

FINAL

GROWTH SHAPERS

prepared for

PINELANDS COMMISSION  
NEW LISBON, NJ

prepared by

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TRENTON, NJ

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## GROWTH SHAPERS

### INTRODUCTION

This report attempts to inventory certain key physical or developmental features in and around the Pinelands capable of influencing the extent and direction of future growth in the Pinelands region. As such, it is a parallel to the report Social and Economic Factors Capable of Influencing Pinelands Development; in this report, the factors discussed are physical, with explicit locational features. In the other, the factors are demographic or economic, or, in many cases, more generalized and speculative.

It should be stressed that, while the factors presented in this report are concrete and physical, their significance or lack of significance is very much debateable. As a result, the principal thrust of this report is descriptive, rather than analytical; some preliminary thoughts, however, on significance or implications are offered. The report is divided into three areas:

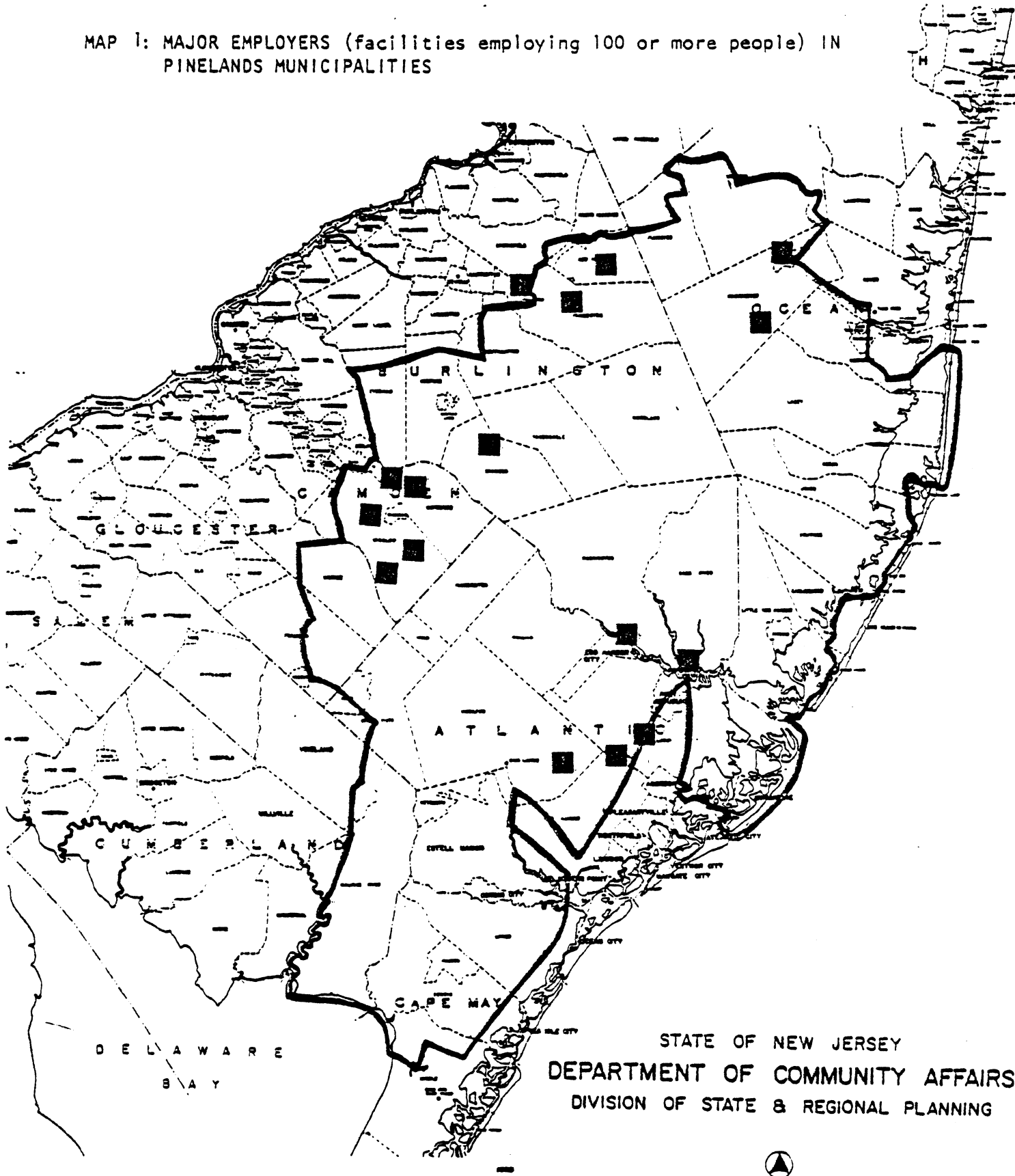
- economic activity
- infrastructure
- development activity

It should be noted that a large part of the discussion in the narrative is keyed to a series of large-scale maps (1:125000 scale) that are available at the office of the Pinelands Commission.

#### 1. ECONOMIC ACTIVITY

Maps 1 through 3 on the following pages summarize key features of the location of significant economic activity within or nearby the Pinelands

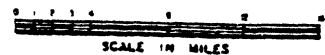
MAP 1: MAJOR EMPLOYERS (facilities employing 100 or more people) IN PINELANDS MUNICIPALITIES



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SOURCE: county industrial directories  
and informal contacts

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region. The most significant overriding conclusion from the three maps is that economic activity, of the sort linked to present or potential development\*, is limited in the extreme within the Pinelands area. Furthermore, it would appear that a substantial part of the residential development in the Pinelands is linked to economic activity taking place outside the boundaries of the Pinelands region.

(a) Major employers (map 1): In our initial investigation, only sixteen employers or facilities employing 100 or more workers were identified within the Pinelands. The term 'only' is used since, within the context of the State of New Jersey, this is a trivial number. In 1978, there were a total of 3,956 separate employers reporting 100 or more covered jobs to the New Jersey Department of Labor & Industry\*\*. In similar vein, it should be noted that according to the Camden County Industrial Directory, Camden City and Cherry Hill had, respectively, 28 and 29 separate employers each employing 100 or more workers.

Furthermore, with the exception of Fort Dix in the northern end of the region, none of these employers are so large as to act, it would appear, as present or potential nodes of development. The impact of Fort Dix in that regard, although clearly significant in the past, is less so at present, since it has been steadily reducing its level of operations in recent years, and indeed may be largely closed in the foreseeable future.

(b) increase in covered employment (map 2): map 2 on the following page illustrates the increase in covered employment by municipality from 1972 to

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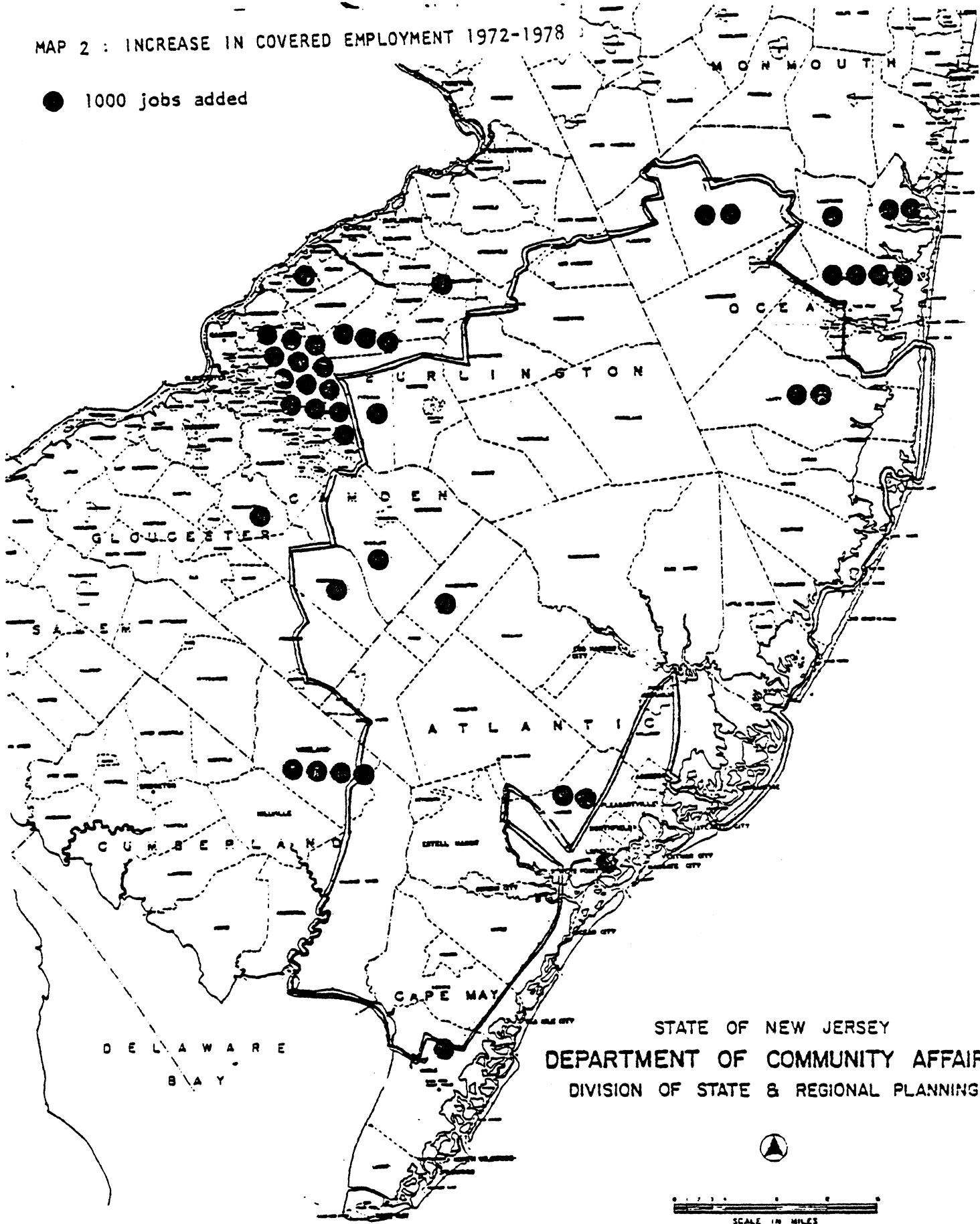
\*It is important to stress that this does not mean that there is not valuable economic activity in the Pinelands; rather, that this activity, which is heavily agricultural, is not linked to the generation of development pressure in that manner that is typical of large-scale manufacturing employment.

\*\*This is likely to be fewer than the actual total, since it includes only those jobs covered by the unemployment insurance system. The source of the Pinelands data, for the most part, was county industrial directories enumerating total employment.

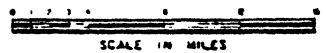
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MAP 2 : INCREASE IN COVERED EMPLOYMENT 1972-1978

● 1000 jobs added



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GROWTH SHAPERS (5)

1978, for those municipalities in which the increase was greater than 1,000 jobs. During this period, the total increase statewide was roughly 225,000 jobs. Map 2 shows clearly that only a handful of municipalities within the Pinelands experienced significant job growth during this recent period; only three municipalities, two of which have substantial land area outside the Pinelands, showed growth of 2,000 or more jobs. By comparison, employment growth in the Cherry Hill area was in excess of 15,000 jobs during the same period. Job growth in the Pinelands has been modest, particularly by comparison with the residential growth taking place in many parts of the region.

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 TABLE 1: GROWTH IN COVERED EMPLOYMENT IN SEVEN COUNTIES - PINELANDS AND BALANCE - 1972 TO 1978

	Pinelands	Balance	Total	Pinelands % share
Atlantic	5,572	883	6,455	86.3%
Burlington	3,712	5,835	9,547	38.9%
Camden	2,869	11,459	14,328	20.0%
Cape May	131	6,655	6,786	1.9%
Cumberland	(42)	3,018	2,976	-0-*
Gloucester	1,597	10,501	12,098	13.2%
Ocean	7,199	10,866	18,065	39.9%
TOTAL	21,038	49,217	70,255	29.9*

\*negative share (job loss)

SOURCE: NJ Department of Labor & Industry, Covered Employment Trends

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It is sharply apparent that whatever pressures are driving residential construction in the Pinelands, they are not linked to internal employment growth.

(c) major retail centers (map 3): Map 3 on the following page shows the major retailing centers serving Pinelands municipalities, both within and in close proximity to the Pinelands region. The pattern is consistent with, and

MAP 5 : MAJOR RETAIL CENTERS SERVING  
PINELANDS REGION

GROWTH SHAPERS (6)



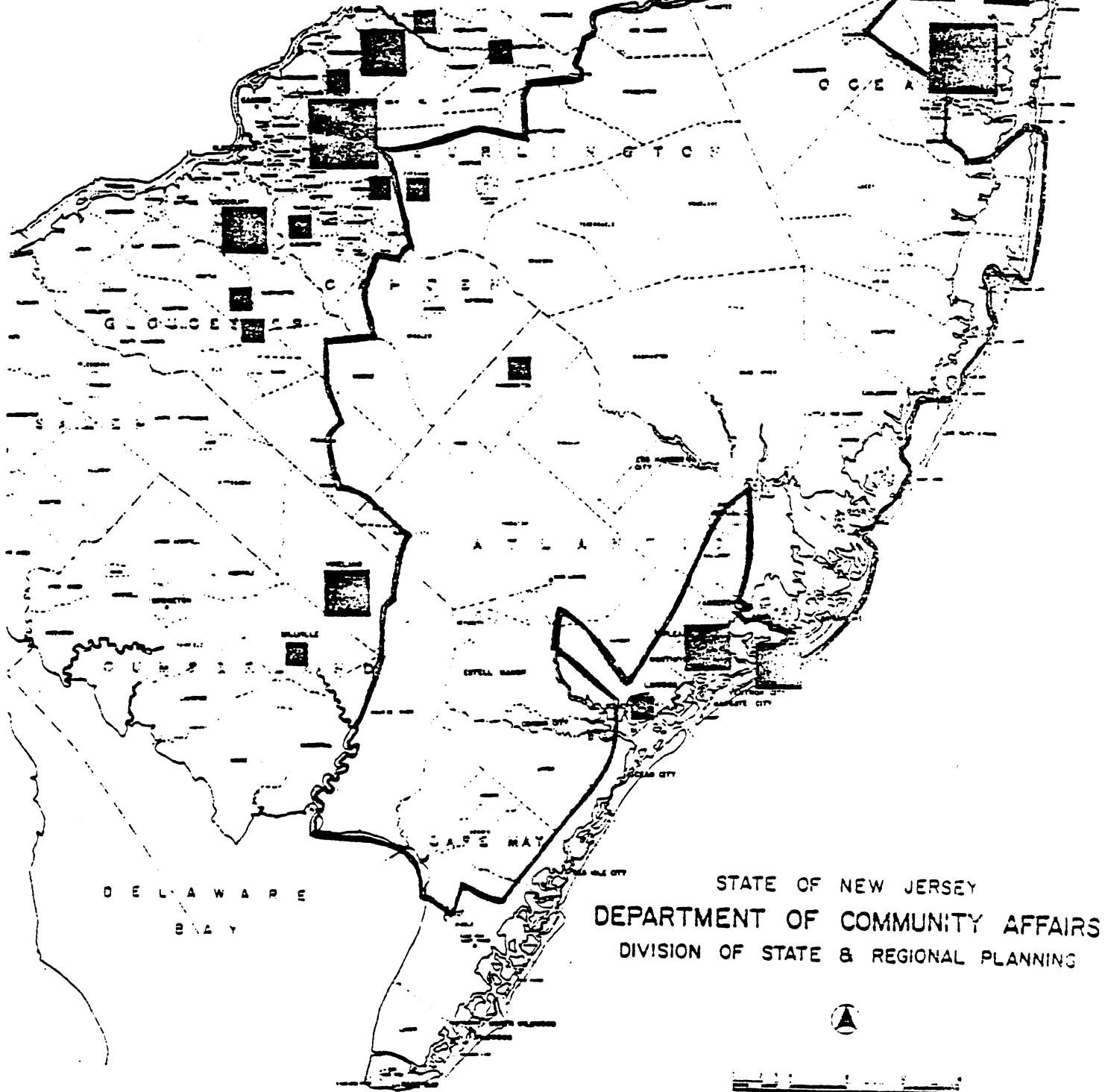
1977 sales over  
\$250 million



1977 sales between  
\$100 and \$250 million



1977 sales between \$50 and \$100 million



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SOURCE: Census of Retail Trade (1977)

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even more dramatic than, the employment patterns shown above. There are no major regional retail centers located within the Pinelands, and only two centers, in Evesham and Hammonton, that can be considered minor regional shopping centers, with as much as \$50 million in annual retail sales in 1977\*. For practical purposes, all major shopping by Pinelands residents is done outside the region; the perimeter of the region is well served with shopping facilities, generally oriented to automotible traffic, in suburban Camden, Gloucester, and Burlington Counties to the west, and in Dover Township to the north.

It is worth noting, with regard to Ocean County, that although the population distribution of the county has been moving into the Pinelands, to the west and south of the initial population centers of the county, the same has not been true of retail shopping activity. Dover Township today is responsible for a larger share of total countywide retail trade than was true five years ago; the same is true of the northeastern part of the county generally. It would appear, although the data makes it uncertain, that the share of countywide retail trade in the Pinelands has diminished from 1972 to 1977\*\*.

(d) a note on implications: It should be apparent from the foregoing that no significant center of economic activity, either in terms of employment or retail trade, has yet developed within the Pinelands. Pinelands residential development, as a result, has been perimeter development: closely linked to areas

\*It should be noted that, although \$50 million has a large ring to it, it does not represent a major shopping center. Roughly speaking, this amount is the total annual shopping volume spent by 6,000 to 7,000 moderate income families, or some 20,000 people.

\*\*Since data is only available at the municipal level for major retail centers, it is possible to separate the Brick/Dover/Lakewood area (which contains the bulk of non-Pinelands retail activity) from the balance of the county. These three municipalities accounted for 60.6% of the retail trade in Ocean County in 1972, and 63.3% in 1977. Trade volume increase by 90% in the three municipalities over five years, compared to 68% in the balance of the county. In Dover Township, retail trade increase by 124% from 1972 to 1977!



outside the Pinelands offering employment and shopping opportunities. There is no evidence, at least through data assembled in 1977 and 1978, of any shift in that pattern; indeed, the concentration of retail trade in northeastern Ocean County noted above, and, more importantly, the resurgence of Atlantic City as a center of economic activity, should strengthen this pattern in the years to come.

This would argue that there is little economic necessity, or even justification, to extensive development in the interior of the Pinelands, leaving aside, of course, the attractions of inexpensive vacant land. Indeed, it is arguable that largescale 'leapfrogging' into the interior areas could trigger either substantial commuting/energy costs, or alternatively, the need for additional investment for commercial and other infrastructure linked to residential development.

## II. INFRASTRUCTURE

Maps 4 through 6 (1:125000 scale maps not contained in this report) show three principal infrastructure elements in the Pinelands; specifically, sewer facilities and service areas, the highway and road network, and the network of principal public open spaces. A review of each of these three areas tends strongly to substantiate the inferences drawn from the indices of economic activity summarized above.

The road and highway system (Map 4) is the only system that 'crosses' the Pinelands in any meaningful fashion; even here, however, it is notable that the major components of the system tend to bypass the Pinelands, with the principal exception of the network of roads linking Atlantic City to the Philadelphia area. The system of limited access highways essentially acts

## GROWTH SHAPERS (9)

as an outer perimeter ring to the Pinelands, with the Garden State Parkway to the east, I-295 and the New Jersey Turnpike to the west, the Atlantic City Expressway to the south, and I-195 (partial), not shown on the map, to the north. Major state highways are also limited in interior parts of the Pinelands. There is little question that the network of highways has had a significant influence on the pattern of development in and nearby the Pinelands; the principal development extensions in the Philadelphia SMSA as well as in central and southern Ocean County are directly linked to the major road network. It is interesting, however, that in recent years some Pinelands development, such as the suburbanization in Shamong and Tabernacle Townships, appears to be less dependent on specific highway links.

The sewerage system (Map 5) is far more limited in scope, and potential capacity. Indeed, a cursory look at the extent of the sewerage treatment facilities available strongly suggests that, while the availability of sewer systems is an asset, its absence is not a deterrent to development. In other words, development has not been precluded by the absence of public sewer systems, since in many cases it was possible historically to use septic systems, or construct package treatment facilities. The latter made possible many of the relatively isolated, large scale, residential developments built in Ocean County and elsewhere.

There is little question that development is likely to utilize such available and reserve planned capacity as exists today in the area within what is likely to be a fairly short period. Future development, in all parts of the region, will require either substantial extensions of public systems or, alternatively, construction of package treatment facilities under what are likely to be significantly more stringent environmental regulations.

The system, if it can be so termed, of public open space (Map 6), is presented to illustrate constraints more than pressures. While the presence of open space is an amenity factor in development\*, its function is more significant as a barrier to development. It is worth noting that development is effectively approaching that barrier, represented by the Wharton Tract, in a number of communities, including Waterford, Medford, and Shamong. While public open space is most prevalent in the central or interior Pinelands, there are significant lacunae, both in Burlington County and, perhaps more significantly, in western Atlantic County.

The distribution of infrastructure within the Pinelands again illustrates the absence of facilities in the interior areas; this, however, may not be a significant factor in terms of future development considerations. Since it appears likely that future development anywhere in the region, beyond a rapidly approaching point, will require major investment in sewerage treatment facilities (public or private), this factor is not necessarily closely tied to the location of existing sewerage treatment facilities and extensions. The same is true to a degree with regard to the road network; although limited in some areas, the history of development has shown its flexibility with regard to road systems. In a large scale residential development the cost of bringing a road to the development, even a considerable distance, is negligible by comparison to many other costs a developer is likely to incur\*\*.

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\*The amenity value of public open space in the Pinelands, as far as can be determined, has never been highly significant, inasmuch as the amount of private open space relative to the amount of developed land has always been more than adequate.

\*\*It should also be noted that, in rural areas, the substantive difference between many roads classified as primary state highways and those classified as secondary (county) roads is often relatively little, both being two lane systems.

III. DEVELOPMENT ACTIVITY

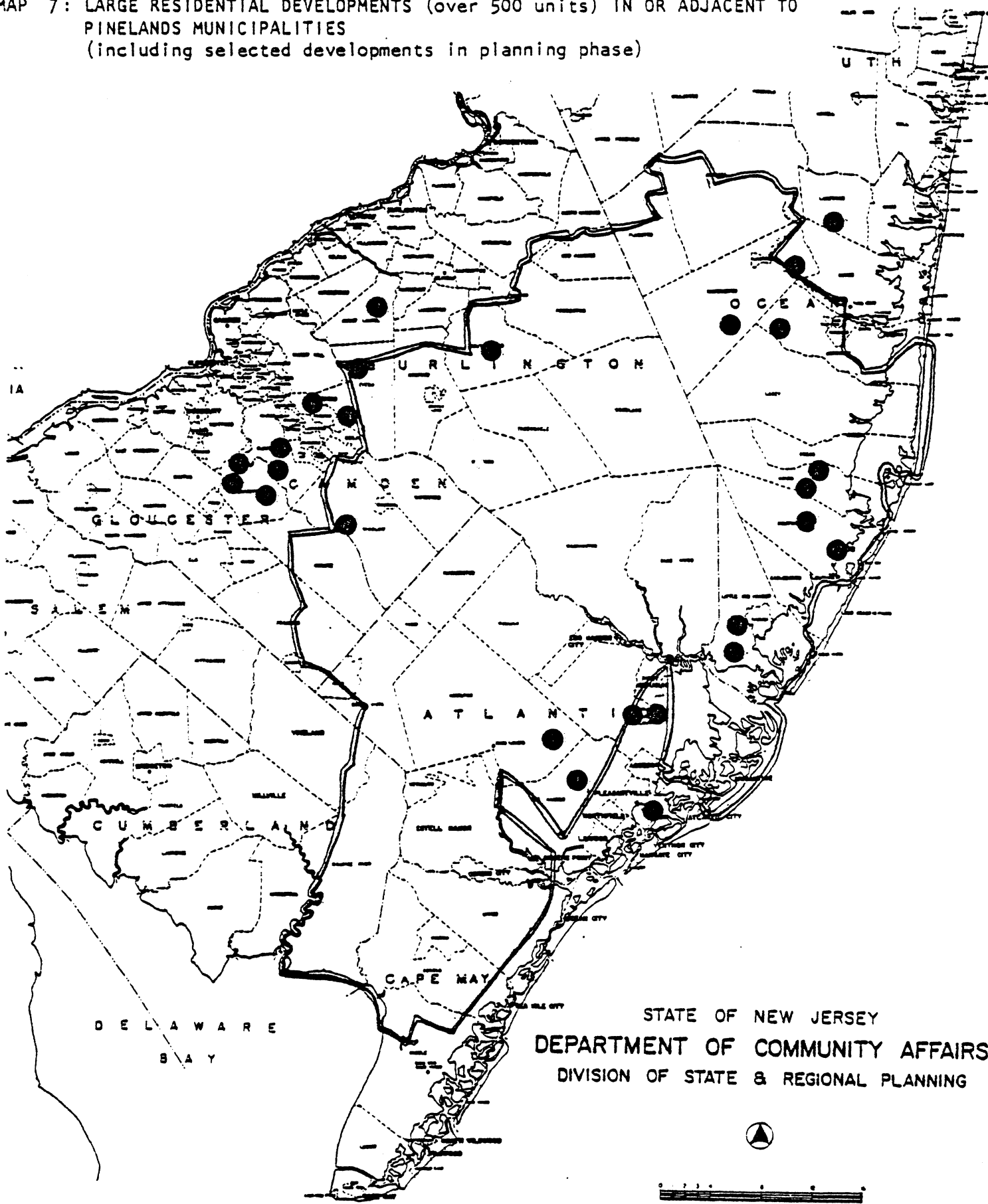
Maps 7 through 9 (maps 7 and 8 on following pages, map 9 is a large scale map not contained in this report) present key indicators of development activity in and around the Pinelands region. Maps 7 and 8 present, respectively, the locations (generalized) of large scale developments in construction or planning within and around the Pinelands, and the distribution of building permits issued between 1970 and 1978, in those municipalities issuing 1,000 or more permits during that period.

With the important exception of Ocean County, the most active municipalities in terms of building permit issuing are outside the Pinelands, although many Pinelands municipalities showed significant levels of growth during the decade. This development, however, tends to be located largely around the Pinelands perimeter; even where it may appear to be otherwise from the appearance of Map 8, one finds upon closer examination that the actual development is close to the boundary. This is true, for example, of development in most of the municipalities of Ocean County, where development to the west of the Garden State Parkway has been the exception. On the other hand, developments such as Crestwood Village in Manchester Township, and much of the activity in Pemberton Township\*, have taken place well within the Pinelands boundaries. Again, although the overall trend is the same, it must be stressed that the residential development is (a) much more locationally flexible than commercial or industrial development, particularly retirement communities, which are not dependent on a strong employment linkage; and (b) only moderately dependent on the extent of existing infrastructure, since, at least with regard to large-scale development, it appears readily able to

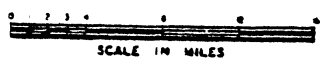
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\*development in this area, much of which was attributable to the influence of Fort Dix, has decreased markedly in the past few years.

MAP 7: LARGE RESIDENTIAL DEVELOPMENTS (over 500 units) IN OR ADJACENT TO PINELANDS MUNICIPALITIES (including selected developments in planning phase)



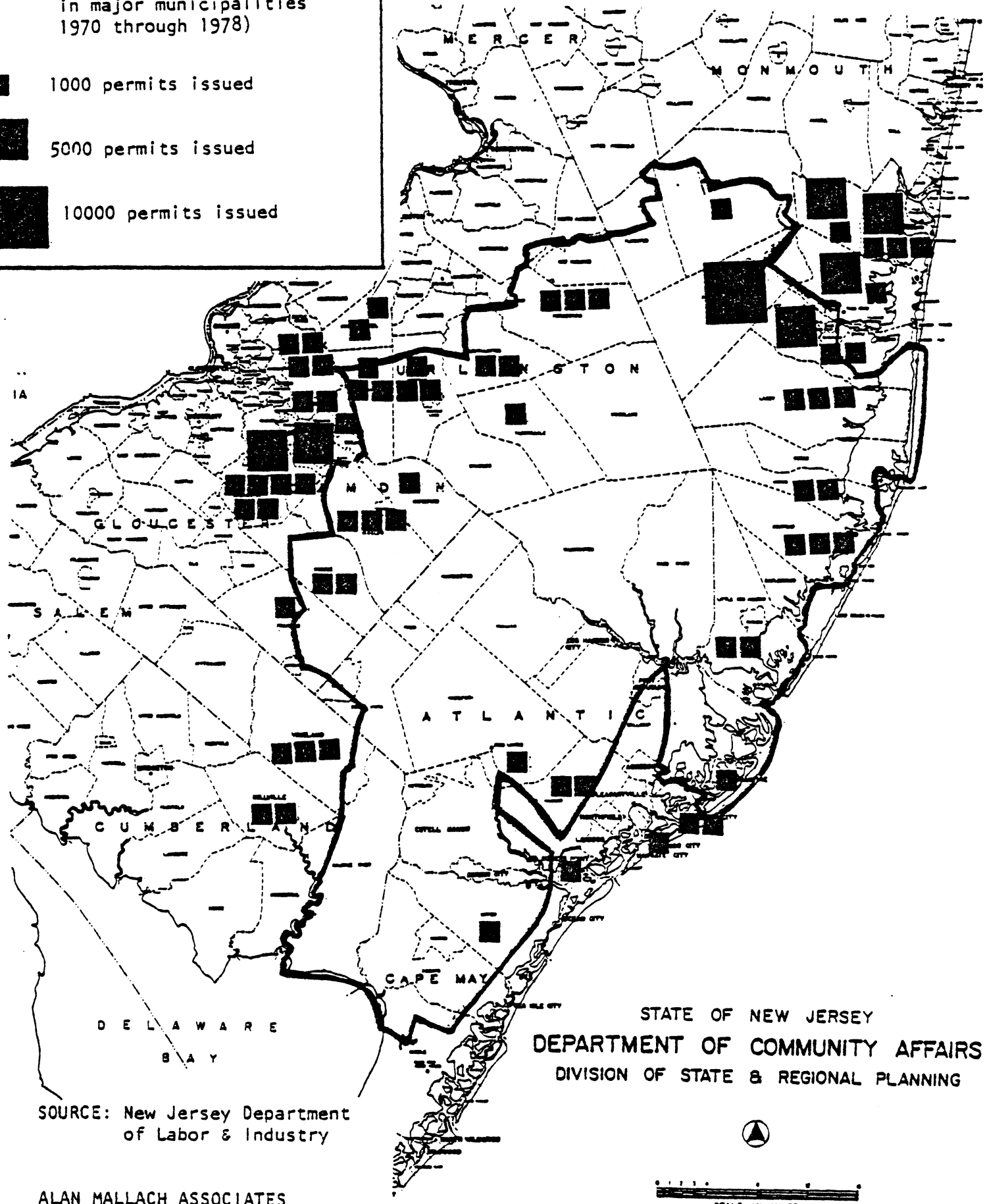
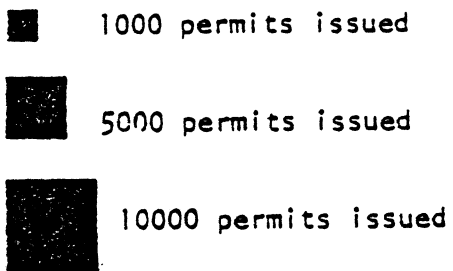
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**RESIDENTIAL DEVELOPMENT**  
 (building permits issued  
 in major municipalities  
 1970 through 1978)

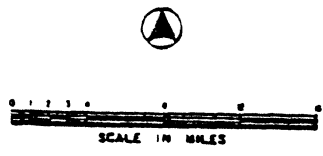
GROWTH SHAPERS (13)



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SOURCE: New Jersey Department  
 of Labor & Industry

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## GROWTH SHAPERS (14)

create its own infrastructure.

Map 9 represents an effort to delineate the extent and direction of development on a more locationally specific, albeit still generalized, basis.

The map distinguishes between three general 'levels' of development:

- historic developed areas (urban areas)- as delineated by USGS in 1974.
- areas of recent development, in which substantial development has taken place between 1974 and 1980;
- areas of planned development, in which development has only begun, or which are the locations of potentially significant development now in the planning stages.

Although most of the specific areas in which recent development has taken place, or in which planned development can be foreseen, are in themselves logical extensions of one development trend or another, overall they represent a significant increase in the dispersal of development, by comparison with a pattern in existence as recently as the early 1970's. One of the most significant recent patterns in the Philadelphia SMSA is the perceptible weakening of the historically close dependence on the major road network. This is noticeable both within and outside the Pinelands:

- within the suburban area outside the Pinelands, in Camden and Gloucester Counties, development has historically followed the network established by the White Horse and Black Horse Pikes, as well as Highway 70, to a lesser degree. During recent years, there has been noticeable infill between the 'fingers' of historic development, most dramatically in Gloucester Township.

- development in Burlington County, although still in a general fashion linked to the highway network, has become much more independent. The extension of development into the Pinelands, particularly in Medford, Shamong, and Tabernacle, has progressed at a gradually further remove from Highway 70, which can be considered to be the initial 'spur' for development in the area.

Other growth patterns in other parts of the region are also worth noting:

- The development pattern in Ocean County continues to be strongly linear, with the area East of the Garden State Parkway and north of Manahawkin taking on more and more of the character of a developed region. As a result, development is starting to become more and more common west of the Parkway in this part of the county, a trend that can be anticipated to continue in the absence of constraints. This trend would be significantly strengthened by major public support for sewerage facilities in that area, a subject which is under discussion.

- development beyond the strip of mainland municipalities facing the bay in Atlantic County (Linwood, Northfield, etc.) has historically been limited to small, scattered, pockets of development. Current plans and proposals, however, are capable of dramatically transforming the character of a large part of the county, particularly in Egg Harbor and Galloway Townships.

It should be stressed that the significant exceptions to the perimeter pattern of development in the Pinelands are still relatively few, and with a handful of exceptions such as Crestwood Village, modest in scale. Most of the developments that have come into being recently in Shamong and Tabernacle Township, for example, are quite small in scale, being subdivisions of under 100 homes. The impact of a scattered pattern of such development, however, in terms of effective land consumption and transformation of community character, is likely to be far greater than its accomplishments in terms of housing provision.

The cumulative effect of development around a perimeter of open land such as the Pinelands, is to shrink that perimeter, as is taking place in



## GROWTH SHAPERS (16)

many areas within the Pinelands today. The pattern of development, however, strongly suggests that it is possible to place bounds on the current trends, in order to move toward a more systematic balancing of environmental and development objectives.

MAP : MAJOR RETAIL CENTERS SERVING  
PINELANDS REGION



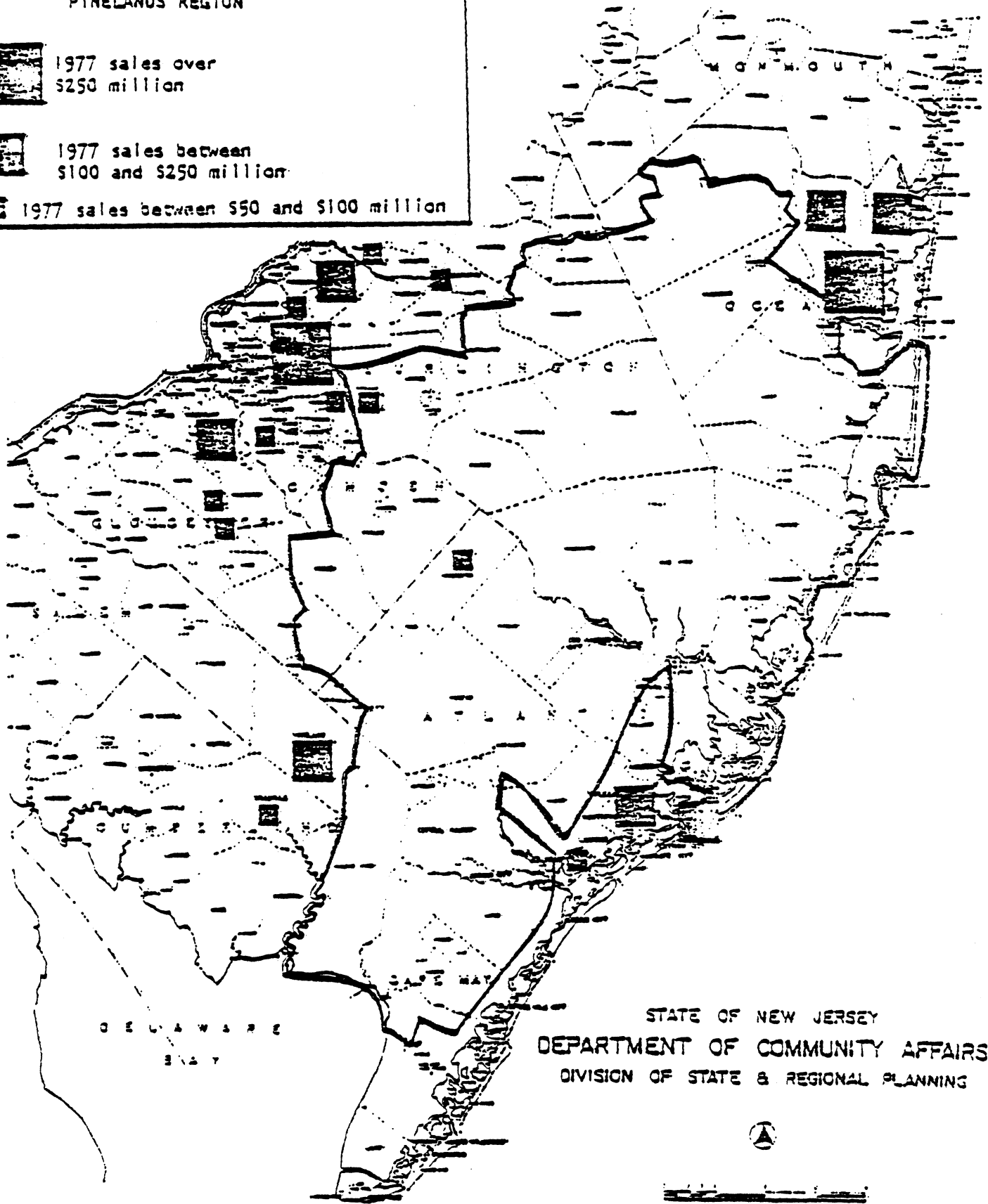
1977 sales over  
\$250 million



1977 sales between  
\$100 and \$250 million



1977 sales between \$50 and \$100 million



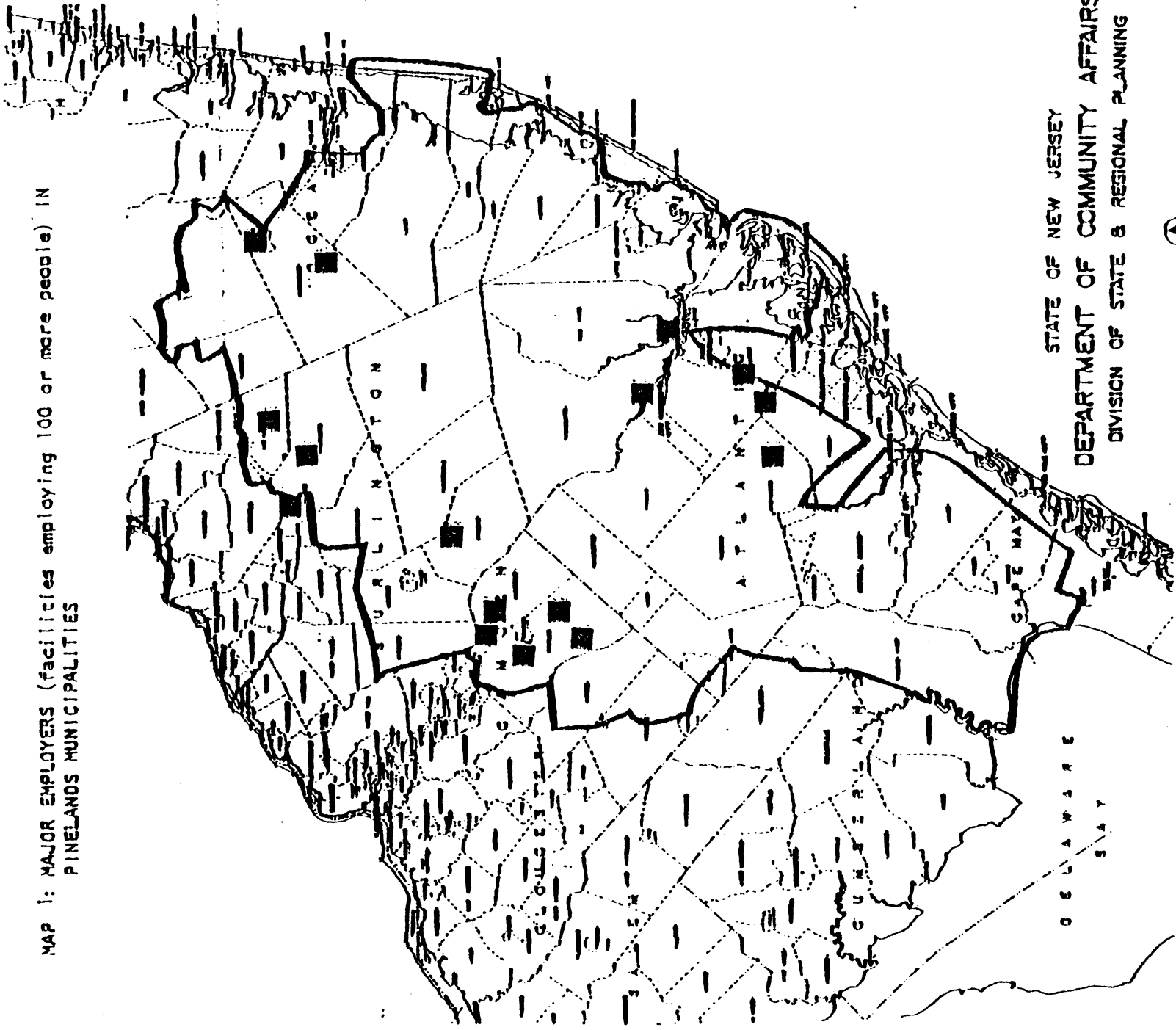
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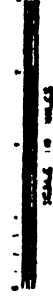
SCALE 10 MILES

ALAN MALLACH ASSOCIATES  
SOURCE: Census of Retail Trade (1977)

MAP 1: MAJOR EMPLOYERS (facilities employing 100 or more people) IN  
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SOURCE: county industrial directories  
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