

INTRODUCTION

POLICY STATEMENT ON MASTER PLAN RELATIONSHIPS

REGIONAL LOCATION AND PLANNING CONTEXT

MASTER PLAN ELEMENTS

ELEMENT ONE: OBJECTIVES ASSUMPTIONS
 PRINCIPLES POLICIES

ELEMENT TWO: LAND USE PLAN

ELEMENT THREE: HOUSING PLAN

ELEMENT FOUR: CIRCULATION PLAN

ELEMENT FIVE : UTILITY SERVICE PLAN

ELEMENT SIX : COMMUNITY
 FACILITY PLAN

ELEMENT SEVEN: RECREATION PLAN

ELEMENT EIGHT: CONSERVATION PLAN

APPENDICES

ELK TOWNSHIP MASTER PLAN

Prepared by The Elk Township Planning Board

Mr. John Filipello, Chairman
Mr. John Wagner, Vice Chairman
Mr. Carman Visalli, Mayor
Mr. George Dean
Mr. Earl Hughes
Mr. Richard Hughes
Mr. Rosario Sarbello
Mr. Henry Laux
Mr. Arthur Swanson
Mr. Joseph DeEugenio

With Special Assistance From:

Samuel H. Bullock, Esq., Solicitor
Mr. Robert V. Scolpino, Gloucester County Planning Director
Mr. Robert F. Dixon, Gloucester County Supervising Principal Planner

Master Planning Consultants

BROWN/SULLIVAN, ASSOCIATES

2314 Market Street 26 Main Street Rt. 9 at Moss Mill Rd.
Philadelphia, PA 19103 Toms River, NJ 08753 Smithville, NJ 08201

Ancillary Consultants

NORMAN DAY, AIP
Planning and Urban Design
425 Owen Road
Wynnewood, PA 19096

GOVERNMENT SYSTEMS AND STUDIES
Population and Demographic Studies
3401 Market Street
Philadelphia, PA 19104

JOSEPH W. McMAHON, P.E.
Traffic and Circulation Planning
57 Northview Drive
North Hills, PA 19038

PLANALYSIS, INC.
Market Research Studies
818 Summit
Narberth, PA 19072

UNIPLAN
Educational Systems Planning
4 Chambers Street
Princeton, NJ 08540

Copies available at:

Elk Township Municipal Building
Aura, New Jersey 08028

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The Elk Township Master Plan was adopted officially by the Elk Township Planning Board on April 20, 1978, in accordance with and as specified by the State of New Jersey Municipal Land Use Law (M.L.U.L.) 40:55D-28, 19a. Additionally, the Elk Township Council has enabled the Planning Board to adopt this Master Plan; therefore, this Master Land Use Plan, as adopted, represents the full and legal Master Plan Document for Elk Township.

This Master Plan, as defined in Article 3 of the M.L.U.L., includes text as contained within this document and the following 1"=1000' scale maps:

1. The Master Land Use Plan - which shows the proposed location, extent and intensity of development of land to be used in the future for varying types of residential, commercial, industrial, agricultural, recreational, educational, and other public and private purposes or combinations of purposes.
2. The Existing Land Use Plan - which shows the existing location, extent and intensity of development of land used for varying types of residential, commercial, industrial, agricultural, recreational, educational and other public and private purposes or combinations of purposes.
3. The Circulation and Utilities Plan - which shows the location and types of facilities for all modes of transportation required for the efficient movement of people and goods into, about and through the Township and showing the future general location of water supply and distribution facilities, drainage and flood control facilities, sewerage and waste treatment, solid waste disposal and provision for other related utilities.
4. The Conservation/Recreation/Community Facilities Plan - which shows areas for the preservation, conservation and utilization of natural resources; a comprehensive system of areas and public sites for recreation; and the location and type of educational or cultural facilities, historic sites, libraries, hospitals, fire houses, police stations, and other related facilities.

In addition to the preceeding maps, the following 1"=400' maps were prepared as a data source for preparation of this Master Plan. These maps are updated as development occurs to facilitate subsequent Master Plan updates, revisions, and readoptions.

1. The Base Maps - which show existing circulation, existing utilities, existing community facilities, recreation areas, conservation areas, and proposed future new facilities or expansions to the preceeding.
2. The Existing Land Use Maps - which show in more detail the existing location, extent and intensity of development of land used for varying types of residential, commercial, industrial, agricultural, recreational, educational and other public and

private purposes or combinations of purposes.

3. The Natural Resource Inventory and Classification Maps - which show those areas of the Township which are best suited for the development of varying types of residential, commercial, industrial, agricultural, recreational, educational and other public and private purposes or combinations of purposes.

These maps are on file for public review at the Elk Township Municipal Building.

ELK TOWNSHIP MASTER PLAN

TABLE OF CONTENTS

	<u>Page No.</u>
I. INTRODUCTION	5
II. POLICY STATEMENT ON MASTER PLAN RELATIONSHIPS	7
III. REGIONAL LOCATION AND PLANNING CONTEXT	9
IV. MASTER LAND USE PLAN	
A. <u>Element One</u> - Statement of Objectives, Principles, Assumptions, Policies and Standards	13
B. <u>Element Two</u> - Land Use Plan	19
C. <u>Element Three</u> - Housing Plan	33
D. <u>Element Four</u> - Circulation Plan	36
E. <u>Element Five</u> - Utility Service Plan	44
F. <u>Element Six</u> - Community Facilities Plan	48
G. <u>Element Seven</u> - Recreation Plan	53
H. <u>Element Eight</u> - Conservation Plan	57
V. APPENDICES	71
A. Retail Shopping Center Development Potentials	
B. Elk Township Traffic Analysis	
VI. BIBLIOGRAPHY	i

I. INTRODUCTION

In the fifteen years since Elk Township prepared its first Master Plan in 1963, which was not adopted, a number of events have taken place which make it necessary to prepare a new Land Use Plan. These events include major changes in economic conditions, transportation patterns, utility service, governmental policies, and new legislation such as the Municipal Land Use Law. The primary factors prompting the update and revision to the Master Plan include the following:

- The nationwide trend toward larger commercial agricultural units, making the small farm more and more difficult to maintain as a self-contained profitable business. In Elk Township, pertinent factors are the relocation of major fruit and vegetable processors which once provided a dependable market for local produce, and the inability to hire enough workers to plant, cultivate and harvest the garden products formerly provided by the Township in large quantities through the small farms.
- Enactment of environmental legislation, such as the New Jersey Floodplain Act, the Federal Department of Housing and Urban Development Flood Insurance Program, and the necessity of Elk Township to enact its own ordinances to protect its own lands and water.
- The inclusion of all the northeastern portion of Elk Township, including all of the Still Run watershed, in the Gloucester County Consolidated Regional Sewer System served by a pumping station located approximately one mile downstream from Silver Lake, near the intersection of Elk Township, the Borough of Clayton and Franklin Township limits; also the exclusion of the northwestern portion of Elk Township from the Logan Township Municipal Utilities Authority service area.
- Legal determinations by the Courts, such as the Mt. Laurel and Middlesex County decisions, having an effect on the planning and location of various types of housing and community service facilities. Based on the court decisions, it is essential that municipalities review and reconsider the distribution of their existing and proposed housing supply, as it relates to the housing needs of the entire region in which the municipality is located. The courts have determined that all municipalities should provide the opportunity for a fair share of housing for all segments of the region's population likely to reside within the municipality. To the extent that these court decisions may require municipalities to provide housing at greater densities and remove restrictions against certain types of housing, they may alter the level of community service facilities that will be required.
- The 1976 New Jersey Municipal Land Use Law requires municipalities to revise their existing land development ordinances by February 1, 1978. The municipal Land Use Law (M.L.U.L.) provides for substantial

changes in the review procedures presently followed under existing legislation for subdivisions and site plans. It also requires that any new Zoning Ordinances be based upon the Land Use Plan Element of the Master Plan and sets new criteria for the content of Master Plans.

Elk Township, in order to more efficiently and more accurately produce their Master Plan, entered into a consortium. The seven entities comprising this joint effort represent three municipalities and four school districts located within the southern portion of Gloucester County. They are: Elk Township, Franklin Township, Newfield Borough; Elk Township School District, Newfield Borough School District, Franklin Township School District and Delsea Regional High School District.

This consortium became known as the Southern Gloucester County Co-operative Planning District (SGCCPD). On June 28, 1977, the firm of Brown/Sullivan Associates was contracted to prepare Master Plan updates for the seven entities of the SGCCPD.

The primary goal of the consortium's use of a single consultant was to produce a Master Plan for each of the entities which is consistent with the Master Plans for each of the other entities and is consistent with the Master Plans of the counties, municipalities and school districts which surround the SGCCPD.

Because the planning process for each of the entities was conducted concurrently, with periodic review of the progress by the SGCCPD municipalities, all of the entities benefited from the exchange of ideas and information researched by the consultants and by the municipalities themselves.

The existing Master Plans, Zoning Ordinances, and existing and projected land uses for the surrounding municipalities were also studied in depth, which resulted in the adjustment of some of the proposed land uses for areas immediately adjoining Elk Township borders.

This Master Plan was prepared by utilizing input from present and proposed Master Land Use Plans for Elk Township, the six surrounding municipalities, Gloucester County, Salem County, and Atlantic County.

II. POLICY STATEMENT ON MASTER PLAN RELATIONSHIPS

A. Introduction

M.L.U.L., C 40: 50D-28, 19(d). The Master Plan shall include a specific policy statement indicating the relationship at the proposed development of the municipality as developed in the Master Plan to

- (1) the Master Plans of contiguous municipalities,
- (2) the Master Plan of the county in which the municipality is located and (3) any comprehensive guide plan pursuant to section 15 of P.L. 1961, c. 47 (C. 13:1B - 15:52).

B. Master Plans of SGCCPD Municipalities

The Plan Elements of the Master Plan for Elk Township have been prepared concurrently and with full review, representation and cooperation of the SGCCPD member municipalities. Any conflicts, which seem to exist, have been reviewed and accepted by each affected municipality.

It has been resolved that the member municipalities of the SGCCPD regard their individual Master Plans and the subsequent adoption of the individual Master Plans by the SGCCPD as a consolidated plan, representing both the individual policies of the participating entities, and jointly, the policies, goals and objectives of the SGCCPD subregional planning entity.

C. Master Plans of Contiguous Municipalities

The Plan Elements of the Master Plan for Elk Township have been prepared to be compatible and in harmony with the Master Plans of adjacent municipalities. This Master Plan has resulted from and has taken into account a full and proper review of the existing land uses, residential categories, circulation systems, utilities, development patterns, zoning, community facilities, conservation areas and natural features and resources of contiguous land areas of adjoining municipalities.

No decision with reference to land use in Elk Township is intended to adversely affect any contiguous land areas of municipalities.

This Master Plan Document and accompanying Plans and Maps have been reviewed by all of the contiguous municipalities.

D. Master Plan for Gloucester County

The Plan Elements of the Master Plan for Elk Township have been prepared to be compatible and in harmony with the Master Plan of Gloucester County. Although the Gloucester County Master Plan has not been completed, extensive review of the Elk Township Master Plan Elements was made by the Gloucester County Planning Department. Planning Department staff participated in the majority of meetings and workshop sessions required to develop the plan and there are no anticipated conflicts or inconsistencies.

E. Guide Plans Prepared by the Division of State and Regional Planning

The division of State and Regional Planning is currently in the process of preparing a plan entitled: "The State Development Guide Plan," September, 1977. The draft guide was published and will be reviewed for a period of about one year; at the end of which period the guide will be revised and adopted. The preliminary Development Guide has been reviewed and the Plan Elements of the Master Plan for Elk Township have been prepared to be compatible and in harmony with "The State Development Guide Plan Preliminary Draft."

III. REGIONAL LOCATION AND PLANNING CONTEXT

A. Regional Setting

Elk Township is located in the south central portion of Gloucester County which is included in the 15 county Philadelphia-Camden Tri-State Planning Region. Additionally, Gloucester County is a part of the Philadelphia Standard Metropolitan Statistical Area (SMSA) and the Delaware Valley Regional Planning Commission (DVRPC) Study Area, both of which include Camden and Burlington Counties.

B. Philadelphia - Camden Growth Corridors

Elk Township is adjacent to the Philadelphia-Camden Metropolitan primary growth corridor which extends from Camden along Routes 42 and 47 south toward Vineland. Glassboro has been the southern limit of this corridor for many years. This will change greatly with the completion of the northern section of Route 55 through Elk Township and the proposed extension of the PATCO High Speed Line to Glassboro. These new routes will extend the 35 minute commuting time distance from Philadelphia to include most of Elk Township and the eastern one-half of Franklin Township.

The long term effects upon Elk Township from the extension of the corridor cannot be determined completely, but it is certain that Elk Township will feel the development pressures which the townships of Deptford, West Deptford and Washington have been experiencing for many years.

C. Vineland - Millville Influences

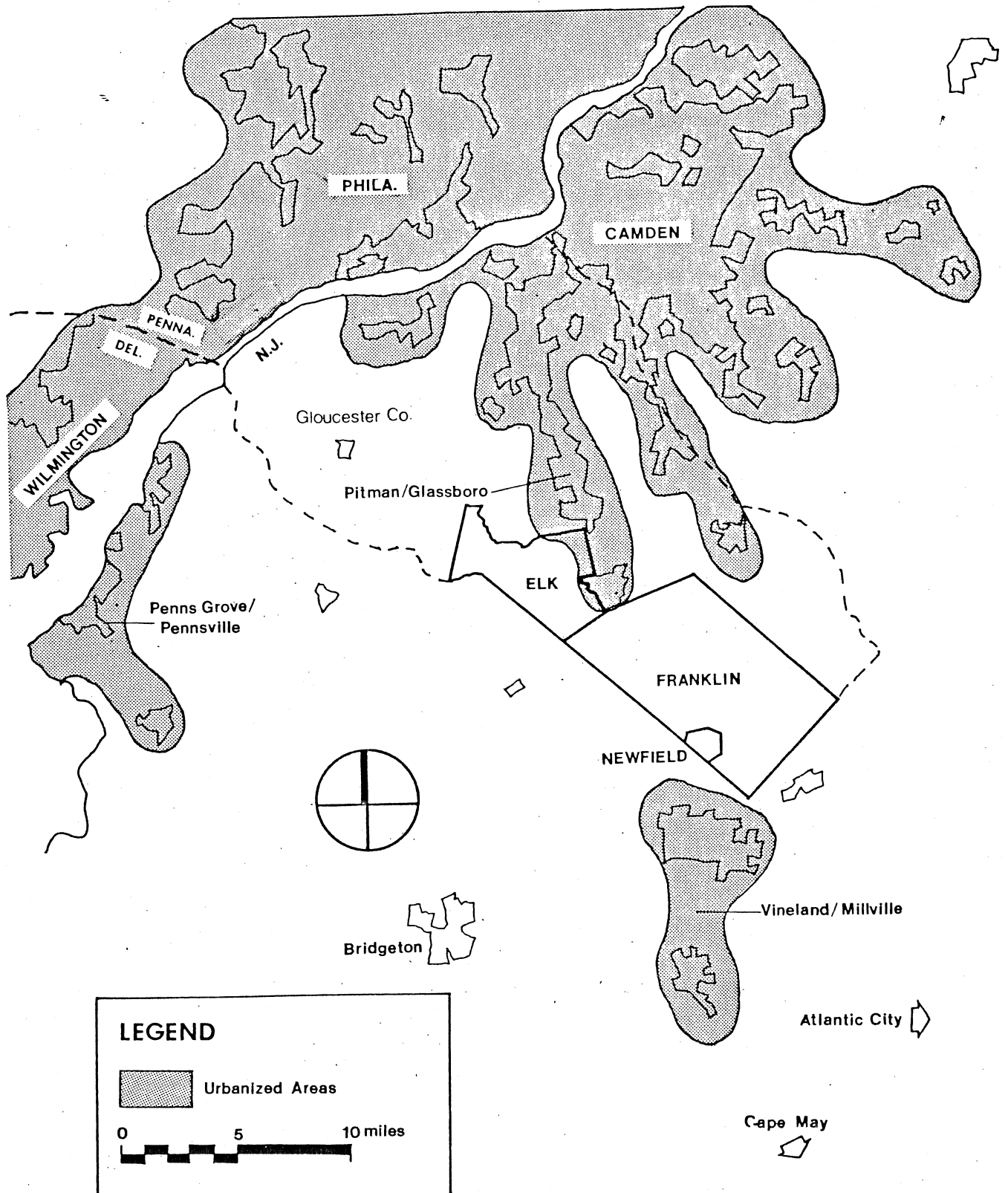
All of Elk Township is within twenty-five miles of the Vineland-Millville Metropolitan Area. The center of Vineland is fifteen miles from Aura. Because the distance is shorter between Elk Township and Vineland than it is between Philadelphia-Camden and Elk Township, this area has a strong influence on the Township.

Elk Township residents are in a favorable position for diversified shopping and employment opportunities. The Philadelphia-Camden area is further away but has more to offer than the Vineland-Millville area.

D. The Atlantic Shore Influences

Elk Township lies in the path of the routes from Philadelphia to the Atlantic Ocean and its extensive beaches. Aura is 44 miles from Atlantic City and approximately 54 miles from Cape May. This has had an indirect effect on

REGIONAL CONTEXT MAP



the Township: many people use the Township roads as short-cuts to avoid the tolls of the Atlantic City Expressway and the congestion of other larger roads leading into Cape May and Atlantic Counties.

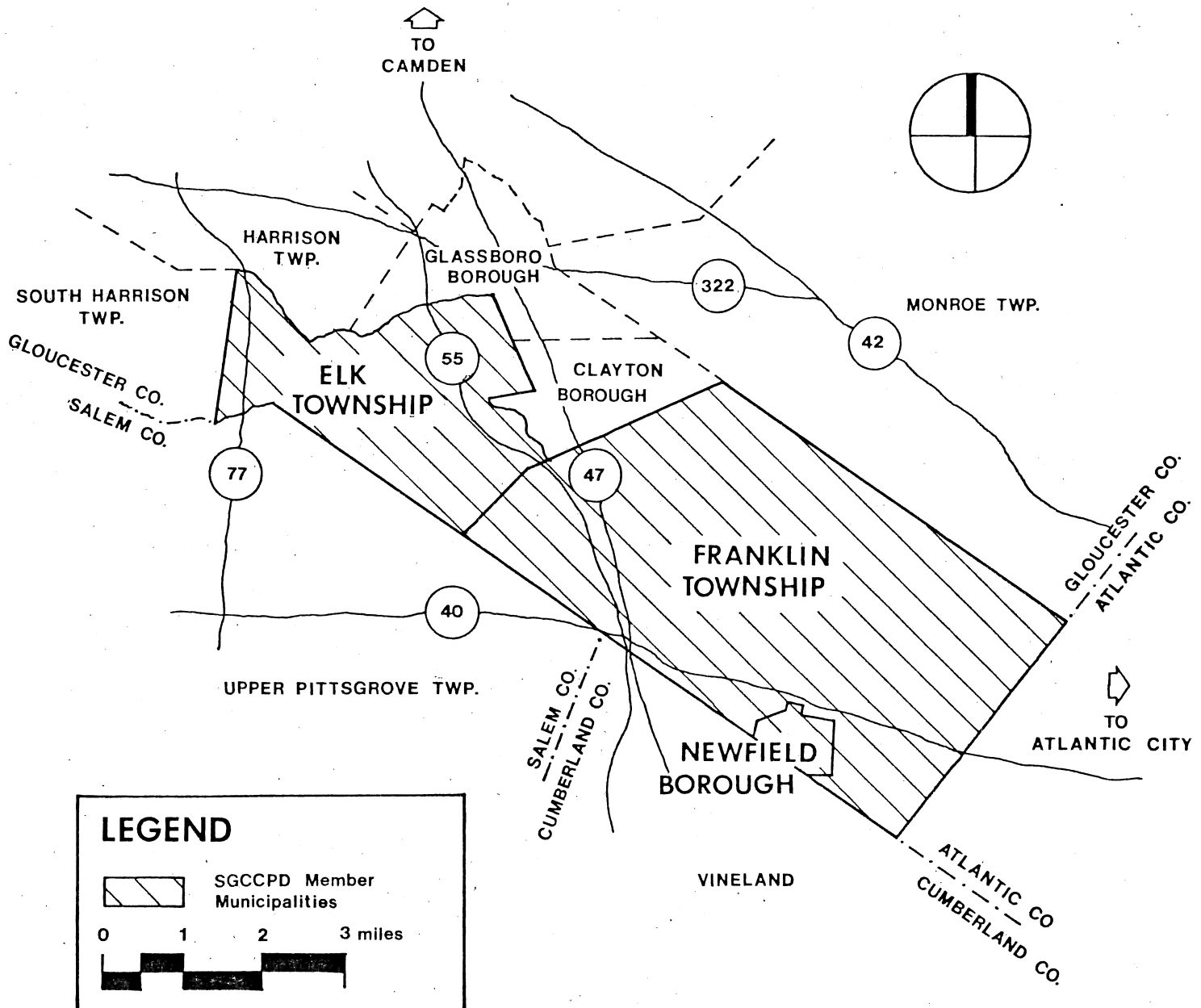
The advent of casino gambling will make Atlantic City a year-round resort. Initially, this will not produce any major effect on Elk Township except for an increase in traffic. However, in the long run, the growth of Atlantic City may spur development in all of South Jersey.

The Elk Township Planning Board has existed since 1951 and has been historically responsible to the Elk Township Council and the citizens of Elk Township. The Township has no full time planning staff. However, the Township may utilize the services of the professional planning staff of the Gloucester County Planning Department and the Planning Board Attorney.

E. Planning Context

Elk Township's first Master Plan, prepared in 1963 by Herbert H. Smith, Associates, was never adopted. Copies of the 1963 plan were reviewed with respect to: existing land use, proposed land use and development areas, housing, circulation, utilities, community facilities, recreation, and conservation. The information in the 1963 plan was then compared to existing conditions, trends and proposals and analyzed to determine the validity of the elements and how modifications and additions should be made. The synthesis of these analyses with respect to present goals and objectives of the Township, evolved into this Master Plan.

SUBREGIONAL CONTEXT MAP



IV. MASTER PLAN

A. Element One - Statement of Objectives, Principles, Assumptions, Policies and Standards

1. Introduction

M.L.U.L. 40: 55D-28, 19 (1). A statement of objectives, principles, assumptions, policies, and standards upon which the constituent proposals for the physical, economic and social development of the municipality are based.

2. Objectives and Principles

The basic purpose of this Master Plan is to provide the citizens of Elk Township with the best possible physical, economic and social environments possible through the conscientious planning and the optimum use of the natural resources of the Township.

The following objectives and principles were formulated to provide the basis for the comprehensive preparation of Elk Township's Master Plan. These establish guidelines for future public and private development activities. They also provide the framework within which the Land Use Plan, the Conservation and Natural Resources Plan, the Utility Service Plan, the Community Facilities Plan, the School Facilities Plan, the Circulation Plan, and the various other plan elements which constitute the 1977 Elk Township Master Plan were formulated.

a. Provision of a Balanced Land Use Development Pattern Which Can be Effectively Serviced by the Transportation, the Utility and the Community Facilities Systems of the Township.

1) Provide for environmentally suitable locations for higher density development in those areas best served by the transportation, utility and community facilities systems in and around Elk Township.

2) Encourage growth of tax ratable uses through addition of manufacturing and commercial areas in locations which are environmentally, socially and economically suitable.

3) Provide for limitations on uncontrolled single family housing proliferation in the prime agricultural areas of the Township, particularly along the existing roads and streets.

4) Provide for adequate separation and screening of non-residential uses from adjoining residential and agricultural uses.

5) Provide development patterns along the borders of the Township which are compatible and consistent with existing and proposed uses in adjoining municipalities.

6) Protect and enhance the recreational advantages provided by Garrison Lake and other lakes and natural wooded areas of the Township.

b. Provision of a Broad Range of Housing Types for Permanent Residents

1) Plan future residential development areas in a manner which will permit Elk Township to provide its fair share of the housing supply for all segments of the future regional housing demand through utilization of its existing supply and proposed future housing development.

2) Provide for varied housing types, including single family detached homes, apartments and town-houses to satisfy the desires and needs of the anticipated future housing demand in the Township.

3) Encourage the rehabilitation and improvement of existing housing within the Township.

4) Promote housing growth at a rate and in locations consistent with the community's ability to provide sanitary sewers and other community services.

c. Provision For More Efficient Movement of People and Goods Through The Improvement of the Township Transportation System

1) Provide for improved interconnection between streets and highways of the various functional road classifications (freeway, arterial collector and local street systems).

2) Develop Right-Of-Way standards for each of the above road classifications.

3) Provide for improvements which will result in the most effective and efficient use of streets and highways.

4) Orient future Township growth and development to the location of the proposed Route 55 Bypass in the eastern portion of the Township.

d. Promote the Orderly Development of Utility Services to Satisfy the Needs of the Township Population

- 1) Coordinate expansion plans of the Gloucester County Consolidated Regional Sewer System with the development proposals of the Master Land Use Plan.
- 2) Provide long range plans for solid waste disposal and coordinate solid waste facility planning with studies conducted by the Gloucester County Planning Department under the auspices of New Jersey Law C: 326.
- 3) Provide for the alleviation of existing storm water drainage problems in the Township.
- 4) Provide development controls which will preclude the creation of future storm water drainage problems in connection with new development.
- 5) Maintain a sound and balanced municipal structure while delivering the optimum level of services and facilities to encourage orderly development of the Township.
- 6) Provide for a balanced delivery of services and facilities to Township residents within the limits of a sound fiscal system.
- 7) Provide for the development of a municipal building-community center and library complex in Aura, interrelated with the business, historic and cultural facilities of Elk Township and Gloucester County governmental facilities.
- 8) Provide locations for future school, fire fighting and first aid squad facilities necessary to service future development as projected by the Land Use Plan.

e. Encourage the Continued Diversification of a Viable Township Economic Base

Make provisions to sustain and to enhance a viable and diverse economic base in order to provide job opportunities and economic security to the Township's residents.

f. Provision for a Comprehensive System of Public Recreation Facilities to Serve All Segments of the Population

- 1) Provide for the development and the expansion of existing Township recreation areas with facilities to satisfy the needs of all age groups within the Township.

- 2) Promote the provision of recreation areas within future residential developments through the utilization of cluster developments where environmentally feasible.
- 3) Provide for the development of a major Township park complex along the main branch of Reeks Creek, connecting and integrating Garrison Lake Park.
- 4) Promote expanded use of centralized school facilities in the recreational program of the Township by the coordination and combination of educational and municipal recreation facilities.

g. Protection of Natural and Environmental Resources

- 1) Preserve the wetlands and the floodways along lakes, streams and rivers in a natural state in order to insure a continual recharge of essential elements required for the sustenance of the aquatic food chain.
- 2) Prevent encroachment into flood hazard areas along streams, lakes, rivers and wetlands by buildings or uses which would be detrimental to the quality of subsurface and surface water supplies.
- 3) Promote the use of planning techniques, such as cluster developments, which aid in the preservation of natural resources such as wooded areas and wetland areas.
- 4) Utilize the findings of the Elk Township Natural Resources and Conservation Inventory and Classification Study to determine the intensity of development suitable to all of the undeveloped portions of the Township.
- 5) Encourage the utilization of natural and environmental resource areas such as wetlands and flood hazard areas for appropriate public and quasi-public recreational uses.

3. Assumptions

The following assumptions were made in the preparation of this Master Plan.

a. Master Plan of 1963

As a base for preparation of the New Master Plan, information on existing conditions and historic development from the 1963 Master Plan were assumed to be correct. Objectives, goals,

and concepts from the 1963 Master Plan were reviewed by the Township and those objectives, goals and concepts that were considered to be valid were included in the Master Plan.

b. Representation by Officials

The Elk Township Planning Board legally represents the citizens of Elk Township as provided by the M.L.U.L. This Master Plan was prepared under the guidance, review and approval of the Elk Township Planning Board, as well as by representatives of the Zoning Board of Adjustment, the Mayor and representatives of the Environmental Commission.

c. Data Base

The contents of this Master Plan, including accompanying maps and drawings, were based on information and mapping pertaining to existing conditions which were supplied by the Gloucester County Planning Department, the New Jersey Department of Transportation, the Atlantic City Electric Company, the Elk Township Planning Board, the Delaware Valley Regional Planning Commission, the New Jersey Department of Community Affairs, the planning departments of adjoining municipalities and other agencies, as noted in the bibliography.

Lot lines shown on the maps were supplied by the Gloucester County Planning Department. These lot lines are not entirely accurate and should be used only as a general property location guide.

In cases of conflict, field observations and first hand information sources were given precedence. Information was field checked for accuracy and updated to the extent possible.

d. Population Projections

Population projections were based on 1970 U.S. Census data and on estimated population increases from 1970 to 1977, made by the Gloucester County Planning Department and the Delaware Valley Regional Planning Commission (DVRPC). These projections were reviewed and modified by the Government Studies and Systems (GSS), under contract to the Consultant. Certificates of occupancy issued by the Township, an actual count of dwelling units and other methods were employed to determine the 1977 population. The projections contained in this

document were assumed to be mid-line or median within the high and low ranges projected. After the results of the 1980 U. S. Census are publicized, these projections should be adjusted to reflect the exact population and the Master Plan revised to reflect the actual population change.

IV. MASTER PLAN

B. Element Two - Land Use Plan

1. Introduction

M.L.U.L., C. 40L: 55D-28, 196 (2). A land use plan element (a) taking into account the other master plan elements and natural conditions, including, but not necessarily limited to, topography, soil conditions, water supply, drainage, floodplain areas, marshes, and woodlands; (b) showing the existing and proposed location, extent and intensity of development of land to be used in the future varying types of residential, commercial, industrial, agricultural, recreational, educational and other public and private purposes or combination of purposes, and (c) including a statement of the standards of population density and development intensity recommended for the municipality.

The Land Use Plan Element for Elk Township has been prepared in accordance with the other Master Plan Elements and natural conditions. Additionally, this Plan has taken into account the overall policies and objectives of the previous master plan, the existing and proposed development trends, and the projected population growth.

The proposed Land Uses for Elk Township are shown on the Land Use Plan Map, and the acreage devoted to each use is shown on Table No.IV B.2 "Master Plan Land Use Areas."

The Land Use Plan Map has been represented on a "Lot Line" base map. It is the intent of this method of base mapping to enable the user to locate individual lots and land features to within a few feet in reference to recommended Land Use, as well as to locate the various other items of information contained on the other Master Plan Element Maps.

Although the new zoning map should follow the Land Use Plan Map as closely as possible, it is recognized that the governing body may exercise its own judgment in the exact placement of the zoning divisions on the Official Map.

The Land Use Plan Map shows the locations of various types of land uses as recommended to be developed. These locations also reflect existing and proposed land uses of the contiguous municipalities and existing state, county, regional and sub-regional master plans.

2. Existing Development Patterns

Elk Township encompasses about 12,700 acres or 19.8 square miles. Natural features, the local road systems and regional development patterns have determined the general development patterns of Elk Township.

a. Land Use

A survey of existing land uses was conducted in 1970 by the Gloucester County Planning Department, utilizing a modified version of the 88 category Housing and Urban Development B.P.R. Land Classification System. This survey was updated by the County in 1975, and was, in turn, updated through July of 1977 by Brown/Sullivan, Associates.

The Brown/Sullivan update was used as the base for the preparation of this Master Plan and the generalized existing land use categories as shown on the Existing Land Use Plan.

The following table gives the acreages for the 1975 existing land uses.

TABLE IV B.1 1975 EXISTING LAND USE ACREAGES

1975 DEVELOPED LAND USES IN ELK TOWNSHIP

SINGLE FAMILY RESIDEN- TIAL	MULTI FAMILY RESIDEN- TIAL	INDUS- TRIAL	COMMER- CIAL	PUBLIC/ QUASI- PUBLIC	RECRE- ATION	TRANS- PORTA- TION	TOTAL DEVEL- OPED
1,016.3	11.0	44.9	62.5	42.8	139.6	187.8	1,504.9

1975 UNDEVELOPED LAND USES IN ELK TOWNSHIP

AGRICULTURE	VACANT	WOODED	WET	WATER	TOTAL UNDEVELOPED
6,186.5	378.9	3,606.6	711.6	297.3	11,180.9

Source: Gloucester County Land Use Update - 1975

This land use element is based upon evaluation of existing land uses and development patterns and the future development patterns which can be expected in the Township. The existing and expected development patterns and land uses were compared to the 1963 Master Plan and the current zoning map and resulted in the recommendations which follow.

Section 49 of the M.L.U.L. provides that any zoning ordinance or amendment thereto must be substantially consistent with the Land Use Plan Element of this Master Plan or designated to effectuate the Element. The governing body may, however, adopt a zoning ordinance which is inconsistent with the Land Use Plan Element by the affirmative vote of a majority of the full authorized membership, provided it duly records its reasons for doing so.

This indicates that the governing body has the power to approve of land uses which do not occur in the areas recommended for them in the Land Use Plan, provided it is demonstrated that the proposed use is suitable (physically, environmentally and socially) for that area.

Additionally, the M.L.U.L. provides that each municipality must update their Master Plan at least every six years. The M.L.U.L. became effective on August 1, 1976, therefore the first update must be done prior to August 1, 1982.

If substantial changes in development patterns occur prior to 1982 the Master Plan may be updated immediately to reflect these changes and the Official Map adjusted accordingly.

b. Environmental Concerns

Because of its rural nature, Elk Township has not developed the extensive environmental problems that exist in more urbanized areas. Two major problems do exist in the Township. First is the severely high levels of fecal coliform, total phosphorus, high acidity, and dissolved oxygen in Oldman's Creek and Raccoon Creek. Second is the potentially severe problem of pollution of the ground water and aquifer layers by on-site septic treatment sewage disposal systems. The Township should take action to ensure development of a public sewer system in the Still Run watershed.

The addition of a public water supply system for the eastern portion of the Township and the encouragement of residential, commercial and industrial development in the area served by these systems would help to eliminate any major problems in the future.

3. Proposed Location, Extent and Intensity of Residential Land Use

The existing pattern of residential development indicates that the highest concentration of residential development

is occurring in the northeast portion of Elk and this demand will continue in the future, especially if Route 55 is completed. The existence of potential sanitary sewage service for the Still Run watershed reinforces moderate density and high density residential suitability for this area. The remainder of the Township has demonstrated residential demand only in the form of scattered single family homes which are currently appearing along the existing roads. This type of development is commonly referred to as "strip" development and if allowed to continue unregulated, it will result in circulation and utility service problems in the future.

The Land Use Plan recognizes these patterns and is intended to encourage residential development in the eastern portion of the Township where existing and proposed roads and the potential for public sewage treatment now exist.

The Land Use Plan provides for five categories of residential land uses. Excluding those areas that are environmentally unsuitable for development, approximately 8,800 acres of land in Elk Township could be utilized for residential development. This represents 69% of the total land area within the Township. Table No. IV B.3, Housing Units by Residential Use Category, shows the number of existing housing units and the number of additional housing units that could be constructed within each residential land use area. It is estimated that there are 990 existing housing units within the Township. Within the residential areas shown on the Land Use Plan, an additional 9,000 existing housing units could be constructed. If the residential land use areas of the Township were fully developed, a total of 10,000 housing units could be provided. This would result in an overall gross density of .79 units per acre. Using a multiplier of 3.0 persons per dwelling unit, a population of 30,000 with an average density of 500 persons per square mile would result at full development.

a. Agriculture/Residential

The Land Use Plan provides 9,600 acres of land for agriculture/residential development. Within these areas, which represent 75.6 percent of the total land area of the Township, it is recommended that single family housing be permitted at a gross density of less than 1 dwelling unit per acre.

In general, the agriculture/residential areas recommended in the Land Use Plan are areas which are environmentally sensitive to intense development and/or do not have the traffic circulation, utilities or other public service facilities required to support more intense development.

During the preparation of the Plan the possibility of allowing moderate density residential development to occur in the low density areas of Elk was discussed in length. It is recommended that Elk Township consider including in its new zoning ordinances a provision to accomodate the possibility of developing large contiguous tracts of land at an overall density approaching two dwelling units per acre with a minimum lot size of at least one half acre at such a time when the demand for this type of development is demonstrated, and in areas where environmentally and physically favorable.

There are 430 housing units within the low density residential areas of the Township. It is estimated that an additional 5,200 housing units could be developed, providing a total of 5,630 housing units if the areas were fully developed. Totally developed, the low density residential areas would have an overall gross density of 1.70 housing units per acre. It is expected that some of the future subdivisions within the agriculture/residential areas will be developed in accordance with the cluster provisions and/or inclusion of moderate density development within the AR area as a conditional use, both of which are proposed for the Elk Township Zoning Ordinance. Cluster developments will provide additional open space areas for conservation or recreation purposes.

Within the majority of the agriculture/residential areas, it is recommended that standard subdivisions be permitted with a minumum lot size of 1 acre, and that cluster development and possibly, moderate density residential, as a conditional use, should be permitted where enviromentally and physically feasible in contiguous tracts with a minumum size of 100 acres.

It would be necessary to monitor all such cluster and moderate density developments very closely to ensure that the infrastructure would not be overloaded beyond existing environmental and planned capacities.

b. Moderate Density Residential

The Land Use Plan provides a total of 1,980 acres of land for moderate density residential development. Within these areas, which represent 15.6 percent of the total Township land area, it is recommended that single family housing be permitted at densities ranging from 1 to 2 dwelling units per acre. There are 560 housing units located within the moderate density residential areas, and it is estimated that an additional 2,900 housing units could be provided if these areas were fully developed.

It is recommended that standard single family housing be permitted within the moderate density residential areas on minimum lot sizes of 20,000 square feet. It is also recommended that cluster development be permitted on 15,000 square foot lots at a maximum density of 2 dwelling units per acre, when public water and sewer are available.

If the moderate density residential areas were fully developed it is estimated that they would contain a total of 3,460 housing units providing an overall gross density of 1.75 dwelling units per acre.

c. Multi-Family Housing

Virtually no multi-family units now exist in Elk, therefore it is difficult to determine either the future demand for units or development patterns for the use.

Prior to the existence of public sewer in the Township, multi-family housing may be allowed only at the overall density of the residential land use area, and developments should be considered on an individual basis. It is recommended that multi-family housing be encouraged to develop within one-half mile of the existing force main in Clayton which would facilitate future connection.

The Land Use Plan delineates a total of 60 acres or .47 percent of the total Township land area for multi-family housing development. The land delineated for multi-family housing on the Land Use Plan would permit development of approximately

360 units at a density of 6 dwelling units per acre with public sewer and water available and 2 dwelling units per acre for a total of 120 units if public sewer is not available. Densities above 5 dwelling units per acre in two-story garden apartments or townhouse-type of multi-family developments should provide sufficient land for off-street parking, open space, and other amenities necessary for a desirable living environment. Such densities would call for careful review of all environmental, physical and social factors, as well as consideration of all circulation and utilities impacts.

d. Recreational Residential

The Land Use Plan provides a total of 90 acres or .7 percent of the land area within the Township for Recreational Residential use. This is a pre-existing area specifically for summer vacation cottages. No additional areas have been added to the existing use areas by the Master Land Use Plan.

Residential use in the R-R areas is limited to seasonal use; no year-round residential occupancy will be permitted.

e. Mobile Home Park

The Land Use Plan provides a total of 67 acres or .53 percent of the land area of the Township for Mobile Home Park Use. This use is pre-existing and is not recommended for expansion at this time.

There are presently 135 housing units located within this use area. It is estimated that an additional 30 housing units could be provided if fully developed.

It is recommended that single family mobile homes be permitted in the use area on minimum lot sizes of 1,500 square feet at a maximum density of 2.5 housing units per acre.

If the Mobile Home use area were fully developed, it is estimated that it would contain a total of 165 housing units providing an overall density of 2.46 dwelling units per acre.

4. Proposed Location, Extent and Intensity of Commercial Land Use

Although the entire length of Route 77 in the western portion of Elk has been zoned for commercial use for many years, virtually no commercial development has occurred. This is the result of two factors: 1) the lack of demand for commercial use in the area and, 2) the fact that route 77 has insufficient traffic volume to support most types of commercial use. Therefore, it is recommended that the "strip commercial" zoning along Route 77 should be eliminated with the exception of the area around the intersection of Route 77 with the Swedesboro-Franklinville Road.

Because some of the land along Route 77 may have been purchased with the future intent of utilizing the commercial zoning that now exists within 400' of the roadway, the Township may want to consider allowing a limited amount of time for the present land owners to apply for commercial use of their land if the zoning is changed to reflect the Land Use Plan. An alternate solution is to allow commercial development along Route 77 as a conditional use in the AR area. The Land Use Plan provides for two categories of commercial land use, the combination of which totals 300 acres or 2.4 percent of the land area in the Township. Highway commercial land uses are designated for Buck Road, primarily because of the expected traffic generated by the completion of proposed Route 55. A retail shopping center development potentials report, which appears in Appendix A, was prepared under contract to Brown/Sullivan, Associates by Planalysis Inc. This report indicates that within the constraints outlined, a potential for between 120,000 and 160,000 square feet of retail space exists in the area of the Buck Road - Route 55 interchange.

It is estimated that there are 65 acres of commercial use existing in the Township. This acreage does not accurately reflect the number of commercial uses, because of the large sizes of some of the commercial lots.

a. C-2 Highway Commercial

The Land Use Plan designates 210 acres or 1.7 percent of the Township's land area for Highway Commercial use. It is recommended that these areas be utilized for large scale commercial uses, such as: automobile service stations, shopping center(s), restaurants, and other uses which would draw business from outside the Township.

Within this area, a minimum lot size of 2 acres should be required. Right-Of-Way to accommodate the widening of Buck Road, Swedesboro-Franklinville Road, and intersecting streets should be dedicated frontage roads and a minimum setback of 100 feet required, and minimum distances between curb cuts established.

Additionally, it is recommended that the minimum setback of 100 feet should be required, with no parking allowed within 35 feet of the road right-of-way and buffering required between commercial and residential uses.

b. C-1 Neighborhood Commercial

The Land Use Plan designates 90 acres or .7 percent of the Township's land area for Neighborhood Commercial use. This area should be utilized by uses that provide for the needs of the residents of the Township. Service oriented businesses such as barber and beauty shops, small offices, banks groceries, and other associated businesses would be included in this use classification.

Within this area a minimum lot size of 30,000 square feet should be required.

5. Proposed Location, Extent and Intensity of Industrial Land Use

The Land Use Plan provides for two categories of Industrial land use, the combination of which totals 490 acres of 3.9 percent of the land area in the Township.

A substantial area of industrial zoning which paralleled both sides of the Penn Reading Lines tracks has been eliminated. This was done because no industrial use now exists in the area and potential industrial uses could be better served if they were consolidated in the northeast section of the Township adjacent to the industrial area located in Borough of Glassboro. This area was selected because of the large undeveloped parcels of land, access to both railroad and highway transportation, and a good potential for public sewerage in the future.

a. Heavy Manufacturing

The Land Use Plan designates 260 acres or 2.1 percent of the Township's land area as Heavy Manufacturing. This area is bordered on the north

by the existing industrial area in Glassboro, on the west by Route 55, and on the east by the CONRAIL right-of-way. Access could be initially provided by the existing extension of Higgins Drive from Glassboro, however; the section of street immediately adjacent to the Elk Township line would have to be upgraded to industrial use standards. It is further recommended that a new access road should be constructed which would connect this area with the Aura-Glassboro road.

The minimum lot size for Heavy Manufacturing uses should be 5 acres with a minimum frontage of 300 feet and a minimum set back of 100 feet. The maximum lot coverage and minimum open space provided should relate to site conditions regarding drainage and other factors.

b. Light Manufacturing and Office/Research

The Land Use Plan designates 230 acres or 1.8 percent of the Township's land area as Light Manufacturing and Office/Research. This area consists primarily of a large tract under single ownership. Because of the large size of this area, an industrial collector street should be built through the area, connecting Aura-Glassboro Road with Buck Road at its intersection with Arthur Street.

A minimum lot size of 2 acres is recommended with a minimum frontage of 200 feet and a minimum set back of 100 feet. The maximum lot coverage should be 20 percent, a minimum of 20 percent open space provided and adequate buffer areas required between manufacturer and residential uses.

6. Proposed Location, Extent and Intensity of Agricultural Land Use

Agriculture use areas are not specifically designated on the Land Use Plan; however, they are included in the area designated as AR - Agriculture/Residential, and total 44 percent of the land area of the Township and 59 percent of the AR Use.

Because of the nature of the land in Elk Township and its regional location, the best possible use for the majority of the western portion of the Township is Agricultural use. This recommendation also is consistent with both the County and State master plans. Some

residential uses and other types of development are inevitable and Elk Township should take all the measures possible to ensure that the agricultural areas of the Township are protected from undesirable and incompatible uses.

Residential uses should be limited to reasonably compact areas owing to the industrial nature of modern farming techniques. Additionally, buffer areas should be required between areas of housing and agricultural areas to help eliminate possible conflicts.

7. Proposed Location, Extent and Intensity of Recreational Use

Recreational areas are included in the AR designation on the Land Use Plan, and are delineated on the Conservation/Recreation/Community Facilities Plan.

8. Proposed Location, Extent and Intensity of Educational Land Use

The Land Use Plan designates 32 acres or .25 percent of the Township's land areas as I - Institutional Use. This includes all of the existing school property of the Elk Township School Board, which consists of the Aura Elementary School site and an undeveloped site in the "Lawns" area.

An additional area of approximately 216 acres is shown as an Institutional use. This area would be sufficient to accomodate expansion of the existing school and also be sufficient to accommodate a middle school if required in the future.

Detailed information on the educational facilities in Elk Township is contained in the Community Facilities Element of this Master Plan and the Elk Township Master Plan prepared by UNIPLAN Inc., under contract to Brown/Sullivan, Associates and the Southern Gloucester County Cooperative Planning District.

9. Proposed Location, Extent and Intensity of Public Land Use

The Conservation/Recreation/Community Facilities Plan designates 21 acres or .1 percent of the Township's land area for Public Use. These use areas include the site of the existing Township Municipal Building on Whig Lane in Aura and the area behind it that was acquired for the construction of a Township Maintenance Garage, the site of the existing sanitary land fill, and the three fire house sites.

It is recommended that the Township consider the present site of the Municipal Building for the construction of a new public building that would house the Municipal Offices and the Township Police Force. The need for new facilities will not exist for a number of years, but any development on the site should be undertaken with the construction of a new facility in mind.

10. Proposed Location, Extent and Intensity of Conservation Land Use

Land areas recommended for Conservation are shown on the Conservation/Community Facilities Plan, and are primarily included in the AR designation of the Land Use Plan.

The Conservation/Recreation/Community Facilities Plan designates 2,950 acres or 23.2 percent of the land area in the Township as Conservation Areas. These areas have extremely high environmental sensitivity and any development proposed should be reviewed with the utmost care and consideration for possible undesirable environmental impact.

It is recommended that all areas within the Conservation area designation should be utilized as open space and ground water recharge areas, and left as natural as possible.

11. Estimated 1977 Elk Township Population and Projections

Elk Township is expected to grow at an increased rate over the next twenty years primarily due to increased development pressure caused by the expected construction of the northern section of Route 55 through the Township. This growth will be concentrated in the northeastern section of the Township, especially to the east of the proposed Route 55 right-of-way.

The population projections which appear on TABLE IV B-15 reflect high medium and low medium growth rates which depend upon the actual development pressures.

TABLE IV B.2
MASTER PLAN LAND USE AREAS

	<u>ACRES</u>	<u>PERCENT</u>
LOW DENSITY RESIDENTIAL	9600	75.9
MODERATE DENSITY RESIDENTIAL	1980	15.6
MULTI-FAMILY RESIDENTIAL	60	.5
RECREATIONAL RESIDENTIAL	90	.7
MOBILE HOME PARK	67	.50
NEIGHBORHOOD COMMERCIAL	90	.7
HIGHWAY COMMERCIAL	210	1.7
HEAVY MANUFACTURING	260	2.1
LIGHT MFG. AND OFFICE/RESEARCH	230	1.8
AGRICULTURAL - <i>Rural Residential</i>	(5562) (1)	(44.0) (1)
RECREATIONAL	(922) (1) (2)	(7.3) (1) (2)
EDUCATIONAL	32	.3
PUBLIC	21	.2
CONSERVATION AREAS	(2950) (1)	(23.2) (1)
Totals	12640 ac	100%

(1) These areas are contained primarily within the Low Density Residential designation.

(2) This figure includes private recreation facilities.

Source: BROWN/SULLIVAN, ASSOCIATES LAND USE PLAN

TABLE IV B.3

HOUSING UNITS BY RESIDENTIAL USE CATEGORY

	<u>1977</u>	<u>1980</u>	<u>1990</u>	<u>AT TOTAL DEVELOPMENT</u>
AGRICULTURE / RESIDENTIAL	430	450	550	5630
MODERATE DENSITY	560	590	747	2900
MULTI-FAMILY	10 ⁽²⁾	11	13	360 ⁽³⁾
Total	1000	1051	1310	8890

(1) Includes Mobile Home Park Units

(2) Estimated

(3) Number of units possible in designated area, public sewer and water available. 120 units are possible without public water and sewer. Additional areas within the Moderate Density Designation may also be developed if demand is demonstrated.

Source: BROWN/SULLIVAN, ASSOCIATES



LEGEND

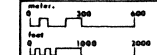
- RA AGRICULTURAL RESIDENTIAL
- R-1 LOW DENSITY RESIDENTIAL
- R-4 APARTMENT/TOWNHOUSES
- MHP MOBILE HOME PARK
- RR RECREATIONAL RESIDENTIAL
- C-1 COMMERCIAL - NEIGHBORHOOD
- C-2 COMMERCIAL - HIGHWAY
- M-1 MANUFACTURING - LIGHT
- M-2 MANUFACTURING - HEAVY
- INSTITUTIONAL

PLANIMETRIC BASE MAP BY
GRIFFIN & ASSOCIATES
APRIL - 1966
LOT LINE MAPPING BY
GLOUCESTER COUNTY
PLANNING DEPARTMENT
JULY - 1977
SULLY/STEWART COUNTY
REFERENCE MAP
SHEETS 14, 15, 16, 17, 18
ELK TOWNSHIP IS 58 OF 70

MASTER LAND USE PLAN

ELK TOWNSHIP
GLOUCESTER CO.
NEW JERSEY

Brown/Sullivan, Associates
Planning Consultants
Peirce H. Brown - Professional Planner Lic. No. 1704
Andrew L. Sullivan - Member - American Institute Of Planners
2214 Market Street
Philadelphia, Pennsylvania 19103
Telephone 215-567-7300
26 West Street
Long River, New Jersey 08753
Telephone 201-746-7180



Date:
Drawn by:
Approved by:



No.	Date	Revisions Description	By

Adopted by the Elk Township Planning Board on: _____
Planning Board Chairman

IV. MASTER PLAN

C. Element Three - Housing Plan

1. Introduction

M.L.U.L., C40: 55D-28, 19b(3). A housing plan element, including but not limited to, residential standards for construction and improvement of housing.

2. Residential Standards

The Housing Plan for Elk Township includes residential standards, proposals for the construction of new housing and proposals for the improvement of existing housing units. A major input to this plan element has been The Gloucester County Housing Needs Study, 1973-1985, which has aided in determining the amount of residential land use area to be provided in the Township.

The Land Use Plan has designated areas for higher density housing, sufficient to accomodate over 1500 persons. This is more than 30% of the projected 1990 population, and would more than satisfy regional housing needs. The Housing Plan further designates areas and standards for the development of additional housing.

- a. Elk Township should provide for a variety of housing densities and types of residential construction that will meet the needs of its present and future residents.

The need for a wide range of housing opportunities should be recognized. The 1976 Housing Need Study, conducted by the Gloucester County Planning Department determined that: (1) The cost of new housing was beyond the financial means of the majority of Elk Township's residents and (2) as of 1975, there were no rental units available in Elk Township. The implication of this study was that a wide range of housing opportunities were not available in the Township and people could be forced to move out of the Township to satisfy their housing needs.

- b. Elk Township should promote housing growth at a rate and in locations consistent with the ability to provide sanitary sewers, public water supply and other community services.

The problems associated with rapid and poorly planned growth have been well documented. A development that is in the wrong area or

that is too large can place a significant strain on a township's water and circulation system and cause overflow on a septic or sewer system. These considerations should be examined when Elk Township is considering subdivision applications.

- c. An adequate amount of open space that can serve as both recreational areas and buffer zones should be included in all residential areas of Elk Township.

It has been one of the primary concerns of the people of Elk Township that its rural character be maintained. Open space would promote the aesthetic attractiveness of the Township as well as provide an opportunity for Elk residents to pursue a wide range of leisure activities close to their homes.

The maximum density of residential use should not exceed six dwelling units per acre in areas when public water and sewer are available and two dwelling units per acre for areas without public sewers.

- d. Elk Township should encourage ownership of single family homes and town houses.

Assume → It has long been agreed that home ownership promotes better maintenance which, in turn, maintains property values. A high degree of maintenance can prolong the life of an area's housing stock.

- e. Residential development should be allowed only where natural restraints are at minimum levels.

The Township Planning Board and potential developers in the Township should utilize the information contained in the Development Constraints Map and descriptive text to aid in the determination of the optimum areas for future development.

- f. Physical standards should include:

- 1) minimum and maximum lot sizes for multi-family development. (min. lot size 5 ac.; max. lot size 60 ac.)

- 2) sidewalks should be required in all residential developments with overall densities of 2 dwelling units per acre and higher.

3) curbs and gutters should be installed on all local and local collector streets.

4) street lighting should be installed on all local and local collector streets.

5) landscaping and buffering should be included in all proposed developments.

6) access for handicapped persons should be provided in all proposed developments.

- g. Elk Township should increase the quality and scope of community services.

The improvement of community services is an effective means of improving housing and attracting construction. An example would be the proposed sewers in the northeast area of the Township, which will bring an increase in property values and provide an incentive for both new construction and the improvement of existing housing. There are a number of ways that Elk could attract new residents and developers, of which the construction of sewer, water and circulation systems are the most obvious. The Township should also ensure that other services are adequately supplied to meet the needs of its residents.

- h. Elk Township should institute and enforce a program of building inspections and code enforcement.

The primary objective of building code enforcement is to monitor the quality of the housing stock in the Township. The rehabilitation or removal of substandard housing should be its main objective. The Township needs an accurate picture of the conditions of its housing if it wants the ability to act to remedy substandard areas.

- i. Elk Township should encourage the rehabilitation and improvement of existing housing.

In many instances it is less expensive to rehabilitate a house rather than construct a new one. Rehabilitation is an excellent means of rejuvenating the existing housing stock as well as providing relatively inexpensive housing.

IV. MASTER PLAN

D. Element Four - Circulation Plan

1. Introduction

M.L.U.L., C40: 55D-28, 19 (4). A circulation plan element showing the location and types of facilities for all modes of transportation required for the efficient movement of people and goods into, about, and through the municipality.

The Circulation Plan Element focuses its attention on the service and guidance of the anticipated growth and development in Elk Township.

Additional means of transportation that are discussed are the rail transportation supplied by the Penn-Reading Seashore Line toward Glassboro, bus routes and the various airports in the area.

2. Location and Types of Highways and Streets

The existing transportation problems in Elk Township are limited to hazardous intersections and the potential for strip residential and commercial development. These problems are minimized by the low volumes of traffic on all of the Township's roads.

Expected transportation improvements such as the completion of the proposed N.J. Route 55 Freeway, the N.J. Route 322 by-pass, and the extension of the PATCO High Speed Line will significantly alter the nature of land development and vehicular circulation. This plan takes these improvements into account and it is imperative that the Township Planning Board update this plan as definite dates for completion and final locations of routes and facilities are approved. As additional studies and county and regional plans are completed, reflecting the final impacts of these proposed facilities, they too should be considered when updating this Plan.

The existing, proposed and recommended highways, streets and roads are shown on the Circulation and Utilities Map.

The following is the functional classification of existing, proposed and recommended roadways, and references to documents which set forth guide lines for the design and improvements of those roadways.

2. Location and Types of Highways and Streets (continued)

a. Major Arterial Highways

Principal arterial highways serve as major feeder roads to and from the freeway systems and carry major movements of traffic between the principal traffic generators in the region. Principal arterial highways usually have four or more traffic lanes and provide direct access to abutting properties, a secondary function which interferes with the flow of traffic. They are usually intersected at grade and utilize timed traffic signals, jug handle intersections, center barriers and lane markings to facilitate traffic flow. They may include the separation of opposing traffic lanes by a continuous center barrier or median strip, and full access control and grade separation at intersections or interchanges which are generally widely spaced. Principal arterials usually have right-of-way widths in excess of one hundred twenty feet (120') and are generally designed for a capacity of between 700 to 1,000 vehicles per lane per hour. No principal arterials exist in or adjacent to Elk Township.

The proposed N.J. Route 55 will qualify as a principal arterial when and if completed: Route 55 will carry an expected 1990 traffic volume of 30,200 ADT (1) north and 20,100 ADT south of the Buck Road interchange (2). Additionally, Route 55 will be four lanes divided by a 64 foot wide median centered in a 300 foot average width right-of-way. The expected completion of this road will be no sooner than 1983 and possibly as late as 1995.

b. Minor Arterial Highways

Minor arterial highways are streets gathering traffic from more than one local, minor or major collector street and leading it to a system of other minor arterial highways or principal arterial highways. Like principal arterial highways, they are characterized by direct land access and often have only one lane of traffic in each direction. In major subdivisions, lots should not be allowed to front on minor arterial highways. Where possible, the desirable right-of-way width for minor arterial highways is 80-100 feet with a cartway width of fifty feet.

- (1) ADT: Nominal average daily traffic/vehicles per day
- (2) Fig. 14, page 56: "Administration Action Final environmental impact statement for the Route 55 freeway"

b. Minor Arterial Highways (continued)

1) Buck Road: (Glo. Co. 553) carries traffic from Glassboro to Bridgeton and will have a major interchange with Route 55 just north of the Swedesboro-Franklinville Road (Glo. Co. 538). The estimated ADT in 1977 is 4,500, which will increase to over 15,000 north and 4,800 south of the Route 55 interchange by 1990.

2) Route 322 By-Pass which will allow traffic to bypass Glassboro, is projected to carry 14 - 18,000 ADT, but will be designed to the same standards as Route 55, expecting increased volumes in later years. The completion of the Route 322 By-Pass is in some doubt and the probability exists that it will not be started until the year 2000, if at all.

3) Route 77 which connects Bridgeton with Mullica Hill is projected to be a minor arterial highway by the year 1990, by the Gloucester County Planning Department (GCPD).

4) Swedesboro/Franklinville Road (Glo. Co. Route 538) Presently carries only about 1000 to 1300 vehicles per day, but is expected to develop as a minor arterial highway which will connect Interstate 295 in western Gloucester County to Route 322 in the eastern part of Monroe Township. The reason for this is the near impossibility of widening route 322 through Glassboro and other communities, and that Route 538 has virtually no existing development along its entire length.

c. Major Collectors

Major collectors are those roadways which gather traffic from minor collector streets and local streets and feed it into the system of minor arterial and principal arterial highways. In major subdivisions, lots should not be allowed to front on major collectors. The desirable minimum right-of-way width is eighty feet (80') with a cartway width of forty feet (40'). Existing roads and streets, which carry average traffic volumes in excess of 2,500 vehicles per day, should also be considered major collectors.

1) Buck Road/Glassboro-Monroeville Road (Glo. Co. Route 553) from the intersection of the Swedesboro-Franklinville Road, south to the Elk Township line carries a volume of 4,000 to 4,500 vehicles. This volume increased dramatically during the summer months when the private recreation facilities of Garrison Lake are in use.

c. Major Collectors (continued)

2) Ellis Mill Road (Glo. Co. 641) which provides access from Glassboro to Route 77 and Bridgeton, now carries 2,300 vehicles per day which, by 1900, will probably grow to over 4,000 vehicles per day because of the completion of Route 55 and the ensuing residential and commercial developments.

3) Aura/Clayton Road (Glo. Co. Route 610) now carries between 2,000 and 2,500 vehicles per day and is utilized as a by-pass for Route 47 through Clayton and Glassboro. Route 55 will provide an alternate route and the volume in Richmond-Aura Road will probably not change greatly by 1990.

4) Richwood/Aura/Porchtown Road (Glo. Co. Route 667) is a major collector north of the Swedesboro/Franklinville Road. This road is utilized as a by-pass route around Glassboro.

5) Barnsboro/Elmer Road (Glo. Co. 609) is used as a short-cut to Franklinville and carries 1500 to 2000 vehicles per day. 1990 volumes may reach 2500 per day.

d. Minor Collectors

Minor collectors serve in the same function as major collector streets, except that they generally carry less traffic. The desirable minimum right-of-way width for minor collector streets is sixty to seventy (60' - 70') feet and a cartway width of forty feet (40'). In major subdivisions, no lots should be allowed to front only on minor collectors.

1) Monroeville/Franklinville Road (Glo. Co. 604) is used as a short-cut to Franklinville and carries 1500 to 2000 vehicles per day. 1990 volumes may reach 2500 per day.

2) Clayton Avenue (Glo. Co. 608) serves the residences on Silver Lake and South of Clayton Avenue and serves as a connection from Elk to the businesses of Clayton.

3) Cedar Bridge Road connects Clayton Avenue to the Swedesboro/Franklinville Road.

4) Clayton/Glassboro Road (Glo. Co. Route 637)

5) Woodstown/Glassboro Road (Glo. Co. Route 619)

6) Harrisonville/Farrell Road (Glo. Co. Route 616)

- 7) Ewan/Aura Road (Glo. Co. Route 623)
- 8) Richwood/Aura/Porchtown Road (Glo. Co. Route 667) is a minor collector south of the Swedesboro/Franklinville Road.

e. Local Collector Streets

Local collector streets serve the principal function of collecting traffic from residential neighborhoods and feeding it to roads of higher classifications and in most instances also provide access to adjoining properties. Streets which serve 25 or more residences should be classified as Local Collector Streets and in major subdivisions no lots should be allowed to front only on local collector streets.

Local collector streets are shown on the Circulation and Utility Map.

f. Local Streets

Local streets have the primary function of providing access to abutting properties. They also serve as easements for the various public utilities and provide light and air to adjacent buildings. Local streets should have a minimum right-of-way of fifty feet (50') with suitable shade tree and utility easements.

All existing streets in Elk Township, not shown under another function classification on the Circulation and Utility Map are classified as local streets. Future streets, provided within a subdivision or other private development which could be expected to carry traffic volumes less than 100 vehicles per day, would be classified as local streets.

3. Proposed Road and Intersection Improvements

a. Recommendations for Immediate Action

Recommendations for Immediate Action are contained in "Appendix A"; Elk Township Road and Intersection Analysis. Generally, the recommendations for immediate action are as follows:

1) Buck Road/Clayton-Aura Road

Remove line-of-sight obstructions from the intersection, monitor traffic to determine if stop signs and speed limits are being observed, and, if necessary, install a traffic signal at the intersection. (A blinker was installed in the Fall of 1977.)

a. Recommendations for Immediate Action (continued)

2) Buck Road/Swedesboro-Franklinville Road

Monitor traffic to determine if stop sign and speed limits are being violated and institute stricter enforcement if necessary. It may be necessary to reverse street stops or install additional lights or warning signals to reduce the hazardous conditions that exist at this intersection.

3) Buck Road at Garrison Lake

Provide a storage lane for turning vehicles and utilize park personnel to direct traffic off Buck Road as quickly as possible during periods of high use.

b. Future Improvement Recommendations

Recommendations for future improvements are primarily the result of increased development occurring in Elk Township beginning perhaps in 1978-79 and continuing with increasing pressure through the next 10 to 20 years.

The following are specific recommendations for obvious problem areas. The Township should carefully watch the development that takes place and adjust this plan accordingly.

1) No development should be allowed in the expected Route 55 and Route 322 corridors.

2) As commercial and residential subdivision development occurs along arterial highways, major collectors, and minor collectors, additional right-of-way should be dictated to increase the right of-way to its minimum recommended width. Additionally, setback distances should be increased and provisions made for the possible inclusion of frontage roads and minimum distances between curb cuts (driveways) and side streets.

3) Buck Road/Aura-Clayton Road Intersection will require signalization and left and right turn lanes.

4) The Buck Road/Swedesboro-Franklinville Road/Aura Willow Grove Road Intersection will need extensive improvements in conjunction with the completion of Route 55. The section of Aura-Willow Grove Road between Buck Road and Swedesboro-Franklinville Road should be closed;

the southern section re-aligned to intersect with Swedesboro-Franklinville Road, at a right angle, (possibly at Cedar Bridge Road), and the northern section re-aligned to intersect Buck Road at a right angle.

4. Additions to the Circulation System

a. Industrial Use

Expected future industrial development in the northeast section will require additional roads for access. The existing industrial area located between the Richwood-Aura Road and the Pennsylvania-Reading Seashore Line is now served by the extension of Higgins Drive in the Borough of Glassboro. The use of this road has been contested in Glassboro, because the section of road in Glassboro immediate to Elk Township is not designed to industrial standards. Recommendations include:

1) Connection of the existing industrial area to Glassboro-Aura Road with a new road which will cross the Penn-Reading tracks and tie into the existing Higgins Road extension.

2) Construction of a new industrial collector which will connect Glassboro-Aura Road with Buck Road at its intersection with Arthur Avenue.

These two collectors will provide sufficient access for a large number of industrial uses and should be phased to coincide with demand. Additional access will be provided along the east side of Route 55 when completed.

5. Location and Types of Rail Transportation and Facilities

Elk Township has two rail lines owned and operated by Conrail. No passenger service is provided by these lines and no industrial spurs exist in the Township.

- a. Industrial Uses: Although some repair is necessary for the lines, they are adequate for most of the industrial uses expected in Elk Township.
- b. Passenger Service: Service for Elk is not expected for many years. However, the PATCO High Speed Line has received preliminary approval and may be extended as far as Bellmawr within the next five to seven years, with additional phases proposed to extend the line as far as Ellis Mill Road in Glassboro.

6. Location and Types of Bus Routes

Elk Township has only one regularly scheduled bus route supplied by Transport of New Jersey, which travels Bridgeton Pike (Rt.77) and connects Bridgeton with Camden. The remainder of the Township has no bus service, but another route of the Transport of New Jersey travels Route 47 just east of Elk and connects Camden with Vineland and Millville to the south.

Local service is supplied to Clayton and Glassboro by a loop system which travels west from Clayton on the Clayton-Aura Road then north on the Aura-Glassboro Road to Glassboro.

As the population of Elk Township continues to grow, the Township should consider a loop bus route system which would connect the developments in Elk with Clayton and Glassboro. This system should be co-ordinated with the Gloucester County Overall Mass Transit Plan.

7. Location and Types of Airport Facilities

The nearest airports to Elk are the Pitman, Cross Keys, Bridgeport and Vineland-Downstown Airports. All are private facilities used primarily for small private planes and some commercial uses, such as crop-dusting services. The Millville Airport, located 26 miles to the south is the nearest airport with a runway capacity to handle small jet powered aircraft. Commercial passenger service is available at the Philadelphia International Airport, located 28 miles northwest of Elk.

- a. Utilization: Airport facility utilization by Elk is limited to crop-dusting services for agricultural uses and some use of private planes.



LEGEND

- PROPOSED MAJOR ARTERIAL (PROPOSED R.O.W. 300')
- MINOR ARTERIAL (PROPOSED R.O.W. 80'-100')
- PROPOSED MINOR ARTERIAL (PROPOSED R.O.W. 300')
- MAJOR COLLECTOR (PROPOSED R.O.W. 80')
- MINOR COLLECTOR (PROPOSED R.O.W. 60'-70')
- PROPOSED MINOR COLLECTOR (PROPOSED R.O.W. 60'-70')
- LOCAL COLLECTOR - EXISTING/PROPOSED & LOCAL STREET (PROPOSED R.O.W. 50')
- INTERSECTION STUDY AREAS
- RAILROAD LINES
- ATLANTIC ELECTRIC 120' R.O.W.
- SEWERAGE SERVICE AREA - DVRPC. PROPOSED
- SEWERAGE SERVICE AREA - RECOMMENDED
- SOLID WASTE DISPOSAL AREA

CIRCULATION AND UTILITY SERVICE PLAN

ELK TOWNSHIP
GLOUCESTER CO.
NEW JERSEY

Brown/Sullivan, Associates
Planning Consultants

Peter H. Brown - Professional Planner, Lic. No. 1706
Andrew L. Sullivan - Member - American Institute of Planners
2214 Market Street
Philadelphia, Pennsylvania 19103
Telephone 215-547-7300

28 Main Street
Long River, New Jersey 08053
Telephone 201-240-5140

No	Date	Revisions Description	By

PLANIMETRIC BASE MAP BY
QUINN & ASSOCIATES
APRIL - 1988
LOT LINE MAPPING BY
GLOUCESTER COUNTY
PLANNING DEPARTMENT
JULY - 1987
GLOUCESTER COUNTY
REFERENCE MAP
SHEETS 42, 41, 42, 47, 48
49, 53, 54 & 55 OF 70

Date: 6-7-78
Drawn by: L.S.S.
Approved by:

Adopted by the Elk Township Planning Board May 1988
Planning Board Chairman

Sheet 2 of 2

IV. MASTER PLAN

E. Element Five - Utility Service Plan

1. Introduction

M.L.U.L., C40: 55D-28,196 (5). A utility service plan element analyzing the need for and showing the future general location of water supply and distribution facilities, drainage and flood control facilities, sewerage and waste treatment, solid waste disposal and provision for other related utilities.

The utility service Plan Element for Elk Township was prepared following a review of existing and proposed facilities, present use levels, existing problems and projected future needs.

Few problems now exist in the Township with regard to utilities, but with the growth expected during the next 20 years, some of the existing facilities will have to be upgraded and expanded. The inclusion of Elk in the Gloucester County Sewerage Authority Service Area is of the utmost importance to all forms of future growth and development in the Township.

2. The Need For and Future Location of Water Supply and Distribution Facilities

Elk Township's water supply is provided entirely by individual private wells. Six major wells, each of which have capacities of over 50 gallons per minute (gpm), exist in the Township. All of these are used for agricultural purposes. These wells tap the Cohansey Sand Aquifer and range in depth from 50 feet to 140 feet.

The Cohansey Sand Aquifer which lies below all but the extreme northwest corner of Elk, has excellent capacities for future development of water for industry, irrigation and public supply. Wells capable of yielding 1,000 gpm are possible at depths of from 100 to 200 feet.

The Raritan aquifer which lies below the Cohansey Sand is suitable for providing the large quantities of water which will be required if the Township installs a public water supply. The water thus obtained is extremely pure and existing wells in Glassboro and Clayton need no treatment.

2. The Need for Future Location of Water Supply and Distribution Facilities (continued)

No public water supply is recommended for immediate use, but the Township should anticipate the necessity of a public water system to serve the development which may begin during the period 1980-1990 in the Still Run Watershed. The projected availability of sanitary sewer service in this area will enable the development of smaller lots and multi-family housing, including apartments and townhouses, which will necessitate public water supply for domestic use and fire fighting. Additionally, industrial development would be facilitated by a major public water supply in the vicinity of the proposed industrial use area north of Aura.

3. The Need for and Future Location of Drainage and Flood Control Facilities

Because the Cohansey Sand Aquifer is in equilibrium, that is, the long term recharge equals the long term discharge, and the Township has a relatively flat topography; there are few ground and surface water problems.

- a. Flooding, which sometimes occurs during periods of extreme rainfall, is generally limited to those areas that already have such a high water table that no development has taken place. Also, because of the flatness of the land, excess flows are permitted to spread over large areas which limits the depth of flooding to less than two or three feet.
- b. Drainage, or the lack of it, in some areas presents some problems. However, the aquifer recharge qualities of these areas far offset any disadvantages, and no drainage projects are recommended.
- c. Future Development should be closely monitored to determine that increased run-off will not harm down stream areas by flooding or erosion. If necessary, storm water detention and/or retention facilities should be required, especially when sewer availability allows lot sizes of one-fourth acre, and smaller. The construction of multi-family housing with their associated parking lots and large percentage of building cover, will also place an increased burden on streams and water ways.

4. The Need For and Future Location of Sewage and Waste Treatment Facilities

Portions of Elk Township are included in the Gloucester County Sewerage Authority service area. The extent of the area to be served by the year 2000 is uncertain. Water quality management recommendations prepared by the Delaware Valley Regional Planning Authority are being reviewed. These studies, the extent of development in Elk, and the timing of the enlargement of the Gloucester County Sewage Treatment facilities will determine how much of the Township will be served.

The areas which are not included in the service area shown on the Circulation and Utilities Map. These areas are, generally, the area east of Cedar Bridge Road and north of Swedesboro-Franklinville Road, extending to the Township line (which will be served by the existing pumping station in the Borough of Clayton), and the area east of Buck Road and north of the Aura-Clayton Road, extending east to the Township line, served by tapping into the force main which extends along Academy Street on the Township line with Clayton.

During public hearings held in mid-October, 1977, the service area was recommended to be extended to include all of the Still Run Watershed. Not all of the watershed will be developed within the next 23 years, but it is in the best interest of the Elk Township to have the flexibility for different development densities and the protection of ground water recharge areas afforded by a public sewage system.

It is recommended that the entire Still Run Watershed should be served by a public sewage system in order to protect the water quality of both the surface streams and the underground water resources of the Township and the entire downstream area.

5. The Need For and Future Location of Solid Waste Disposal Facilities

Every municipality in the country produces solid waste and methods for its disposal have always been a problem. The existing land fill area located just south of Ferrell on Laux Road, although nearing full capacity, will serve Township needs for approximately the next 2 to 3 years.

After that time, the area will have to be expanded or a new site will be required. Site selection must be made carefully to avoid any pollution of ground water or conflict with adjoining municipalities. Ideally, any new area for solid waste disposal should be designed to handle the expected volume of waste for a minimum of twenty years (20 years) and expansion areas should be provided.

5. The Need For and Future Location of Solid Waste Disposal Facilities (continued)

All future solid waste disposal should be closely coordinated with the study being conducted by the Gloucester County Planning Department on solid waste disposal, in accordance with the New Jersey State Law C: 326.

IV. MASTER PLAN

F. Element Six - Community Facilities Plan

1. Introduction

M.L.U.L., C40: 55-D-28, 196 (6). A community facilities plan element showing the location and type of educational or cultural facilities, Historic Sites, Libraries, Hospitals, Fire Houses, Police Stations, and other related facilities, including their relation to the surrounding areas.

The Community Facilities Plan shows the locations of existing and proposed community facilities, including educational and cultural facilities, Historic Sites, Libraries, Hospitals, Fire Houses, Police Stations and related facilities.

Proposals for facility expansion or construction include the construction of a Municipal Garage and the acquisition of more land by the Board of Education adjacent to the Aura Elementary School.

2. Educational Facilities

a. Location and Type

(This section to be co-ordinated with the Elk Township School District Master Plan Document.)

b. Relationship to Surrounding Areas

The Aura School provides a focal point for the residents of Elk Township, particularly the children. It could prove to be an anchor for any effort to have Aura develop into a community center in Elk Township.

3. Cultural Facilities

a. Location and Type

Elk Township, at the present time, has no formal cultural facilities.

b. Relationship to Surrounding Areas

Elk Township is on the fringe of the Camden/Philadelphia metropolitan area, which offers a wide range of cultural attractions. These facilities, plus those of Glassboro State College, help to satisfy the cultural needs of the Township residents.

4. Historic Sites

a. Location and Type

1. The Iredell House No. 1

Moad's Road
This house, which was built in 1788, is located on the ~~Ewan-Bridgeton~~ Road, in Ewan. Thomas Iredell built this house for his first wife, Ann. It is on the New Jersey State Register of Historic Places and is privately owned.

2. The Pine Tavern

The Pine Tavern is located just off Bridgeton Pike (Route 77) in the southwest corner of Elk Township. Originally licensed in 1752 as a Tavern, it was also a place for mail and horses to change hands and a welcome stopover for travelers between Bridgeton and Camden. The frame structure still stands, although it is in very poor condition. It is privately owned.

3. The Aura United Methodist Church

This church, on the Aura-Willow Grove Road, in Aura, was built in 1806 in the northwest corner of the cemetery. In 1878, it was moved to its present location. It is still a church for people of the Township.

b. Relationship to the Surrounding Areas

These three sites have been recognized by the Township's Historical Society and marked with bronze markers. There are a number of other Historic Sites in the Township which have not received official recognition but are still culturally significant.

Historic Sites and their preservation contribute greatly to an area. They promote civic pride and a sense of historic continuity. Elk Township recognizes their importance and should take measures, such as an "historic landmark" Review Committee, to protect these sites from developmental infringements.

5. Libraries

a. Location and Type

There are no public library facilities located in Elk Township. Residents can avail themselves of the facilities at the Glassboro State College, The Delsea Regional High School or Gloucester County Community College.

b. Relationship to Surrounding Areas

The residents of Elk Township have access to three libraries which alleviates, to a large extent, any need for a municipal library. This creates a stronger dependent relationship between Elk Township's residents and these libraries.

6. Hospitals

a. Location and Type

There are no hospitals in Elk Township. The residents are served by the Underwood Memorial Hospital in Woodbury, the Elmer Hospital in Elmer, the Salem County Hospital in Salem, and the Washington Memorial Hospital in Cross Keys.

b. Relationship to Surrounding Areas

The residents of Elk have limited access to Hospital care systems, due to the distance to the Hospitals. The Township's population alone could not support a hospital and the average traveling time of fifteen minutes to the closest hospital is comparable to that in many of New Jersey's cities.

7. Fire Houses

a. Location and Type

1995 All fire-fighting facilities in Elk are small volunteer units. The existing facilities are adequate to handle Elk's needs through 1985. Elk will need to add special equipment as additional industrial and residential uses locate in the Township.

1. The "Ferrell" Fire House

This station is located at the intersection of the Swedesboro-Franklinville Road and the Ferrell-Glassboro Road. It provides sufficient protection to the rural western portion of the Township. The Elk Township Ambulance operates from this location.

2. The "Lawns" Fire House

This fire house is located in the Northwestern area of the Township known as "The Lawns". It serves only "The Lawns" area of the Township and needs to be upgraded with new and/or better equipment.

3. The "Aura" Fire House

This fire house is located near the main intersection in Aura. This fire house serves the northern, eastern and southeastern portions of the Township. The Elk Township ~~Reserve~~ ^{Rescue} Unit operates from this location.

b. Relationship to the Surrounding Area

These three fire houses play an important role in protecting the health and property of Elk Township's residents. As Elk Township grows, it will need to augment its fire protection. It appears that the focal point of Elk's growth will be in the eastern part of the Township along the corridor parallel to Route 55. Therefore, it is recommended that, if Elk Township wishes to maintain the present quality of its fire protection, it should consider the construction of another fire house in its southeastern or eastern part. However, the Township should wait until residential and commercial development clearly warrants an additional facility.

It is recommended that Elk Township consider the possibility of joining with the other Municipalities in the SGCCPD in forming a sub-regional fire district. In this way, expensive specialized equipment could be shared and a centralized dispatcher utilized by all member municipalities.

8. The Township Municipal Building

a. Location and Type

The existing Township Municipal Building on Whig Line will not be adequate to serve the needs of Elk Township, as it grows from being primarily rural in character to being suburbanized, especially in the northern and eastern parts. Additional local government services will require additional office space which is not available in the present structure.

b. Relationship to Surrounding Areas

Although development and growth in the Township is certain, a new municipal building will not be required until the Township begins to add full-time personnel.

8. The Township Municipal Building (Continued)

In order to enhance the community center in Aura, the best location for such a facility would probably be on the site adjacent to the Town Hall. }

9. Police Protection

a. Location and Type

Elk Township's Police Force, which consists of a Police Chief and three Officers, is adequate to handle the minor law enforcement problems in the community. As additional residential and commercial development continues, increased man power will be required to serve the growing community. The present police station is housed in a portion of the municipal building, and it is anticipated that the police department will require expansion at about the same time that the municipal services will out-grow the municipal building. A combination Municipal Building-Law Enforcement Facility would be the logical step with expansion provisions made for the possible inclusion of a library, community center and other public facilities.

10. Municipal Garage

a. Location and Type

Although the Township does not have a municipal garage, the Township recently purchased a tract of about eight acres behind the Town Hall for the construction of garage facility within the next few years. Proper planning of the site with attention given to the construction of a new municipal/law enforcement building could result in an efficient and attractive municipal services complex which would enhance the community center complex for Aura.

IV. MASTER PLAN

G. Element Seven Recreation Plan

1. Introduction

M.L.U.L., C.40: 55D-28, 196(7). A recreation plan element showing a comprehensive system of area and public sites for recreation.

Because of the rural character of Elk Township, there has been limited demand for structured recreational areas; except for the Aura School Playground, no public facilities exist.

Recreation demand has been satisfied by large expanses of undeveloped private and Township land, three private campsites, which are used primarily by non-residents of Elk and large private beach and summer vacation use facilities at Garrison Lake.

Because of the potential for development and population growth, Elk should begin to plan for future demands for active and passive recreation facilities.

2. Existing Recreation Use Areas

Elk Township has no public recreation facilities. There are several private recreation sites in the Township which can be utilized by the public. They include the cottage area and beach around Garrison Lake, the private campgrounds in the western area of the Township near Aura, and several private lake developments.

a. Private Recreation Facilities

1) Garrison Lake is the most significant private recreation area, used extensively by Township residents. Garrison Lake's beach, although privately owned, is open to the public for a small charge. Several concessions are operated, including canoe and paddle boat rentals and a small food stand.

Additional facilities include a very large picnic area and cottages which are rented during the summer.

2) Campgrounds, utilized primarily by persons from outside the Township, are located southeast of Aura between Still Run and Buck Road, on the south side of Reeds Branch, one-half mile west, of the Reading Seashore Line. The camp-

ground south of Reeds Branch, although within the Elk Township borders, is accessible only from Upper Pittsgrove Township off the Elmer-Barnsboro Road.

The three campgrounds are essentially similar with regard to facilities, each accomodating tent and trailer/motor home campers. Additionally, each of the areas are located in or are adjacent to conservation areas, as proposed by this Master Plan.

3. Proposed Recreation Use Areas

There are two major Township owned sites which supply land for the Township's recreational needs. They are the 104.7 acre site on the Ewan-Aura Road and the 388 acre site along Reed's Branch. Both sites are heavily wooded and are mostly within the recommended conservation areas proposed by this Master Plan.

The Ewan-Aura Road site is suited for some active recreation, but both sites should be developed primarily as passive recreation areas. Two alternatives are to develop a site or sites, in "The Lawns" area, in the area south of Silver Lake, or on the area adjacent to the Aura Elementary School grounds.

4. Comprehensive System of Areas and Public Sites for Recreation

Elk Township's rural characteristics have shaped its past recreational pursuits. There has always been more than enough open space to enjoy hunting and fishing, as well as passive recreational activities such as picnicking, sightseeing, and nature walks. However, the Township's growth will necessitate a more systematic approach. The National Recreation and Park Association has developed general guidelines for recreational facilities, which are shown in Table IV G-1.

Applying these guidelines and planning principles to Elk, it is recommended that the Township develop a community park facility which would have three or four softball fields, and other recreational uses.

The concept of a neighborhood park does not apply to a rural township such as Elk. A possible exception might be "The Lawns" area where a playground would be heavily used, and serve as a neighborhood focal point.

However, Elk could certainly use and enjoy a community park. There appears to be four areas that could serve as potential sites.

- a. The first would be to set aside some of the Township owned land in the projected growth areas in the eastern portion of the Township. These sites should have a minimum size of between three and five acres; have a minimum dimension of 300 feet and be level, dry, and partially wooded. Some of the possible sites include:
 - 1) All or a portion of the approximately 20 acres just west of Aura-Glassboro Road north of Stanger Avenue.
 - 2) Assemblage of blocks 166, 167, and 168 south of Stanger Avenue, between Dunbar Blvd. and Marion Street. (Approximately 5 acres)
 - 3) Assemblage of blocks 145 and 148 south of Stanger Avenue between Douglas and Dunbar Streets. (6.6 acres)
 - 4) Assemblage of blocks 50, 51, and 52 just west of West Boulevard between Grant Avenue and Buchanan Avenue. (8 acres)

Because no large township owned tracts exist south of Silver Lake and east of Buck Road, the Township should acquire a parcel in that area for future use. This could be done by outright purchase or by utilizing an open space ordinance.

- b. The second area would be in the immediate vicinity of the Aura Elementary School. This would certainly cement efforts to promote Aura as the Township's community center. The only possible restriction would be the availability of land adjacent to the school ground.
- c. The third recommended location would be the 104.7 acre site owned by the Township, on the Ewan-Aura Road. The tract is presently woodland and, with proper design, could be a beautiful site for a park.
- d. The fourth alternative is to use some of the land that is part of the Township owned 388 acre site along Reed's Branch. There are some problems with this site. It is largely land locked by other properties, has very limited access, and is subject to flooding from Reed's Branch.

Despite these drawbacks, the Reed's Branch site is unique and has many possibilities. The Township should attempt to acquire the lands that would make it a contiguous site. Once this is done, there would be several alternatives. The township could develop the areas which have outside access that are not subject to flooding into a community park and establish the adjoining areas as either sites for passive recreation or preserve it as a wildlife area. Another alternative is to explore the possibility of having the Reed's Branch site developed as either a County or State Park. Either the State or the County might be interested in acquiring this site. Both have expressed interest in preserving Southern Jersey's open space. The problem with this alternative is that it would take control of the site out of the Township's hands, unless a specific contract to this affect was signed when the land changed hands.

Nevertheless, Elk Township is in a very fortunate position. Although it may experience a higher rate of growth than it has ever experienced, it has the land to adequately meet its recreational needs. If certain alternates were pursued, it could develop facilities that would serve sub-regional recreation needs.

It is recommended that the Township develop recreation standards that would be included in its land development and subdivision ordinances. These standards should outline the requirements for open space and recreation areas in conjunction with major residential developments and clustering options.

IV. MASTER PLAN

H. Element Eight - Conservation Plan

1. Introduction

M.L.U.L., C40: 55D-28, 196(8). A conservation plan element providing for the preservation, conservation, and utilization of natural resources, including, to the extent appropriate, open space, water, forests, soil, marshes, wetlands, harbors, rivers, and other waters, fisheries, wildlife, and other natural resources.

The Conservation Plan is based on information provided by the Gloucester County Planning Department, field verification, site analysis and review by qualified environmental planners, landscape architects, and engineers. This information included maps showing soils, flood hazard areas, woodlands, wetlands, and various other types of resource information. Also utilized were the Gloucester County 1975 existing Land Use Maps. The information on these maps was verified and updated from aerial photographs and field observations by professional planners during the summer and fall of 1977.

2. Open Space Resources

a. The preservation and Conservation of Open Space

Elk Township is fortunate to contain extensive areas of undeveloped land and to own approximately six hundred acres. This land is contained in two major parcels.

One parcel, containing 104 acres, is located on the south side of the Ewan-Aura Road and is comprised largely of the watershed of Wrights Branch. Wrights Branch feeds Wrights Mill Pond, and is included in the Headwaters of Raccoon Creek Watershed. This parcel is of value because it has a large area of high ground that is suitable for active recreational uses, which may be developed now, or in later years. The remainder of the parcel has extensive wetlands, an important aquifer recharge area for the northern portion of the Township.

The second site is located in the southern part of the Township and includes most of the wetlands on both sides of Reed's Branch, from the Garrison Lake recreation area westward to a point south of Hardingville.

This site is a collection of more than twenty parcels which were acquired through tax foreclosures. For the most part, these parcels are contiguous. However, by acquiring three additional parcels, totaling 65 acres, it is possible to bring the area together into a single 560 acre parcel that would be three and one-half miles long, and on the average, nearly one-half mile wide.

Careful use of this land should serve to protect the watershed of Reed's Branch and the waters of Garrison Lake, as well as the downstream areas extending through Franklinville to the Maurice River. This area serves as the largest contiguous aquifer recharge area in the Township and is invaluable in protecting ground water levels during extended dry periods.

The best hunting lands of the Township are also found in this area. It contains a wide variety of game animals including most of the species native to Southern New Jersey.

b. Measures to Insure the Preservation and Conservation of Open Space

Elk Township ^{has taken} can take important steps to insure that open space is preserved in the Township.

1) Preserve the Reed's Branch and the Ewan-Aura Road sites as open space in the form of a publicly owned parkland or wildlife preserves.

2) Institute zoning ordinances that will encourage open space preservation through density bonuses.

3) Discourage development on the environmentally sensitive areas of the Township, as shown on the Conservation and Natural Resources Map.

3. Conservation Areas

Lands are designated as conservation areas because any developed land used within these areas is potentially hazardous to health, safety, and welfare of the citizens of Elk Township and other contiguous municipalities.

Conservation areas are defined as having three or more of the following natural features that have unfavorable characteristics and, in some cases, characteristics totally unsuitable for development.

These areas and definitions are consistent with the Natural Resources Planning Study prepared by the Gloucester County Planning Department, June, 1977.

a. Flood Prone Areas

Flood prone areas are relatively flat areas adjoining the channel of a natural stream that have been or may be periodically covered with floodwater and which are required to carry the flow of floodwaters. Flood prone areas are naturally formed and serve as extensions of stream channels during periodic stream overflows.

Flood prone areas delineated on the development constraints maps, which are ancillary to this Master Plan, were taken from data supplied by the U.S. Soil Conservation Service and the Gloucester County Planning Department.

The indiscriminate development of flood prone areas may damage property and adversely affect the areas's natural capacity to carry storm water. Flood prone areas serve the following important natural functions which may be affected if fill or building is allowed to occur within them.

—Serve as flood water storage areas when stream banks overflow.

—Act as sediment traps, removing sediment loads from streams and enriching the soil for agriculture.

—Provide fish and wildlife with food and shelter.

—Help to replenish groundwater supplies and aid in maintaining the base flow of streams during times of drought.

—May serve as a natural linear park system, connecting and enhancing local parks and providing local residents with recreational opportunities.

Although the building of individual structures may not severely affect a flood prone area, the cumulative effect of many small structures along flood prone areas reduce their ability to handle storm water and increase the likelihood of damage to property and human life.

b. Surface Water

Surface water includes streams and their tributaries,

bodies of surface water such as lakes and ponds, and land immediately adjacent to streams and lakes.

Uncontrolled development on stream corridors and along the perimeter of lakes and ponds can result in the sedimentation and pollution of surface water. This would adversely affect the vital functions of streams and lakes including:

- Provide vital protection from floodwaters by transporting and storing storm water run-off.

- Facilitate groundwater recharge.

- Provide an essential element to the existence of fish and wildlife.

- Provide unique recreational opportunities such as: swimming, fishing, canoeing, boating, and picnicking.

Development should be prohibited which would adversely alter the water level and flow of streams and surface water bodies or adversely affect the physical, chemical, or bacteriological standards of surface water.

c. Prime and Critical Wooded Areas

Prime and critical wooded areas are extensive or linear land areas consisting of dense and mature or potentially mature tree growth complemented by various types of plants and other vegetative cover. These areas serve natural protective functions and may consist of deciduous, coniferous, or mixed growth.

Prime and critical wooded areas serve many valuable environmental and social functions that would cease if these areas were allowed to be destroyed, including:

- Trees protect the soil from erosion by holding it in place with their extensive root systems.

- Woodlands situated along streams help to preserve water quality by stabilizing stream banks, and by filtering and trapping sediment before it reaches the stream.

- Woodlands help to enrich and increase the fertility of the soil by contributing humus.

- Woodlands increase the absorption potential of the soil which decreases the amounts of surface run-off that is generated and increases the groundwater supply.
- Woodlands provide food and shelter for wildlife.
- Woodlands effectively serve as park and recreational areas and contribute to an aesthetically pleasing and relaxing environment.
- Woodlands provide a moderating effect on the environment by lowering temperatures and humidity in the summer and lessening wind speed throughout the year.
- Woodlands contribute to air quality by filtering and removing dust, odors, sand, and other polluting particles from the air.
- Woodlands produce oxygen and consume carbon dioxide.

Failure to protect wooded areas when they are situated on or near an important natural resource can be especially costly to an area. For example, trees removed from a streambank may result in increased run-off, erosion, and water degradation.

d. Prime Aquifer and Critical Recharge Areas

Prime aquifers are geologic strata of rock, gravel, or sand underlying large areas of land which store or yield significant amounts of water. Aquifers provide Elk Township with all its drinking and domestic water supply and much of its water for industry.

Critical aquifer recharge areas are those land areas into which surface water and precipitation are absorbed by the soil and moved into underlying prime aquifers. The rate of recharge is dependent on type of soil, density of vegetation, intensity of rainfall and coverage with permeable surfaces.

If land is developed without regard to the aquifers below or without regard to the recharge areas that are essential to maintaining a continuous supply of groundwater, the following adverse impacts are likely to occur:

- Possible loss of future water storage and water supply caused by excessive withdrawal and loss of recharge capacity.

- Possible degradation and contamination of groundwater from industrial activity, organic waste, or saltwater intrusion.

- Possible drying up of streams or possible loss of continuous base flow to streams caused by excessive withdrawal of groundwater during periods of low precipitation.

e. Septic Suitability

The suitability of soils for on-site septic filter fields is an important factor in determining the location of residential development in areas where public sewer service is not available. Not all soils are capable of absorbing liquid sewage effluent or wastewater. Land unsuitable for on-site septic systems are those soils characterized by their slow permeability or percolation, high water table, steep slope, or their close proximity to streams and lakes.

Land suitability for on-site septic systems, as delineated on the development constraints maps, was derived from data supplied by the U.S. Soil Conservation Service and the Gloucester County Planning Board.

The development of on-site septic systems on soils that are not capable of absorbing and filtering effluent in all weather conditions can create environmental health hazards and unsanitary living conditions. Among the negative impacts that may occur due to poor soil conditions for septic systems include:

- Contamination of groundwater and drinking water and pollution of nearby surface water.

- Foul odors caused by the seepage of unfiltered effluent to the surface.

- Improper functioning of toilets and failure of septic systems.

- Higher cost of installation and maintenance of home disposal systems.

Development should not be permitted to occur in areas where the soils are not capable of absorbing and filtering on-site sewage effluent. Unfiltered sewage may contaminate groundwater and adjacent waterways or may create other health hazards such as bad odors and disease. This restriction would not apply to areas that are serviced by adequate municipal or central sewage treatment.

f. Seasonally High Water Table

Seasonally high water table areas are those lands which are characterized with a high water depth of 18 inches or less during some time of the year. Wetlands and flood prone areas are also seasonal high water areas.

Seasonally high water table areas used in the preparation of the development constraints maps were taken from data supplied by the U.S. Soil Conservation Service and the Gloucester County Planning Board.

Seasonally high water table areas have the following impacts:

- Reduce the danger of storm water by serving as detention basins. Run-off is absorbed, stored, and slowly released into adjacent streams and waterways. Development on these areas destroys this natural drainage function, and creates the problem of how to handle run-off that finds its way to these areas.

- Serve as recharge basins permitting precipitation to infiltrate the soil and replenish the soil.

- Are highly susceptible to pollution, if developed. This pollution may be transmitted to adjacent streams and waterways.

- Development on wet areas is undesirable from a construction and financial standpoint. Building on these areas may result in such problems as wet basements and unstable foundations due to soil composition. These problems may be overcome, but are expensive.

g. Erodible Soils

Erodible soils are those soils having severe erosion potential if they are not protected with vegetative cover. The erodibility of a soil is a function of its slope, natural drainage, structure, and run-off characteristic.

The removal of vegetative cover on erodible soils can create serious environmental problems which include:

— Loss of valuable fertile topsoil which is an irreplaceable natural resource.

— Siltation and pollution of streams and water courses.

4. The Utilization of Open Space

The future utilization of open space in Elk Township is important for three reasons. First, future utilization determines, to a large extent, water quality of the Township. If environmentally sensitive lands are abused, residential and manufacturing wastes could pollute the Township's water supplies. This would endanger the health and welfare of the town's people.

Second, haphazard development on the existing open spaces would be detrimental to the rural character of the town. The scenic quality and abundance of wildlife would be endangered.

Finally, the abuse of open space would conflict with the expressed goals of the Township, the County, and the SGCCPD.

5. Water Resources

a. Lakes and Ponds

1. Preservation and Conservation

In addition to the lakes in the Township, there are dozens of small ponds, all of which total 297 acres of water, dotting the area. The largest of these are (the four lakes): Ewan Lake, on the Northwestern border of the Township; Gilman Lake, in the Northwest part of the Township (east of Ellis Mill Road); Omary Lake, also in the Northwestern Park of the Township (east of Mood's Road); Garrison Lake, in the Southwestern corner of the Township; and Silver Lake which forms part of Elk's border with Clayton.

There are also several ponds; Laux Pond, Crowley's Pond and Gant Pond are all in the vicinity of Hardingville and all feed into Gilman's Branch which flows into Gilman's Lake. The other two larger ponds are the Wright's Mill Pond, at the intersection of the Barnsboro-Elmer Road; and the Ewan-Aura Road and Hugh Pond, near the intersection of the Woodstown-Glassboro Road and the Barnsboro-Elmer Road. Other ponds are scattered throughout the Township and are used for irrigation purposes.

The conservation and preservation of the Township's lakes and ponds is a desirable goal. They are excellent sites since they can serve the community year round as both active and passive recreational activities. They contribute significantly to the aesthetic and environmental quality of the community.

The development surrounding the lakes and ponds should be controlled so that the environmental quality of the water is maintained or improved and their recreational value is preserved for future generations.

2. The Utilization of Lakes and Ponds

The utilization of lakes and ponds should be limited to the present uses, namely recreation, irrigation and limited residential infringement.

Under the proposed Land Use Map of Elk Township, industrial and commercial development would not be permitted in the areas of the lakes or ponds. Special care and attention should be paid to the types of residential development permitted. Care should be taken to preserve them as open spaces. Without controls, development pressures might be too strong to do this, especially since lakes and ponds are desirable locations for development. The Township should consider offering incentives (i.e. smaller setback distances) to induce the developer to preserve the lakes and ponds as common open space.

It should be noted that if the bank of a lake or pond lies in a floodplain, it is recommended that no development should be permitted upon it. The importance of floodplains will be discussed in the next section.

b. Rivers and Streams

1. Preservation and Conservation

Elk Township does not have any body of water that is recognized as a river. However, it does have several streams, creeks and branches.

The divide which separates the Delaware River watershed and the Maurice River watershed passes through the center of Elk Township. The branches of Raccoon and Oldmans Creeks drain the northern and western portion of Elk. The eastern and southern parts are drained by Still Run and Reeds Branch.

The areas paralleling these creeks and streams are environmentally sensitive. Their banks form the floodplains that were discussed in the section on open spaces. Floodplains are valuable because they reduce the impact of flooding; they store flood waters and thereby reduce their impact on adjacent lands. Floodplains also absorb the energy of floodwaters which reduces the downstream destruction. In addition, they provide diverse biological habitats that support numerous species of wildlife.

2. The Utilization of Rivers and Streams

The streams of Elk Township also have to be protected from development. It is recommended that only recreational development be permitted on floodplains. This would limit the amount of damage that occurs during the flooding. Additionally, water for irrigation purposes may be obtained, if done from streams, in accordance with applicable State and local laws.

This utilization of the streams and their floodplains would be consistent with the goal of preserving open space. It would also contribute greatly to the maintenance of the environmental quality in the Township by protecting important aquifer recharge areas and preserving important wildlife areas.

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There are wetlands and marshes throughout the Township concentrated around four of Elk Township's creeks. They are: Reed's Branch, West Clayton Branch, Aura Branch, and Still Run.

Wetlands and Marshes play many of the same important roles as floodplains in preserving environmental quality. In addition, they are important spawning grounds for many species of fish.

2. Utilization of Wetlands and Marshes

Development in wetlands and marshes would require extensive landfilling which is both expensive and environmentally destructive. Wetlands and Marshes should be preserved as they are, in order to avoid flooding problems and maintain an ecologically sound environment.

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In Elk Township it is easy to see the interrelationships of the various elements of the environment. Its soils, wetlands, marshes, and forests are very closely related because of the frequency in which they overlap. Therefore, the forests of Elk Township which coincide with wetlands and sensitive soil types should be preserved in order to protect the more sensitive parts of the environment.

2. The Utilization of Forests

The woodlands and forests of the Township can be important as sites to enjoy passive recreational activities. In addition, they are prime areas to enjoy hunting and nature walks.

Because no virgin or mature forests exist in the Township, upland forests that are not contiguous with the flood areas, aquifer recharge areas or other environmentally sensitive areas could be used for commercial industrial or residential development. This development would have to comply with recommended site development and subdivision guidelines and avoid destroying more trees than necessary.

6. Soil Resources

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Three basic soil associations predominate in Elk Township. The most prominent type is the gravelly soil known as the Aura-Sassafras-Downer Association. This soil occurs throughout much of the Township and is especially suited for farming.

The second most prominent soil is the inland, wet soil, that occurs mostly along streams and is known as the Muck-Alluvial Land-Fallington-Pocomote Association. This soil has a high water table and must be drained for farming or development.

The final soil is a brown-clay soil, known as the Keyport-Lenoir-Elkton Association. It occurs in the eastern corner of the Township and is generally not farmed since it is usually too wet or too dry because of its high clay content.

There are two major subsurface formations underlying Elk Township.

Most of the Township, approximately 75%, is underlain by Cohansey Sand. This type of formation is a most productive aquifer. The ground water is readily recharged from rain and surface water movement. This also means that the ground water is susceptible to contamination.

The eastern corner of the Township is underlain by the Kirkwood formation. It is similar in content to Cohansey Sand and subject to the same advantages and disadvantages.

The preservation and conservation of the soils and subsurface formations of the Township are a priority implemented through wise and prudent land use and development.

b. The Utilization of Soils

Elk Township should be aware of the environmental sensitivity of its soils and plan its growth and land use accordingly. Land use should have either sewer service or an area large enough to support its septic system.

7. Fisheries and Wildlife

a. Preservation and Conservation

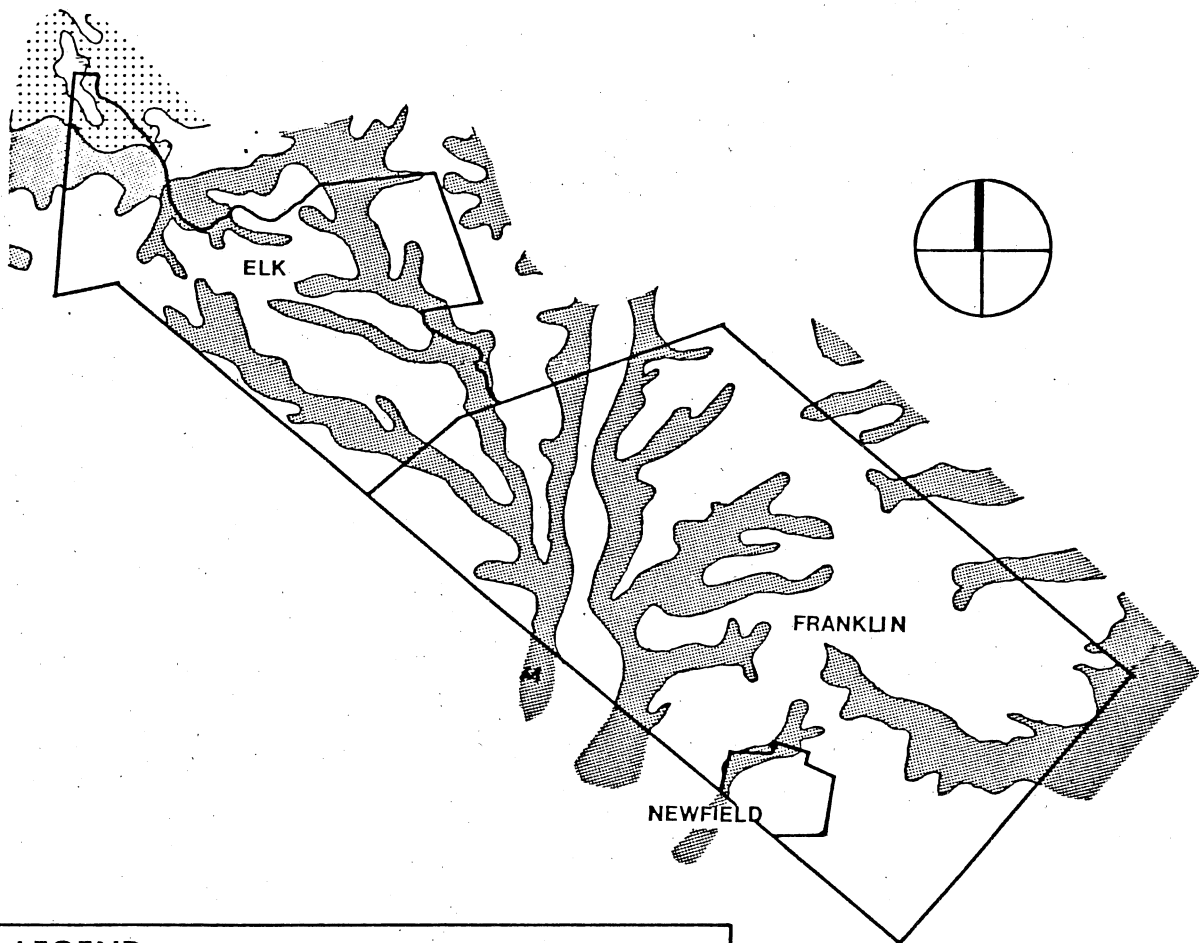
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'the community and provide the residents with a variety of recreational activities. Hunting, fishing, and bird watching are a few of the hobbies enjoyed by the residents. It should be of the highest priority that the wildlife of the Township be allowed the space to live and reproduce.

b. The Utilization of Fish and Wildlife

Fishing and hunting are sports that have long been enjoyed by residents of Elk Township. Many Township residents enjoy just observing the animals of the area. For all these reasons, Elk Township should actively encourage the future preservation of all native species.

SOIL CLASSES MAP



LEGEND

-  Gravelly soils on higher divides: Aura-Sassafras-Downer assoc.
-  Inland wet soils: Muck-Alluvial land-Fallsington-Pocomoke assoc.
-  Gently sloping, brown clay soils: Keyport-Lenoir-Elkton assoc.
-  Nearly level to steep, fine sandy soils: estpl-alia-Nixnton-barclay assoc.

0 2 4 6 miles

IV. MASTER PLAN

H. Element Eight - Conservation Plan

1. Introduction

M.L.U.L., C40: 55D-28, 196(8). A conservation plan element providing for the preservation, conservation, and utilization of natural resources, including, to the extent appropriate, open space, water, forests, soil, marshes, wetlands, harbors, rivers, and other waters, fisheries, wildlife, and other natural resources.

The Conservation Plan is based on information provided by the Gloucester County Planning Department, field verification, site analysis and review by qualified environmental planners, landscape architects, and engineers. This information included maps showing soils, flood hazard areas, woodlands, wetlands, and various other types of resource information. Also utilized were the Gloucester County 1975 existing Land Use Maps. The information on these maps was verified and updated from aerial photographs and field observations by professional planners during the summer and fall of 1977.

2. Open Space Resources

a. The preservation and Conservation of Open Space

Elk Township is fortunate to contain extensive areas of undeveloped land and to own approximately six hundred acres. This land is contained in two major parcels.

One parcel, containing 104 acres, is located on the south side of the Ewan-Aura Road and is comprised largely of the watershed of Wrights Branch. Wrights Branch feeds Wrights Mill Pond, and is included in the Headwaters of Raccoon Creek Watershed. This parcel is of value because it has a large area of high ground that is suitable for active recreational uses, which may be developed now, or in later years. The remainder of the parcel has extensive wetlands, an important aquifer recharge area for the northern portion of the Township.

The second site is located in the southern part of the Township and includes most of the wetlands on both sides of Reed's Branch, from the Garrison Lake recreation area westward to a point south of Hardingville.

This site is a collection of more than twenty parcels which were acquired through tax foreclosures. For the most part, these parcels are contiguous. However, by acquiring three additional parcels, totaling 65 acres, it is possible to bring the area together into a single 560 acre parcel that would be three and one-half miles long, and on the average, nearly one-half mile wide.

Careful use of this land should serve to protect the watershed of Reed's Branch and the waters of Garrison Lake, as well as the downstream areas extending through Franklinville to the Maurice River. This area serves as the largest contiguous aquifer recharge area in the Township and is invaluable in protecting ground water levels during extended dry periods.

The best hunting lands of the Township are also found in this area. It contains a wide variety of game animals including most of the species native to Southern New Jersey.

b. Measures to Insure the Preservation and Conservation of Open Space

Elk Township ^{has taken} ~~can take~~ important steps to insure that open space is preserved in the Township.

1) Preserve the Reed's Branch and the Ewan-Aura Road sites as open space in the form of a publicly owned parkland or wildlife preserves.

2) Institute zoning ordinances that will encourage open space preservation through density bonuses.

3) Discourage development on the environmentally sensitive areas of the Township, as shown on the Conservation and Natural Resources Map.

3. Conservation Areas

Lands are designated as conservation areas because any developed land used within these areas is potentially hazardous to health, safety, and welfare of the citizens of Elk Township and other contiguous municipalities.

Conservation areas are defined as having three or more of the following natural features that have unfavorable characteristics and, in some cases, characteristics totally unsuitable for development.

These areas and definitions are consistent with the Natural Resources Planning Study prepared by the Gloucester County Planning Department, June, 1977.

a. Flood Prone Areas

Flood prone areas are relatively flat areas adjoining the channel of a natural stream that have been or may be periodically covered with floodwater and which are required to carry the flow of floodwaters. Flood prone areas are naturally formed and serve as extensions of stream channels during periodic stream overflows.

Flood prone areas delineated on the development constraints maps, which are ancillary to this Master Plan, were taken from data supplied by the U.S. Soil Conservation Service and the Gloucester County Planning Department.

The indiscriminate development of flood prone areas may damage property and adversely affect the areas's natural capacity to carry storm water. Flood prone areas serve the following important natural functions which may be affected if fill or building is allowed to occur within them.

—Serve as flood water storage areas when stream banks overflow.

—Act as sediment traps, removing sediment loads from streams and enriching the soil for agriculture.

—Provide fish and wildlife with food and shelter.

—Help to replenish groundwater supplies and aid in maintaining the base flow of streams during times of drought.

—May serve as a natural linear park system, connecting and enhancing local parks and providing local residents with recreational opportunities.

Although the building of individual structures may not severely affect a flood prone area, the cumulative effect of many small structures along flood prone areas reduce their ability to handle storm water and increase the likelihood of damage to property and human life.

b. Surface Water

Surface water includes streams and their tributaries,

bodies of surface water such as lakes and ponds, and land immediately adjacent to streams and lakes.

Uncontrolled development on stream corridors and along the perimeter of lakes and ponds can result in the sedimentation and pollution of surface water. This would adversely affect the vital functions of streams and lakes including:

- Provide vital protection from floodwaters by transporting and storing storm water run-off.
- Facilitate groundwater recharge.
- Provide an essential element to the existence of fish and wildlife.
- Provide unique recreational opportunities such as: swimming, fishing, canoeing, boating, and picnicking.

Development should be prohibited which would adversely alter the water level and flow of streams and surface water bodies or adversely affect the physical, chemical, or bacteriological standards of surface water.

c. Prime and Critical Wooded Areas

Prime and critical wooded areas are extensive or linear land areas consisting of dense and mature or potentially mature tree growth complemented by various types of plants and other vegetative cover. These areas serve natural protective functions and may consist of deciduous, coniferous, or mixed growth.

Prime and critical wooded areas serve many valuable environmental and social functions that would cease if these areas were allowed to be destroyed, including:

- Trees protect the soil from erosion by holding it in place with their extensive root systems.
- Woodlands situated along streams help to preserve water quality by stabilizing stream banks, and by filtering and trapping sediment before it reaches the stream.
- Woodlands help to enrich and increase the fertility of the soil by contributing humus.

— Woodlands increase the absorption potential of the soil which decreases the amounts of surface run-off that is generated and increases the groundwater supply.

— Woodlands provide food and shelter for wildlife.

— Woodlands effectively serve as park and recreational areas and contribute to an aesthetically pleasing and relaxing environment.

— Woodlands provide a moderating effect on the environment by lowering temperatures and humidity in the summer and lessening wind speed throughout the year.

— Woodlands contribute to air quality by filtering and removing dust, odors, sand, and other polluting particles from the air.

— Woodlands produce oxygen and consume carbon dioxide.

Failure to protect wooded areas when they are situated on or near an important natural resource can be especially costly to an area. For example, trees removed from a streambank may result in increased run-off, erosion, and water degradation.

d. Prime Aquifer and Critical Recharge Areas

Prime aquifers are geologic strata of rock, gravel, or sand underlying large areas of land which store or yield significant amounts of water. Aquifers provide Elk Township with all its drinking and domestic water supply and much of its water for industry.

Critical aquifer recharge areas are those land areas into which surface water and precipitation are absorbed by the soil and moved into underlying prime aquifers. The rate of recharge is dependent on type of soil, density of vegetation, intensity of rainfall and coverage with permeable surfaces.

If land is developed without regard to the aquifers below or without regard to the recharge areas that are essential to maintaining a continuous supply of groundwater, the following adverse impacts are likely to occur:

- Possible loss of future water storage and water supply caused by excessive withdrawal and loss of recharge capacity.
- Possible degradation and contamination of groundwater from industrial activity, organic waste, or saltwater intrusion.
- Possible drying up of streams or possible loss of continuous base flow to streams caused by excessive withdrawal of groundwater during periods of low precipitation.

e. Septic Suitability

The suitability of soils for on-site septic filter fields is an important factor in determining the location of residential development in areas where public sewer service is not available. Not all soils are capable of absorbing liquid sewage effluent or wastewater. Land unsuitable for on-site septic systems are those soils characterized by their slow permeability or percolation, high water table, steep slope, or their close proximity to streams and lakes.

Land suitability for on-site septic systems, as delineated on the development constraints maps, was derived from data supplied by the U.S. Soil Conservation Service and the Gloucester County Planning Board.

The development of on-site septic systems on soils that are not capable of absorbing and filtering effluent in all weather conditions can create environmental health hazards and unsanitary living conditions. Among the negative impacts that may occur due to poor soil conditions for septic systems include:

- Contamination of groundwater and drinking water and pollution of nearby surface water.
- Foul odors caused by the seepage of unfiltered effluent to the surface.
- Improper functioning of toilets and failure of septic systems.
- Higher cost of installation and maintenance of home disposal systems.

Development should not be permitted to occur in areas where the soils are not capable of absorbing and filtering on-site sewage effluent. Unfiltered sewage may contaminate groundwater and adjacent waterways or may create other health hazards such as bad odors and disease. This restriction would not apply to areas that are serviced by adequate municipal or central sewage treatment.

f. Seasonally High Water Table

Seasonally high water table areas are those lands which are characterized with a high water depth of 18 inches or less during some time of the year. Wetlands and flood prone areas are also seasonal high water areas.

Seasonally high water table areas used in the preparation of the development constraints maps were taken from data supplied by the U.S. Soil Conservation Service and the Gloucester County Planning Board.

Seasonally high water table areas have the following impacts:

- Reduce the danger of storm water by serving as detention basins. Run-off is absorbed, stored, and slowly released into adjacent streams and waterways. Development on these areas destroys this natural drainage function, and creates the problem of how to handle run-off that finds its way to these areas.

- Serve as recharge basins permitting precipitation to infiltrate the soil and replenish the soil.

- Are highly susceptible to pollution, if developed. This pollution may be transmitted to adjacent streams and waterways.

- Development on wet areas is undesirable from a construction and financial standpoint. Building on these areas may result in such problems as wet basements and unstable foundations due to soil composition. These problems may be overcome, but are expensive.

g. Erodible Soils

Erodible soils are those soils having severe erosion potential if they are not protected with vegetative cover. The erodibility of a soil is a function of its slope, natural drainage, structure, and run-off characteristic.

The removal of vegetative cover on erodible soils can create serious environmental problems which include:

— Loss of valuable fertile topsoil which is an irreplaceable natural resource.

— Siltation and pollution of streams and water courses.

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The future utilization of open space in Elk Township is important for three reasons. First, future utilization determines, to a large extent, water quality of the Township. If environmentally sensitive lands are abused, residential and manufacturing wastes could pollute the Township's water supplies. This would endanger the health and welfare of the town's people.

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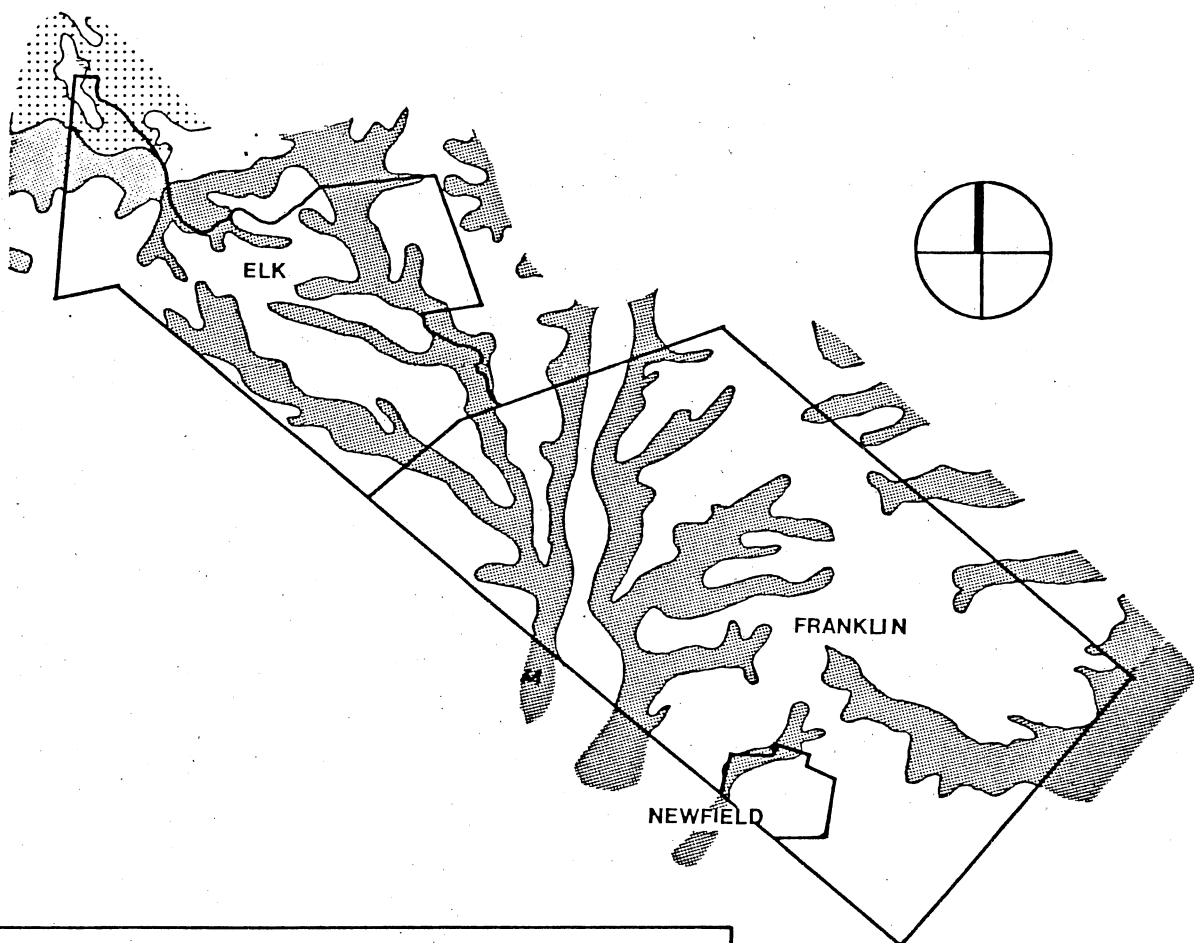
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SOIL CLASSES MAP



LEGEND

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0 2 4 6 miles



V. APPENDICES

M.L.U.L., C40: 55D-28, 196 (9). Appendices or separate reports containing the technical foundation for the Master Plan and its constituent elements.

A. MARKET RESEARCH STUDY

B. TRAFFIC AND INTERSECTION STUDY

August 19, 1977

Mr. Peter H. Brown
Brown/Sullivan Associates
2314 Market Street
Philadelphia, Pennsylvania 19103

Dear Mr. Brown:

The purpose of this letter is to set forth our estimate of the development potentials for a retail shopping center in the general area of the interchange of proposed Route 55 and Buck Road in Elk Township. The analysis set forth below is based upon the assumption that a full interchange will be constructed at this location providing for on-off movements for both north and south-bound traffic.

Primary Service Area. The primary service area for this location would include portions of southern and central Gloucester County, including the Townships of Franklin, Elk, Harrison, South Harrison, Pitman, Glassboro, and Clayton, and Newfield Borough. This primary service area is posited on the basis that shoppers living substantially north of Glassboro/Pitman would be more likely to drive north and patronize shopping facilities in the general area of Deptford, rather than travel south to Elk Township. On the other hand, shoppers living in southern Gloucester County lack a major retail center, and would probably heavily patronize a new facility located as above.

Secondary Service Area. A center at this location would also draw some shoppers from eastern Salem County and northern Cumberland County. However, travel times and traffic routes which favor north-south movements as opposed to east-west movements tend to limit market penetration in these areas.

Primary Service Area Demand. Table One attached shows the 1970 population in the primary service area, and projections for 1980 and 1990 prepared by the Delaware Valley Regional Planning Commission. In general, these data show a base population of about 45,000 in the primary service area growing at a moderate rate to about 54,000 in 1990. Table Two attached shows per capita retail demand for various types of goods which comprise the primary sales of typical shopping centers. These merchandise lines include food sales, food service at

Mr. Peter H. Brown
August 19, 1977
Page 2

restaurants, clothing, and general merchandise. These are based on families with typical incomes of between \$15,000 and \$20,000 in 1976 dollars. This is probably higher than current median family incomes in the primary service area, but will probably closely approximate median family income in 1980.

Table Three attached then calculates aggregate retail demand by multiplying population and per capita retail expenditures by typical families of this income level. As shown here, aggregate retail demand in the primary service area was about \$72 million in 1970 (stated in 1976 dollars) and will increase to \$83 million in 1980 and \$86 million in 1990.

Retail competition in the Primary Service Area. Southern Gloucester County is not served at present by any large concentration of retail activity, except for Glassboro. Instead, retail shops and stores tend to be scattered over a wide area along major routes. Therefore, it is likely that a concentration of retail activity located at a key interchange on a regional transportation route would pull well within this market, assuming it were well-designed and tenanted by stores with reasonably effective marketing and promotion efforts, and merchandise keyed to local needs.

Development Potentials. A well-designed and well-located retail center offering a full cross-section of merchandise lines would be able to capture between 25% and 30% of retail sales in this market at maximum. Using this capture rate, total retail sales potential at the proposed location are in the range of \$20-25 million from the primary service area in 1980. Stores in such a center would include a major super-market, junior department store, and smaller shops offering both general merchandise and convenience goods, as well as banking facilities. In general, the merchandise lines would be those which would meet the needs of moderate income families, concentrating in moderately priced merchandise and services. These types of stores typically must generate sales volumes of at least \$200 per square foot of leaseable space, and preferably \$300 per square foot, on average.

Based upon this factor applied to total retail sales potential, the total supportable retail development based upon the primary market area demand would be in the range of 80,000 to 120,000 square feet.

Sales to the secondary market area, taking typical shopping center sales rates by distances of shopper travel, would support another 30,000 to 40,000 square feet of retail space. Therefore, total retail development potentials at this location are in the range of 120,000 to 160,000 square feet, in our opinion, effective as soon as the new highway is completed throughout its planned route in Gloucester County.

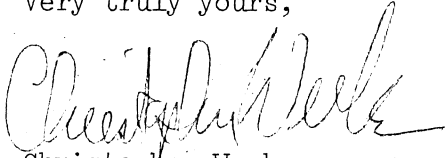
Constraints. The development potentials set forth above should be evaluated in light of several considerations which could alter them significantly. These are:

1. Should another major retail center be developed in south central Gloucester County, the development potentials at this site would be substantially reduced. If another center of over 100,000 square feet were developed along the lines described above, it could effectively pre-empt the market, nullifying potentials at this site.
2. Retail demand from the secondary market area is particularly susceptible to pre-emption by a competing center at another location in Salem or Cumberland County. A strong retail center close to, but just outside Gloucester County, could reduce potentials at this site by up to 50%.
3. The analysis herein is based upon a relatively brief reconnaissance of the site and this market. It is not sufficient to provide the detail which a developer or major tenant would require in order to evaluate this location and market.
4. The development potentials set forth above assume that the development would be undertaken and managed by an experienced shopping center developer with strong marketing and development skills. It also assumes that a substantial mass of retailing activity will be developed at one single time in a coordinated retail program. Development of this site in "bits and pieces" without overall coordination in plan, leasing, and promotion would also substantially reduce development potentials.

Mr. Peter H. Brown
August 19, 1977
Page 4

It has been a pleasure to carry out this assignment for you, and we stand ready to extend and deepen it as appropriate to the needs of the local communities involved.

Very truly yours,



Christopher Weeks

Enclosures

TABLE 1

POPULATION PROJECTION
SOUTH CENTRAL GLOUCESTER COUNTY

<u>Township</u>	<u>1970-Actual</u>	<u>1980</u>	<u>1990</u>
<u>Southern Area</u>			
Franklin	8,990	10,281	10,739
Newfield	1,487	1,539	1,463
Elk	2,708	3,064	3,169
Harrison	2,683	3,538	4,139
South Harrison	<u>1,227</u>	<u>1,268</u>	<u>1,203</u>
Sub-total	17,095	19,690	20,713
<u>Central Area</u>			
Pitman	10,257	11,141	11,109
Glassboro	12,939	14,946	15,747
Clayton	<u>5,193</u>	<u>6,101</u>	<u>6,519</u>
Sub-total	28,389	32,188	33,375
TOTAL	45,484	51,878	54,088

SOURCE: Delaware Valley Regional Planning Commission Areawide Waste Treatment Management Programs, March, 1977

TABLE 2

TYPICAL PER CAPITA RETAIL EXPENDITURES

Families with pre-tax income of \$15,000-\$20,000 in 1976
Average Household Size - 3.0 individuals

<u>Total Living Expense</u>	<u>\$3,555</u>
Food and Eating and Drinking	765
Clothing	289
Recreation	299
Other general retail	249
Total General Retail Expense - per capita	\$1,602

SOURCE: Consumer Expenditure Survey Series: 1972-1973
adjusted by Planalysis, Inc.

TABLE 3

TOTAL RETAIL SALES POTENTIALS
SOUTH CENTRAL GLOUCESTER COUNTY
(constant 1976 dollars)

	<u>Population</u>	x	<u>Per Capita Retail Demand</u>	=	<u>Demand</u>
1970	45,484		\$1,602		\$72,865,000
1980	51,878		\$1,602		\$83,109,000
1990	54,088		\$1,602		\$86,649,000

SOURCE: Planalysis estimates

ELK TOWNSHIP
TRAFFIC ANALYSIS

COMPLETED BY
JOSEPH W. MCMAHON, P.E.
TRANSPORTATION ENGINEER

IN CONJUNCTION WITH
SOUTHERN GLOUCESTER COUNTY
COOPERATIVE PLANNING DISTRICT
MASTER PLAN STUDIES

BY
BROWN/SULLIVAN, ASSOCIATES

SEPTEMBER, 1977

INTRODUCTION

In conjunction with Master Planning studies for the Southern Gloucester County Cooperative Planning District (SGCCPD), Brown/Sullivan, Associates have commissioned Joseph W. McMahon, P.E., Transportation Engineer to complete an analysis of present and future traffic in Elk Township. The objective of the analysis is two-fold:

1. To provide an overview of the present traffic situation, identifying existing problem areas and presenting potential solutions; and
2. To determine future transportation needs in light of anticipated growth in the Township through 1990, and the impact which the Route 55 Freeway will have on the area.

This report is therefore divided into two parts. The first presents existing conditions including description of the highway network, traffic counts, and accident data as well as a summary of existing problem/opportunities, and recommended solutions. The second summarizes future township growth, traffic increases associated with this growth, and recommendations for traffic improvements to properly accommodate the additional traffic demand.

EXISTING TRAFFIC CONDITIONS

Traffic conditions presently reflect the predominantly rural nature of Elk Township. This is evident not only in the geometric configuration and functioning of the community's highway network, but also in the magnitude of traffic volume and type of accidents.

High Magnitude

Elk Township's highway network includes only one state route (NJ 77) with most of the Township's traffic being carried on County Roads. Functionally, the Township's roads — all of which operate two traffic lanes — link crossroad activity centers such as Aura, Ferrell, and Hardinville through rural countryside. All intersections in the Township are controlled by stop signs, with supplementary flashers at two high accident locations on Buck Road.

The major routes in the Township include NJ 77, Buck Road (County Road 553), Swedesboro-Franklinville Road (538), and Aura-Willow Grove Road (667). Buck Road and Swedesboro-Franklinville Road carry the county's 500-series identification as inter-county routes.

Generally, the roads in the Township are maintained in good condition with NJ 77 and Buck Road providing wider lanes and paved shoulders.

Traffic Counts

Existing traffic patterns were developed from a combination of counts conducted by the Delaware Valley Regional Planning Commission, the New Jersey Department of Transportation and the Gloucester County Engineer's office. Figure 1 illustrates the rural character of the Township by virtue of the relative magnitude of 1977 daily traffic volumes. The highest volumes range from 4,000 to 4,600 vehicles per day and are found on NJ 77 and Buck Road. The only other location where volumes exceed 2,000 vehicles per day is in Aura and on Aura-Clayton Road east of Buck Road. Throughout the remainder of Elk Township 1977 average daily traffic volumes range from 400 to 1600 vehicles per day.

Accident Data

Accident information compiled by the Gloucester County Planning Commission was supplied in graphic and tabular form for the period January 1975 to July 1976. A total of 16 intersections were plotted involving 45 accidents. Of these, 22 involved injuries to 43 persons. Fortunately, there were no fatalities during the period.

Two locations were found to have an accident severity rating using the County's weighting system (property damage = 1 point; injury = 3 points; fatality = 8 points) with a range from 21 to 40. This classification is the second lowest of six groupings used by the County. All other locations in the Township fall in the lowest severity ranking category. The two intersections fall in the second lowest severity grouping were Buck/Clayton-Aura Roads which had 13 accidents and a severity rating of 39; and Buck/Swedesboro-Franklinville Roads which had 8 accidents and a severity rating of 27.

At Buck Road/Clayton-Aura Road, an analysis of accidents conducted by Gloucester County indicated that people were not seeing the stop sign. It was concluded that a flashing warning light would relieve the hazardous situation at this intersection. The flasher was put into operation Thursday, September 22, 1977, and should be monitored closely to determine if accidents are reduced. Other problems at this location include: obstruction of vision of westbound Clayton-Aura Road traffic by a house located on the North-east corner of the intersection; obstruction of eastbound motorists' vision by a utility pole, fence, and tree on the northeast corner. This latter problem is compounded by the fact that the eastbound approach from Aura is at a lower elevation than Buck Road thereby further obscuring the motorists' vision.

A flasher warning light was also installed in late 1975 at the Buck Road intersection with Swedesboro-Franklinville Road. The recent accident experience at this location was not supplied for this analysis. Within the last two months, a fatal accident

occurred at this intersection. However, the County's Traffic Engineer indicated that a compound problem exists in this location wherein Buck Road traffic ignores the stop sign and Swedesboro-Franklinville Road motorists consistently exceed the 50 mph posted speed limit.

Present Problems/Opportunities

Clearly, from the traffic data presented above, there are presently no capacity-related problems on the highways of Elk Township. On the other hand, an opportunity to adequately plan for the construction of the route 55 freeway is provided. (The recommendation relative to this opportunity will be presented in the report section dealing with the future traffic analysis.)

The accident experience at the two intersections cited in the foregoing section warrant close scrutiny to determine if the flasher installations relieve accident problems.

The intersection of Aura-Clayton and Aura-Willow Grove Roads is a potential problem area which is compounded by the Pennsylvania-Reading Seashore Lines grade crossing of both roads. The accident experience at this location is not severe, however, so an immediate action solution would not seem to be warranted.

A final problem area is at Garrison Lake off Buck Road where summer recreational traffic creates backups along Buck Road towards the Swedesboro-Franklinville Road intersection.

Recommendations For Immediate Action

With regard to existing problem areas, the following recommendations are warranted:

Buck Road/Clayton-Aura Road

- Monitor any changes in accident rates resulting from recently inaugurated flasher operation.
- Investigate possibilities of moving utility pole on east-bound approach from Aura and trimming trees on North Buck Rd.
- Determine driver observance of speed limit on Buck Road and stop signs on Clayton-Aura Road and inaugurate strict enforcement policies if warranted.
- If foregoing solutions do not reduce accidents, the need for a traffic signal should be investigated through the County Traffic Engineer and NJ DOT. Also evaluated should be less severe remedies such as reducing Buck Road speed limit and/or permitting the intersection to operate as a four-way stop.

Buck Road/Swedesboro Franklinville Road

- Accident experience changes should be monitored in combination with studies of compliance with speed limit and stop sign regulations.

- If warranted, strict enforcement policies should be instituted and publicized to encourage compliance.
- Other measures such as reversing streets stopped, reducing speed limits, additional warning signs and traffic signal installation should be evaluated in conjunction with the County Traffic Engineer and NJ DOT.

Buck Road At Garrison Lake

- For summer peak recreation days, operations should be set up to get cars off of the traveled lanes as expeditiously as possible.
- Cars should be routed to parking spaces as far away from the roadway as possible.
- A lane should be set up on the shoulder of the road to provide storage for cars waiting to park. The lane could be established through use of rubber cones and/or off-duty police traffic control.

ANALYSIS OF FUTURE TRAFFIC

This element of the Elk Township analysis involves estimation of the impact of future traffic under an assumed Master Plan concept which reflects the growth-generating capabilities of the completion of the Route 55 freeway. The time frame assumed for the analysis is 1990. By this time, Route 55 should be operational; the US 322 Freeway is not expected until the year 2000, if inaugurated.

Future Growth

Based on the foregoing highway assumption and the completion of the South Gloucester County sewer project, estimates of population, dwelling unit and commercial and industrial growth were developed and provided for the traffic analysis. These forecasts include:

- A 60% increase in population from 1975 to 1990 (from 2933 to 4735 persons).
- An addition of 120,000 square feet of commercial floor space, in the area of the Route 55/Buck Road interchange.
- Development of 50 acres of industrial land in the area of Buck Road between Glassboro and Clayton-Aura Road.

Future Traffic

Based on existing usage of land, it is estimated that a total of 12,200 vehicular trips are presently generated per day in Elk Township. An additional 17,300 trips, representing an approximate 140% increase in traffic, would be expected to be generated by the residential, commercial, and industrial growth cited above.

These vehicular trips, were distributed through the area and assigned to the future roadway system. They were then combined with existing traffic flows to yield the volumes in Figure 2.

The impact of future traffic growth is focused on the Buck Road interchange on Route 55. The interchange will carry almost 11,000 vehicles per day in 1990, a volume approximating the entire 1977 traffic generated by Elk Township. Immediately north of Route 55, Buck Road will increase almost fourfold over 1977 to 15,500 vehicles per day. South of the interchange, volumes would be expected to reach 10,200 vehicles per day. Volumes decrease as distance from the interchange increases and traffic drops off at intersecting roads and relatively intense developments expected to concentrate in the vicinity of the interchange. North of Clayton-Aura Road, 1990 Buck Road traffic would approximate 11,500 vehicles per day, an almost threefold increase of 1977 traffic.

Volume on many routes will be double what they are in 1977. However, to keep future traffic impacts in perspective, it should be noted that, except for Buck Road, all Elk Township roadways will still carry less than 5,000 vehicles per day.

Future Recommendations

An awareness of the potential increase in Elk Township traffic by 1990 offers an excellent opportunity to program needed improvements before development pre-empts this possibility. This analysis also affords Elk Township the opportunity to establish an access policy which would avoid the development of strip commercial found along many stretches of Delsea Drive. The following recommendations reflect the foregoing opportunities:

- Buck Road should be reconstructed to four lanes from Glassboro to a point south of its intersection with Swedesboro-Franklinville Road.
- The Buck Road intersections with Clayton-Aura and Swedesboro Roads should be signalized and the various approaches redesigned in compliance with requirements of TOPICS (1) — type improvements.
- The two diagonal intersections of Aura-Willow Grove Road with Buck Road and Swedesboro-Franklinville Road should be eliminated in favor of 2-90° intersections which will omit the diagonal connection between these routes.
- Access to private properties on Buck Road should be limited to as few locations as possible; commercial facilities should be grouped to utilize a minimum number of access points.

(1) TOPICS is the acronym for the federally-funded Traffic Operations Program to Increase Capacity and Safety.

- Due to potentially increased seasonal recreational activity at Garrison Lake, it is proposed that Buck Road be widened to four lanes as far south as the access drives to Garrison Lake parking facilities.
 - A traffic signal should be installed at the intersection of Clayton-Aura and Willow Grove-Aura Roads.
-

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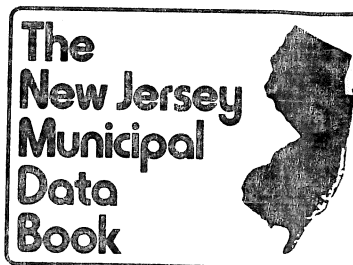
ELK TOWNSHIP GLOUCESTER

DEMOGRAPHICS

Population	Age, 1980	
1970: 2,707	under 5 yrs:	241
1980: 3,187	5-17 yrs:	709
1986: 3,414(est)	18-64 yrs:	1,890
	65 & over:	347
Race, 1980	Median age:	31.0
White: 2,428		
Black: 715		
AmerIn.: 5	Sex, 1980	
AsnPI.: 5	Male:	1,564
Other: 34	Female:	1,623
Hispn.: 29		
Per Capita Income, 1985: 9,631	High School Grads. 1980: 59.5%	

MUNICIPAL SERVICES

<u>Police</u>	Chief: Joseph Razze
	No. Emp: 7
	Crime Rate: 24.3
	Vlt Crm Rt: 1.8
<u>Fire</u>	Chief: 3 districts
	Fire fighters: 90v
<u>Water & Sewer</u>	
	Pipe Wtr: None
	San Sewer: None
<u>Library</u>	
	Director: --
	Books: --



REAL PROPERTY

Total Housing Units, 1980: 1,293
Real Property Valuation, 1986
Class # Parcels % Val'n
Vacant 445 4.53
Resid. 950 72.71
Farm 385 17.47
Commr. 27 4.70
Indus. 1 .57
Apts. -- --
Total 1,808
Building Permits Issued, New Residential Construction
Sgl. Fm. Total
1984 14 14
1985 22 22
1986 18 18

DESCRIPTION

Size: 19.60
Density: 162.6
Type: Township
Address: Glassboro-Woodstown Rd.
Monroeville08343
609-881-0913

GOVERNMENT

Form: TC

OFFICIALS

Mayor: George Hobb
Adm/Mgr: --
Clerk: Caroline T. Beattie
Attorney: Eugene Chell
Assessor: Bruce Coyle
Bldg Of: Harry Moore
Engineer: James F. Sickels
Trs/MFO: Angelo Bersani

DEBT

Total Issued and Outstanding, 1986: \$150,000.00
Debt Service Per Capita, 1986: \$18.44
Moody's Rating: --
S&P Rating: --

TAXES

	1985	1986	1987
General Tax Rate per \$100	1.94	2.26	2.71
Net Valuation Taxable	66,082,148	65,567,277	67,883,419
State Equalized Value	61,360,951	65,496,775	75,843,259
County Equalization Ratio	115.18	107.82	100.11
State Equalization Ratio	107.82	100.11	89.32

FINANCIAL

	1984	1985	1986
TOTAL REVENUES			
Property Tax	1,741,073.98	1,915,246.32	2,189,998.65
State Aid	1,039,687.68	1,140,570.27	1,332,807.99
Federal Aid	19,819.76	20,604.64	90,266.82
	--	--	7,356.61
TOTAL EXPENDITURES	1,847,736.09	1,918,171.26	2,205,673.11
Municipal Functions	668,244.62	630,719.88	803,215.71
Capital Improvements	10,000.00	--	5,000.00
Debt Service - Principal	--	--	50,000.00
Debt Service - Interest	--	11,426.22	12,963.89
Total Tax Levy per Capita	357.32	380.66	447.80
Percent Tax Levy Collected	86.16	88.85	87.19

SCHOOL SYSTEM

Pres., Bd. of Ed.: Katherine Barbaro	Plan: K-6	District Enrollment
Sec., Bd of Ed.: Marie C. Filippello	Clstrm. Tch. 1985: 20	1983: 322.6
Supt. of Schools: James Davis (Adm Prin)	Bldg. Own. 1977: 1	1984: 325.1
Address: Box 338, R.D. #1	Clstrm. Used 1977: 20	1985: 337.1
Glassboro 08028		
609-881-4551		

SCHOOL BUDGET

	1982-83	1983-84	1984-85
Total Revenues	835,563	884,612	925,385
Total Expenditures	785,489	902,426	956,114
Cost Per Pupil	2,378.69	2,749.26	2,762.00