

P.T. de la Cruz

THE BUCKINGHAM TOWNSHIP COMPREHENSIVE PLAN

UPDATE
• 1991 •

A Continuing Planning Program
• 1965 1991 •

BUCKS COUNTY
• PENNSYLVANIA •

Adopted by the Buckingham Township Board of Supervisors

Reviewed by the Buckingham Township Planning Commission

Prepared by the Buckingham Township Comprehensive Plan Review
Committee

RECEIVED

JUL 17 1991

BUCKS COUNTY
PLANNING COMMISSION

P.T. de la Cruz

THE BUCKINGHAM TOWNSHIP COMPREHENSIVE PLAN

UPDATE
• 1991 •

A Continuing Planning Program
• 1965 1991 •

BUCKS COUNTY
• PENNSYLVANIA •

Adopted by the Buckingham Township Board of Supervisors

Reviewed by the Buckingham Township Planning Commission

Prepared by the Buckingham Township Comprehensive Plan Review
Committee

RECEIVED

JUL 17 1991

**BUCKS COUNTY
PLANNING COMMISSION**

Buckingham Township Board of Supervisors

George M. Collie, Chairman
Janet D. French, Vice Chairman
Robert W. Pierson, Member

Comprehensive Plan Review Committee

John M. Cunningham, Planning Commission
Drew C. Azzara, Water and Sewer Commission
Ron Viehweger, Park and Recreation Board
Carl Gaumann, Historic Commission
Michael Welsser, Environmental Advisory Commission

Buckingham Township Planning Commission

John Cunningham
Edwin Daniels
Charles Frederick
Muriel Gordon
Frederick Pope
James Wannemacher
George Wells

Buckingham Township Manager

Beverly J. Curtin

Buckingham Township Engineer

Ernest Knight, II, P.E.
Knight Engineering

Buckingham Township Solicitor

George M. Bush, Esq.

Community Planning Consultant

Michael Frank

Update
•1991•

PLAN SUMMARY

PLAN SUMMARY

The Buckingham Township Board of Supervisors and Planning Commission, after discussion with members of other Township commissions, completed a review and update of the Buckingham Township Comprehensive Plan of 1984. The primary changes include the following:

Community Development Goals and Objectives

These basic statements related to community development and conservation were reviewed in light of the conditions experienced in the 1980s and those anticipated in the 1990s. Greater emphasis was given to aspects of growth management and the coordination of needed services and community facilities. Included are goals and objectives for recreation facilities, sewer and water services and highway improvements.

Growth: Population and Housing

Population and housing growth during the 1980s is described. Projections for the 1990 to 2000 period are discussed.

Residential Development Areas Analysis

This study was a review of the adequacy of the higher density residential zoning districts to accommodate the anticipated residential development for the 1990 to 2000 period. The combination of the total number of dwellings that could be built on the undeveloped parcels plus the number of higher density dwellings in proposed and approved developments was compared with the housing projections. The results indicate that these zoning districts are large enough to accommodate a substantially greater number of dwelling units than anticipated for the 1990-2000 period. It was recommended that the higher density zoning districts not be expanded in area.

Nonresidential Development Areas Inventory

In this study, the remaining undeveloped commercial and industrial areas were identified.

Natural Resources: Policies and Protection Standards

The numerical standards in the zoning ordinance were reviewed in light of the findings of the recently updated county natural resources plan. The following were recommended:

- A buffer area around delineated wetlands should be required. The development of state and federal wetlands regulations should be monitored.
- The current standards relating to floodplains, ponds and pond shore areas and steep slopes should not be changed.
- The woodland protection standards for the AG, R-1, VR, CA, I and VC-1 districts should not be changed. The standards for the PI, VC-2, LC and PC should be revised to fifty percent. A survey of major woodlands and unique individual trees should be completed. A tree protection ordinance should be considered.

- The zoning techniques established to protect prime agricultural soils and to encourage farming practices should be reviewed to evaluate their effectiveness and continued use in the Township.
- Best management practices should be developed for building and a variety of other activities in the limestone valley.

Historic Preservation Policies

The importance of protecting Buckingham's historic resources, which include various natural and man-made features as well as buildings, was discussed. Preservation methods were outlined.

Highway Improvements Planning

PennDOT's twelve year capital improvements plan procedures and a revised classification of Township roads were described. Minor changes to the Township's traffic impacts analysis requirements were recommended. The importance of pedestrian and bicycle path improvements was stressed.

Sewer and Water Considerations

The Township's sewage facilities plan should be updated. A comprehensive water resources study should be prepared to better manage the Township's groundwater resources.

School Facility Considerations

Cooperation of the Township, the school district and the builders will be necessary to ensure necessary school sites are reserved in high growth areas.

Park and Recreation Planning

The importance of park and recreation planning was described. Cooperation with adjacent communities and the school district was stressed.

Planning Compatibility

The land use plans of surrounding municipalities were reviewed to identify potential conflicts in land use. Basic policies of the Bucks County comprehensive planning program were reviewed for compatibility. Cooperation among Central Bucks municipalities was stressed in order to deal with land use and planning issues which are intermunicipal in nature.

Existing Land Use Patterns

Existing land uses in various sectors of the Township were described.

Growth Management and Land Use Planning Areas

The development area concept on which the two previous Township comprehensive plans were based is reaffirmed in this plan update. In the use of the development area concept, residential and nonresidential areas have been designated to accommodate more intensive land uses for the 1990 to 2000 period. The provision of certain public facilities needed to support these more intensive uses should be focused on these areas. Rural areas and rural villages have been identified for lower intensity uses. Conservation management areas have

been designated for areas with environmental features and greater farming potential. Environmentally significant areas have been identified for the limestone valley, Buckingham Mountain and Little Buckingham Mountain.

Implementation and Recommendations

Specific tasks, programs or studies have been listed which will help implement the goals, objectives and purposes of the comprehensive plan. Where appropriate, the commission or agency which would best address the specific undertaking is identified. A target date for the completion of each task is stated.

RESOLUTION NO. 1148

RESOLUTION ADOPTING THE "BUCKINGHAM TOWNSHIP
COMPREHENSIVE PLAN UPDATE OF 1991"

WHEREAS, the Township of Buckingham, Bucks County, Pennsylvania, has undertaken an ongoing planning process since the adoption of the General Plan of 1965, and

WHEREAS, revised comprehensive plans for the Township have been adopted in 1974 and 1984, and

WHEREAS, the proposed Buckingham Township Comprehensive Plan Update of 1991 has been considered at a duly advertised public hearing conducted by the Buckingham Township Board of Supervisors, and

WHEREAS, the Buckingham Township Board of Supervisors wishes to adopt the Buckingham Township Comprehensive Plan Update of 1991 under the provisions of the Pennsylvania Municipalities Planning Code as amended by Act 170 of 1989.

NOW, THEREFORE, be it resolved by the Buckingham Township Board of Supervisors that the Buckingham Township Comprehensive Plan Update of 1991 be adopted by resolution this 24th day of April 1991.

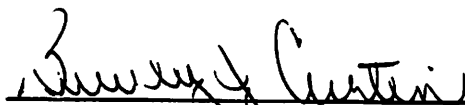
BOARD OF SUPERVISORS
•BUCKINGHAM TOWNSHIP•


George M. Collie, Chairman


Janet D. French, Vice Chairman


Robert W. Pierson, Member

Attest:


Beverly J. Curtin, Secretary
Board of Supervisors

Introduction	1
Community Development Goals and Objectives	3
Growth: Population and Housing	13
Residential Development Areas Analysis	19
Nonresidential Development Areas Inventory	23
Natural Resources: Policies and Protection Standards	27
Historic Preservation Policies	37
Highway Improvements Planning	41
Sewer and Water Considerations	49
School Facility Considerations	53
Park and Recreation Planning	57
Planning Compatibility	61
Existing Land Use Patterns	69
Growth Management and Land Use Planning Areas	73
Implementation and Recommendations	83

Update
•1991•

Table of Contents

Update
•1991•

INTRODUCTION

INTRODUCTION

Comprehensive planning has been a continuing process in Buckingham Township. In 1965, a General Plan was prepared. It was stated in the General Plan that a number of large-tract developments would not be so great as to destroy the character of the Township. By the early 1970s, it became apparent that development pressures would increase and the character of the community would change. In addition, the directives of the Pennsylvania courts mandated that local governments provide for all reasonable land uses, including a variety of housing types in sufficient quantity to provide the opportunity for a fair share of the regional housing growth.

The community was interested in providing for the anticipated growth in an environmentally responsible manner and in developing land use regulations that provided for open space and the continuation of farming. In 1974, a new comprehensive plan was prepared, along with an implementing zoning ordinance, which incorporated innovative techniques to achieve these intended purposes. Subsequently, a sewage facilities plan was developed to manage the community's water resources. Buckingham is in the unique position that all the watersheds in the community, except for a comparatively small area along the Neshaminy Creek, start in Buckingham Township. In these watersheds, no other community takes water out or puts pollutants in the groundwater system before it is used within the community.

In 1984, an updated comprehensive plan was adopted which was followed by an updated zoning ordinance to deal with ever increasing development pressures. From 1980 to 1988, it is estimated that 454 new homes were constructed and an additional 1,400 more people resided in the Township. This comprehensive plan update is part of the on-going community planning program. The Township is faced with decisions related to major community facilities such as water systems, sewer systems and needed highway improvements. This plan places emphasis on the development of a growth management strategy for the period of 1990 to 2000. The plan provides current information on related matters (eg. population, housing, water and sewer plans and service areas, etc.) so that Township officials will be better able to prepare implementation plans.

The process of updating a comprehensive plan is a beneficial exercise. With all the day-to-day matters pressing on municipal officials, it is often difficult to evaluate the long-term or community-wide implications of the separate issues that need to be resolved. Through this review, the municipal officials focus on the longer-term, broader issues of community needs and well-being. During the program, a number of public meetings and hearings were held to present the related information, goals and recommendations to the residents.

This plan should be consulted when implementation programs for sewers, water, parks, playgrounds, road improvements and other facilities are in the formative stages. This plan does not constitute an ordinance used for land use regulation. A landowner's development proposal, which meets the Township's ordinances, cannot be denied if it is inconsistent with the comprehensive plan. The plan should serve as the basis for amendments to the governing ordinances. The process should continue with a review of population and housing growth data after the detailed 1990 federal census information is available. The time frame of that update would then focus on the 1995 to 2005 period. In this fashion, the plan will remain current and responsive to changing conditions and community needs. In addition, the plan should be amended as changing laws, circumstances and opportunities warrant revisions to this plan and implementing ordinances.

Update
•1991•

COMMUNITY DEVELOPMENT GOALS AND OBJECTIVES

COMMUNITY DEVELOPMENT GOALS AND OBJECTIVES

The following goals and objectives shall serve as guidelines for growth, development, conservation and land use management in Buckingham Township. The goals are general actions the Township wishes to take in order to achieve desired conditions. Under each goal is a set of objectives which serve as more specific guidelines for actions and programs.

A. Growth Management

Growth is a dominant factor in land use and community planning for Buckingham Township. Many demands which face the community are generated as the direct or indirect results of the rate and magnitude of growth. The pressures for continued development are regional in scale. Current residents travel throughout the Philadelphia metropolitan area as well as New Jersey and New York for employment. Growth must be balanced with the preservation of the natural and man-made environments. To achieve this balance, the type and intensity of new development must be guided and coordinated with the provision of necessary facilities and services. Decisions must include considerations of the timing, the location, the character and the magnitude of new and changing uses.

Goal: To guide the form, location and timing of growth in order to achieve a sustainable level and rate of growth and to protect the natural environment, maintain visual quality, enhance the man-made environment and provide services and facilities necessary for the community's citizens and workers.

Objectives:

1. To recognize that growth is inevitable and imminent and to provide areas sufficient to accommodate the anticipated need for a variety of housing types and densities for the 1990 to 2000 period.
2. To recognize that Buckingham Township is essentially a semi-rural and suburban community and that Township planning efforts shall protect this character while providing for the anticipated new development in appropriate locations.
3. To direct more intensive residential development into the Development Areas where supportive services and facilities can be economically and efficiently provided.
4. To designate areas which are served or intended to be served by sewer and water service, safe roads with adequate capacities and other services (schools, parks, playgrounds, open space, police services, fire protection, etc.) for more intensive residential and nonresidential land uses and attempt to eliminate service deficiencies where possible.
5. To protect the well-being of residents and workers and to enhance the natural and man-made resources of the Township by coordination of streets, greenways, parks and other public and private uses.
6. To recognize that the responsibility for improvements to the community's road system is shared by the Township, the Commonwealth of Pennsylvania and the developers.

7. To cooperate with surrounding communities in providing for uses that are regional in nature such as waste disposal systems, quarries, airports, etc.
8. To recognize that decreased federal and state funding programs for community services and facilities at a time of increased demand requires the development of new methods of funding services and facilities.

B. Environmental Protection, Open Space and Historic Preservation

An environment of high quality is deserved and desired by all. The environment to be protected is both natural and man-made. The Pennsylvania Constitution guarantees all citizens the right to clean air, pure water and the preservation of natural, scenic, historic and aesthetic values of the environment. Municipalities have the responsibility of protecting natural features and providing for open space under the provisions of the Pennsylvania Municipalities Planning Code. The constitution and the code form the basis for open space requirements and municipal environmental regulations.

Goal: To protect the people's right to clean air, pure water and the other natural and historic resources of our environment, and to guarantee a quality environment for present and future residents of Buckingham Township.

Objectives:

1. To protect environmental features through the Township's ordinances. Natural features considered either vulnerable or disadvantageous to development (for example, limestone areas which are subject to sinkholes and groundwater contamination) are construction limitations and appropriate measures shall be taken to protect the new homeowner and the community and to preserve the resource. Other natural resources that are vulnerable to development (such as woodlands, steep slopes and wetlands) contribute to the overall natural and human environments and should be protected for their beneficial effects.
2. To conserve the Township's groundwater supply through sewage facilities planning, water resources planning, effective stormwater management, enforcement of development standards and promotion of proper site design.
3. To require the evaluation of environmental impacts of certain planning, zoning and development decisions and to minimize adverse environmental impacts through sound design and proper planning.
4. To ensure proper collection, treatment and disposal of wastewater and remedy conditions where pollution exists. Water supplies must be protected from contamination and depletion.
5. To require open space in intensive residential developments.
6. To support state and federal programs that help to maintain open space in the community.
7. To recognize the groundwater limitations of the area east of York Road in the limestone valley and the poor water-bearing characteristics of the remainder of the area.

8. To support efforts that will protect and enhance the Township's historic structures and areas.
9. To recognize that the historic and natural resources of the Township include views, vistas, stands of trees, tree lines and hedgerows, bridges, rural roads and other elements, in addition to historic structures.
10. To provide information to the public, through the Township's Historic Commission, as to the advantages of historic preservation.
11. To permit the establishment of historic zoning districts under Pennsylvania Act 167 of 1961.
12. To foster state and national registration of historic structures and sites. Protect the immediate area surrounding these landmarks.

C. Agriculture

The protection of the Township's agricultural areas and the continuation of farming activities have been long-term purposes in the community's land use planning efforts. However, many internal and external pressures have resulted in the conversion of farmland to nonagricultural uses. Many believe the economic incentives of land development preclude the retention of large open areas where farming is the dominant land use. If land is to continue in agricultural use, land use regulations at the local level of government must be framed to provide economic incentives to keep the land in agricultural use. Policies and programs at the state and national levels must provide the economic incentives for farming to remain a viable economic pursuit.

Goal: To protect agricultural areas in the Township in order to encourage the continuation of farming activities, the availability of fresh produce and the beneficial effect on the natural and human environment provided by agricultural practices.

Objectives:

1. To identify land with the potential to remain in agricultural use to the year 2000. Consideration should be given to existing and potential development patterns, the potential for sewer and water services and other physical and environmental factors that would influence development or the continuation of farming.
2. To develop regulatory and incentive techniques that would encourage the maintenance of commercially viable farming areas.
3. To protect important farmlands, as designated by the Soil Conservation Service and to support the landowners who are members of the Agricultural Security Areas in the Township.
4. To evaluate the current methods (clustering and transferable development rights) intended to preserve farmland, to identify reasons why they have not been effective, to study adjustments to these techniques which could provide effective incentives and to evaluate techniques that have been successful in other areas.

5. To work with local legislators, the County of Bucks and the Central Bucks School District to enact legislation that will support the continuation of farming.
6. To provide a simple and expeditious process for the subdivision of one lot on an annual basis which is consistent with the provisions of Act 319.

D. Residential Development

Continued residential development will occur to meet housing demands and must be coupled with the expansion of necessary services and facilities. A variety of housing types at appropriate densities should be permitted. To the extent that the Township can encourage a diversity of housing prices, it should do so. However, the national economy, the policies of major financial institutions and builders' market strategies and profit expectations are the controlling factors that affect the price of a house. Affordable housing will require the cooperative efforts of private industry as well as various levels of government. In any such effort, affordable housing must be structurally sound, attractive and integrated with more conventional housing to avoid social stratification of neighborhoods.

Goal: To promote safe, sound housing and stable neighborhoods for the present and future residents of the Township.

Objectives:

1. To provide for a variety of housing types and sufficient land for higher density uses to accommodate a fair share of the regional housing growth between 1990 and 2000.
2. To incorporate appropriate site design and improvement requirements in the Township's ordinances.
3. To ensure that new residential development is located in areas with the necessary services and facilities or that the developer will provide the necessary services including sewage disposal, water supply, safe and efficient roads, open space, recreation improvements, fire protection, and stormwater management facilities, etc.
4. To encourage the performance standards and traditional village-neighborhood approaches to new development.
5. To cooperate with private efforts to provide affordable housing that is attractive, structurally sound and integrated into the community.
6. To require the evaluation of zoning change requests to determine the impact on the mix of housing opportunities and the Township's accommodation of a fair share of the regional housing growth.
7. To promote variety and balance in new residential development and avoid the conversion of Buckingham Township to a bedroom community.

E. Nonresidential Development

A variety of land uses is important for the Township. The residential and nonresidential uses complement each other. The nonresidential uses provide employment, shopping

and service opportunities for the residents. The residents provide a portion of the labor force and local markets. Although the nonresidential uses place burdens on the road system and other community services, they generate revenues for the Township and the school district.

Decisions related to the expansion of any commercial, office or industrial zoning district should be made on locational considerations. These would include proper access, road capacity, availability of sewer and water services and compatibility with surrounding land uses.

Initiatives to improve conditions in areas where improvement is warranted should be encouraged and supported by the Township. Such programs should be initiated and funded by the property owners and businessmen.

Goal: To encourage nonresidential developments that are compatible with the residential character of the community and that do not degrade the highway network and strain community services.

Objectives:

1. To concentrate nonresidential development in the areas zoned for such uses and which are provided with adequate water, sewer, drainage and highway facilities.
2. To require high performance standards which will control objectionable practices and emissions (odors, noise, glare, smoke, etc.).
3. To encourage the concentration of convenience retail uses in designated areas near residential uses.
4. To discourage strip commercial development and the resulting impacts on traffic conditions.
5. To encourage high quality office and industrial development.
6. To permit industrial uses in designated areas with due regard to the retention of open space and the protection of neighboring land uses.
7. To require the full evaluation of requests to expand nonresidential areas in order to determine the impacts on municipal services, the highway network and the natural features of the landscape.
8. To support, encourage and assist the joint efforts of property owners and businessmen to improve conditions in the nonresidential areas.

F. Recreation Facilities

Recreation is an important part of a person's life as an individual and as a member of the community. A community's recreation facilities contribute to the quality of life in the Township.

Goal: To provide active and passive recreation facilities for Township residents of all ages.

Objectives:

1. To prepare a Township master park and recreation plan.
2. To work with the Township Park and Recreation Board, the Central Bucks School District and the adjoining municipalities to obtain and share suitable recreation sites.
3. To develop recreation facilities commensurate with the needs of the community and the Township's financial resources.

G. Sewage Facilities - Water Facilities

Where soils are suitable for the renovation of effluent, on-site disposal is adequate to serve low-density, rural forms of development. Sewer and water services are critical elements needed to support more intensive residential and nonresidential development. The expansion of service areas and capacities should be a logical progression from areas of existing services into areas where their need is projected.

Goal: To provide sewer and water services as methods of implementing the housing projections and land use goals included in the plan update.

Objectives:

1. To base sewer and water facilities planning (capacities and service areas) on the projections and land use goals of this comprehensive plan and the guidelines of the Township's Sewage Facilities Plan (Act 537).
2. To review and update the Township's Sewage Facilities Plan in order to ensure that it is consistent with the land use policies of this comprehensive plan update.
3. To refine and continue to use the sewage facilities evaluation system with the goal of replenishing groundwater resources, whereby individual on-lot systems are the most preferred methods of treatment and stream discharge systems are the least preferred methods.
4. To coordinate the expansion of these services with the planning for all other critical services including road improvements, parks, playgrounds, and stormwater management facilities and the capacities of such existing services and school facilities.
5. To support the purpose of the AG Agricultural Zoning District through the use of on-site sewer and water facilities in this area.
6. To require that the quality of water returned to recharge groundwater resources is acceptable.
7. To affirm that uses permitted under the zoning ordinance are based on the goals and land use guidelines included in this comprehensive plan as well as the changing community needs as identified by the Township Board of Supervisors and the Planning Commission and that access to sewer and water facilities does not justify a change in land use.

H. Highway Network

The relationship between the highway network and land use is strong and direct. The road system plays a role in influencing the over-all growth within the Township and the development of individual properties. A good highway network not only provides access to homes, work, shopping and recreation, but also provides a means for business and industry to acquire materials and to reach their markets.

Conversely, land use can directly impact the ability of highways to function. Intensive land uses directed to roadways that are not designed to accommodate large traffic volumes or to roadways with limited capacity due to current use will have detrimental impacts on the road. The improper matching of intensive land uses and limited capacity roads will slow the flow of traffic and result in hazardous conditions. An inefficient use of the public's investment in the highways will also result.

Traffic conditions in the community, to a large degree, result from the Township's location in the greater region. Growth in the surrounding areas adds traffic to the Township's road network. Traffic would increase in the Township even in the improbable event that further development did not occur.

Goal: To protect, maintain and improve the carrying capacity of the Township's highway network and to make improvements that will eliminate or avoid hazardous conditions.

Objectives:

1. To enhance specific standards, criteria and procedures for traffic impact analysis in the Township's land use ordinances and to require an evaluation of the impact on the capacity of the road system for conditional uses, special exceptions and zoning change requests.
2. To require an analysis of the impact on the road system to identify needed off-site improvements.
3. To develop a capital improvements program for needed highway improvements.
4. To explore funding programs whereby the costs of needed improvements are shared by the Township, the state, adjacent communities and the developers.
5. To prepare a township-wide traffic improvement study.
6. To facilitate the needed improvements identified in the Cold Spring Creamery Road highway corridor study.
7. To evaluate the need and the feasibility of the connection of a Route 202 or a Route 202/263 bypass through the community in order to separate regional from local traffic.
8. To cooperate with other municipalities along the Route 313/663 corridor to implement needed improvements to ensure traffic flow and safe travel along that corridor.

9. To require that new local roads are interconnected to facilitate inter-township private automobile traffic and to relieve congestion of collector roads.
10. To recognize that provisions for safe pedestrian and bicycle movement will relieve some need for vehicular trips and that their benefits are reflected in appropriate planning and ordinance standards.

I. Township Services

The demands for Township services and improvements have increased with development, the disappearance of state and federal programs and changing Commonwealth statutes. The Township will provide needed services and construct desired facilities on a financially responsible basis.

Goal: To provide needed and desired services within the constraints of the Township's fiscal abilities.

Objectives:

1. To strengthen the tax base by encouraging the development of a variety of complementary nonresidential uses in appropriate locations.
2. To cooperate in the management of solid waste with the County of Bucks and other participating municipalities under Act 101 of 1988.
3. To avoid the duplication of facilities and the procurement of materials through cooperation with surrounding municipalities.
4. To require that the developers contribute a fair share of the costs of new services and facilities that result from rapid growth in the Township; contributions to roadway improvements should be provided by the developers under the provisions of Act 209 of 1990.

Update
• 1991 •

GROWTH: POPULATION AND HOUSING

GROWTH: POPULATION AND HOUSING

A primary purpose of a comprehensive plan is to plan for growth. In this element of the plan update, an analysis of population and housing changes provides the basis for quantifying growth for the 1990 to 2000 period. The projections are used to designate appropriate areas to accommodate the anticipated development. Various Township boards will be better able to develop workable capital expenditure programs and to identify necessary services along with the proper locations for such facilities based on the projections and land use policies included in this plan update.

Population and Housing History

Although the focus of a comprehensive plan is the near future, it is instructive to take a look at the historical growth in the community. In Table 1: Population Growth - 1920-1990, the change in population from 1920 to 1990 is indicated.

Table 1: Population Growth - 1920-1990

	<u>Population</u>	<u>Numerical Change</u>	<u>Percent Change</u>
1920	2,024		
1930	2,213	189	9.3
1940	2,359	146	6.6
1950	3,007	648	27.5
1960	4,018	1,011	33.6
1970	5,150	1,132	28.2
1980	8,839	3,689	71.6
1990	9,364	525	5.9

Source: U.S. Bureau of the Census

In order to determine a more current population level, the estimated household size is multiplied times the estimated number of housing units that exist in the Township. The estimated household size of 3.1 persons is derived from population and housing estimates prepared by the Bucks County Planning Commission in December 1988. According to the Bucks County Board of Assessment records, 3,303 dwelling units existed in the Township in mid 1988. At 3.1 persons per household, an estimated population of 10,239 would result. The board of assessments figures were effective July 1, 1988. It should be noted that the Federal Census population counts report a 1990 population of 9,364.

In Table 2: Housing Growth - 1950-1980, the change in the housing stock from 1950 to 1980 is listed.

Table 2: Housing Growth - 1950-1980

	<u>Housing Units</u>	<u>Numerical Change</u>	<u>Percent Change</u>
1950	963		
1960	1,299	336	34.9
1970	1,609	310	23.9
1980	2,849	1,240	77.1

Source: U.S. Bureau of the Census

Housing development during the 1980s was significantly less than the 1,240 units built in the 1970s. In Table 3: Estimated Housing Growth - 1980-1988, the number of dwelling units annually constructed and assessed according to the Bucks County Board of Assessment is listed. These figures include the assessed housing units up to July 1, 1988. This was the most current information available from this source at the time this update was prepared. The 1980 figure is taken from the Federal Census.

Table 3: Estimated Housing Growth - 1980-1988

	<u>Housing Units</u>	<u>Numerical Change</u>	<u>Percent Change</u>
1980	2,849		
1981	2,888	39	1.4
1982	2,917	29	1.0
1983	2,948	31	1.1
1984	2,977	29	1.0
1985	3,088	111	3.7
1986	3,110	22	0.7
1987	3,183	73	2.3
1988	3,303	120	3.8
TOTAL		454	

Source: Bucks County Board of Assessment
U.S. Bureau of the Census

Population and Housing Projections

There are several methods to project population and housing growth. In this update to the comprehensive plan, two methods were considered. A demographic technique, called the Cohort Survival Method, simulates the process by which population changes assuming other factors (economic, social, infrastructure) are equal. Projections used in this analysis were taken from reports prepared by the Bucks County Planning Commission (Population Projections, November 1984, and Housing Projections, December 1987). A low projection series was based on what were considered the lowest reasonable rates of net migration (those moving into an area minus those moving out) and natural change (births minus deaths). A high series was produced based on the highest reasonable rates of natural change and net migration. The population projections were converted to housing units based on household sizes.

It should be noted that the population projections can be considered reasonable estimates of the Township's share of the population growth of the greater region which is defined as Bucks County for the purposes of this planning program. The projections were calculated prior to the work on the Township's plan update and by the county planning commission which is an independent agency.

A second method of evaluation or projection was undertaken which started with a review of housing growth trends in the Township. This approach is based on the consideration that housing growth is strongly influenced by economic conditions. The Cohort Survival method relies on demographic assumptions and a fairly mobile population. The housing trends method is predicated on the assumptions that Central Bucks County and Buckingham Township are desirable places to live based on many factors and that the strongest determinant of housing growth will be the availability of short-term financing for builders and long-term financing for homebuyers.

As indicated in Table 3: Estimated Housing Growth - 1980-1988, the housing growth during the 1980s was erratic. A recession occurred in the beginning of the decade, very good building years followed and the end of the decade was sluggish with sharp decreases in new home sales. Limited services also affected the growth. A housing trends approach, which uses the average number of new housing units constructed and assessed over the 1980 to mid 1988 period, would base projections on the assumption that housing growth in the foreseeable future would be influenced by conditions similar to the economic "booms and busts" of the 1980s. After housing projections are calculated, population projections would be determined by multiplying the housing projections times an appropriate number of persons per household.

Projections: Cohort Survival Method

The population projections, based on the Cohort Survival Method and published in 1984, were reviewed by the county planning commission in light of the number of housing units existing in 1988 according to county assessment records. A report with these adjustments was published in April 1989. The original 1984 projections estimated the 1990 Buckingham Township population to fall between 10,800 and 12,300 people. The published revised estimate was 11,325 which falls between the original projections. The year 2000 projections were not revised. In Table 4: Cohort Survival Population Projections - 1980-1990, the population figures are indicated. The 1980 figure is taken from the Federal Census. Change is calculated for ten year periods. As noted previously, the preliminary 1990 census figures indicate this method produces projections that are higher than the census counts.

Table 4: Cohort Survival Population Projections - 1980-2000

	<u>Population</u>	<u>Numerical Change</u>	<u>Percent Change</u>
1980	8,839		
1990	11,325	2,486	28.1
2000 (low)	13,300	1,975	17.4
2000 (high)	15,300	3,975	35.1

Source: Bucks County Planning Commission
U.S. Bureau of the Census

The housing projections, published in 1987 by the county planning commission, are listed in Table 5: Cohort Survival Housing Projections - 1980-2000. The 1980 figure is taken from the Federal Census. The projections include a four percent vacancy rate. Change is calculated for ten-year periods.

Table 5: Cohort Survival Housing Projections - 1980-2000

	<u>Housing Units</u>	<u>Numerical Change</u>	<u>Percent Change</u>
1980	2,849		
1990(low)	3,925	1,076	37.8
1990(high)	4,300	1,451	50.9
2000(low)	5,325	1,400	35.7
2000(high)	6,000	1,700	39.5

Source: Bucks County Planning Commission
U.S. Bureau of the Census

These housing projections would represent, after the four percent is deducted for vacancies, a household size of 2.87 people for the 1990 low projection, 2.98 people for the 1990 high

projection, 2.60 people for the 2000 low projection and 2.66 people for the year 2000 high projection.

Projections: Housing Trends Method

As noted in Table 3, housing growth in the Township from the beginning of 1980 to July 1, 1988 was 454 units. This increase, in an eight and a half year period represents an annual average growth of 53 new homes. Therefore, the housing stock would increase by 530 units in a ten year period. With an added four percent vacancy rate, the ten year growth would be 551 homes.

As a check of these figures, the Township's building permit records were reviewed. Records of the number of new homes that were constructed were kept from 1983 through 1990. These figures are listed in Table 6: Buckingham Township Building Permit Records - 1983-1990.

Table 6: Buckingham Township Building Permit Records - 1983-1990

	<u>New Housing Units</u>
1983	28
1984	49
1985	35
1986	99
1987	117
1988	74
1989	76
1990	<u>88</u>
TOTAL	566

Source: Buckingham Township Building Inspector

These figures show an annual average increase of 71 new homes for the eight year period. It should be noted that the very slow construction years of 1981 and 1982 are not included in this calculation. Therefore, this trend would indicate a ten year increase of 710 units. Unlike the county board of assessment records that includes houses after they have been conveyed to the homeowner or are renter occupied, the Township's records relate to constructed units which may or may not be occupied.

Again, it is reasonable to conclude that housing growth in the 1990s will be affected by cycles as experienced in the 1980s. Similar cycles had taken place in the 1970s. Based on the two sources of information, the county assessment records and the Township's building permit records, a range of anticipated housing growth is provided in Table 7: Housing Trends Housing Projections - 1980-2000. The 1980 figure is taken from the 1980 Federal Census. Change is calculated for ten-year periods.

Table 7: Housing Trends Housing Projections - 1980-2000

	<u>Housing Units</u>	<u>Numerical Change</u>	<u>Percent Change</u>
1980	2,849		
1990(low)	3,400	551	19.3
1990(high)	3,559	710	24.9
2000(low)	3,951	551	16.2
2000(high)	4,269	710	19.9

The population projections are calculated by multiplying the projected housing units times an estimated number of people per household. It is anticipated that the 1990 census will show a household size of approximately 3.0 people. In the year 2000, the household size should be approximately 2.9 people. In Table 8: Housing Trends Population Projections - 1980-2000, the calculated population ranges are indicated. Population levels are based on projected occupied dwelling units. Therefore, a four percent vacancy rate is deducted from the total projected housing units in Table 7 before the units are multiplied by the appropriate household size to project the 1990 and 2000 population levels.

Table 8: Housing Trends Population Projections - 1980-2000

	<u>Population</u>	<u>Numerical Change</u>	<u>Percent Change</u>
1980	8,839		
1990(low)	9,792	953	10.8
1990(high)	10,251	1,412	16.0
2000(low)	11,000	1,208	12.3
2000(high)	12,163	1,912	18.7

Evaluation of the Techniques

As noted previously, the Township's housing stock grew by 454 units from the beginning of 1980 to July 1988 to total 3,303 units. In the year and a half from July 1988 to the taking of the Federal Census in the beginning of 1990, the housing stock has not grown by an additional 622 units to reach the low housing projection calculated using the Cohort Survival Method much less the high projection of 4,300 units or an increase of 997 units. It is also questionable that the housing stock will increase by an additional 2,022 to 2,697 units in the eleven and a half years to the year 2000. This technique produces projections that are unreasonably high.

It is reasonable to expect that the housing stock has increased by 97 to 256 units between mid 1988 and the beginning of 1990 and by an additional 551 to 710 units between 1990 and 2000. The increase in housing units from 1980 to 1990 should be reported by the Bureau of the Census early in 1992. At least for the near future, the projections based on the housing trends method provided a better estimate of the anticipated growth. For the near future, housing growth and the resultant population growth will be influenced by the economic conditions that have slowed housing construction throughout the nation. It should be noted that the 1990 population level, as reported by the Bureau of the Census, was 9,364, which is lower than the low range projection listed in Table 8.

These projections and the information upon which they are based should be reviewed when the detailed 1990 census information is available. At the time this plan update was prepared, many new dwellings have been proposed and were approved or in the review process. The actual experience of the construction of the proposed dwellings should be reviewed at that time.

It should be understood that the numbers and rates of growth stated above are not targets that this Township should strive to achieve. They are projections; not predictions. As such, they provide planning guidelines that can be used as parameters for land use and facilities planning.

Update
•1991•

RESIDENTIAL DEVELOPMENT AREAS ANALYSIS

RESIDENTIAL DEVELOPMENT AREAS ANALYSIS

It is the purpose of this section of the comprehensive plan to identify the existing zoning districts that are intended for higher density residential developments and evaluate the development potential in light of the projected number of dwelling units between 1990 and 2000. These higher density zoning districts, called the residential development areas, are intended to provide the opportunity for the construction of low to upper middle income housing. These residential development areas are intended for a full range of services and complementary land uses which would support the housing in such areas. This does not mean that families with low to upper middle incomes will not be able to find affordable housing in the more rural parts of the Township. Nor does this mean that builders will not build more costly housing in the higher density areas and that families with higher incomes would not seek housing in the development areas. The residential development areas are intended to provide sufficient area for a full range of housing options in the most appropriate locations to establish healthy, attractive, convenient, affordable and well-served living environments.

Anticipated Growth in Residential Development Areas

The residential development areas should be of sufficient capacity to accommodate the anticipated number of dwelling units for low to upper middle income families for the 1990 to 2000 period. As noted in the previous section, it is reasonable to plan for an additional 551 to 710 units (refer to Table 7) to be built in the 1990s. The proportionate share for all but upper income families is determined by applying a factor for low to upper middle income households times the range of total dwellings expected. Since neither the county planning commission nor the Bucks County Office of Community Development have published current studies that include projected income categories, this study uses the household income categories from the 1980 census. The 1980 census ratios are indicated in Table 9: Household Income Categories - 1980.

Table 9: Household Income Categories - 1980

<u>Low</u>	<u>Lower Middle</u>	<u>Middle</u>	<u>Upper Middle</u>	<u>Upper</u>
12.7%	21.0%	21.7%	30.8%	13.8%

Source: Bucks County Planning Commission - Information Sheet MP-12
U.S. Bureau of the Census

The proportion for low to upper middle income households is 86.2 percent. The application of this ratio to the anticipated range of 551 to 710 total dwelling units results in 475 to 612 for low to upper middle income dwelling units.

Capacities of Residential Development Areas

The residential development areas are those zoning districts in which attached dwellings and mobile home parks are permitted at densities of 2.5 dwelling units per acre or higher. Under the Buckingham Township Zoning Ordinance, performance standard developments provide for a wide variety of dwelling types. Performance standards developments, retirement villages and mobile home parks are permitted in the VR, VC-2, LC, CA-1, CA-2 and CA-3 zoning districts.

The sites included in the following analysis are those that are undeveloped or substantially underdeveloped. Parcels which did not meet the minimum site area for the uses noted above, but could be combined with adjacent undeveloped parcels, are included. In addition to by

right densities, densities in these zoning districts may be increased through transferable development rights provisions and density bonus provisions. In Table 10: Total Potential Dwelling Units, the remaining capacity of these zoning districts is listed.

Table 10: Total Potential Dwelling Units

<u>Zoning District</u>	<u>Parcel Number</u>	<u>Acreage</u>	<u>Units by Right Densities</u>	<u>With Bonuses or Development Rights</u>	<u>Notes</u>
VR	6-8-52	15.1	38	83	
	6-10-205	9.5	24	52	Tyson Plan
	6-10-211	11.9	30	65	
	6-10-91	10.9	27	60	Hunters Glen
	6-1-2	10.5	26	58	
	6-1-4	17.7	44	97	
	6-4-35	20.0	50	110	
	6-4-45-1	8.5	21	47	
	6-4-44, -44-1, -44-2, -44-3, -46	140.0	350	770	Sylvan Glen
		<u>244.1</u>	<u>610</u>	<u>1,342</u>	
VC-2	6-12-2	7.3	29	44	Buckingham Knoll
	6-16-15(part)	<u>6.5</u>	<u>26</u>	<u>39</u>	
		13.8	55	83	
CA-1	6-4-32	53.8	161	323	Cold Spring Creamery Farm
	6-4-20	57.3	172	344	Wyndham Hollow
	6-6-7 and -37	<u>346.7</u>	<u>1,040</u>	<u>2,080</u>	Barness
		457.8	1,373	2,747	
CA-2	6-18-81 and -83	157.0	471	942	Buckingham Springs
CA-3	6-21-84	120.2	361	721	Buckfield Farms
TOTALS		<u>992.9</u>	<u>2,870</u>	<u>5,835</u>	

At the time this comprehensive plan update was prepared, the most probable potential development in the residential development areas was the combination of the by-right number of dwelling units on the parcels for which no development proposals have been submitted plus the number of units that would result from submitted developments. Such developments with densities of 2.5 dwelling units per acre or greater were considered. These are listed in Table 11: Current Potential Dwelling Units.

Table 11: Current Potential Dwelling Units

<u>Zoning District</u>	<u>Parcel Number</u>	<u>Potential Units</u>	<u>Notes</u>
VR	6-8-52	38	
	6-10-211	30	
	6-1-2	26	
	6-1-4	44	
	6-4-35	50	
	6-4-45-1	21	
VC-2	6-12-2	25	Buckingham Knoll
CA-1	6-4-20	393	Wyndham Hollow
	6-6-7 & -37	825	Barness
CA-2	6-18-81 & -83	646	Buckingham Springs
TOTAL		2,098	

Conclusions and Recommendations

As discussed previously, the anticipated growth of low to upper middle income families in the 1990 to 2000 period is between 475 to 612 additional dwelling units calculated on projections based on the housing trends experienced during the 1980s. The land allocated for such purposes in the zoning districts noted above, without the use of any density bonuses or development rights transfers would be 2,870 units as listed in Table 10. This capacity represents 469.0 to 604.2 percent of the projected growth for these income groups. As noted in Table 11, the capacity of these areas, considering the development potential of the undeveloped parcels and potential for properties with stipulations or submitted plans at 2.5 units per acre or greater, is 2,098 units even after those properties in Table 10 for which proposals have been submitted at less than 2.5 units per acre are removed from the calculation. This capacity is 342.8 to 441.7 percent of the projected growth for these income groups.

In light of this analysis, there is no existing or impending deficit in the capacity of these areas to accommodate the projected growth and, as such, a sufficient amount of land is available to provide housing opportunities for all income groups. It is unnecessary that these zoning districts be expanded in area to provide for additional higher density housing. It is also recommended that these areas not be decreased in size or the permitted densities reduced. Some excess capacity is appropriate to account for land to be deducted for rights-of-way and unbuildable portions of sites due to physical constraints. Some land will be devoted to uses other than higher density residential uses. The additional capacity also provides for unanticipated changes in conditions (economic, social, statutory, judicial, etc.) that would warrant a greater provision.

Update
•1991•

NONRESIDENTIAL DEVELOPMENT AREAS INVENTORY

NONRESIDENTIAL DEVELOPMENT AREAS INVENTORY

The purpose of this section of the comprehensive plan is to identify the amount of undeveloped and substantially underdeveloped parcels within the nonresidential zoning districts.

Unlike the residential development areas analysis, this element of the comprehensive plan does not include a calculation of the anticipated growth for comparison with the capacity of the nonresidential development areas. Such a comparison is not relevant for several reasons. From the legal standpoint, the courts have not developed a regional fair share concept for nonresidential uses. From a practical standpoint, employment, shopping and service needs are not directly associated with a locality. The Township's residents readily travel to surrounding and distant places for employment, shopping and services while residents from outside the Township travel into the community for these same purposes. Finally, from the analytical standpoint, there do not appear to be strong or reliable models that fit the small scale or specific circumstances of a single municipality. Therefore, this report is a descriptive summary of the status of available land for nonresidential development.

It should be noted that, under the Buckingham Township Zoning Ordinance, several zoning districts are intended to accommodate both residential and nonresidential uses. The property owners may choose to use their land in several ways. Therefore, a number of properties identified in this inventory are also cited in the residential development areas analysis.

Parcels included in this analysis are those that are undeveloped or substantially undeveloped. In Table 12: Undeveloped and Underdeveloped Nonresidential Parcels, land that has been proposed for development but has not received final approval is included.

Table 12: Undeveloped and Underdeveloped Nonresidential Parcels

<u>District</u>	<u>Parcel</u>	<u>Acreage</u>	<u>Notes</u>
VC-2	6-16-15(part)	6.5	Portion of Penns Market II
PC-2	6-10-220-4	30.0	Shopping Center portion of Kaplan tract. Approximate area.
Barness Tract	6-6-7	5.0	
Smith Tract	6-10-114	4.9	
TOTAL COMMERCIAL		46.4	
PI	6-3-5-4	12.0	
	6-3-9	8.1	Contains an existing house. Maennechor athletic field.
	6-4-10	18.1	
	6-4-10-11	6.4	
	6-4-10-1-2	1.8	
	6-4-10-1-2	1.8	
	6-4-7	6.6	
	6-4-10-6	5.2	
	6-4-10-2(part)	3.5	Approx. half developed. Farquhar Site.
	6-4-9	29.3	
	6-4-12	5.1	
	6-4-14-4	5.0	Rutherford Site.

6-4-14	68.4	Lenape Business Park.
6-4-19	37.9	
6-4-17-1	39.4	
6-4-16-1	10.7	
6-4-16-2	18.1	
6-4-16	17.9	Underused site.
6-4-15-2	7.4	

TOTAL INDUSTRIAL	302.7	
------------------	-------	--

Conclusions and Recommendations

There are 46.4 acres of undeveloped or underdeveloped land in the commercial districts and 302.7 acres in the industrial area. The commercial space could result in three shopping centers in the rapidly growing portions of the Township. It is not necessary that these areas be expanded until the approved developments and the undeveloped land approach build out. This status should be reviewed along with the status of the residential development areas. The impacts of the development, particularly on the highway system and sewer and water facilities, should be evaluated before any major expansion of these areas. Any additions to these zoning districts should be based on locational considerations (e.g., availability of necessary services and proper road conditions) and land use goals (e.g., avoiding strip commercial development and compatibility with adjoining land uses). Attractive, well-served nonresidential uses, which are compatible with adjacent residential and rural areas, are important in establishing or maintaining an appropriate balance of land uses . . . particularly in a community experiencing rapid residential growth. During the preparation of this updated comprehensive plan, substantial interest among the participating Township officials was expressed in designating an area for planned office campus uses. Although this matter was not resolved by the conclusion of the planning process, further consideration should be given to such uses in an appropriate area or areas. In addition to other benefits, nonresidential uses produce tax revenues. However, impacts from nonresidential uses result in certain costs to the community. The Township should remain open to proposals for the expansion of nonresidential zoning districts that would not result in negative community impacts.

Update
•1991•

NATURAL RESOURCES: POLICIES AND PROTECTION STANDARDS

NATURAL RESOURCES: POLICIES AND PROTECTION STANDARDS

The natural features of Buckingham Township's landscape affect the quality of life in the community. Farmland, woodlands, steep slopes, stream valleys and gently rolling open spaces are some of the resources that contribute to the aesthetic quality and have important functions in the ecology of the Township. These qualities, that make the community a desirable place to live and work, create pressure for continued development. If these resources are to remain assets, their protection must be considered in all land use decisions.

In addition, development practices, which do not take into account the natural limitations of the land, are costly for the Township's people as landowners and taxpayers. For example, development in flood plains can result in property damage and the loss of life. Improper grading of steep slopes and the clearing of vegetative cover can cause increased soil erosion and sedimentation in drainage systems. It is increasingly expensive to repair washed-out roadways and to install and enlarge drainage systems. These costs can be minimized if development occurs within the natural limitations of the land.

Certain environmental features are best protected by limiting intrusion into areas containing these features. Since the enactment of the Buckingham Township Zoning Ordinance of March 6, 1975, specific natural features have been regulated by Township standards. The ordinances have established maximum quantifiable encroachment standards based on the capacity of the natural feature to withstand the effects of clearing and grading. The reevaluation of the natural resource protection standards conducted in the preparation of this plan considered, in detail, the differences between current Township standards and current recommendations of the Bucks County Natural Resources Plan of 1986, where such differences exist.

Constitutional and Statutory Precedent

The basis for the protection of the Township's natural resources is found in the Commonwealth's Constitution, in judicial decisions and in the Pennsylvania Municipalities Planning Code. In 1968, the Constitution was amended by a vote of the people of Pennsylvania to state in Article I, Section 27:

The people have a right to clean air, pure water, and to the preservation of the natural, scenic, historic and aesthetic values of the environment. Pennsylvania's public natural resources are common property of all people including generations yet to come.

The Pennsylvania courts have had to evaluate questions of how this constitutional provision would apply and who would assume the role of protector of these rights of the people. The Commonwealth Court has stated that, although the Pennsylvania Department of Environmental Resources has certain responsibilities, the local governments have the authority for land use planning and the preservation of open space and natural features under the Municipalities Planning Code. The constitutional mandate must rely on the various statutes of the Commonwealth for implementation. The state laws specify responsibilities for different aspects of natural resource protection. The court has also stated that, in exercising this responsibility, municipalities must permit reasonable development of property as well as managing the public natural resources. The court emphasized that controlled development, rather than no development, should be the focus and is the responsibility of local governments.

Critical Natural Features

Through the comprehensive plan, conservation goals and development guidelines which will protect environmentally sensitive areas have been adopted. A systematic approach to protection policies and standards has been included in the Township's zoning ordinance. Specific natural features are identified. Encroachment, intrusion, building or regrading is limited or prohibited in such areas based on the resource's tolerance to development. Development in certain natural resource areas will result in hazards to life and property. Development or clearing in other areas of natural features will degrade the natural resource or remove it from the Township's landscape. The specific areas of concern are:

Flood Plains, Flood Plain (Alluvial) Soils and Watercourses

Flood plains and flood plain soils are areas adjoining streams and are defined as areas that may be subject to a one hundred year recurrence interval flood. The flood plains are identified in the study of the Township associated with the National Flood Insurance Program (NFIP). Flood plain soils are those low areas adjoining drainage areas and water bodies which are subject to flooding. These are delineated as alluvial soils, local alluvium, flood prone soils or soils subject to flooding in the Soil Survey of Bucks and Philadelphia Counties, U.S. Department of Agriculture, Soil Conservation Service, July 1975. Since the smaller streams of the community were not studied under the federal program, the flood plain soils are good indicators of the flood plain in these areas.

The floodways and flood fringes are both parts of the flood plain. The floodway is derived from a calculation which assumes complete obstruction of the flood fringe; it theoretically shrinks the flood plain limits until a one-foot rise in the base-flood elevation is produced. In this reserved area, obstructions causing any rise in the base flood elevations are prohibited by the NFIP. The flood fringe, on the other hand, may be developed under NFIP regulations; however, structures must be elevated or floodproofed up to the base-flood elevation.

Flood plain (alluvial) soils are important in areas where Federal Emergency Management Agency (FEMA) has not identified and calculated the floodway or flood fringe. In these unmapped areas, the flood plain soils indicate where flooding has occurred in the past. Unless a hydrological study is undertaken to prove that flooding has not occurred in recent times, these flood plain soils should be considered part of the flood plain and regulated as a floodway.

The primary function of flood plains is to accommodate floodwater. Some flood plain areas absorb and store large amounts of water and become a source of aquifer recharge. The natural vegetation supported by moist flood plains helps trap sediment from upland surface runoff, stabilizes stream banks (thereby reducing soil erosion), and provides shelter for wildlife and proper stream conditions for aquatic life.

The major objective of flood plain regulation is to reduce flood hazards. Structures built in the flood plain not only face risks of flood damage, but become obstructions that raise flood levels and increase water velocities. Development within the flood fringe, while permitted by the NFIP, is discouraged by FEMA. Filling in the flood fringe reduces the ability to store floodwaters and raises flood levels.

In 1978, the Pennsylvania Flood Plain Management Act (Act 166 of 1978) was enacted. This legislation required local governments to exclude hospitals, nursing homes, jails, new or substantial expanded mobile home parks and subdivisions and the storage of specified hazardous material from flood plain areas. This act also required communities with flood prone areas to participate in the Federal Flood Insurance Program.

These flood plain limitations do not preclude development of all kinds, however. Agricultural uses, private and public recreational uses, (e.g., golf course, ball fields, driving ranges, picnic grounds, wildlife and nature preserves, swimming areas, passive open space, hunting and fishing areas, hiking trails), and uses incidental to residential structures (e.g., lawns, gardens, and play areas) are permitted.

The watercourses, a key element of the draining system, should be kept in a free-flowing condition.

The Township's zoning ordinance is consistent with the basic land use provisions of the Federal Flood Insurance Program and the Pennsylvania Flood Plain Management Act. In addition, the approximate flood plain and flood plain soils areas are treated as floodways, which precludes most developed uses, unless an applicant prepares an acceptable study which delineates the floodway and flood fringe areas.

The Federal Emergency Management Agency encourages municipalities to preclude development and filling of flood fringe areas. The Township's ordinance permits the placement of developed uses in the fringe areas as long as they are floodproofed or raised above flood elevations. The Township should evaluate the value of greater flood plain protection against the greater restriction on the use of private property.

Wetlands and Wetland Margins

Wetlands are lands that are saturated during the spring to autumn growing seasons. Wetlands are commonly known as marshes, swamps and bogs. Other less obvious wetlands occur in shallow depressions. In recent years, there has been growing concern about the loss of wetlands and the ecological, aesthetic and economic losses that have followed. A number of Federal and Commonwealth agencies are now actively involved in wetlands regulation. The Township's zoning ordinance has included wetland protection requirements since 1975.

According to the U.S. Army Corps of Engineers, there are three criteria for locating or determining the existence of wetland conditions: vegetation, soils and type of hydrology. Certain types of trees and plants are common in wetland areas; characteristic of such vegetation are shallow root systems, swollen trunks or roots growing above the soil surface. Wetlands soils are dull gray in color due to the lack of oxygen. Wetland hydrology is the presence of water in, above or near the soils; a stream or drainage swale in close proximity is a good indicator but is not necessarily present.

The delineation of a wetland area and its boundaries using these three criteria requires a field study which can be expensive, time consuming and requires professional assistance. A preliminary determination can be made by checking the National Wetland Inventory prepared by the U.S. Fish and Wildlife Service. However, the scale of this information is not suitable for site planning purposes. For site planning, the combined use of two basic criteria can be used. These are hydric soils with a slope of one percent or less. Hydric soils are saturated, ponded or flooded long enough to develop conditions that favor the growth of wetlands vegetation. On these soils, where there are shallow slopes that do not provide adequate drainage, wetland conditions are likely to exist. A specific wetlands delineation, prepared by a qualified expert, may be substituted for this form of determination. Such a study must be approved by the Township to be acceptable.

The protection of wetlands is important for several reasons. Wetlands play a key role in maintaining and improving water quality by filtering chemical and organic wastes. Wetlands store water during storms and floods thereby reducing hazards to life and property. Wetlands

provide for groundwater recharge. Finally, wetlands are important habitats. Many plants and animals depend on wetlands for survival.

In light of the comparatively flat topography and drainage characteristics in many areas of the Township, it is important that the wetlands portions of the natural drainage system continue to be protected. At the time this comprehensive plan update was being prepared, the Pennsylvania Department of Environmental Resources was developing wetlands regulations for state enforcement. At this point, neither a statute nor case law has established federal or state precedence over municipal regulations. However, changes in the law should be closely monitored. It is recommended that, under Township regulations, no encroachment into wetlands be permitted except for necessary access roads.

In addition to the protection of the wetlands, it is recommended that a buffer area or margin area also be protected. The existence and quality of the wetland is directly related to the conditions of the wet soil areas around these bodies. Disruption of the hydrology, contamination of the groundwater, accelerated run-off and sedimentation directly affect the wetlands. It is recommended that the Township's ordinances be amended to include a definition of a wetlands margin and that appropriate standards be incorporated to protect these areas and the wetlands. The Pennsylvania Department of Environmental Resources is in the process of developing wetlands and wetlands margin protection standards. The Township should monitor the development of DER's standards and make amendments to the Township's ordinances as warranted.

Ponds and Their Shore Areas

Ponds and their shore areas function in a similar manner to wetlands and wetland margin areas. Whether natural or man-made, ponds moderate stream flow during storms and flood conditions and provide habitat for aquatic life as well as water sources for wildlife. These water bodies are scenic amenities and generally enhance property values. Shore areas, areas measured one hundred feet from the elevation around the water body, serve as buffers against potential surface and groundwater pollution that would degrade the water body. In addition to the environmental considerations, open space around water bodies has substantial aesthetic and recreational value. The Township's zoning ordinance permits thirty percent of the shore areas to be altered, regraded, filled or built upon. No filling of ponds is permitted. It is recommended that these standards be maintained.

Steep Slopes

These are areas where the average slope exceeds eight percent. These slopes are subject to higher rates of stormwater runoff and erosion. The slopes are calculated in gradients as a percentage indicating the height of the vertical rise relative to a constant horizontal distance. A fifteen percent slope, for example, is equivalent to a rise of fifteen feet over a distance of one hundred feet. Steep slopes are considered those from eight to fifteen percent; moderately steep slopes are those greater than fifteen to twenty-five percent, very steep slopes are those of greater than twenty-five percent.

Development on these slopes accelerates erosion by removing or disturbing the existing groundcover and topsoil. The removal of the vegetation destroys the groundcover which absorbs rainwater, anchors the soil and buffers or dissipates the impact of rainfall on the topsoil. Erosion produces sediment that pollutes the surface water. Over time, the accumulated sediments narrow stream channels and fill in pond and lake bottoms. This restricts the capacity of the waterways to handle flood flows and, thereby, increases the incidence and severity of flooding.

The Township's zoning ordinance protects slopes between eight to fifteen percent with a forty percent limitation on disturbance or regrading of soils in that slope category; moderate slopes between fifteen and twenty-five percent are limited to a thirty percent disturbance limitation; very steep slopes of greater than twenty-five percent are permitted a fifteen percent disturbance. It is recommended that the protection standards be kept as currently structured. Limiting construction, regrading and the amount of impervious surfaces allowed on steep slopes will greatly reduce the adverse environmental impacts of new development.

Woodlands

Woodland resources serve multiple purposes. They moderate environmental conditions, support wildlife as habitat and provide recreational opportunities. They also have significant aesthetic value. The environmental functions for woodlands are particularly important. Trees and shrubs anchor the soil and reduce erosion and sedimentation in streams. The vegetative cover softens the impact of falling rainwater, enables groundwater recharge and reduces the volume and rate of runoff. Woodlands also play a role in filtering air pollutants and moderating regional and microclimates. Additionally, woodlands provide visual and sound buffering. Woodlands can benefit from proper timber management and can normally withstand the impacts of limited development. However, when woodlands are located in environmentally sensitive areas, such as steep slopes over fifteen percent grade, along tributaries and in flood plains, around wetlands and shore margins, even minor disturbances can lead to environmental disruptions.

In the distant past, forests were cleared to establish fields necessary for agriculture. More recently, forests were cleared to make way for development. The 1975 zoning ordinance required zoning permits for forestry activities and established cutting standards to protect remaining woodlands. Where these standards would limit conventional residential subdivision, cluster options in the ordinance permitted alternatives to provide for a comparable level of development without the loss of the woodland resources.

It is recognized that most of the Township's remaining wooded areas are associated with other sensitive natural features or are integral elements of the rural areas of the Township. In many places, the remaining woodlands are comparatively small woodlots or hedgerows that divide fields and properties or line rural roads. The eighty percent protection standard of the zoning ordinance should be kept in the AG, R-1, VR, CA, I and VC-1 districts. In addition to the intrusion limitation, standards for the maintenance of a continuous canopy will help avoid a "missing tooth" effect. It is recommended that the woodland protection standard for the PI, VC-2, LC and PC districts be revised to fifty percent in recognition that these areas are intended for more intensive, nonresidential uses.

Established hedgerows and mature trees are particularly vulnerable along roads where widenings occur during the land development process. Such widenings, which would result in the removal of vegetation of a valuable aesthetic quality, should occur only when necessary for safety reasons or proven need to increase highway capacity. Refer to the following section titled Functional Highway System.

A survey or inventory of major woodland and unique individual trees or stands of trees should be undertaken by volunteers organized by the Township Environmental Advisory Commission. An opportune time to begin such a project would be in 1991 after the 1990 aerial photographs are published. The photographs would serve as a base map for identifying and locating the important woodlands, stands, hedgerows and individual trees.

The critical impacts that site preparation and construction practices have on woodlands and individual trees should be recognized. Although the required area to be protected may be

shown on a development plan, damage from machinery, grade changes affecting root stability and aeration, soil compaction from temporary roads and materials stockpiling result in the loss of the woodlands in a few short years. The county planning commission has published a tree protection ordinance to address these problems. This model ordinance should be studied for possible use in the Township.

In addition to the protection of existing woodlands, consideration should be given to landscaping for future generations and the reforestation of environmentally sensitive areas. A mix of native plant material is preferred to the planting of a single type of vegetation or the widespread use of berms as a buffering method. New plantings should blend with the vegetation typical in a rural environment. Proper standards and design guidelines should be developed for these purposes.

Farmland

The protection of prime agricultural soils and the agricultural industry were major objectives of the Buckingham Township comprehensive plan of 1974. The implementing zoning ordinance of 1975 included protection standards for agricultural soils. These standards along with use regulations essentially limited use in the Agricultural Zoning District to cluster forms of development at 0.5 dwelling unit per acre with ninety percent open space. The ordinance also created a transferable development rights mechanism whereby development potential could be transferred out of the Agricultural District into higher density residential and the nonresidential zoning districts at one dwelling unit per acre.

The 1984 comprehensive plan reaffirmed the agricultural protection goals. The zoning regulations which apply to the Agricultural Zoning District were restructured to permit landowners greater flexibility in the use of their properties and to facilitate the protection of agricultural soils through an incentive approach rather than requiring that agricultural soils be kept open and residential development take the form of cluster subdivision. The revised zoning provisions of the 1984 zoning ordinance permitted a landowner to subdivide land, without agricultural soils kept in open space, in a conventional form of subdivision of single-family detached homes on 1.8 acre lots. This was essentially the same intensity of development permitted under the previous ordinance. However, if the landowner would choose to cluster the new homes, keep large portions of the prime agricultural soils in open space and arrange the site to facilitate agricultural uses, he would realize the benefits of increased density under two options. A cluster of single-family homes on thirty percent of the site with seventy percent kept in open space was permitted at 0.85 dwellings per acre. Alternatively, a performance standard development, which provides for a variety of housing types could be built on twenty percent of the site with eighty percent kept in open space. The density would be increased to one dwelling unit per acre which is basically double the density under the previous ordinance and the current conventional subdivision option.

The prime agricultural soils protection standards were revised to require that eighty percent of the Class I, II, III and IV soils remain undeveloped when part of a cluster development. The administrative provisions applicable to transferable development rights were simplified and the requirements were revised to more directly protect prime agricultural soils in the Agricultural District.

Farming has always been important in Buckingham Township. General W.W.H. Davis, in his 1876 History of Bucks County, Pennsylvania, wrote "no township in the county is superior to Buckingham from an agricultural point of view; none, where there is more careful tillage; none, where the labor of the farmer is rewarded with better crops." Many view farming as an example of traditional work ethics which provides a valuable message to people in all age groups. Although the 1974 and the 1984 comprehensive plans strongly promoted the

preservation of agricultural soils and the continuation of farming activities, neither the restrictions of the 1975 ordinance nor the incentives of the 1984 ordinance produced significant results. Only a handful of such cluster subdivisions have been proposed and farming has continued in only one of the developments. As noted in the 1984 plan, the transferable development rights program has been ineffective, at least in part because the opportunities for such transfers have been limited by the lack of sewer services in the areas intended to receive the transferred development.

It was stated in the 1984 plan that the issue of agricultural land preservation is an extremely complex matter related to the continuation of farming as a viable economic pursuit in the long-term. The critical factors which appear to be working against the long-term viability of the farming industry in Buckingham Township are more economic and social than land use. It is recommended that this comprehensive plan be followed by a detailed study designed to evaluate the current clustering and transferable development rights techniques and to provide an understanding of farming as an economic pursuit in the Township. Such a study should involve the farmers and the county extension agent. The study should evaluate techniques that have been used successfully in other areas to determine if adjustments or new methods would provide better results. In addition, the committee should address locational considerations in that agricultural protection goals may be particularly effective and supportive of the farming industry in certain areas. If a consultant is engaged, the consultant should have demonstrated expertise in land or agricultural economics. The study might be undertaken cooperatively with other Central Bucks County communities which also have agricultural preservation goals.

It is important to note that a number of property owners have requested that approximately 1,080 acres of their land be included in designated agricultural security areas under the Pennsylvania Agricultural Security Act (Act 43 of 1981). Under the Farmland Preservation Act (Act 149 of 1988), an agricultural preservation easement purchase program was established in Bucks County and two Buckingham Township farm families were the first in the county to agree to preserve farmland under this program. The Township should support the commitment to farming expressed by these property owners and avoid any actions that would diminish their efforts. One simple method of recognition would be the placement of signs along the roads entering the agricultural security areas to raise the public awareness of their existence.

Limestone Geology

A 3,700 acre limestone valley crosses Buckingham and Solebury Townships. This carbonate valley is about ten miles long and averages one and one-half miles wide. The Richenbach, Allentown, Cocalico, Phyllite and Leithsville formations make up the limestone valley.

Limestone is subject to dissolution through the action of groundwater and percolation of runoff into underground water channels. Water seeping through joints in limestone bedrock dissolves the calcium and forms subterranean channels and solution cavities. These characteristics of limestone create several problems. First, high permeability and rapid internal damage pose a major danger of groundwater pollution from on-site sewage disposal systems and other pollutants. Second, structural failures due to subsidence of the bedrock are additional dangers. Sinkholes caused by subsidence may damage structures and roads.

Although the limestone area does not prohibit development, it does require special investigation and building techniques. Infiltration rates, impermeable layers, fissures or cracks in the formation and sinkholes are some of the factors that must be considered. On-site sewage disposal systems must be carefully located where sufficient depth and type of soil exist to renovate effluent. Particular care must be taken in locating community septic systems

because the potential problems related to individual on-lot systems will be magnified due to the increased concentration of effluent. High yield wells for community water systems or nonresidential uses may depress the water table significantly and increase the potential for sinkholes. Stormwater retention basins must be designed to avoid the dissolution of the substructure. In addition to these concerns, other matters related to the use of herbicides, pesticides, road salts, fertilizers and other possible contaminants should be addressed. Where protection procedures or standards are warranted, Township ordinances should be prepared for such purposes.

Unique Features and Endangered Species

In addition to other natural features that exist throughout the community and add to the quality of Buckingham's landscape, there are several significant natural features that have been identified in the Bucks County Natural Resources Plan of 1986 which deserve protection. They should be recognized in the Township's land planning efforts and the protection of these features by the property owners is encouraged.

In the county's natural resources plan, Buckingham Mountain is recognized as a significant geologic formation. The plan also recognizes Watson Creek, a high quality watercourse that supports wild trout propagation. The brown trout of Watson Creek are not noted as a threatened status but are of special concern. The county planning commission has compiled lists of wild plants, mammals, birds, fish, reptiles, amphibians and insects that are threatened or are of special concern. It is important that the habitats of these species be protected. These include wooded stream valleys and corridors, wetlands, open, brushy fields and meadowlands. The Township should consider the compilation of a natural habitats inventory by a conservation organization.

Update
•1991•

HISTORIC PRESERVATION POLICIES

HISTORIC PRESERVATION POLICIES

The central location of Buckingham, its large area, 18,488 acres, its productive soil, high cultivation, beautiful rural scenery and agricultural wealth, rich deposits of limestone, its distinguished sons, and the general intelligence of the people, entitle it to be called "Empire Township" of the county.

Gen. W.W.H. Davis, 1876

Buckingham Township is located near the geographic center of Bucks County. By the end of the first one hundred years of settlement in 1787, the Township was a thriving farm community with five farms in excess of three hundred acres, eleven farms in excess of two hundred acres, and seventy-seven farms in excess of one hundred acres. The early settlers were mostly members of the Society of Friends. By 1721, a monthly meeting was established in the Township and in 1768 the present meeting house was constructed. Today, many decedents of these early residents reside and own property in the Township. In 1860 Buckingham's population had reached 3,088; by 1920 it had declined to 2,024. Since then, the Township's population has increased continuously. The influence of improved transportation and the Township's advantageous location precipitated this growth.

In addition to buildings with historic value, Buckingham's historic resources are found in other features of the landscape which are reminders of the community's heritage. Such features include tree-lined rural roads and lanes, small bridges, wood lots, hedgerows used to form property boundaries, old individual trees, walls and fences, farm buildings and mills. The placement of buildings in relationship to other buildings and the roads establishes a sense of place that is not felt along contemporary subdivision streets regardless of the architectural style and landscaping. This is felt when travelling through any of the Township's eleven villages or its hamlets, where the scale and placement of the structures provides a sense of place. All these features in combination contribute to the substantial historic character of Buckingham Township.

Protection of these historic resources is primarily the responsibility of those who own property. However, the Township government, under the Pennsylvania Constitution and statutes, can play an active role in their stewardship. Certain laws, regulations and incentives, established at the local level of government, can be enacted to protect and enhance a community's historic resources. As stated in Article I, Section 27 of the Pennsylvania Constitution, all people of the Commonwealth are guaranteed the right to protect and enjoy the historic values of Pennsylvania. The Pennsylvania Municipalities Planning Code (Act 247 of 1968, as amended) and the Pennsylvania Historic Districts Act (Act 167 of 1961) have been enacted for these purposes. Although the intent of these laws is to protect our common heritage, conflicts arise when historic resources are located on private property. The Constitution and laws also guarantee property owners reasonable economic benefit from the use of property. It is the responsibility of local governments to use these laws wisely to achieve the public purpose of preserving historic resources while providing for reasonable use of private properties.

Under the Municipalities Planning Code, Section 605(2)(vi) provides for the regulation, restriction or prohibition of uses and structures at, along or near places having unique historical, architectural or patriotic interest or value. The zoning ordinance should be reviewed to consider special lot sizes, setbacks or buffering requirements for the historic buildings. The Township's transferable development rights provisions for agricultural lands could be adapted to provide the owners of historic properties with an alternative to developing their land.

Under the Historic Districts Act, municipalities may establish historical and architectural review boards. These commissions review proposals to alter or demolish buildings and change the landscape in areas designated by the community as historic districts. One such district has been established for the Village of Spring Valley. The Buckingham Township Historic Commission should encourage the property owners in other villages and hamlets to petition the Board of Supervisors to designate historic districts for the mutual protection of historic character and property values. Historic and architectural review boards can offer valuable advice that provides property owners with information on appropriate building materials and design as well as ways for the property owner's project to be compatible with the scale and character of the surrounding properties. This positive and creative approach to historic district review should be promoted.

These regulatory methods are only part of a comprehensive approach needed to protect and preserve the Township's historic resources. Successful programs in other areas have involved the collection and distribution of well-documented information and the development of public support for community protection efforts. It is recommended that the following activities be undertaken to promote and enhance current efforts:

1. Continue and update historic resources surveys and make the information available to the public.
2. Review the zoning ordinance for amendments that will support these efforts.
3. Encourage restoration and/or adaptive reuse of historic structures and sites.
4. Encourage and assist the owners of significant structures to make individual applications to the National Register.
5. Encourage owners of historic structures to research the architecture, ownership and history of their properties. Advise them of the historic preservation tools available.
6. Discourage the demolition of historic structures, whether or not they are in an historic zoned district.
7. Encourage the establishment of historical zoning districts.
8. Establish clear review procedures and criteria for changes affecting historic resources.
9. Encourage the preservation of historic settings and landscapes.
10. Direct the Historic Commission and the Environmental Advisory Commission to prepare an inventory of historic and unique features to supplement the inventory of historic structures being prepared by the Bucks County Conservancy.

Update
•1991•

HIGHWAY IMPROVEMENTS PLANNING

HIGHWAY IMPROVEMENTS PLANNING

Often, the first casualty of rapid growth is a community's road system. Except for York Road and new subdivision streets, most of the connecting roads of the community are two-lane rural roads. As outlined in previous sections of this comprehensive plan update, a substantial amount of development could occur through the 1990s. A traffic impact study of the Cold Spring Creamery Road corridor has identified needed improvements and related costs, both substantial, along that roadway. Continued development in other areas of the community will have major impacts on many of the Township's intersections. Continued internal growth will add to the burden on the highway network.

Growth in the surrounding areas has added to Buckingham's traffic conditions. Population grew by 39,605 people (24.8 percent) and the number of dwelling units increased by 12,597 (24.6 percent) in the nineteen Central Bucks County communities from 1980 to 1988. Population grew by 16.1 percent and dwellings by 15.9 percent in the county as a whole during that period. Buckingham's location along the Routes 202 and 263 corridors puts the Township along the path of major traffic flows from New Jersey, New York, Eastern Montgomery County and Philadelphia. Roadway conditions within the Township will be directly affected by the community's location within the rapidly growing Central Bucks area and the greater surrounding region.

Highway improvement programs are not in place to increase roadway capacities to meet increased demands. In light of the many demands on the Township's revenues, it is not possible for the community to pay for all the needed improvements to the road system. Likewise, the Pennsylvania Department of Transportation is unable to finance such a program. However, the benefits of a properly functioning road system accrue to residents, businesses and industries. The developers benefit as do those who travel through the community. The responsibilities for the road system must be shared by the Township, the business community, the developers and the people of the Commonwealth through the Department of Transportation.

Functional Highway System

There is a strong and direct relationship between land uses and the road system. Decisions about one affect the other. The decision to concentrate development in an area of the Township should be made in light of the road capabilities in that area or in consideration of anticipated improvements. Decisions related to road improvements should be based on the intensity and type of development expected in the area.

The Township's road system is viewed as an integrated network of roads with types of roads serving different functions and having different design criteria. Higher-order roads serve to convey traffic through the community; lower-order roads provide access to abutting properties. Intermediate-order roads provide links between the higher-order roads while providing some access to properties.

Under an established functional classification, new roads should be built to standards which their function requires and existing roads improved so that they can function as intended. The Township's roads are classified according to the functions they are intended to perform. Design standards for these existing roads and new roads are included in the Buckingham Township Subdivision and Land Development Ordinance. It is important that street design standards result in roads which complement the desired character for various parts of the community. The classifications are described as follows:

Arterial Highways. The primary function of arterial highways is to connect major centers of activity and move vehicles through the community. These highways usually carry high volumes of traffic. However, in a rural community such as Buckingham, direct access is provided to various uses along these roads. In Buckingham, arterial highways are U.S. 202, U.S. 611, Pa. 263 (York Road), Pa. 313 (Swamp Road), and Pa. 413 (Durham Road). In order to protect the carrying capacities of these roads, curb cuts should be minimized and direct access from adjacent properties should be limited as much as possible. Where necessary, intersections should be improved to ensure proper sight distance and traffic flow.

Major Collector Highways. Major collectors provide the link between the arterials and the local neighborhood streets. These highways also form the connections among residential neighborhoods and between residential and nonresidential areas. Major collectors should be designed to carry moderate volumes of traffic at uninterrupted flow. Access to collectors should be limited to minimize the number of curb cuts and direct access.

Minor Collector Streets. Minor collector streets serve similar functions as major collectors. They provide connections among arterial highways, major collector highways, local streets, residential neighborhoods and nonresidential areas. While the volumes of traffic may be lower than the higher order roads, minor collector streets should be designed to provide for uninterrupted traffic flow. Wherever possible, connections of minor collector streets should be provided between residential developments as well as between nonresidential developments in order to provide direct, safe and easy access between developments and to disperse traffic that would otherwise diminish the carrying capacity of higher order streets.

Rural Roads. Many of the existing roads within the rural areas of the Township serve two functions. The rural roads provide for travel through these areas. They also provide direct access to uses, lanes and courts along the roads. In most of these areas, the current level of development is low and is intended to remain low. Most of the rural roads function well in providing access as well as through movement. Rural roads complement and should continue to enhance the character of the surrounding areas. Wherever possible, the road widths and adjoining mature vegetation should be maintained. Improvements and reconstruction projects should upgrade the base and surface of these roads without substantial widening of the roads. Specific land development standards should be developed to facilitate these purposes.

Local Streets. The primary purpose of local streets is to provide access. These roads provide access to residential and nonresidential uses as well as access to collector roads. In places, local streets provide access to the arterial road system. Through traffic should be discouraged. New local streets should be designed so that only a limited amount of traffic would be generated by uses along these streets. Although local streets may connect higher order streets and facilitate some through traffic, the improvement standards should complement the character of the surrounding areas.

Lanes and Courts. These streets are intended to provide access and carry low volumes of traffic. They provide links between residential streets and the abutting properties. These streets usually take the form of cul-de-sacs or short loops which generate about 200 to 400 average daily trips respectively.

The classification of the Township's roads, so that the multiple purposes noted above are achieved, is a project that involves on-site evaluation and discussion among the Township officials. The classification will have implications related to highway safety, efficiency of travel,

community character and environmental impact. It is strongly recommended that the roads of Buckingham Township be classified and improvement standards developed that will address the aesthetic and environmental qualities of this community in addition to highway engineering matters and efficiency of movement.

Buckingham Township is endowed with visual, historic and environmental qualities that have been lost in other communities in periods of substantial growth. Once these qualities are lost, they will never be reestablished. Following the enactment of this comprehensive plan update, the roads of the Township should be evaluated for their current conditions, the development potential in the area and the natural, historic and scenic resources along them. A classification and set of improvement standards should be developed that reflect Buckingham's objectives and characteristics. Fees in lieu of implemented improvements on or abutting the site at the time of land development should be considered to give the Township flexibility in scheduling improvements. This project should involve the Township Engineer, the Planning Commission and other Township boards and individuals as appointed by the Board of Supervisors for this purpose.

Traffic Impact Analysis

The Township's zoning and subdivision/land development ordinances include a fairly complete and current set of standards for traffic impact analysis. The proper and timely use of these requirements can be an important tool in protecting the public investment in the Township's and the State's highway system. The most important times to evaluate the impacts on the highways are when zoning changes, special exceptions or conditional uses are requested. The Pennsylvania Municipalities Planning Code requires that the Board of Supervisors act on conditional uses and the zoning hearing board deals with special exceptions based on express standards and criteria set forth in the zoning ordinance. Refer to sections 603 and 912.1 of the MPC. The traffic impact requirements provide such criteria. If a zoning change would result in adverse impacts beyond the boundaries of the site, there would be clear health, safety and welfare concerns which the Township should consider in accepting or rejecting the request. For conditional uses or special exceptions, the traffic impact analysis would serve as the basis for accepting, rejecting or placing conditions on the application.

It is recommended that the traffic impact statement requirements of the zoning and subdivision and land development ordinances be amended as follows:

1. Specifically state that traffic impact statements shall be required for all subdivisions, land developments, conditional uses, special exceptions and zoning change requests for any use that would generate 500 or more trips per day. This would replace the applicability requirements in both ordinances.
2. The evaluation should be based on the Highway Capacity Manual, Special Report 209, Transportation Research Board, 1985.
3. Generation rates for specific uses should be based the most current rates published by the Institute of Transportation Engineers.
4. In addition to an analysis of a road's ability to carry a certain traffic capacity, the study should evaluate conditions that cause delays. Long delays can be experienced without the road's capacity being exceeded. For example, there could be long signal lengths or a particular traffic movement could experience a long red time.

5. Provisions should be included in the zoning ordinance with reference to specific uses where traffic impact analysis would be part of a conditional use or special exception evaluation.
6. Minor inconsistencies between the specifications in the two ordinances should be eliminated.

Transportation Management Associations

The amount of development, both residential and nonresidential, is not anticipated to be at a level to support a general service public transportation system within the time frame of this comprehensive plan. However, there may exist the opportunity to foster some level of privately supported transportation among major employers for their employees in Buckingham and the adjacent communities.

A key consideration in a community's efforts to manage the highway system is to reduce the demands on the road system. Particularly important is the management of peak hour traffic; such efforts necessitate the involvement of business and industry. Carpooling, ridesharing and shuttle service from residential areas or transit facilities to the workplace reduce the number of vehicles on the road. Staggered or flexible work hours distribute the trips over longer periods of time.

Transportation management associations are organizations of employers who provide alternative ways, to one degree or another, for their employees to get to work or to decrease peak hour traffic. In many places, the impetus to get such an organization came from the local government. The obvious benefits are to increase or protect the efficiency in the use of the highway system and to reduce the demand for road improvements paid for by the local governments. The major concern is ensuring the long-term commitment of the participating employers and businesses.

Although it appears that the most intensive residential and nonresidential development has yet to take place in the Township, an increased level of traffic and impact on the road system is apparent. Protection of the capacity of the roads is important to the Township, its residents and the businesses located in the community. The Township officials, as well as representatives of the industrial and business parks, should participate in any discussions related to the establishment of a transportation management association.

Related Matters

There are related matters that deserve discussion and consideration in the Township's planning efforts. The first issue relates to a connection of the improved Route 202 from New Jersey, through Bucks County and Montgomery County. As development west of Doylestown increased at a rapid rate, traffic on Route 202 has grown far past an acceptable level and has forced traffic onto Upper State and Lower State Roads as well as the connecting local roads until these roads have been overburdened. The municipalities, the State and the county are struggling to remedy that situation after the crisis has been firmly established.

Traffic on Route 202 through Buckingham Township has increased significantly in recent years and it is probable that conditions will become unacceptable. Although no specific right-of-way has been proposed, a general corridor had been discussed that would extend from Pools Corner, pass near Mechanicsville and enter Solebury Township somewhere between Mechanicsville Road and Old York Road. Interchanges might be located at Route 313, Route 413 and Street Road to serve the Lahaska area. Since that general location had been discussed, new development has affected or eliminated that possible connection. In reality,

PennDOT's financial capabilities may preclude any such roadway improvement even if the area were completely open. However, it may well be that an alternative connection would be Route 202 from New Jersey with the improved Route 263 towards the business and industrial parks in the Hatboro-Horsham area, the Pennsylvania Turnpike and Philadelphia. Another key regional corridor is a cross-country highway that would connect I-95 through the rapidly developing Newtown area, across Buckingham Township towards Doylestown and onto I-78 in the Lehigh Valley. Discussions on this corridor have been initiated with a number of municipalities that are currently affected by traffic flow between the two interstate highways. In any event, the basic issue which needs to be discussed is the ability to move traffic through the community without destroying the character of Buckingham Township. This should be discussed before all viable options are lost or the communities and the state are forced into dealing with remedies that are substantially more costly.

Major deficiencies have been identified in the 22 mile highway that extends from the intersection of Routes 313 and 263 in Buckingham to the Route 663 interchange with the Pennsylvania Turnpike in Milford Township. This corridor serves as a major traffic corridor through the center of the county. In addition to overloaded traffic volumes, this roadway has physical constraints related to steep grades for truck traffic, no or poor shoulders, steep side embankments, drainage ditches and few controls on direct access to the road. The municipalities along the corridor, with the assistance of the county planning commission, have organized to cooperatively press for improvements that would help move traffic along the roadway. Unified efforts will increase the possibility that the state will allocate effort and funds to these needed improvements. Coordinated municipal actions, such as the adoption of official maps which show consistent rights-of-way and needed improvements, will help remedy the problems along this highway.

The final issue is one of a much less dramatic scale. A very important and beneficial improvement would be a planned system of pedestrian/bicycle paths through those portions of the community where significant development is anticipated. These systems would take some level of vehicular traffic off the roads and would provide a community amenity. Such a system is in place in Lower Makefield Township and is said to be well used and much appreciated. Another system is in the planning and land acquisition stages in the Quakertown Area.

If such a system is to be implemented, it should be based on a plan in which the Township designates appropriate connections between residential areas, parks, playgrounds, schools, shopping area and employment centers. The Township's subdivision and land development ordinance would include requirements that these improvements be required in developments along the system. The ordinance would include improvement requirements to ensure the pathways are constructed to acceptable standards and buffering or screening are provided where needed.

Protection of the Highway System

The general public and businesses, through various taxes, have made a considerable capital investment in highways. A single property owner making use of this investment can seriously degrade the overall operation of a highway through improperly designed access. To help avoid this situation, the property owner must obtain a highway occupancy permit before taking access to a public highway. This permit is issued by the government agency controlling the highway in question. This would be the township for local roads and PennDOT for state roads.

PennDOT has no jurisdiction over the land use of any particular site. PennDOT's review is limited to the immediate impact of the access to determine that traffic entering or exiting the site does not have adverse effects on the traffic flow and safety in the immediate vicinity. Stormwater drainage is also considered to determine that runoff does not flow onto the road

and that the drainage system is adequate to handle the increased flows. Any potential problems are required to have engineering solutions before the permit is issued. PennDOT considers the immediate point of access and does not deny a permit even if the magnitude of the proposed development necessitates highway improvements. PennDOT's position has been that local governments are responsible for land use decisions and, therefore, local governments are primarily responsible for improving capacity and remedying safety problems.

The Township must consider the impact on the road system when land use decisions are under consideration. As noted previously, there are engineering and construction, public transportation, land use and transportation management solutions that deal directly with the roads and their use. It is important that the Township's ordinances incorporate development improvement standards that will ensure proper facilities with new development. The land use considerations, the decisions that result in increased traffic generation, are extremely important and must be made in light of the impact on the roads. The timing and location of new development in relation to existing conditions and programmed improvements will permit the new development to be integrated into the community or will place additional burdens on the community.

Planning and implementation programs for transportation systems are complex and lengthy processes. Transportation systems would include highways, public transportation, private or employer-provided systems, bikeways and pedestrian facilities. These types of programs require the involvement of professionals with substantial training and experience. They also require the involvement of PennDOT, the Delaware Valley Regional Planning Commission, the Bucks County Planning Commission, the surrounding municipalities and the major employers in the Township. A comprehensive transportation plan should be prepared within the time frame of this comprehensive plan in order to protect the carrying capacities of the roads and to begin the implementation of needed improvements.

FOOTNOTES

- 1 New Jersey Department of Transportation, Managing Transportation in Your Community, January 1989, pp. 6-19, 38-41.
- 2 Ibid., p. 13.
- 3 Bucks County Planning Commission, The Road to Highway Improvements - Plan Talk Number 6.

Update
•1991•

SEWER AND WATER CONSIDERATIONS

SEWER AND WATER CONSIDERATIONS

Land use planning and planning for sewer and water services should be closely integrated. Public or off-site services are essential in the development areas of the Township to ensure public health, safety and welfare. Individual or community on-lot services will support the stated goals to maintain the rural character in other areas of the Township.

In Buckingham Township, the relationship between water resources planning and sewage facilities planning has been acknowledged for many years. Except for a small area along the Neshaminy Creek, all streams originate within the Township. In these watersheds, no water is taken out and no pollutants are introduced before the water is used by Buckingham Township people and businesses. This situation provides the opportunity to develop a long-term comprehensive groundwater management program to serve the Township's present and future needs. Key elements in such an effort are sewage facilities and stormwater management planning that recharge groundwater resources. To address these issues, the Township undertook coordinated studies for sewage facilities and groundwater in 1981. The Township is also cooperating in a regional groundwater study to be conducted by the U.S.G.S. The regional approach recognizes that efforts to manage and conserve groundwater resources must be undertaken on a multimunicipal basis. This program, which involves seven other communities, is expected to be completed in 1994. The results of the study should be incorporated into the comprehensive plan by amendment.

Wastewater Facilities

Coordination of the Township's sewage facilities planning and land use planning goals is an important aspect of this comprehensive plan. The Pennsylvania statutes which authorize these planning functions direct and encourage municipalities to coordinate these efforts. Section 71.21 of Chapter 71 of the Pennsylvania Department of Environmental Resources Rules and Regulations directs municipal officials to consider their community's comprehensive plan, zoning ordinance and subdivision regulations in the preparation, review and amendment of their official sewage facilities plan. Section 301(4) of the Pennsylvania Municipalities Planning Code (Act 247 of 1968), as amended, requires that a plan for sewage facilities be included in a comprehensive plan. In addition, Section 303(4) of the Code, requires that any construction, extension or abandonment of any sewer line or sewage treatment facility be reviewed by the Township's planning commission. The implication is that such a review would focus on consistency with the comprehensive plan. Section 604(1) of the Code, dealing with the purposes of zoning, states that the provisions of zoning ordinances shall protect the public health and general welfare through adequate provisions for sewage facilities. Section 503(3) of the Code states that a community's subdivision and land development ordinance should contain standards for the installation of sewage facilities.

The Pennsylvania Sewage Facilities Act assigns to municipalities certain responsibilities for wastewater facilities. Each municipality is required to have an official wastewater facilities plan and, unless proposed facilities are consistent with the plan, the Pennsylvania Department of Environmental Resources cannot issue permits for the facilities. However, applicants may request revisions to the municipal sewage facilities plan and may appeal a municipal refusal to revise the plan.

The Buckingham Township 201 Facilities Plan Study, August 1981, serves as the Township's sewage facilities plan under Act 537. In addition to adequately addressing sewage facilities needs, the plan focuses on the balancing of the long-term average groundwater recharge and discharge. Unlike most municipal sewage facilities plans which designate specific areas into which public sewer services may or may not be extended, the Buckingham sewage facilities

plan is goal-oriented. The primary goal is to provide for sewage facilities that are economically feasible and environmentally responsible; the environmental responsibility includes both the protection from pollution and the recharge of the community's groundwater resources. The study sets parameters on acceptable levels of withdrawal, in consideration of the average annual recharge, to maintain safe groundwater levels.

In order to achieve this goal, the sewage facilities plan established an evaluation process for proposed land uses, developments and sewage systems. In the evaluation, the preferred method of sewage treatment would be an individual on-lot system which would return the renovated effluent to the aquifer. Secondary priorities would be community subsurface or spray disposal which would recharge groundwater supplies. The least preferred types of systems are stream discharge facilities and those that export water out of the Township. These systems deplete local groundwater resources.

In light of major changes in related development and sewage facilities matters, a review of the sewage facilities plan has begun. It is recommended that the sewage facilities plan maintain a goal-oriented approach and that the policies and evaluation procedures be updated to achieve the following purposes:

1. To protect the quality of groundwater and surface waters.
2. To maintain groundwater supplies.
3. To preserve environmental quality.
4. To avoid the costs of importing potable water to replace depleted groundwater supplies.
5. To support the Township's land use and open space goals.

When the sewage facilities plan update has been completed and approved by both the Board of Supervisors and DER, it should be incorporated in the comprehensive plan as an amendment.

Water Considerations

As noted, groundwater management is an important goal that is closely related to land use and sewage facilities planning. The Pennsylvania Municipalities Planning Code, in Sections 301(4), 303(4), 503(3) and 604(1), directs municipalities to consider water facilities in the municipal comprehensive planning, zoning and development review functions. Major revisions to the Code, which became effective in early 1989, included new provisions for water resources planning. Section 301(b) provides that municipalities may include a water supply element in its comprehensive plan. This plan element should address current and future water resources, uses and limitations, and provisions to protect water supply sources. This section of the Code requires that any such plan be consistent with the State Water Plan and any applicable water resources plan adopted by a river basin commission. Therefore, this requirement limits the autonomy of local governments in water resources planning. Section 503.1 specifies that municipal subdivision and land development ordinances require applicants for subdivisions and land developments which propose forms of water supply other than private wells owned and operated by an individual lot owner prove that the water will be provided by a certified public utility, a bona fide association of lot owners or a municipal corporation, authority or utility.

It is anticipated that water supply will become an increasingly important concern. In order to conserve the limited supply of groundwater, the following measures should be undertaken:

1. A comprehensive water resources study should be undertaken in order to understand the limitations of available groundwater and to protect its quality. This study should provide recommendations for stormwater management and sewage disposal systems that replenish groundwater resources. Coordination between a water resources plan and the Township's sewage facilities plan is critical. Methods to conserve water use should be evaluated. Such a study should also deal with matters relating to the ownership and management of water systems.
2. Development standards should limit the amount of impervious surfaces and maximize the amount of open space, especially in critical groundwater recharge areas.
3. Stormwater management techniques should be designed for groundwater recharge.
4. Water impact studies should be required for all zoning change requests that would result in significant increase in withdrawal of groundwater. Water impact studies might also be required for certain major forms of land development where there is a concern related to the effects on water supply or quality. This is particularly important in poor groundwater recharge areas. Such uses should be designated as conditional uses or special exceptions in the Township's zoning ordinance. Specific standards and criteria related to water impact analysis should be included.
5. Develop standards and procedures to ensure that water returned to the groundwater system, either from sewage treatment systems or stormwater management facilities, is of acceptable quality and will not pollute groundwater resources. Rely on standards and procedures established by the Pennsylvania Department of Environmental Resources, where applicable.
6. The Township's limestone valley has an abundant supply of groundwater, but these areas are particularly susceptible to widespread pollution. The lowering of groundwater levels can cause subsidence in limestone areas. Review procedures should be prepared to evaluate water withdrawals in the limestone areas.

Update
•1991•

SCHOOL FACILITY CONSIDERATIONS

SCHOOL FACILITY CONSIDERATIONS

Although municipal officials have no direct involvement in school facility decision making, cooperation between the local governments and the Central Bucks School District administration is important. Communication between the two bodies in the transfer of information on the amount, location, type and timing of anticipated development will help the school district plan for expansions of schools or redistribution of students. Plans for new facilities should be considered by the Township in land use planning and zoning matters. Such cooperation and the exchange of information will help both manage and make the best use of the public's substantial investment in the school system.

The Central Bucks School District and Buckingham Township administration participate in an arrangement under which the Township provides the school district with information on the status of development proposals. Although the school district has had to focus its attention on the significant growth areas of Chalfont, Doylestown, Warrington and Warwick, the school district is well aware of the growth potential in the eastern portion of the service area which incorporates Buckingham and Plumstead Townships.¹ Most of Buckingham Township is served by Buckingham Elementary School. A very small area from Durham Road along Landisville Road is served by Gayman Elementary. Currently, Buckingham Elementary is considered at capacity by the school district. There are plans to expand Gayman by eight classrooms which would accommodate approximately 200 additional students. The school district's standards would limit the size of an elementary school to a range of 600 to 650 students. The district limits class sizes to 25 pupils although classes may be increased to 28 or 30 where distribution difficulties warrant temporary increases. Much smaller class sizes are provided for special programs or students with special needs. Distribution problems may warrant a shift in the geographic boundaries between the Buckingham Elementary and the Gayman Elementary service areas.

The school district recently surveyed nine hundred families in the district and found that there are 0.55 elementary school age children per household. It was also found the 85 percent of the families send their children to the public schools in the Central Bucks area. It is said that most school districts can expect eighty percent of the elementary age children in the area to attend the public schools. Twenty percent of the children are usually enrolled in private or parochial schools or some form of alternative education.

From the information supplied by the Township, the school district administration considers approximately 1,200 homes approved for construction or sufficiently through the approval process that there is a high probability they will be developed. This figure does not include the Barness and the Toll Brothers developments along Cold Spring Creamery Road. Applying the factors for the number of elementary age school children and the proportion of the children who would attend public schools noted above, an additional 561 school children would be added to the public school system. In light of the limitations of the two existing elementary schools, an additional elementary school would be needed. With the 650 student limit per elementary school, a second elementary school may be needed to accommodate the children from the Barness and Toll Brothers developments. If the level of development is great enough to warrant the second new elementary school, the school district anticipates the need for a new junior high school. Central Bucks East High School appears to be adequate to handle the increased number of students.

Based on the housing projections determined by the housing trends analysis, it is not anticipated that the planned 1,200 dwellings will be constructed within the time frame of this planning period. However, the Township officials, the school district administration and the

developers should be aware of the growing need for an additional elementary school site. Overcrowded schools hurt students, the community and the marketing of new homes. Planning for these sites should take place well before the homes are built and occupied. It would be advantageous to build a school site into plans for a larger residential, particularly for a development in which the builder would want to achieve a residential community that is more complete than a conventional subdivision. The Buckingham Township Zoning Ordinance of 1984 offers a density bonus for the inclusion of a school site when approved by the Board of Supervisors and the Central Bucks School Board. The school site in such a residential development would provide a focus that would establish the sense of a traditional neighborhood or a village within the Township. This approach to land planning is much discussed and promoted in current literature and is discussed in following sections of this comprehensive plan update.

FOOTNOTE

- 1 Interview with the Central Bucks School District Business Manager.

Update
•1991•

PARK AND RECREATION PLANNING

PARK AND RECREATION PLANNING

As noted in the statement of community development goals and objectives, park and recreation facilities are important parts of a community. The availability of recreation areas and athletic fields directly affect the general quality of life in the Township. Buckingham Township has recognized the importance of active recreation areas and has recently opened a community park near the village of Holicong. The first phase includes two soccer fields and a pavilion.

There are a variety of other open space and recreation opportunities located in the Township. A number are owned by either the Township or the County of Bucks; other facilities are privately owned. Several of the open space areas are available for public use. Others have limited use as spray irrigation field and, although they are open and will not be developed, active and passive recreation are not appropriate or permitted on these lands. Among the varied opportunities and open space areas are the following:

1. Lojeski Tract. 92 acres dedicated to the Township. Open space, recreation, spray irrigation.
2. Yaroschuk/Myers (Toll) Tract. 43 acres to be dedicated to the Township.
3. Biddleford Circle. Approximately 3 acres of wooded open space owned by the Township.
4. Redgate Farms. Approximately 4 acres of open space owned by the Township.
5. Township Municipal Building Site. To be developed with a walking park.
6. Cole Tract. Township-owned spray irrigation site. Open space.
7. Beck Tract. Township-owned spray irrigation site. Open space.
8. Kaplan Tract. Approximately 66 acres to be dedicated to the Township for open space and spray irrigation.
9. Dark Hollow Site. Approximately 144 acres of County-owned open space.
10. Robin Run Site. Approximately 88 acres of County-owned open space including an 8 acre water body.
11. Bucks County Conservancy. Various parcels of open space held for conservation purposes.
12. Buckingham Elementary School. 20 acres including athletic fields.
13. Holicong Junior High School/Central Bucks East High School Complex. 66 acres including athletic fields.
14. Mannechor Field. Private land including athletic fields and picnic grove.
15. Midway Carnival Grounds. Enclosed pavilions and athletic fields.
16. Buckingham Friends School. Private school with athletic fields.

17. Tyro Grange Hall. Indoor activity space available.
18. Buckingham Racquet Club. Private tennis courts.
19. New Hope-Ivyland Railroad. Railroad amusement. Picnic facilities.
20. Center Club. Private fitness center.
21. McKee Development. Private senior citizen center and related activities.
22. Wicen Brothers Shooting Range.
23. Riding Academies. Various private centers.
24. Doylestown Airport. Private recreation related to flying.

Although the Township should try to meet the needs and wishes of the residents, land acquisition, improvements and programs must fall within the constraints of the Township's budget. In order to make the best use of existing park lands and to identify future needs, the Buckingham Township Park and Recreation Board should prepare a comprehensive open space, park and recreation plan for the 1990 to 2000 period. The board should work closely with the school district and the surrounding municipalities to avoid the duplication of recreation areas and facilities. The Pennsylvania Department of Community Affairs strongly promotes a park-school concept which views the school facilities and surrounding open space and athletic fields as multi-purpose education and recreational areas. This idea would combine the neighborhood recreation area and the elementary school sites; the community level recreation area and the high school could be a unified facility. If municipal-school cooperation is achieved, savings can be realized in land acquisition and use, construction, operation, maintenance and programming.

As of February 21, 1989, major revisions to the Pennsylvania Municipalities Planning Code became effective. Under new Section 503(11), procedures and standards were established for municipal ordinance requirements for:

1. the dedication of land for the public's use;
2. the construction of recreation facilities;
3. the payment of fees in lieu of either of the above;
4. the private reservation of land; or
5. any combination of the above for park and recreation purposes.

Two criteria specified in the Code are that the municipality must have an adopted park and recreation plan and that the municipal subdivision and land development ordinance must include definite standards related to the requirements for land, improvements or fees. These standards must bear a reasonable relationship to the use proposed by the developer.

In light of these new requirements of the Code, it will be most important for the Park and Recreation Board to prepare a park and recreation plan if the Township places a certain level of responsibility for open space, park and recreation facilities on the developers. It is reasonable that new development should provide some level of contribution to the improvement of community level facilities that have been established by the efforts and tax

dollars of the current residents. It is also reasonable that on-site open space and recreation improvements be provided by the developers for the residents of the new developments.

It is recommended that the comprehensive open space, park and recreation plan include specific criteria and standards that can be included in the Township's subdivision and land development ordinance. For open space to be reserved for the protection of natural resources, the natural resource protection standards would serve the purpose. Standards for active recreation areas and improvements could be adapted from suggested criteria from sources such as the National Recreation and Park Association.

One other important open space and recreation improvement is a planned system of pedestrian/bicycle paths. This system would be particularly beneficial in the residential and nonresidential development areas. The linked path system would connect residential areas with recreation and community facilities, schools, parks, playgrounds, shopping areas and employment centers. These paths would be safer for walking and biking than along many of the Township's roads which carry substantial volumes of traffic or have poor alignment and no shoulders. As discussed in the highway improvements planning section of this comprehensive plan, this system would take some level of vehicular traffic off the community's roads. Wherever possible, the links should be located along the collector roads. In this fashion, the paths would be in full view of the road system. In other communities, it has been found that a path system located through open areas, often behind homes, makes some residents uncomfortable and diminishes some degree of privacy. The Township should prepare a plan which designates the appropriate locations for the path system and the subdivision and land development ordinance should include improvement specifications. The system would be implemented by developers as required improvements in lieu of sidewalks.

Update
•1991•

PLANNING COMPATIBILITY



PLANNING COMPATIBILITY

Act 170 of 1989 was a comprehensive revision of the Pennsylvania Municipalities Planning Code. In addition to changes to various technical and procedural requirements for municipal planning, zoning and development review functions, there were a number of changes of a philosophical nature. Section 301 of the Code requires that a comprehensive plan include a statement of the interrelationships among the various plan components and may include an estimate of the possible consequences on the municipality. The intent of this provision is to encourage the integration of the plan's elements, to encourage internal consistency and to consider possible community impacts.

Another new provision requires that a municipal comprehensive plan include a statement which indicates the relationship of the existing and proposed development in the municipality to the existing and proposed development and plans in contiguous municipalities, to the county's objectives and plans for development and to regional trends.

Relationship Among Plan Components

This comprehensive plan update is intended to promote and protect the public health, safety and welfare. The stated goals and objectives are designed to achieve those general purposes. The various plan components have provided background information and more specific guidelines to assist in the achievement of the goals and objectives.

There was a high degree of coordination among the components of this comprehensive plan. The housing projections included in the section on growth were used in the residential development areas analysis which was used in the development of a growth management strategy. The section on natural resource protection was coordinated with the policies stated for sewer and water facilities. All plan components were used in the development of the future land use plan.

This comprehensive plan update is intended to provide a framework upon which more detailed or complementary studies will be prepared. As such, this plan in conjunction with other Township planning efforts will provide environmental, fiscal, economic and social benefits for the community.

Compatibility with Surrounding Municipalities

The impacts of development are not limited to the municipality in which development takes place. Development in one community can complement or diminish the quality of life in a neighboring community. The development which disrupts conditions in an adjoining community need not be located on the municipal boundary; traffic, glare, noise and other nuisance can be disruptive at considerable distances. The following summary addresses the compatibility of land use plans between Buckingham Township's land use planning and that of the adjoining communities. The review was limited to the areas along the municipal boundaries. However, it is recognized that intermunicipal impacts are far more complex.

A. Doylestown Borough.

The Borough's comprehensive plan was enacted in 1969. The plan proposed low density residential, open space and recreational uses along the common municipal boundary and the portion of the Borough that projects into the Township. This part of the Borough that is surrounded by the Township on

three sides is the Maplewood development which includes single-family detached homes, open space and athletic fields.

The Borough's zoning ordinance was updated in 1985. In the Cross Keys area, the Borough has zoned the land across Route 313 from Buckingham's Planned Commercial-1 zoning district as Freestanding Commercial or Office. Both communities have zoned the remainder of the shared boundary, except for the Borough's corner at Pool's Corner which is zoned Freestanding Commercial, for single-family residential uses. Although the two Pool's Corner corners in Buckingham Township are zoned residentially, the properties contain nonconforming commercial uses. Therefore, the existing or permitted land uses are compatible at the municipal boundary.

B. Doylestown Township.

The Doylestown Township zoning ordinance of 1988 and the comprehensive plan of 1989 are consistent in terms of proposed and permitted land uses along the boundary with Buckingham Township.

The property that contains the historic Mercer structures, the Fort Hill Mansion and the Moravian Pottery and Tile Works, are designated as institutional and are located across Route 313 from the area intended for higher density residential uses in Buckingham's Village Residential zoning district. The park, open space and cultural facilities are complementary to the potential residential uses in Buckingham Township.

In the Village of Furlong, Doylestown Township's C-1 Highway Commercial District is compatible with Buckingham's VC-2 and PC-2 commercial districts. The remaining areas along the shared municipal boundaries of Swamp Road and Edison Furlong Road are planned and zoned for single-family detached uses at densities of one dwelling unit per acre. Therefore, the planning and zoning in the two townships are complementary.

C. Plumstead Township.

The Plumstead Township comprehensive plan of 1969 is substantially different from the Township's zoning ordinance of 1989. Therefore, the zoning ordinance is considered the appropriate source of information on the Township's land use policies.

Both communities provide for commercial uses in the Cross Keys area. Plumstead Township has zoned the area between the commercial corridor along Route 611 to the western side of Old Easton Road for light industrial uses. From the eastern side of Old Easton Road to the Delaware River, Plumstead permits single-family detached dwellings on two-acre lots or cluster developments with single-family homes on one-acre lots. Fifty percent of sites with cluster developments must be kept in permanent open space.

The area in Buckingham Township across Landisville Road and Ridge View Road from Plumstead's residential area is planned and zoned for a variety of uses. The area between Old Easton Road and Burnt House Hill Road is intended for planned industrial uses. This area is considered appropriate for such uses due to its proximity of the Doylestown Airport and many existing industrial, warehouse and office uses. This planned industrial area is no more

incompatible with the residential area in Plumstead Township than are the residential areas across Cold Spring Creamery Road and Burnt House Hill Road in Buckingham Township. Buffer requirements and nuisance standards in the Buckingham Township zoning ordinance are intended to mitigate disturbances.

The area in Buckingham across Burnt House Hill Road from the Planned Industrial area is zoned for high density residential uses. This zoning is a result of litigation in the mid 1970s. The remaining common boundary is zoned for single-family homes at various lot sizes.

D. Solebury Township.

Due to differences between the Solebury Township comprehensive plan of 1975 and the zoning ordinance of 1988, amended in late 1989, the zoning ordinance was reviewed for compatibility with the Buckingham Township land use guidelines.

The area between Route 202 and Route 263 in the Village of Lahaska is zoned for commercial uses in Solebury Township. Although the area zoned for commercial uses on the Buckingham side of Street Road extends a bit farther along Street Road, the areas are generally compatible.

The remainder of the area along the common boundary is zoned for single-family detached dwellings on one and a half acre or three-acre lots in Solebury Township. On the Buckingham side of Street Road, the zoning specifies single-family homes on one-acre lots where such subdivisions exist and single-family homes on 1.8 acre lots in other areas. The two planning and zoning programs are compatible.

E. Upper Makefield Township.

Upper Makefield Township participates in the Newtown Area joint municipal planning and zoning program. The Newtown Area Comprehensive Plan was adopted by Upper Makefield Township, along with Newtown Borough, Newtown Township and Wrightstown Township in 1983. At the time this Buckingham Township plan review was being undertaken, these communities were in the final stages of a review and update of the joint municipal comprehensive plan. The Newtown Area Zoning Ordinance was consistent with the existing and revised comprehensive plans.

The adjoining area in Upper Makefield Township is designated as Conservation Management in both the comprehensive plan and the zoning ordinance. Low density uses are permitted including single-family dwellings, single-family cluster subdivisions and performance subdivisions which provide for a variety of dwelling types. The same forms of residential development are permitted in Buckingham Township at slightly higher densities in the Agricultural district. The planning and zoning programs are compatible.

F. Wrightstown Township.

Wrightstown Township also participates in the Newtown Area planning and zoning program. Similar to the conditions noted above, much of the shared

boundary is Conservation Management on the Wrightstown side and Agricultural on the Buckingham side.

The villages of Pineville and Wycombe are split by the municipal boundary. Both communities have provided for zoning standards which will complement the village character. Primarily residential uses are permitted in the Wrightstown Township portions of these villages. Very limited office and retail uses, in addition to residential uses, are permitted on the Buckingham side.

A small area between Swamp Road and Mill Creek Road in Wrightstown Township is designated as County Residential under Wrightstown's zoning provisions. Single-family detached dwellings, cluster subdivisions and performance standard developments are the primary uses permitted at slightly higher densities than permitted in Buckingham's Agricultural districts.

As with the Upper Makefield situation, the Wrightstown and Buckingham land use guidelines at the municipal boundary are highly compatible.

G. Warwick Township.

Warwick Township was also in the final stages of a comprehensive plan update when this review of the Buckingham plan began. It had been the long term policy of Warwick Township that the boundary area it shares with Buckingham Township is to be rural in character and that policy was reaffirmed in Warwick's plan update. In fact, many landowners, with Warwick Township support, placed their properties in an agricultural security area under Pennsylvania Act 43. This common boundary along the Neshaminy Creek in Warwick is to remain rural for agricultural, open space, flood plain protection and low density residential purposes.

The area on the Buckingham side of the Neshaminy Creek boundary is identified as agricultural and neighborhood conservation. R-1 residential zoning includes the existing subdivisions. The undeveloped land is designated agricultural which requires 1.8 acres for single-family detached dwellings. Cluster subdivisions and performance standard developments are also permitted. These zoning standards are comparable to Warwick's requirements of a minimum two-acre lot size for single-family dwellings. Cluster subdivisions are also permitted.

The two communities' policies and standards are highly compatible along the Neshaminy Creek boundary.

By luck, design or common sense, land use planning is very compatible between Buckingham and its neighbors at the Township's boundaries. No conflicts exist that would warrant significant changes in direction. However, as noted previously, the rate, scale and character of development far from common boundaries can cause intermunicipal impacts. Some form of evaluation of growth in the Central Bucks area should be undertaken. Such a study could be, simply, an inventory of proposed developments so that municipal officials would have some understanding of the growth that is likely to occur. A more involved study could provide an estimate of the growth impact on highways, schools, sewer facilities, recreation facilities, police and fire protection, open space, natural resources and other areas of concern.

In the mid 1970s, the Bucks County Planning Commission prepared growth impact studies of the Newtown area and the Central Bucks area. In the Newtown area, which grew substantially

faster than the Central Bucks area, many of the negative impacts forecast in the county study have occurred. The municipal officials of the Central Bucks area should discuss the potential benefit of such an analysis. If it is determined that such a study would help the communities manage growth, individually or cooperatively, the county planning commission should be requested to update the study performed in the 1970s. The communities should be prepared to support such an effort financially and by providing basic information on proposed developments. The results of the study would be most helpful to the school district, emergency service organizations, the Chamber of Commerce and other private and public organizations in the area.

Buckingham Township and Plumstead Township officials should discuss a cooperative evaluation of the substantial amount of growth proposed in the Pine Run watershed. Such a study could help these communities better manage conditions in this rapidly growing area between the municipalities.

Bucks County Planning Policies

The Bucks County Board of Commissioners adopted the current county comprehensive plan on June 15, 1977. However, the county comprehensive planning program is an on-going process and various elements and information components have been reviewed and updated since the plan's adoption. The county planning program is comprehensive in the many issues it addresses related to growth management, environmental protection, housing, transportation, public facilities and other associated matters. There are a number of basic planning issues which are consistent between the county's and the Township's planning efforts.

Both planning programs embrace the fundamental approach to growth management titled the Development District Concept. Under this approach, intensive nonresidential and higher density residential developments are channeled into areas where public services can be efficiently and economically provided. The residential development areas are sized to accommodate at least the anticipated amount of higher density housing growth for the 1990 to 2000 period. The designated development areas are not areas with significant or widespread environmental constraints. The land use plans of the county and the Township, which implement the development area concept, have been highly consistent except along the Cold Spring Creamery Road corridor between the Township's industrial area and Route 413. Although the county's plan shows this area as prime agricultural land, which was supported by the Township, successful legal actions by several land owners in that area will result in substantial residential development within the corridor. It is recommended that any revision to the county's land use plan recognize these conditions and the potential for higher density housing.

In terms of natural resource protection, the Township's planning and zoning include policies and standards comparable to those recommended by the county. Environmental performance standards, performance zoning and cluster provisions have been parts of the Township's land use regulations since the enactment of the 1975 zoning ordinance. The Township's planning incorporates goals for the protection of prime agricultural soils and the support of farming activities. Although the zoning ordinance includes protection standards for prime agricultural soils, cluster housing provisions, open space specifications to facilitate farming in agricultural areas and transferable development rights, these techniques have had limited success. However, the Township's interest in protecting farmland and encouraging the continuation of agriculture is reaffirmed in this comprehensive plan update. It is intended that the agricultural study commission will provide recommendations on methods that may produce more effective results.

Since the enactment of the 1974 Township comprehensive plan, residential development areas have been sized to provide the opportunity for the developers to construct a sufficient number of housing units to meet the needs of low to upper-middle income families. A wide variety of dwelling types have been permitted. The zoning ordinance includes provisions for performance zoning, cluster forms of development and bonuses for low and moderate income housing. The ordinance also provides for dwellings in combination with nonresidential uses and for limited retail uses in performance standard developments of two hundred dwellings or more. Basic housing policies are consistent between the county and Township.

Regional Trends

The Township's planning program, as noted above, includes provisions to accommodate a fair share of the regional housing growth and certain bonuses and site design options provide opportunities for the building community to address affordability in the Central Bucks area.

The Township participates in the county's solid waste planning and management efforts.

The Township is well aware of the developing crisis of the regional highway system. To a great extent, the nature and scale of the problem is beyond the ability of local government to resolve.

As noted previously, there is an obvious need to address the issue of rapid growth in the Central Bucks area. The issue is regional in nature and the impacts are intermunicipal. Effective responses to it should be regional in scale. A simple inventory of proposed developments and development potential would provide data on the magnitude of current and future conditions. A more involved evaluation would translate that information into estimated impacts on the region's schools, roads, services and natural features. An even more useful program would be the development of a joint municipal comprehensive plan, as provided for under the Pennsylvania Municipalities Planning Code, to assist in managing growth cooperatively in the area. This, in turn, will help to protect the quality of life desired by Central Bucks residents and help manage municipal and school district budgets. However, no such effort is possible unless interest and commitment is shared among the communities and is initiated by the municipal leaders in the Central Bucks area.

Update
•1991•

EXISTING LAND USE PATTERNS

EXISTING LAND USE PATTERNS

The pattern of existing land uses is a product, in part, of the Township's intent and design through the on-going planning program. The land use pattern is also a result, in part, of the response to economic, social and legal circumstances which, from time to time, have exerted greater influence on land uses than the Township's comprehensive plan and implementing ordinances. The intended land use pattern in the early 1970s, which proposed several core areas for more intensive forms of development, surrounded by distinct rural and agricultural areas was substantially changed as the result of the litigation that dominated the mid 1970s. In addition, Buckingham Township became one of the "development hot spots" in Bucks County during the mid 1980s.

During the preparation of this comprehensive plan update, an inventory of existing land use was undertaken. Information was collected from the county Board of Assessment records, Township files and the knowledge of the Township officials. The information was intended to provide a general pattern of land uses throughout the community rather than a tax parcel by tax parcel inventory. It is important to understand the general patterns of existing land uses, including land committed to specific development proposals, before a direction for the foreseeable future is determined.

The combined influence of the Township's planning and other circumstances and pressures has produced a discernable pattern of land uses. The northwest corner of the Township has been designated for commercial and industrial uses. This area is at the intersection of Routes 313 and 611 and is a short distance from the Route 611 By-Pass. The Doylestown Airport is located in the center of this commercial-industrial area. Commercial and industrial uses exist in the area and two large developments have been proposed. Over one hundred acres remain which have not been developed and for which development plans have not been submitted.

There are three villages in the Township that serve as commercial centers. These are the villages of Buckingham, Furlong and Lahaska and all are located along the Routes 202 and 263 corridors. Furlong and Buckingham are basically centers that currently provide some services and limited goods of a convenience nature. Service and convenience commercial uses have been extended north along Route 202 from Buckingham village. Adjacent to both of these villages, proposed major commercial developments will provide a greater variety of goods and services to meet the needs of the residents of the Township and surrounding areas. The development at Buckingham village proposes a mix of uses including residences. Lahaska village, primarily oriented to specialty shopping and customers from beyond the local area, offers shops and restaurants in a unique setting.

Within the Township there are nine other villages or hamlets that are small, rural, primarily residential, associations of buildings, landscaping and roadways that establish a sense of place. These include Bridge Valley, Buckingham Valley, Forest Grove, Holicong, Mechanicsville, Mozart, Pineville, Spring Valley and Wycombe. Several of these villages include limited commercial uses and services such as post offices. These villages are unique places in the developing, as well as the rural, areas of the community. The Bucks County Planning Commission publication, The Villages of Bucks County: A Guidebook, describes these and other such places in the county along with interesting aspects of the villages' past and present.

In addition to the places noted above which have discernable boundaries, there are three broader areas of the community which have or are developing distinct characters. The quadrant of the community bounded by Landisville, Durham, York and Swamp Roads has

experienced substantial residential development. Approximately ten additional major residential developments have been proposed within this area, particularly along Cold Spring Creamery Road. In addition to this quadrant, the two hundred acre parcel on the southeast corner of the Swamp and York Roads intersection will be developed in a single-family suburban residential form of subdivision. It is anticipated that by the year 2000, the character of this area will have changed from rural to suburban with the development of a variety of housing types and densities.

The area of the Township formed by Ridgeview, Street, York and Durham Roads has also experienced several major residential subdivisions and others are in the development process. However, the development has been and is proposed to be single-family detached subdivisions. The lack of existing sewer lines in this area should limit the form and rate of development compared to the area described above. Many larger land holdings, either used for farming or held in open space, are scattered throughout this area. The triangular area, formed by Edison-Furlong, York and Sugar Bottom Roads, is comparable in character.

The large portion of the Township below York Road is primarily rural in character. Much of the area is farmed or is characterized by a steep, wooded or flood-prone landscape. Significant aspects of the landscape are the limestone valley, Buckingham Mountain and Little Buckingham Mountain. As compared to the two areas described above, residential development has taken place on larger lots. Access is often provided by lanes, easements or directly from abutting rural roads which results in a character different from homes fronting on new subdivision streets. Except for a few subdivisions, residential development in this area has tended to blend with the rural landscape rather than establish a new suburban character. It should be noted that three large residential developments are likely to be established in this area by the year 2000.

Throughout the Township, low intensity nonresidential uses exist in areas that are primarily residential or rural. Some are farming-related such as landscape nurseries, sod farms and riding stables. Others are churches or home occupations in which the occupational uses by the residents are clearly subordinate to the residential uses of the properties.

The only public elementary school in the Township is located in Buckingham village. Buckingham Friends School is a private elementary school in Lahaska. Hollicong Junior High School and Central Bucks East High School are located between the villages of Buckingham and Lahaska.

The Township's administration building and police headquarters are located at the intersection of Durham and York Roads.

Update
•1991•

GROWTH MANAGEMENT AND LAND USE PLANNING AREAS

GROWTH MANAGEMENT AND LAND USE PLANNING AREAS

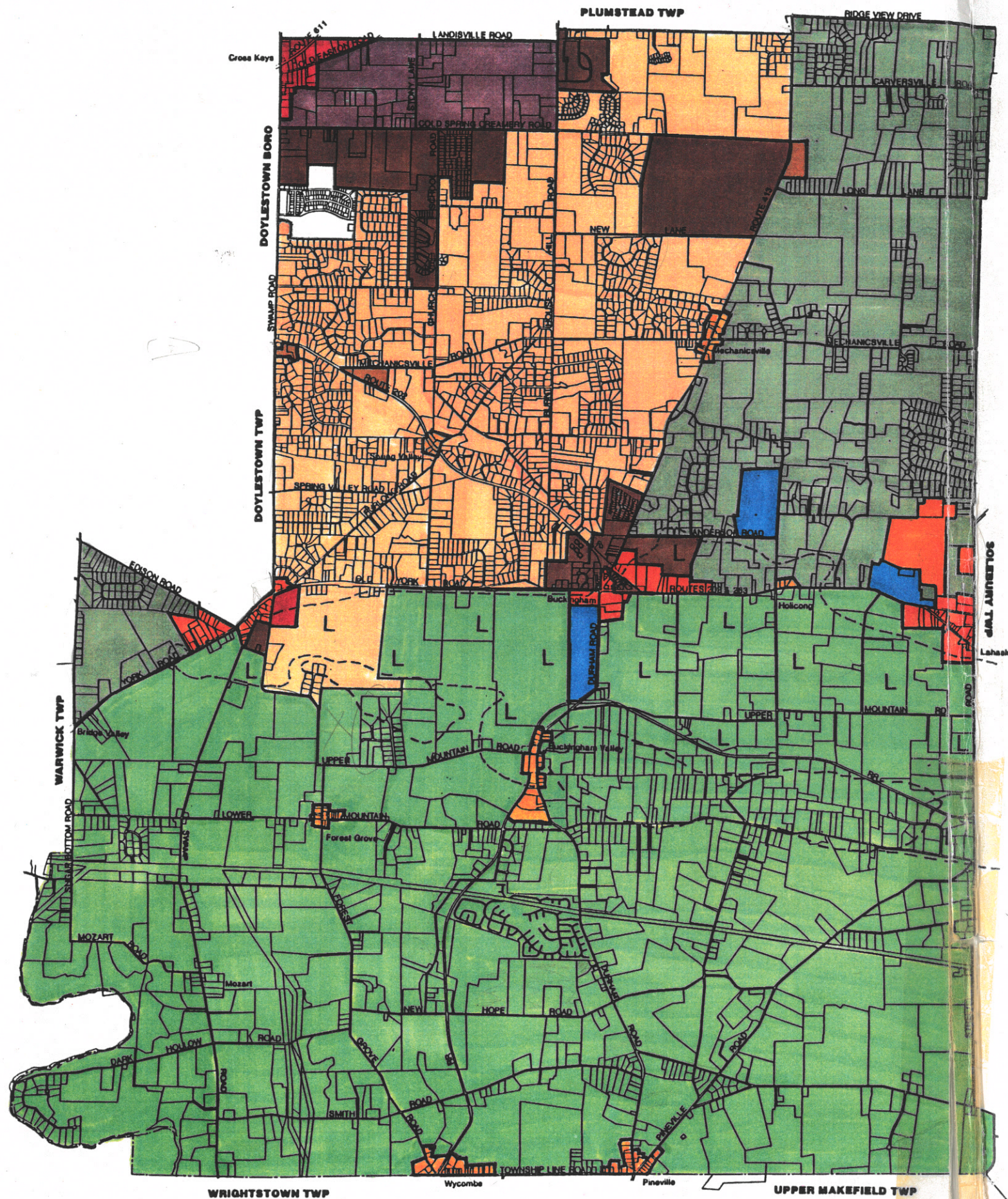
As noted in the discussion of the existing land use pattern, the type and distribution of development in the Township has resulted from the Township's planning efforts as well as other, compelling circumstances. National economic conditions have influenced development to a significant degree. The introduction of public sewer service and the improvement of York Road have exerted major influences on Buckingham's development. Changes in land use laws, both statutory and judicial, have placed responsibilities on the Township to prepare for growth. These laws also provide the Township with certain tools to manage the growth that is to be accommodated. Under the Pennsylvania Municipalities Planning Code, the local governments of the Commonwealth are directed to plan for the location, character and timing of future development in their communities.

It is recognized that changes in the economy, laws, social trends, technology and other factors, as well as the goals and guidelines stated in this comprehensive plan, will shape land uses that will exist in Buckingham Township by the year 2000. It is further recognized that it is not possible to prepare a comprehensive plan which will determine the ultimate development pattern of a community like Buckingham Township with its large areas of open land. A comprehensive plan should state certain long-term principles and goals that establish a basic framework for on-going planning efforts. It is necessary for a community to develop firm plans for the near future. Although the time framework of this comprehensive plan update is the 1990 to 2000 period, the plan should be reviewed in five years and the time horizon extended five years to 2005. In this way, the overall comprehensive planning program will remain current and responsive to changing conditions.

Since the enactment of the Township's 1974 comprehensive plan, the community's land use planning has been based on the "development area" concept. This is a phased or incremental approach to planning. There are three primary factors involved in the use of this growth management strategy. The first factor is the time framework of the planning program which is, as noted above, the 1990 to 2000 period. The second factor is the anticipated amount of development which should be accommodated in that time period. These estimates are based on the housing projections included in the residential development areas analysis. The adequacy of the land intended for nonresidential uses is discussed in the nonresidential development areas inventory and any future expansion of these areas should be predicated on locational factors such as the adequacy of the road system, sewer and water services and compatibility with surrounding land uses. The third factor includes physical and locational characteristics which make certain areas appropriate for more intensive land uses and other areas appropriate for low intensity uses. As such, the development area concept provides an appropriate method for the community to plan for the timing, character and location of future development according to the directives of the Pennsylvania Municipalities Planning Code. The specific application of this concept has evolved in response to changing conditions, objectives and needs in Buckingham Township.

Planning Areas

In order to achieve the goals and objectives stated in this comprehensive plan, planning areas have been delineated. Each area is intended to serve a certain purpose within the time frame of the planning period. Refer to the Land Use Planning Areas Map for the location of the various planning areas.



LAND USE PLANNING AREAS

DEVELOPMENT AREAS

- Commercial Core Areas
- Commercial Village Centers
- Village Center/Planned Residential Areas
- Village Office Areas
- Planned Industrial Areas
- Village Residential/High Density Residential
- Suburban Residential Areas
- Institutional Areas

RURAL AND CONSERVATION AREAS

- Rural Areas
- Rural Villages
- Conservation Management Areas

ENVIRONMENTALLY SIGNIFICANT AREAS

- Steep Slopes
- L Limestone



0 ft. 2000 4000 8000

BUCKINGHAM TOWNSHIP

Bucks County - Pennsylvania

A. Development Areas

It is the purpose of the Development Areas to accommodate higher density residential and more intensive nonresidential uses. The nonresidential uses include commercial, office and industrial uses. The residential portions of the development areas provide the opportunity for the construction of a variety of housing types and densities. The anticipated number of housing units for low to upper middle income families can be accommodated within the residential areas.

Critical facilities, such as various forms of centralized sewage treatment and improved roads, serve or are intended to serve the development areas. Public and private efforts should be coordinated to implement these improvements. As in the past, developers will be required to identify specific natural features and these features are to be protected according to the Township's ordinances. Open space will be required to protect natural features and resources and to provide recreational facilities.

Within the Development Areas, subareas have been established to serve specific functions. These subareas are:

1. **Commercial Core Areas.** The two primary Commercial Core Areas are located at the intersections of Routes 611 and 313 and Routes 313 and 263. The commercial area at Routes 611 and 313 is an older, established center. The uses front on the highways and this area of individual establishments is oriented to the motorist. The commercial area at Routes 313 and 263 is undeveloped land and it is anticipated that a shopping center will be developed on this site within this planning period. It is intended that these areas be limited to the bounds currently designated for such uses under the zoning ordinance.
2. **Commercial Village Centers.** The villages of Buckingham, Furlong and Lahaska provide for commercial and service uses. Commercial and office uses in Furlong are oriented to the highway and additional commercial development potential exists on a number of properties. The commercial uses in Buckingham village include older uses at the intersection of Route 413 and 263. On the north side of Route 202 between Anderson and York Roads, a mixed development of commercial, office and residential uses has been proposed which is intended to be similar to the mix of uses found in the older villages. Newer uses have been developed along Routes 202/263 toward Holicong. Lahaska will continue to serve as a tourist-oriented shopping village. Until the commercial land in these areas is built out and the impact on roads, sewers and other services can be evaluated, these areas should not expand beyond the zoning districts established for these purposes.
3. **Village Center - Planned Residential Area.** This area is intended to provide for low density residential development and low intensity hotel uses adjacent to the tourist-oriented shopping village of Lahaska. The intended uses will provide an appropriate transition area between the land use intensity and commercial activity of Peddlers Village and the outlying farms and single-family homes. The form of development in this planning area should include design principles to result in a village character and to maintain the unique vistas of this area.
4. **Village Office Areas.** These areas, at selected key highway intersections, provide for office uses which are intended to serve as transition areas between surrounding residential uses and the traffic activity at the intersections. The

character of the buildings and landscape improvements should complement and be compatible with the adjacent residences.

5. **Planned Industrial Area.** This area provides sufficient area for well-planned, integrated industrial and office development. The area contains the Doylestown Airport, is close to the Route 611 bypass and has public sewer service. The Township should be involved in any efforts to improve the road conditions in this area and in any discussions related to the establishment of public or quasi-public transportation service that could offer those employed in this area an alternative way to make their daily work trips. This may become particularly important as two major development proposals progress. As in the commercial areas, the Planned Industrial Area should not be expanded or another such area established until the currently designated area approaches completion and the impacts on critical services and facilities are evaluated. However, some consideration should be given to the provision for planned office campus uses in an appropriate area or areas as discussed in the chapter on the nonresidential development areas.
6. **Village Residential and Higher Density Residential Areas.** These areas are intended to provide the opportunity for the development of a wide variety of housing types and costs at higher densities; they have been established through the long-term planning of the Township and by way of litigation initiated by landowners. Since development rights would be transferable to these areas from the Conservation Management Areas, they would also serve to further the Township's goal of preserving agriculture and prime farmland.

Planning considerations in these areas include, in larger developments, a limited amount of convenience commercial use to reduce the number of trips on the community's road system, adequate buffering between residential and nonresidential land uses and the integration of more affordable housing units to avoid neighborhood stratification.

The form of residential development is a most important consideration in these higher density residential areas. The uses permitted in these areas are diverse. It is strongly encouraged that the placement of buildings, their relationship to each other, roads, open space, recreation facilities, pedestrian and bicycle systems, and other community facilities achieve a neighborhood or village character which is described below under Suburban Residential Areas. Conventional forms of suburban multi-family development are strongly discouraged.

7. **Suburban Residential Areas.** It is the purpose of the Suburban Residential Areas to provide for moderate to lower density residential development in the form of conventional subdivisions of single-family detached homes. The specific lot sizes and permitted densities are included in the Township's zoning ordinance. Certain portions of these areas are served by some form of centralized sewer service. Since the Suburban Residential Areas are intended to provide alternative housing densities and types to the Village Residential and Higher Density Residential Areas, access to public sewer service does not justify an increase in density.

Within the time frame of this planning program, it is likely that much of the undeveloped portions of this area will be well into or through the development process. The character of the area will be substantially different by the year

2000. Several aspects of overall community development should be kept in mind when focusing on the preparation or review of a specific development proposal.

- a. Roadway connections between developments is essential. In the past, the formation of completely separate neighborhoods on cul-de-sacs or short loops was predicated on the idea that the Township or PennDOT had the ability to widen and improve existing collector roads to carry substantially increased amounts of traffic. Neither the State nor the Township have the financial capability to improve all the collector roads in this rapidly developing portion of the community. Interconnections between developments will achieve a better distribution of traffic, save road improvement dollars (which equate to tax dollars) and avoid delays on congested collector roads. Proper planning and site design will ensure a high level of privacy within the developments.
- b. Pedestrian ways and bike paths will also reduce the need to make vehicular trips for many family purposes. A system of these improvements between residential developments, schools and recreation areas will reduce, to some degree, the level of traffic on the roads, provide safe and independent access between areas for children and adults and relieve parents of some responsibilities as the family chauffeurs. For example, Lower Makefield Township prepared a bikeway master plan and amended the Township's ordinance to require these improvements along the bikeways during the land development process. It is recommended that these paths be located along major roads wherever possible rather than to the rear of residences.
- c. Park and recreation improvements are critical elements in any properly planned and attractive residential area. Coordination of types and distribution of these facilities should be addressed by the Park and Recreation Board.
- d. The school district representatives predict that two new elementary schools and one new junior high school will be needed in this general area. The Township, developers and the school district should cooperate to find appropriate sites within the area to meet this need which will become more pressing as development progresses and available land disappears. It would be unfortunate if the situation resulted in the construction of the schools out of the area which would require expensive busing of children.
- e. Current planning literature promotes a form of development, for want of a better title, called traditional neighborhood or village design. Rather than being a new idea, this movement is actually the realization that a neighborhood of single-family homes on smaller lots provides for flexibility in subdivision layout, protection of natural resources, old-style interaction among neighbors and, basically, a good place to raise families. In larger such developments, limited commercial uses with apartments above and other housing types are encouraged. Those who advocate this concept stress some lessening of reliance on the family automobile as one of the strong benefits of this concept. In contrast to conventional subdivision lot arrangement, homes are intended to be set close to the street to provide for maximum use of rear yard areas. The

front private space is separated from the public street area by fences, hedges, shrubbery or porches. Some promote this idea as an alternative to conventional subdivision design with no recommended increase in density; basically to achieve a village character. More enthusiastic proponents of this concept suggest developers are typically too timid or unimaginative to try something that has not been marketed repeatedly in an area and some form of density incentive is needed to catch their attention and get them to think about different development forms.

Seniors { It is not proposed that all new residential development will take the form of the traditional neighborhoods. However, the Township should encourage the creative builder who is interested in developing a neighborhood or a new village that offers Township residents a living environment that is similar to the villages and small towns in Bucks County. The scale, character and convenience would be most attractive to senior citizens, single people, newlywed couples and other families who would prefer and enjoy a home in a traditional neighborhood arrangement.

During the preparation of this comprehensive plan update, substantial interest was expressed in this concept although matters of appropriate location, density, mix of uses and improvement amenities were not resolved. It is recommended that a study commission be appointed by the Board of Supervisors to evaluate the applicability of this concept. This study commission should be made up of representatives of the various Township boards and commissions that focus on community planning, land use and facilities matters.

- f. Visual quality along a community's roads is an important factor related to quality of life and community perception. Too often, residential development takes place with homes backing onto major roads. Rear yard, patio and play areas are often separated from the roadways by stockade fencing of different styles, colors and heights which, in combination, is unattractive. In other situations, builders often use monotonous rows of white pines or raised berms that are equally unattractive and unnatural; this form of landscaping should be discouraged.

It would be advantageous to have a Township landscape study prepared for the major roadways which would identify areas or conditions which would warrant dense buffers, sparse buffers, high buffers, mixed or uniform plant material or areas where berms are needed and compatible. There are also areas where views should be kept open due to the topography of the surrounding lands or the quality of the vistas. The Township's ordinance should be amended so that new development would conform to the highway landscape plan.

8. Institutional Areas. There are several larger land holdings devoted to major institutional use. These include the school complex for Holicong Junior High School and Central Bucks East High School, the holdings of the Hughesian Trust (which contains the Township administrative facility, Buckingham Elementary School, the Buckingham Post Office, the Central Bucks Family YMCA day care center and other service uses) and the Buckingham Friends

Meeting House and School. As noted above, there is a pressing need to identify locations for school facilities before all reasonable properties are committed to other uses.

B. Rural Areas

It is the purpose of these areas to provide for lower density forms of residential development. There has been a moderate level of residential development over the years, including several conventional subdivisions with new internal streets and other subdivisions where access is taken from the existing roads. Lot sizes are generally one acre or larger and sewage disposal employs on-lot or on-site systems. Large land holdings, in open space or agricultural use, exist throughout the area.

It is intended that the rural character of these areas be maintained throughout this planning period. The essential character of these areas is agricultural and natural rather than developed. The techniques included in the Buckingham Township zoning ordinance (transferable development rights and cluster housing) should be employed to provide open areas for farming activities and to protect the natural and scenic qualities of this area. It is essential that the rural character of these areas be maintained to provide balance with the substantial growth potential of the Development Areas. Wherever possible, cluster development designed to provide open ground for farming activities should be encouraged. However, where that end is not practical, cluster development should maintain the rural character of this area. Rather than using the agricultural soils protection standards in these situations, deep setbacks along existing roads will provide the feeling of open space along the roads and provide for privacy of the homes in the clusters. Alternatively, homes should be placed on very large lots. Residential development throughout these Rural Areas should be separated from farming uses to preclude encroachment and protect the farmers' ability to continue farming without difficulty.

If land cannot be found for school sites in the Suburban Planning Areas, these areas could be considered for the needed facilities.

The study commission formed to evaluate the traditional forms of village development should also consider the possible application in the Rural Planning Areas. Density and open space standards should, if found to be appropriate, facilitate the development of new villages in the rural landscape.

C. Rural Villages

The nine rural villages listed previously are unique and valuable elements of the Township's landscape. These villages exist in and on the fringe of the Development Area as well as in the more rural portions of the Township. These settlements are not museum pieces but groupings of buildings whose scale and character should be maintained as change takes place. In the event that the property owners wish to mutually protect the scale and character through the establishment of a review mechanism in a designated historic and architectural review district, the Township should consider the appropriateness of that request.

D. Conservation Management Areas

The large area of the Township below York Road is characterized by low density, mostly residential, forms of development. There are environmentally sensitive areas including the limestone valley, Buckingham Mountain and Little Buckingham Mountain,

X { the flood-prone area along the Neshaminy Creek and wooded areas throughout. Large parcels are kept in open space or are farmed. A number of parcels in the northeast corner of the community are held in an agricultural security area formed by the landowners. Several large areas are owned by the Bucks County Conservancy. It is noted that two parcels, as a result of litigation, will be developed at comparatively higher densities, one for a mobile home park, and these uses are recognized in the Township's zoning ordinance.

The potential for farming as a viable activity in the community is greatest in this portion of the Township. It is recommended that an agricultural study commission consider the present provisions of the zoning ordinance as intended to encourage the continuation of farming and make recommendations to improve it. The current provisions should stay in place, however, until recommendations have been received. Although the transfer of development rights program has had limited success, the agricultural study commission should study adaptations and adjustments to this technique that could produce favorable results.

Application of the traditional neighborhood or village development forms should also include the Conservation Management Areas which could provide for compatible development around the existing villages in this rural and environmentally significant area of the Township. Any further expansion of the rural villages must include adequate provision for potable water, sewage disposal and the protection of natural features, particularly in the limestone valley.

It is possible that some form of gas and oil drilling or mining could take place in the more rural areas of the community. Any such activity must incorporate protection provisions so that no impacts will be felt on the surrounding residential and agriculturally used properties.

E. Environmentally Significant Areas

Although environmentally sensitive features exist throughout the Township, the limestone valley, Buckingham Mountain and Little Buckingham Mountain are large areas with exceptionally sensitive characteristics. The Township's ordinances should include special standards, procedures and evaluation criteria to ensure that development and change do not damage these areas and endanger the residents who live within these areas.

Community Planning

In times of impending development, efforts of municipal officials tend to focus on the review and evaluation of specific development proposals. With limited time, money and volunteers, broader community planning may be overlooked. However, it is at such times that opportunities are greatest to facilitate major community improvements as part of the land development process. Once areas of the Township have been developed, these opportunities will be irreversibly lost or the costs of improvements will be substantially greater and entirely borne by the taxpayers.

Although demands on the Township will be great, a number of community planning studies should be undertaken and completed by 1995. It is a time when the Township should strive to enlist the assistance of residents, service groups and other organizations to complete these studies. With major development activity at hand, it is imperative that the Township be prepared to address issues of streets, bike paths, school sites, open space, groundwater recharge, environmental protection, landscaping, development forms and options, and other

matters that will directly affect the long-term quality of life in this community which is now and should remain a desirable place to live and work.

A key aspect of the Township's planning program since the early 1970s, implemented through the zoning ordinance, has been the requirement of open space in both residential and nonresidential developments. The primary objective of open space requirements is for natural resource protection. This will facilitate the conservation of woodlands, wetlands, streams, ponds, flood prone areas, farmfields and the Township's limestone valley. The maintenance of plant and wildlife habitats will result. Aquifers will be recharged. Open space is also valuable as an aesthetic amenity through the preservation of farmsteads and viewsapes which have been hallmarks of the community for the past two hundred years. Open space may be maintained through easements in private hands or owned by the public and conservation organizations. Open space may be used for agriculture, recreation, wastewater irrigation or a combination of these. Open space should be provided in the largest possible tracts; smaller tracts are less likely to achieve the objectives stated above and are usually more difficult and expensive to maintain. The use of open space on any development site should be adapted to the particular circumstances and opportunities that are presented. Under the subdivision and land development ordinance, the Township should have the flexibility to permit or require open space to be used in the best manner under the circumstances that exist.

Finally, it is most important to understand that community planning is an evolving process. Changing factors, such as the economy, judicial decisions and statutory requirements, will affect the Township's ability to implement the community's objectives. In addition, opportunities may arise, which unforeseen during the preparation of the comprehensive plan, must be considered by the Township officials in the best interest of the community. The comprehensive plan is not intended to preclude flexibility in adjusting to changing circumstances. In fact, Section 303 of the Pennsylvania Municipalities Planning Code permits municipalities to take actions which are inconsistent with or fails to comply with the provisions of the comprehensive plan. The comprehensive plan provides the general framework to guide municipal actions through the time period stated in the plan. The Board of Supervisors, elected to represent the Township residents, must respond to changing responsibilities and opportunities as they arise and the comprehensive plan should be revised and amended to reflect evolving circumstances.

Update
•1991•

IMPLEMENTATION AND RECOMMENDATIONS

IMPLEMENTATION AND RECOMMENDATIONS

For a community with substantial development potential, the number of activities that could be undertaken to address all community development problems and possibilities is far beyond the Township's financial, volunteer, staff and time capabilities. It is important that a specific list of tasks be developed and that the Township efforts be focused on the accomplishment of these tasks. Some of the tasks would be ongoing activities; others would be studies or programs to be completed within a specific time period. The following are the tasks or strategic objectives to be accomplished within the time frame of this comprehensive plan. However, the Township has identified the top priority for the focus of its efforts to be highway planning and the implementation of needed roadway improvements. The conditions of this community's road system will have major impacts on the quality of life, economic viability and Township budget within the time frame of this plan.

A. Goals and Objectives

Communication among the Township's elected, professional and volunteer officials is most important. At the beginning of each year, the Board of Supervisors should hold a meeting of either the full membership of all Township boards and authorities or the chairpersons of these groups to review the goals and objectives included in this comprehensive plan. This effort will orient newer members to the stated goals and objectives and provide a basis or focus for activities in the coming year. Each board should provide a list of projects to be accomplished in the coming year in order to set objectives for the year. The Supervisors could give the boards program tasks for the year. Adjustments to the goals and objectives should be made as needed.

Timing: Annual; ongoing

B. Growth Information

1. The detailed information provided in the 1990 federal census should be reviewed to develop an understanding of growth and change. All information should be available in 1993.

Timing: 1994

2. Annually, housing information should be gathered and analyzed as provided by the Bucks County Planning Commission. The Township should maintain its data information system to keep track of proposed and completed developments. Information collected from county and Township sources on the number, type and location of new housing units as well as the amount and location of nonresidential square footage will be most useful in many community planning efforts.

Timing: Annual

C. Housing

Encourage the developers to provide affordable housing in areas close to complementary land uses, services and facilities and in ways that will not lead to categorizing an area by housing cost or income category.

Timing: Ongoing

D. Land Use

1. There is sufficient capacity within the higher density residential zoning districts to accommodate the anticipated need in the 1990 to 2000 time period. However, in order to (1) locate higher density housing in a village context where services to support it already exist or are more easily supplied; (2) provide opportunities for the construction of a variety of housing types; (3) encourage the transfer of development rights from the Conservation Management Areas, it is recommended that additional parcels adjacent to the villages of Buckingham and Furlong be designated as Village Residential zoning districts.
2. Since there is sufficient capacity within the nonresidential zoning districts to accommodate the anticipated need in the 1990 to 2000 time period, these zoning districts need not be expanded. However, the Township should be open to proposals for the expansion of or the establishment of new nonresidential zoning districts that would be appropriately located for services, compatible with surrounding uses, improve the tax base and establish attractive new uses in the community.
3. Approximately half way through this planning time period, the Township's residential and nonresidential development should be evaluated to determine if adjustments to the program are needed.

Timing: 1994-1995

E. Natural Resources

1. Evaluate the appropriateness of additional regulations for land in flood fringe areas as recommended by the Federal Emergency Management Agency and in the Bucks County Natural Resources Plan.
Timing: 1991
2. Monitor the development of wetlands regulations of state and federal agencies and amend the Township's ordinances as warranted.
Timing: Ongoing
3. Include a definition of wetlands margin and appropriate standards in the Township's ordinances.
Timing: 1991
4. Revise the woodland protection standards to fifty percent for the VC-2, LC and PC zoning districts.
Timing: 1991
5. Develop a tree protection ordinance based on the county's model ordinance.

Timing: 1991

6. Discourage the clearing of established, good quality vegetation during road improvement projects.

Timing: Ongoing

7. Organize volunteers to inventory and map major woodlands and unique individual trees and stands of trees.

Timing: 1991-1992

8. Review the landscaping standards of the Township's ordinances to encourage the use of native vegetation.

Timing: 1991

9. Appoint a study committee to evaluate the Township's agricultural protection policies and techniques. The committee should address the goals and problems of Buckingham's farming community, and identify ordinance requirements, incentives and programs that would support the continuation of farming in the Township. In addition, the committee should consider ways to maintain the rural character of the Township despite likely reductions in farming activity.

Timing: 1991-1992

10. Support the landowners who have formed the agricultural security areas and identify these areas with road signs.

Timing: Support - Ongoing
Signs - 1991

11. Develop best management practice procedures and standards for uses and activities in the limestone valley.

Timing: 1991

12. Organize volunteers to identify and map critical natural habitats.

Timing: 1991-1992

F. Historic Preservation

1. Request the Historic Commission to identify, describe and map unique Township features (eg. rural roads, bridges, hedgerows, etc.) which will supplement the inventory of unique and historic structures.

Timing: 1992-1993

2. Request the Historic Commission to study the zoning and subdivision/land development ordinances for adaptations or the addition of techniques and incentives that will support the historic preservation objectives.

Timing: 1991

3. Support property owners interests in establishing historic zoning districts in the areas of the Township's villages and hamlets.

Timing: Ongoing

4. Support the other activities described in the chapter titled Historic Preservation Policies.

Timing: Ongoing

G. Highway Improvements

1. Discuss the need or possible advantages of preparing a comprehensive highway improvements and transportation plan.

Timing: 1991

2. Discuss the need or possible advantages of preparing a Township-wide highway impact and improvements study similar to the Cold Spring Creamery Road Study.

Timing: 1991

3. Press for the appropriate improvements specified in the Cold Spring Creamery Road Study.

Timing: Ongoing

4. Update the street classification list in the Township's ordinances after a survey of the conditions and character of the existing roads per the purposes and definitions stated in this comprehensive plan. Community character as well as highway efficiency should be considered in this classification.

Timing: 1991

5. Update of the traffic impact analysis provisions of the Township's ordinances to incorporate the minor changes recommended in this comprehensive plan.

Timing: 1991

6. Participate in efforts to establish a transportation management association to serve the industrial and office areas of this and surrounding communities.

Timing: As such a program evolves

7. Discuss with the county and surrounding municipalities the viability of lobbying for improvements to accommodate increasing traffic along the Route 202 or Route 263/202 corridors.

Timing: 1991

8. Work with other participating municipalities for necessary improvements to the Route 313/663 corridor.

Timing: Ongoing

9. Develop pedestrian-bicycle way plans for the rapidly developing portions of the community and revise the Township's ordinances to require identified improvements.

Timing: 1991-1992

10. Develop street interconnection policies in the rapidly developing portions of the community and revise the Township's ordinances to require such connections except when specifically waived by the Board of Supervisors.

Timing: 1991

11. Develop a landscape plan for the Township's major highways and revise the Township's ordinance to require the specific improvements during development.

Timing: 1992-1993

H. Sewage Facilities

Complete and implement an updated sewage facilities plan.

Timing: Plan - 1991

Implementation - Ongoing

I. Water Resources

1. Complete the water resources and supply study in order to conserve and efficiently use the Township's groundwater resources.

Timing: 1994

2. Require water impact studies for major development proposals, particularly for uses in the limestone valley.

Timing: Ongoing

3. Develop standards and procedures for groundwater recharge which deal with water quality as well as quantity.

Timing: 1994-1995

J. School Facilities

Work with the Central Bucks School District to plan for and facilitate needed school improvements.

Timing: Ongoing

K. Park and Recreation

Prepare a master park and recreation plan to identify needed improvements and programs and for the purposes specified in Section 503(11) of the Pennsylvania Municipalities Planning Code. Implement the recommended improvements.

Timing: Plan - 1994
Improvements - As specified in the plan

L. Intermunicipal Cooperation

1. Discuss development trends and impacts with other Central Bucks municipal officials.

Timing: 1991

2. The Planning Commission should meet with the Plumstead Township Planning Commission to discuss growth and development impacts in the Pine Run watershed.

Timing: 1991

3. With other Central Bucks municipalities, encourage the Bucks County Planning Commission to update the Central Bucks Growth Impact Study of 1977.

Timing: Request in 1992

M. Township's Land Use Ordinances

1. Update the Township's zoning and subdivision/land development ordinances to accomplish the various purposes stated in this comprehensive plan, to include improved standards and to be consistent with the recently enacted revisions to the Pennsylvania Municipalities Planning Code.

Timing: 1991

2. Review the open space use provisions of the Township's land use ordinances to ensure there is flexibility to require appropriate use applications.

Timing: 1991

N. Rural Planning Areas

Revise the zoning ordinance to identify a Rural Areas zoning district and amend the cluster standards to provide flexibility in the use of agricultural soils protection standards and to facilitate a rural character for cluster developments in this area. *

Timing: 1991

O. Traditional Neighborhood or Village Development

Appoint a study commission to evaluate the applicability of this form of development in the various planning areas. If warranted, amend the zoning and subdivision/land development ordinances to provide for this option.

Timing: Study - 1992
Ordinance Amendments - 1993

P. Volunteers

Actively... better, aggressively... develop volunteer participation of Township residents, service organizations and other groups to undertake the surveys and plans identified in this comprehensive plan in order to develop studies, policies, plans and ordinances that will provide the basis for community improvements and protection at this critical time in Buckingham Township's history.

Timing: Ongoing