

**LAND
USE
DEVELOPMENT
PLAN
1978**

COPY

**TOWNSHIP
OF LOWER
Cape May County
New Jersey**

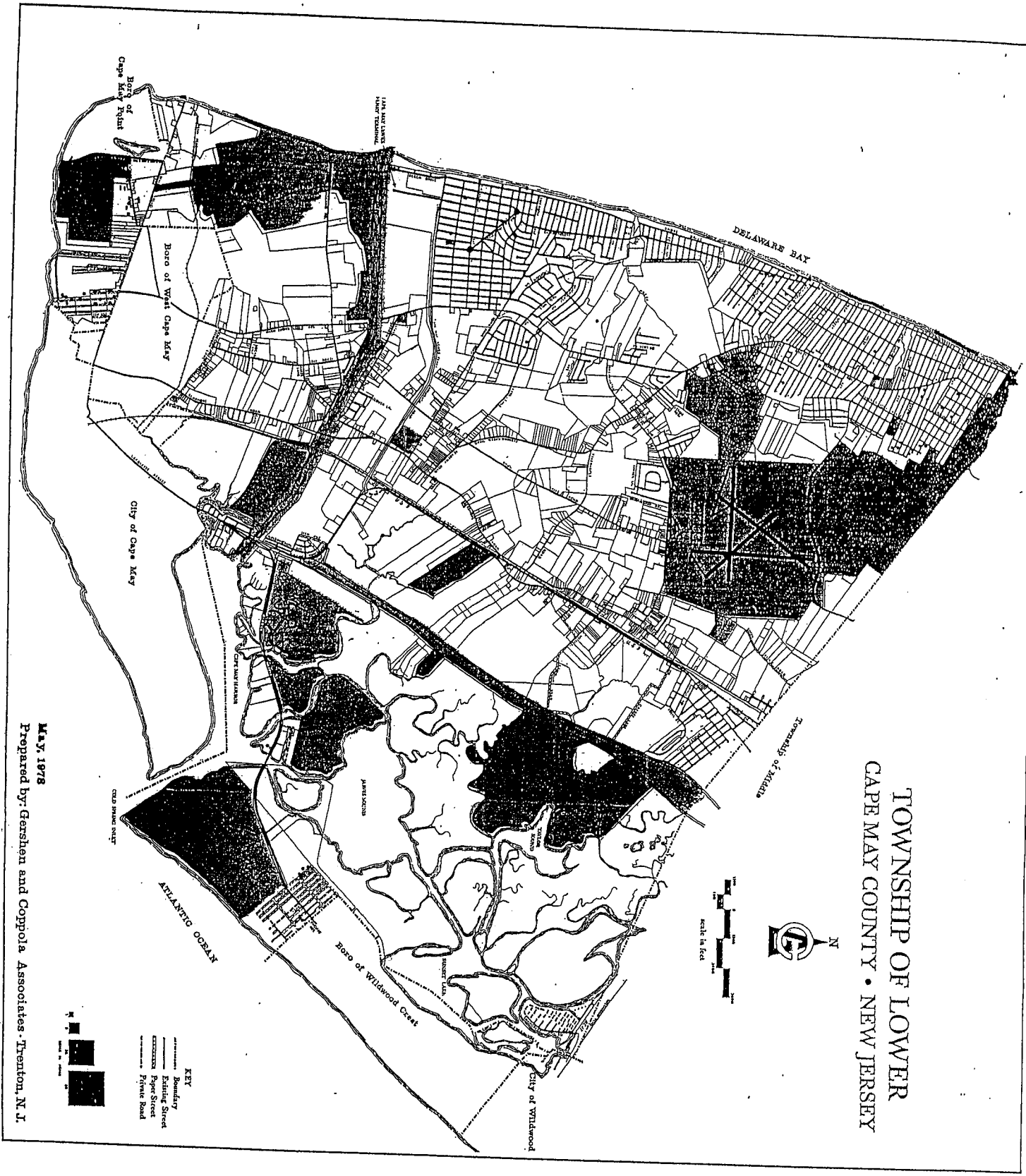
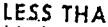


**plate 2
PUBLICLY OWNED LANDS**

 ONE ACRE OR MORE
 LESS THAN ONE ACRE
 (Approximately 4,236 acres.)

SOURCE: Lower Township Tax Maps.

The holdings of the County of Cape May consist primarily of the park and airport, two sizeable tracts amounting to nearly 1,500 acres, while the State of New Jersey owns approximately 1325 acres of wetlands and open space and, of course, the Parkway. Federally owned lands amount to over 1,000 acres including the U.S. Coast Guard Electronic Engineering Station and acreage along the Cape May Canal and at the mouth of the Delaware Bay. In addition to lands owned by the federal government, the State and the County, there are numerous parcels owned by the Township of Lower, by the Lower Township Municipal Utilities Authority or by the two Boards of Education which serve the township's school children. The relatively large percentage of Lower Township's land area owned by public agencies has both advantages and disadvantages. Generally, although the land has been removed from the tax rolls, a good deal of it is wetlands or marshes and thus undevelopable anyway. Furthermore, the large quantities of publicly owned land provide open spaces which can serve to offset and buffer potentially intensive development of suitable privately owned land.

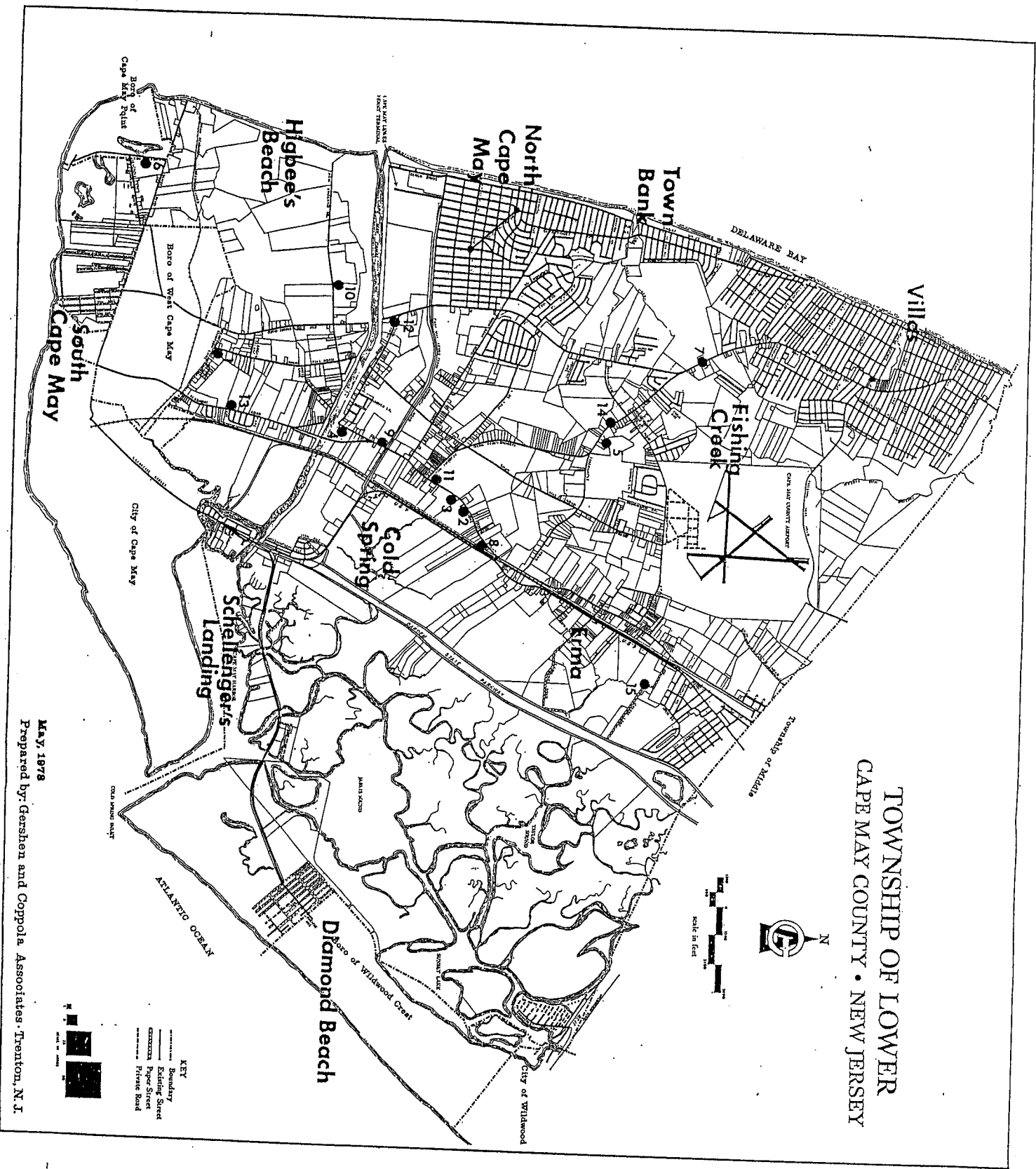
AGRICULTURAL LANDS

The degree of industrialization existing in the State of New Jersey tends to obscure the economic importance of its agriculture. New Jersey's farmers are forced to operate in the midst of the most urbanized state in the nation. However, in response to pressures for urbanization, New Jersey farmland acreage decreased rapidly between the years of 1954 and 1968. To combat this alarming loss of farmland, New Jersey voters approved the Farmland Assessment Act in 1964 with the intent of permitting farmers to continue their agricultural livelihoods without paying excessive property taxes. Plate 3 shows the properties in Lower Township currently in farmland assessment. As is obvious from the plate, parcels which qualify for farmland assessment are clustered to the southeast of the Cape May County Airport in the vicinity of U.S. Route 9, and also south of the Cape May Canal.

Encouraging the retention of lands in agricultural use serves two valuable functions for Lower Township: first, it compensates for the heavy demands created by the tourist industry during the summer months on water supply and sewage disposal capacity by at least temporarily preserving from development large tracts of land which might compete for these amenities, meanwhile enhancing the aesthetic environment sought by campers and tourists; and second, it allows food to be produced locally, which, if also sold locally, reduces transportation costs and keeps prices down.

WOODED AREAS

Plate 4 delineates the wooded areas within Lower Township. As indicated, a substantial proportion of the community is currently wooded. Woodlands serve important functions as wildlife habitats, as buffers between incompatible land uses, as deterrents



TOWNSHIP OF LOWER
CAPE MAY COUNTY • NEW JERSEY

plate 5
HISTORIC SITES AND LOCATIONS

- | | |
|-----------------------------------|------------------------------------|
| 1 ANDREW HIGGINS REEVES HOUSE | 8 EDWARD WINCHELL HOUSE |
| 2 CAPTAIN GEORGE HILDRETH HOUSE | 9 JACOB SPICER HOUSE |
| 3 MRS. JOHN C. VERMERAN RESIDENCE | 10 JAMES RANEY HUGHES HOUSE |
| 4 DANIEL BEESLEY HUGHES HOUSE | 11 COLD SPRING PRESBYTERIAN CHURCH |
| 5 WILLIAM ERVING HOUSE | 12 JONATHAN HOFFMAN PROPERTY |
| 6 LINDENWOOD | 13 LEMUEL LEAMING HOUSE |
| 7 DANIEL BISHOP HOUSE | 14 ELI TEAL HOUSE |
| | 15 CRESSE HAND HOUSE |

SOURCE : Historic Sites Inventory, 4/28/77, Cape May County Planning Board.

may be better served in small shopping centers with adequate parking provided by the developer. Such shopping centers can be located on access roads with controlled points of entry onto the collector road system.

Industrial Land Use

Only a very small proportion of Lower Township's land area is devoted to industrial uses. Interestingly, cement factories occupy two of the fifteen industrial parcels. This type of activity must be carefully buffered from adjacent land uses due to its nuisance characteristics (dust, heavy trucks, etc.).

Public and Quasi-Public Land Use

Public and quasi-public uses taken together account for a very large proportion of Lower Township's developed land. These are indicated on the generalized existing land use map in blue and grey, respectively. Utilities owned by either the Township of Lower or by an agency of the township such as the Municipal Utilities Authority are classified as public uses. Utilities which are either owned by another municipality or which are only regulated by the public are classified as quasi-public. The distribution of quasi-public and public land uses is fairly even throughout the Township of Lower, considering the distribution of residential development.

SUMMARY

Having examined each of the various land use types within the township individually, the entire pattern must be reviewed as a composite to perceive the interaction among the uses. Plate 6 presents the approximate acreage distribution of land uses in Lower Township as of June, 1978.

While a significant amount of development has already taken place in Lower Township, pressure for growth is likely to continue. Such pressure is most apt to be concentrated on those lands now used for agricultural purposes but accessible to an established road network and physically capable of receiving development. The identification and disposition of these lands will be the focal point of the Lower Township Land Use Development Plan. Development techniques such as clustering may be suggested in appropriate areas to encourage both imaginative design and preservation of open space for conservation or recreational purposes, thus permitting continued growth and expansion of the tax base while recognizing the need to protect sensitive lands and retain the amenities of open space.

PLATE 6

APPROXIMATE DISTRIBUTION OF EXISTING LAND USES June, 1978 LOWER TOWNSHIP

CATEGORY	ACRES	% OF TOTAL
SINGLE FAMILY RESIDENTIAL	2,290	12.0
MULTI-FAMILY RESIDENTIAL	28	0.1
MOBILE HOMES	43	0.2
HOTEL/MOTEL	33	0.2
CAMPGROUNDS	265	1.4
COMMERCIAL	129	0.7
MARINE COMMERCIAL/INDUSTRIAL	106	0.6
INDUSTRIAL	144	0.8
PUBLIC USES AND PUBLIC UTILITIES	705	3.7
QUASI-PUBLIC AND OTHER UTILITIES	199	1.0
AIRPORT	927	4.9
WETLANDS	5,234	27.4
ROADS	1,908	10.0
VACANT, VACANT WOODED AND AGRICULTURAL	7,067	37.0
TOTAL	19,078	100.0%

NOTE: According to the N.J. Department of Community Affairs, Lower Township contains 29.81 square miles of land area or 19,078 acres. This figure excludes water, lagoons, bays and coves, but does include wetlands.

SOURCE: Gershen and Coppola Associates planimetric measurement of Plate 1, Generalized Existing Land Use Map, June, 1978. Small yellow dots used to designate single family residential uses were attributed one (1) acre of area each. Larger dots were assigned two (2) acres of area each (to be considered a minimum). Parking areas were calculated as part of the principal use to which they are attached. Farm structures (not identified) and greenhouses were not included as separate categories in the calculation of land use types as they occupy such small percentages of land area.

REGIONAL CONSIDERATIONS

REGIONAL CONSIDERATIONS

INTRODUCTION

Any plan for the development of Lower Township must take into account outside forces, policies and trends. This is necessary even though a municipality is a separate and distinct political entity because it can be affected significantly by decisions made at other levels of government or by other municipalities over which the township and its residents may have little or no control. Additionally, the Municipal Land Use Law requires that all master plans contain a specific statement of the relationship of the proposed development of the municipality indicated 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) the State Development Guide Plan.

LAND USE POLICIES OF CONTIGUOUS MUNICIPALITIES

Lower Township is surrounded by diverse communities with extremely varied patterns of development. Generally, the portions of these communities which abut Lower Township are either completely developed (or developed to such an extent that the land use configurations are fixed) or they are limited significantly in their development potential by physical characteristics. Zoning in all cases is consistent with the existing development pattern. Those communities which are in the process of revising their master plans do not appear to be planning significant changes in the treatment of areas adjacent to Lower Township.

Plate 7 summarizes the adjacent land use districts of municipalities contiguous to Lower Township. As is evident from the Plate, the Township of Middle, bordering Lower Township on the north, is zoned along its boundary as wetlands, as well as for high density residential development, for commercial uses (along Route 9) and for industrial development (near the Garden State Parkway). In both of the Wildwoods, existing and zoned development along Lower Township's boundaries is generally of the waterfront/marina business type, although there is single and multi-family residential development near Diamond Beach. To the south, the land uses surrounding Lower Township in the Boroughs of Cape May Point and West Cape May are primarily single family residential and expected to remain so. The City of Cape May offers a mixture of industrial, commercial, marina and residential development adjacent to Lower Township. With the exception of Cape May's industrial zone, such uses are consistent with those in contiguous sections of Lower Township.

STATE DEVELOPMENT GUIDE PLAN RECOMMENDATIONS

The State Development Guide Plan indicates Lower Township, and indeed all of Cape May County, as a limited growth area. This classification is assumed to be due largely to the vast quantities of environmentally sensitive lands located in Cape May

County. Such lands are incapable of handling major development. However, it should be remembered that the State Development Guide Plan is a conceptual blueprint for allocating the population growth anticipated by the year 2000 throughout New Jersey. As such, its recommendations for any specific area must be viewed as relative to its recommendations for the rest of the State. The Cape May County Comprehensive Plan addresses somewhat more specifically the questions of how much and where development is to take place in the County's municipalities.

RECOMMENDATIONS OF THE CAPE MAY COUNTY COMPREHENSIVE PLAN

On the basis of air quality standards and constraints on available replenishable water supply, the Cape May County Planning Board has recommended a maximum number of permanent dwelling units for all of Cape May County. The Comprehensive Plan apportions the margin between the total number of existing dwelling units and the recommended number of potential dwelling units among Cape May County's municipalities based on their relative capacities for development. Lower Township is apportioned a total of 11,451 dwelling units under the Plan. Using this total allocation as a yardstick, the township's remaining growth margin at the end of 1977 was 2,127 dwelling units.

In addition to distributing the County's future residential growth among its sixteen (16) municipalities, and as a prelude to determining which municipalities are most receptive to growth, the Comprehensive Plan also makes recommendations as to where development can best be accommodated within each municipality.

Plate 8 summarizes the land use recommendations of the Cape May County Comprehensive Plan for Lower Township. In general, these recommendations are intended to foster economic development particularly of the tourist industry. Overall policy goals which have guided the County Planning Board's recommendations for Lower Township and other mainland communities include: 1) preserving the wetlands of the County, 2) preserving and promoting the agricultural industry of the County, and 3) preserving the rural character of the mainland through appropriate zoning and planning, including lower densities in outlying areas and clustered development where higher densities are suitable. It is intended by the County that municipal development plans should emphasize facilities which will accommodate the tourist population. For mainland communities, this means hotel and motel facilities, preferably with on-site recreation facilities, and campgrounds. The County's Comprehensive Plan specifically addresses possible onshore effects of offshore oil drilling and recommends that refineries be excluded from all municipalities on the basis of the vast quantities of water required to operate them.

In addition to the County Planning Board's recommendations for public investment in open space acquisition, and limitations on the development of land in floodways as required by State and Federal Law, the following categories of land use are delineated in the Comprehensive Plan: development areas, which are intended to take the bulk of high density residential, commercial and industrial development for the County;

agricultural-rural areas, which are intended not to be sewerred and to develop at low densities (agricultural-rural lands encompass prime farm land and aquifer recharge areas); restricted development areas, which encompass wetlands, flood fringe and high water table areas; and, finally, a category known as marine recreation, intended to include marinas, waterfront restaurants, motel accommodations, shopping facilities and other facilities oriented to the tourist industry. A large proportion of Lower Township's land is proposed for development in the Cape May County Comprehensive Plan. However, the "development areas" category includes the already intensively developed areas of Villas and North Cape May, as well as otherwise pre-empted lands such as the Cape May County Airport. Thus, the actual land available for accommodating Lower Township's allowable growth increment is considerably less than it would initially appear.

STATEMENT ON EXTRA-MUNICIPAL PLANS AND POLICIES

The recommendations of the State Development Guide Plan and the Cape May County Comprehensive Plan and the land use policies of adjacent communities are, according to the Municipal Land Use Law, important considerations in the determination of Lower Township's development policies. Every effort will be made in the preparation of the Lower Township Land Use Development Plan to coordinate local policies with those of adjacent municipalities and with the recommendations of the County and State. This is not to say that all recommendations will be followed - only that any contrary policies of the Lower Township Planning Board will be weighed and justified on the basis of information contained in the Background Studies.

The Land Use Development Plan for Lower Township will identify the areas of the township which are best suited both environmentally and economically to development. Anticipated growth will then be distributed among these areas with an eye to the transportation and community facility needs which their development will generate.

POPULATION AND REGIONAL HOUSING NEEDS

Introduction

Recent court decisions and administrative and legislative initiatives at the State level have stressed the necessity of each municipality taking responsibility in some way for its "fair share" of its region's future low and moderate income housing needs. To provide a factual basis for public policy, particularly regarding regional housing needs, population characteristics should be reviewed to determine answers to two fundamental questions: 1) is the community declining or growing? and 2) who is living in and moving in or out of the community? If the community is growing, it will need to provide facilities for young families such as moderately priced housing, schools and recreational areas. On the other hand, if it is declining, low-cost housing for its elderly may be a more appropriate course of action.

Such information provides one of many inputs to the allocation of future land uses in Lower Township. The combined analysis of population and regional housing needs is designed to identify those factors mentioned above which can, in turn, be converted into recommendations for future land uses. The quality of information gathered is an important consideration in determining whether the "factual basis" established is indeed a sound platform for land use policy decisions. Unfortunately the most reliable and valid source of information is still the U. S. Census, which is by now out of date. Thus, the discussion which follows should be interpreted as an informational "launching pad," to be utilized until new information is gathered in 1980. The present and future housing needs of Lower Township, as determined by both the County and the State, will be presented as rough guidelines for Lower Township's housing and land use policies until updated census information can be secured.

Population Trends

Plate 9 portrays the absolute and proportional increases of Lower Township's population during the years 1940 through 1976. As indicated, the most significant decade of growth was between the years 1950 and 1960 when the township increased its population by over 130%. The Cape May County Planning Board estimates Lower Township's current permanent population at 14,026 persons and its 1978 summer population at 62,340 persons.

Components of Population Growth

Growth in population occurs in two ways. First, increased population results from the difference between births and deaths and can be determined by a mathematical formula using vital health statistics. Second, population change results from migration -- persons moving into or out of the township. Migration can be determined by analyzing the expected and actual population increase between census enumerations. These techniques were applied to Lower Township's population. The results are displayed on Plate 10. Based on the prevailing fertility and survival rates for the decade, the population of Lower Township was predicted to decrease by 122 individuals (column B minus column A). In actuality, however, Lower Township's population increased by 3,822 individuals. The difference between what was predicted on the basis of vital health statistics (a decrease of 122) and the actual increase as determined by the U.S. Census Bureau (3,822) is attributed to migration (3,944), those individuals moving into the township during the 10-year span. By analyzing Plate 10, it also becomes evident that not all age cohorts, or age groups, increased proportionately during the 10-year span. Age groups which increased substantially during the decade were in the over 55 and the 5-24 year age groups.

PLATE 9
POPULATION TRENDS

	Lower Township		Cape May County		Lower Township as a percent of Cape May County
1940	1,693		28,919		5.9%
1940-1950 increase	1,044	(61.7%)	8,212	(28.0%)	
1950	2,737		37,131		7.4%
1950-1960 increase	3,595	(131.4%)	11,424	(31.0%)	
1960	6,332		48,555		13.0%
1960-1970 increase	3,822	(60.4%)	10,999	(23.0%)	
1970	10,154		59,554		17.1%
1970-1976 increase	4,940	(48.7%)	14,760	(24.8%)	
1976	15,094 ⁽¹⁾		74,314 ⁽¹⁾		20.3%

(1) 1976 figures from Population Estimates for New Jersey, July 1, 1976, State of New Jersey Department of Labor and Industry.

SOURCE: U.S. Bureau of Census, 1960 and 1970 Census of Population. Final Report PC (1) - (32).

PLATE 10

POPULATION AND MIGRATION FACTORS
1960 - 1970

	A	B	C	D	E
Age Groups	1960 Population	1970 Predicted Population (Cohort Survival Method)	1970 Actual (Census)	Actual Increase or Decrease 1960 - 1970	Migration Factor
Under 5	662	429	749	87	320
5 - 14	1,030	1,088	1,651	621	563
15 - 24	609	1,023	1,110	501	87
25 - 34	729	600	1,003	274	403
35 - 44	686	714	851	165	137
45 - 54	674	653	1,042	368	389
55 - 64	783	601	1,480	697	879
65 +	1,159	1,102	2,268	1,109	1,166
Totals:	6,332	6,210	10,154	3,822	3,944

D = C - A The actual increase or decrease in population between 1960 and 1970 equals the 1970 census count less the 1960 census count.

E = C - B The number of persons attributed to migration equals the actual 1970 census count less the population projection based on vital health statistics.

SOURCE: U.S. Bureau of the Census, 1960 and 1970 Census of Population, Final Report, PC (1) - (32).

Age and Sex of the Population

The chart on Plate 11 presents the composition of the 1970 population broken down by age and sex. Normally, population statistics presented in this fashion would form a pyramid, indicating an increasing number of individuals in the lower age groups. Lower Township, however, appears to have had a disproportionate number of both older persons and 5-14 year olds (school-aged children), a situation that spells potential conflict between the education needs of a growing school population and resistance to the increased tax burden which may be demanded of older individuals on fixed incomes.

Plate 12 compares Lower Township's age breakdown with that of the populations of both Cape May County and New Jersey. Clearly, Lower Township's population in 1970 was skewed to the over 65 age group in comparison with the County and State.

Income Characteristics

Shown on Plate 13 is the distribution of families by income for Lower Township, Cape May County and the State. As an indication of the relative wealth of the populations of the three political jurisdictions, consider the proportions of families above and below the approximate average income for the State as a whole in 1970, \$10,000. Approximately 70% of Lower Township's families reported incomes of less than \$10,000 in that year, compared with 61% and 40% for the County and State respectively. It is also interesting that no family in Lower Township is reported in 1970 as earning more than \$50,000 per year.

In 1970, according to the U.S. Census, a total of 28.4% of Lower Township's family heads and individuals 65 years of age and older reported incomes below the poverty level, as compared to 34.7% of Cape May County's elderly family heads and individuals. (*) The percentages of total families of all ages falling below poverty level are somewhat less (7.1% for Lower Township and 8.9% for Cape May County). Of the 214 families in Lower Township reported in 1970 to be receiving incomes below poverty status, 39% or 83 were headed by individuals 65 years or older.

Planning To House The Population

Planners have always been concerned with the provision of community facilities, the provision of modes of transportation, the preservation of environmentally sensitive areas, the existing land use pattern and character of the community, the fiscal solvency of the jurisdiction, and the relationship of the individual locality to surrounding land areas. When the Mount Laurel decision was rendered by the New Jersey Supreme Court on March 24, 1975, an impression surged through the State that the provision of multi-family housing overrode all other planning considerations. As the dust settled and further court decisions addressed the housing issue, it became evident that the

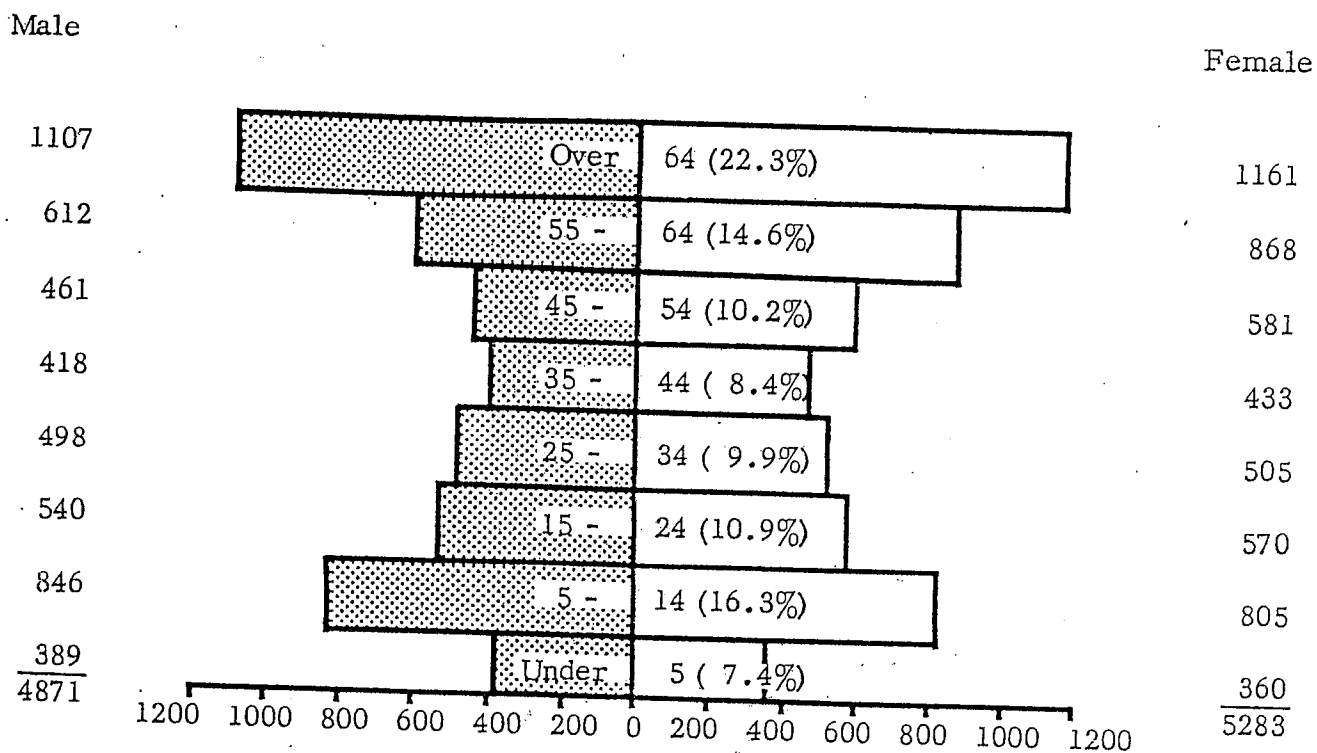
(*) Weighted average threshold at poverty level for family heads in 1969: farm \$2954, non-farm \$3410; weighted average threshold at poverty level for individuals in 1969: farm \$1569, non-farm \$1840.

PLATE 11

POPULATION BY AGE AND SEX

1970

Age Bracket and
Percentage of Total Population



SOURCE: U.S. Bureau of Census, 1970 Census of Population.

PLATE 12

COMPARISON OF POPULATION BY AGE
1970

Age	Lower Township			Cape May County			State of New Jersey		
	Number	Percent	Cumulative Percent	Number	Percent	Cumulative Percent	Number	Percent	Cumulative Percent
over 65	2,268	22.3	22.3	11,832	19.9	19.9	696,989	9.7	9.7
55 - 64	1,480	14.6	36.9	7,756	13.0	32.9	694,722	9.7	19.4
45 - 54	1,042	10.2	47.1	6,879	11.6	44.5	917,081	12.8	32.2
35 - 44	851	8.4	55.5	5,482	9.2	53.7	879,421	12.3	44.5
25 - 34	1,003	9.9	65.4	5,489	9.2	62.9	866,639	12.1	56.6
15 - 24	1,110	10.9	76.3	8,398	14.1	77.0	1,121,029	15.6	72.2
5 - 14	1,651	16.3	92.6	9,760	16.4	93.4	1,403,057	19.6	91.8
under 5	749	7.4	100.0	3,958	6.6	100.0	589,226	8.2	100.0
Total:	10,154	100.0%		59,554	100.0%		7,168,164	100.0%	

SOURCE: General Population Characteristics, New Jersey, 1970 Census of Population, PC(1)-B32 NJ

PLATE 13

COMPARISON OF
TOTAL FAMILIES BY INCOME
1970

	<u>Lower Township</u>		<u>Cape May County</u>		<u>New Jersey</u>	
	<u>No.</u>	<u>%</u>	<u>No.</u>	<u>%</u>	<u>No.</u>	<u>%</u>
\$ 0 - \$ 2,999	295	9.8	1,568	10.0	111,169	6.0
\$ 3,000 - \$ 3,999	275	9.1	1,092	7.0	59,029	3.2
\$ 4,000 - \$ 4,999	361	11.9	1,230	7.9	66,025	3.6
\$ 5,000 - \$ 5,999	264	8.7	1,220	7.9	46,426	4.2
\$ 6,000 - \$ 7,999	481	15.9	2,396	15.3	190,731	10.3
\$ 8,000 - \$ 9,999	441	14.6	2,101	13.4	239,892	13.0
\$10,000 - \$14,999	630	20.9	3,483	22.1	552,690	30.1
\$15,000 - \$24,999	234	7.8	1,928	12.3	413,366	22.5
\$25,000 - \$49,000	40	1.3	524	3.3	110,045	6.0
\$50,000 and over	-	-	120	0.8	19,436	1.1
Totals:	3,021	100	15,662	100	1,838,809	100

SOURCE: U.S. Census Data for New Jersey Townships, General Social and Economic Characteristics, New Jersey, 1970 Census of Population.

highly significant Mount Laurel decision did not change the planning process per se; planners may continue to be concerned with all aspects of community development when reaching a decision concerning the provision of housing within a municipality. Most significantly, the Mount Laurel decision emphasized the need for a municipality to perform its planning work in a comprehensive manner and to be prepared to specifically explain and justify its decisions.

No two communities in the State of New Jersey are alike and the "effect" of the Mount Laurel decision upon any one municipality will be unique. Therefore, it is incumbent upon a jurisdiction to be aware of its responsibilities as well as its limitations and capacities for future development. It is only with this information that a rational plan for community development can be formulated.

The age and income data for the populations of Lower Township and Cape May County (assumed by both the County and the State to be the "region" for Lower Township) signal the responsibility to provide sufficient housing of the size and affordability desired by lower income elderly, in particular. To what extent Lower Township is currently deficient in this respect and in meeting other low and moderate income housing needs and to what extent it must plan for such housing in the future are critical issues. A considerable amount of effort has gone into the determination of both existing and future housing needs for Lower Township by both the Cape May County Planning Board and the State of New Jersey. Their figures, and the implications of those figures for Lower Township's land use policies, are discussed below.

Current Need Estimates

In 1974, the Cape May County Planning Board estimated the current deficiency in low income housing needs to be none at all for both elderly and non-elderly households in Lower Township. On a qualitative level, a study entitled Housing, prepared in 1972 by Herbert H. Smith Associates for the Cape May County Planning Board, identified 30 units out of Lower Township's total housing stock as substandard (either deteriorating or dilapidated). This same study cited a projected overall 1980 housing need for low income and elderly families in all of Cape May County (1514 units, 70% for the elderly and 30% for low income), but no attempt was made to distribute the responsibility for meeting this need among the municipalities.

The New Jersey Department of Community Affairs, Division of State and Regional Planning, has determined that Lower Township has an existing (1970) need for 402 additional low and moderate income housing units. However, its Revised Statewide Housing Allocation Report for New Jersey, published in May, 1978, does not actually allocate the responsibility for providing all of these 402 units to Lower Township. Instead, only 341 units are allocated to Lower Township, and the remaining 61 units are expected to be constructed elsewhere within Cape May County.

Future Need Projections

The May 1978 housing allocation report prepared by the New Jersey Division of State and Regional Planning also projects an additional need of 1188 units of low and moderate income housing for Lower Township for the years 1970-1990. Combined with a current "deficiency" of 341 units, this figure brings the total projected low and moderate income housing need for Lower Township to 1529 units by 1990. If this allocation of low and moderate income dwelling units is compared to the municipal growth limits set by the Cape May County Planning Board in its Comprehensive Plan, approximately seventy-two (72) percent of the margin for development remaining to Lower Township at the end of 1977 (2127 new dwelling units) would have to be appropriated for this purpose. This is, at best, an unrealistic expectation and may need to be refined. One avenue for meeting such housing needs is the Section 8 Housing Assistance Payments Program administered by the U. S. Department of Housing and Urban Development. This program provides direct housing subsidies to families and individuals below certain income levels, allowing them to live in housing already available on the open market and pay only what they can afford, as long as the unit for which subsidy is sought does not exceed a ceiling "fair market rent." Qualifying income levels are tied to the number of persons per household and vary from region to region based on differences in the cost of living. Although the Section 8 program is not adequately funded at the federal level, forty-two (42) households in Lower Township currently receive Section 8 funding. If more of this resource becomes available in the future, it may help to provide some of Lower Township's 1990 low and moderate income housing need.

CONCLUSION

In 1973, the Cape May County Planning Board projected the winter population of Lower Township to reach 30,000 persons by the year 2000 (with a summer population peak of 75,000). Even assuming some variation from overall growth constraints recommended by the County in 1974, it is apparent that the future housing demand this represents will not be possible to meet. Such a situation of increasing housing scarcity enhances the likelihood that affordable housing in Lower Township will become gradually more unavailable, compounding existing estimates and projections of low and moderate income housing needs. The Land Use Development Plan for Lower Township will need to recognize and attempt to mitigate the effects of this eventuality.

PHYSICAL CHARACTERISTICS

PHYSICAL CHARACTERISTICS

INTRODUCTION

The purpose of the Physical Characteristics report is to provide the Planning Board with another tool to use in formulating a rational allocation of land uses and in analyzing future development proposals.

The Physical Characteristics analysis is a series of investigations, each dealing with a particular environmental factor. Discussed in each section will be the intrinsic characteristics associated with each of the factors, with special emphasis given to those characteristics which play a predominant role in the suitability of land for future community development.

PHYSIOGRAPHY

Lower Township is situated entirely in the outer portions of the geologic province known as the Atlantic Coastal Plain. The sandy plain is characterized by its generally flat contours which are occasionally interrupted by low, very gently rolling land masses. As shown on Plate 14, land elevations within Lower Township rise from sea level to less than thirty (30) feet in the middle-western portion of the township near the Cape May Canal. The low elevations and flat topography do not in themselves pose any significant problems for development. However, other factors accompanying these characteristics present definite limitations. A sizeable proportion of the land contained within the municipal boundaries of Lower Township consists of salt water tidal marsh, brackish lowlands and other swampy areas. The township is bounded on the east by the salt water tidal marsh located between the Garden State Parkway and the barrier beach community of Wildwood Crest. Along its northern border, it is bounded by the salt water tidal marsh which straddles Fishing Creek. These tidal marshes, known as "wetlands," are severely constrained for nearly all forms of development. In addition to obvious physical deterrents, recently enacted New Jersey environmental protection regulations have imposed stringent restrictions on the types and extent of development which can take place in these areas.

ENVIRONMENTAL PROTECTION MEASURES

Marshes and wetlands have played a prominent role in the history of Cape May County. Early settlers "mined" cedar bogs for building materials. It is said that the original cedar shingles for Independence Hall come from this area of New Jersey.

Many wetlands are termed "estuarial" -- lands located between sea and land. The estuarine zone includes the bays, harbors, lagoons, channels, inlets, barrier

beaches, sounds and estuaries which comprise one-third to one-half of the area within Lower Township's borders. Complex physical, chemical and biological forces come into play within this zone, creating an extremely delicately balanced environment and providing a key link in the food chain. A number of plant and animal species which are vital to the life cycle of commercially valuable shellfish and other seafood are spawned in or permanently inhabit wetland areas.

Wetlands act as a physical barrier absorbing the impact of coastal storms. By filling the wetlands to accommodate new community development, this buffering effect is lost. Residential and commercial development located on filled wetlands is extremely vulnerable to wave and water damage due to its proximity to and lack of protection from flooding.

In the past, wetlands presented sufficiently insurmountable obstacles to development to divert urbanization to other areas and ensure their retention in a natural state. However, as land has become more scarce and the demand for developable acreage has increased, the continued protection of wetlands has been jeopardized. Modern engineering and construction techniques have enabled marshes and wetlands to be filled for the purposes of accommodating development. Unfortunately, where this has happened, such intrusion has unleashed whole new sets of problems. Pesticides used for mosquito control have been applied indiscriminantly. New Jersey Department of Environmental Protection research has discovered a number of persistent (non-bio-degradable) pesticides present in wetlands vegetation. Repeated dosages only increase the concentrations of pesticides in fish, water fowl and other members of the wetlands ecological system. This continual and persistent pesticide application may have long-term detrimental effects to man as well as to the environment.

Recognizing the long-range value of wetlands for social, economic and aesthetic purposes and the ever-increasing threat of their loss, the State of New Jersey enacted two laws designed to ensure that future development in the coastal areas will be compatible with the protection of this unique environment.

Wetlands Act

The Wetlands Act of 1970 (N. J. S. A. 13:9A-1 et seq.) and accompanying Wetlands Order is the more restrictive of the State's environmental protection controls discussed here. Plate 15 shows the approximate location of wetland areas, as defined in the Act, within Lower Township. The precise properties affected by the Wetlands Act are recorded in the office of the Cape May County Registrar of Deeds and indexed as a judgement. A copy of the order and notification of the wetlands determination has been sent to owners of all properties so affected. Interested persons may inspect official county records at the Cape May County Courthouse.

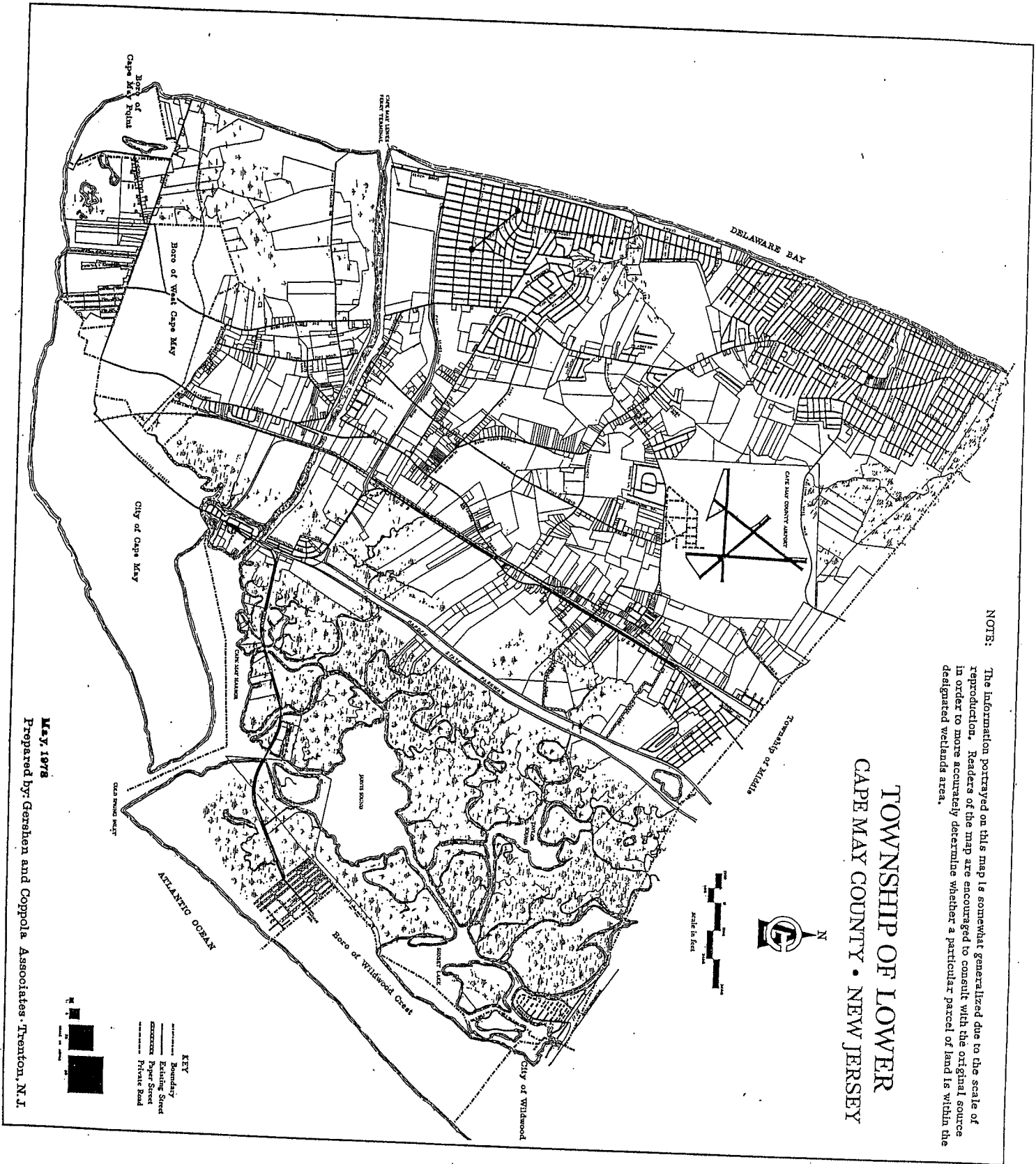


plate 15
WETLANDS
 (APPROXIMATELY 5234 ACRES)

SOURCE: Plan of Lands Affected, Wetlands Map, Index # 2-5, 1-5, 1-6, 2-6, N.J. Dept. of Environmental Protection, and planimetric measurement by Gershen and Coppola Associates.

Activities which now or may in the future take place on wetlands fall into two general categories, both of which require permits from the Commissioner of the New Jersey Department of Environmental Protection. (A third category consists of "prohibited activities" for which no permission will be granted and includes waste and sewage disposal and, with some exceptions, the application, disposal or storage of pesticides.)

Regulated activities requiring a permit are differentiated on the basis of their potential impact on the wetlands. Those which pose only a minimal threat to the environment are termed Type A activities. They include:

1. Cultivation and harvesting of naturally occurring agricultural or horticultural products.
2. The excavation of a small boat mooring slip.
3. The maintenance or repair of bridges, roads or utilities. Repairs necessitated by a natural disaster do not require a permit; however, the Commissioner must be notified within seven days after their initiation.
4. The construction of catwalks, piers, footbridges and observation decks provided they are constructed on pilings and the width of the structure is not more than twice the clearance between the structure and the surface of the wetlands.

Regulated activities which have the potential of disrupting the environment to a greater degree are classified as Type B and include:

1. The installation of utilities.
2. Excavation of boat channels and mooring basins.
3. The construction of impoundments.
4. The construction of sea walls.
5. The diversion or appropriation of water.
6. The use of pesticides except those applied directly to the skin or clothing of an individual for the purpose of repelling insects.
7. Driving or causing to pass over or upon wetlands any mechanical conveyance which may alter or impair the natural contour of the wetlands or the natural vegetation.

8. The construction of any structure, filling or excavation except as otherwise provided in the Wetlands Order.

The permit application procedure for Type A activities is abbreviated. Essentially, it requires the applicant to notify the local governing body of the municipality in which the property is located, describing the proposed activity. A copy of this notification is then sent with the completed application form to the Department of Environmental Protection.

Since Type B activities pose greater threats to the wetlands environment, a more detailed application procedure is required. In addition to the information contained in Type A applications, applicants for a Type B permit are required to submit a detailed environmental impact statement, and a public hearing is held by the Department of Environmental Protection.

Permit applications are either approved or denied or approved subject to any conditions deemed necessary to effectuate the purposes of the Wetlands Act. Local ordinances may be more restrictive than the Act in their effect on wetlands properties.

Coastal Area Facilities Review Act

The second statute which affects a large portion of Lower Township is the Coastal Areas Facilities Review Act (N. J. S. A. 13:9-1 et seq.). The limited area of Lower Township which is exempted from the Act's jurisdiction is noted on Plate 16. Although the area encompassed by C. A. F. R. A. is greater than that subject to the Wetlands Act, the Coastal Area Facilities Review Act's regulations are not nearly as stringent as are those of the Wetlands Act. The Commissioner of the New Jersey Department of Environmental Protection is charged with creating an "environmental design strategy" and concomitant regulations for the construction of any "facility" in the designated coastal area. Regulated facilities requiring a permit from the Department of Environmental Protection include the following major operations:

1. Electric power generation.
2. Food and food by-products processing.
3. Incineration of wastes.
4. Paper production.
5. Agri-chemical production.
6. Inorganic salts manufacture.
7. Mineral products mining and manufacture.

8. Chemical processes.
9. Storage and handling of bulk materials.
10. Metallurgical processes.
11. Marine terminal and cargo handling facilities.
12. Public facilities and housing. In regards to housing, only developments or additions to existing developments that consist of 25 units or more are included in the facilities category.

An Environmental Impact Statement must be included with any permit application and a public hearing is required to be held by the Department. Approval is granted if it is found that the proposed facility:

1. Conforms with all applicable air, water and radiation emission and effluent standards and all applicable water quality criteria and air quality standards.
2. Prevents air emissions and water effluent in excess of the existing dilution, assimilative and recovery capacities of the air and water environments at the site and within the surrounding region.
3. Provide for the handling and disposal of litter, trash and refuse in such a manner as to minimize adverse environmental effects and the threat to the public health, safety and welfare.
4. Would result in minimal feasible impairment of the regenerative capacity of water aquifers or other ground or surface water supplies.
5. Would cause minimal feasible interference with the natural functioning of plant, animal, fish and human life processes at the site and within the surrounding region.
6. Is located or constructed so as to neither endanger human life or property nor otherwise impair the public health, safety and welfare.

7. Would result in minimal practicable degradation of unique or irreplaceable land types, historical or archaeological areas and existing scenic and aesthetic attributes at the site and within the surrounding region.

The Coastal Area Facilities Review Act supplements other State statutes and local ordinances; it does not pertain to areas already covered by the Wetlands Act nor does it supercede municipal zoning ordinances. Rather, it provides an additional layer of land use regulation in coastal areas.

Summarily, in formulating its Land Use Development Plan, the Lower Township Planning Board must be cognizant of the types of land uses (depending on their location) which will require State approval in addition to that required at the local level and which ones may not be permitted at all. In cases where the Land Use Development Plan and attendant ordinance provisions adopted by the township are more restrictive than those contained in either of the Acts described, local controls will supercede those of the New Jersey Department of Environmental Protection.

FLOOD AREAS

Storms which pass over the Jersey cape characteristically are accompanied by extremely high tides, strong winds and high waves and breakers. The huge waves and breakers quickly erode the barrier beaches, dunes and roads; damage boardwalks, seawalls, jetties and other protective barriers; undermine buildings; flood streets; contaminate water and food; and disrupt power and communications systems. Short circuits caused by high water often result in fires that also destroy property. In addition to monetary losses associated with the destruction of property, floods and storms take a toll in human lives.

Essentially, there are two ways to reduce the damage from such storms: 1) construct protective works such as bulkheads and sea walls; and 2) regulate development in areas subject to flooding. Generally, a combination of both approaches is necessary, particularly when development has already occurred. In areas which are not yet developed, ordinance controls can and should be used to regulate future development in flood prone areas to minimize potential damage to life and property.

Plate 17 delineates the areas of Lower Township which are potentially subject to flooding as determined by the U.S. Army Corps of Engineers' calculation of the "standard project tide," a hypothetical flood which may be expected from the most severe combination of meteorologic and hydrologic conditions that are considered reasonably characteristic of the geographical region involved, including extremely rare combinations. The standard project tide is distinguished from and, in fact, exceeds both the maximum tide of record and the intermediate regional tide (the latter having an estimated probability of occurring once in every hundred years or a 1% chance of occurring in any given year). The standard project tide thus encompasses some areas which may never yet have flooded, although they could do so in the future.

The Federal Insurance Administration of the U.S. Department of Housing and Urban Development has designated certain areas as flood hazard areas, based on a "Flood Insurance Study" conducted as part of the National Flood Insurance Program promulgated under the National Flood Insurance Act of 1968. These areas are also shown on Plate 17. Delineated areas are those which would be inundated by the flood of a one hundred year storm. These flood hazard area delineations are used by the federal government to determine flood insurance rates. However, in order for a property owner in the flood hazard area to obtain the federally subsidized flood insurance, the municipality in which his property lies must adopt ordinances regulating the extent of land development in the delineated areas according to standards set by the federal government.

SOILS AND COMMUNITY DEVELOPMENT

Soils have inherent characteristics which pose various kinds and degrees of limitations for community development. The Soil Survey of Cape May County, prepared by the U.S. Department of Agriculture, Soil Conservation Service (1977) recognizes fourteen (14) major soil types in Lower Township. The distribution of these soils throughout the township is shown on Plate 18.

Plate 19 summarizes the kinds and degrees of limitations for development presented by each soil type. The first column of Plate 19 identifies the U.S.D.A. mapping symbol; the second gives the name of the soil series; and the third presents the mapping symbol used on Plate 18. A word of caution in applying the classifications: mapping of soils at this scale requires a certain degree of generalization. The generalized maps serve as useful guidelines to the development suitability of different portions of the township, but, whenever more specific information regarding a particular tract is desired, the need to sample the soil and test its capabilities remains.

The criteria used for rating development suitability of soils are as follows:

Dwellings

This rating is based on undisturbed soils to a depth of five feet, assuming use for single-family dwellings or other structures with similar foundation requirements. Excluded are buildings more than three stories high or buildings with foundation loads in excess of those equal to three-story dwellings.

Criteria used in the ratings are susceptibility to loading, depth to water table, allowable soil pressure and slope.

On-site investigations are needed for specific placements of buildings and utility lines and for detailed design of foundations.

Septic Filter Fields

In areas of Lower Township not served by sanitary sewers, special attention must be given to the ability of the soil to adequately accommodate septic disposal systems. To function properly, septic systems require soils with good, but not excessive, drainage which can absorb the septic effluent, yet filter it sufficiently to prevent contamination of groundwater.

The septic suitability of Lower Township's soils is presented on Plate 20. The criteria which have been used to rate the degree of limitation (slight, moderate or restrictive) for septic systems are: high or seasonally high water table, the susceptibility of the area to flooding, permeability, and slope. Rapid permeability of the soil permitting a hazard of groundwater pollution, although of serious concern, was not assumed to restrict septic suitability since the risk of such hazard varies for any given soil, depending on the permeability of the substratum or, in the case of Fill Land, with the depth and permeability of the fill. (Soils with the potential for groundwater pollution, notably the Downer, Fort Mott and Fill Land groups, are asterisked on Plate 19.) Soils with only moderately high water table levels are rated as having moderate limitations with the assumption that deep drainage will be needed to lower the water table.

Percolation tests performed in accordance with the standards set forth in Chapter 199 of the Public Laws of New Jersey are helpful not only in determining the suitability of a specific homesite for on-site sewage disposal, but also in suggesting the proper design of a septic system.

Sanitary Landfill

This rating pertains to the trench type landfills that are six to twelve feet deep and are compacted at the bottom. Disposed material is covered daily with six inches of local soil; final soil cover is at least two feet thick. Material placed in a sanitary landfill yields gases, liquids and heat as products of biological decomposition. Placement of waste below the water table results in putrefactive anaerobic decomposition with high proportions of unstable compounds. Pollution of the water table aquifer is thus inevitable.

Criteria used are: depth to water table, stream overflow hazard, texture of soil horizons from five to fifteen feet (for filtering qualities and workability) and slope. Criteria are the same for area-type landfills except that soil texture, depth to bedrock, stoniness and rockiness are not considered as important as in the trench type, since cover material is transported from other locations.

Local Streets and Roads

For these ratings, it is assumed that the roads will be of the hard surfaced type similar to existing township roads. Criteria used are: flood hazard, natural drainage, slope, stoniness, rockiness, coarse fragments, texture, susceptibility to frost heave and depth to bedrock.

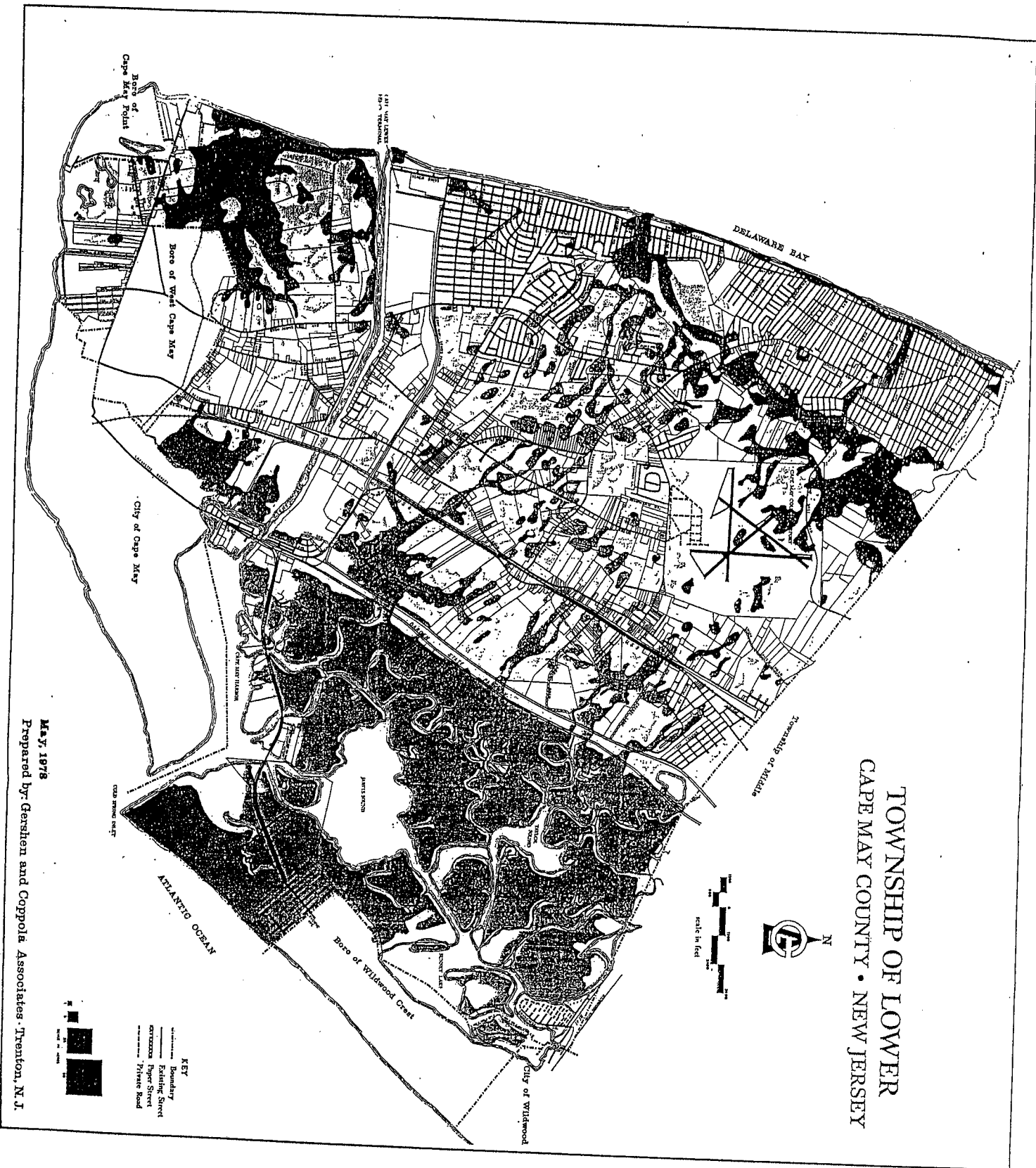


plate 20
SOIL LIMITATION FOR SEPTIC FILTER FIELDS

- SLIGHT
- MODERATE
- RESTRICTIVE

SOURCE: Soil Survey of Cape May County, New Jersey, U.S. Dept. of Agriculture, Soil Conservation Service, February, 1977.

Lawns, Landscaping, Plantings and Golf Fairways

It is assumed that soil material already at the site will be used. No importation of fill or topsoil is considered in the ratings, and traps or roughs are not considered as part of the golf fairway.

Criteria used are: depth to seasonal high water table, slope, depth to bedrock, surface soil texture. The primary factors used in rating limitations for landscaping, particularly with ornamental plants and lawns, are natural fertility, available water capacity, natural drainage and slope.

Athletic Fields

These ratings are for uses such as baseball, football and soccer fields where there is intensive foot traffic. It is assumed that some grading will be needed but that no soil material would be brought in from other areas.

Criteria used are: depth to seasonal high water table, soil texture (dust hazard, coarse fragments), soil permeability (time required for drainage after heavy rainfalls), stream overflow hazard and slope.

Picnic and Play Areas

These ratings apply to soils considered for intensive uses such as park-type picnic areas. It is assumed that most vehicular traffic will be confined to access roads. Soil suitability for growing vegetation is not a part of this guide but is an item to consider in final evaluation of a site.

The criteria used in these ratings are: flood hazard, depth to seasonal high water table, slope, stoniness and surface texture (potential traffic dust).

Campsites

Campsites are a growing land use in Cape May County. As noted on Plate 19, not all soils are suitable for this type of use. Soils to be used for camping and other recreational activities involving automobiles must withstand traffic without creating dust. Many of the soils presently used for campsites have low water capacity and are relatively infertile to barren. This makes for extremely dusty conditions.

Limitations apply to intensive use for tents and small trailers and the accompanying activities of outdoor living. It is assumed that little site preparation will be done other than shaping and levelling for tent and parking areas. The soils should be suitable for heavy foot traffic and for limited vehicular traffic. Criteria used for rating are: natural drainage, seasonal high water table, flood hazard and texture of the surface. Soil suitability for growing and maintaining vegetation is an item to consider in final evaluation of a site, although it was not specifically included among the criteria.

Paths and Trails

It is assumed that these areas will be used as they occur in nature and that little or no soil will be excavated or filled. Soil features that affect trafficability, dust, design and maintenance of trails and paths are given special emphasis in these ratings.

Criteria used in these ratings are: flood hazard, depth to seasonal high water table, slope, stoniness and surface texture (potential traffic dust).

Soil Suitability for Agricultural Purposes

Plate 21 presents the suitability of soils for agricultural purposes, based on the classifications of the U.S. Department of Agriculture Soil Conservation Service. Soils are categorized according to potential agricultural productivity into any one of eight capability classes as follows:

- | | |
|------------|--|
| Class I | Soils with few limitations that restrict their use. |
| Class II | Soils with some limitations that reduce the choice of plants or that require moderate conservation practices. |
| Class III | Soils with severe limitations that reduce the choice of plants, require careful management, or both. |
| Class IV | Soils with very severe limitations that reduce the choice of plants, require very careful management, or both. |
| Class V | Soils with little or no erosion hazard but with other limitations that make regular cultivation impracticable or that limit their use largely to woodland or wildlife food cover. |
| Class VI | Soils with severe limitations that make them generally unsuited for cultivation and limit their use largely to pasture, woodland or wildlife food and cover. |
| Class VII | Soils with very severe limitations that make them unsuited to cultivation without major reclamation and that restrict their use largely to grazing, woodland or wildlife. |
| Class VIII | Soils and land forms with limitations that preclude their use without major reclamation for commercial production of plants and restrict their use to recreation, wildlife and water supply or aesthetic purposes. |

Areas shown as "prime farmland" on Plate 21 are those classified as capability classes I, II or III according to the criteria established by the Soil Conservation Service. The limitations that have been considered in rating these soils include risk of erosion, inherent

fertility, susceptibility to drought or shallowness, depth to the water table, and permeability and structure of the soils.

Areas of High or Seasonally High Water Table

One criterion which re-appears consistently in the determination of soil suitability for various forms of community development and for agricultural purposes is the depth to the water table. Because of this characteristic's serious implications for land use, a separate plate (Plate 22) has been included identifying those areas which are underlain by a water table of 0 - 4' either permanently or seasonally. Such areas are generally in close proximity to surface drainage channels, marshes and swamps.

In addition to the development limitations posed by a high water table, another potentially critical problem is also created by this condition: the hazard of groundwater pollution. As will be made clear in the discussion which follows on geology and groundwater resources, much of the water supply for Cape May County is drawn from the Holly Beach or "water table" aquifer. Improper use of land in the presence of a high water table could threaten the safety of this potable water source.

GEOLOGY AND GROUNDWATER HYDROLOGY

As discussed in the physiography section of this report, the Township of Lower lies entirely within the outer Atlantic Coastal Plain and is underlain by geologic formations typical of that province. These formations are graphically portrayed on Plate 23. The delineation of the various geologic formations is somewhat misleading since the map is limited only to one dimension or plane. To better understand the geologic composition of the township, each formation should be visualized as a layer of a cake. Each geologic "layer" extends across an entire community (often at varying depths), dipping toward the southeast at the rate of more than ten (10) feet per mile. A cross-section of a community's geology thus resembles a series of bands.

The uppermost or youngest geologic layer found in New Jersey is termed the "quaternary" system of deposits. In Lower Township, the quaternary system includes four kinds of geologic deposits: the Cape May Formation, Beach Sand, Tidal Marsh and Swamp Deposits, and Recent Fill. Of these, only the Cape May Formation has significance as an artesian aquifer, albeit a shallow one. In Lower Township, this formation consists primarily of sediments laid down in an estuarine environment (known as the Estuarine Sand facies of the Cape May Formation). The remaining three quaternary deposits or beds are collectively called the "Holly Beach water bearing zone," a term which refers to the upper fifty (50) feet or so of surficial sands and gravels. (This is the water table aquifer referred to in the previous section of this report.) Underlying the quaternary deposits throughout Lower Township is the Cohansey Sand, a tertiary deposit which is also an important artesian aquifer. Beneath that, at a depth of from 600 to 900 feet, lies the Kirkwood formation which contains two water bearing sand strata, neither of which are tapped in Lower Township.

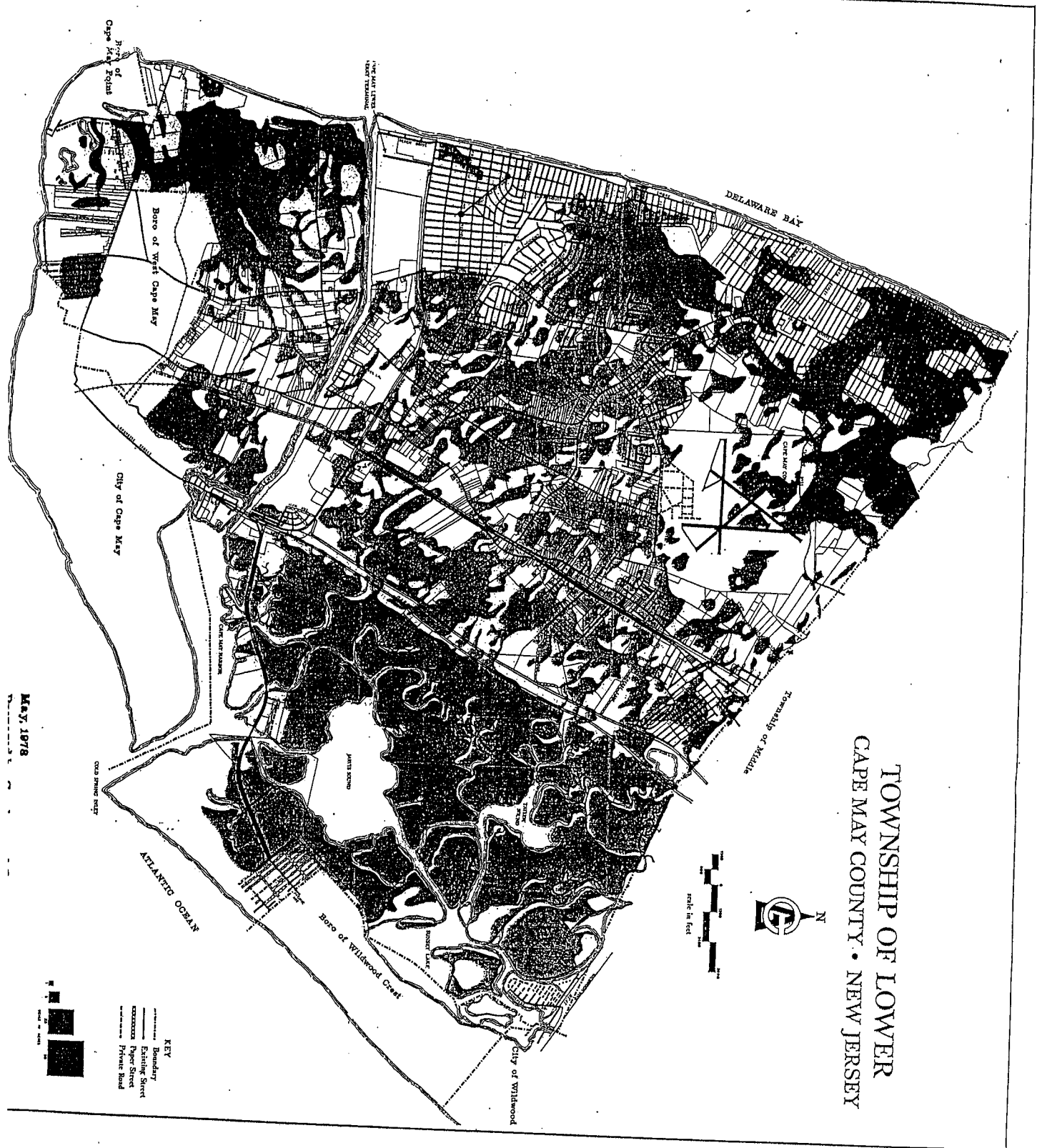


plate 22
AREAS OF HIGH OR SEASONALLY HIGH WATER TABLE

AREAS WHERE WATER TABLE IS AT THE SURFACE
OR LESS THAN FOUR (4) FEET FROM SURFACE

SOURCE: Soil Survey of Cape May County, N.J., U.S. Dept. of
Agriculture, Soil Conservation Service, February, 1977

Because of the presence of a relatively impervious clay layer overlying both the Cape May Formation and the Cohansey Sand, very little (if any) vertical leakage replenishes these underground water resources. Thus, although the formations may contain vast quantities of water, these quantities are by no means unlimited. The Holly Beach aquifer, on the other hand, is recharged regularly from rainfall, as well as from cesspools, septic tanks, and irrigation.

A report prepared for the Cape May County Water Policy Advisory Committee and Board of Chosen Freeholders by Geraghty and Miller, entitled Ground Water Resources in Cape May County, 1970, analyzed the long term adequacy of groundwater resources in Cape May County and was a valuable source of data in the preparation of this section of the Physical Characteristics analysis. The conclusions of that report would seem to indicate that the quantity of water available to the County from these three aquifers (the Holly Beach, Cape May Formation and Cohansey Sand) and others not found in Lower Township is sufficient. However, contamination of the water table from salt water infiltration (through flooding) or from other surficial pollutants is possible unless adequate precautions are taken. Furthermore, the intrusion of salt water into the artesian aquifers from overpumping is a problem which may well have to be dealt with in the future, but the point at which contamination from such intrusion will occur is not easy to predict and requires continuous sampling of wells to detect increases in chloride content. As the report suggests, the County's growth policies will determine the longevity of the artesian water supply.

Plate 24 presents some indication of the quantity of water yielded from wells drilled in the three geologic formations described above.

CONCLUSION

The analysis of the physical characteristics of Lower Township provides the Planning Board with one of the set of tools it will need to use in allocating future land uses. The Physical Characteristics report, it should be remembered, is only one of the several background investigations which will be required to generate sound land use decisions. Others include, in addition to existing land use and regional considerations, studies of community facilities and traffic circulation. However, an understanding of the environmental limitations on development will help to ensure that public health and safety are not jeopardized by policies contained in the Land Use Development Plan.

PLATE 24

SUMMARY OF WELL YIELDS*
LOWER TOWNSHIP

Aquifer	No. of wells	Yield in Gallons Per Minute			Depth in Feet		
		Maximum	Minimum	Average	Maximum	Minimum	Average
Cohansey Sand (Tch)	10	500	35	248	330	262	298
Cape May Formation (Qcm)	18	75	12	33	194	86	129
Holly Beach	10	300	30	115	50	39	47
Holly Beach (Observation by U.S.G.S.)	24	20	1	9	104	58	92

* Wells surveyed include domestic, industrial, irrigation, observation, and public supply wells.

SOURCE: Records of Wells, Well Logs, and Summary of Stratigraphy of Cape May County, N.J., Department of Conservation and Economic Development, Division of Water Policy and Supply, 1962.

TRAFFIC and CIRCULATION

TRAFFIC AND CIRCULATION

INTRODUCTION

The focus of this section of the Background Studies is, first, to provide the necessary base information on the existing road network in Lower Township, particularly with respect to deficiencies in the system, and, second, to identify current proposals for improvements to County roads. Finally, the Traffic and Circulation analysis indicates the public transportation facilities available to residents of and visitors to Lower Township. The analysis is organized into a series of investigative discussions evaluating key aspects of the overall transportation network. On the basis of the problems and potentials identified through this and other sections of the Background Studies, the Land Use Development Plan for Lower Township can be formulated in a manner which coordinates land use patterns with access requirements.

TRANSPORTATION AND LAND DEVELOPMENT

The development or redevelopment of land for productive use, such as commercial, residential or industrial activity, depends upon its accessibility. Historically, proximity was the only way to achieve this necessary requirement for urbanization. Homes and business establishments were located so as to involve the least amount of travel time between trip destinations. Since travel time is a function both of distances and of the prevailing level of technology in any particular period of history, a community's development pattern is strongly influenced by whatever modes of transportation are available at the time the area is settled. One hundred years ago, widespread use of horse and wagon transportation required that settlements be compact and closely spaced. Some towns had their geneses in the locations of railroad stations. Today, the strip development exhibited along many State and County roads is attributable to location preferences associated with the automobile era.

It is important to recognize the interrelationship between land use and vehicular trip generation and to use that relationship as one of several parameters in the allocation of future land uses as well as in the identification of the need for improvement in the circulation network serving existing land uses. All vehicular trips are made for specific purposes related to land use. While one chief determinant of residential location is easy access to employment, an entrepreneur generally prefers a location adjacent to high volumes of traffic, possibly at the intersection of major roads with access to other commercial or industrial locations within the region. As a result, most new residential and commercial construction will take place first along the existing road network. As a community's population continues to grow and the attendant level of traffic also increases, conflicts resulting from an overburdening of the existing transportation network are encountered, and a general reduction in the area's accessibility as well as an increase in the unpleasant aspects of travel are experienced. Increased travel time, excessive energy consumption, accidents, driver discomfort,

noise and blight all contribute to the inefficiency of the transportation network and its inability to serve existing and future developments.

Although the effects of the existing circulation system on land use policies, and vice-versa, must be addressed in the formulation of Lower Township's Land Use Development Plan, it is unlikely that there will be any one totally satisfying solution to all of the traffic problems. In a balanced community, businesses, residences, recreational facilities and other uses must exist in reasonably close proximity to one another, engendering a certain amount of inherent conflict. It is the task of planners to minimize this conflict by segregating certain land uses from each other and planning for a circulation system which attempts to serve the community's access needs for both the immediate and distant future.

FUNCTIONAL CLASSIFICATION OF ROADS

In any community, each road is called upon to perform a different type of function in the context of the whole transportation network. For planning purposes, the general functional classifications are three: arterial, collector and local. A road's classification is based on a number of considerations, including its jurisdiction, the volume and type of traffic it is required to accommodate, and its use and location within the transportation system.

Local streets primarily offer access to individual properties, both for vehicles and pedestrians. Collector streets, in theory, gather the traffic from several local streets before the design capacities of the local streets are exceeded. This traffic is then funneled either to major traffic generators such as shopping centers, offices, industrial plants or other commercial areas or to arterial roads. Depending on the volume, source and composition of the traffic, collector roads may be broken down into primary or secondary collectors. Primary collectors are those roads which run between arterial roads or link major traffic generators with the arterial network. Primary collectors tend to include a higher percentage of truck traffic than do secondary collectors. Secondary collectors, on the other hand, tend to carry largely residential traffic at lower volumes. Because of their lower volumes and non-commercial characteristics, secondary collectors may be designed with lesser right-of-way widths and road surface bearing capacities. Finally, arterial roads have, as their prime function, the transport of regional traffic -- traffic characterized by high volumes, extended destinations or substantial numbers of commercial vehicles. Arterial roads may be classified as either primary or secondary, as well, based on volumes and sources of traffic. Ideally, arterial and collector roads should have limited or strictly regulated access points to ensure an interrupted flow of traffic. In defining the existing functional classification of each of Lower Township's roads, it is first necessary to review the factors noted above which contribute to such determinations.

REGIONAL LOCATION

Plate 25 locates Lower Township within its southern New Jersey region. As is evident from the plate, Lower Township straddles the Garden State Parkway, the major north/south artery serving Cape May County. In addition, Route 9, also travelling in a north/south direction, serves as a major transportation corridor. However, unlike the Garden State Parkway, it is not a multi-lane, limited access highway. The continued demand of the region upon Route 9, an older, relatively narrow route, which must also accommodate the direct access needs of the residential, commercial and institutional land uses located along it, is one example of conflict generated by the existing land use pattern. Route 9 becomes particularly inefficient and congested in the vicinity of Schellenger's Landing. The design of this portion of Route 9 is inadequate considering its location within the region and the concomitant demands placed upon it, as will become increasingly evident in the analysis which follows.

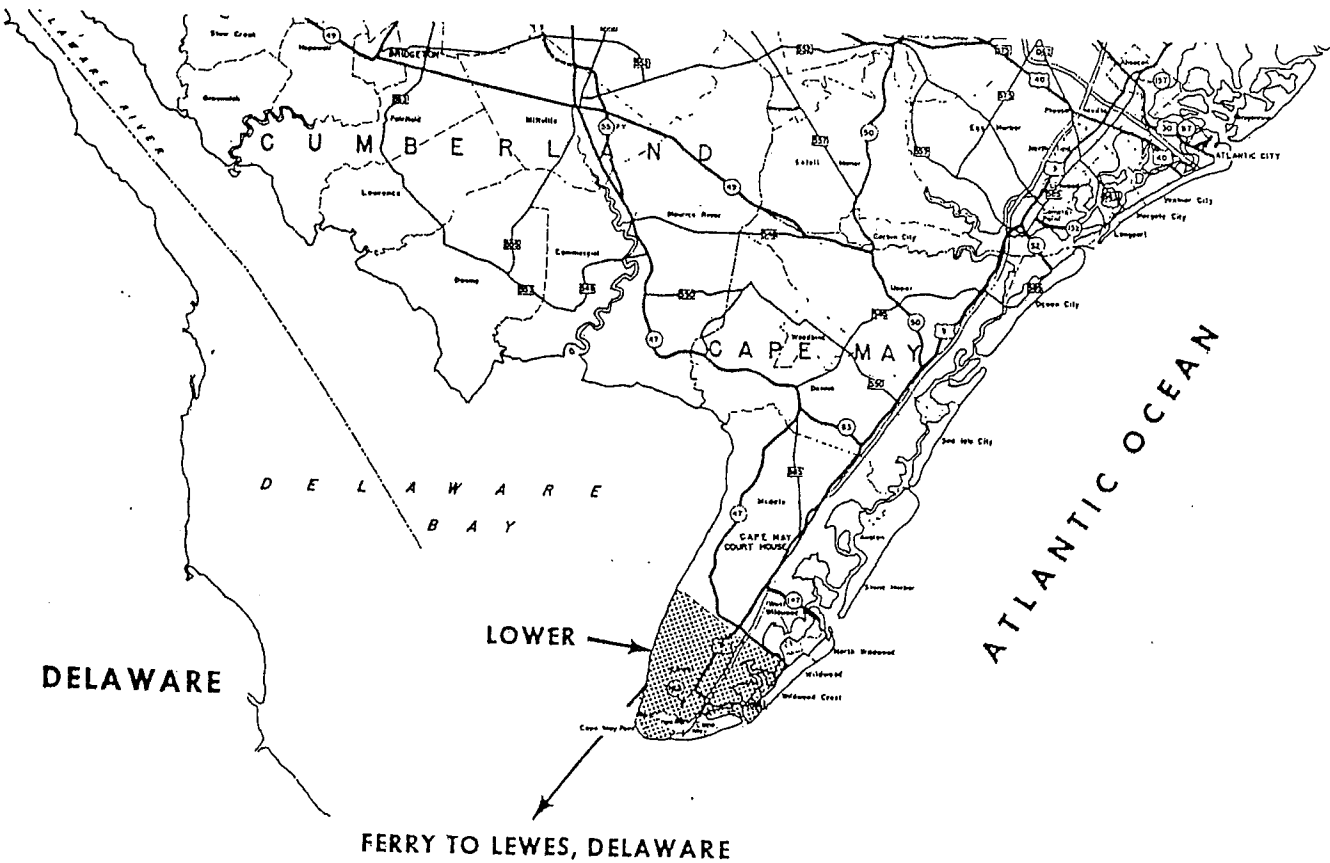
JURISDICTION OF ROADS

Plate 26 presents the political jurisdictions responsible for the various links in Lower Township's road network. Generally speaking, the volume of traffic using a road and the function it performs are revealed by the political jurisdiction which has control over its design and maintenance. State roads may be expected to carry large volumes of traffic throughout the region and be classified as arterials, while County roads will consist primarily of secondary arterial and primary collector roads, as well as some secondary collector roads. Municipal roads generally include only local streets and secondary collector roads. As indicated, the Garden State Parkway, Route 9, the Cape May - Lewes Ferry Approach Road, and Route 47 (Wildwood Boulevard) are all State owned. County roads include Fulling Mill Road, Bay Shore Road, Breakwater Road, Tabernacle Road, Fishing Creek Road, Jonathan Hoffman Road, Shun Pike Road, Seashore Road, New England Road, Stimpson Lane, and Ocean Drive. The remainder are all municipally owned roads. In Lower Township, a number of County and State owned roads are called upon to fulfill local functions as well as their collector and arterial roles, as is evident from the number of lots having direct access onto them. This is true of both Bay Shore Road and Route 9, for example.

FEDERAL AID SYSTEM

Plate 27 shows roads within Lower Township which are included in the Federal Aid System of Highways. These roads are part of a national interconnected and coordinated rural and urban road system, and, as such, are eligible for up to seventy percent (70%) federal funding for any road construction or improvement. As indicated, both Route 9 and the Cape May - Lewes Ferry Approach Road are part of the federal rural primary system. The rural secondary system includes Ocean Drive, Seashore Road, Jonathan

plate 25
REGIONAL LOCATION



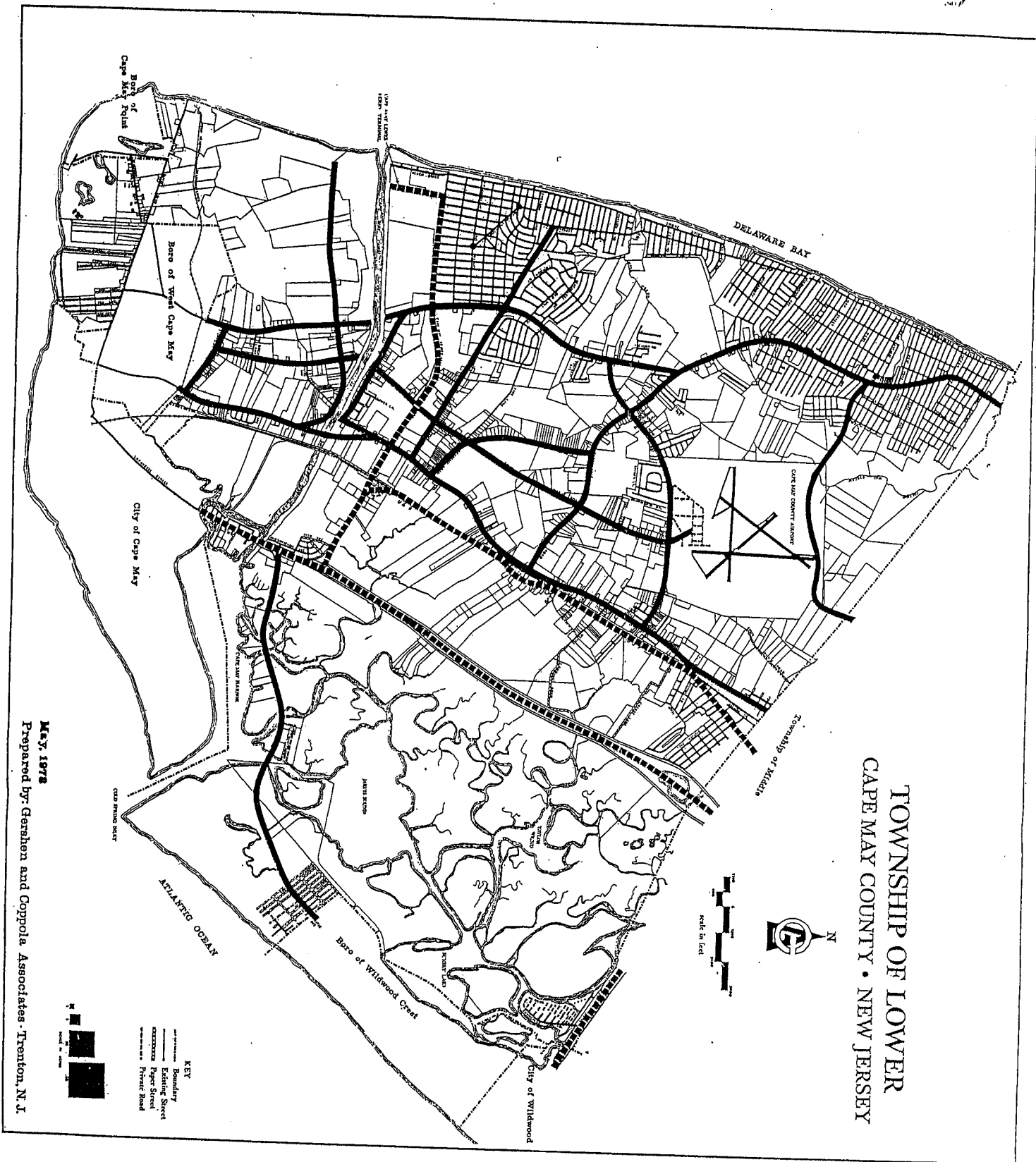


plate 26
JURISDICTION OF ROADS

- STATE
- COUNTY
- LOCAL

SOURCE : Traffic and Transportation, Cape May County Planning Board, March, 1975.

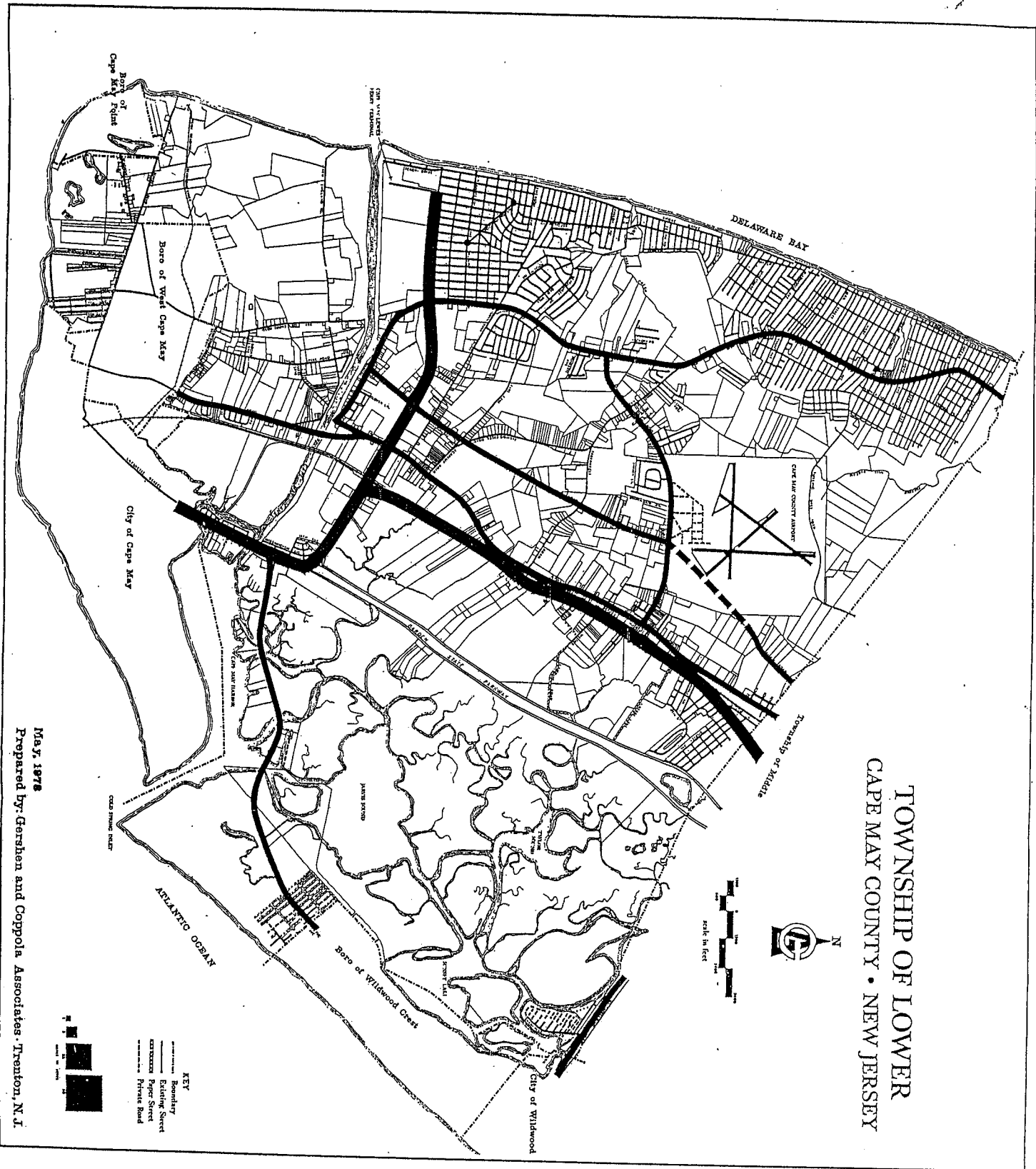


plate 27
FEDERAL AID SYSTEM

- RURAL PRIMARY
- RURAL SECONDARY

SOURCE: Cape May County Planning Board.

Hoffman Road, Bay Shore Road, Shun Pike Road, Wildwood Boulevard, and Breakwater Road. Inclusion in the Federal Aid System is an indication that a road plays more than a local or intramunicipal transport role and is a helpful guide in classifying roads according to their functions.

TRAFFIC VOLUMES

Plate 28 represents 1977 traffic volume information for Lower Township in the form of annual average daily totals (AADT) and average summer daily totals (ASDT). The New Jersey Department of Transportation provides the annual average daily totals each year for a number of roads. AADT's are estimates of the two-way traffic that would pass over a particular section of roadway during a typical twenty-four hour period based on a representative twenty-four hour mid-week count to which a "pattern factor" is applied. The "pattern factor" translates the sample count into an annual average; its value varies for the type of road or highway to which it is applied. This method has an inherent short coming -- the year round average obscures the seasonal and weekly fluctuations of traffic. In Lower Township, summer traffic increases are of serious concern in the planning process. Thus, the plate also presents estimates of the average summer daily total trips calculated according to ratios established by the Cape May County Planning Board of 2.041 average summer daily trips to one (1) annual average daily trip.

The AADT's and ASDT's should be considered only as rough guides to existing traffic conditions. Nevertheless, the information is useful as an indication of the magnitude of demand on Lower Township roads. As noted previously, the busiest point in all of Lower Township's road network is just above Schellenger's Landing where Route 9 and the Garden State Parkway come together, collecting and distributing traffic to and from the coastal areas east and south of that point.

CLASSIFICATION OF EXISTING ROAD FUNCTIONS

Based on the information contained in Plates 25, 26, 27 and 28 and observations of local travel behavior by the Consultant and members of the Lower Township Planning Board, the current functional classifications of Lower Township's roads have been determined and are presented on Plate 29. The only primary arterial existing in Lower Township is the Garden State Parkway. However, Routes 47 and 9, most of Bay Shore Road, and the Cape May - Lewes Ferry Approach Road are all classified as secondary arterials, based on both ownership (with the exception of Bay Shore Road, they are all State roads) and the longer distance, interregional types of trips they carry. Primary collector roads are those County roads which carry a substantial number of vehicles to and from arterials as well as intermunicipal (intra-regional) traffic. Included are Town Bank Road, Fulling Mill Road, a portion of Tabernacle Road, Seashore Road, Breakwater Road, Sunset Boulevard and Ocean Drive. Secondary collector roads include Fishing Creek Road, most of Tabernacle Road, New England Road, Bay Shore Road below the Cape May - Lewes Ferry Approach Road, Clubhouse Drive/Bay Drive, Shore Drive, Shun Pike Road north of the Cape May - Lewes Ferry Approach Road,

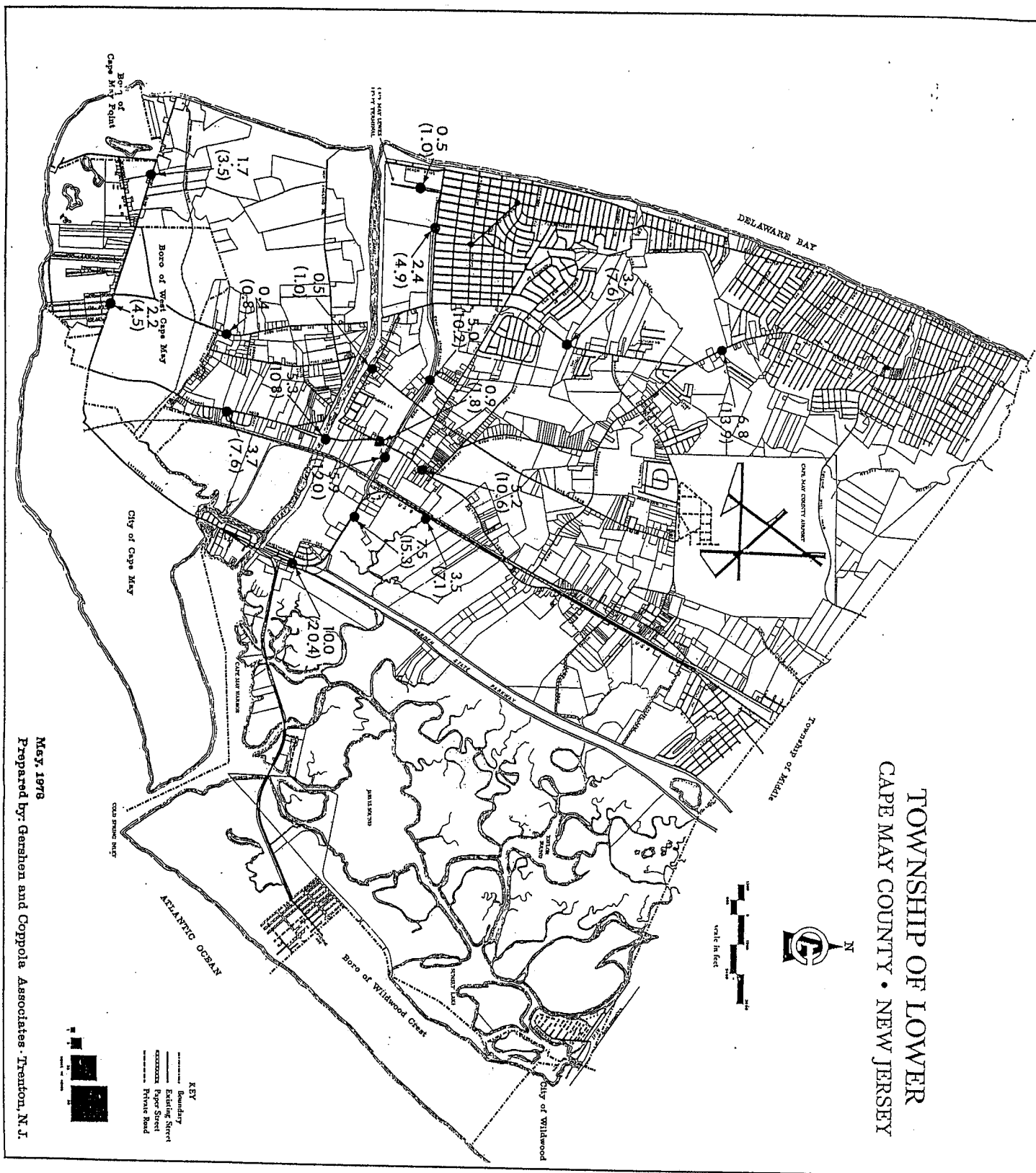


plate 28
TRAFFIC VOLUMES

● 6.8 ANNUAL AVERAGE DAILY TOTAL
(13.9) AVERAGE SUMMER DAILY TOTAL

SOURCE: 1977 AADTs N.J. Dept. of Transportation; ASDT estimates based on multipliers developed by Cape May County Planning Board.

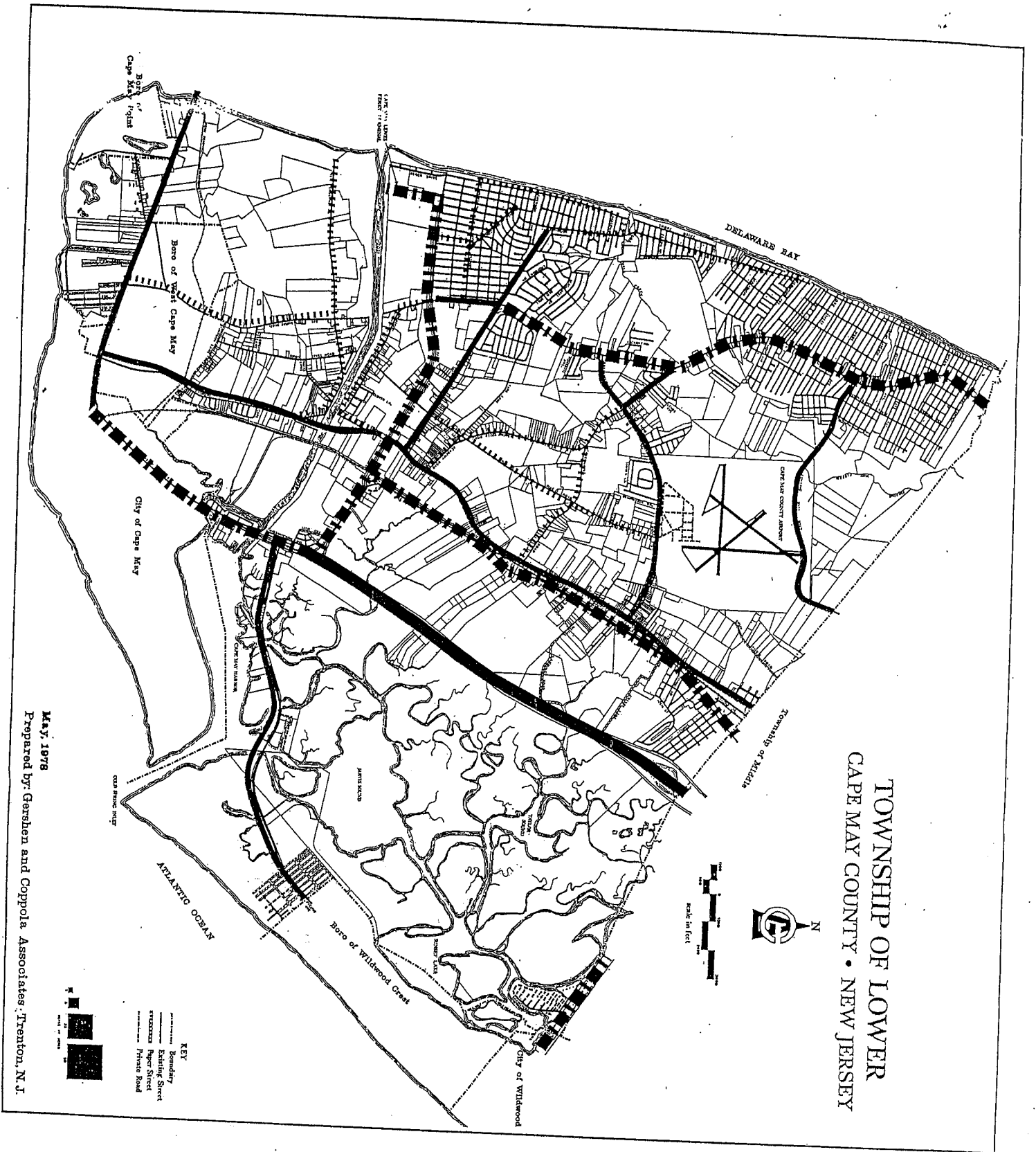
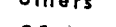


plate 29
CLASSIFICATION OF EXISTING ROAD FUNCTIONS

-  PRIMARY ARTERIAL
-  SECONDARY ARTERIAL
-  PRIMARY COLLECTOR
-  SECONDARY COLLECTOR
-  others LOCAL

SOURCE: Plates 25, 26, 27, 28; Survey by Consultant, June, 1978.

COMMUNITY FACILITIES AND UTILITIES SERVICES

Washington Boulevard, Franklin Avenue, and Pilgrim's Plaza. The remaining streets all serve local functions.

The fact that roads in Lower Township are determined to serve currently the functions shown on Plate 29 does not necessarily indicate that they were designed to do so. Use of the classification system implies conformance to a set of ideal types which do not, in reality, exist. The inadequate condition of a roadway to efficiently accommodate the demands placed upon it is a major source of transportation conflicts. In Lower Township, for example, Bay Shore Road serves a secondary arterial function while still providing unlimited driveway access to individual properties in the manner of a local road. The potential suitability or unsuitability of Lower Township's roads to meet both existing and future demands placed upon them is evidenced by their right-of-way widths, which are discussed in the following paragraphs.

STREET RIGHT-OF-WAY WIDTHS

Street right-of-way widths throughout Lower Township were estimated from Tax Map information and confirmed with the Cape May County Engineer's office. They are presented on Plate 30. A roadway's right-of-way width normally gives an indication of its function within the highway network and the traffic volumes it accommodates. It should be noted here that a street's right-of-way width is not synonymous with the paved area of the roadway, referred to as the "cartway width." The right-of-way width includes the paved area, or cartway, the shoulders, utility easements, and sidewalks, if present. Generally speaking, the State and County roadways will have the widest rights-of-way within a municipality. However, Lower Township contains numerous exceptions to this rule, as indicated on the plate.

In most cases, no roadway should have a right-of-way width of less than fifty (50) feet. In fact, roads having a fifty foot (50') right-of-way should perform only the basic local function of providing access to abutting properties; no through traffic should be part of the traffic flow. When a roadway is called upon to serve as a collector road, handling through traffic and attendant higher volumes, the required right-of-way should be increased to sixty (60) feet or more. Arterial roads should have right-of-way widths ranging from sixty-six (66) to eighty (80) feet or more, depending on their classification as either primary or secondary arterials. In Lower Township, there seems to be little relationship between a road's current function in the system and the right-of-way assigned to it. This is partially because certain areas of Lower Township which are particularly deficient in this respect developed a long time ago, when smaller cars and slower traffic did not require the additional dedication of land. However, it is evident from the Tax Map analysis that an effort has been made in the site plan and subdivision review process to obtain additional right-of-way dedication from developers whenever possible. It is interesting to note that the one area of Lower Township which may be considered to have excessively large rights-of-way is the North Cape May area, where roads serving as secondary collectors have, in some cases, rights-of-way of up to one hundred (100) feet.

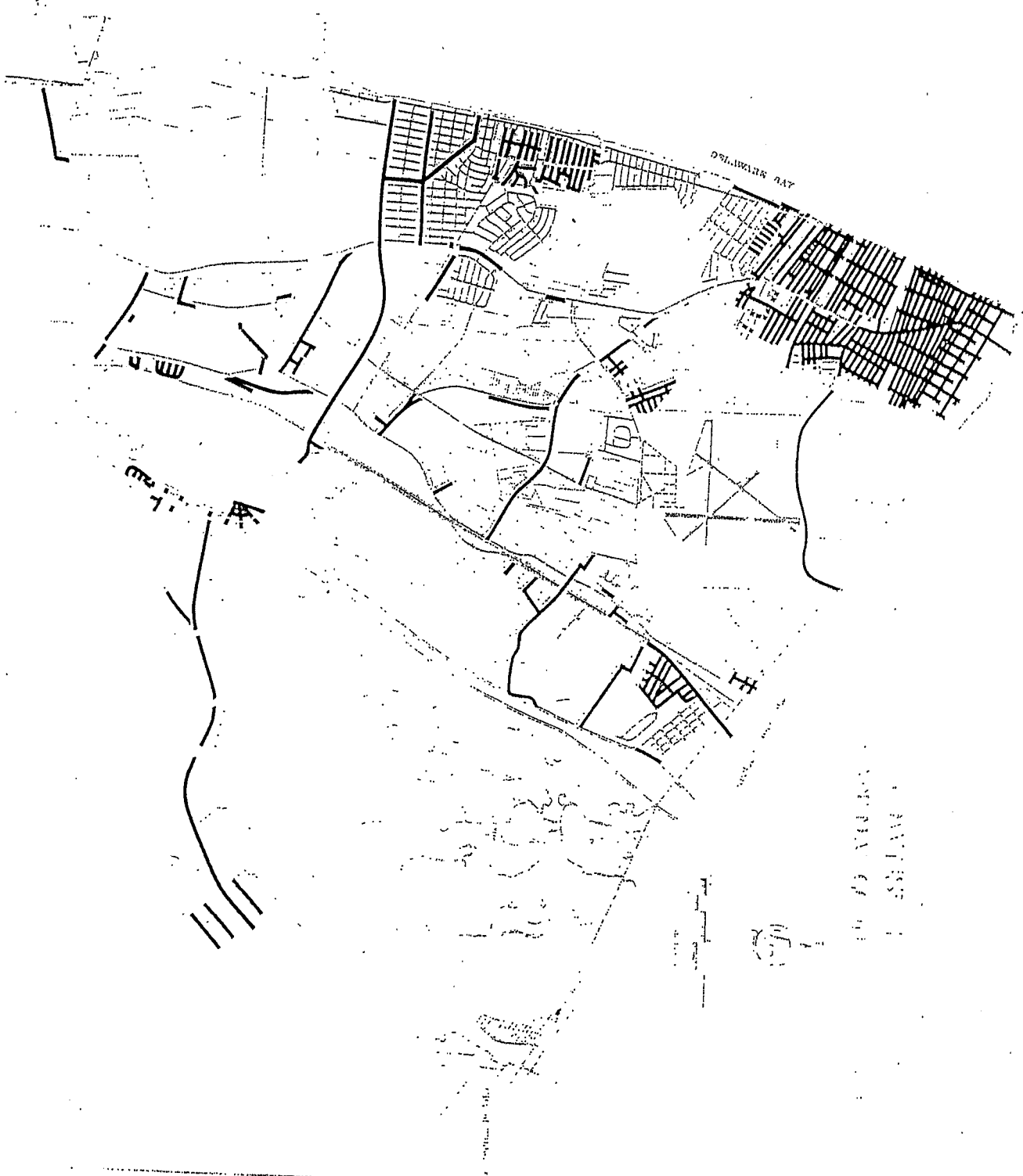


plate 30
EXISTING RIGHTS-OF-WAY

—	LESS THAN 49.5 FEET
others	49.5 TO 60 FEET
—	GREATER THAN 60 FEET

TRAFFIC ACCIDENTS

An analysis of traffic accidents is a measure of how well the existing road network does or does not perform and points to areas where corrective action may be necessary. Plate 31 shows the locations and frequencies of vehicular accidents in Lower Township during the time period from January 1, 1977 to December 31, 1977. Plate 32 presents specific data for the number of accidents which occurred in Lower Township in that time. It is important to note that the accidents presented on Plate 31 and tabulated on Plate 32 constitute only those which were reportable to the State Police. About fifty percent (50%) more accidents actually occurred in Lower Township during the year 1977, but these were not reported to the State since they were responsible for less than \$200 worth of property damage and did not involve injury or death. The following statistics provide some insight into the nature of the accidents reported to the State Police:

1. there were a total of 405 accidents during the recorded period;
2. of the 405 accidents which occurred, two (2) resulted in death, but 217 or 53.0% of the total caused human injury;
3. approximately 60% of the accidents happened during the daylight hours, 76.8% occurred in clear weather and 72.7% occurred in dry weather, indicating that factors other than poor visibility or bad weather conditions probably precipitated the accidents; and,
4. approximately 35.0% of the 405 accidents occurred during the summer months, between June 15th and September 15th.

To summarize probable causes of accidents, the following statements were made by the American Association of State Highway Officials, based on an overall analysis of highway design at the national level:

Accidents Increase -

1. as traffic volume exceeds the original design capacity;
2. with increased cross traffic and turning movements at intersections;
3. with the frequency of roadside users having direct access to the highway; and
4. with inconsistent design standards, such as steep grades, sudden sharp turns, limited visibility and a varying number of lanes.



plate 31
LOCATION OF TRAFFIC ACCIDENTS

- 1
 - 2-5
 - 6-10
- AS INDICATED

SOURCE: New Jersey Department of Transportation, Traffic
Accident Report: January 1, 1977-December 31, 1977.

PLATE 32

TRAFFIC ACCIDENT DATA
January 1, 1977 - December 31, 1977

Lower Township, New Jersey

TOTAL ACCIDENTS: 405*

ACCIDENTS INVOLVING:	Deaths	2	Bicycles	4
	Injuries	217	Pedestrians	9

BY MONTH:	January	34	May	27	September	36
	February	18	June	36	October	30
	March	29	July	63	November	36
	April	20	August	44	December	32

BY DAY OF WEEK:	<u>Sunday</u>	<u>Monday</u>	<u>Tuesday</u>	<u>Wednesday</u>	<u>Thursday</u>	<u>Friday</u>	<u>Saturday</u>
	71	47	59	58	34	50	79

BY TIME OF DAY:

a.m.	No. of Accidents	a.m.	No. of Accidents	p.m.	No. of Accidents	p.m.	No. of Accidents
12 - 1	12	6 - 7	5	12 - 1	29	6 - 7	18
1 - 2	18	7 - 8	18	1 - 2	21	7 - 8	27
2 - 3	14	8 - 9	19	2 - 3	17	8 - 9	9
3 - 4	12	9 - 10	13	3 - 4	32	9 - 10	9
4 - 5	6	10 - 11	12	4 - 5	25	10 - 11	15
5 - 6	5	11 - 12	19	5 - 6	14	11 - 12	7
	<u>67</u>		<u>86</u>		<u>138</u>		<u>85</u>

BY ROAD CONDITION:	<u>Dry</u>	<u>Wet</u>	<u>Snowy</u>	<u>Ice</u>	=	392
	285	82	5	19		

BY WEATHER:	<u>Clear</u>	<u>Rain</u>	<u>Snow</u>	<u>Fog</u>	=	392
	301	79	8	4		

NOTE: Discrepant totals due to incomplete accident reports.

* Total includes only those accidents in excess of \$200.00 damage or which caused injury or death reported to the New Jersey Division of Motor Vehicles, either by a police officer or an individual driver.

SOURCE: New Jersey Department of Transportation, Detail of Motor Vehicle Accidents by Road System, 1/1/77 to 12/31/77.

Accidents Decrease -

1. with an increase in sight distance;
2. where access to a highway is limited to controlled access points; and
3. with improved standards such as wider lanes, shoulders and improved lighting.

The frequency of accidents rises as the volume of traffic the road is forced to carry exceeds its capacity. Capacity is a function of a number of characteristics including the width of a road, the efficiency and safety of its intersections, the number of driveway access points along it, and the speed with which it is travelled. Although a road's capacity cannot be predicted with absolute certainty, the failure of a road's capacity to handle the volumes assigned to it is reflected in an increased number of accidents.

COUNTY ROAD PROPOSALS

The adopted Official Map for Cape May County shows a number of improvements to the portion of the County road network lying within Lower Township's boundaries, improvements which, if implemented, would significantly affect traffic circulation conditions in and around the municipality. In addition, the County Planning Board's 1975 Traffic and Transportation study contains the recommended right-of-way widths for County roads according to their functional classifications, which are established on the Official Map. The Official Map proposals and the future rights-of-way of all County roads are presented on Plate 33.

Acquisition of additional rights-of-way is recommended for all County roads within Lower Township with the exception of Ocean Drive, which has an existing right-of-way of approximately 120 feet. In addition to increasing rights-of-way on County roads throughout Lower Township, the relocation of Fulling Mill Road and the construction of a new airport access road are proposed. Shun Pike Road is anticipated to become a major (primary) collector road.

Plate 33 also shows the County's proposed bikeway system as it affects Lower Township. Although the bikeway alignments indicated on the plate are as presently established on the Official Map, the County Planning Board has recently proposed the construction of a bikeway system along the entire Atlantic coast of Cape May County which would include a trail travelling east on Seagrove Avenue to Sunset Boulevard, east on Sunset Boulevard to West Drive in West Cape May, north on Schellenger's Landing over the Cape May Canal to Ocean Drive, and along Ocean Drive to Pacific Avenue in Wildwood Crest. This proposal, if adopted by the Board of Chosen Freeholders, would require some modifications in the Official Map with respect to the locations of bikeways. However, the general directions of both the presently endorsed and proposed routes are consistent, and both are intended to be Class III systems (constructed within existing rights-of-way).

In determining its future development pattern, Lower Township should weigh County road improvement proposals carefully, since such proposals strongly influence Lower Township's municipal land use policies. In turn, based on information in the Background Studies and on local policies expressed in the Land Use Development Plan, the township may wish to recommend changes or additions to the County's proposals.

PUBLIC TRANSPORTATION

Lower Township is liberally served by a variety of public transportation facilities.

Airport

The Cape May County Airport, located in the northern portion of Lower Township, is the largest such facility in Cape May County. Although it was built just prior to World War II by the federal government and used during the war as a naval air station, it was turned over to the County for civilian use following the war. While the Federal Aviation Administration characterizes the Cape May County Airport as a local carrier airport, the New Jersey Department of Transportation, in its 1972 Master Plan for Transportation, specifically classifies it as a basic transport airport. The latter classification is applied to those general aviation airports designed to accommodate the entire fleet of general aviation type aircraft, including turbo jet-powered aircraft of up to 60,000 pounds in gross weight.

There are presently four (4) intersecting runways at the airport, only one of which is a precision and one a non-precision instrument approach runway; the other two are visual approach runways. Other ancillary facilities include three (3) hangars, aprons and connecting taxiways together with pavement markings, airfield lighting on the two major runways and appropriate navigational aides.

As of 1975, there were approximately 50 planes permanently based at the airport and approximately 100 additional planes based there during the summer months. The range of available services includes sightseeing flights, private flying and a variety of air transit and transport services (passenger service, air freight and mail).

According to the Cape May County Airport Master Plan, the total based aircraft is projected to grow to 55 year-round and 182 in the summertime by 1980; and by 1995, to 83 year-round and 309 in the summertime. Correspondingly, the number of annual aircraft movements is anticipated to grow to 77,900 in 1980 from a base of 48,000 in 1973. By 1995, total annual aircraft movements are anticipated to reach 158,900. This anticipated increase in activity at the airport has important effects on planning within Lower Township, particularly in those areas immediately surrounding the airport. The County's plans for the future development of the airport include additional land acquisition to the north and east, the relocation of Fulling Mill Road and the construction of a new airport access road. At such time as these and numerous other improvements are completed, the

airport will have a capacity to handle 242,000 movements annually (121 peak hour movements), approximately fifty percent (50%) more than the demand projected for the year 1995.

These plans must be taken into consideration in evaluating land use proposals for Lower Township in the immediate vicinity of the airport. Although problems often associated with the presence of an airport in a community include its need to acquire land and easements and possible water, air and noise pollution impacts, these may be avoidable in Lower Township since plans for airport expansion do not appear to involve the displacement of homes and other buildings, and only limited residential areas are disturbed by airport noise.

Ferry

Adjacent to the Cape May Canal in the western portion of Lower Township is the Cape May - Lewes Ferry. The Ferry began operation in 1964, and now transports approximately 550 passengers daily off-season and 3,300 passengers daily during the summer. It utilizes three (3) ferries, each capable of carrying seven hundred (700) passengers and one hundred (100) vehicles. During the summer of 1978, ten (10) round trips were scheduled each day at one-hour intervals between 7:00 a.m. and 8:40 p.m. During the fall and spring, the number of round trips per day was reduced to six (6), and during the winter, to four (4). The schedule is subject to change annually.

Railroad

The Pennsylvania Reading Seashore line, now a division of ConRail, continues to maintain both north/south and east/west trackage in Lower Township. While no railroad stations currently exist in Lower Township, passengers may embark at either Rio Grande or Cape May. During the winter, only two trips per day five days a week are scheduled; during the summer, there are four trains five days a week, and two on Saturdays, Sundays and holidays.

Busses

Bus transportation in Lower Township consists of two private transit companies and the Cape May County Fare Free Senior Citizens bus system. Transport of New Jersey operates daily busses to and from Philadelphia, (three (3) runs each way during the winter and six (6) runs each way during the summer) and two (2) runs each way daily from Cape May to Ocean City via Ocean Drive. In addition, during the summer, Transport of New Jersey also runs a Wildwood, Rio Grande, Villas, North Cape May, Cape May line with a two (2) hour headway. Lincoln Transit Company operates two (2) daily round trips from Cape May to New York during the summer months.

The County's Fare Free Senior Citizens bus route runs through the Villas along Bay Shore Road, through the North Cape May area and south of the canal into West

Cape May, and up through the Diamond Beach area into Wildwood Crest. In addition, a second line runs from Cape May through Schellenger's Landing and up Route 9. The Fare Free bus system operates year round.

Plate 34 demonstrates existing public transportation facilities and routes in Lower Township.

CONCLUSION

Future improvements to the road network throughout Lower Township must be designed to 1) rectify existing inadequacies and 2) prepare for future development and increased traffic volumes. A significant problem for both County and municipal roads in Lower Township is the lack of sufficient right-of-way widths within which to improve existing streets to handle anticipated traffic. The primary techniques for the acquisition of future rights-of-way are through the dedication and reservation processes, both of which are accomplished at the time of site plan and subdivision review. However, where no new development is occurring but road right-of-way widths are insufficient to accommodate needed improvements, purchase of additional right-of-way may be necessary. (This may be facilitated through off-tract improvements ordinance provisions, in some cases.) Additionally, the regulation of land uses which will abut the existing roadway network and the exercise of controls that will insure an uninterrupted flow of traffic, including such measures as limited access points and increased setbacks from the roadways, can be used to maximize the safety and efficiency of the road network as the township develops. These techniques are effected through the enactment of a Development Ordinance implementing the various Land Use Development Plan proposals.

DEGREE AND KIND OF SOIL LIMITATION FOR COMMUNITY DEVELOPMENT

plate 19

U.S.D.A. Map Publication Symbol		Land Use																					
Soil Series	Map Symbol	Dwelling with Basement	Problem	Dwelling without Basement	Problem	Septic Tank Absorption Fields	Problem	Sanitary Landfill	Problem	Local Streets and Roads	Problem	Lawns, Landscaping, Plantings & Golf Fairways	Problem	Athletic Fields	Problem	Picnic and Play Areas	Problem	Campsites	Problem	Paths and Trails	Problem		
Cu DoA, DsB Fl, Fm FzB HsA, HsB MAU Ps SsA, SsB SsA TD, TM, TS WmA EVB KmA Bp	Coastal Beach Downer Fill Land Fort Mott Hammonton Muck Pocomoke Sassatras Sassatras Tidal Marsh Woodstown Evesboro Kleij Berryland	A B C D E F G H I J K L M N	2	R S S S S S S S S S S S S S	2	R S S S S S S S S S S S S S	1,3 * * * * * * * * * * * * * *	R R R R R R R R R R R R R R R	3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	S S S S S S S S S S S S S S	1 1 1 1 1 1 1 1 1 1 1 1 1 1	R M R R R R R R R R R R R R	4 4 4 4 4 4 4 4 4 4 4 4 4 4	R R R R R R R R R R R R R R	6 4 4 4 4 4 4 4 4 4 4 4 4 4	R M R R R R R R R R R R R R	6 5 5 5 5 5 5 5 5 5 5 5 5 5	R M R R R R R R R R R R R R	6 5 5 5 5 5 5 5 5 5 5 5 5 5	R M R R R R R R R R R R R R	6 5 5 5 5 5 5 5 5 5 5 5 5 5	R M R R R R R R R R R R R R	6 5 5 5 5 5 5 5 5 5 5 5 5 5

* See text for special conditions which affect limitations.

LIMITATIONS

S - SLIGHT ratings mean little or no limitation or limitations easily corrected by the use of normal equipment.

M - MODERATE ratings mean presence of some limitations which normally can be overcome by careful design and management at somewhat greater costs. Kinds of limitations are listed.

R - RESTRICTIVE limitations are those which normally cannot be overcome without exceptional, complex or costly measures. It is not intended that a restrictive rating makes an area totally unsuitable for a particular use.

KEY TO PROBLEMS

- 1 High or seasonally high water table.
- 2 Area subject to flooding.
- 3 Rapid permeability permitting ground water pollution.
- 4 Low fertility and available water capacity.
- 5 Dust hazard.
- 6 Loose sand.

SOURCE: Soil Survey of Cape May County, New Jersey.
U.S. Department of Agriculture, Soil Conservation Service, February, 1977.

COMMUNITY FACILITIES AND UTILITIES SERVICES

INTRODUCTION

Community facilities and utilities services information is essential to any Land Use Development Plan. By examining the extent to which such services and facilities currently exist, and comparing them, where helpful, to standards for performance or availability set by various public and quasi-public agencies, existing deficiencies can be identified and incorporated into considerations of both the appropriateness and the impact of future development plans. This section of the Background Studies describes the community facilities and utilities currently available to residents of Lower Township.

PUBLIC SCHOOLS

Lower Township residents are served by two separate school systems. The Lower Township school system, accommodating students in grades K through 6, includes two buildings: the Lower Township Consolidated School and the Maud H. Abrams Primary School; a third school containing twelve (12) classrooms will be constructed at the new municipal complex on Bay Shore Road. The Lower Cape May Regional school system, which includes the Richard M. Teitelman School and the Lower Cape May Regional High School, accommodates grades 7 through 12 and serves not only students from Lower Township, but also students from Cape May and West Cape May and tuition students from Cape May Point. The locations of all existing and proposed school buildings are presented on Plate 35.

Plate 36 inventories the physical facilities and staff of the Lower Township school system. Consolidated and Maud Abrams Schools are located adjacent to each other on a roughly twenty (20) acre site along Seashore Road. Consolidated School was constructed in 1932 and reconstructed in 1933. The Maud Abrams School was constructed in 1966. Maude Abrams currently has a functional capacity rating of 698 students and Consolidated School is rated as having a functional capacity of 511 students. A school's functional capacity indicates the maximum number of students who should be assigned to a building based upon recommended standards for the minimum required total square footage per student for various types of instructional activities. For example, the State Department of Education recommends that classrooms for grades 1 through 3 should possess 32 square feet per student, whereas classrooms for 8th grade students should have 28 square feet per student and science rooms 50 square feet per student. It is important to realize that the functional capacity of a school reflects its present utilization. This figure is apt to change as the internal structure and use of space changes. The functional capacity rating is assumed to represent the number of students that safely can be accommodated within a building, while the optimum capacity is primarily a matter of Board of Education policy. The Superintendent of the Lower Township school system has indicated that the optimum capacity of each of the two schools is closer to 500 students.



plate 35
SCHOOL LOCATIONS

SOURCE: Lower Township Tax Maps and Survey by Consultant, June, 1978.