil accounts for much of Michigan's productive agricultural land.

Melting glaciers resulted in several lakes that flooded St. Clair County at various times. This ancient lake bed helps determine the general physical characteristics of the Township, which is essentially flat except for several slight ridge lines.

Topographic conditions can have a significant influence on land development patterns. Topography, for example, can impact the site location, orientation and design of buildings, roads and utilities. Where topography is extreme, slopes become an important consideration due to concerns relating to the ability of the land to bear the weight of buildings and the danger of erosion. Sometimes, topographic variations offer opportunities to appreciate the scenic environment. The absence of significant changes in topography can result in the need for man-made drainage improvements.

Berlin Township's topographic features are a direct consequence of the glacial actions described earlier. The community is relatively flat. There are two ridge lines, or plateau areas which run through the Township on northwest-southeast axis. One of these lines runs through Berville and extends northwestward to exit the Township just west of the intersection of Capac and Burt Roads. The other extends from Coon Creek Road to Dryden Road as it leaves the Township. In total, the difference in elevations created by these features is in the area of 30 to 35 feet. The Belle River, which runs east-west through the northern third of the Township, produces the steepest slopes along limited areas of the banks.

The highest point in the Township is slightly over 830 feet (above sea level) and is located just north of the intersection of Masters and Lathrop Roads at the East Berlin Cemetery. The lowest elevation appears to be in the southwest corner of the Township at 786 feet. A majority of the low land area runs between 790 and 795 feet.

An extensive system of streams and drainage course bisects the flat lines to offer relief from storm water runoff. The northern two-thirds of Berlin drains primarily toward the Belle River, while the southern portion runs toward the Coon Creek and Newland Drain.

The natural drainage ways have been greatly enhanced and supplemented by man-made drains and field tiling. Basic drainage patterns can be detected from the accompanying illustration of the topography and drainage-ways. These features were important elements in the past and will continue to be into the future. Any new development will increase water runoff, and provision must be made to accommodate this flow. Part of this water may be captured on-site, but some increases will be experienced off-site regardless of densities permitted. Therefore, the Township must remain aware of these needs in their planning and improvement programs. A close liaison must also be maintained with the County Drain Commission.

It is also interesting to note the early influence created by physical features in Berlin Township. Both Berville and Allenton are located on higher elevations as are the cemeteries.

## SOILS

Soil characteristics have an important influence on the ability of land to support various types of land uses, including roads, buildings, utilities and agriculture. Four specific soil characteristics influence their ability to be used for various purposes. These include the following:

- Bearing Capacity -- the ability to support the weight of roads, buildings or vehicles.

- Erodibility/Stability -- the susceptibility of the soils to erosion hazards and the ability to accept weight, without causing mass movements such as mud flows and slides.

- Drainage -- the capacity of soils to transit and receive water. This characteristic is especially important for determining the ability of soils to accept on-site waste water treatment systems. Soil drainage characteristics are influenced by particle composition and water content.

- Resource Value -- the economic worth of the soil for agricultural purposes, or as a fill or mined material.

Berlin Township's soil characteristics were identified as part of the larger St. Clair County Soil Survey issued in 1974 by the United States Department of Agriculture Soil Conservation Service. Categories of soils with different characteristics and physical properties were identified as part of the survey. The results of this process resulted in a patchwork or jigsaw-like pieces that fit together to portray a larger overall picture of existing soil characteristics. A large number of individual soils types are present in the Township. These individual categories are grouped together into several generalized classifications of soils that share similar characteristics. A total of twelve of these grouped categories are located in St. Clair County. Four of these cover Berlin Township. The characteristics of these local categories are described as follows and are illustrated on the accompanying Generalized Soils Map.

ILLUSTRATION 2

GENERALIZED SOILS

### Blout-Parkhill Association

This grouping of soil types occurs on nearly level to gently sloping, somewhat poorly drained, and poorly drained soils that have a dominantly loamy subsoil, on till plains. It represents the largest coverage of land in Berlin Township and runs over higher, as well as lower, lands. Individual soil categories within this grouping contain soils which are both adaptable and severely limited for septic tank usage. Agriculture is a user of lands in this grouping, with an emphasis on dairying and cash crops. High water tables are characteristic and need drainage for most uses.

### Hoytville-Allendale-Nappanee Association

This grouping of soils typically occurs on nearly level to gently sloping, very poorly drained, and somewhat poorly drained soils that have a clay to sandy subsoil, on till plains and moraines. This category represents a small proportion of the Township area being located in several limited areas in the northwest quadrant of the Township. There is a diversity of characteristics allowing residential and farming in certain circumstances and presenting problems to these same uses on an adjoining area.

These lands typically have a seasonal high water table and require drainage for most uses.

### Bach Association

Soils in this category may generally be on nearly level, very poorly drained, dominantly high-lime soils that have a loamy subsoil, in glacial drainage-ways, and on the lake plain. This grouping occupies some 25 percent of Township land area lying primarily between the two higher plateau areas. Basically, these areas are low lying, flood-prone parcels subject to flooding and wetlands. Their adaptability is more limited; drainage is required.

### Alluvial Land-Rough Broken Land Association

This grouping of soils contains low, as well as sloped, properties. It occurs on nearly level to gently sloping, well-drained to poorly drained soils, on floodplains, and the adjacent steep to very steep soils on bluffs. This grouping is limited to approximately the eastern half of the Belle River and includes only a narrow band of land along the banks.
Typically, the low lands are subject to flooding and the steep banks to erosion. In both instances, development requires careful analysis.

None of the four groupings described above suggest ready adaptability to high density urban development. There has not been a movement to higher density residential uses in recent decades. Typically, families seeking residences in Berlin Township have been locating on acreage parcels. Non-residential usage has been very limited, serving only a portion of daily convenience needs.

Based upon the foregoing findings, a continuation of these trends is certainly warranted. Since the four soil groupings reviewed are relatively broad, a second level of review was conducted regarding potential adaptability of soils for septic tank usage. In this phase of inventory, soils which were classified as having slight to moderate limitations for septic tank were reviewed. The generalized map illustrating these areas indicates few areas fall in these categories.

This obviously reflects previous reviews and reinforces the need to accomplish several things in the planning and development process. Small lot development and higher density uses generating higher levels of storm water runoff and septic tank effluent are not appropriate uses to the Township. It also remains crucial that the Township maintain a close coordination with the County in the installation of storm water and septic facilities.

## WATER BODIES

Water resources occur both as surface and ground water elements. Berlin Township's most dominant surface water resource is the Belle River, which meanders across the northern portion of the community. Its volume is subject to seasonal variations and may, at times, flood its banks. It is an attractive visual feature which is the backbone of the storm drainage system. With the higher table characteristic of the area, there is also a strong probability of links between shallow water tables (aquifers) and the river. In view of these factors, it is important that the application of fertilizers and septic tank disposal fields be well managed. Excess fertilizer applications and/or leaking septic tanks/fields have a much easier opportunity to contaminate both surface and sub-surface water resources. In turn, the ultimate recipients of these discharges will experience undesirable levels of contaminants.

A number of persons in the community have also dug ponds for various reasons. These pits may also facilitate the flow of contaminants to sub-surface water supplies. This potential is also increased by chemicals which are often added to the ponds to control weeds. Weed growth is often accelerated by the runoff of fertilizers/pesticides from lawn and/or garden applications.

Increasing attention must be focused upon public education dealing with various environmental issues. One of the foremost causes of contamination is improper fertilizer and pesticide applications.

ILLUSTRATION 3

SOIL LIMITATIONS FOR SEPTIC TANKS

## WOODLANDS

At the time southeast Michigan was originally settled, the area was covered with dense hardwood forests. As the number of inhabitants increased, these forests were cleared for lumbering and farming purposes. Today, the quantity of land still occupied by mature vegetation has diminished. Where large contiguous woodlands remain, however, they provide benefits that need to be considered in the planning process.

Woodlands are frequently only considered valuable as a visual amenity enhancing the natural or constructed environment. Trees serve many other useful environmental purposes that should be recognized for planning purposes. These include the following:

- Slope stabilization and erosion control
- Conserving water quality
- Maintaining a micro-climate
- Filtering pollution from the atmosphere
- Decreasing noise
- Providing a habitat for wildlife.

Recognizing these important physical properties and integrating woodlands into future development can improve the community's overall environmental quality and enhance the visual character of the constructed environment.

Wooded areas are distributed throughout Berlin Township. A number of these woodlots are located in interior section acreage. Farming, with its need for open fields, has seen a number of wooded areas cleared in the past; consequently, there is a blending of fields and woods. In the future, the vitality of these areas could be extended by woodlot management programs. Selective planned harvests of trees are provided, which is an asset to the environment and represents an economic return to the owner.

It would be desirable to also require the installation of trees with new nonresidential development. This would represent a valuable addition to both the visual and environmental resources of Berlin Township.

## WETLANDS

Wetlands are another important element of Michigan's landscape. Before experiencing settlement in the late 18th and early 19th centuries, Michigan was thought to contain over 11 million acres of wetlands. Like the extensive forests that once covered the State, the unique physical characteristics of many of these wetlands were permanently altered as a consequence of the settlement of the State. This change occurred as forests were logged and swamps drained for farming purposes. Between 25 and 50 percent of these original wetlands remain in Michigan today.

Wetlands are areas characterized by the presence of water that either saturate the soil or cover the land most or all of the year. Because of this characteristic, wetlands have the ability to support unique varieties of plants and animals. Not all wetlands are similar, however. Several categories of wetlands are found in Michigan. These varieties are the result of differences in climate, bedrock geology, soil characteristics and landforms that are unique to different portions of Michigan.

The characteristics of wetland vegetation provide the basis for making a distinction between different types of wetlands. The two basic types of wetlands are forested and unforested. The largest share of remaining State wetlands are of the former variety. Many of these forested wetlands have soils that are saturated with water during seasonal periods. These wetlands are commonly referred to as swamps. Swamps differ from unforested wetlands, more commonly known as marshes, wet prairies, wet meadows, fens and bogs.

Marshes are those areas that normally occur along the edges of lakes and streams. These areas are flooded for much of the year, with average depths of under five feet. Commonly occurring vegetation in marshes include emergent plants such as bulrushes, cattails, sedges, grasses, and floating or underwater plants.

Wet prairies consist of land located between marshes and abutting farm land. Their existence is a result of fluctuating water levels and Indian fires, which prevented the establishment of more permanent vegetation, including trees and shrubs. Few of these unique wetlands exist today. Many of these areas have been absorbed into the adjoining agricultural acreage. Wet prairies are recognizable by the striking vegetation that inhabit these areas, such as asters, goldenrods, mints, rare milkweed, Indian plantain and assorted prairie grasses.

Fens are a common herbaceous wetland located in areas characterized by saturated, lime-rich soils. Fens are commonly found at the bottom of ridges where poor drainage conditions exist resulting in much soils. Like wet prairies, farming has absorbed many of these wetlands.

The remaining category of non-forested wetlands are known as bogs. The most striking feature of a bog is the thick acidic peat mats that cover these areas. These are formed as a result of the decomposition of sphagnum mosses and sedges. Many bogs have been permanently changed as a consequence of peat mining activities, especially those located in the more populated portions of southeast Michigan.

In spite of these differing characteristics, wetlands share some common physical properties that have important consequences for planning purposes. Wetlands serve a number of necessary environmental functions. These include the following:

- Protecting downstream water supplies by providing clean ground water as a result of the nutrient retention and sediment removal. Wetland vegetation traps these sediments and pollutants, thereby preventing them from being deposited in surface water bodies.

- Functioning as effective natural storage basins for floodwater. Wetlands may be considered large sponges that absorb large quantities of seasonal precipitation, gradually releasing it when the receiving channels are able to accept it.

- Protecting the shoreline from erosion caused by wind and wave action and effectively serving as environmental shock absorbers.

- Providing a habitat for many types of plants and animals that thrive in the type of physical environment created by wetlands. These plants and animals provide an economic and recreational benefit as a result of hunting, fishing, and other leisure activities.

Development in or around wetlands are regulated by several State statutes, the most prominent of which is the Goemaere-Anderson Wetland Protection Act (P.A. 203 of 1979). This Act regulates the development of wetlands if they meet one or more of the following criteria:

- Are contiguous to the Great Lakes or Lake St. Clair, an inland lake, pond, river or stream.

- Are not contiguous to one of the water features noted above, but are greater than five acres in area and are located in counties with populations exceeding 100,000 persons.

- Are less than five acres, not contiguous to any water feature, and are considered necessary to the preservation of the natural resources of the State from pollution, impairment or destruction.

Permits are required by this legislation for the following activities: 1) depositing or placing fill material in a wetland; 2) dredging or removing soil from a wetland; 3) constructing, operating or maintaining any use or development in a wetland; and 4) draining surface water from a wetland. Specific categories of activities are exempt from the requirements of the Wetland Protection Act.

Other State statues that have the effect of regulating wetland development include the Inland Lakes and Streams Act, the Floodplains Regulatory Act, the Great Lakes Submerged Lands Act, and the Shoreline Protection and Management Act.

Extensive wetland areas are located in Berlin Township. These wetland areas are identified on National Wetland Inventory maps prepared by the U.S. Department of the Interior. High altitude aerial photographs were used to identify wetland areas based on vegetation, visible hydrology and geography. This information was further supplemented through the use of Michigan DNR wetland mapping. The accompanying Generalized Wetland Map represents a composite of those two sources. On-site field investigations are needed to determine more conclusively the actual characteristics and extent of each identified wetland as development is planned. It should also be noted that the areas indicated on the map are probably conservative due to the typically high water table and seasonal inundation. The areas as illustrated, are scattered throughout the Township. They are located primarily in lower areas, but are also located on some of the ridge-lines. This situation further documents the need to maintain lower density patterns in future planning activities.

ILLUSTRATION 4

GENERALIZED WETLANDS

# EXISTING CONDITIONS

As previously indicated, Berlin Township has a history dating back some 150 years. Agriculture played a basic role in past years and remains as an important element of development today. While changes are occurring, they tend to be somewhat different for several reasons. Understanding the influences on growth and existing characteristics of housing and the population will aid materially in planning for the future. A review of regional growth factors, population characteristics, housing characteristics, and current development trends will provide the necessary additional growth indexes.

## REGIONAL LOCATION

Development within Southeast Michigan remains concentrated in the Metropolitan Detroit area. Growth into the northern suburbs remains the dominant force; however, Oakland County and the I-75 Corridor have become the premier development locations. Over 50 percent of all new residential construction in Metro Detroit has occurred in Oakland County in recent years. This growth parallels new nonresidential, which has also moved in this direction.

This situation deviates somewhat from a 1960's projection, which saw a greater rate of growth extending outward from Detroit and linking up with Port Huron. In that scenario, Port Huron was to become a strong center of nonresidential and residential development. It would be linked to Detroit via I-94, Flint via I-69, and Canada via the bridge, all of which would complement Port Huron's importance and greater independence.

During the ensuing years, several changes have occurred which serve to modify this projection. First, the economy of the area has suffered change as the auto industry has diversified its manufacturing plants throughout the Nation. This has resulted in a greater diversity in the economic base, which has been extremely valuable. Family sizes have also declined more than expected, which, combined with the economic retrenchment, resulted in few persons and new households being realized. As a result, Port Huron remains as the dominant center of activity north and northeast of Detroit, but the more urbanized connection is yet to be realized.

Berlin Township holds a convenient location within the triangle formed by Detroit, Flint and Port Huron. A freeway interchange with I-69 lies some 400 feet north of the Township on Capac Road. This latter surface route is a major north/south thoroughfare linking Berlin to Capac to the north, and Detroit suburbs and employment centers to the south. It is a 30-minute drive to these centers in the south; 25 minutes to Port Huron; and 40 minutes to Flint. A variety of full comparison shopping facilities are also available in these centers.

A large selection of day-to-day shopping and service facilities are available within a 15-minute drive. Based upon these features, persons living within Berlin Township are able to live within a rural environment, with little increase in travel time to employment and service centers.

It is anticipated that this trend will continue in the future, and additional employment and shopping facilities will occur in closer proximity. The pressures from added growth in neighboring areas will extend into Berlin to a greater degree. This will then create pressures for a variety of uses, which, in many cases, will be solely for the benefit of a property owner, without regard to the Township's needs and benefit. At such time, the Township must be ready to accept these challenges and implement its Plan for the future.

## POPULATION CHARACTERISTICS

The Township contained a total of 2,407 persons, based upon U.S. Census counts for 1990. This figure produces a ratio of approximately 67 persons per square mile, which is a relatively low density. Of the 23 Townships in St. Clair County, Berlin ranks 15th in terms of total population; populations range between 921 (Lynn) and 8,968 (Fort Gratiot) persons. Unfortunately, the immense load of 1990 Census figures requiring computation prevents any further detailed statistics being available at this time.

In terms of general growth trends, Berlin grew from 1,418 in 1960, to 1,595 in 1970, 2,160 in 1980, and 2,407 in 1990, which amounts to respective numerical increases of 177,565 and 247. While the growth rate declined between 1980 and 1990, the rate of 11.3 percent locally well exceeded that of the County at 4.9 percent.

A preliminary estimate of average household sizes provides some additional insight utilizing preliminary Census figures. Berlin Township, in 1980, had an average population of 3.35 persons per household, which was higher than St. Clair County (2.92) or six other counties in the southeast corner of Michigan. In 1990, it is estimated that this figure is 3.17; in St. Clair County, the figure is now estimated at 2.71. The significance of the 1980 figure rested in it being a younger-than-average community in terms of a lower median age and having more households with children. Based upon these considerations, it appears that Berlin Township is holding similar characteristics to those presented in the 1980 Census. Since current Census figures are not yet available, the 1980 statistics will be utilized as basic indexes. These are useful tools and minor departures from these figures will not represent any problem to future planning activities.

## Household Sizes

It has been previously indicated that the average number of persons per household in Berlin has declined from 3.35 to an estimated 3.17 in 1990. This decrease reflects a National trend, and is certainly not any cause for concern. It is anticipated that this trend will, in fact, continue, but at a decreasing rate in future years.

Local Berlin households have maintained a more youthful average age which reflects a growing community. Expanding areas frequently attract a greater proportion of households with children. A household differs from a family in that it includes all persons living together as a single housekeeping unit, regardless of any material status. The average household size, therefore, becomes more important in projecting future populations and their respective needs. A younger community with more children will also generate different needs than a retirement community with a majority of senior citizens.

Comparing household sizes in other areas, the relative youth of Berlin becomes more obvious. Table 1 illustrates that, in 1980, Berlin had substantially larger family sizes than the counties of St. Clair, Oakland and Wayne, which have a greater cross section of older and newer towns. Macomb County, which is in major growth corridors, also has a higher than normal household size.

TABLE 1

AVERAGE HOUSEHOLD SIZE
BERLIN TOWNSHIP AND SELECTED COUNTIES

1980

| Community | Average Household Size |
|---|---|
| Berlin Township | 3.35 |
| St. Clair County | 2.92 |
| Macomb County | 3.15 |
| Oakland County | 2.82 |
| Wayne County | 2.80 |

Source: 1980 U.S. Census

Normally, the larger sized households are experienced for 15 to 20 years, and then they begin to assume more normal proportions. This occurs as children mature and ultimately move away from home, and the parents remain in their house. Gradually, new families with children will replace some of the "empty nesters," and a wider cross-section of family units is achieved.

Lower household sizes may also be influenced by higher proportions of apartment units in a community's housing stock. It is not uncommon to see an average apartment house with 2.0 persons per dwelling; they also typically generate fewer children per dwelling. Based upon soil limitations in the Township, it is not projected that higher density housing will represent any meaningful component of the local housing supply.

In the future, local families will begin to narrow the gap between household sizes. A greater proportion of the dwellings will be occupied by retired persons. There will always be a significant proportion of the households with youngsters. Therefore, the community must look toward providing facilities for a balanced population.

**Age Distribution**

Another basic index of population is the composition by age groups. The proportion of persons under age five (pre-schoolers) in 1980 was somewhat higher locally than in the County; 8.8 versus 7.7. Conversely, the ratio of persons aged 65 or over was 7.1 in Berlin, versus 10.7 in the County. See Table 2. With the increasing longevity of life, the ratio retirement aged persons will continue to increase in many communities in the future. Ratios of 10 to 12 percent will become relatively common in balanced towns.

Several other age groups are also of interest in analyzing a community. School age children, ages 5 through 17, require both school and local consideration. As would be expected at this point in time, Berlin's population has more than the normal number of persons in this age span; 28.5 percent in the Township, versus 24.1 in St. Clair County. The other primary age group is that of principal family forming and child bearing; today, this includes the 21 through 44 year-olds. Berlin ranks somewhat higher (35.1 percent) than the County (33.1 percent) in this category.

These factors continue to bear out the relative youth of the Township. It is also noted that 51 percent of the local families had children, as compared to between 27 and 39 percent in Wayne, Oakland, St. Clair and Macomb Counties.

TABLE 2

AGE DISTRIBUTION

BERLIN TOWNSHIP AND ST. CLAIR COUNTY

1980

| | Berlin Township | | St. Clair County | |
|---|---|---|---|---|
| **Age Group** | **Number** | **Percent** | **Number** | **Percent** |
| Under 5 years | 191 | 8.8 | 10,646 | 7.7 |
| 5 - 13 years | 415 | 19.2 | 21,862 | 15.7 |
| 14 - 17 years | 200 | 9.3 | 11,673 | 8.4 |
| 18 - 20 years | 83 | 3.8 | 7,503 | 5.4 |
| 21 - 34 years | 518 | 24.0 | 30,321 | 21.8 |
| 35 - 44 years | 239 | 11.1 | 15,655 | 11.3 |
| 45 - 54 years | 177 | 8.2 | 13,575 | 9.8 |
| 55 - 59 years | 87 | 4.0 | 6,875 | 4.9 |
| 60 - 64 years | 98 | 4.5 | 5,972 | 4.3 |
| 65 - 74 years | 99 | 4.6 | 9,027 | 6.5 |
| 75 years & over | 53 | 2.5 | 5,783 | 4.2 |
| TOTALS | 2,160 | 100.0 | 138,802 | 100.0 |

Source: 1980 U.S. Census

## Residential Construction

The impact of newer home construction in Berlin is evidenced by an estimate that 38 percent of the local dwellings have been built in the last 20 years, as compared to some 31 percent in the County. It is also interesting to note that 260 homes in Berlin, 32 percent of the total, were built 50 years or more ago. The ratios of homes aged 20 to 50 years all tend to be lower than County averages. The housing stock is, therefore influenced by both the new and the old. See Table 3.

TABLE 3

AGE OF HOUSING

BERLIN TOWNSHIP AND ST. CLAIR COUNTY

1990

| | Berlin Township | | St. Clair County | |
|---|---|---|---|---|
| **Age of Dwelling Unit** | **Number** | **Percent** | **Number** | **Percent** |
| 0 - 9 years | 103 | 12.8 | 5,469 | 9.7 |
| 10 - 19 years | 204 | 25.3 | 11,938 | 21.1 |
| 20 - 29 years | 92 | 11.4 | 7,231 | 12.8 |
| 30 - 39 years | 99 | 12.2 | 7,585 | 13.4 |
| 40 - 49 years | 49 | 6.1 | 7,030 | 12.4 |
| 50 years & older | 260 | 32.2 | 17,413 | 30.6 |
| TOTALS | 807 | 100.0 | 56,666 | 100.0 |

Source: 1980 U.S. Census and SEMCOG Building Records and Adjustments by Community Planning & Management.

Since a significant share of the dwelling supply is older, care will have to be given to promoting their maintenance and repair. Most homes of that vintage will have been through the usual repairs, which typically include plumbing, wiring, insulation and windows. These represent common deficiencies and should be promoted to maintain safe and reasonable living conditions. The Building Department must remain aware of these potentials and encourage homeowners to bring their living units up to code. Public education can assist in this matter.

The rate of residential construction within the Township has shown fluctuation due to various influences. Between 1980 and 1990, there were some declines due to adverse economic conditions nationally, as well as locally. During 1980 and through 1985, a total of 31 living units were authorized in the Township. This amounted to an average of five dwellings per year. During 1986 and through 1990, an additional 108 dwelling units were authorized, which represents an average of 22 per year. In 1989, 39 dwellings were authorized. Based upon past growth trends and the advancing edge of urbanization, it would not be unreasonable to expect the construction of 100 dwelling units a year in five to ten years. This is not an overwhelming rate, but it will create change. It does, however, represent a significant departure from current trends and projections of the County and SEMCOG and is indicated as a word of caution.

## Employment and Income Characteristics

The vast majority of 1980 employed persons (96 percent) worked within the Detroit Metropolitan area, which included St. Clair, Lapeer, Livingston, Macomb, Oakland and Wayne Counties. Of these persons, 27 reported employment in the City of Detroit, and 853 elsewhere in the Metro area. There were only nine persons working outside the area, which could have been most easily to the north or northwest. These indicators reflect the major observed movements toward the south for primary employment opportunities. It is expected that employment centers will gain added strength closer to the south and both to the east and west as urban sprawl continues.

TABLE 4

DISTRIBUTION OF EMPLOYMENT BY OCCUPATION AND INDUSTRY

BERLIN TOWNSHIP AND ST. CLAIR COUNTY
1986

| | Berlin Township | St. Clair County |
|---|---|---|
| **Type of Occupation** | **Percent** | **Percent** |
| Managers & Professionals | 13 | 18 |
| Technicians, Sales & Support | 13 | 26 |
| Service | 13 | 14 |
| Farming | 11 | 2 |
| Skilled Workers | 20 | 17 |
| Operatives & Laborers | 30 | 24 |
| Totals | 100 | 100 |
| **Type of Industry** | | |
| Manufacturing | 42 | 32 |
| Transportation/Communication | 4 | 9 |
| Wholesale & Retail | 15 | 19 |
| Finance, Insurance & Real Estate | 1 | 4 |
| Business & Personal Services | 5 | 6 |
| Professional Services | 13 | 18 |
| Public Administration | 4 | 4 |
| Other | 16 | 8 |
| Totals | 100 | 100 |

Source: 1980 U.S. Census

Employment characteristics derived from 1980 Census figures indicate some 60 percent working as skilled workers, operatives and farmers. This compares to 43 percent in the County. The ratio employed as professionals was somewhat smaller than the County. Manufacturing was the primary source of employment, which obviously coincides with the occupational figures. See Table 4.

In terms of median household income, Berlin ranked above St. Clair County and in the middle of the other metro counties. The $21,705 income also showed some interesting characteristics in terms of distribution. Proportionally, the Township reported fewer households, 28 percent, with incomes of less than $12,500 in 1980 than the County ratio which was 35 percent. While the group reporting incomes over $50,000 was smaller in the Township, the group earning between $25,000 and $50,000 was 38 percent, as compared to 28 percent in the County. See Table 5. It was also noted that fewer residents reported assistance by social agencies.

TABLE 5

DISTRIBUTION OF INCOME PER HOUSEHOLD

BERLIN TOWNSHIP AND ST. CLAIR COUNTY
1980

| | Berlin Township | | St. Clair County | |
|---|---|---|---|---|
| **Income Groups** | **Number** | **Percent** | **Number** | **Percent** |
| Less than $ 2,500 | 27 | 4.1 | 1,860 | 3.9 |
| $ 2,500 to $ 4,999 | 31 | 4.7 | 3,845 | 8.1 |
| $ 5,000 to $ 7,499 | 48 | 7.2 | 3,359 | 7.1 |
| $ 7,500 to $ 9,999 | 37 | 5.6 | 3,461 | 7.3 |
| $10,000 to $12,499 | 40 | 6.0 | 3,491 | 7.4 |
| $12,500 to $14,999 | 30 | 4.5 | 2,854 | 6.0 |
| $15,000 to $17,499 | 36 | 5.4 | 3,534 | 7.5 |
| $17,500 to $19,999 | 40 | 6.0 | 3,355 | 7.1 |
| $20,000 to $22,499 | 63 | 9.5 | 3,582 | 7.6 |
| $22,500 to $24,999 | 45 | 6.8 | 2,900 | 6.1 |
| $25,000 to $27,499 | 59 | 8.9 | 3,037 | 6.4 |
| $27,500 to $29,999 | 31 | 4.7 | 2,215 | 4.6 |
| $30,000 to $34,999 | 88 | 13.2 | 3,758 | 8.0 |
| $35,000 to $39,999 | 37 | 5.6 | 2,127 | 4.5 |
| $40,000 to $49,999 | 36 | 5.4 | 2,234 | 4.7 |
| $50,000 to $74,999 | 14 | 2.1 | 1,394 | 2.8 |
| $75,000 or more | 2 | 0.3 | 421 | 0.9 |
| **Totals** | 664 | 100.0 | 47,246 | 100.0 |
| Median Income: | $21,705 | | $18,475 | |

Source: 1980 U.S. Census

It may be concluded from these figures that the Township has a stable and viable economic strength. Average homeowner values in 1980 were in the area of $48,800, as compared to $43,150 in the County. The local figure again placed the Township in the middle of metro counties. Current construction trends suggest no lessening of value overall; it more likely indicates a relative improvement in values.

## LAND USE CHARACTERISTICS

Planning studies also look to existing land uses as an indicator of needs. In the case of Berlin, existing development is relatively sparse. Total residential development amounts to 807 residential dwellings according to preliminary Census figures and SEMCOG building permit reports. Approximately 380 dwellings (47 percent) of the total appear to be located on parcels of ten acres or larger in size. Of the remaining 427, some 140 dwellings (17 percent) are located on parcels of less than one-half acre in size, and the balance of 287 (36 percent) are located on parcels in the predominant size of 3 to 10 acres. It is estimated that some 80 percent of the home sites are located on parcels of three acres or more in size. It has also been estimated that most homes would require a parcel of at least two acres to provide sufficient site are to accommodate a home site, the required primary septic drain field, and a reserve field for future use. In total, at least it is estimated that, at a minimum, approximately 2,100 acres of the Township are actively used for residential purposes. This would result in slightly less than ten percent of the total land area being occupied for primary residential purposes.

Nonresidential uses include limited retail facilities, including several party stores, restaurants, retail services, automotive facilities (vacant), a bank, several service clubs, and storage-type facilities. In total, these occupy under 15 acres. Public uses, including the Township Hall, Post Office, Fire Station, park and cemeteries, also occupy just less than 15 acres of land. These uses are relatively insignificant and attest to the rural, very low density development involved. Furthermore, it attests to the availability of commercial facilities and services in neighboring communities. Persons residing in low density areas are accustomed to driving some distances for a full range of goods and services. Therefore, when you encounter a ratio of two acres of commercial facilities per 1,000 population in Berlin, it is not an unusual situation. In comparison, a suburb with relatively small lots in a tight configuration may have 12 to 16 acres of commercial services per 1,000 population.

Approximately 65 percent of the residences lie in the southern half of the Township. These are basically divided evenly between the eastern and western halves of the Township, centered around Berville and Allenton. Approximately 22 percent of the dwellings lie in the northeast quadrant, and the remaining 13 percent lie in the northwestern quadrant. This lower ratio also coincides with the greater predominance of lower, poorly drained soils in this latter area.

*

In view of the soils information reviewed previously, it is not anticipated that future growth will radically change this situation. Growth will occur and residents will complain about the loss of their rural environment. Growth will not, however, assume anywhere near the character of the more urbanized communities of southern and central Macomb County. Berlin will remain essentially a low density rural community.

# ENVIRONMENTAL CONSIDERATIONS

Environmental awareness is receiving increasing attention and action. There are those who advocate no new development until we are absolutely certain that no detrimental effects will be created. On the other side are those who protest any governmental standards and restrictions, regardless of need. Obviously, it is impossible to comply with both of these positions. There are some existing standards and requirements which provide certain starting points. There is a need to continually add to the data base and periodically re-evaluate the data. More importantly, we must establish expanded goals and create new data base to support new standards.

While development standards and requirements are essential to the process, increased public education and awareness is also an imperative ingredient. Quite often, residents feel their minor actions cannot have any detrimental effects, especially if the practice has been going on for years or there is no governmental limitation. Unfortunately, a number of these attitudes and conditions exist today, which stifle environmental awareness and progress. These conditions involve both the private and public sides of issues.

A few words of caution, however; in the rush to address the various environmental issues, a wave of emotion has also become involved. There are also many cases of absolute frustration in dealing with representatives of both sides and typical bureaucratic and legislative procedures. There are charges and countercharges of apathy, insensitivity, overzealousness, etc.; and, in some cases, anti-growth elements are becoming cloaked in the environmental movement. Consequently, some efforts have been wasted and/or causes discredited because of general confusion.

It is the intent of the Berlin Master Plan to coordinate and integrate environmental needs into the planning and zoning process, as appropriate. There are also a number of related issues which require other private and public activities which will be mentioned.

The entire environmental process requires distinction between differing central city settings versus suburban, suburban fringe, rural/suburban, rural, remote and wilderness areas. Public safety is also a factor in evaluating improvement needs versus environmental facilities.

A review of the various environmental concerns is presented on the following pages. Recommendations are also included regarding potential programs and activities.

## WATER BODY CONCERNS

While Berlin Township does not contain any large lakes, the need to consider water quality remains important. Belle River, which empties into the St. Clair River and the Great Lakes, is a very significant resource. The extensive system of field and County drains further facilitates run-off from farms and homes into the rivers, streams and drains.

Typically, water tables run high in the Township, creating a variety of existing and potential impacts to ground water concerns and impacts. Sources of ground water include rainfall, surface runoff, springs and aquifers. Aquifers are essentially underground veins or rivers composed of water-bearing earth, sand, gravel, permeable stone, or fractures in non-porous stone or clay. Underground stratum are the sources of many domestic, commercial and industrial water supplies through wells of varying sizes and depths. It is not uncommon for an area to have several aquifers at differing depths and with differing qualities and volume capabilities. It should also be noted that one aquifer may be encountered at differing elevations. Aquifers may also interconnect; therefore, deeper wells do not necessarily provide "clean" water if another apparent aquifer is contaminated.

Based upon the above statements, water pollution easily affects a much broader area than might be expected. Rainfall, while often thought of as clean and pure, may also fall in the "acid rain" category of pollutant from far distant points. Of equal concern is the possible acid rain generated from local area industries and burning activities, including incinerators. Atmospheric drift of aerosols (particles suspended in the air) also fall into our rivers, streams and ponds.

Further complicating the situation are the problems stemming from storm water runoff. This concern not only relates to activities along the shorelines, but throughout the entire drainage basin. It is obvious that activities within Berlin will affect others well beyond its municipal boundaries. Conversely, activities which occur in surrounding areas definitely impact the Township. As one considers these statements, the problems are far more complex and inter-related than one would think. Water pollution is most often related to industries, petroleum and toxic spills which we hear about in the news. Unfortunately, significant degradation is also occurring by well-meaning, but uninformed, residents who continue to pursue established procedures of past years. In most cases, these practices are promoted since the activities are not prohibited or adequately controlled due to lack of proper understanding, apathy and pressures from different interest groups. A review of major activities more frequently involved in detrimental impacts is as follows:

1. Many Americans are preoccupied with producing the greenest, weed-free lawn in the neighborhood. Too often, the attitude "if a little bit is good, more is better" prevails. However, any plant, including grass, has a limited ability to use or absorb supplements. The determination of plant "uptake" capabilities varies with the soil, plant material, weather conditions, and time of year. These determinations are fairly technical and typically involve soil tests and analysis which result in the application of chemicals at an "agronomic rate." Farmers are now being advised in numerous farm periodicals to be even more careful and to have their wells tested annually to determine if they've been contaminated. These chemicals are not only migrating downward to aquifers, but running off to drains, streams and lakes.

   The average homeowner is less skilled or motivated in determining proper application rates, and excess applications are also being experienced from this source. Consequently, farmers and homeowners living away from our lakes and streams can be polluters without realizing it. Those living adjacent to water bodies should be more cognizant of potential problems; yet most carefully manicure their yard right up to the shoreline, and many also fertilize right up to the water. While liquid fertilizer tends to reduce runoff more than solids, an isolation zone is still needed and runoff is still common. What makes for green grass makes for green water.

2. Pesticides represent another problem to our waters for most of the same problems noted above. In addition, it is common to spray pesticides and, consequently, aerosol drifts carry these materials to the water surfaces. Some persons feel that since these applications eliminate unwanted plants and bugs, they will accomplish the same benefits in lakes. Unfortunately, lakes have a unique and fragile ecological system involving plants, micro-organisms and oxygen; when disrupted, the death of the water body is hastened.

   A number of manufacturers of pesticides and fertilizers are beginning to be more cautious about chemical effects and applications. The fact that certain chemicals are not listed as restricted or toxic in nature does not mean that material is totally safe. Similarly established methods of application are not necessarily environmentally responsible.

3. We have also been rather careless in our attitudes regarding septic tanks, dry wells, and other underground drainage and/or disposal fields. It has been assumed in many areas that the filtering of discharged wastes through a few feet of sand or other porous earthen materials would cleanse the waste and all would be well. Unfortunately, treatment is often negligible and pollutants migrate vertically and horizontally, creating potential problems in all directions. It is imperative that more stringent controls be placed upon the analysis of soils, establishment of proper drainfield sizes, requirements for reserve fields and isolation requirements, particularly near water. Placing a drainfield near a shoreline or steep slope is also a dangerous practice due to potential leaching of wastes from banks and slopes.

4. Surface water runoff is another major area of concern. Storm water runoff collects fertilizers, pesticides, animal wastes, and other nutrients which stimulate growth. These same waters also collect petroleum products, road salts, etc. from streets and parking areas. Storm drains, along with drains, also frequently discharge untreated waters into our lakes and streams. There are very few areas which require any form of pre-treatment prior to such discharging such waste water to our lakes, rivers and streams. Animal wastes from farm, domestic and wildlife can also add to the problems. Those who think feeding ducks and geese is appropriate can do a great disservice to the birds and the water.

5. The creation of ponds is not an uncommon practice in the Township. These features are thought to be nice additions to the landscape, but they also represent a variety of other responsibilities. Due to their shallow depths, these ponds eventually grow weeds. The typical treatment for weeds is chemicals. This methodology is becoming more controversial each year due to the nature and quantities of chemicals involved. Both licensed and unlicensed applications often involve less scientific approaches than considered desirable. Uncontrollable drifts and the following of currents often place these chemicals in areas unknown to users. Chemicals, whether applied in recommended amounts or in excess, represent potential hazards to people, animals and plants. A number of the chemicals also accumulate on pond bottoms. In the case of copper sulfate, accumulation may require disposal as a hazardous waste if dredged. Among the more common situations stimulating weed growth are the shallower bodies of water where sunlight filters to the bottom and accelerates weed growth, i.e., canals and shallow man-made lakes. Weeds are also induced by nutrient runoff and leaching, as previously indicated.

The brief summaries provided in the five preceding points illustrate some of the major concerns associated with our water body resources. We, as citizens and users, must come to understand that water resources are not indestructible; they have a life like any living organism. The process of aging and death of a lake is termed "eutrophication." An EPA definition which simplifies this cycle is as follows:

> "The normally slow aging process by which a lake evolves into a bog or marsh and ultimately assumes a completely terrestrial state and disappears. During eutrophication, the lake becomes so rich in nutritive compounds, especially nitrogen and phosphorous, that algae and microscopic plant life become super-abundant, thereby "choking" the lake, and causing it eventually to dry up. Eutrophication may be accelerated by many human activities."

As indicated, the process is normally slow; however, man, through carelessness, is accelerating the process in many cases. The close inter-relationship between surface water and ground water indicates we are threatening and, in a number of instances, polluting that resource as well. In turn, contaminated ground water may hasten eutrophication.

Discharges to ground water are not easily cleansed and filtered before entering aquifers. This potential hazard becomes even more real as the complexities and quantities of discharges increase. Our soils have limitations, especially as accumulative effects are experienced. Contaminated water bodies and aquifers represent severe problems, which are many times not easily corrected by natural or artificial regenerative processes.

Both corrective and preventive programs must be correlated with public information programs. People, in many cases, do not want to hear the realities of life; they want to continue thinking that the natural environment is indestructible. Based upon the preceding findings, it appears prudent that the Township pursue the following goals and objectives regarding surface water qualities:

1. Promote a better understanding of the total effects of fertilizing and pesticide programs through the assembly of additional information and, perhaps, brief notices with tax bills.

2. Seek inclusion of this topic into public and private school programs in the area.

3. Seek input and cooperative programs from Cooperative Extension Services and the Farm Bureau. Seek input and cooperation of manufacturers and applicators.

4. Promote the adoption of responsible fertilizer and pesticide programs by all municipalities, along with all applicable County and State agencies. County Road and Drain Commissions are among key participants.

5. Continue to evaluate the use, design, installation and operation of septic tanks and any other forms of field disposal of waste materials. Refine special problems, problem wastes, reasonable and desirable disposal field conditions and requirements, reserve or backup field requirements, setback and isolation requirements.

6. Since surface water runoff involves both local and watershed-wide considerations, any improvement programs will also include other municipal agencies. Discharges of storm water would be through settling basins, as opposed to direct discharge. The size and design requirements would be contingent upon the volume and character of the runoff involved. More hazardous materials and/or activities would require greater safeguards. Standards would involve both zoning and engineering requirements.

7. It is also imperative that County Drain Commission facilities and roadway drains of the County and State roads be involved in re-evaluation programs. This would commence with new projects and eventually undertake corrective actions on existing drains in a prioritized order.

8. Residents must also be advised that general runoff from lots can also be a problem in terms of dirt, yard cuttings, animal wastes, etc. Animal wastes from pets and wild fowl produce rich nutrients; combined with the effects of urbanization, the overall effect is significantly increased.

9. The creators of new ponds should be advised of their future environmental responsibilities since they only foster weed growth.

10. The requirements for chemical treatments should be tightened up and the requirements for public notification expanded. Under the Michigan doctrine of "polluters pay," any person, agency or organization creating a detrimental residual effect due to chemical treatments to water could be held financially responsible for its correction.

## WELLHEAD PROTECTION

Water quality, both surface and ground, is a prime concern throughout the world today; it is an essential resource. Berlin Township must stand high on this concern due to its dependence upon ground water. This does not mean to imply that the Township concern would be less if its water came from Lake Huron or the St. Clair River.

It is important to note that while aquifers tend to run horizontally, they will also tilt and turn in unpredictable directions. There is no guaranteed correlation between ground surface elevations and relative aquifer elevations; they may, in fact, run in opposite directions. A well may tap an aquifer at one of its higher elevations, or a lower point which may even be the ground water sink or supply area for a large area. The rate at which water travels through the aquifer varies with the porosity of the water bearing vein or aquifer. It is, therefore, possible for a contaminant to enter an aquifer and only effect a portion of the vein for many years to come. It is also possible that the rate of migration or movement is high and contamination is spread rapidly in the aquifer. It is, therefore, important that everyone avoid actions which would contaminate any ground water supply.

In years past, it was commonly assumed that septic tank and drainfield effluent would be purified after running through approximately 15 feet of sand. It was also common to have cisterns, dug wells, or shallow driven wells located in a well pit. Through the years, there has been evidence that cleansing of effluent may take considerably more than 15 feet of filtering. Minimum isolation between private wells and septic tanks have increased to 50 and 75 feet or more. Realistically, the separation should be based upon the types and quantities of waste in relation to the specific soils encountered. The minimum lot size required by the State of Michigan is 12,000 square feet when a septic tank is involved.

In addition, an on-site inspection of soils by the County Health Department is required to finalize the actual requirement. An area equal to the initial drainfield area is required as a reserve drainfield for future use. Efforts must continue regarding ongoing efforts to evaluate on-site sewage treatment, lot sizes, etc. Permits for dry wells or any other drainfields should be very restrictive, with meaningful penalties for not obtaining a permit.

Requirements for wells have undergone a similar upgrading. Hand-dug wells and well pits are not permitted today. Shallow wells and wells without pitless adapters are also avoided today. Shallow wells obviously facilitate infiltration by fertilizers and septic tank wastes. Policies on well depths seem to fluctuate, but most drillers recommend a depth of 50 feet or more.

The elimination of cisterns, dug wells and well pits is designed to minimize the collection of storm water runoff and foreign matter into water supplies or seeping down around a pipe to an aquifer. Persons must be made aware that any well, whether for human, animal or irrigation use, should not be open to surface water infiltration which includes a location in a low area collecting storm water runoff. Obviously, a location well away from any drainfield area or storage area for chemicals, fertilizers, etc., is also necessary. All well casings should extend above the surrounding land in accordance with pitless adapter requirements. This, obviously, eliminates direct storm water runoff into a well casing.

It is also essential to make the public aware of basic procedures in abandoning any well. Unless a well is properly capped and sealed, it can provide a preferential pathway for contaminants to enter an aquifer. The fact that a well was simply used for watering animals, crops or lawns, does not excuse it from concern. The effects may, in fact, be more detrimental than a domestic well located in a more secure location.

Implementation of the foregoing again requires coordination with the County; in this case, the Health Department. Zoning Ordinance standards will require refinements to coordinate setback and use requirements with well requirements, plus engineering and building needs.

## WETLAND PROVISIONS

The protection of wetlands has become a popular concern. Functionally and physically, wetlands provide a filtering area for waters entering lakes, streams, etc., and facilitate recharging of ground water supplies. They also furnish natural visual breaks in urbanized development patterns, and the plant materials play a role in replacing carbon dioxide with oxygen.

It is estimated that over 2,100 acres of wetlands existed locally. The sources of these designated wetland areas were the Michigan Department of Natural Resources (MDNR) and U.S. Department of Interior Wetland Maps. The governmental maps were derived from aerial photo and infra-red photo data. These maps depict both areas covered with water or periodically inundated, along with emergent upland areas which are not normally subject to inundation. These areas are not finite, for accurate delineations can only be obtained through field analysis. There are additional wetlands in the Township and some areas so shown may not be wetlands.

Wetlands are those areas as defined by the MDNR under P.A. 203 of 1979, the Goemaere-Anderson Wetland Protection Act. The Township relies upon the State for determination and enforcement. The exclusion of smaller wetlands from protection troubles some interested parties. It should first be noted that frequently a small area is connected by underground streams to other small areas which, in aggregate, then total five acres or more and are thereby protected. It should be noted that regulating small wetlands raises several questions. One, the natural process of eutrophication sees water bodies slowly filling in and becoming forms of upland. Emergent wooded wetlands which can easily be walked upon or driven upon illustrate this point. Even though setbacks are imposed around some wetlands, the inherent nature of urbanization will often accelerate the demise of smaller wetland areas.

It should be noted that, during the process of site plan and reviews, that consideration be given to coordinating small, unregulated wetlands into open space and/or retention area requirements. In this matter, more of these areas may be preserved and continue to function as filtering and recharge areas even though the vegetation may change.

It is highly desirable that professional efforts continue to assemble and analyze basic environmental data. Each wetland has certain unique characteristics and physical limitations. Estimating and predicting these characteristics will make it possible to more accurately determine the need for pretreatment of storm water or other preventive measures. A better understanding of the differing elements going into wetlands under differing conditions is also needed. It would also be very useful to have a better understanding of recharge needs in an area; this would assist greatly in establishing an indication of relative priorities and design needs.

A reevaluation of setback requirements from wetland areas is also desirable as data is assembled. It may be possible that varying setbacks would be applicable based upon the type of wetland involved and the type of use or activity involved. In the case of the most fragile areas, a no-mowing or manicuring requirement may be imposed, whereas a lesser setback may be permitted adjacent to an emergent wooded wetland.

## WOODLOTS AND TREES

Woodlot and tree preservation has been another area in which communities are adopting controls. There are a variety of factors contributing to the need and desire for trees. Chemically, trees assist in converting gases to oxygen; they are purifiers. Physically, trees aid in preventing/minimizing erosion and assist in sheltering properties and crops from wind damage; their shade aids in reducing cooling costs. Visually, trees offer contrasts and breaks in what otherwise would be a sea of urbanization.

Trees come in a variety of evergreen and deciduous species. In addition to general environmental assets, some trees also have commercial value. However, there are some trees which have undesirable characteristics such as brittleness, exceptionally messy droppings and/or leaves, and roots which penetrate sewers, foundations, etc.

Trees, as with other living elements, have varying life spans; those spans can be shortened or prolonged with man's intervention. Contrary to the thinking of some persons, the cutting of trees can actually make a woods more viable and extend its life. Trees growing in an unmanaged environment are fighting a constant battle for survival. It is not uncommon for trees in such situations to be punky and hollow on the inside, and they continue standing due to the protection afforded by other trees. Selective cutting improves the vitality of individual trees, as well as the balance of species within a woods. Therefore, if you seek to prolong the life and vitality of a woods, it is best accomplished through man's modifications.

The preservation and promotion of trees within the Township will take a variety of courses. It is still necessary to remove most trees within utility and roadway rights-of-way. Review of development proposals will, however, encourage design arrangements which are more sensitive to environmental features. Any update of Zoning Ordinance standards should include evaluations of existing provisions which promote flexibility in design techniques and the preservation of sensitive areas. New and innovative approaches must also be considered and refinements prepared which accomplish the basic goal of environmental enhancement. Improvement standards will also be refined to require and promote increased green space under site plan improvement proposals. Trees and landscaping should be located on sites to break up larger expanses of paving, soften building lines, assist in breaking up noises, and removing carbons from the air. Trees and plantings will afford shade and wind protection to structures, thereby improving energy considerations.

## WASTE PROCESSING

Another vitally important and complex issue is that of waste collection and disposal. The high standard of living enjoyed by most Americans today is creating a mountainous and monumental task in terms of waste disposal. Problems become even more complex when you recognize the myriad volume of primarily non-returnable and non-biodegradable containers involved. Further complications are created by the indiscriminate disposal of various chemical compounds, aerosol propellant cans, paints, batteries, pesticides, lawn clippings, disposable diapers, newspapers, along with the normal food scraps, etc. Since much of the waste will not degrade or rot, disposal in the normal landfill requires such large land areas in convenient locations that space is becoming a serious problem. An even more critical problem is that of potential pollution to the ground water and area by leaking chemicals and wastes and unpredictable combinations thereof.

All government entities are faced with a very serious dilemma regarding waste disposal. Landfills are feared due to potential ground water contamination. A counter movement to incinerators gives notoriety to airborne contaminants resulting from the burning of unacceptable materials. In combination, these events have documented the laxity in many standards, procedures and attitudes on the part of numerous State and County agencies. It is a situation which, in part, reflects the lack of public awareness and the need for resource separation. Some people resented the bottle return bill since it was less convenient. Resource separation is a continuation of that procedure requiring the separation of paper, glass, plastic, hazardous products, garbage, etc. It also is much more efficient if more products that can be recycled are involved in our lifestyles. Separation can occur after collection, but preferably it takes place in the home. Obviously, a major public education program is involved. State of Michigan restrictions are coming on line which will gradually phase in a prohibition of dumping grass cuttings in landfills over the next three years. Leaf-burning will also be phased out, unless a community passes a specific exemption thereof; this may prove to be a difficult action in view of public sentiment.

Even with recycling, composting and resource separation, the problems with landfills and incinerators will not be eliminated. Increased attention must be focused upon the adoption of more comprehensive siting for <u>all</u> refuse processing facilities. The design of each facility must also be accomplished with individual attention to each site and its specific hydrogeological conditions. Proper and adequate surface and subsurface monitoring devices must be provided and maintained, together with governmental or third-party sampling and analyses. Prior testing should establish a base of appropriate ambient measurements for subsequent comparisons. More attention must be focused upon the airborne transport of particulates from any disposal operation.

St. Clair County has been actively involved in solid waste planning and has information available for public use. It is essential that all persons seek to educate themselves in these matters and work with the County, State and Township in more effective solutions to these problems. Solutions require participation by all residents, regardless of whether they live in cities or low density townships such as Berlin.

This discussion of basic environmental issues has covered a number of concerns which cannot be solved in the land use arena. A great deal of ongoing public education is needed to provide a more factual understanding of environmental issues. Many of the assumptions we've made in the past were faulty and, in some cases, totally misleading. We've been overly confident in the durability and resilience of our natural environment.

Change is necessary in our lifestyles, which may not be quite as convenient as in the past. The same holds true for business and industry. There will also be some increase in costs. Legislative activities will undoubtedly produce new criteria, standards and enforcement procedures. Land use and zoning ordinance provisions will reflect more directly and indirectly environmental issues. There will also be separate ordinances which are closely interrelated, but with separate enabling legislation which must be integrated into the process of planning.

Concerns for fertilizers, pesticides, motor fuels, etc. are not commonly accepted land use terms today. However, they are by-products of permitted land uses and densities and, thereby, may impact land and water areas to which they adjoin. Similarly, drainfield requirements may influence lot size and setback requirements. Site plan review involves storm water, traffic, natural features, open space, and other considerations.

It is far from easy to establish all of the necessary standards and procedures which will be involved in the overall program. Additional and new research and analysis will be necessary in all fields. We must also be aware that environmental issues deal primarily with private property. These property owners cannot arbitrarily be denied reasonable use of their property. Developing an ever-expanding data base will aid in the assessment of properties and provide for more definitive regulations.

# ECONOMIC BASE

The economic base of a community is essentially those uses which provide jobs and tax revenues to support governmental activities. Typically, it is derived from commercial and industrial activities, although other uses such as agriculture can be equally important. These are the uses which generally return more in governmental taxes than it costs to directly service those activities; they are "surplus" producers. Obviously, not all communities are equal in their abilities to support such facilities. A variety of marketing, geographical, physical and demographic considerations enter into final locational determinants. Communities such as Warren and Sterling Heights have emerged as major employment and commercial centers. This results from their close and convenient proximity to other manufacturing and service uses in the metro area and a dense population which places more homes within a short distance of these focal points. On the other end of the scale are lower density areas that offer primarily rural and suburban environments and become "bedroom" communities. They complement rather than compete with the major focal points. These latter areas simply do not possess the required numbers of "roof tops" (buyers) within a radius of one to five miles to support the middle to larger sized shopping centers typical of today's retail and service needs.

Berlin Township is a lower density community within this framework. From all indicators, its future will essentially follow that role, although improvements in local employment and commercial facilities will be expected. A review of local prospects are summarized below.

## COMMERCIAL BASE

There are two major factors which influence, to a great degree, the future prospects for retail and service establishments within Berlin Township. Geologically, local soil conditions are not conducive to higher density development. Geographically, the Township remains somewhat removed from the edge of major urban development. It is convenient, yet remote; and this is the feature which attracted most of Berlin's residents.

There does not appear to be any prospect for a public sewer program which would facilitate higher density development. In fact, such an installation would be a contradiction to soil and storm water runoff characteristics. It is also contrary to long-range projected growth within the Detroit Metropolitan Area where more than adequate reserves of vacant residential lands with utilities are available for infill development.

This does not mean to suggest that the local rate of growth will decline; in fact, it is anticipated that it will increase. As previously indicated, Berlin is already conveniently located to primary and secondary employment and commercial centers. There is a continuing improvement and expansion of these markets in the Romeo, Almont, Dryden, Armada, Capac and Port Huron areas, as well as other smaller satellite areas. Berlin remains conveniently located in terms of its orientation to the Van Dyke Corridor, North Avenue, and I-69. The interchange of Capac Road and I-69 is obviously a convenient link to the freeway and offers a locational advantage in the longer run.

None of the above features, however, appear to dramatically alter the local retail potential. Nonresidential growth within the interchange area should be expected; however, the majority of this potential lies just north of Berlin Township. A commercial spill-over into Berlin Township is expected for some freeway-oriented businesses. This is also a logical location for new convenient commercial facilities, which may be needed to meet the day-to-day needs of new families moving into the more northerly portions of the Township.

Other strategic locations for added commercial development in terms of accessibility are along Hough Road in the intersectional areas with Capac Road and North Avenue. These three areas are on established travel routes which will gain further importance in the future.

Previous inventories indicated total nonresidential uses, commercial, industrial and service clubs, were less than ten acres. Commercial uses constituted approximately two acres per 1,000 population. Future growth will permit expanding this ratio to some degree. Freeway-oriented services will further supplement this figure. Based upon experience in other communities, it is anticipated that a ratio of up to eight acres per 1,000 might normally be expected in future years, as the tributary population and traffic volumes increase in the area. This also reflects the need to devote more of any given land area to setbacks, septic systems and storm water retention. Of the eight-acre total, it is anticipated that three to four acres per 1,000 population would be devoted to the conventional type shopping center, retail, service and office uses. For a community of 10,000 persons, this would convert to a potential of some 120,000 to 170,000 of floor area on 30 to 40 acres of land. The remaining six to seven acres of land would be devoted to specialized retail, automotive and highway-oriented uses.

One of the most important considerations for future commercial development within the Township rests with controlling commercial locations. As the local population continues to grow, requests for nonresidential rezonings will occur. It must constantly be remembered that the ultimate population of the Township is limited. There is a limited commercial potential, and locating it in a series of scattered sites would be completed contrary to the rural low density character of the area. Placing commercial sites at the intersections of section line roads will only result in "spot zoning" and the creation of unnecessary land use conflicts. The three site areas, as previously set forth, are the logical and reasonable locations for commercial growth.

## INDUSTRIAL BASE

Many of the comments set forth regarding the commercial base also apply to the industrial base. To a great degree, industrial locations in rural areas, without public sewer and particularly public water, defy conventional marketing approaches. Industrial locations in outlying locations typically are the result of the whims of the owner who has a preference for a particular area, rather than following all the rules of market and supplier conveniences. Berlin Township does offer proximity to a freeway interchange which offers excellent east-west access.

The interchange area offers the most logical focal point for future industrial expansion. This area is in a location anticipated for other nonresidential development. It offers minimum conflicts with other use areas and provides latitude for future development. A ratio of four to five acres per 1,000 population provides a reasonable basis for projecting new industrial needs.

# MAJOR THOROUGHFARES

The efficient and safe movement of people and goods is an important component of an orderly community. Normally, there is grave concern regarding traffic volumes and limited capacities of the streets to carry these movements. Within Berlin Township, the volumes of traffic do not exceed capacities. Major traffic flows occur on paved thoroughfares. However, thoroughfares consist largely of gravel roads which are, in a number of situations, relatively narrow and difficult to travel, particularly in the Spring.

All roadways in Berlin Township are under the jurisdiction of the St. Clair County Road Commission. Roadway improvements within the Township are, therefore, competing with all other County roads. In view of the sparse local population, Berlin has not occupied a priority status. Road maintenance is also made more difficult by adverse soil conditions, which is not unique to Berlin alone.

Potential growth within the Township would not create undue loads on the roadways if brought up to a reasonable standard. As development continues, it will become even more imperative that undesirable trees be removed from the rights-of-way. This is necessary not only in terms of improved visibility, but also is necessary for widening and improvement of roadway travel surfaces together with ditch and drainage improvements. A close line of communications will have to be established with the Road Commission to develop a systematic and orderly program of improvements. It will also be necessary to monitor growth and development patterns to assist in this scheduling process.

Existing and anticipated nonresidential growth fortunately conforms with existing paved routes which aid in minimizing future needs.

The official Thoroughfare Plan of the County Road Commission provides for three road classifications in Berlin Township. These categories are shown in Table 6.

TABLE 6

ST. CLAIR COUNTY ROAD COMMISSION

MAJOR THOROUGHFARE CLASSIFICATIONS

| Roadway Classification | Right-of-way Requirement |
|---|---|
| Major Arterial | 150 feet |
| Minor Arterial | 120 feet |
| Collector | 86 feet |

Required rights-of-way do not indicate the width of paving. In addition to paving requirements, the right-of-way must also accommodate underground and above-ground utilities, ditches, sidewalks, etc. The separation between the paving and property lines provides necessary space for the ditches, utilities, etc., and also provides a clear zone to assist traffic in entering and leaving properties.

There is a correlation between right-of-way width and the various thoroughfare classifications. In the case of a major arterial thoroughfare with a 150 foot right-of-way, the pavement may range between two and eight lanes. This variation reflects its role as a mover, or potential mover, of larger volumes of traffic through a community. Typically, it would provide four to six lanes in more normal levels of operation. A collector route at 86 feet of right-of-way is designated to collect traffic from local abutting subdivisions and/or nonresidential use areas and distribute it to the regional and major thoroughfares. Local streets within a subdivision typically have a 66-foot right-of-way. See following plan map.

Rights-of-way also serve another valuable function of providing an increased width from which zoning setbacks are measured. This increased spatial separation provides an important insulation to future traffic movements. The added right-of-way over the normal 66 feet is required when platting. Individual homes, when built along a thoroughfare, are not required to utilize the wider right-of-way when measuring setbacks. Since this might mean 27 more feet of driveway, some people resist. Ultimately, they will wish they had the added space.

The official County Thoroughfare Plan fits well within the context based upon current anticipated needs.

ST. CLAIR COUNTY

MAJOR THOROUGHFARE PLAN

# COMMUNITY AND RECREATION FACILITIES

Community facilities include the various buildings, sites and services provided by the Township. In some cases, these facilities and services are provided in cooperation with other public agencies. This latter alternative is particularly appropriate when dealing with certain functions which require larger populations to be more effective. Examples of this include: County Roads, Sheriff's Department, District Courts, library service, etc. In addition, school facilities and services require careful coordination to maximize returns to the public. They can provide an important supplement towards meeting arts and crafts, etc. needs through their adult education programs, plus certain recreational activities. It appears that there will not be a prospect for public sewer or water systems, which reduces potential responsibilities in that area.

Based upon these findings, this places the full, or a major portion of, responsibility on the Township to furnish administrative, fire and recreational services. Each of these will be reviewed in the following paragraphs, followed by a review of other related services.

## ADMINISTRATIVE ACTIVITIES

The present Township Hall in Berville provides all necessary administrative activities, with an office open during normal business hours, five days a week. The main floor of the Hall houses the Township meeting area and also has separate offices for the treasurer and the assessor. This provides security for their records and also privacy. There are desks for the supervisor, clerk, and clerical staff in a raised portion at the rear of the Hall. Since the elected officials are in their offices on a part-time basis and on a staggered arrangement, conflicts are kept to a minimum. This situation will become more difficult in future years as growth continues, particularly as public visits to the office increase. Township Board and Commission meetings also have adequate space at this time. Again this situation will change in the future.

Another area of concern involves general accessibility to the building and to the upper level offices. The site is also very limited in size and offers no reasonable opportunities for growth and/or proper remodeling. Provisions for barrier-free accessibility to the meeting room and lower offices is minimal. The upper offices are not barrier free; however, persons in that area are aware when someone enters the building and can come down to the main level.

Historically, the building is interesting, but age and the restricted site make its long-term use as the Township Hall impractical. While a new building is not necessitated within the next several years, it would be advisable to commence looking for a future site. This is a situation where advance planning is warranted if a properly located site at a reasonable price is to be acquired.

From a practical standpoint, a location in the southern half of the Township reflects the general distribution of the population. This is also the direction of most traffic movements. The two existing community areas of Berville and Allenton are also established focal points contemplated for new growth.

Other site locational considerations would involve the creation of a Township Civic Center, housing more than just one municipal function, which would be more efficient. This would make site and building maintenance supervision and dual use of certain facilities much more feasible. It also serves to create a more important activity center and thereby creates a greater functional and visual impact.

## RECREATION

Recreational activities encompass a wide array of active and passive pursuits, which provide both physical and mental returns to the individual. A portion of these activities will be accomplished in the home and yard; others will occur in commercial facilities and private clubs; and others will involve a wide range of public facilities provided by various other public agencies.

The rural environment of Berlin Township with its wide open spaces may serve to modify some of these needs, but can't answer all of the concerns. There is still a need for organized sport facilities to serve elementary school-age children, young adults and adults. Having local facilities for both practice and games maximizes usage. Typical activities to be served include Little League, softball, hardball, soccer and touch football. There are also needs for picnic areas for family and other group outings. Having open playfields adjacent to these facilities again permits a wider range of uses and users.

Growth among our senior-aged citizens is increasing each year. The recent senior ratio of seven percent will undoubtedly climb to 10 or 12 percent of the Township's population within the foreseeable future. Having a drop-in center, preferably capable of offering meals, in the future may become a necessity. Since a number of senior activities occur at lunch time and during daylight hours, it becomes possible to dual use some of the senior facilities during other hours.

There are a variety of standards for evaluating local recreational needs. A number of communities look to a general standard of ten acres per 1,000 population to measure their recreation area requirements. This figure is further broken down in relation to playgrounds for younger children, active playfield facilities for adult-sized games, and larger open space areas in parks serving the entire community. These are all further supplemented by State and nature preserves serving a metro or regional area. Private commercial facilities will also assist in meeting this need.

In assessing recreation requirements in Berlin Township, the ratio of ten acres per 1,000 is utilized as a starting point. It is further taken that the ratio is divided into 4.0 acres per 1,000 being assigned to active sport fields and the remaining 6.0 acres per 1,000 to community parks and nature preserve areas. Since the largest potential deficiency occurs in the lack of active play areas, the ratio of 4.0 acres per 1,000 is felt to be a primary goal in meeting future recreational needs. In terms of the larger park needs, there are several conditions which indicate the possibility to modify that ratio. One, the large typical home sites in Berlin are felt to address these needs in part. Secondly, within a 30-minute drive of Berlin, residents have a very wide choice of more primitive picnic and camping sites, beaches, and other waterfront parks. Based upon these observations, it is felt that two acres per 1,000 persons would be allocated to shaded picnic areas. These would be located adjacent to the active playground and playfield areas to provide a full range of possible family activities. In total, recreational needs would amount to six acres per 1,000 population.

The need for these facilities will also become more acute as the Township grows. Coordinating recreational facilities with a Civic Center complex has definite merit and could enhance the useability of a Community Center facility.

Again, advance acquisition must be stressed. The population center of the Township is also skewed to the south in terms of evaluating sites. Looking ahead, it is assumed for all practical purposes, the Township will retain a lower density characteristic in coming years. This also suggests that the likelihood for a school locating in Berlin Township is remote. Therefore, the burden for providing local recreational facilities will rest with the Township.

## FIRE SERVICES

Fire station needs are evaluated in a rather complex combination of response distances, types and densities of uses served, amount and types of equipment, and the number and training of personnel available and whether full time persons are involved. These statistics are then used by insurance companies to establish rates. In low density areas, it becomes difficult to meet short response distances in terms of optimum protection and lowest insurance rates. The relative financial advantages to property owners do not always offset the added costs of protection. It is not uncommon for smaller townships to have one station and supplement protection by mutual aid agreements with other communities. In this manner, several small communities combine their facilities to realize savings normally accorded to larger organizations.

The existing Township fire station on Capac Road, south of Allenton, is located on the most important north/south route. It is also conveniently located to Hough Road and other major east/west routes directly serving the Township. If, in the future, residential and non-residential development in the Berville and/or the I-69 and Capac Road area increases dramatically over what is anticipated, it may become necessary to add an additional station in one of those areas.

# MASTER LAND USE PLAN

The Master Plan, as presented herein, is a written and graphic illustration summarizing a series of investigations and studies undertaken in the planning process. It represents an integration of various physical, functional, social, economic and demographic elements, in combination with sound principles of planning and land use development. This Plan provides an indication of future land use characteristics and arrangements. It is a guide in the decision-making process, which will hopefully remain alive and dynamic and subject to change as needed by valid changing conditions. Valid conditions are considered as those which continue to focus upon continually serving the general public health, safety and welfare.

A summary of major findings and recommendations is presented in the following pages.

## BASIC DEVELOPMENT CONCEPTS

The preceding surveys of soils, topography, existing development patterns and growth potentials in the region all combine to indicate the need to continue Berlin Township as a rural, low density environment. To introduce higher density development would be a complete contradiction of the physical and environmental capabilities of the community. Those who choose the area due to its rural characteristics and open space will see changes. This may result in the loss of some openness, but not a wholesale change as is the case in a more suburbanized community with extensive apartments and strip commercial areas on every major intersection. The Township cannot support nor tolerate such intrusions; it does not possess the necessary environmental capabilities to reasonably adjust to the resulting impacts.

Various aspects involving sensitive land resource areas would be given attention when considering proposals for development of any type. Similarly, efforts will be made to assist farmers in preserving their farms. In both instances, decisions will be based upon providing reasonable use of a person's property as weighted against reasonable public interests.

In this situation, Berlin Township becomes a more balanced community, not because it provides a range of all uses, but due to the uses being balanced to its environmental capabilities.

## GROWTH AND POPULATION PROJECTIONS

The concept of low density development in the Township is not an attempt to slow down development. Between 1980 and 1990, the issuance of building permits was slow as a result of the recessionary period, although between 1985 and 1990, conditions improved and 108 permits were issued. In 1989, there were 39 dwellings authorized. It is anticipated that this trend will continue and, by the year 2000 or shortly thereafter, close to 100 dwellings per year may well be experienced. This situation would be substantially different than that anticipated by SEMCOG, who projects Berlin Township to be at 2,549 persons in 978 dwelling units in the year 2000. This reflects an annual growth in dwellings of 17 units. In 1989, the Township recorded 39 building permits, and during 1990 (a poor economic climate), 28 permits were issued. In view of these factors and the continued outward movement from our central cities, it is suggested that the Township be prepared for a greater growth in the event it occurs. It would not be inconceivable that the local growth in building permits might amount to 550 units by 2000, reflecting an annual increase of 55 living units. This would result in some 1,350 dwelling units in the Township. Given the growth of 100 housing permits a year between the years 2000 and 2010, an additional 1,000 living units would be added, bringing the total to 2,350. While it is anticipated that growth would continue to be lower density in nature, the potential demand for community services must be constantly monitored if problems are to be avoided.

During these same periods, it is projected that the average population per household will continue to experience some additional declines. In 2000, it is expected that the average household size will be 3.01, down from 3.19 in 1990. By 2010, an average household size of 2.95 should be characteristic of Berlin.

Combining projected dwelling units with household sizes produces a potential population of 4,060 persons in the year 2000. This would be up 1,553 persons, or 65 percent, over the 1990 Census. By 2010, it is estimated that the population would reach some 6,900 persons, a further increase of 2,740 persons.

In view of the preceding observations, it is possible that development potential could possibly reach 9,500 persons in Berlin Township at maximum development. This assumes an overall density average of approximately five acres per dwelling for new residential development in the Township. Obviously, these figures exceed SEMCOG projections and still reflect a low density community but one where community needs will be changing.

## RESIDENTIAL AREAS

The preceding growth projections reflect primarily a single-family composition. The majority of the population will be located in the southern half of the Township, followed by the northeast quadrant. Least populated will be the northwest quadrant. This latter saturation reflects the generally lower topography in this area, which produces a higher water table and greater drainage problems.

The two areas of higher relative density would be around the Berville and Allenton areas. These two areas contain the greater amounts of higher and better drained soils. Subject to their appropriate use as transitional zones to non-residential use areas, there may be a limited opportunity to insert a limited amount of attached housing. This would still be at a lower relative density, but would allow some diversity to the local housing stock.

## COMMERCIAL/INDUSTRIAL AREAS

Commercial land use development is planned to occur in three basic areas: Allenton, Berville and the interchange area at I-69 and Capac Road. These locations reflect primary travel patterns and the greater proportions of the population being located in the southern half of the Township. Local commercial potential is also supplemented by the Freeway interchange to some degree.

Due to the low density rural environs which will be retained in the future due to environmental constraints, the quantity of commercial lands will also be limited. Residents will see an increase in the amount and variety of goods available; however, their major retail expenditures will continue to be spent outside the community at established retail centers more centrally located to higher density residential areas.

Previous analysis indicated a growth in retail needs to a ratio of approximately eight acres per 1,000 population. Application of this ratio to the population projections indicates a potential need for 32 acres of commercial lands. This need will increase to 54 acres in 2010, and some 76 under ultimate development. The Master Plan Map depicts the three site areas. Of these areas, the area south of Allenton at Hough Road represents a new commercial complex serving residents of Berlin and the surrounding area. The area near the freeway serves residents plus highway traffic; and Berville is an infill serving residents of the area. Office uses have been designated in several locations as transition zones and deterrents to commercial sprawl.

Industrial uses are concentrated near the freeway to strengthen the non-residential use patterns in this area. This also minimizes conflicts with other uses in the Township. Projected industrial lands are estimated to require in the area of four to five acres per 1,000 population. This is a general indicator, and any such uses should begin closer to Capac Road to avoid gaps between non-residential uses should new industrial uses cease to expand. Industrial development, other than marginal uses, are difficult to fully predict in outlying locations.

Utilizing projected ratios, Berlin may attract between 15 and 48 acres of industrial uses, depending upon its phase of development. A little care in planning initial uses will create a proper nucleus for further expansion in desirable arrangements.

## THOROUGHFARE PLAN

After review and consideration, the St. Clair County Road Commission Major Thoroughfare Plan was incorporated as part of the Berlin Master Plan. The Plan accommodates proposed non-residential use areas and sets a framework for future growth. While the rights-of-way will not be extensively improved with paving, they do reflect the need for spacial separation to insulate abutting homes.

As growth continues, it will be necessary to coordinate improvements within the Township to eliminate problem areas. This will be an ongoing responsibility.

## RECREATIONAL AND COMMUNITY FACILITIES

Recreational activities reflect both physical and passive needs. In a rural community of large lots, recreational needs are somewhat modified, but not eliminated. There is still a requirement for active play areas for all age groups and especially for various forms of organized sports. Where many communities look to a total of ten acres per 1,000 population for community recreation, the need in Berlin has been adjusted to six acres per 1,000 persons. This is broken down to provide four acres of playground and playfield facilities and two acres of passive picnic facilities, the latter being used to complement active areas and provide facilities for family and group outings. Larger park needs are also furnished by more extensive State and metro facilities in neighboring areas.

Based upon an estimate of the ultimate population, some 57 acres of such recreational land would be required. The projected need in the year 2000 is approximately 24 acres. Land is quickly consumed within a park when one realizes a ball diamond requires between three and four acres by itself.

The Master Plan Map shows three parks: one in Berville, one in Allenton, and one in the northeast quadrant along the Belle River. It would be desirable to provide parks of between 15 and 20 acres to permit improvement of varied facilities. The park on Capac Road would be the main facility and may be part of a future Civic Center complex. A park of 27 acres in that area would leave some 15 acres for an open campus-type Civic Center. The two other parks could then be 15 acres each, which would allow the provision of perhaps three ball diamonds and ancillary facilities.

The major priority at this point in time is acquiring the property. Advance acquisition reserves the land and permits orderly development as facilities are needed. It is a wise investment in the future. See Master Plan Map following text.

A potential Civic Center site is shown on Capac Road, south of Allenton. This location relates to established and logical population and travel patterns. It is also coordinated with new non-residential growth areas, making multiple purpose trips more convenient.

Contemplating a Civic Center at this stage in the Township's evolution may appear to be premature, but, again, it is a question of advance acquisition. Eventually, a new Township Hall is going to be needed. The present building does not warrant extensive modifications due to its interior layout and extremely congested site. Establishing a coordinated area for the Township Hall, Fire Department, Community Building, etc., would complement the adjoining park and provide maximum efficiency in terms of maintenance and supervision. See Master Plan Map following text.

The County is also proposing an open space area along the Belle River. This area would provide a scenic area along the river bed, which in many areas is provided through existing wetland and floodplain areas. More definitive boundaries will become possible as property divisions and/or development proposals are received which will delineate such areas. It is also advisable to review zoning setback requirements along water areas to minimize runoff and leaching problems. In combination, these requirements should do much to achieve the river easement.

## ENVIRONMENTAL FACTORS

Environmental protection is an underlying issue and concern involved to some degree in every facet of the Master Plan. The basic goal rests in the need to be more responsible in our modification and/or impacts upon our natural resources. Nature is not as indestructible as we once thought; in fact, it is quite fragile. Consequently, the accumulative effects of urbanization can exert a wide variety of detrimental effects which must be carefully weighed. The process of weighing must seek to more objectively measure the relative needs of man versus a pristine environment. Since man must have food, water, housing, energy, etc., modifications to the environment are unavoidable. Modifications can also be beneficial even though they alter the setting as originally encountered. Natural occurrences and cycles within the environment are also modifiers.

Environmental protection must, therefore, recognize reasonable needs on both sides and develop more sophisticated techniques, procedures, and standards for evaluating environmental resources in differing situations. Man must also modify personal lifestyles which emphasize conveniently disposed products and various chemical additives which improve the cosmetic appearance of our environment. Little, if any, attention has been focused upon detrimental effects until more recent times.

Berlin's natural resources are numerous and rather complex. A high water table, the river, streams and wetlands, together with the ground water supplies, are prime concerns. Education of the public is imperative. Major environmental goals and objectives related to the Master Plan and subsequent implementation are as follows:

1. Avoid inappropriate and undesirable increases in land use densities to avoid undesirable conflicts with soil limitations, other sensitive areas and farm land.

2. Facilitate the adoption of more rigorous requirements for the installation of any form of septic or other drainfields in any portion of the Township.

3. Develop more rigorous and comprehensive requirements for the collection and discharge of storm water, with particular attention to the character, quality, and quantity of the discharge in relation to the receiving area.

4. Enhance the open space and landscape requirements involved in site plan review. Providing an open area along the Belle River will aid in preserving reasonable physical, functional and visual characteristics along this sensitive and important resource, as discussed previously.

5. Work with the County to facilitate the expansion and further improvement of resource separation programs and promote reductions in non-biodegradable products.

6. Work with the County in continuing improvements to utilizing comprehensive analytical requirements in the selection of all waste disposal sites, their design and particularly ongoing monitoring requirements and programs. This includes on-site systems, as well as landfill and incinerator sites.

7. Promote ongoing public information programs to further encourage local residents to become more aware and informed on environmental issues.

The preceding items range beyond those of direct land use requirements, yet they are vitally essential to the environmental aspects of the Master Plan. These issues are not all scientifically defined, and there is not total agreement in all facets of preventive and corrective measurements. It is, therefore, essential that all levels of government and industry participate in ongoing programs which will provide a more comprehensive data base. From this information, more appropriate controls can be developed.

## IMPLEMENTATION

Implementation activities inherently involve administrative, legislative, and fiscal activities. Fiscal responsibilities are provided for in the five-year capital improvement program (CIP) process. The CIP provides a master plan of finance, prioritized to reflect needs versus financial capabilities; it should also reflect long-term needs, or the wish list. Without this compilation of facts and figures, the long-range picture of financial needs is clouded.

Administratively, the needs are many and varied. Due to the complexities of our society and the increasing awareness of adverse effects upon our environment, there is an unusual need for added research and analysis. There is unrefuted evidence that our lifestyles and many accepted practices and procedures are harmful. There are also corrective actions and measures being advocated that are based partially on fact and partially on an emotional desire to stop these abuses. Unfortunately, there are responsible governmental agencies who should be assuming leadership roles in achieving proper solutions; however, they persist in pursuing activities which are both ineffective and inadequate. As a result, the Township must assume a role in challenging these practices and procedures. It will involve being in an adversarial role with State and County agencies at times.

In terms of more normal administrative activities, it is also necessary to institute additional review procedures in several areas.

Developers will be required to submit more detailed plans and inventories of existing conditions. Subsequently, the Township, in cooperation with other agencies, must consider each site on a more individual basis with respect to specific conditions effecting that particular site. This process involves some discretionary decisions within stated guidelines and after proper public hearing. Essentially, this procedure is that envisioned under State law for special use permits. This procedure would be followed in environmentally sensitive areas; this includes wetlands, floodplains, prime farm lands and along the Belle River.

Particular attention must also be focused upon the standards for collecting, processing and disposing of storm water, household wastes, yard wastes, etc. State and County agencies must be lobbied and pressured to develop, adopt and enforce more meaningful standards on all of these items.

Throughout the preceding pages of this study are numerous goals, objectives and recommendations for actions, which must also be incorporated into all municipal administration actions. It is also essential that an ongoing program of public education be undertaken. Increased public awareness will make implementation substantially easier.

More important actions required in terms of plan implementation are as follows:

1. Update and refine zoning ordinance requirements as they relate to: site plan requirements, open space zoning provisions which may assist in preserving sensitive areas and farm lands, expand the use of special approval uses and increase the requirements for open space/landscape requirements.

2. Seek to further refine the data bank which more accurately defines the boundaries of sensitive areas as a means of more effectively preserving sensitive land resources. This also requires the creation of more effective regulatory enabling legislation.

3. Provide at least an annual reappraisal of general growth and development trends as a means of better projecting Township needs. The objective being to better anticipate needs rather than reacting after the fact.

4. Develop at least a rudimentary capital improvement plan where major Township expenditures are given relative priorities and funding mechanisms/reserves are created.

5. Constantly work with related County, State and other special groups to develop more effective and equitable tools for proper land use requirements. This includes: road agencies, health departments, DNR, planning, solid waste and agricultural agencies.

6. Provide an on-going program of public information and awareness. This might take the form of concise statements distributed with annual tax statements, together with periodic items in newspapers of local circulation.

ILLUSTRATION 6

MASTER PLAN MAP