

**POPULATION TRENDS AND DEMAND  
PRESSURES IN THE PINELANDS**

**PINELANDS COMMISSION**

**New Lisbon, New Jersey**

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## POPULATION TRENDS AND DEMAND PRESSURES IN THE PINELANDS

The following report is prepared to provide an analytical basis for evaluating future population trends likely to affect demand pressures for development in the Pinelands area. Through the evaluation of population trends, including total numbers as well as salient characteristics, the report attempts to assess the future demand for housing in the Pinelands region. That, in turn, should be important as the most significant element in projecting future demand for land for development purposes in the region\*.

The first part of this report evaluates historical population trends in the Pinelands and surrounding areas, while the second part presents available population projections, and recommends the use of the current Labor & Industry ODEA projection model. Subsequent sections deal with the projection of key demographic characteristics, such as age and household size, and with the application of the projections to the question of housing demand, as well as to the different subareas within the Pinelands.

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\*As will be discussed in a later part of this study, the Pinelands region is almost completely devoid of major employment centers of the sort capable of attracting a significant immigration. As a result, housing demand (linked to employment outside the Pinelands) is the only major growth generator.

## POPULATION (2)

### I HISTORICAL POPULATION TRENDS

The population of the municipalities making up the Pinelands region is estimated, as of July 1, 1978, to be 394,154 or roughly 5% of the total population of New Jersey\*. The population of the Pinelands has been rising steadily and consistently since 1950, as shown in the table below on this page. Although the most recent period presented, between 1970 and 1978, shows the greatest numerical increase, it represents the continuation and extension of a gradual long term trend, rather than a departure from previous historical patterns.

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TABLE 1: PINELANDS POPULATION AND POPULATION INCREASE 1950 TO 1978

|           | Pinelands<br>population | population<br>change (n) | population<br>change (%) | average annual<br>change (%) |
|-----------|-------------------------|--------------------------|--------------------------|------------------------------|
| 1950      | 118,400                 |                          |                          |                              |
| 1950-1960 |                         | 72,731                   | +61.4%                   | +4.9%                        |
| 1960      | 191,131                 |                          |                          |                              |
| 1960-1970 |                         | 77,613                   | +40.6%                   | +3.5%                        |
| 1970      | 268,744                 |                          |                          |                              |
| 1970-1978 |                         | 125,413                  | +46.7%                   | +4.9%                        |
| 1978      | 394,157                 |                          |                          |                              |

SOURCE: 1950 1960 and 1970 from Census of Population, 1978 estimate from  
New Jersey Department of Labor & Industry

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\*This figure was derived by aggregating the total population figures from each municipality which was located, in whole or in large part, within the Pinelands. Municipalities such as Franklin Township (Gloucester County), Berkeley Township (Ocean County), etc. were included in the Pinelands for purposes of this tabulation. Municipalities such as Dover (Ocean), Berlin (Camden), and Middle Townships (Cape May), of which only a small part is located within the Pinelands were excluded. It should be noted that, in many cases, the Pinelands boundary was drawn through the middle of a municipality in order to exclude that part of the municipality which contained the greatest concentration of existing population and fully developed land; although the great majority of the land area of municipalities such as Medford, Evesham, and Manchester is within the Pinelands, much or most of their population is not. Although it is not possible to arrive at an exact figure, we estimate that the actual population within the Pinelands boundaries is substantially less than the above total, most likely in the vicinity of 340,000 people.

## POPULATION (3)

Table 2, on the following page, compares the patterns of growth in the Pinelands by county, and with the non-Pinelands parts of each county, as well as for the Philadelphia/NJ SMSA (Burlington, Camden, and Gloucester Counties) as a whole. Although the increase in 1970-1978 period is greater than during the 1960-1970 period for the Pinelands in each county, with the apparent exception of Burlington County\*, more significant is the increase relative to the non-Pinelands areas. While growth in nearly all parts of New Jersey has slowed down significantly in the past decade, the Pinelands, by virtue of their small population base, land availability, etc., have been largely immune from this trend. Thus, as a percentage of total growth in Southern New Jersey, the Pinelands have taken on increasing importance.

While the Pinelands (see above) increased by 126,448 between 1970 and 1978, the balance of Southern New Jersey (the non-Pinelands municipalities of the seven southern counties and Salem County) increased by 124,946. The Pinelands accounted for just over 50% of all population growth in Southern New Jersey. This compares to 24% of the total Southern New Jersey growth during the 1960's. A byproduct of this is a shift in gravity (similar to that discussed in the Land Market report) toward the Pinelands in a number of New Jersey counties, particularly in Atlantic and Ocean Counties. This is most significant in Ocean County, since, unlike Atlantic County, the non-Pinelands municipalities of Ocean County are also a growth area. The Pinelands municipalities in Ocean

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\*This is entirely the result of a drop of some 13,000 in population associated with the reduction in activity at Fort Dix since 1970. If this is eliminated from the totals, Burlington County also shows a significant increase in the 1970-1978 period relative to 1960-1970.

TABLE 2: HISTORICAL POPULATION TRENDS IN PINELANDS AND SURROUNDING AREAS BY COUNTY

| county           | area      | 1950   | 1960   | 1970   | 1978   | 1960-1970 | 1970-1978 |
|------------------|-----------|--------|--------|--------|--------|-----------|-----------|
| Atlantic         | Pinelands | 35055  | 48415  | 62173  | 78718  | 13758     | 16545     |
|                  | Balance   | 89768  | 111475 | 112870 | 111266 | 1395      | (1604)    |
|                  | Pines %   | 28.1%  | 30.1%  | 35.5%  | 42.0%  |           |           |
| Burlington       | Pinelands | 36401  | 68111  | 88367  | 108189 | 20256     | 19822     |
|                  | Balance   | 99509  | 156388 | 234765 | 255355 | 78376     | 20590     |
|                  | Pines %   | 26.8%  | 30.3%  | 27.3%  | 29.8%  |           |           |
| Camden           | Pinelands | 8413   | 13335  | 16076  | 26373  | 2741      | 10197     |
|                  | Balance   | 293330 | 378700 | 440215 | 445249 | 61515     | 5034      |
|                  | Pines %   | 2.8%   | 3.4%   | 3.5%   | 5.6%   |           |           |
| Cape May         | Pinelands | 6320   | 7689   | 8673   | 12093  | 984       | 3420      |
|                  | Balance   | 30811  | 40866  | 50881  | 64887  | 10015     | 14006     |
|                  | Pines %   | 17.0%  | 15.8%  | 14.6%  | 15.7%  |           |           |
| Cumberland       | Pinelands | 2834   | 3105   | 3743   | 4670   | 638       | 927       |
|                  | Balance   | 85763  | 103745 | 117631 | 125526 | 13886     | 7895      |
|                  | Pines %   | 3.2%   | 2.9%   | 3.1%   | 3.6%   |           |           |
| Gloucester       | Pinelands | 10597  | 16847  | 23061  | 31476  | 6214      | 8415      |
|                  | Balance   | 81130  | 117993 | 149620 | 168521 | 31627     | 18901     |
|                  | Pines %   | 11.6%  | 12.5%  | 13.4%  | 15.7%  |           |           |
| Ocean            | Pinelands | 18780  | 33629  | 66651  | 132635 | 33032     | 65984     |
|                  | Balance   | 37842  | 74612  | 141819 | 198894 | 67207     | 59075     |
|                  | Pines %   | 33.2%  | 31.1%  | 32.0%  | 40.0%  |           |           |
| Phila/NJ<br>SMSA | Pinelands | 55411  | 98293  | 127504 | 166038 | 29211     | 38534     |
|                  | Balance   | 473969 | 653081 | 824600 | 869125 | 171519    | 44525     |
|                  | Pines %   | 10.5%  | 13.1%  | 13.4%  | 16.0%  |           |           |

SOURCE: 1950 1960 and 1970 population figures from U.S.Census of Population. 1978 estimates from N.J. Department of Labor & Industry, Population Estimates for New Jersey July 1 1978 (1979)

POPULATION (5)

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 TABLE 3: GROWTH IN PINELANDS AND NON-PINELANDS AREAS OF OCEAN COUNTY 1950 TO 1978  
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|           | Pinelands<br>municipalities | non-Pinelands<br>municipalities | Pinelands<br>growth % |
|-----------|-----------------------------|---------------------------------|-----------------------|
| 1950-1960 | 14,849                      | 39,770                          | 27.2%                 |
| 1960-1970 | 33,032                      | 67,207                          | 33.0%                 |
| 1970-1978 | 65,984                      | 59,075                          | 52.8%                 |

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County accounted for over half of all growth in Ocean County, as well as over half of all population increase in the Pinelands as a whole, since 1970. Since 1950, the percentage of Pinelands population living in Ocean County has increased from 15% to 33%.

There have also been noticeable changes in the trends affecting other parts of the Pinelands, as shown in the table on the following page, presenting population by subarea for Atlantic, Burlington, and Ocean Counties. Again, the contrast between Pinelands and non-Pinelands areas is clear. The population increase for all Pinelands subareas, with the exception of the Fort Dix area (North Pines) in Burlington County, was greater in 1970-1978 than in 1960-1970. The opposite was true of most non-Pinelands subareas, the only exceptions being the shoreline areas, which experienced only moderate growth in both periods (Ocean) or declined in population over both periods (Atlantic). Finally, certain key areas, which had experienced only moderate growth prior to 1970, showed a significant increase during the 1970's. The Central Pinelands in Burlington County, which had increased in population by only 2,417 over the twenty year period from 1950 to 1970, increased population by nearly double that amount from 1970 to 1978. A similar pattern took effect in the Central and Southern subareas of Ocean County, where in both cases the 1970-1978 increase was substantially



POPULATION (6)

TABLE 4: HISTORICAL POPULATION TRENDS BY SUBAREA FOR ATLANTIC, BURLINGTON, AND OCEAN COUNTIES

|      | area      | 1950  | 1960  | 1970   | 1978   | 1960-1970 | 1970-1978 |
|------|-----------|-------|-------|--------|--------|-----------|-----------|
| ATL  | shore     | 76415 | 82984 | 76786  | 74152  | (6198)    | (2634)    |
|      | suburban  | 22196 | 33692 | 42845  | 45602  | 9153      | 2757      |
|      | middle    | 13392 | 16204 | 23048  | 31648  | 6844      | 8600      |
|      | western   | 19027 | 26455 | 30589  | 36259  | 4134      | 5670      |
|      | southern  | 1369  | 1555  | 1795   | 2323   | 240       | 528       |
| BURL | Central   | 4524  | 5577  | 6941   | 11378  | 1364      | 4437      |
|      | North     | 27653 | 51516 | 56209  | 56925  | 4693      | 716       |
|      | West      | 5418  | 12268 | 26561  | 41368  | 14293     | 14807     |
|      | Northeast | 6644  | 9355  | 17889  | 18109  | 8534      | 220       |
|      | Southwest | 15549 | 27140 | 35833  | 42253  | 8693      | 6420      |
| OCE  | Shore     | 9243  | 12573 | 17947  | 24259  | 5374      | 6312      |
|      | Northeast | 27639 | 61065 | 121396 | 171562 | 60331     | 50166     |
|      | Northwest | 8882  | 15779 | 32580  | 56641  | 16801     | 24061     |
|      | Central   | 6899  | 14462 | 27142  | 57568  | 13680     | 30426     |
|      | South     | 3946  | 5079  | 9405   | 21499  | 4326      | 12094     |

SUBAREAS

|          |  |   |
|----------|--|---|
| ATLANTIC | shore  | Atlantic City, Brigantine, Longport, Margate, Ventnor                                 |
|          | suburb   | Absecon, Linwood, Northfield, Pleasantville, Somers Point                             |
|          | middle   | Egg Harbor City & Township, Galloway, Port Republic                                   |
|          | west   | Buena, Buena Vista, Folsom, Hamilton, Hammonton, Mullica                              |
|          | south  | Corbin City, Estell Manor, Weymouth   |
| BURL     | central  | Bass River, Shamong, Tabernacle, Washington, Woodlands                                |
|          | west   | Evesham, Medford, Medford Lakes   |
|          | north  | New Hanover, Pemberton Borough & Township; Southampton, Wrightstown                   |
|          | NE   | Chesterfield, Mansfield, North Hanover, Springfield                                   |
| SW       | Easthampton, Hainesport, Lumberton, Mt. Holly, Mt. Laurel, |   |
|          | Westhampton  |   |
| OCEAN    | shore  | all barrier island communities  |
|          | NE   | Brick, Dover, Island Heights, Lakewood, Point Pleasant                                |
|          | NW   | Jackson, Lakehurst, Manchester, Plumstead   |
|          | CEN  | Beachwood, Berkeley, Barnegat, Lacey, Ocean, Ocean Gate, Pine Beach, South Toms River |
|          | south  | Eagleswood, Little Egg Harbor, Stafford, Tuckerton                                    |

## POPULATION (7)

larger than the 1950-1970 increase. These are the three areas, within the Pinelands, where recent (post-1970) growth does represent a departure from previous historical patterns, and has begun to create significant changes in the settlement pattern in these areas.

## II POPULATION PROJECTIONS

The data presented in the preceding section, with some modest margin of error with regard to the current population estimates, is generally considered to be reliable, and an accurate representation of recent trends. The room for error is far greater with regard to the projection of population into the future; this error is compounded by the increasing tendency to manipulate population projections to reflect not what is most likely to happen (given legitimate assumptions about the future), but rather what various policy makers would prefer to happen, without regard to the probability of their preferences coming true. It is important to stress, therefore, that even though great care can be used to select a reasonable projection (or to construct one), they must not be considered more than a general guide to future directions, rather than an explicit prediction of the future.

In approaching this analysis, it was our premise that, if there is an available and reasonable projection, it should be used in preference to the construction of a new series of projections, an option that should be exercised

## POPULATION (8)

only if the available materials are clearly inadequate; constructing additional projections is likely, in the final analysis, still further to confuse an already muddy picture. It should also be stressed that, whatever projections are used in this report, they must be regularly re-evaluated. The best projection is only as sound as the baseline data available when it is made. Recent experience, throughout the 1970's, has been that projections have had to be modified on a regular basis to reflect the dramatic demographic changes that have occurred in the United States during this period. If not sooner, it is absolutely incumbent on any responsible planning or regulatory agency utilizing population projections to modify them as soon as data from the 1980 Census of Population becomes available, in 1982.

The projections evaluated here were those utilized by official bodies at the county, regional, or state level. These include:

- the most recent available projections by the Department of Labor & Industry, appearing in New Jersey Revised Total and Interim Age & Sex Population Projections (April 1979);
- the State of New Jersey 'policy projections' as enunciated on July 1979;
- projections used by relevant agencies in the 208 Water Quality planning process, where different from the above;
- other significant population projections by County Planning Boards;
- the Year 2000 Plan Projections by the Delaware Valley Regional Planning Commission.

Each of these will be discussed in turn.

(1) Department of Labor & Industry (L&I): The L&I report cited immediately above contains the most recent versions of four alternative projection methodologies of which the recommended alternative is the one known as the Demographic-Economic Linked projection model, or the ODEA model. Other approaches are based on extending the 1970-1977 components (births, deaths, and migration); the 1965-1970 components, and a simple regression model.

## POPULATION (9)

The last two are really of interest only for internal comparison; the second, based on the 1970-1977 components, is interesting as a low baseline point. The ODEA model, however, is arguably the most analytically sophisticated projection model available from any public agency source. As the title suggests, it links migration to economic activity taking place. In addition, it contains a separate projection method to deal with projecting the over 65 population, which is of some utility for the purposes of the Pinelands Commission. This latter model is recommended for use by the Commission; we have based our household and other projections on the ODEA model in this report\*. It should be noted that the numbers used in the above cited L&I report are slightly different from those appearing in the earlier presentation of the ODEA model, which appeared in 1978.

The ODEA model, the statewide and county projections of which are shown in the table on the following page, appears largely free of unreasonable policy-oriented manipulation, although one would suggest, on the basis of a preliminary analysis that (a) the assumption of post-1980 stabilization in the populations of urban counties such as Hudson and Essex is highly speculative; and (b) the statewide total population projected for 1990 and 2000 is, although within a reasonable range, on the high side of that range. It should be noted that, when applied to southern New Jersey counties, comments (a) and (b) above, to some degree, cancel each other out. This model has also been adapted to reflect some impact of casino gambling, although perhaps less than would appear to be likely on the basis of the most recent assessments\*\*, and the effects of the Pinelands moratorium to 1980. Importantly, it does not assume any regulatory constraints associated with the Pinelands after 1980, thus making it usable as an independent baseline.

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\*The reader is urged to study the discussion of this model, which appears in the above-mentioned report from the State Department of Labor & Industry

\*\*The analysis of casino population impacts prepared by this office for the Pinelands Commission, appearing in the Social and Economic Factors report, strongly suggests that the ODEA projection figures are significantly lower than the likely outcomes of projected casino development.

TABLE 5: DEPARTMENT OF LABOR & INDUSTRY ODEA MODEL PROJECTIONS

| COUNTY     | ESTIMATES |           | PROJECTIONS |           |           |           |           |
|------------|-----------|-----------|-------------|-----------|-----------|-----------|-----------|
|            | 1970      | 1975      | 1980        | 1985      | 1990      | 1995      | 2000      |
| Atlantic   | 175,900   | 187,900   | 207,800     | 274,800   | 306,200   | 317,800   | 326,500   |
| Bergen     | 896,200   | 879,100   | 860,800     | 874,100   | 887,800   | 904,700   | 916,200   |
| Burlington | 324,700   | 347,600   | 376,700     | 426,900   | 475,900   | 526,600   | 573,900   |
| Camden     | 457,500   | 475,600   | 483,200     | 512,000   | 535,900   | 545,200   | 552,300   |
| Cape May   | 60,100    | 72,300    | 85,900      | 114,400   | 133,100   | 148,300   | 163,100   |
| Cumberland | 122,000   | 132,000   | 135,100     | 146,600   | 155,100   | 161,700   | 167,600   |
| Essex      | 930,700   | 881,600   | 825,600     | 806,300   | 786,700   | 804,200   | 818,400   |
| Gloucester | 173,500   | 190,900   | 201,300     | 222,800   | 242,300   | 265,600   | 287,700   |
| Hudson     | 606,700   | 577,600   | 549,300     | 549,200   | 548,000   | 553,300   | 556,700   |
| Hunterdon  | 70,200    | 78,500    | 85,600      | 91,500    | 97,700    | 104,400   | 110,700   |
| Mercer     | 305,100   | 318,000   | 323,500     | 339,100   | 354,000   | 371,200   | 386,400   |
| Middlesex  | 584,700   | 594,000   | 592,400     | 624,600   | 654,500   | 697,300   | 735,100   |
| Monmouth   | 464,100   | 491,400   | 495,600     | 523,000   | 551,500   | 599,000   | 644,000   |
| Morris     | 384,400   | 395,000   | 400,300     | 426,500   | 453,900   | 474,400   | 492,200   |
| Ocean      | 213,000   | 293,800   | 351,600     | 417,600   | 480,300   | 519,900   | 555,400   |
| Passaic    | 460,800   | 468,800   | 463,900     | 484,400   | 504,700   | 522,600   | 538,200   |
| Salem      | 60,500    | 62,400    | 62,900      | 64,700    | 66,600    | 69,700    | 72,400    |
| Somerset   | 198,500   | 203,700   | 209,200     | 228,900   | 248,900   | 277,900   | 304,700   |
| Sussex     | 78,600    | 99,000    | 114,900     | 131,800   | 149,000   | 171,000   | 192,000   |
| Union      | 542,300   | 520,500   | 500,500     | 503,000   | 505,400   | 510,100   | 512,700   |
| Warren     | 74,200    | 80,000    | 85,400      | 89,900    | 94,400    | 97,700    | 100,900   |
| NEW JERSEY | 7,184,000 | 7,350,000 | 7,411,000   | 7,852,000 | 8,232,000 | 8,643,000 | 9,007,000 |

POPULATION (10)

## POPULATION (11)

(2) New Jersey Policy Projections: The New Jersey policy projections were promulgated by the Governor's Office in July 1979, and have been urged for use by the Department of Environmental Protection in 208 Water Quality Planning projects. They are, in essence, political projections; in other words, they have been modified to reflect the achievement of political goals between today and the year 2000, without regard to the probability of those goals being achieved. The most implausible such goal is stated "population levels in intensively urbanized areas should be stabilized at or near present levels"\*. Given current, and realistically attainable, levels of household formation, housing production, attrition of the housing stock, interregional employment shifts, etc., this goal is not achievable within the scope of activities available to the State of New Jersey\*\*.

With specific regard to the counties within which the Pinelands are located, a significantly lower level of growth was projected for Atlantic, Cape May and Ocean Counties than is derived from the ODEA model; specifically, a total increase in each county of 66% from 1975 to 2000. As we have suggested, even the ODEA model projection level for Atlantic County may underestimate the population increase likely to be triggered by casino development; the policy projections, which reflect a policy goal of discouraging development in the Pinelands, appear to be caught in an inherently inconsistent position. It is possible, however, that implicit in the policy projections is the assumption that a large part of the casino related employment will settle in or adjacent to the City of Camden.

\*This statement, as well as the other policy bases for the projections, is contained in a document disseminated internally by the Governor's Office entitled Basis for Development of Interim Policy Projections (July 1979)

\*\*The decline in average household size in recent years has dictated that, in any area in which construction of new housing does not significantly expand the total housing stock, the total population of that area will invariably decline. Given limited land available, market conditions, and the attrition of older housing units, this is precisely what is happening in every large older city in the United States. It is not clear, however, either what the State of New Jersey hopes to do to reverse this phenomenon, or why it considers population stabilization, in any event, to be necessary to the economic or social health of New Jersey's older cities.

POPULATION (12)

The policy projections for New Jersey and its counties are given in the table below. At present, they are available only for the year 2000, and not for intervening years. It should be noted that in addition to using the ODEA model in some

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 TABLE 6: STATE OF NEW JERSEY "POLICY PROJECTIONS" TO THE YEAR 2000  
 (ODEA projections presented for comparison from Table 5)

|            | POLICY<br>projection | ODEA<br>projection |
|------------|----------------------|--------------------|
| Atlantic   | 311,900              | - 326,500          |
| Bergen     | 980,000              | 916,200            |
| Burlington | 460,900              | 573,900            |
| Camden     | 629,640              | 552,300            |
| Cape May   | 120,000              | 163,100            |
| Cumberland | 172,600*             | 167,600            |
| Essex      | 881,600              | 818,400            |
| Gloucester | 277,022              | 287,700            |
| Hudson     | 610,000              | 556,700            |
| Hunterdon  | 107,700*             | 110,700            |
| Mercer     | 410,400              | 386,400            |
| Middlesex  | 820,000              | 735,100            |
| Monmouth   | 620,000              | 644,000            |
| Morris     | 520,000              | 492,200            |
| Ocean      | 487,700              | 555,400            |
| Passaic    | 520,000              | 538,200            |
| Salem      | 72,100*              | 72,400             |
| Somerset   | 280,000              | 304,700            |
| Sussex     | 164,300              | 192,000            |
| Union      | 520,500              | 512,700            |
| Warren     | 100,100*             | 100,900            |
|            | 9,066,462            | 9,007,000          |

\*these figures were taken directly from the earlier version of the ODEA model projections

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 cases, and apparently arbitrary formulations in others, the policy projections also draw upon the Tri-State and Delaware Valley Regional Planning Commissions' work.

(3) 208 Water Quality Planning: The policy projections are utilized in four of the seven counties in which Pinelands municipalities are located for purposes of 208 planning; this is the case in Burlington, Camden, and Gloucester,

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where the 208 plan was prepared by DVRPC (whose projections were subsequently adopted for the 'policy projections'), and in Cumberland, where the 208 plan was prepared by the State Department of Environmental Protection. The three counties preparing their own 208 plans arrived at their own projections, which compare to those previously discussed as follows:

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 TABLE 7: YEAR 2000 PROJECTIONS FROM 208 WATER QUALITY PLANNING IN ATLANTIC CAPE MAY, AND OCEAN COUNTIES  
 (ODEA and policy projections presented for comparison)

|          | 208<br>projection           | ODEA<br>projection | Policy<br>projection |
|----------|-----------------------------|--------------------|----------------------|
| Atlantic | 382,340                     | 311,900            | 326,500              |
| Cape May | 125,883                     | 163,100            | 120,000              |
| Ocean    | 560,400 low<br>646,000 high | 487,700            | 555,400              |

SOURCE: ODEA and Policy projections as noted. 208 Projections from County Planning Boards

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 It should be noted that both the Atlantic and Ocean County projections are significantly higher (the Ocean County low projection is even slightly higher) than either the policy or the ODEA projection. The Cape May County projection is close to the policy projection, and is linked to an overall policy of constraining population growth in that county.

The Atlantic County projection is worth noting, since it is based on a methodology which initially projects casino and casino-related employment, and projects population on the basis of employment/population ratios. It is our understanding, however, that projected casino openings, and associated employment, have been since revised upward, and that the county is reevaluating these projections. It should be noted, however, that the projection methodology appears to assume that all of the population generated by the casino-related employment will settle in Atlantic County, an unlikely assumption (the ODEA model distributes



## POPULATION (14)

this population among Atlantic and adjacent counties).

(4) DVRPC projections: It should finally be noted that the Delaware Valley Regional Planning Commission has promulgated two separate series of projections, one as noted in the 208 Water Quality Planning report, and a second in the Year 2000 Regional Development Guide, the basis for their Year 2000 Land Use and Open Space Plan. These too are 'policy related' projections; it should be noted that they are at considerable variance with the projections used by the same agency for the 208 planning process.

In conclusion, it would appear that the ODEA projections effectively offer the only available option; unlike DVRPC projections, or certain county projections, made for the 208 Water Quality Planning process, they are available on a consistent basis for the entire area under study. Adoption of any county projection, or the DVRPC projections, would require a major effort to reconcile the varying methodologies. Finally, in our judgement use of either the DVRPC Year 2000 projection or the New Jersey Policy Projections would seriously compromise the validity of the demand analysis. It may be appropriate, at some future point, after the Pinelands Commission has established specific land management techniques and regulations, to develop a series of population targets based on the interaction of these land management approaches with the demand arising independently. At this time, it would clearly be inappropriate to assume any specific constraints or policy impacts on demographic trends. Furthermore, use of the ODEA model enables us to take advantage of the age-specific county projections prepared on its basis by the Department of Labor & Industry.

The Table on the following page presents a complete comparison for 1980 1990 and 2000 by county of the various population projections which have been discussed in this section of the report.

## POPULATION (15)

TABLE 8: COMPARATIVE POPULATION PROJECTIONS BY COUNTY 1980 1990 AND 2000

|                          | 1980       | 1990       | 2000    |
|--------------------------|------------|------------|---------|
| <u>ATLANTIC COUNTY</u>   |            |            |         |
| ODEA (L&I)               | 207,800    | 306,200    | 326,500 |
| 70-77 Component (L&I)    | 209,200    | 306,700    | 331,200 |
| NJ Policy                |            |            | 311,900 |
| Planning Board 208       |            | 335,821    | 382,340 |
| <u>BURLINGTON COUNTY</u> |            |            |         |
| ODEA                     | 376,700    | - 475,900  | 573,900 |
| 70-77                    | 382,500    | 468,200    | 551,600 |
| NJ Policy (DVRPC 208)    | (379,024)* | (420,793)* | 460,900 |
| DVRPC Year 2000          |            |            | 428,500 |
| <u>CAMDEN COUNTY</u>     |            |            |         |
| ODEA                     | 483,200    | 535,900    | 552,300 |
| 70-77                    | 482,700    | 521,600    | 542,900 |
| NJ Policy (DVRPC 208)    | (526,617)* | (579,079)* | 629,640 |
| DVRPC Year 2000          |            |            | 583,000 |
| <u>CAPE MAY COUNTY</u>   |            |            |         |
| ODEA                     | 85,900     | 133,100    | 163,100 |
| 70-77                    | 86,000     | 131,300    | 152,200 |
| NJ Policy                |            |            | 120,000 |
| County 208               | 77,484     | 99,369     | 125,883 |
| <u>CUMBERLAND COUNTY</u> |            |            |         |
| ODEA                     | 135,100    | 155,100    | 167,600 |
| 70-77                    | 135,700    | 151,000    | 162,800 |
| NJ Policy (old ODEA)     | (138,800)* | (159,400)* | 172,600 |
| <u>GLOUCESTER COUNTY</u> |            |            |         |
| ODEA                     | 201,300    | 242,300    | 287,700 |
| 70-77                    | 206,700    | 242,500    | 275,600 |
| NJ Policy (DVRPC 208)    | (217,193)* | (247,319)* | 277,022 |
| DVRPC Year 200           |            |            | 256,500 |
| <u>OCEAN COUNTY</u>      |            |            |         |
| ODEA                     | 351,600    | 480,300    | 555,400 |
| 70-77                    | 360,000    | 560,100    | 765,600 |
| NJ Policy                |            |            | 487,700 |
| County 208 LOW           | 355,200    | 471,000    | 560,400 |
| County 208 HIGH          | 365,600    | 510,300    | 646,000 |

\*where policy projections include incorporation of other projections by reference (DVRPC or old ODEA) they have been added in parentheses.

### III HOUSEHOLD INCREASE

In terms of development, land consumption, and similar matters, the significant factor is household rather than population increase, since the increase in the number of households in turn triggers the demand for additional housing, as well as non-residential development. Household increase, in turn, is a function of two separate factors: (1) population increase; and (2) demographic change in the existing population. The first is self-evident, but the second may be even more important.

During the past decade, the change in the character of the American household has been dramatic. A series of separate factors have occurred simultaneously, each contributing to a pattern of declining household size, and its corollary, an increase in the number of small households and a decrease in the number of large ones. These factors include later age of marriage (increasing the number of years single people live by themselves), rising divorce rates (increasing the number of single individuals, as well as single-parent families), lower fertility levels (reducing the average number of children per family in the child-rearing years), increased disparity between male and female survival rates (increasing the number of single member elderly households (widows) ), and so forth. As a result of these trends, even if population were to remain constant, the number of households will increase significantly. Nationally, as of 1979, the average household size was 2.78 people; in 1970, it was 3.14 people. Put differently, in 1970 a representative population of 100,000 people would have been distributed among 31,847 households. By 1979, the same 100,000 people would represent 35,971 households, an increase of 4,134 households in nine years.

While it is clear that this trend must be taken into account, it poses

## POPULATION (17)

a serious problem in terms of projection methodology; specifically, how to project the rate of household size change into the future. In this analysis, we adopted a conservative approach. This is based on a judgement that the trends that have created such a rapid drop in average household size during the 1970's are not for the most part capable of straight line extension; in other words, declines in fertility levels, for example, are likely to level off in the coming years (although at levels comparable to today's low levels) as is the increase in the divorce rate. It is widely believed that the disparity in male and female survival rates is unlikely to expand further.

On this basis, we have assumed that the rate of household size decline for non-senior citizen households should slow down during the 1980's (to a level 75% that of the 1970's), and slow down further during the 1990's (to a level 50% that of the 1980's). We have further assumed that the rate of household size decline for senior citizen households will level off in 1980, at a level of 1.7 persons per household headed by a man or woman aged 65 or over\*.

Based on the above assumptions, and the use of the population projections of the ODEA model discussed earlier, we have projected the change in the number of households for each county in which Pinelands municipalities are located for three periods, 1970-1980, 1980-1990, and 1990-2000. For each county, we have prepared separate projections of the increase in senior citizen and non-senior citizen households (based on the age of the household head), and for the three principal Pinelands counties (Atlantic, Burlington, and Ocean) projections of household increase by household size.

\*Additional assumptions made were that (a) the ratio between senior citizen population in any county and the number of senior citizen households would remain constant from 1970; in other words the number of such households would parallel any change in the number of senior citizens in the county over time; and (b) the ratio of population in households to population in group quarters would remain the same, except for Burlington County, where a gradual decline in that population (largely military) was projected through 2000, based on the gradual shrinkage in the military establishment in that county.

POPULATION (18)

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 TABLE 9: TOTAL NUMBER OF HOUSEHOLDS AND HOUSEHOLDS BY AGE OF HEAD FOR EACH COUNTY 1970 1980 1990 AND 2000

|   | 1970    | 1980    | 1990    | 2000      |
|---|---------|---------|---------|-----------|
| <u>TOTAL HOUSEHOLDS</u>                               |         |         |         |           |
| Atlantic  | 60,716  | 80,910  | 129,313 | 145,520   |
| Burlington  | 84,788  | 117,546 | 166,830 | 213,806   |
| Camden  | 138,408 | 168,099 | 208,465 | 225,484   |
| Cape May  | 21,177  | 34,191  | 56,460  | 70,456    |
| Cumberland  | 37,086  | 47,365  | 60,000  | 67,527    |
| Gloucester  | 49,693  | 66,700  | 89,288  | 111,018   |
| Ocean   | 68,362  | 136,314 | 201,271 | 235,747   |
| TOTAL   | 460,230 | 651,125 | 911,627 | 1,069,558 |
| <u>SENIOR CITIZEN HOUSEHOLDS (HOUSEHOLD HEAD 65+)</u> |         |         |         |           |
| Atlantic  | 17,446  | 23,569  | 37,294  | 38,897    |
| Burlington  | 9,828   | 18,114  | 30,747  | 41,436    |
| Camden  | 23,122  | 31,653  | 46,988  | 55,244    |
| Cape May  | 7,597   | 12,825  | 19,315  | 20,080    |
| Cumberland  | 7,216   | 10,453  | 14,256  | 15,633    |
| Gloucester  | 7,747   | 11,846  | 18,545  | 23,147    |
| Ocean   | 19,769  | 52,440  | 76,845  | 74,968    |
| <u>OTHER HOUSEHOLDS (HOUSEHOLD HEAD UNDER 65)</u>     |         |         |         |           |
| Atlantic  | 43,270  | 57,341  | 92,019  | 106,623   |
| Burlington  | 74,960  | 99,434  | 136,083 | 172,370   |
| Camden  | 115,286 | 136,446 | 161,477 | 170,240   |
| Cape May  | 13,580  | 21,366  | 37,145  | 50,376    |
| Cumberland  | 29,870  | 36,912  | 45,744  | 51,894    |
| Gloucester  | 41,946  | 54,854  | 70,743  | 87,871    |
| Ocean   | 48,593  | 83,874  | 124,426 | 160,779   |

SOURCE: Projection by Alan Mallach Associates

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The projections indicate that that total number of households in the seven counties will more than double between 1970 and 2000. Significant household growth is projected for each of the seven counties; even where population growth levels are not significant, the effects of demographic change dictate a more than negligible level of household formation taking place.

POPULATION (19)

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 TABLE 10: INCREASE IN HOUSEHOLDS BY COUNTY 1970-1980 1980-1990 AND 1990-2000

|                          | 1970-1980<br>change | 1980-1990<br>change | 1990-2000<br>change |
|--------------------------|---------------------|---------------------|---------------------|
| <u>ATLANTIC COUNTY</u>   |                     |                     |                     |
| senior citizen           | 6,123               | 13,725              | 1,603               |
| non-senior citizen       | 14,071              | 34,678              | 14,604              |
| total                    | 20,194              | 48,403              | 16,207              |
| <u>BURLINGTON COUNTY</u> |                     |                     |                     |
| senior citizen           | 8,286               | -12,633             | 10,689              |
| non-senior citizen       | 24,474              | 36,649              | 36,287              |
| total                    | 32,760              | 49,282              | 46,976              |
| <u>CAMDEN COUNTY</u>     |                     |                     |                     |
| senior citizen           | 8,531               | 15,335              | 8,256               |
| non-senior citizen       | 21,160              | 25,031              | 8,763               |
| total                    | 29,691              | 40,366              | 17,019              |
| <u>CAPE MAY COUNTY</u>   |                     |                     |                     |
| senior citizen           | 5,228               | 6,490               | 765                 |
| non-senior citizen       | 8,451               | 15,779              | 13,231              |
| total                    | 13,679              | 22,269              | 13,996              |
| <u>CUMBERLAND COUNTY</u> |                     |                     |                     |
| senior citizen           | 3,237               | 3,803               | 1,377               |
| non-senior citizen       | 7,042               | 8,832               | 6,150               |
| total                    | 10,279              | 12,635              | 7,527               |
| <u>GLOUCESTER COUNTY</u> |                     |                     |                     |
| senior citizen           | 4,099               | 6,699               | 4,662               |
| non-senior citizen       | 12,908              | 15,889              | 17,078              |
| total                    | 17,007              | 22,588              | 21,740              |
| <u>OCEAN COUNTY</u>      |                     |                     |                     |
| senior citizen           | 32,671              | 24,405              | (1,877)             |
| non-senior citizen       | 35,281              | 40,552              | 36,303              |
| total                    | 67,952              | 64,957              | 34,426              |

SOURCE: Projection by Alan Mallach Associates

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POPULATION (20)

Tables 9 and 10 illustrate the total number of households, and the change in number of households, for each decade by county. The number of households is expected to increase by over 100,000 in Burlington and Ocean Counties, with a still significant, but somewhat lower increase, in Atlantic and Camden Counties. As the table below indicates, the anticipated increase in households during the decade of the 1980's is significantly higher, in every county and for the region as a whole than during the 1970's. The rate of increase during the

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 TABLE 10 (cont.): INCREASE IN HOUSEHOLDS 1970-1980 1980-1990 AND 1990-2000

|                            | 1970-1980<br>change | 1980-1990<br>change | 1990-2000<br>change |
|----------------------------|---------------------|---------------------|---------------------|
| <u>SEVEN COUNTY REGION</u> |                     |                     |                     |
| senior citizens            | 68,175              | 83,090              | 25,475              |
| non-senior citizens        | 123,387             | 177,410             | 132,416             |
| total                      | 191,562             | 260,500             | 167,891             |

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1990's declines, and the total increase during that decade is slightly less than in the 1970's.

Roughly 1/3 of all household increase through 1990 takes place in 'senior citizen' households, indicating a sustained level of demand for retirement and senior citizen housing developments. Based on the age projections which were used for this analysis, there is a significant levelling off of senior citizen populations in those counties in which they are a disproportionately large part of the population during the 1990's. These include Atlantic, Cape May, and Ocean Counties. It is arguable that this is a highly conservative assumption, and could be undermined if continued formation of senior citizen households in North Jersey triggers additional in-migration, and development of retirement communities in the 1990's. An issue which has not been addressed is whether there is any form of 'saturation' point for senior citizen development, either in a single community,

## POPULATION (21)

or within a region.

Before beginning to explore the implications of these projections, it is appropriate to present the linked projections of household increase by household size. In essence, these projections were made by applying national rates of change in the distribution of households by size to each of the counties for which projections were made; progressively more modest shifts were used for the decades of the 1980's and 1990's, respectively. Table 11 on the following page presents these projections for Atlantic, Burlington, and Ocean Counties. Household growth in Burlington County is representative of a young, typically suburban population, with relatively large household sizes. Growth in Atlantic and Ocean counties reflects the more complex mix of population in these two counties, including a larger admixture of senior citizen households. The most significant growth, however, is clearly in the smaller households; even in Burlington County, over half of the household growth during the 1980's is projected to take place in 1 and 2 person households. As will be discussed later in this report, while this fact clearly has implications for housing demand, those implications today are far less straightforward than they would have appeared ten or twenty years ago, as a result of important social and economic changes in the housing market in recent years.



## POPULATION (23)

### IV HOUSEHOLD INCREASE AND THE PINELANDS

The most significant inference that must be drawn from the above information for the Pinelands region is straightforward: if the anticipated levels of population for New Jersey's southern counties, based on the population projections used, are to be reached, large numbers of additional housing units will have to be constructed. Given, furthermore, the ever increasing share of regional population growth that has been accommodated within the Pinelands during the past decade, there is a strong likelihood that a large part of this housing will have to be constructed in the Pinelands, if it is to come into being at all. The share of future housing that may be constructed in the Pinelands, furthermore, is likely to be larger (as a percentage of total housing built in the region) than in recent years. Because of the importance of this conclusion, it is necessary to document this shift in development share toward the Pinelands in some detail.

The evidence, in terms of both population increase and building permit issuing, is compelling that over the past two decades the Pinelands have come to occupy a progressively larger place in the regional development picture. Pinelands municipalities accounted for half or more of the population increase since 1970 in four of the counties in which they are located - Atlantic, Burlington, Camden, and Ocean. This is illustrated in Table 12 below; the table makes clear the shift in development direction. Importantly, the table also shows that, for the most part, this shift did not take place until the 1970's; in other words, the 1950's and 1960's showed a largely similar development pattern. The apparent shift in Atlantic County during this period is attributable to the effective end of development in the Shore and Suburban areas of the County, rather

POPULATION (24)

than any increase in the Pinelands part of the county. Indeed, as the table indicates, during the 1970's the entire shoreline area in Atlantic County began to lose population, as the combination of declining household size, reduced housing production, and increased loss of housing units (particularly in Atlantic City) from a variety of sources, all took their toll.

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 TABLE 12: PINELANDS SHARE OF POPULATION INCREASE 1950 TO 1978

|            | 1950-1960 | 1960-1970 | 1970-1978 |
|------------|-----------|-----------|-----------|
| Atlantic   | 38.1%     | 90.8%     | 100.0%*   |
| Burlington | 35.9      | 20.7      | 49.4      |
| Camden     | 8.2       | 10.1      | 73.0      |
| Cape May   | 11.8      | 8.9       | 19.6      |
| Cumberland | 1.5       | 4.4       | 10.5      |
| Gloucester | 14.7      | 16.4      | 30.8      |
| Ocean      | 30.5      | 33.0      | 52.8      |

\*actually over 100%, since balance of Atlantic County experienced a loss of population during this period.

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During the 1970's, as the building permit issuing activity data shown in Table 13 on the following page indicates, the shift of activity toward the Pinelands has been continuing. This is significant particularly in Burlington and Ocean Counties. In Burlington County, development activity along the Delaware River has effectively come to an end (in municipalities such as Delran, Willingboro, etc.), directing a progressively larger share of growth into the Pinelands municipalities, despite the effects of a significant decline in activity at

POPULATION (25)

Fort Dix during this period. In Ocean County, the high levels of growth in Brick and Dover Townships experienced during the early 1970's were not sustained; those in key Pinelands municipalities, particularly Berkely and Manchester, have been, thus increasing the Pinelands' development share in this county as well.

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 TABLE 13: BUILDING PERMIT ACTIVITY 1970-1974 AND 1975-1978  
 (% of total for each county)

|                   | 1970-1974 | 1975-1978 |
|-------------------|-----------|-----------|
| ATLANTIC COUNTY   |           |           |
| Pinelands         | 53.4%     | 61.6%     |
| Balance           | 46.6      | 38.4      |
| BURLINGTON COUNTY |           |           |
| Pinelands         | 43.0%     | 68.5%     |
| Balance           | 57.0      | 31.5      |
| CAMDEN COUNTY     |           |           |
| Pinelands         | 14.6%     | 24.3%     |
| Balance           | 85.4      | 75.7      |
| CAPE MAY COUNTY   |           |           |
| Pinelands         | 8.0%      | 18.4%     |
| Balance           | 92.0      | 81.6      |
| CUMBERLAND COUNTY |           |           |
| Pinelands         | 1.2%      | 4.6%      |
| Balance           | 98.8      | 95.4      |
| GLOUCESTER COUNTY |           |           |
| Pinelands         | 21.1%     | 22.6%     |
| Balance           | 78.9      | 77.4      |
| OCEAN COUNTY      |           |           |
| Pinelands         | 62.5%     | 79.2%     |
| Balance           | 37.5      | 20.8      |

SOURCE: NJ Department of Labor & Industry, New Jersey Residential Building Permits  
 1970 through 1978  
 -----

It should be noted that the disparity is even greater than it might appear, since the Pinelands, by virtue of being largely undeveloped, represent a far smaller share of demolitions during this period than does the non-Pinelands sector of each county. As a result, the Pinelands share of net increase in housing is

POPULATION (26)

even greater than the preceding table might suggest. Thus, as can be seen from

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 TABLE 14: DEMOLITION PERMITS ISSUED BY COUNTY 1970-1978

| county     | Pinelands municipalities | non-Pinelands municipalities | Pinelands % of total |
|------------|--------------------------|------------------------------|----------------------|
| Atlantic   | 267                      | 3097                         | 7.9%                 |
| Burlington | 159                      | 583                          | 21.4                 |
| Camden     | 97                       | 2929                         | 3.2                  |
| Cape May   | 37                       | 978                          | 3.6                  |
| Cumberland | 24                       | 1016                         | 2.3                  |
| Gloucester | 80                       | 494                          | 13.9                 |
| Ocean      | 202                      | 862                          | 19.0                 |

SOURCE: NJ Department of Labor & Industry  
 -----

the population increase data (Table 12), future growth in the Pinelands or other undeveloped areas must account for the steady loss of housing and population in communities such as Camden and Atlantic City, each of which lost well over 2,000 dwelling units from authorized demolitions between 1970 and 1978, and countless others from unauthorized means. This trend can be anticipated to continue during the 1980's and beyond; it should be noted as well that these forces, generating outward movement from the older communities, are not limited to New Jersey, but encompass the far larger metropolis of Philadelphia immediately across the Delaware.

Another reason for the shift in development toward the Pinelands in recent years is the major shift in the nature of residential development activity. In the early 1970's, at which time a large part of development was taking place in cities and inner suburbs, a significant share of residential activity was in the form of multifamily units. In 1972, 12,244 permits were issued for multifamily units (5+ dwelling units per structure), which represented 39% of the total of 31,072 building permits issued in the seven southern New Jersey counties. In 1978, however, only 1,527 permits were issued in the same area for multifamily units, representing less than 9% of the total. The number of single family permits issued

POPULATION (27)

in the two years was little different, being only slightly lower in 1978, 16,013 compared to 18,828. The reasons for this decline in multifamily construction are numerous; they deal in large part with the changing economics of the rental housing market, increasing construction and operating costs, rent controls, and the (at least in part inflation-derived) movement of a progressively broader spectrum of household types into the homeownership market. In any event, whatever the reasons for the change, it has significant implications for future housing development.

In essence, a development pattern emphasizing single family homes is likely to place greater emphasis on inexpensive land, since the demand for land relative to the number of units is far greater, and less on particular advantages in terms of proximity to existing infrastructure or facilities. This does not mean that the existing infrastructure is irrelevant; simply that it is less of a compelling factor. Although the dispersal of development attracted by low land costs is being reduced somewhat by increased energy and commuting costs, as will be discussed in more detail in the Social and Economic Factors report, the overall pattern does not appear to be significantly changing.

This pattern has a significant corollary: if development is discouraged in the Pinelands, the alternative is unlikely to be infill development in already developed areas: It is more likely to be a dispersal of suburbanization into undeveloped areas outside the Pinelands perimeter. This is particularly significant in the Philadelphia-NJ SMSA. As will be discussed below, there is little likelihood of dispersal of development in Ocean or Atlantic Counties.

The key issue which must be addressed is what share of the anticipated household increase in the region must be accommodated in the Pinelands municipalities if (a) housing supply is not to be significantly constrained, with attendant negative social and economic effects for the region; and (b) sprawl patterns outside the

## POPULATION (28)

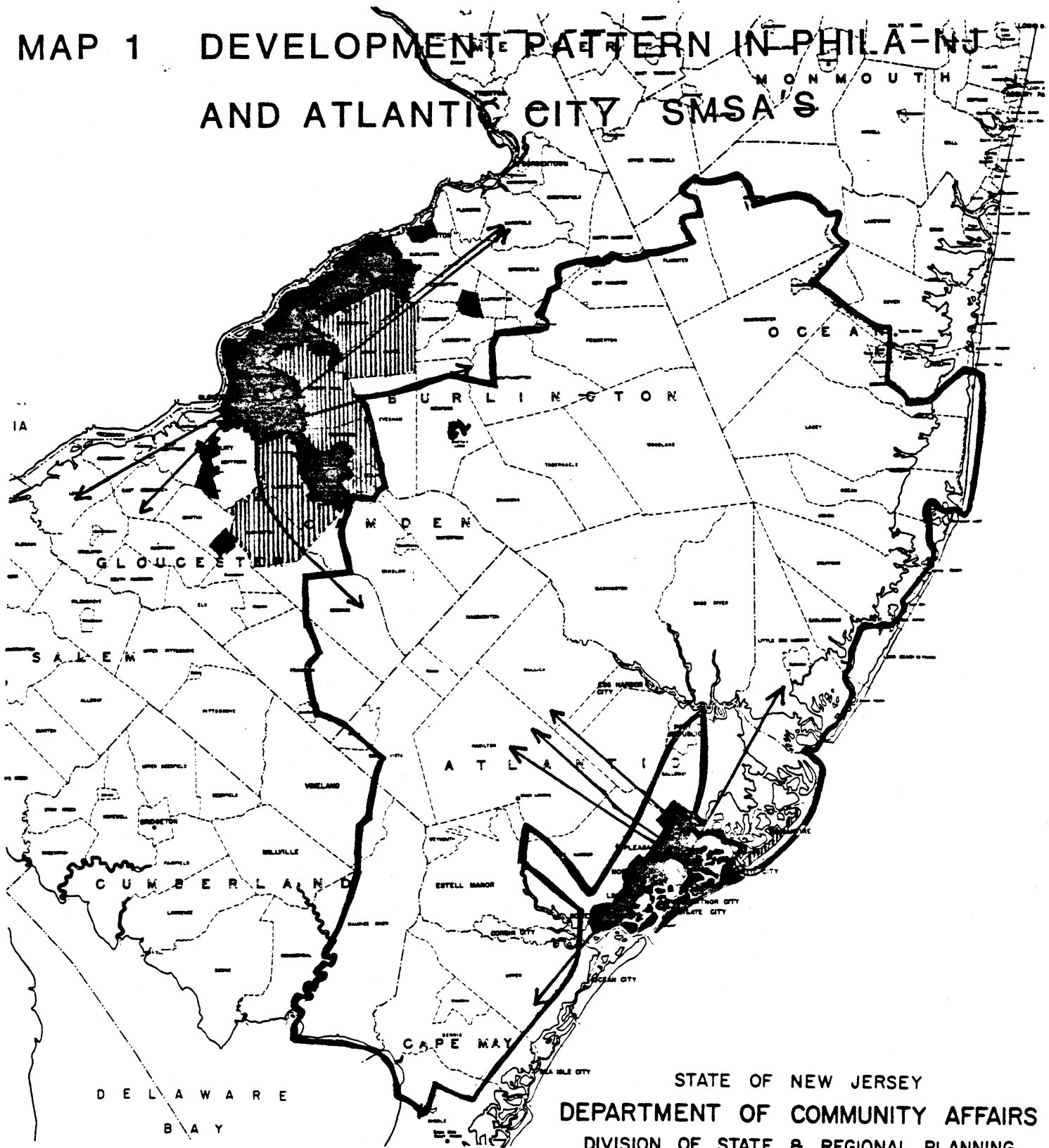
Pinelands are not to be too seriously exacerbated. Strictly speaking, one can argue that those effects are not of concern to the Pinelands Commission; realistically, they form the context for the Pinelands planning process, and must be addressed. Allocating household growth cannot be a mechanical or statistical process; there is no formula which can determine, based on past trends, a precise future share of growth. What we attempt to do below is to indicate the likely growth shares, based on a review of the past trends presented, the available development alternatives, and a realistic assessment of future prospects, for the different parts of the Pinelands.

A. Atlantic City Area: There is little alternative to Pinelands development in Atlantic County. Although a continuing process of housing development in the shore and suburban areas can be anticipated, it is unlikely during the immediate future to be significantly higher than the replacement level. This may change during the 1980's, if concepts for redevelopment at significantly higher than existing densities in Atlantic City being promoted in the Atlantic City Master Plan become reality. Outside of Atlantic City, however, permitted residential densities are too low to generate large-scale development in the limited vacant land still available. Additional development, most notably the Smithville proposal, may be accommodated in the parts of Galloway and Egg Harbor Townships outside the Pinelands, but this too represents only a limited resource in the long run. This is illustrated in Map 1 on the following page.




During the period from 1970-1978 it is unlikely that there was any net increase in housing units in the non-Pinelands part of Atlantic County. The total number of building permits issued (5,518) was in all probability offset by a loss of units in Atlantic City alone\*. Since this attrition of existing units is likely to continue, a net increase of 10,000 units in the non-Pinelands municipalities

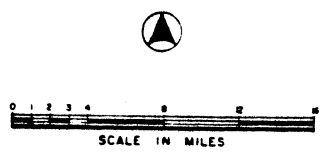
\*Authorized demolitions during that period in Atlantic City totalled 2,878. Based on observation and informal discussion, it is likely that losses from other sources, including arson, were at least that amount again.

# MAP 1 DEVELOPMENT PATTERN IN PHILA-NJ AND ATLANTIC CITY SMSA'S



STATE OF NEW JERSEY  
DEPARTMENT OF COMMUNITY AFFAIRS  
DIVISION OF STATE & REGIONAL PLANNING

|  |   |
|--|---|
|  | largely developed municipalities  |
|  | municipalities likely to be largely developed by 1990 based on current development trends |
|  | major highway extensions from developed areas   |



## POPULATION (30)

appears to be an optimistic upper level, even given the likely achievement of the Smithville project (6000+ units) and redevelopment activity in Atlantic City. This will lead to the effective utilization of the available vacant land outside the Pinelands within the county; it is likely, therefore, that by 1990 additional construction in the shoreline communities will be limited to the replacement of existing units. Nearly all of the post-1990 growth, therefore, will take place within the Pinelands municipalities. A conservative judgement, therefore, would allocate at least 80% of the growth in Atlantic County between 1980 and 1990 to the Pinelands area, and between 90% and 100% of the growth after 1990.

B. Philadelphia-New Jersey SMSA: This area represents, in the New Jersey part of the SMSA, the three counties of Burlington, Camden, and Gloucester. This is the most significant area in which it is possible to discuss potential dispersal of Pinelands population growth into other areas, since there are extensive areas potentially available for development in this region, but outside the Pinelands. During the past decade, slightly less than half of the population increase in the SMSA has taken place in Pinelands municipalities (although, in many cases, in the non-Pinelands portions of these municipalities). During the coming decade, assuming no additional development constraints, the Pinelands share will increase, as development gradually slows down in most of the key development centers outside the Pinelands, including Cherry Hill, Gloucester, and Mt. Laurel Townships. The increasing level of development in the central parts of the region will inevitably push development activity outward, most probably to locations served by the major highway routes shown on the map (MAP 1). It should be noted that total development pressure is likely to increase as well, since it is doubtful that housing demands triggered by casino development will be met in Atlantic County and the proximate areas of Cape May and Ocean Counties. The displacement of such development into the Philadelphia-New Jersey SMSA is likely to be encouraged by the proposed upgrading of the seashore railroad line.



POPULATION (31)

During the 1970's, the Pinelands municipalities accounted for 31% of all building permits issued in the SMSA, but larger shares of net household increase and population increase; indeed they accounted for 47% of the net population increase during the period. The number of additional households absorbed by the Pinelands in the SMSA during the decade should be approximately 25,000-26,000 households, or roughly 1/3 of the total increase. During the 1980's, if the total does not rise significantly, there will be significant expansion of development into alternative areas in Gloucester and Burlington Counties, for two crucial reasons: (a) the total number of households to be added to the SMSA will be significantly higher than in the 1970's; and (b) the central part of the region, including Cherry Hill and Gloucester Townships, is likely to absorb a diminishing share as the decade progresses. Instead of the 80,000 households accommodated during the 1970's, there will be a projected increase in the region of over 112,000 households.

Map 1 clearly indicates the alternative development areas, located in Gloucester and Burlington Counties. In Gloucester County there are at least six townships with substantial vacant land resources and good highway access to more central areas. Of these municipalities, shown in the table below, Deptford and West Deptford experienced some development (principally multifamily) during the

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 TABLE 15: ACCESSIBLE TOWNSHIPS IN GLOUCESTER COUNTY

| municipality   | farmland<br>(1975) | other vacant<br>land (1975)* | permits<br>70-74 | permits<br>75-78 |
|----------------|--------------------|------------------------------|------------------|------------------|
| Deptford       | 1668 A             | 4998 acres                   | 1000             | 547              |
| East Greenwich | 5305 A             | 2508 acres                   | 144              | 214              |
| Greenwich      | 820 A              | 738 acres                    | 141              | 120              |
| Logan          | 5697 A             | 1375 acres                   | 15               | 654              |
| Mantua         | 3335 A             | 4079 acres                   | 142              | 87               |
| West Deptford  | 1404 A             | 3111 acres                   | 1964             | 683              |

\*exclusive of wetlands

SOURCE: Farmland and vacant land from Gloucester County Planning Board. Building permits from NJ department of labor & industry  
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## POPULATION (32)

early 1970's, particularly the latter Township, but have had only modest levels of activity since then; Logan Township has experienced nearly all its growth during 1977-1978, as a result of the construction of the Becket development, initially planned for the early 1970's. The remaining three townships have yet to experience growth at more than nominal levels.

As the table indicates, a substantial part of the vacant acreage in these townships is in farmland\*. Gloucester County is the principal producer of tree fruit (apples and peaches), and with Salem County, the principal producer of vegetables (principally asparagus, peppers, and tomatoes) in New Jersey. This area is clearly one of the most significant farming areas in New Jersey. The question of alternative development, in this instance, raises the issue of farmland preservation in direct form. It should be noted, however, that it is likely that this area will experience increasing development pressure in the coming decade, whatever policies may be adopted in regard to the Pinelands. The location of these communities is clearly conducive to growth.

The second alternative development area is that of central Burlington County, the area surrounding Mt. Holly, as well as, somewhat more remotely, the area immediately to the northeast. The latter has quite literally experienced no development, other than scattered individual homes, to this point\*\*. This area, encompassing Chesterfield, Mansfield, and Springfield Townships, although quite far removed from the center of the region (Mansfield is roughly 25 miles in straight line distance from Camden) is well served by Interstate 295. Table 16 on the following page illustrates some salient features of these townships.

There has been little development in any of these municipalities, aside

\*It is worth noting that there is considerably more land under farmland assessment in each of these townships than is reflected in the Planning Board survey, and shown on the table. Examples include (acres under farmland assessment in parentheses) Deptford (3002), East Greenwich (6478), Logan (7104) and West Deptford (2755). The total for Greenwich is slightly lower than the Planning Board figure (730).

\*\*A major development proposal, the first in the area, entitled Chesterfield Commons, and containing over 1,000 planned dwelling units, has been submitted to Chesterfield Township.

POPULATION (33)

from a scattering of garden apartment developments in Easthampton and in Lumberton during the late 1960's and early 1970's. Indeed, the lack of development activity in these municipalities in the past few years has been little short of astonishing.

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 TABLE 16: ACCESSIBLE TOWNSHIPS IN BURLINGTON COUNTY

| municipality          | farmland<br>(1970) | other vacant<br>land (1970) | permits<br>70-74 | permits<br>75-78 |
|-----------------------|--------------------|-----------------------------|------------------|------------------|
| <u>Mt. Holly area</u> |                    |                             |                  |                  |
| Easthampton           | 2406 A             | 535 acres                   | 652              | 10               |
| Hainesport            | 1232 A             | 744 acres                   | 46               | 80               |
| Lumberton             | 5759 A             | 1048 acres                  | 670              | 9                |
| Westhampton           | 4220 A             | 690 acres                   | 147              | 285              |
| <u>northern area</u>  |                    |                             |                  |                  |
| Chesterfield          | 11454 A            | 282 acres                   | 70               | 53               |
| Mansfield             | 12548 A            | 510 acres                   | 79               | 30               |
| Springfield           | 15696 A            | 950 acres                   | 99               | 63               |

SOURCE: Farmland and vacant land from Burlington County Planning Board, Housing in Burlington County; An Appraisal Study (1970). Building permits from NJ Department of Labor & Industry.

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These are also agricultural communities to a large degree; the northern group of municipalities represent an unbroken agricultural 'unit' where, as of 1970, fully 84% of the land area of the three municipalities was in agricultural use.

With regard particularly to the municipalities surrounding Mt. Holly, it is not clear why more development activity has not taken place. From a standpoint of location and access, they would appear to be far superior to Shamong and Tabernacle, which have shown a marked increase in activity in the past five years. It is possible that, for whatever reasons, the area lacks the positive marketing associations and/or visual character that have drawn development into the latter two townships. In any event, it is unlikely that such drawbacks are so compelling that they would permanently bar development from that area. This is not, however, a large area. If development begins to move significantly upward along the axis

## POPULATION (34)

offered by Interstate 295 and the New Jersey Turnpike, it is likely to pass through the Mt. Holly area and into the northern townships relatively quickly. The four townships in the Mt. Holly area, in toto, contained in 1970 16,600 acres of vacant land, including farmland, of which perhaps 5% to 8% has been used since 1970. Given the inevitable inefficiencies in the utilization of land, and assuming the continued development of single family detached houses, this area would accomodate only a modest share of the anticipated growth of the next two decades. The development pressure on the more northerly townships is likely to be considerable.

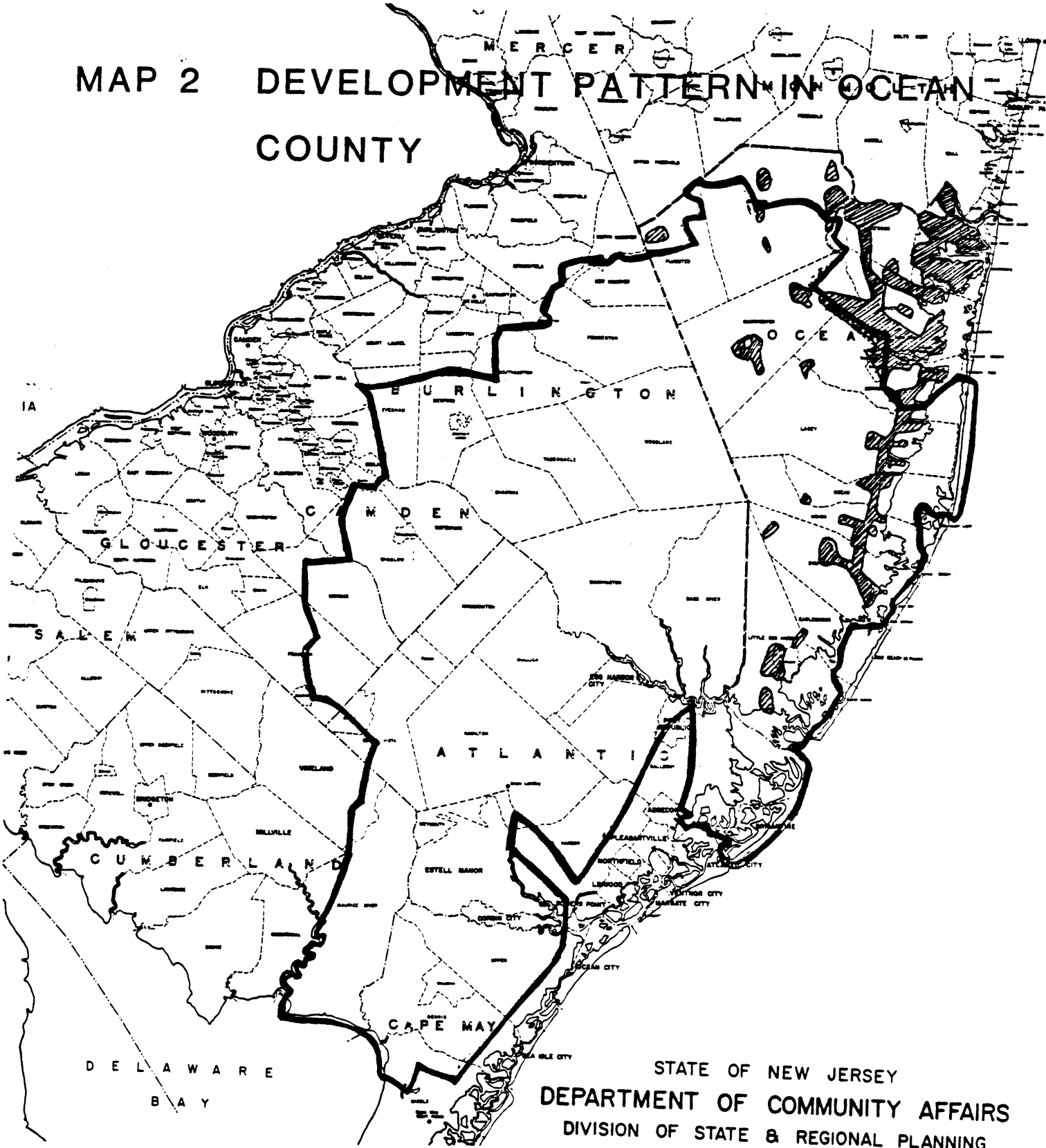
During the 1980's, the anticipated household increase in the SMSA is estimated at 112,200, a substantial increase of the roughly 80,000 of the 1970's. Of this total, it is unlikely that the largely developed, or rapidly moving to that point, municipalities shown on Map 1, can accomodate more than a modest part of this total, perhaps no more than 15,000 to 20,000 units. Even this may be an overestimate. The remaining 90,000 to 100,000 units are likely to be constructed, if at all, in areas at present not largely developed\*. The same is true of the great majority of the roughly 85,000 households anticipated to be added to the SMSA population during the 1990's. For purposes of our analysis here, we have assumed that the eventual decision will reflect a balancing of the Pinelands and farmland preservation concerns, and that approximatly half of the anticipated development will be accomodated within Pinelands municipalities\*\*.

c. Ocean County: Map 2, on the following page, illustrates in generalized


\*Given the existing land use and zoning policies in much of the region, in the event that development is severely constrained in the Pinelands, it is quite likely that much of the projected growth, rather than being diverted to other parts of the SMSA will simply not take place at all within the region. Instead, outmigration is likely to increase, and with it, economic decline within the region. We believe, as a matter of policy, that the number of projected units should be accomodated within the region, but as realists, recognize that that is far from inevitable.

\*\*Since the Pinelands Commission is in a position to influence development within the Pinelands into a more rational pattern, but has no ability to do so vis a vis development outside the Pinelands, the Commission may even want to encourage development in some parts of the Pinelands where the alternative is destruction of farmlands for low density, suburban sprawl.

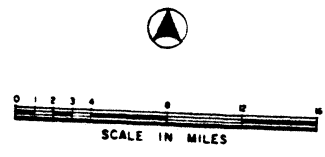
# MAP 2 DEVELOPMENT PATTERN IN OCEAN COUNTY



STATE OF NEW JERSEY  
DEPARTMENT OF COMMUNITY AFFAIRS  
DIVISION OF STATE & REGIONAL PLANNING

 areas of existing development

SOURCE: Map is a generalized representation of more precisely mapped data by Ocean County Planning Board.



## POPULATION (36)

form the extent of existing development within Ocean County. It presents a clear picture of existing patterns, and likely future directions. One point is directly apparent: those small areas in Ocean County which are outside the Pinelands are far more extensively developed already than the balance of the county. The extent of development strongly suggests that Brick Township, and to a lesser degree, Dover and Lakewood Townships, are becoming less able to sustain large scale development in the future. Indeed, despite some recovery in these three townships from the 1974-1976 housing market collapse, they have never (unlike Berkeley and Manchester) returned to a housing production level even close to that of the early 1970's. Among the two major municipalities which contain substantial land areas both within and outside the Pinelands, Manchester and Berkeley, the portions outside the Pinelands (and closer to existing development) are substantially more heavily developed than the Pinelands areas within these two townships. The only large extent of undeveloped land in the county, outside the Pinelands, is found in Jackson Township\*.

Within the Pinelands, there is little development west of the Garden State Parkway, except for a small number of activities in Manchester and Berkeley Townships, and increasing activity in Stafford Township. A superficial look suggests that roughly half of the potentially available land east of the Parkway has been developed between Toms River and Manahawkin, and substantially less south of Manahawkin to the county line. Despite the enormous volume of development in the county during the past decade or more, large parts of the central Pinelands in Ocean County are still relatively untouched by development activity.

In terms of future growth in the county, it appears unlikely that the non-Pinelands sections of the county can expect to sustain more than the 20% of new countywide development that was their share during the 1975-1978 period.

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\*It should be noted that the amount of vacant land remaining in other townships, particularly Dover and Lakewood, is still substantial. As it becomes more and more fragmented, however, it becomes less available for large scale development.

POPULATION (37)

In that event, the conservative assessment of housing to be provided during the 1980's in the Ocean County pinelands will be in the area of 50,000, or 5,000 per year. Although there is considerable vacant land still available to the north in Monmouth County, historical patterns suggest that it would not be realistic to expect significant dispersal of development into that area. That area has been characterized by extremely restrictive land use policies and high land and development costs; furthermore, the terrain in much of the county is less suitable for the type of retirement community that has characterized much of Ocean County's development.

V DEMAND IMPLICATIONS FOR PINELANDS DEVELOPMENT

The preceding section has discussed the various factors likely to direct development into the Pinelands, as well as the available alternatives to that development. Based on the conclusions reached in that section, it is possible to project, although in rough terms only, the amount of household increase, or housing unit increase, that the Pinelands may have to accommodate if overall housing demand in the region of which it is a part is to be met. The conservative estimate is presented in the table below. It is termed 'conservative', since it

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TABLE 17: HOUSEHOLD INCREASE PROJECTIONS FOR PINELANDS SECTION OF EACH COUNTY TO 2000

|            | 1980-1990 | 1990-2000 |
|------------|-----------|-----------|
| Atlantic   | 38,700    | 14,600    |
| Burlington | 19,700    | 18,800    |
| Camden     | 16,100    | 6,800     |
| Cape May   | 4,500     | 2,800     |
| Cumberland | 1,300     | 800       |
| Gloucester | 9,000     | 8,700     |
| Ocean      | 52,000    | 31,000    |
| TOTAL      | 141,300   | 83,500    |

NOTE: table represents low range of estimates based on assumptions discussed in detail in accompanying narrative.

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generally adopts, where alternatives are available, that alternative that reduces the level of demand anticipated within the Pinelands. This is particularly the case with regard to Atlantic County, where the projection itself is conservative, and considerably below that developed by the county, with regard to the anticipated effects of casino development\*.

The fact remains, however, that these figures do represent a substantial increase in the level of development activity in the Pinelands relative to the historical trends. If not controlled, the impact of the land consumption involved in this amount of development in the Pinelands can be drastic; if effectively controlled, we believe that it can be accommodated, yet the amount of land likely to be consumed will still be significant. In the following section, we will analyze, first, the nature of the housing demand triggered by this projected increase in households; and second, the land consumption requirements associated with that demand.

A. Housing Demand: Demand for housing types is largely a function of the household characteristics of the population. Although it is possible to argue that a variety of different characteristics affect housing preference, most such have only a subtle effect. There are relatively few that have an impact that is fundamental enough to be meaningful at the scale of this discussion. The two most significant, in our judgement, are the age of household head, specifically whether the household is or is not headed by a senior citizen; and income. In the latter, the key issue is whether the family income imposes a serious constraint on housing choice. More and more, household size and other differences in life cycle affect less the type of housing sought, but principally the size of the unit.

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\*With regard to Cumberland and Cape May Counties, which were not the subject of detailed discussions, we have assumed a continuation of current patterns. This is translated into a 20% share of growth for the Pinelands in Cape May County, and 10% in Cumberland County.



POPULATION (39)

We have presented earlier a distribution of households by senior citizen status. The table below, based on the most recent national data, shows the distribution of households by income and senior citizen status in the population.

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TABLE 18: INCOME DISTRIBUTION BY HOUSEHOLD AND SENIOR CITIZEN STATUS (1978)

|                   | families             |                 | individuals     |            |
|-------------------|----------------------|-----------------|-----------------|------------|
|                   | <u>head under 65</u> | <u>head 65+</u> | <u>under 65</u> | <u>65+</u> |
| 0-\$3,999         | 5.2%                 | 7.6%            | 23.2%           | 45.9%      |
| \$4,000-\$7,999   | 9.1%                 | 28.2%           | 23.8%           | 34.9%      |
| \$8,000-\$9,999   | 5.2%                 | 13.5%           | 10.8%           | 6.1%       |
| \$10,000-\$14,999 | 15.8%                | 22.1%           | 18.9%           | 7.6%       |
| \$15,000-\$24,999 | 33.9%                | 17.0%           | 16.7%           | 4.1%       |
| \$25,000+         | 30.7%                | 11.6%           | 4.8%            | 1.5%       |
| median            | \$17,725             | \$10,141        | \$8,551         | \$4,303    |

SOURCE: U.S. Bureau of the Census, Money Income and Poverty Status of Families and Persons in the United States:1978. Analysis by Alan Mallach Associates

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It should be stressed, however, that the market for new housing is made up disproportionately of households at the higher levels of the income range. Other households seek older housing; other households, at the lower levels of the income range, are often ill-housed. The inadequacies of 'filtering' as a means of providing equitably for the housing needs of lower income people, however, dictate that within the total of new housing units constructed, a respectable proportion be directed at households whose incomes constrain their ability to compete in the housing market. Using the upper limits for the Federal Section 8 housing program as the basis, we have defined the number of 'economically constrained' households in the projected housing market at 36% of non-senior citizen households, and 62% of senior citizen households\*.

\*These represent the percentages of households falling within the following ranges: for non-senior citizens 80% of median for families and 50% of median for individuals, and for senior citizens 60% of median for families and 40% of median for individuals.

## POPULATION (40)

We have further assumed, in order to define the housing demand within the Pinelands, that the distribution of household increase by age and income will be the same within the Pinelands section of each county as for the county as a whole. Despite some patterns which have existed in the past, in which certain parts of the Pinelands have been characterized by a less expensive level of housing than in the more developed areas of the same county, the trends\* we have discussed in this report strongly suggest that such disparities are becoming more and more a thing of the past. The same is true with regard to income distribution between counties; although there are some disparities in median income (based on the 1970 Census) between the southern New Jersey counties, most notably a lower level for Atlantic and Cape May Counties than the other five, the evidence suggests that future household formation, particularly that associated with immigration, will be more nearly comparable in economic level between the counties, particularly when the percentage of senior citizen households has been taken separately into account.

The table on the following page presents the breakdown, for each of the two coming decades, of the four categories of household that emerge from the foregoing analysis:

- economically constrained senior citizen households
- unconstrained senior citizen households
- economically constrained non-senior citizen households
- unconstrained non-senior citizen households

Each of these four groups can be characterized by a different pattern of housing demand.

(1) economically constrained senior citizen households represent a multi-family housing demand, divided between occupancy of (1) retirement communities, for those with adequate assets for outright purchase of such a dwelling unit;

\*The most significant of these trends is the increasing degree to which Pinelands areas fall within the suburban perimeter, and have begun to accommodate development of an expensive, commuter-oriented, type.

POPULATION (41)

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 TABLE 19: HOUSEHOLD INCREASE IN PINELANDS BY AGE AND INCOME LEVEL BY COUNTY

|                     | economically<br>constrained | unconstrained |        |
|---------------------|-----------------------------|---------------|--------|
| <u>1980-1990</u>    |                             |               |        |
| Atlantic County     |                             |               |        |
| senior citizens     | 6,800                       | 4,200         | 11,000 |
| non-senior citizens | 10,000                      | 17,700        | 27,700 |
| Burlington County   |                             |               |        |
| senior citizens     | 3,100                       | 1,900         | 5,000  |
| non-senior citizens | 5,300                       | 9,400         | 14,700 |
| Camden County       |                             |               |        |
| senior citizens     | 3,800                       | 2,300         | 6,100  |
| non-senior citizens | 3,600                       | 6,400         | 10,000 |
| Cape May County     |                             |               |        |
| senior citizens     | 800                         | 500           | 1,300  |
| non-senior citizens | 1,200                       | 2,000         | 3,200  |
| Cumberland County   |                             |               |        |
| senior citizens     | 240                         | 160           | 400    |
| non-senior citizens | 320                         | 580           | 900    |
| Gloucester County   |                             |               |        |
| senior citizens     | 1,700                       | 1,000         | 2,700  |
| non-senior citizens | 2,300                       | 4,000         | 6,300  |
| Ocean County        |                             |               |        |
| senior citizens     | 12,200                      | 7,400         | 19,600 |
| non-senior citizens | 11,700                      | 20,700        | 32,400 |
| <u>1990-2000</u>    |                             |               |        |
| Atlantic County     |                             |               |        |
| senior citizens     | 900                         | 500           | 1,400  |
| non-senior citizens | 4,800                       | 8,400         | 13,200 |
| Burlington County   |                             |               |        |
| senior citizens     | 2,700                       | 1,600         | 4,300  |
|                     | 5,200                       | 9,300         | 14,500 |
| Camden County       |                             |               |        |
| senior citizens     | 2,000                       | 1,300         | 3,300  |
| non-senior citizens | 1,300                       | 2,200         | 3,500  |
| Cape May County     |                             |               |        |
| senior citizens     | 100                         | 50            | 150    |
| non-senior citizens | 950                         | 1,700         | 2,650  |
| Cumberland County   |                             |               |        |
| senior citizens     | 120                         | 80            | 200    |
| non-senior citizens | 200                         | 400           | 600    |
| Gloucester County   |                             |               |        |
| senior citizens     | 1,200                       | 700           | 1,900  |
| non-senior citizens | 2,400                       | 4,400         | 6,800  |
| Ocean County        |                             |               |        |
| non-senior citizens | 11,100                      | 19,900        | 31,000 |

SOURCE: Projection by Alan Mallach Associates

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## POPULATION (42)

(2) conventional privately built multifamily rental housing; e.g., garden apartments; and (3) subsidized public or private housing for the elderly.

(2) Unconstrained senior citizen households will also represent largely, but not entirely, a multifamily housing demand, multifamily being defined here to include typical retirement community housing types such as quadruplex and duplex units, whether sold as fee simple or condominium, or rented. In addition to the large part of these households buying in retirement communities or renting in apartment buildings, there will be a percentage buying single family houses in developments not formally characterized as senior citizens' communities.

(3) Economically constrained non-senior citizen households will seek multifamily housing, for the most part, out of economic necessity. This population will include a substantial percentage of young adults seeking 'starter' housing\*. In addition to multifamily housing types such as garden apartment and townhouse units, a substantial percentage may be in the market for either 'least cost' detached single family houses\*\* or mobile home units in mobile home parks.

(4) Unconstrained non-senior citizen households represent the 'classical' suburban homebuyer market, and will predominately seek detached single family houses, although a moderate percentage will seek townhouses. Under current circumstances, this market is almost entirely seeking home ownership opportunities.

B. Characteristics of housing types: Although each of the housing types mentioned above can vary widely in its features, particularly density, over a large area there are certain typical features and density ranges about which it is possible to generalize with reasonable accuracy. These are shown in the table

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\*This is traditionally, in New Jersey, the function of garden apartment units. The pressures noted earlier, however, have tended to divert this demand, to the degree that the households are capable, toward ownership rather than rental options.

\*\*'Least cost' housing is that built at minimum health and safety standards. In the case of a detached SF house, it could mean a 960-1000 ft<sup>2</sup> ranch house, on a slab, on a lot as small as 5000 ft<sup>2</sup>. In Southern New Jersey, this is often known as the "Farmers Home Administration" house.

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TABLE 20: REPRESENTATIVE CHARACTERISTICS OF HOUSING TYPES

| HOUSING TYPE                   | DENSITY*      | COMMENTS  |
|--------------------------------|---------------|---|
| detached single family house   | 1-5 DU/acre   | still the 'all-American dream house' and most popular housing choice for most families  |
| townhouse                      | 6-10 DU/acre  | party walls and short frontage make this the most economic homeownership option for conventional housing  |
| mobile home (mobile home park) | 5-7 DU/acre   | considered by some to be the most economic homeownership option available; reservations still exist regarding long-term viability of units  |
| garden apartment               | 10-15 DU/acre | rental option for individuals and small households. Production of garden apartments has declined drastically in recent years as a result of economic and social factors.                |
| retirement community           | 4-6 DU/acre   | option increasingly popular in coastal plain areas; typically made up of clustered structures containing 2 to 8 units in one story buildings.   |
| midrise apartments             | 15-40 DU/acre | option often utilized for federally subsidized senior citizen housing, since elevator allows movement without stairs. very economical use of land, but not permitted in most townships. |

\*density ranges shown here do not represent either maximum or minimum feasible densities for housing types cited; they represent, rather, the range of density for these housing types typically found in local zoning regulations. A feasible density, for example, of detached single family house development on lots of 5,000 ft<sup>2</sup> would be between 6 and 7 DU/acre.

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immediately above. Based on current development patterns found in Southern New Jersey as well as customary zoning standards, not maximum feasible densities, one

## POPULATION (44)

would suggest an average density for the housing of each type to be constructed in the future as follows\*:

|                              |            |
|------------------------------|------------|
| detached single family house | 2 DU/acre  |
| townhouse                    | 8 DU/acre  |
| mobile home park             | 6 DU/acre  |
| garden apartment             | 12 DU/acre |
| retirement community         | 4 DU/acre  |
| midrise apartment            | 20 DU/acre |

The actual land consumption associated with construction of housing, of course, is far more than the land on which the housing units themselves sit. Although it is difficult to assemble adequate longitudinal data on development activity and land consumption, an analysis was done of municipalities in Gloucester County, based on detailed and comparable land use surveys conducted by the County Planning Board in 1970 and 1975. The analysis included a review of building permits for single family and multifamily housing, and a determination of (a) change in residential land use, separately for single family and multifamily use; and (b) change in total land in 'developed' category paralleling change in residential use. The latter enables us to evaluate the amount of land used for activities triggered by development; e.g., roads, public and community facilities, shopping, and developed open space.

Not all municipalities yielded useable information. In a few, major industrial development generated changes in land use unrelated to residential development. In more fully developed municipalities, it was apparent that a great deal of the residential development that took place was in the form of infill, and was not reflected in any change in land use categories. The analysis for those municipalities, and housing types, which we consider useable, is presented on the following page.

\*We have assumed that 'typical' development is relatively land consumption efficient, however; e.g., an average density of 2/acre for detached single family homes assumes that half or more of such units are built on lots of one half acre or less.

POPULATION (45)

It should be noted that the analysis assumes that all building permits issued resulted in construction of dwelling units.

TABLE 21: ANALYSIS OF LAND CONSUMPTION FOR RESIDENTIAL DEVELOPMENT IN GLOUCESTER COUNTY 1970-1975

|                | net residential land consumption DUs/acre |      | res. land consumption as % of total land consumption | total land consumption DUs/acre |     |
|----------------|---|------|--|---------------------------------|-----|
|                | SF  | MF   |  | SF                              | MF  |
| Clayton        | 3.5                                       |      | 55.2%  | 1.9                             |     |
| Deptford       |   | 10.9 | 35.4   |                                 | 3.9 |
| East Greenwich | 1.1                                       |      | 68.2   | 0.8                             |     |
| Elk            | 1.3                                       |      | 76.4   | 1.0                             |     |
| Franklin       | 1.6                                       |      | 67.0   | 1.1                             |     |
| Glassboro      |   | 15.4 | 55.0   |                                 | 8.5 |
| Harrison       | 1.9                                       |      | 44.3   | 0.8                             |     |
| Mantua         | 2.2                                       |      | 32.1   | 0.7                             |     |
| Monroe         | 2.4                                       |      | 55.2   | 1.3                             |     |
| Newfield       | 2.3                                       |      | 35.5   | 0.8                             |     |
| Washington     | 3.3                                       | 10.9 | 62.7   | 2.1                             | 6.8 |
| West Deptford  | 4.0                                       | 11.2 | 47.1   | 1.9                             | 4.6 |
| Woolwich       | 1.1                                       |      | 38.8   | 0.4                             |     |

SOURCE: Analysis by Alan Mallach Associates of data from Gloucester County Planning Board and New Jersey Department of Labor & Industry. Municipalities not appearing on table discarded for reasons discussed in text.

The righthand two columns reflect the actual, or total, consumption of land in the municipality relative to the number of single family, and multifamily, units added in the municipality. For example, in Harrison Township, one acre of land was used for some form of development for every 0.8 dwelling units added; in other words, each dwelling unit led to the utilization of 1.25 acres for some development purpose.

The most efficient single family configuration was in Washington Township, where development is characterized by a mix of detached and attached (townhouse) units, including some PUD activity. Here, one acre of land was used for every 2.1

## POPULATION (46)

single family units, or 0.48 acres per unit. The multifamily configurations, however, as can be expected, are significantly more efficient, ranging from a low of 0.26 acres/DU in Deptford, to a high of 0.12 acres/DU in Glassboro. There was also considerable variation in the ratio of residential land to total developed land; the average of the thirteen municipalities on the table is 51.8%, but this tends to be brought down by a number of particularly low ratios, such as those of Deptford, Mantua, and Newfield. It is worth noting that six of the thirteen lie in a range between 55% and 68%. In the case of the Pinelands municipalities, since with few exceptions they tend to have little in the way of major commercial or industrial development, the ratio is likely to be high, at least 60%. By multiplying any of the density values on page 42 by 0.6, one obtains an average figure for total land consumption associated with each development type.

The remaining step is to construct weighted averages for each of the housing demand groups by age and income previously identified. As noted, each group tends to select a mix of different housing types, with different emphases based on the group's preferences and constraints. Although for the purposes of this exercise, it is necessary to arrive at a mathematical figure to reflect the distribution of preferences, there is no basis for doing so with precision, particularly in view of the flux that characterizes housing market conditions today. Based largely on judgement, based in turn on experience and informal contact with a variety of sources, we have made a rough estimate of the division of housing by type and density for each of the four groups, which is presented on the following page.

C. Projected Pinelands land consumption by development: The figures derived through the analysis of demand, and the estimation of land utilization by housing type, are then readily translated through the interaction with the total household demand figures presented above (TABLE 19) into total land consumption projections. The projection of land consumption, in turn, can then be used as a basis for



POPULATION (47)

TABLE 22: ALLOCATION OF DEMAND BY DEMAND CATEGORY AND HOUSING TYPE - WEIGHTED DEVELOPMENT DENSITY

| demand category                  | housing type (see key) | land consumption | demand share | weighted density |
|----------------------------------|------------------------|------------------|--------------|------------------|
| constrained senior citizen       | RET                    | 2.4 DU/A         | .333         | 4.08             |
|                                  | MH                     | 3.6 DU/A         | .167         |                  |
|                                  | APT                    | 7.2 DU/A         | .333         |                  |
|                                  | SR                     | 12.0 DU/A        | .167         |                  |
| unconstrained senior citizen     | RET                    | 2.4              | .500         | 2.47             |
|                                  | SF                     | 1.2              | .167         |                  |
|                                  | TH                     | 4.8              | .167         |                  |
|                                  | APT                    | 7.2              | .167         |                  |
| constrained non-senior citizen   | MH*                    | 3.6              | .333         | 4.81             |
|                                  | TH                     | 4.8              | .333         |                  |
|                                  | APT                    | 7.2              | .333         |                  |
| unconstrained non-senior citizen | SF                     | 1.2              | .750         | 1.48             |
|                                  | TH                     | 4.8              | .250         |                  |

\*same density applies to 'least cost' single family units

| KEY | RET | retirement community | SR | senior citizens housing        |
|-----|-----|----------------------|----|--------------------------------|
|     | MH  | mobile home          | SF | single family detached housing |
|     | APT | garden apartment     | TH | townhouse                      |

the demand element in planning. One point, however, must be stressed in reviewing

TABLE 23: PROJECTED LAND CONSUMPTION BASED ON DEMAND PROJECTION 1980-1990 FOR ATLANTIC COUNTY

| group                            | households | DU/acre density | projected consumption |
|----------------------------------|------------|-----------------|-----------------------|
| constrained senior citizen       | 6,800      | 4.08            | 1,667                 |
| unconstrained senior citizen     | 4,200      | 2.47            | 1,700                 |
| constrained non-senior citizen   | 10,000     | 4.81            | 2,079                 |
| unconstrained non-senior citizen | 17,700     | 1.48            | <u>11,959</u>         |
|                                  |            | TOTAL           | 17,405                |

these tables: THE CONSUMPTION PROJECTIONS MUST NOT BE CONSTRUED AS RECOMMENDATIONS FOR THE AMOUNT OF ACREAGE TO BE SO ZONED. They represent, rather, a projection of the number of acres that will actually be used for development, on the basis of a series of assumptions that have been outlined above, assumptions which are generally on the conservative side. Given the many factors and forces that intervene to reduce the actual level of land utilization from its theoretical potential, if only that amount of land needed to accomodate the projected growth (assuming maximum utilization) is suitably zoned for growth, the actual amount of growth will inevitably fall below that projected and needed. This is discussed further below.

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 TABLE 23 (cont.): PROJECTED LAND CONSUMPTION BY COUNTY FOR PINELANDS REGION IN ACRES 1980-1990 AND 1990-2000

|            | 1980-1990 | 1990-2000 | TOTAL   |
|------------|-----------|-----------|---------|
| Atlantic   | 17,405    | 7,097     | 24,502  |
| Burlington | 8,982     | 8,675     | 17,657  |
| Camden     | 6,934     | 2,772     | 9,706   |
| Cape May   | 1,998     | 1,392     | 3,390   |
| Cumberland | 583       | 374       | 957     |
| Gloucester | 4,003     | 4,049     | 8,052   |
| Ocean      | 22,404    | 15,754    | 38,158  |
| TOTAL      | 62,309    | 40,113    | 102,422 |

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This represents a substantial land area, although a modest percentage of the total area of the Pinelands. Given, however, the complexities of the physical and social environment for which one is planning, the selection of appropriate areas to accomodate this amount of development is a particularly complex problem. It should be noted, however, that this land consumption is based on representative, rather than maximum reasonable, densities for the various housing types under

POPULATION (49)

consideration. It may well be possible, through creative land use regulation, to foster significantly higher densities, particularly for single family development, without significantly changing the basic housing types, or sharply deviating from user preferences\*.

The information presented here can also be used to provide, in approximate terms, a breakdown of the acreage likely to be utilized by each of the different housing types, by working backward from the acreages to the demand allocation baselines presented in Table 22. The table below illustrates this for Atlantic County for 1980-1990. It is worth noting that single family detached houses,

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 TABLE 24: LAND CONSUMPTION PROJECTION BY HOUSING TYPE FOR ATLANTIC COUNTY PINELANDS 1980-1990 (acres)

| HOUSING TYPE            | USER DEMAND CATEGORY |     |     |      | TOTAL |
|-------------------------|----------------------|-----|-----|------|-------|
|                         | 1                    | 2   | 3   | 4    |       |
| single family detached  |                      | 350 |     | 6638 | 6998  |
| townhouses              |                      | 87  | 417 | 553  | 1057  |
| garden apartments       | 189                  | 58  | 278 |      | 525   |
| mobile homes            | 189                  |     | 555 |      | 744   |
| retirement community    | 566                  | 525 |     |      | 1091  |
| senior citizen housing* | 57                   |     |     |      | 57    |
| other uses**            |                      |     |     |      | 6943  |
| TOTAL                   |                      |     |     |      | 17405 |

\*notethat the amount of senior citizen (subsidized) housing demand has been kept artificially low to reflect the constraints likely to continue on supply of Federal funds for such housing.

\*\*all other development activities (roads, public facilities, shopping acilities, etc.) except for employment generators independent of local housing development, and regional public facilities and services

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 which represent approximately 36% of the demand, in terms of units, are projected to utilize 67% of the residential land consumed.

\*efforts to use land use regulatory powers to significantly change or mold user preferences in housing are likely to backfire. In a highly mobile society, people who cannot find the type of housing or envirnment they want in the community or region where they first seek housing are more likely to move elsewhere than significantly adjust their lifestyle or expectations. The only major exceptions to this are areas with particular attractions independent of the type of housing available, such as Manhattan.

## POPULATION (50)

The relationship of land consumption, as projected in the preceding tables, to actual zoning to permit that development, as briefly noted above, includes another important consideration. As is widely known within the real estate and land development fields, although perhaps contrary to the impression held by many lay people, much and even most vacant land is not available for development. This may be true with regard to a particular time period, or indefinitely. The most straightforward examples are land areas which are not actually vacant at all but in use for farming. In many such cases the continued farming of the land is economically viable, even profitable, and the owner(s) may intend to continue to farm indefinitely. Although we have no idea what percentage of farmland does fall into this category, it is clearly a substantial part of the total\*. Other land is simply being held; the owner may have no firm plans, but has no desire to sell.

A surprisingly large part of the vacant land inventory is tied up in one form of legal problem: estates, partnership disputes, unclear title, and the like. Still other land may be nominally available, but the owner may be asking an unrealistically high price for the land, or may have other conditions or terms, such as an unwillingness to entertain an option agreement, which may make development of the land unrealistic. In short, a substantial part of the vacant land resource is not likely to be available for development. This is further exacerbated where land ownership, by virtue of historic settlement patterns, has become widely divided, and the creation of parcels large enough for efficient development requires an extensive process of land assembly\*\*.

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\*It is clear that many factors will enter into the determination of whether to sell farmland, one of which is the value of the land for development; that, in turn, may be a function of the uses for which the land is zoned. Where zoning, however, is for customary single family development, a tract of highly productive agricultural land may well be worth as much for continued farming as for development.

\*\*The need for assembly of parcels in itself is likely to discourage development, since it adds potentially significant amounts of both time and money to that otherwise required to develop the area. It is not likely to be worth a developer's while outside areas of particularly high demand pressure.

## POPULATION (51)

The zoning of land for various types of development must reflect a sophisticated awareness of the relationship between making land theoretically available, and the likelihood of achieving a body of desired objectives, in terms of land use and housing production results. This is particularly important where the public objectives include the encouragement of a reasonable amount of moderately priced housing, as well as the construction of housing, to the degree funds are available, under governmental subsidy programs. If inadequate amounts of land are made available for such uses, and if they are in competition for the same parcels of land with other, potentially more lucrative, development alternatives, the amount of modestly priced or 'least cost' housing that is actually produced within the areas of high development pressure may be far less than desired\*.

Finally, it should be stressed once more that the projections, and the extensive sequence of analysis that flows from them, are if anything highly conservative. The analysis, presented separately in our report Social and Economic Factors dealing with the impacts of casino development in Atlantic City, as well as the future development of retirement communities, strongly suggests that the actual level of housing demand in areas influenced by those two phenomena may be significantly higher than that derived from the ODEA population projections for these areas. These inputs will be used to refine future projections, so that they can be as effective a tool as possible for Pinelands planning.

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\*This is, in part, the reason why the New Jersey Supreme Court, in its famous Madison decision, called for 'overzoning for least cost housing' in recognition of the disparity between the amount of land zoned for the use, and the number of housing units resulting. In areas of particularly high demand pressure, however, the extent of the pressure itself may make production of 'least cost' housing nearly impossible; in such areas, the only alternative may be the use of what have been termed 'inclusionary' or affirmative zoning provisions to encourage the production of least cost or subsidized housing. Although controversial in some areas, there is an extensive body of literature and experience with zoning provisions of this nature around the nation.